SENATE OF SIMON FRASER UNIVERSITY
AGENDA – OPEN SESSION

Monday, December 5, 2022 – 5:30 pm
Room 3210 West Mall Complex

1. Approval of the Agenda

2. Approval of the Minutes of the Open Session of September 12, 2022

3. Approval of the Minutes of the Open Session of October 3, 2022

4. Business Arising from the Minutes

5. Report of the Chair
   i) Report of the Provost (For Information)
   ii) Strategic Research Plan (For Information) S.22-102

6. Question Period *

7. Reports of Committees

   A) Research Ethics Board (REB)
      i) Annual Report 2018-2022 (For Information) S.22-103

   B) Senate Committee on Agenda and Rules (SCAR)
      i) Revision and Renaming of GP 24 (For Information) S.22-104
      ii) Human Rights Office Update (For Discussion)

   C) Senate Committee on Continuing Studies (SCCS)
      i) Annual Report 2021/2022 (For Information) S.22-105

   D) Senate Committee on University Priorities (SCUP)
      i) Establishment of the Pacific Institute on Pathogens, Pandemics and Society S.22-106
      ii) Full Program Proposal for Japanese Studies Certificate S.22-107
      iii) Centres and Institutes Annual Report (For Information) S.22-108
      iv) Centres and Institutes Renewal Applications (For Information) S.22-109

   E) Senate Committee on Undergraduate Studies (SCUS)
      i) Program Changes (For Information) S.22-110
      ii) Program Changes (For Information) S.22-111
      iii) New Course Proposals (For Information) S.22-112
iv) New Course Proposals (For Information) S.22-113
v) Course Changes (For Information) S.22-114
vi) Course Changes (For Information) S.22-115

F) Senate Graduate Studies Committee (SGSC)
i) Graduate General Regulation 1.5 Graduate Grading Systems and Policies S.22-116
ii) Program Changes (For Information) S.22-117
iii) Program Changes (For Information) S.22-118
iv) New Course Proposals (For Information) S.22-119
v) Course Changes (For Information) S.22-120
vi) Course Changes (For Information) S.22-121

G) Senate Library Committee (SLC)
i) Annual Report 2021/22 (For Information) S.22-122

H) Senate Nominating Committee (SNC)
i) Senate Committee Elections (For Information) S.22-123

8. Other Business

9. Information
   i) Date of the next regular meeting – Monday, January 9, 2023

Agenda items and papers for the January meeting will be required by the Secretary at noon on Thursday, December 8, 2022. Submissions may be emailed to senate@sfu.ca. These items will be considered by the Senate Committee on Agenda and Rules on Tuesday, December 13, 2022 with Senate distribution on Friday, December 16, 2022.

The Senate agenda and papers for this meeting are available on the Senate website at http://www.sfu.ca/senate/agenda.html.

Detailed curriculum papers can be found on Docushare at https://docushare.sfu.ca/dsweb/View/Collection-12682

Tom Nault
University Registrar and Executive Director | Student Enrolment
Secretary of Senate

*Questions should be submitted in writing to Tom Nault (email tmnault@sfu.ca) with “Senate Question” in the subject line by Wednesday, November 30th at 9:00 am.
Dear SFU Senate,

The new SFU Strategic Research Plan (SRP) and SRP Implementation Plan were presented at Senate for consultation on October 3. They were posted for community consultation on the same day. Feedback has been collected through November 16 and has been incorporated into the documents. Attached to this memo is an updated SRP, an updated implementation plan, and a table of comments received and changes made.

While the university does not require Senate to approve an SRP, it was correctly pointed out at the October 3 meeting that federal granting councils request that the SRP be approved by the university's highest planning body. I request Senate's formal endorsement of the SRP at the December meeting, such that we can post an approved document before the end of the year. This would involve a motion such as:

"That SFU Senate endorse the 2023-2028 Strategic Research Plan as presented at the December 2022 Senate meeting."

Thanks,

Dugan O’Neil
Simon Fraser University (SFU) has been one of the fastest growing research institutions in the country over the past 10 years. In that time, SFU scholars have been recognized both for traditional academic outputs and for community impacts. SFU is well-positioned to continue to expand its research activities, to deepen its engagement with community and to grow the impact of its scholars on the world. Our Strategic Research Plan (SRP) captures some of the breadth of activities at the university while identifying areas of strength and focus for 2023-2028. It is accompanied by an implementation plan that identifies specific actions that will be taken to support and enhance the impact of the university in these priority areas.

In preparing this plan, we have interacted with hundreds of community members through townhall-style meetings, survey responses and email. We have discussed their priorities and where they see their research going in the coming years. Clear themes emerged from these discussions, such as the role of SFU in confronting the climate crisis, the growth of human-health focused research at the institution, the need for the institution to value diverse forms of scholarship, the need to respect and incorporate Indigenous perspectives and knowledge(s) into research at the institution, and the need to support graduate students and other early career researchers in our community.

VALUES/APPROACHES TO RESEARCH

A broad consultation has been undertaken, led by the university president and the provost, called “SFU: What’s Next?”. That consultation has identified a draft set of values that help to define our university. Those draft values include:

- Critical thinking and academic freedom;
- Excellence and responsibility;
- Respect and reciprocity;
- Equity and belonging;
- Engagement and openness;
- Resilience and sustainability; and
- Innovation and adaptability.

To enact these values in the way we do research at SFU, there are several approaches we employ:

- **A Culture of Inquiry** (critical thinking and academic freedom; excellence and responsibility; engagement and openness; respect and reciprocity; and equity and belonging): We are here to advance knowledge and understanding on a wide range of topics from a wide range of perspectives. Our researchers will ask hard questions about challenging topics. SFU’s support of academic freedom should create a safe environment in which these topics can be addressed.

- **Indigenous Approaches, and Knowledge(s)** (respect and reciprocity; engagement and openness; equity and belonging; and excellence and responsibility): To understand and then address the complexity and urgency of many of the problems our society faces, we recognize that we need a broad and inclusive understanding of the world that incorporates many knowledge
systems and world views. Our commitment to reconciliation with Indigenous peoples includes reconciling different approaches to understanding the world. Frameworks such as two-eyed seeing and walking on two legs guide our approach.

- **Interdisciplinarity (engagement and openness; innovation and adaptability; excellence and responsibility; and respect and reciprocity):** Many of the most interesting academic questions are rooted in very complex problems that cannot be solved by a single researcher. Team-based work—often requiring team members from a variety of disciplines and trained in multiple methodologies—is the path to answering these questions. In addition to offering strong support for specialized disciplinary work, at SFU we support scholars working across disciplines by supporting partnerships both within the university and with other universities.

- **Linking Research to Teaching and Learning (excellence and responsibility, innovation and adaptability, engagement and openness):** We mentor students to be the next generation of researchers, innovators, and educators by engaging them in research processes. This enriches their education and the research produced. We embed practices of systematic inquiry, mentorship and apprenticeship in our research programs and extend and model these practices in preparation of educators who go on to work in early learning, K-12, community and post-secondary contexts.

- **Engagement with Partners or Communities (excellence and responsibility; respect and reciprocity; resilience and sustainability; engagement and openness; and innovation and adaptability):** In many fields of inquiry, engaging with communities outside academia leads to better scholarship. Those communities may include individuals, municipalities, First Nations, industry, NGOs or others. At SFU we support partnership within and outside academia to drive better scholarship and greater impact. This includes local and regional partnerships, national partnerships and international partnerships.

- **Knowledge Mobilization (innovation and adaptability; excellence and responsibility):** Research is not complete until the created knowledge is shared. That sharing happens via many mechanisms including traditional academic publication, policy creation, newspaper op-eds, white papers, social media, performances, creative artifacts, patents/licensing, new product development, creation of a company and other forms. At SFU we embrace open science, data and publishing. We also foster a culture of innovation both in the way that we perform scholarly work and in the way that we support it.

**PRIORITY AREAS**

SFU is a comprehensive research university, with research and other scholarly activity spanning a wide range of disciplines and approaches. The priority areas identified below capture institutional priority areas for 2023-2028.

Each of the priority areas below spans multiple disciplines. As an academic institution we are committed to building multi-disciplinary communities of practice in these areas. We also note that these priority areas intersect with each other and that some of the most interesting research happens at those intersections. For example, climate change is precipitating biodiversity loss. The One Health approach, which is actively employed by SFU researchers, recognizes that human health is connected to the health of animals and the environment thus strongly linking priority areas #1 and #2 below.

The United Nations’ Sustainable Development Goals (SDGs) provide an international framework covering many of the most pressing issues of our time. Our university and our community members are committed to the SDGs and are putting them at the heart of our international engagement framework. Where relevant, links to SDGs are included in the priority area descriptions below.
Priority areas include:

1) **Advancing Community-Centred Climate Innovation** (C3I) (SDGs 3, 6, 7, 8, 9, 10, 11, 13)

Climate change represents one of the greatest challenges of our age. As a research topic, it crosses disciplines, touching deep societal, health and justice issues as well as climate science, mathematical modelling, biodiversity, and profound technological and economic change. While climate change is a global issue, its effects and the resources available to adapt and to mitigate future warming differ from community to community. Some communities will be pressed to adapt to drought and fire, while others will be combatting floods and landslides. Some will have access to considerable local renewable energy sources, and some will not. Different communities may therefore embrace different paths to resilience. Helping communities become resilient to the effects of the changing climate by integrating low-carbon approaches into their planning and integrating low-carbon technologies into their infrastructures is a daunting multidisciplinary challenge. Working with these same communities to provide education and support for their citizens is another aspect of the challenge. SFU’s approach includes developing solutions at the community and regional level, followed by sharing and scaling those solutions to make impacts globally. With research strengths that span all of the relevant disciplines, SFU is well-positioned to take on these challenges. This priority area engages our researchers with all levels of government, industry and community members.

2) **Supporting Health and Wellness of Individuals, Populations and Communities** (SDGs 1, 2, 3, 6, 10)

The connection between the health and wellness of an individual, and the (global) community in which they live has never been more obvious. As we write this plan, British Columbia is in the midst of two public health emergencies—the global COVID-19 pandemic and a sharp rise in drug overdoses and deaths (the “opioid crisis”). These simultaneous emergencies have together exposed the effects of deep social inequities and discrimination, the fragility of our health systems, the psychological consequences of isolation, a lack of trust in authority/science and many other profound issues that can only be addressed through world-class research. SFU researchers are engaged in responding to the threats and burdens of disease via many approaches, including basic research into fundamental molecular and cellular processes, development of new technologies, tests and treatments for individuals, as well as education and public health approaches. They are also leaders in transforming our response to health issues through social determinants and cultural critique. Harnessing big data, genomics, molecular and cellular tools and treatments, wearable technologies, and other technological and social interventions, our researchers are influencing therapeutic development, health policy and individual health throughout the lifespan. SFU researchers also generate wellbeing in the communities they work with by engaging in mutual, respectful and empathetic processes of knowledge production. Harnessing research informed by indigeneity, nature-based experience, contemplation, and anti-racism can make important contributions to wellbeing, both individual and collective.

3) **Expanding the Foundations of Knowledge and Understanding our Origins**

SFU researchers ask fundamental questions about the natural world, as well as our societies and cultures. Insights that arise from this work change the way we think about the world and the place of humans in it. SFU researchers measure and predict natural phenomena on multiple scales from the subatomic to the cosmic, from a single gene to a multi-celled organism, and from single entities to complex interacting systems of those entities. A fuller picture emerges when we examine the development and progression of our languages, cultures and knowledge systems. This includes examining the role of human creativity and critical making in the production of new knowledge and understanding. Our researchers use data, quantitative techniques, as well as qualitative approaches across a wide range of disciplines within this
priority area. With more thorough insights into our complex world—both natural and cultural—we are better equipped to look forward, pushing the boundaries of discovery into new frontiers. Driven by curiosity, our researchers are deepening our understanding of the world.

4) **Strengthening Democracy, Justice, Equity and Education** (SDGs 5, 8, 10, 16)

The polarization of our society, mis/disinformation, threats to democracy, population migration and changing patterns of convergence and conflict challenge the structures of societies and shape the ways we interact with each other. Researchers at SFU are deeply engaged in studies of data and media democracy, and in questions of equity and justice in relation to environmental, educational, health, economic and governmental systems. This includes the causes and consequences of poverty and inequality. Matters of social inclusion, identity, diversity and belonging are key drivers behind how individuals and groups perceive, connect with, and learn about society at large. Considerations related to justice, equity and social responsibility also shape the ways we engage with communities, value their contributions, and inform a commitment to fostering dialogue, relationship building, imagination, critical design, and transformative learning. Environmental Social Governance research provides opportunities to foster the implementation of these values by industry. Fostering community participation in research is both a vehicle for social change and a critical source of scholarship.

5) **Transforming Industry and Economies through Technology, Management and Policy** (SDGs 9, 12)

Technology impacts every aspect of our lives—at multiple scales—from nanotechnology to satellite communication to technology for work and home life. These technologies are applied to all areas of human endeavor, from building a sustainable world, to improving human health, to transforming the way we teach and learn. SFU researchers are involved in new technology creation at all levels: creating the new materials that enable those technologies; engaging in design research and developing creative technologies that change how we interact with technology and each other; developing new types of hardware to enable future platforms like quantum computers; writing the algorithms required to process data and model the world around us as well as critiquing and educating people about the effects of those algorithms; and integrating and adapting existing technologies to a changing world. The adoption and use of emerging technologies are guided by management and policy research as one means to create economic and societal value and to engage in critical modelling of alternative technological futures. These research domains investigate the economic, environmental, health, political, educational and societal tradeoffs between incumbent industries and technologies and the emerging alternatives. SFU researchers also study the processes that underlie the adoption and use of new technologies—the process of bringing technologies “out of the lab” and into the hands of consumers and communities, as well as inequalities in technological uptake and impacts.
IMPLEMENTATION PLAN FOR SFU’S 2023-2028 STRATEGIC RESEARCH PLAN

Simon Fraser University’s (SFU) Strategic Research Plan (SRP) provides a list of priority areas and approaches to performing research and other scholarly work at the university from 2023-2028. It is (necessarily) a high-level document describing long-term strategic priorities. In order to support the SRP, concrete steps will need to be taken by the Office of the Vice-President, Research and International (VPRI) and by the university community as a whole.

This implementation plan describes the actions planned by the VPRI in response to the SRP and to community feedback. It is a living document, with regular updates planned throughout the five-year period of the SRP. It identifies projects and initiatives that are meant to support SFU scholars, lower administrative barriers and create new opportunities for the SFU community. Many of the initiatives have been selected as a result of the extensive community consultation undertaken as part of the SRP process.

Some of the initiatives listed below are short-term with clearly measurable outcomes. Others require deeper change over longer timescales in order to complete. For longer-term initiatives, milestones have been created for the first year of the plan. There are some initiatives that, due to capacity constraints, are listed in this plan but will not start in the first year.

PRIORITY PROJECTS AND INITIATIVES

Each initiative lists a challenge and a planned action (with timeline) to address the challenge. The descriptions in this document are brief but—as projects spin-up—more detailed documentation will be created for each. The first project is specific to the priority areas identified in the SRP. Those that follow it are cross-cutting initiatives, designed to lower barriers to success in all priority areas.

SUPPORTING SRP PRIORITY AREAS

Challenge: Solving society’s great research challenges requires collaboration across departmental, institutional, sectoral and international boundaries. The strategic priority areas described in the SRP are each multi-disciplinary in nature. Researchers are sometimes faced with barriers to collaboration across departmental, faculty and institutional boundaries. Researchers also sometimes do not feel connected to the priority areas described in a Strategic Research Plan.

Action: Working with deans, chairs and directors, faculty members, postdoctoral fellows and graduate students, we will identify a program of support for internal community-building and external partnership tailored for each strategic priority area. We will also identify institutional barriers to collaboration and feelings of inclusion in these internal communities. In year one, we will implement a set of supports around one of the priority areas. In future years, external (including international) partnership strategies for each priority area will be developed.

SUPPORTING RESEARCH GRADUATE STUDENTS

Challenge: Graduate students are key drivers of research activity in an institution. Vancouver is an attractive destination, but the high cost of living presents a challenge to our graduate students.
**Action:** Working closely with the provost, the dean of graduate and postdoctoral studies, SFU Advancement and with graduate students (through the Graduate Student Society), we will study ways to shift our limited resources to better support research graduate students. This includes study of tuition waivers, scholarships and bursaries. We will also work with SFU Advancement, provincial and federal funding agencies to grow resources available for graduate student support both for existing graduate students and to grow our research graduate student body. Within a year, we will set a university-wide minimum funding level for PhD students.

**SUPPORTING POSTDOCTORAL FELLOWS**

**Challenge:** SFU hosts a relatively small number of postdoctoral (postdoc) fellows for our number of faculty members. Existing postdocs sometimes feel like they “fall between the cracks” at SFU. They are neither faculty members nor students, and they have identified that many systems at SFU do not cope well with their in-between status.

**Action:** Working with the provost, the dean of graduate and postdoctoral studies, SFU Human Resources, and the Postdoctoral Association we will identify the concerns of postdocs and—within a year—provide a central managed point for support of postdocs. We will work with SFU Advancement to create an institutional postdoc program.

**VALUING AND MEASURING SCHOLARLY IMPACT**

**Challenge:** The ways in which we generate scholarly impact are varied. They include publications in high-impact journals, publishing books, performances, exhibitions, the engagement of community in research and the mobilization of knowledge to the non-academic community. Current incentive and reward structures within the university do not always reflect modern measures of research impact.

**Action:** Working with the provost, deans, chairs and directors, the library, and SFU Faculty Relations, we will examine SFU’s incentive and support structures to assess whether they align with the way the university values research impact as well as equity, diversity and inclusion. Materials to support departmental processes (e.g., Tenure and Promotion Committee) will be developed and made available to the community. Within a year, a working group will be formed, a broad assessment will be completed, and needed materials and support structures will be identified.

**DECOLONIZING INDIGENOUS RESEARCH ETHICS—RESPONDING TO THE ARC CALL #34**

**Challenge:** Walk this Path With Us—the final report of the SFU Aboriginal Reconciliation Council—included call-to-action #34: “Convene an Indigenous Research Committee to establish respectful and ethical protocols and practices for researching in and with Indigenous communities; and to ensure that Indigenous perspectives, knowledge systems, and ways of knowing are respected and supported in the scholarship of faculty and students.”

**Action:** In the first year, we will continue to support the ongoing work in Ethical Foundations, led by Professor Vicki Kelly (Faculty of Education). We will then implement changes to our human ethics processes and approaches based on what is learned from the work of the ethical foundations group. We will also build principles of “two-eyed-seeing” and “walking on two legs” into major institution-led research initiatives such as the application to the Canada First Research Excellence Fund.

**BUILDING WORLD-CLASS RESEARCH SPACE AND INFRASTRUCTURE**

**Challenge:** World-class research facilities are key to the performance of world-class research. The availability of high-quality research space is currently an important limiting factor in our research growth. The availability of appropriate digital infrastructure is key to many research programs.
**Action:** Working with the provost, SFU Facilities Services and deans, we will prioritize existing research space for capital improvements. We will continue to work as part of the team advocating for additional buildings on our three campuses. Within a year, plans for research space upgrades will be created and some upgrade projects will be underway. The VPRI will work with the library, ITS and others to prioritize digital infrastructure needed to support researchers.

**SUPPORTING EARLY CAREER RESEARCHERS (FACULTY)**

**Challenge:** New faculty members at the university face a number of challenges in starting their SFU research careers. These challenges may include obtaining research grants, recruiting students and research personnel, modifying research space, and purchasing and installing research equipment at the same time they are teaching new (to them) courses and settling into a new community.

**Action:** Working closely with the vice-president, people, equity and inclusion, SFU Faculty Relations, deans, associate deans research (ADR) and early career researchers, we will examine mentorship programs, internal peer-review platforms for grants, educational materials and other resources for new faculty, and streamlining of processes for support including for research space and equipment.

**PROTECTING TIME FOR RESEARCH**

**Challenge:** Faculty members have identified “lack of time” as the biggest constraint in increasing their research output. For individual faculty members, balancing the competing demands of research, teaching and service is challenging. For department chairs, school directors and deans, balancing the need to deliver academic programming—and to support a dynamic research environment—is also challenging.

**Action:** Consulting with deans, chairs and directors, ADRs and SFU Faculty Relations, we will identify barriers to availability and effective use of research time for faculty members. Best practices across faculties, schools and departments will be shared and places where flexibility exists in the system (e.g., course scheduling/stacking) and within the current collective agreement will be examined.

**FUNDING RESEARCH CHAIRS**

**Challenge:** In priority research areas our university competes for talent with institutions around the world. Externally funded research chairs provide a mechanism by which the university can attract world-class researchers to our institution. Once they arrive, chair funding can support their program of research. SFU has a limited supply of research chairs that have been accumulated (generally) in an ad-hoc manner over time.

**Action:** Working with SFU Advancement and deans, we will develop fundraising cases for research chairs aligned with the SRP priority areas.

**INVOLVING UNDERGRADUATES IN RESEARCH**

**Challenge:** SFU is a research-intensive institution, doing world-class work across a wide range of disciplines. Our undergraduate students should have the opportunity to learn about and to participate in that research.

**Action:** We will review the VPRI Undergraduate Student Research Awards program to consider its goals, funding levels and accessibility. We will create web resources to highlight and support undergraduate researchers. Working with the provost, deans, and the library, we will consider new ways to provide undergraduates with exposure to SFU research including opportunities to participate and potentially to earn degree credits for the work. With communications and marketing (C&M) teams across the university, including SFU's central C&M portfolio, we will consider how to raise the profile of SFU research among undergraduates at the institution.
NOTE: BELOW ARE THE COMMENTS/FEEDBACK RECEIVED FROM THE SFU COMMUNITY ABOUT THE DRAFTED STRATEGIC RESEARCH PLAN (SRP) AND THE SRP IMPLEMENTATION PLAN. THE TABLE ALSO INCLUDES THE CHANGES MADE TO ADDRESS THE COMMENTS/FEEDBACK.

<table>
<thead>
<tr>
<th>COMMENTS/FEEDBACK</th>
<th>CHANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updated values have emerged from SFU: What’s Next.</td>
<td>Updated Strategic Research Plan (SRP) to include updated values. Integrated into SRP approaches.</td>
</tr>
<tr>
<td>Verbal: concern about use of knowledges</td>
<td>Changed to knowledge(s)</td>
</tr>
<tr>
<td>Email: concern that basic research into fundamental molecular and cellular processes of relevance to health and disease are not reflected in priority area #2.</td>
<td>Changed sentence to “SFU researchers are engaged in responding to the threats and burdens of disease via many approaches, including basic research into fundamental molecular and cellular processes, development of new technologies, tests, treatments for individuals and public health approaches.”</td>
</tr>
<tr>
<td>Email: concerns from Chemistry department about lack of emphasis on therapeutic interventions, molecular tools and treatments, and non-infectious disease.</td>
<td>Suggested modifications to health priority incorporated.</td>
</tr>
<tr>
<td>Email: concern that the plan lacks the detail present in the SRPs from some other Canadian institutions. Preference for a plan that lists the ongoing areas of research at SFU in detail.</td>
<td>Responded that there are many styles of SRPs out there. Some are laundry lists of everything done at the university, others are more high-level. We have chosen the more high-level approach, leading to a shorter and more flexible list of priority areas. Once the document is translated onto the SRP web page(s) within the SFU Research website, we will be able to build pages corresponding to individual priority areas which give examples of ongoing research in those areas. While the SRP text is fixed, the linked pages will be dynamic.</td>
</tr>
<tr>
<td>Email: concern about quantitative focus of research performance as presented by the VPRI Office (e.g., counting research income and publications).</td>
<td>Responded acknowledging that quantitative measures do not tell the whole story of research impact. Presented a few alternatives used by the VPRI Office and how we support qualitative as well as quantitative outputs.</td>
</tr>
<tr>
<td>Email: concern that “Origins” does not capture broad swath of curiosity-driven research performed at the university. Suggested “Expanding the Foundations of Knowledge” in place of “Origins”.</td>
<td>Changed title of priority from “Understanding our Origins” to “Expanding the Foundations of Knowledge and Understanding our Origins”</td>
</tr>
<tr>
<td>Email: concern that health and justice issues were not explicit in the C3I priority. Concern that the health priority was too focused on infectious disease, neglecting chronic disease.</td>
<td>Added health and justice to C3I priority; replaced reference to “infectious disease” with “disease”</td>
</tr>
<tr>
<td>Email: concern that the SRP implementation plan projects would contend for resources and could not be carried out at the same time.</td>
<td>Responded that not all projects would start at the same time (as indicated in the document introduction).</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Email: not enough link between research and teaching. Recommended to add to the list of approaches.</td>
<td>Added an approach “Linking Research to Teaching and Learning”, adopting some of the suggested wording.</td>
</tr>
<tr>
<td>Verbal (Senate): concern that education research does not have a strong presence in the SRP. Email: A number of comments suggesting ways to weave education research into the existing 5 priority areas.</td>
<td>As education research spans disciplines, added as a cross-cutting approach relating research and education. Most of the comments were implemented or were addressed indirectly through implementation of other changes. Some comments could not be implemented as the base text was changed due to other comments.</td>
</tr>
<tr>
<td>Email: concern that only priority area #4 is focused on social sciences and humanities work and that the rest are heavily science and health focused.</td>
<td>Responded that there are SSHRC-funded researchers working in all 5 of the priority areas, as-written. While social sciences are throughout, “Origins” is also about 50/50 between humanities and natural sciences. The presence of fine arts and research creation has been increased in the new draft.</td>
</tr>
<tr>
<td>Email: suggestion to add “Reduce Inequality and End Poverty” as a 6th priority area.</td>
<td>While this would be an excellent priority area, and there are SFU researchers studying poverty, it is not clear that this is an institutional research focus at a level requiring its own distinct area. It also did not come out during community consultations except for this one comment. No 6th area was added, but a new sentence was added to priority area #4 to ensure that poverty-focused research is represented.</td>
</tr>
<tr>
<td>Email: concern that the SRP is too human-centric, ignoring the living natural world. Particular concern that biodiversity crisis is not mentioned in the community-centred climate innovation (C3I) priority and the One Health approach is not present in the document.</td>
<td>Biodiversity is added to the list of areas relevant to C3I. One Health has been added to the section preamble to illustrate how different priority areas (e.g., health and C3I) and linked and how some of the most interesting research can happen through the linkages.</td>
</tr>
<tr>
<td>Email: concern that the Origins priority is too human-centric. Email: concern that implementation plan neglects to mention chairs and directors in action statements. Email: suggestion that implementation plan should contain a pledge to hire 50-100 new research faculty members. Email: suggestion that in addition to multidisciplinary strengths, a statement be made that we support strong disciplinary research in our departments and schools. Email: concern that humanities is not well-represented in the SRP. Suggests a more future-focused “Origins” category to make it clear that humanities is not just about the past.</td>
<td>Response – disagree. Asked commenter for suggestions to improve. Chairs and directors were added to several action statements. Responded that this would be a matter for the next Academic Plan and the Provost rather than the SRP and the VPRI. Statement added. New version of “Origins” category with expanded title and updated wording (see changes above) sent to commenter.</td>
</tr>
<tr>
<td>Email: concern that many faculty members do not feel connected to the priority areas defined in a strategic research plan. Faculty members may feel that they are “on the fringe” of the university rather than in the core. Inclusive language needs to be used.</td>
<td>Implementation plan updated with modified wording around “Supporting SRP Priority Areas” to make it clear that one of the purposes of this community-building exercise is to increase inclusion among community members.</td>
</tr>
<tr>
<td>Email: request to add specific buildings to “Building World-Class Research Space and Infrastructure” as needing attention.</td>
<td>Conflicts with another comment requesting that all campuses and buildings be considered. Project approach will identify areas of greatest concern and work with facilities services to prioritize.</td>
</tr>
<tr>
<td>Email: request to include digital infrastructure, not just space, in “Building World-Class Research Space and Infrastructure”.</td>
<td>Statement added.</td>
</tr>
<tr>
<td>Email: request that the library be added as a partner in “Involving Undergraduates in Research” and “Valuing Research Impact”.</td>
<td>Added</td>
</tr>
<tr>
<td>Email: suggestions for wording of education-related cross-cutting approach in SRP.</td>
<td>Incorporated.</td>
</tr>
<tr>
<td>Email: emphasis on mitigation should be increased in community-centred climate innovation priority. Currently reads as stronger emphasis on adaptation.</td>
<td>Based on previous comments, we had already attempted to put mitigation and adaptation on the same footing. Added wording to strengthen mitigation and to ensure that it is clear that solutions developed locally are purposefully scaled globally.</td>
</tr>
</tbody>
</table>
MEMO

ATTENTION: Senate
FROM: Kristie Westerlaken, Director, Research Ethics
RE: Research Ethics and Research Ethics Board Annual Senate Report (consolidated for 2018-2022)
DATE: November 15, 2022

I am submitting, on behalf of Research Ethics and the Research Ethics Board, the Annual Report to Senate. As the last Annual Report was provided in 2018, this is a consolidated report spanning the time frame from September 1, 2018 to August 31, 2022.

Sincerely,

Kristie Westerlaken
Director, Research Ethics

Enclosure
RESEARCH ETHICS AND RESEARCH ETHICS BOARD ANNUAL REPORT TO SENATE

Introduction

Research Ethics (RE) facilitates ethics governance for all research projects that use human materials and/or information and that are conducted under the auspices of or affiliations with Simon Fraser University (SFU). RE is also responsible for administration relating to the SFU Research Ethics Board (REB) and sub-committees. In addition, RE personnel are appointed as non-voting REB members and act as delegated reviewers for minimal risk projects pursuant to the authority granted to them by the REB, and as per the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2, 2018) which is the joint policy of Canada’s three federal research agencies – the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC).

This report will cover the period from September 1, 2018 to August 31, 2022, and includes a list of current people associated with RE and the REB, highlights of key activities, and future directions. Finally, various metrics are reported in Appendix ‘A’.

People

Current RE personnel and REB members are listed below:

RE

Dr Kristie Westerlaken         Director
Dr Kim Lajoie                 Research Ethics Officer
Samantha Roper                Research Ethics Officer
Candase Jensen                Research Ethics Officer

1 The last available annual report covered the 2017-2018 reporting period. This report provides a consolidated overview of activities from September 1, 2018 to August 31, 2022.
<table>
<thead>
<tr>
<th>Member (all listed are voting members)</th>
<th>Position</th>
<th>Faculty/School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Wendy Loken Thornton</td>
<td>Chair</td>
<td>Arts and Social Sciences, Psychology</td>
</tr>
<tr>
<td>Dr Victoria Claydon</td>
<td>Deputy Chair</td>
<td>Science, Biomedical Physiology and Kinesiology</td>
</tr>
<tr>
<td>Dr Jeremy Snyder</td>
<td>Ethicist/Scientific Member</td>
<td>Health Sciences</td>
</tr>
<tr>
<td>Dr Helene Love</td>
<td>Legal Representative/Scientific Member</td>
<td>Arts and Social Sciences, Criminology</td>
</tr>
<tr>
<td>Wayne Marigold</td>
<td>Community Representative</td>
<td>n/a</td>
</tr>
<tr>
<td>Kristie Nicol</td>
<td>Community Representative</td>
<td>n/a</td>
</tr>
<tr>
<td>Dr Malcolm Steinberg</td>
<td>Medical Representative/Scientific Member</td>
<td>Health Sciences</td>
</tr>
<tr>
<td>Dr Teresa Cheung</td>
<td>Scientific Member</td>
<td>Science, Engineering Science</td>
</tr>
<tr>
<td>Dr Geoffrey Poitras</td>
<td>Scientific Member</td>
<td>Beedie School of Business</td>
</tr>
<tr>
<td>Dr David Whitehurst</td>
<td>Scientific Member</td>
<td>Health Sciences</td>
</tr>
<tr>
<td>Dr Robert Williamson* *on leave</td>
<td>Scientific Member</td>
<td>Education</td>
</tr>
<tr>
<td>Dr Jean-Christophe Bélisle-Pipon</td>
<td>Alternate Ethicist/Scientific Member</td>
<td>Health Science</td>
</tr>
<tr>
<td>Dr Alissa Antle* *on leave</td>
<td>Scientific Member</td>
<td>Communication, Art and Technology, School of Interactive Art and Technology</td>
</tr>
<tr>
<td>Dr Angela McIntyre</td>
<td>Indigenous Representative/Scientific Member</td>
<td>Research Associate, Health Sciences</td>
</tr>
<tr>
<td>Vienna Lam</td>
<td>Postgraduate Student Member</td>
<td>Arts and Social Sciences, Criminology</td>
</tr>
<tr>
<td>Caitlin Courchesne</td>
<td>Postgraduate Student Member</td>
<td>Arts and Social Sciences, Psychology</td>
</tr>
<tr>
<td>Judit Nagy</td>
<td>Undergraduate Student Member</td>
<td>Arts and Social Sciences</td>
</tr>
</tbody>
</table>
Highlights of key activities

Two significant events impacted RE and REB during this reporting period – the implementation of a new online ethics application system (Kuali) and, of course, the COVID-19 pandemic. Other important activities include a shift to building research capacity and engagement with the broader research community, as well as more specifically, a focus on Indigenous Research Ethics.

On November 23, 2020, RE launched Kuali after having only 4 months to quickly pivot to the Kuali platform when unforeseen issues arose during the implementation of another system resulting in it being abandoned and alternate solutions sought. The project team for the Kuali implementation worked quickly and efficiently in order to ensure the platform launched with as little disruption as possible. All current members of RE – Candase Jensen, Samantha Roper and Dr. Kim Lajoie - were instrumental in working together as a team by contributing their knowledge and expertise to operationalizing the system, while also ensuring that daily operational activities continued effectively and efficiently.

Kuali has proved to be an effective tool at managing applications submitted for ethics review. The application forms are easy to use and dynamic which allows them to be designed and adapted as necessary. This assists in the process of ethics review as it allows flexibility in the development of questions and pathways for the flow of information that is required in order to undertake the ethical review of the project. Anecdotally, it appears the new system is reducing the number of revisions requested for each application, thereby reducing the administrative burden to researchers and RE. Additionally, study applications are now easier to access for research ethics reviewers. As there has now been a sufficient period of time for Kuali to become familiar within the community, RE is now planning to investigate the potential for improving functionality in the standard processes, but also available options to assist with data capture and reporting.
As was the case globally, the COVID-19 pandemic significantly impacted the SFU research community and caused disruption and stoppage to hundreds of active studies. On March 23, 2020, the REB announced that all in-person research activities were suspended until further notice. If feasible, projects could be moved online upon submission of an amendment to the project. The monthly REB meetings were also moved to an online format.

On July 23, 2020, a return to in person research activities could occur if a Human Participant Research (HPR) Safety Plan was submitted for review and approval, along with the standard ethics application. On July 21, 2021, SFU moved to a university-wide Communicable Disease Plan and HPRs were no longer required for in person research activities. As at August 31, 2022, research activities are slowly starting to return to pre-Covid states with an increase noted in in person activities.

RE has implemented several initiatives to increase engagement with the research community. During the Kuali implementation period, RE travelled and attended Faculty/School department meetings to share updates and receive feedback. Education and training to graduate and undergraduate students via class presentations and workshops continues to grow each year. RE also started hosting a drop-in help session (conducted online via Zoom) which has been held 3-4 times a week since then. During these sessions, researchers have the opportunity to seek advice about their specific project or general questions. In the 2021-2022 academic year, 506 researchers accessed the help line, and there has been considerable positive feedback received in support of the initiative.

Finally, having regard to the reconciliation and decolonization work being done across SFU in recognition of the Truth and Reconciliation Council and SFU Aboriginal Reconciliation Council report, RE and the REB continue to re-evaluate how research ethics review is conducted at SFU when the research involves Indigenous peoples and communities, and are committed to improving research ethics practices. In the spring of 2022, with the support of the VPRI, RE and select members of the REB commenced a consultative series of Indigenous Dialogues with SFU Indigenous faculty members, and external collaborators and speakers. The intention of the
Indigenous Dialogues and Speaker Series is to support implementation of the University’s commitments to Indigenous ethics, ethical reconciliation and Indigenous resurgence. Early stages have been met with significant positivity, but given the complexities involved, there is considerable work still to be done.

Future directions
RE and the REB will continue participating in the Indigenous Dialogues series with tentative dates already scheduled for late 2022 and 2023. Over the summer, RE engaged in various internal planning sessions with a view to developing a strategic plan, as well as vision and mission statements, and team values. In addition, a systematic review of responsibilities, policies, procedures and processed is under way with the primary aim to improve operational effectiveness and efficiencies. RE will also continue to emphasize engagement with the research community, including developing formal and informal training and educational opportunities for faculty and students, with a particular focus on Responsible Conduct of Research.
Appendix “A” – Metrics

Research ethics applications are either deemed to be minimal risk or above minimal risk with the majority of projects being categorized as minimal risk. Minimal risk projects proceed through the delegated review pathway which means they are reviewed by the RE personnel by virtue of the REB Chair delegating them the authority to review these projects. There is no submission deadline – projects are reviewed in the order that they are submitted. Above minimal risk projects are reviewed via the ‘full board’ review pathway which means that they must be submitted by a certain date to be considered for placement on the Agenda for the next monthly REB meeting. There is a 2.5 week period between the submission date and the REB meeting which is included in the calculation of turnaround times.

In the past four years, the number of applications submitted for research ethics review has steadily increased except for the 2019-2020 academic year which included the initial stages of the COVID-19 pandemic. The 2021-2022 academic year received the highest number of initial applications yet with 621 (Figure 1).

Figure 1: 2018 to 2022: Total minimal and above minimal risk new applications received during the academic year

---

2 Data is reported differently in the figures because it was retrieved from two systems over the reporting periods and data collection parameters differed.
Research ethics oversight continues throughout the lifecycle of the project and includes reviewing post approval activities such as amendments and annual renewals. Figures 2-4 below illustrate the number of initial applications and post approval activities reviewed for the academic years 2019-2020, 2020-2021, and 2021-2022.

**Figure 2: 2019-2020 Initial and post approval activities for minimal and above minimal risk projects**

![Figure 2: 2019-2020 Initial and post approval activities for minimal and above minimal risk projects](image)

**Figure 3: 2020-2021 Initial and post approval activities for minimal and above minimal risk projects**

![Figure 3: 2020-2021 Initial and post approval activities for minimal and above minimal risk projects](image)
The decrease in above minimal risk submissions may be attributed to lab closures and in person research, particularly with vulnerable groups, which was halted due to COVID-19.
Turnaround times

The figures below provide information relating to the time taken from initial submission to issuing of the Certificate of Approval for both minimal and above minimal risk projects. It is important to note that multiple factors influence approval times, including: necessity to consult ad hoc groups (e.g., legal, privacy, other colleagues, etc.); the contextual complexities of the project; and, importantly, the quality of the application. Poor quality applications take substantially longer to review than do well written, carefully prepared applications. Turnaround times are not the sole responsibility of RE, but rather a shared responsibility amongst multiple stakeholders, including the researchers.

Figure 6: 2021-2022 Minimal risk post approval activities – average turnaround time in days
Figure 7 – 2020-2021 Minimal risk post approval activities – average turnaround time in days

Figure 8: 2021-2022 Minimal risk post approval activities – average turnaround time in days
TO: Senate

FROM Joy Johnson
Chair – Senate Committee on Agenda and Rules

DATE: November 17, 2022

SUBJECT: Revision and Renaming of GP 24 - Fair Use of Information and Communications Technology

SCAR has reviewed this document and is bringing this to Senate for information.
REVISION to Fair Use of Information and Communications Technology ("ICT") (GP 24)

1. GP 24 was created in 1993 and last updated in 2009.

2. It establishes the responsibility of University faculty, staff, and students in maintaining the security of the Information and Communication Technology environment, the security of the information within it, and makes users accountable for their use of those resources.

   The revised GP 24, which we propose to rename, "Acceptable Use and Security of Digital Information and Electronic Systems" requires all users of University Digital Information and Electronic Systems to do so responsibly, lawfully, and ethically. It establishes the standards and guidelines necessary to:

   • secure the personal identifiable digital information that our electronic systems contain;
   • maintain the integrity of those electronic systems, and
   • safeguard the financial assets of the University.

3. The revised "Acceptable Use and Security of Digital Information and Electronic Systems" policy, outline the responsibilities of members of the University community with respect to maintaining the privacy, integrity, availability, and confidentiality of University Digital Information and Electronic Systems. It establishes the requirement of not only verifying identity to ensure users have appropriate access to University Digital Information and Electronic Systems, but also verifying that the level of access they are granted is in alignment with their role at the University.

4. The expansion of GP 24 will guide the Chief Information Security Officer (CISO) on stewardship of University Digital Information and Electronic Systems security. It provides the framework for supporting procedures, standards, controls, and guidelines needed to facilitate implementation of the policy. The policy also sets out the responsibilities of the CISO regarding risk, security, and compliance. Consultation period completed August 19, 2022.
Policy Updates prior to Consultation

GP 24, Acceptable Use and Security of Digital Information and Electronic Systems Policy and Appendix A-Definitions

1. add executive summary as required by new policy format
2. revised GP 24, which we propose to rename, “Acceptable Use and Security of Digital Information and Electronic Systems” policy requires all users of the digital information and electronic systems to do so responsibly, lawfully, and ethically
3. updated Appendix A to reflect the changes made in the policy
4. other edits to comply with new policy format

Consultation Feedback

The community consultation period was from July 25th to August 19th, 2022 for GP 24, “Acceptable Use and Security of Digital Information and Electronic Systems” Policy and “Appendix A-Definitions”.

Summary of the findings is listed in the table below. Appendix A has the details of all the consultation feedback. Below two table lists the consultation feedback and management response.

Table1: Summary of Consultation Feedback and Response

<table>
<thead>
<tr>
<th>Consultation Feedback</th>
<th>Management Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy office had recommended number of changes in the “Acceptable Use and Security of Digital Information and Electronic Systems” policy and Appendix A.</td>
<td>A meeting was setup to go over the recommendations. The change that were agreed upon are documented in Appendix A of this memo.</td>
</tr>
<tr>
<td>Digital Library Services had recommended number of changes in the “Acceptable Use and Security of Digital Information and Electronic Systems” policy</td>
<td>A meeting was setup to go over the recommendations. The change that were agreed upon are documented in Appendix A of this memo.</td>
</tr>
<tr>
<td>There were a couple of typographical error (Typos) identified.</td>
<td>Recommendation was incorporated</td>
</tr>
</tbody>
</table>

CONSIDERATIONS

1. The revised GP 24 restates in current terms the university’s right to control and manage its Information Technology Service resources and more clearly makes users accountable for their use of those resources.
2. The revised policy will help University minimize its cyber-attack footprint, minimize the impact if we are attacked, develop the foundation of Role Base Access, and clarify the responsibility of all users with access to University digital information and electronic systems.
3. Through this approach we also address the concerns and shortcomings detailed in the recommendations of the Catalone and KPMG reports of 2020 and 2021.
4. The Legal Counsel, Office of the General Counsel and University Secretary reviewed this version of the policy that incorporates feedback from the community consultation.
NEXT STEPS

The changes to GP 24, Acceptable Use and Security of Digital Information and Electronic Systems Policy and Appendix A-Definitions from the community consultation, will be sent by the Board Office to Senate/SCAR meeting to be held in October followed by the Board of Governors in November.

ATTACHMENTS

- Current GP 24 Fair Use of Information Systems Policy
- Revised GP 24 Acceptable Use and Security of Digital Information and Electronic Systems
- Revised GP 24 Appendix A
Appendix A

Table 2: Summary of feedback received and incorporated in the GP 24, Acceptable Use and Security of Digital Information and Electronic Systems Policy

<table>
<thead>
<tr>
<th>Consultation Feedback</th>
<th>Management Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy office had requested to change the following in the Executive summary section</td>
<td>All recommendations were incorporated</td>
</tr>
<tr>
<td>1. mention University rather than SFU</td>
<td></td>
</tr>
<tr>
<td>2. to include sensitive information along with the personally identifiable information, in the first bullet point</td>
<td></td>
</tr>
<tr>
<td>3. to ensure that user will comply with the GP 24 policy or “any other relevant University policy or procedure “</td>
<td></td>
</tr>
<tr>
<td>Privacy office had recommended in section 1.3 to add wording “to a degree that is reasonable and technically feasible and in accordance with FIPPA”.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office had recommended to move the section regarding breach of from 5.2.2 to 3.3. As this section would impact the entire user community.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Digital Library Services had recommended to add under section 5.2.1 (a) “and in adherence to license agreements”. Digital Library Services invoke GP 24 when end users contravene library policies or license agreements.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office recommended to add the section in the policy under 5.3 “Disclosure of Information - Administrative Continuity” section was part of the old GP 24 policy. It was removed from the policy in the version posted for the community consultation and would have been added into the security standard’s that will follow the policy. Privacy office refers to this particular section on a regular basis. There was a risk that the standard might not be made in time when the policy goes live could cause operational issues for the Privacy team. Recommendation was made to add this section back to the policy.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office recommended to add the section in the policy under 5.3.4 “Role Account” section was part of the old GP 24 policy. It was removed from the policy this time and would have been added into the security standard’s that will follow the policy. Privacy office refers to this particular section on a regular basis. There was a risk that the standard might not be made in time when the policy goes live could cause operational issues for the Privacy team.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td><strong>Recommendation was made to add this section back to the policy.</strong></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Privacy office recommended to replace the word in section 5.4.1 “must” rather than “should choose to” for use of approved software.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office recommended to remove the wording “when available” from section 5.4.1 and replace it with “When approved Electronic Systems are not available” in section 5.4.2. This was recommended to provide clarity to the readers.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office recommended to add the word under section 6.1.1 (e) “Department” to the Archives and Records Management. This was to standardize the language.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office recommended to add retention and disposition to section 6.2.1 (c). Digital information should be retained and disposed of according to an approved Records Retention Schedule and Disposition Authority. This was to ensure the entire lifecycle of digital information is addressed.</td>
<td>Recommendation was incorporated</td>
</tr>
</tbody>
</table>

An Analyst from Information Technology Services department had recommended to correct the Typo in section 6.2.1 (a) “The principle of least privilege should be abbreviated as PoLP instead of PLoP” The abbreviation was removed as it was used in only one place and the full phrase was used “Principle of Least Privilege”.

Data Coordinator from Institution Research and Planning department notified about a Typo in Section 12.1 “This policy is administered under the authority of the policy is administered under the authority of the Vice-President Finance and Administration” to change to “This policy is administered under the authority of the Vice-President Finance and Administration”.

**Table 3: Summary of feedback received and incorporated in the Appendix A-Definitions**

<table>
<thead>
<tr>
<th>Consultation Feedback</th>
<th>Management Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privacy office had recommended to remove the definition of “Digital Information and Electronic Systems”, since there were separate definitions for “Digital information” and “Electronics Systems”. This was causing confusion for the readers.</td>
<td>Recommendation was incorporated</td>
</tr>
<tr>
<td>Privacy office had recommended to add the definition for “Executive team”. “Executive Team” is mentioned</td>
<td>Recommendation was incorporated in section 2.4</td>
</tr>
</tbody>
</table>
in the GP 24 section 5.5.2 and the definition was missing.

| Privacy office had recommended to add more examples in section 2.5 i.e. “transcripts, employee emails in their Computing-ID and role-based University email accounts, and employee emergency contact information”. | Recommendation was incorporated |
| Privacy office had recommended to add language defining the role of operational leader in section 2.6 “responsible for the overall procurement, development, integration, modification, operation, maintenance and retirement of Electronic Systems”. | Recommendation was incorporated |
| Privacy office had recommended to simplify the definition of “Principle of Least Privilege” in section 2.7. | Recommendation was incorporated |
| Privacy office had recommended to simplify the definition of “Regulated Information” in section 2.9. | Recommendation was incorporated |
| Privacy office had recommended to simplify the definition of “Service Provider” in section 2.11. | Recommendation was incorporated |
| Privacy office had recommended to simplify the definition of “Users” in section 2.15. | Recommendation was incorporated in section 2.16 |
| Disaster Recovery Coordinator from Information Technology Services recommended to either use the full name of the Department (IT services) or include ITS in the list of definition. There were two references to ITS in the draft of Appendix A for GP24 but ITS was not listed in the terms. These instances were in section “Regulated Information” 2.9 and section “Digital Information and Electronic Systems”. | For both the instances ITS was removed after consulting with Privacy team |
**Fair Use of Information and Communications Technology**

**Date**
March 23, 1993

**Revision Date**
January 29, 2009

**Preamble**

This policy allows those who administer the University’s Information and Communications Technology (ICT) resources to do so as transparently as possible, while providing users with essential guidance on their rights and responsibilities.

ICT resources (see section 6) include business tools that facilitate University processes and activities related to its research, teaching and community service mandates. The University recognizes those resources may be the pathway by which controversial points of view and new ideas are disseminated and tested by members of the community.

The University continuously strives to create an environment that provides members of the community with the resources needed to meet the objectives of their work and/or studies, and to create a working and learning environment that promotes full, free and responsible participation by all members.

**1.0 Purpose:**

1.1 The Purpose of this policy is to:

a) establish the University’s right to control and manage its Information and Communications Technology (ICT) resources;

b) inform administrators and users of SFU’s ICT resources of their rights and responsibilities regarding the management and use of these resources.
fundamental resources; and

c) make users accountable for their use of the University’s ICT resources.

2.0 Policy

2.1 Right of Access

2.1.1 Authorized users of the University’s ICT resources have the right to access them without interference by others.

2.1.2 Where users misuse the University’s ICT resources, their right of access may be restricted or removed. (See section 2.6.)

2.2 Confidentiality and Privacy Protection

2.2.1 General

The University respects the privacy of those who use the University’s ICT resources and protects users’ information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal. The University’s ICT staff will comply with the FOIPOP Act and the University's information and privacy policies (110 series) and will disclose a user’s activities and personal information only as permitted or required by law.

2.2.2 Logging of Information

Most activities performed using the University’s ICT resources are logged. Information in log files is owned by the University and is routinely examined by ICT support staff to monitor the performance, reliability and security of ICT resources. ICT support must not disclose information learned from or contained within these log files except when authorized in writing to do so by their Director in order to:

a) investigate an alleged violation of this Policy or other related University Policy using the procedure outlined in Appendix II; or to

b) respond to a request for information pursuant to proceedings under the auspices of another University Policy using the procedure outlined in Appendix II; or to

c) ensure administrative continuity (see sections 2.2.3 and 2.2.4).

2.2.3 Disclosure of Information - Administrative Continuity

In cases of the absence, retirement or termination of an employee engaged in administrative duties, there may be occasions where departments need access to that individual’s emails or files to conduct business as permitted under section 33.2(c) FOIPOP Act. In such cases the Chair or unit head can obtain access by making a request to the Director, Client and Research Services (CaRS). Any information released under this provision may not be used for any employee discipline or other purpose except administrative continuity and any personal information shall be kept confidential.

2.2.4 Role Accounts

Role accounts (i.e., those granted to a role or organizational position rather than to an individual for business purposes) may be shared amongst authorized users as determined by the appropriate Department Chair/unit head. Information contained in these accounts may be
accessed and disseminated upon the request of the Chair/unit head to the Director, Client and Research Services (CaRS). Users are advised that role accounts should not be used to store personal information as they are subject to access should the University need to do so to conduct its operations.

2.3 Personal Use

2.3.1 Accounts to access ICT resources are issued for the sole use of the person to whom they are issued. Accounts are not to be shared, given, rented, sold or reassigned to any other individual or organization. Role accounts are exceptions to this provision.

2.3.2 Incidental personal use of ICT resources is allowed provided that it does not contravene the law and provisions of this or other University policies; interfere with access to ICT resources by authorized users; or cause the University to incur additional costs (e.g., excessive use of internet bandwidth).

2.4 Commercial Use

2.4.1 The University’s ICT resources shall not be used for commercial purposes, for profit-making, or for the benefit of non-SFU organizations unless these purposes are authorized under, and consistent with, the appropriate University policies and procedures. This provision shall not restrict SFU researchers from pursuing their research activities and freely exchanging information.

2.5 Misuse

2.5.1 Misuse of the University’s ICT Resources is explicitly prohibited. Activities included under the definition of “misuse” are set out in Section 6.0 Definitions below.

2.6 Protective Measures

2.6.1 The University reserves the right to limit, restrict or terminate user access, and to inspect, copy, remove or otherwise alter any data, files or other ICT resources covered by this policy.

2.6.2 At the direction of the Director, CaRS or designate, interim measures may be taken by duly authorized ICT staff in immediate response to allegations or awareness of misuse. These measures shall remain in force until the matter is resolved by the appropriate University Officer.

3.0 Scope:

3.1 This Policy applies to anyone using the University’s ICT resources or using their SFU authorization credentials to access ICT resources provided by other organizations. In the latter case, users are responsible for making themselves aware of, and to comply with, the other organization’s “acceptable use” policies.

3.2 This Policy covers all University-owned or -leased ICT resources, whether individually controlled or shared, standalone or networked, and to all activities of individuals accessing University-owned ICT resources from non-University-owned ICT resources (e.g., personal computer, PDA, or other devices).

3.3 From time to time the University may grant access to ICT resources to persons from other organizations through reciprocal sharing agreements with individual organizations or through participation in a federation of organizations. This privilege may be revoked solely at the discretion of the University.
4.0 Roles and Responsibilities:

4.1 The University's ICT resources will be provided and protected by the University to a degree that is reasonable and technically feasible under the guidelines set out by this policy, its associated procedures, section 30 of the FOIPOP Act and any other relevant University policy or procedure (see Appendix 1 for a partial list of such documents).

4.2 The University warrants that it makes reasonable security arrangements for the ICT resources offered; however, SFU stipulates that there are no guarantees regarding the accessibility, reliability or security of said resources.

4.3 The responsibilities of the ICT staff, in priority order, are to maintain the security of the information in the ICT environment, maintain the ICT environment in an operationally available state, and ensure that the ICT resources are accessible to the members of the user community. Where the security of information within the ICT environment is threatened, access to the environment may be restricted until the threat is resolved.

5.0 Authority:

5.1 This policy is administered under the authority of the Chief Information Officer.

6.0 Definitions

Authorization for File Access is the Form required to view information either owned by an Authorized User or pertaining to an Authorized User for which the User has not given permission, except for role accounts (section 2.2.4) or in situations dealing with Administrative continuity (section 2.2.3). An Authorization is normally required to support an investigation or process associated with the application of this or another University Policy.

Authorized Users are those who have current ICT identity credentials granted by an authorized Officer of the University.

Confidentiality means keeping personal information private or secret, safe from access, use or disclosure by people who are not authorized to handle that information. (BC Govt. FOIPOP Policy and Procedures Manual.)

FOIPOP Act refers to the Freedom of Information and Protection of Privacy Act and associated Regulations enacted by the Province of British Columbia. Also known as FOIPOP.

ICT Resources Information resources in this document are meant to include any information in digital format, or any hardware or software that make possible the electronic storage and use of such information. This includes, but is not limited to, electronic mail, local databases, externally accessed databases, CD-ROM, motion picture film, recorded magnetic media, photographs, and digitized information. For purposes of this Policy, the “appropriate use of ICT resources” does not refer to managing digital information in terms of its classification, organization, retention or disposal; this is not a records management policy.

Interim measures may include, but are not limited to:

- contact with respondents to establish the veracity of allegations;
- discussions with respondents to informally resolve problems;
- instruction to respondents to cease and desist alleged misuse within a time limit; or
- temporary disabling of respondents' computer accounts or other access.
It is understood that interim measures are to be preemptive and remedial rather than punitive, and will remain in force until the matter is resolved by the appropriate University Officer.

**Misuse** under this policy encompasses, but is not limited to:

*Unlawful Activities:*

- Any activity that contravenes federal or provincial legislation, whether or not the activity is reported to the police
- The evidence supporting a suspicion or allegation of unlawful activity will be assessed and misuse will be determined based on a 'Balance of Probabilities' standard
- Knowledge of and compliance with the law is the responsibility of the user

*Threats to System Security or Integrity:*

- Seeking to gain, or gaining, unauthorized access to ICT resources
- Possessing, creating, transmitting or storing tools, programs, attachments or other materials for the purpose of gaining unauthorized access
- Examining or using without authorization another user's files or programs in transit or in storage
- Unauthorized scanning of other computers on the network
- Preventing rightful access to computer-based information and ICT resources
- Altering, disrupting or otherwise interfering with the integrity of computer-based information and ICT resources, including the passing on of viruses, worms, "trojans" or other "malware"
- Endangering the finite capacity of any system through "chain mail," "flame wars," "bombing," "spamming" or using any method system administrators consider may endanger and/or restrict the access to their accounts by other authorized users
- Impersonating another user (regardless of whether the other user is real or fictitious) by altering individual system identity

*Excessive Use of ICT Resources:*

- Use of ICT resources in a manner that may result in additional cost to the University
- Use of ICT resources in a manner that consumes resources that would rightfully be available to others.

*Contravention of University Policy*

- Use of ICT Resources contrary to another University policy will be addressed as applicable under the relevant policy.

**Personal** is defined as relating to, concerning, or affecting a person as a private individual (rather than as a member of a group or the public, or in a public or professional capacity); individual, private; one's own.

**Personal Information** means recorded information about an identifiable individual other than contact information (FOIPOP Act).

**Privacy** means the state or condition of being alone, undisturbed, or free from public attention, as a matter of choice or right; seclusion, freedom from interference or intrusion. (BC Govt. FOIPOP Policy and Procedures Manual)

**Record** includes books, documents, maps, drawings, photographs, letters, vouchers, papers and any other thing on which information is
recorded or stored by graphic, electronic, mechanical or other means, but does not include a computer program or any other mechanism that produces records (FOIPPO Act). Note that this definition of "record" specifically excludes ICT resources (i.e., a computer program or any other mechanism that produces records).

APPENDIX I

This Policy should be read and understood in conjunction with the following University Policies and documents, and with the University’s Statement on Values and Commitments:

A 30.01 Faculty Code of Ethics
AD 1.06 Commercial Activities and Advertising
AD 1.12 Selling, Serving and Advertising Liquor
GP 18 Human Rights
GP 25 Response to Violence and Threatening Behaviour
GP 30 Interpretation Policy
I 10.04 Access to Information and Protection of Privacy
R 30.03 Intellectual Property Policy
T 10.01 Code of Student Conduct
T 10.02 Code of Academic Honesty
Applicable Residence and Housing agreements/contracts

APPENDIX II – Procedure to Authorize File Access

An Authorization for File Access is required to view information either owned by an Authorized User or pertaining to an Authorized User for which the User has not given permission, except for role accounts (section 2.2.4) or in situations dealing with Administrative continuity (section 2.2.3). An Authorization is normally required to support an investigation or process associated with the application of this or another University Policy.

Log files and file directories are system resources and are routinely monitored by duly authorized system support staff to maintain the security, reliability, accessibility, and performance of the University’s ICT resources. Notwithstanding these, systems staff must not divulge any information pertaining to the activities of an Authorized User to anyone other than other duly authorized system support staff.

Neither the Authorization forms nor the information arising from their use may be transmitted via any insecure communications media. E.g., email is neither acceptable nor sufficient.

1. If the Authorization for File Access is sought to support an allegation or suspicion of misuse under this policy, an Authorization for File Access Form must be completed by the person making the claim.

2. If the Authorization for File Access is sought to support the application of another University Policy, the Authorization for File Access Form shall be completed by the person duly appointed to investigate under the auspices of the applicable University Policy.

3. The Authorization for File Access must contain the following information:

   The name of the applicant
   The date of the application to access the files
The ID of the Authorized User for which the application is requested
The date that the file access must cease/end
The Name of the Authorized User for which the application is requested
The University Policy under which the application is requested
A description containing the reason for the request and the information requested
The names of staff/faculty who are authorized to access this information when it is produced
The name, phone number, and signature of the person requesting the information

4. The completed Authorization for File Access form should be taken to the Director, CaRS. The request will be reviewed to ensure that the information requested is possible to produce, that it is sufficient to meet the objective of the request, and that the resources required to produce the information are available. (Note: Requests for information from backup tapes or log files can take several days to produce.) If the Director, CaRS agrees with the technical aspects of the requests and has the resources available to produce the information the Director, CaRS will approve the form.

5. The Director, CaRS will then take the form to seek the approval of two University Vice-Presidents. The requestor may or may not accompany the Director when seeking the Vice-Presidents’ approval.

6. The information will be assembled and two copies prepared on an appropriate storage media (usually a write once CD or DVD). The information will be assembled by the appropriate systems support person, who will initial the media in order to identify it later if necessary. One copy will be stored in a confidential file with the original of the approved Authorization for File Access form, and the second will be given to the requestor.

APPENDIX III – Authorization for File Access

Sample Form Attached

GP24_Request for Access to Personal Information Contained In ICT Resources.pdf
Request for Access to Personal Information Contained in ICT Resources
POLICY AND PROCEDURES

ACCEPTABLE USE AND SECURITY OF DIGITAL AND ELECTRONIC SYSTEMS

Date: March 23, 1993
Number: GP-24 [NEW]
Date of Last Review/Revision: January 29, 2002
Mandated Review: [TBA]

Updated Discussion Draft: September 09, 2022
Policy Authority: Vice President Finance and Administration
Associated Procedure(s): See section 14 of this Policy

EXECUTIVE SUMMARY

Simon Fraser University (the “University”) is committed to protecting the Digital Information and Electronic Systems that are critical to teaching, research, business operations, and other University activities and that are vital critical to the communities we support. This policy establishes standards and guidelines to:

- secure the Regulated personally identifiable Digital Information that our Electronic Systems contain;
- maintain the integrity of those Electronic Systems, and
- safeguard the financial assets of the University.

Access to, and use of, Digital Information and Electronic Systems will be granted using Role-Based Access principles. This enables Users to access Digital Information and Electronic Systems only as required for their role at the University, and only at the level required to perform their role. Everyone who accesses or uses Digital Information and Electronic Systems must do so ethically, responsibly, lawfully, and in a manner consistent with the Procedures, Standards, Guidelines, Controls, and Processes associated with this and any other relevant University policy or procedure.

Commented [JA1]: New Comment: - Privacy office had recommended that we mention University rather than SFU. Recommendation was incorporated

Commented [JA2]: New Comment: - Privacy office recommended to change the word Critical as it was used twice in the same sentence. Recommendation was implemented with the change of “Critical” to “Vital”

Commented [JA3]: New Comment: - Privacy office recommended to add the term sensitive information as the security of both sensitive and personally identified information must be addressed. Recommendation was incorporated by adding the word Regulated in compliance with the definition provided in Appendix A

Commented [JA4]: New Comment: - Privacy office had recommended that we add “any other relevant University policy or procedure”. Recommendation was incorporated
TABLE OF CONTENTS

Contents

EXECUTIVE SUMMARY .......................................................................................... 1
1.0 PREAMBLE ........................................................................................................ 3
2.0 PURPOSE ........................................................................................................... 3
3.0 SCOPE AND JURISDICTION ........................................................................... 3
4.0 DEFINITIONS ................................................................................................... 3
5.0 POLICY ............................................................................................................. 3
6.0 ROLES AND RESPONSIBILITIES ..................................................................... 6
7.0 REPORTING ....................................................................................................... 8
8.0 RELATED LEGAL, POLICY AUTHORITIES AND AGREEMENTS ............... 8
9.0 ACCESS TO INFORMATION AND PROTECTION OF PRIVACY .................. 8
10.0 RETENTION AND DISPOSAL OF DIGITAL INFORMATION ..................... 8
11.0 POLICY REVIEW ............................................................................................. 8
12.0 POLICY AUTHORITY ...................................................................................... 8
13.0 INTERPRETATION ........................................................................................... 8
14.0 PROCEDURES AND OTHER ASSOCIATED DOCUMENTS ....................... 9
1.0 PREAMBLE

1.1 The University will strive to balance the need for security with the open pursuit of academic activities. Security concerns may place limits on the way in which work is done, but not on the research or inquiry that is pursued. When limitations are needed, the University will make reasonable efforts to consult with person(s) impacted to attempt to find appropriate and workable solutions.

1.2 Proper management of the security risks associated with access to and use of Digital Information and Electronic Systems is imperative to support the University’s academic, research, and administrative activities.

1.3 To ensure Digital Information and Electronic Systems remain secure, to a degree that is reasonable and technically feasible and in accordance with FIPPA, the University will grant access to Users by utilizing Role-Based Access principles and security controls.

1.4 Each User of Digital Information and Electronic Systems is responsible for abiding by the University’s Role-Based Access principles and security controls.

2.0 PURPOSE

2.1 This policy, together with its associated Procedures, Standards, Guidelines, Controls, and Processes referenced in section 14, establishes the University’s expectations for access to, and use of, Digital Information and Electronic Systems.

3.0 SCOPE AND JURISDICTION

3.1 This policy applies to all Digital Information and Electronic Systems.

3.2 This policy applies to all Service Providers and members of the University Community who are authorized to access and use Digital Information and Electronic Systems for the purpose of creating, storing, transmitting, using, or disposing of SFU Digital Information.

3.3 A breach of this policy may result in the University restricting or withdrawing a User’s access to Digital Information and Electronic Systems, including computing privileges and network access.

4.0 DEFINITIONS

4.1 See Appendix A for the definitions of words used in this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes.

5.0 POLICY
5.1 Role-Based Access to Digital Information and Electronic Systems

5.1.1 The University will utilize Role-Based Access principles to grant Users access to Digital Information and Electronic Systems. Role-Based Access enables Users to access information and systems only as required for their role at the University, and only at the level required to perform their role.

5.2 Use of Digital Information and Electronic Systems

5.2.1 All Users must:

a. use Digital Information and Electronic Systems responsibly, lawfully, ethically, in accordance with the User’s Role-Based Access and in adherence to license agreements.

b. ensure the security of the SFU’s Digital Information and Electronic Systems by:

i. applying the Digital Information Classification Standard to determine which class of SFU’s Digital Information is appropriate: Internal Information, Public Access Information or Regulated Information; and


5.2.2 A breach of this policy may result in the University restricting or withdrawing a User’s access to SFU’s Digital Information and Electronic Systems, including computing privileges and network access.

5.3 Security of Digital Information and Electronic Systems

5.3.1 All Users of Digital Information and Electronic Systems must take appropriate steps to ensure security by (see section 5.2.1, above):

i. applying the Digital Information Classification Standard to determine which class of Digital Information is appropriate: Internal Information, Public Access Information or Regulated Information; and

ii. applying the digital information security and domain Standards applicable to each classification of Digital Information.

5.3.2 All Operational Leaders, owners and Service Providers of Digital Information and Electronic Systems, and those who are responsible for maintaining and administering them, must...
protect the systems from cybersecurity or other threats by managing and remediating any vulnerabilities throughout the Electronic System’s lifecycle.

5.3.3 Disclosure of Information - Administrative Continuity

In cases of the absence, retirement or termination of an employee engaged in administrative duties, there may be occasions where Units need access to that individual’s emails or files to conduct business as permitted under section FIPP Act (RSBC 1996, c. 165). In such cases the Unit head can obtain access by making a request to the Chief Privacy Officer. Any information released under this provision may not be used for any employee discipline or other purpose except administrative continuity and any personal information shall be kept confidential.

5.3.4 Role Accounts

Role accounts (that is, those accounts granted to a role or organizational position rather than to an individual for business purposes) may be shared amongst Users as determined by the appropriate Operational Leader. Role accounts must have one responsible owner as appointed by the Operational Leader but may be shared amongst Users as determined by the appropriate Operational Leader. Role accounts cannot be used to store Personal Information as they are subject to access by the University to conduct its operations. The Chief Information Security Officer has the authority to permit an Operational Leader to access and disseminate the information contained in a Role account. Role accounts cannot be used to share licensed software in a manner that may violate the license. Use of Role accounts may be prohibited in specific systems and processes if the use of Role accounts fails to meet regulatory or legislative requirements.

5.4 Use of Non-University Systems for University Business

5.4.1 To optimize the security of Digital Information and Electronic Systems and to ensure administrative effectiveness and the best use of University resources, Units should choose to use approved Electronic Systems, when available.

5.4.2 When approved Electronic Systems are not available Users or Units who wish to store, transmit, use, or dispose of Regulated Information or Internal Information using systems other than Electronic Systems must be pre-authorized by the Chief Information Security Officer (“CISO”) to do so. Once approved, adherence to the Procedures, Standards, Guidelines, Controls, and Processes associated with this policy is required.

5.5 CISO - Emergency Authority
5.5.1 If an emergency arises that threatens the security of Digital Information or Electronic Systems, the CISO has the authority and responsibility to implement emergency response measures to shut down the risk and to mitigate further damage. Those affected by such actions shall be notified as soon as practicable.

5.5.2 The CISO will immediately report any such emergency response measures to the Executive Team. The Executive Team will work with the CISO to evaluate the risk and review next steps.

6.0 ROLES AND RESPONSIBILITIES

6.1 Chief Information Security Officer

6.1.1 The CISO (or delegate) shall perform a coordinating role in the implementation, administration, and support of this policy by:

a. developing, issuing, and regularly reviewing the Procedures, Standards, Guidelines, Controls, and Processes;

b. providing guidance on compliance with the policy;

c. providing an ongoing security awareness training program;

d. assisting in the investigation of breaches and potential breaches of the policy; and

e. consulting with the Access and Privacy Program at the Archives and Records Management Department to determine the potential privacy impact associated with any information security incident or breach.

6.2 Operational Leaders

6.2.1 Operational Leaders of Academic or Administrative Units are responsible for maintaining the security of their local Digital Information and Electronic Systems. Their responsibilities include:

a. assigning access, renewing, retiring, or revoking User authorizations within their area of responsibility based upon the User’s role within the Unit (Role-Based Access) following the Principle of Least Privilege

b. ensuring that Digital Information and Electronic Systems are secured, with particular care concerning User identification and validation measures;

c. ensuring that Digital Information, within their area of responsibility, is maintained, transmitted, stored, retained and disposed in a secure and consistent manner that adheres to all relevant University policies including Procedures, Standards, Guidelines, Controls, and Processes, record retention schedules and disposal authorities and the Freedom of Information and Protection of Privacy Act;

Commented [JA18]: New Comment: Privacy office recommended to add the word "Department" to the Archives and Records Management. This was to standardize the language. Recommendation was incorporated.

Commented [JA19]: New Comment: Privacy office recommended to add retention and disposition to this section. Digital information should be retained and disposed of according to an approved Records Retention Schedule and Disposition Authority. This was to ensure the entire lifecycle of digital information is addressed. Recommendation was incorporated.
d. ensuring that breaches and potential breaches of this policy occurring within their Unit are reported to the CISO, then continuing to assist in the investigation, while preserving evidence where required;

e. ensuring that technical staff within their Unit are aware of and adhere to this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes;

f. ensuring their technical staff support University security standards in the design, installation, maintenance, training, and use of Digital Information and Electronic Systems; and

g. working with Chief Information Officer (“CIO”) and CISO to make training, other information, and resources necessary to support this policy available to their Unit.
7.0 REPORTING

7.1 The CISO will report to the Audit, Risk, and Compliance Committee of the Board of Governors on matters related to the security and use of Digital Information and Electronic Systems.

8.0 RELATED LEGAL, POLICY AUTHORITIES AND AGREEMENTS

8.1 The legal and other University Policy authorities and agreements that may bear on the administration of this policy and may be consulted as needed include but are not limited to:

8.1.1 University Act, RSBC 1996, c 468
8.1.2 Freedom of Information and Protection of Privacy Act, RSBC 1996, c 165
8.1.3 Enterprise Risk Management (GP 42)
8.1.4 The University’s Information Policy Series, including Protection of Privacy (I 10.11)

9.0 ACCESS TO INFORMATION AND PROTECTION OF PRIVACY

9.1 The information and records made and received to administer this policy are subject to the access to information and protection of privacy provisions of British Columbia’s Freedom of Information and Protection of Privacy Act and the University’s Information Policy series.

10.0 RETENTION AND DISPOSAL OF DIGITAL INFORMATION

10.1 Information and records made and received to administer this policy are evidence of the University’s actions to guide access to, and the use and security of, Digital Information and Electronic Systems. Digital Information and records must be retained and disposed of in accordance with a records retention schedule approved by the University Archivist.

11.0 POLICY REVIEW

11.1 This policy must be reviewed every five years but may be reviewed as needed.

12.0 POLICY AUTHORITY

12.1 This policy is administered under the authority of the Vice-President Finance and Administration.

13.0 INTERPRETATION

13.1 Nothing in this policy should be interpreted in a manner that is inconsistent with the University’s legal obligations, including its obligations under any relevant collective agreement or employment policy with non-unionized employees.
13.2 Questions of interpretation or application of this policy shall be referred to the Vice-President Finance and Administration who will decide for determination, and whose decision shall be final.

14.0 PROCEDURES AND OTHER ASSOCIATED DOCUMENTS

14.1 Appendix A contains the definitions applicable to this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes.

14.2 The Procedures, Standards, Guidelines, Controls, and Processes associated with this policy include but are not limited to:

14.2.1 Digital Information Classification Standard;

14.2.2 Acceptable Use of Electronic Systems Standard;

14.3 The associated Procedures, Standards, Guidelines, Controls, and Processes listed above will be published on the [Web Site TBD].

1.0 PURPOSE

1.1 The purpose of this Appendix is to define the words used in the Acceptable Use and Security of Digital Information and Electronic Systems Policy [GP-NEW] and its associated procedures, standards, guidelines, controls, and processes.

2.0 DEFINITIONS

2.1 **Chief Information Security Officer** ("CISO") means the position at SFU responsible for Digital Information and Electronic Systems in relation to risk, security, [TBA], security technology standards, compliance, and enterprise security architecture.

2.2 **Digital Information** means information that is stored or processed by Electronic Systems to conduct University Business.

2.3 **Electronic Systems** means all electronic devices, computers, applications, storage, networking, infrastructure, or processes used to create, store, transfer, secure, exchange or dispose of all forms of Digital Information, within the services, devices and facilities that are owned, leased, or provided by the University, and that are used to store, process, or transmit Digital Information.
This includes, but is not limited to:
- computers and computing facilities;
- computing hardware and equipment;
- mobile computing devices;
- digital storage media;
- communication gateways and networks;
- email systems;
- telephones or other communication systems; and
- software.

**Executive Team** is the senior management team of SFU chaired by the President.

### 2.5 Internal Information

**Internal Information** means a class of Digital Information that access is limited to employees and other authorized Users and is stored within a controlled access system. This is the default category, used for information that is not Public Access Information or Regulated Information. Internal Information is available to those employees with a need for access as part of their job duties. Examples of Internal Information include student transcripts, employee emails in their Computing-ID and role-based University email accounts, and employee emergency contact information.

Internal Information is means a class of SFU Digital Information that access is limited to employees and other authorized Users and is stored within a controlled access system. This is the default category, used for information that is not Public Access Information or Regulated Information. Internal Information is available to those employees with a need for access as part of their job duties. Restrictions are applied based on a need-to-know basis. Access is assigned by the employee's job responsibilities. Examples of Internal Information include student grades transcripts, employee emails in their Computing-ID and role-based University email accounts, and personal employee emergency contact information.

### 2.6 Operational Leader of an Academic or Administrative Unit

The **Operational Leader** means a person who oversees the day-to-day use of Digital Information and Electronic Systems within their faculty or Unit department of the University, responsible for the overall procurement, development, integration, modification, operation, maintenance and retirement of Electronic Systems. The responsibilities of an Operational Leader may be assigned or delegated to a system administrator, a service owner, an academic or non-academic Director or to another position within a specific area of the University.

### 2.7 Principle of Least Privilege

**Principle of Least Privilege** means the concept that a User should only have access rights to information as needed to perform their responsibilities, and no more.

### 2.8 Public Access Information

**Public Access Information** means a class of Digital Information that is information that is generally available to the public. This information is deemed to be public by legislation or policy. Examples include information contained in the University’s annual report, published convocation lists, statistical reports on enrolment and information about an employee’s position, function, or remuneration.
2.9 **Regulated Information** means a class of Digital Information which means information of a highly sensitive or confidential nature that is protected from general distribution and is stored within a controlled access system. This information may be protected by legal contract, legislation, or regulation. Special authorization must be obtained before regulated information is made available. The level of access will be determined based on the end-user’s role requirements. The authorization and requirements will be tracked by ITS.

2.52.10 **Role Based Access** means a model to restrict a User’s access to certain Digital Information and Electronic Systems based on their role (e.g., prospect, student, alumni, staff, faculty member, retiree). Role Based Access is based on the concept that a User should only have access to the information and systems that they absolutely need to perform their responsibilities, and no more.

2.6 **Service Provider** means a person or company retained under contract to perform services for the University, include technical staff, work units or external service providers/vendors who design, manage, and operate electronic information systems (e.g., project managers, system designers, software developers, business analysts, application administrators, cloud tenant administrators, cloud service providers, or network and system administrators).

2.11 **SFU’s Digital Information** means the digital information University Information needed to conduct University Business.

2.7 **SFU’s Digital Information and Electronic Systems** means all digital University Information and all computers, applications, storage, networking, infrastructure, or processes used to create, store, secure, exchange or dispose of all forms of that Digital Information. The systems may reside on premise at an SFU campus, at provincial or federal government site, or at an external vendor site. Either Local IT Staff or ITS teams may manage these systems.

2.7 **SFU’s Electronic Systems** means all electronic devices, computers, applications, storage, networking, infrastructure, or processes used to create, store, transfer, secure, exchange or dispose of all forms of Digital Information, within the to services, devices and facilities that are owned, leased, or provided by SFU, the University, and that are used to store, process, or transmit SFU’s Digital Information. This includes, but is not limited to:

- computers and computing facilities;
- computing hardware and equipment;
- mobile computing devices;
- digital storage media;
- communication gateways and networks;
- email systems;
- telephones or other communication systems; and
- software.

2.82.12 **University** means Simon Fraser University (“SFU”).

2.92.13 **University Business** means activities in support of the administrative, academic, research, or other mandates of the University.
2.102.14 University Community means all students and employees of the University, and all people who have a status at the University mandated by legislation or other University policies, including research assistants, post-doctoral fellows, members of Senate and the Board of Governors, volunteers, visiting and emeritus faculty, and visiting researchers.

2.15 User means any individual who uses or accesses Digital Information and Electronic Systems working for the University in any capacity, whether paid or unpaid, including University employees, Service Providers, student employees, volunteers, visitors and, as well as students who use or access SFU Digital Information and Electronic Systems.

2.16 Unit means a group of Users linked by a common interest or purpose, including, but not limited to, faculties, departments, divisions, schools, offices, or centres.

Commented [JA10]: New Comment: Privacy office had recommended to simplify the definition of “Users”. Recommendation was implemented

Commented [JA11]: New Comment: Privacy office had recommended to add the definition of "Unit". Recommendation was implemented
Fair Use of Information and Communications Technology

Date
March 23, 1993

Number
GP 24

Revision Date
January 29, 2009

Revision No.
A

Preamble

This policy allows those who administer the University’s Information and Communications Technology (ICT) resources to do so as transparently as possible, while providing users with essential guidance on their rights and responsibilities.

ICT resources (see section 6) include business tools that facilitate University processes and activities related to its research, teaching and community service mandates. The University recognizes those resources may be the pathway by which controversial points of view and new ideas are disseminated and tested by members of the community.

The University continuously strives to create an environment that provides members of the community with the resources needed to meet the objectives of their work and/or studies, and to create a working and learning environment that promotes full, free and responsible participation by all members.

1.0 Purpose:

1.1 The Purpose of this policy is to:

a) establish the University’s right to control and manage its Information and Communications Technology (ICT) resources;

b) inform administrators and users of SFU’s ICT resources of their rights and responsibilities regarding the management and use of these
fundamental resources; and

c) make users accountable for their use of the University’s ICT resources.

2.0 Policy

2.1 Right of Access

2.1.1 Authorized users of the University’s ICT resources have the right to access them without interference by others.

2.1.2 Where users misuse the University’s ICT resources, their right of access may be restricted or removed. (See section 2.6.)

2.2 Confidentiality and Privacy Protection

2.2.1 General

The University respects the privacy of those who use the University’s ICT resources and protects users’ information by making reasonable security arrangements against such risks as unauthorized access, collection, use, disclosure or disposal. The University’s ICT staff will comply with the FOIPOP Act and the University’s information and privacy policies (IL0 series) and will disclose a user’s activities and personal information only as permitted or required by law.

2.2.2 Logging of Information

Most activities performed using the University’s ICT resources are logged. Information in log files is owned by the University and is routinely examined by ICT support staff to monitor the performance, reliability and security of ICT resources. ICT support must not disclose information learned from or contained within these log files except when authorized in writing to do so by their Director in order to:

a) investigate an alleged violation of this Policy or other related University Policy using the procedure outlined in Appendix II; or to

b) respond to a request for information pursuant to proceedings under the auspices of another University Policy using the procedure outlined in Appendix II; or to

c) ensure administrative continuity (see sections 2.2.3 and 2.2.4).

2.2.3 Disclosure of Information - Administrative Continuity

In cases of the absence, retirement or termination of an employee engaged in administrative duties, there may be occasions where departments need access to that individual’s emails or files to conduct business as permitted under section 33.2(c) FOIPOP Act. In such cases the Chair or unit head can obtain access by making a request to the Director, Client and Research Services (CaRS). Any information released under this provision may not be used for any employee discipline or other purpose except administrative continuity and any personal information shall be kept confidential.

2.2.4 Role Accounts

Role accounts (i.e., those granted to a role or organizational position rather than to an individual for business purposes) may be shared amongst authorized users as determined by the appropriate Department Chair/unit head. Information contained in these accounts may be
accessed and disseminated upon the request of the Chair/unit head to the Director, Client and Research Services (CaRS). Users are advised that role accounts should not be used to store personal information as they are subject to access should the University need to do so to conduct its operations.

2.3 Personal Use

2.3.1 Accounts to access ICT resources are issued for the sole use of the person to whom they are issued. Accounts are not to be shared, given, rented, sold or reassigned to any other individual or organization. Role accounts are exceptions to this provision.

2.3.2 Incidental personal use of ICT resources is allowed provided that it does not contravene the law and provisions of this or other University policies; interfere with access to ICT resources by authorized users; or cause the University to incur additional costs (e.g., excessive use of internet bandwidth).

2.4 Commercial Use

2.4.1 The University’s ICT resources shall not be used for commercial purposes, for profit-making, or for the benefit of non-SFU organizations unless these purposes are authorized under, and consistent with, the appropriate University policies and procedures. This provision shall not restrict SFU researchers from pursuing their research activities and freely exchanging information.

2.5 Misuse

2.5.1 Misuse of the University’s ICT Resources is explicitly prohibited. Activities included under the definition of “misuse” are set out in Section 6.0 Definitions below.

2.6 Protective Measures

2.6.1 The University reserves the right to limit, restrict or terminate user access, and to inspect, copy, remove or otherwise alter any data, files or other ICT resources covered by this policy.

2.6.2 At the direction of the Director, CaRS or designate, interim measures may be taken by duly authorized ICT staff in immediate response to allegations or awareness of misuse. These measures shall remain in force until the matter is resolved by the appropriate University Officer.

3.0 Scope:

3.1 This Policy applies to anyone using the University’s ICT resources or using their SFU authorization credentials to access ICT resources provided by other organizations. In the latter case, users are responsible for making themselves aware of, and to comply with, the other organization’s “acceptable use” policies.

3.2 This Policy covers all University-owned or -leased ICT resources, whether individually controlled or shared, standalone or networked, and to all activities of individuals accessing University-owned ICT resources from non-University-owned ICT resources (e.g., personal computer, PDA, or other devices).

3.3 From time to time the University may grant access to ICT resources to persons from other organizations through reciprocal sharing agreements with individual organizations or through participation in a federation of organizations. This privilege may be revoked solely at the discretion of the University.
4.0 Roles and Responsibilities:

4.1 The University’s ICT resources will be provided and protected by the University to a degree that is reasonable and technically feasible under the guidelines set out by this policy, its associated procedures, section 30 of the FOIPOP Act and any other relevant University policy or procedure (see Appendix 1 for a partial list of such documents).

4.2 The University warrants that it makes reasonable security arrangements for the ICT resources offered; however, SFU stipulates that there are no guarantees regarding the accessibility, reliability or security of said resources.

4.3 The responsibilities of the ICT staff, in priority order, are to maintain the security of the information in the ICT environment, maintain the ICT environment in an operationally available state, and ensure that the ICT resources are accessible to the members of the user community. Where the security of information within the ICT environment is threatened, access to the environment may be restricted until the threat is resolved.

5.0 Authority:

5.1 This policy is administered under the authority of the Chief Information Officer.

6.0 Definitions

Authorization for File Access is the Form required to view information either owned by an Authorized User or pertaining to an Authorized User for which the User has not given permission, except for role accounts (section 2.2.4) or in situations dealing with Administrative continuity (section 2.2.3). An Authorization is normally required to support an investigation or process associated with the application of this or another University Policy.

Authorized Users are those who have current ICT identity credentials granted by an authorized Officer of the University.

Confidentiality means keeping personal information private or secret, safe from access, use or disclosure by people who are not authorized to handle that information. (BC Govt. FOIPOP Policy and Procedures Manual.)

FOIPOP Act refers to the Freedom of Information and Protection of Privacy Act and associated Regulations enacted by the Province of British Columbia. Also known as FOIPOP.

ICT Resources Information resources in this document are meant to include any information in digital format, or any hardware or software that make possible the electronic storage and use of such information. This includes, but is not limited to, electronic mail, local databases, externally accessed databases, CD-ROM, motion picture film, recorded magnetic media, photographs, and digitized information. For purposes of this Policy, the “appropriate use of ICT resources” does not refer to managing digital information in terms of its classification, organization, retention or disposal; this is not a records management policy.

Interim measures may include, but are not limited to:

- contact with respondents to establish the veracity of allegations;
- discussions with respondents to informally resolve problems;
- instruction to respondents to cease and desist alleged misuse within a time limit; or
- temporary disabling of respondents’ computer accounts or other access.
It is understood that interim measures are to be preemptive and remedial rather than punitive, and will remain in force until the matter is resolved by the appropriate University Officer.

**Misuse** under this policy encompasses, but is not limited to:

**Unlawful Activities:**

Any activity that contravenes federal or provincial legislation, whether or not the activity is reported to the police

The evidence supporting a suspicion or allegation of unlawful activity will be assessed and misuse will be determined based on a 'Balance of Probabilities' standard

Knowledge of and compliance with the law is the responsibility of the user

**Threats to System Security or Integrity:**

Seeking to gain, or gaining, unauthorized access to ICT resources

Possessing, creating, transmitting or storing tools, programs, attachments or other materials for the purpose of gaining unauthorized access

Examining or using without authorization another user's files or programs in transit or in storage

Unauthorized scanning of other computers on the network

Preventing rightful access to computer-based information and ICT resources

Altering, disrupting or otherwise interfering with the integrity of computer-based information and ICT resources, including the passing on of viruses, worms, "trojans" or other "malware"

Endangering the finite capacity of any system through "chain mail," "flame wars," "bombing," "spamming" or using any method system administrators consider may endanger and/or restrict the access to their accounts by other authorized users

Impersonating another user (regardless of whether the other user is real or fictitious) by altering individual system identity

**Excessive Use of ICT Resources:**

Use of ICT resources in a manner that may result in additional cost to the University

Use of ICT resources in a manner that consumes resources that would rightfully be available to others.

**Contravention of University Policy**

Use of ICT Resources contrary to another University policy will be addressed as applicable under the relevant policy.

**Personal** is defined as relating to, concerning, or affecting a person as a private individual (rather than as a member of a group or the public, or in a public or professional capacity); individual, private; one's own.

**Personal Information** means recorded information about an identifiable individual other than contact information (FOIPOP Act).

**Privacy** means the state or condition of being alone, undisturbed, or free from public attention, as a matter of choice or right; seclusion, freedom from interference or intrusion. (BC Govt. FOIPOP Policy and Procedures Manual)

**Record** includes books, documents, maps, drawings, photographs, letters, vouchers, papers and any other thing on which information is
recorded or stored by graphic, electronic, mechanical or other means, but does not include a computer program or any other mechanism that produces records (FOIPOP Act). Note that this definition of “record” specifically excludes ICT resources (i.e., a computer program or any other mechanism that produces records).

APPENDIX I

This Policy should be read and understood in conjunction with the following University Policies and documents, and with the University’s Statement on Values and Commitments:

A 30.01 Faculty Code of Ethics
AD 1.06 Commercial Activities and Advertising
AD 1.12 Selling, Serving and Advertising Liquor
GP 18 Human Rights
GP 25 Response to Violence and Threatening Behaviour
GP 30 Interpretation Policy
I 10.04 Access to Information and Protection of Privacy
R 30.03 Intellectual Property Policy
T 10.01 Code of Student Conduct
T 10.02 Code of Academic Honesty
Applicable Residence and Housing agreements/contracts

APPENDIX II – Procedure to Authorize File Access

An Authorization for File Access is required to view information either owned by an Authorized User or pertaining to an Authorized User for which the User has not given permission, except for role accounts (section 2.2.4) or in situations dealing with Administrative continuity (section 2.2.3). An Authorization is normally required to support an investigation or process associated with the application of this or another University Policy.

Log files and file directories are system resources and are routinely monitored by duly authorized system support staff to maintain the security, reliability, accessibility, and performance of the University’s ICT resources. Notwithstanding these, systems staff must not divulge any information pertaining to the activities of an Authorized User to anyone other than other duly authorized system support staff.

Neither the Authorization forms nor the information arising from their use may be transmitted via any insecure communications media. E.g., email is neither acceptable nor sufficient.

1. If the Authorization for File Access is sought to support an allegation or suspicion of misuse under this policy, an Authorization for File Access Form must be completed by the person making the claim.

2. If the Authorization for File Access is sought to support the application of another University Policy, the Authorization for File Access Form shall be completed by the person duly appointed to investigate under the auspices of the applicable University Policy.

3. The Authorization for File Access must contain the following information:

   The name of the applicant
   The date of the application to access the files
The ID of the Authorized User for which the application is requested
The date that the file access must cease/end
The Name of the Authorized User for which the application is requested
The University Policy under which the application is requested
A description containing the reason for the request and the information requested
The names of staff/faculty who are authorized to access this information when it is produced
The name, phone number, and signature of the person requesting the information

4. The completed Authorization for File Access form should be taken to the Director, CaRS. The request will be reviewed to ensure that the information requested is possible to produce, that it is sufficient to meet the objective of the request, and that the resources required to produce the information are available. (Note: Requests for information from backup tapes or log files can take several days to produce.) If the Director, CaRS agrees with the technical aspects of the requests and has the resources available to produce the information the Director, CaRS will approve the form.

5. The Director, CaRS will then take the form to seek the approval of two University Vice-Presidents. The requestor may or may not accompany the Director when seeking the Vice-Presidents’ approval.

6. The information will be assembled and two copies prepared on an appropriate storage media (usually a write once CD or DVD). The information will be assembled by the appropriate systems support person, who will initial the media in order to identify it later if necessary. One copy will be stored in a confidential file with the original of the approved Authorization for File Access form, and the second will be given to the requestor.

APPENDIX III – Authorization for File Access

Sample Form Attached

GP24_Request_for_Access_to_Personal_Information_Contained_In_ICT_Resources.pdf
Request for Access to Personal Information Contained in ICT Resources
ACCEPTABLE USE AND SECURITY OF DIGITAL AND ELECTRONIC SYSTEMS

**Date**
March 23, 1993

**Number**
GP-24 [NEW]

**Date of Last Review/Revision**
January 29, 2002

**Mandated Review**
[TBA]

Updated Discussion Draft: September 09, 2022

Policy Authority: Vice President Finance and Administration

Associated Procedure(s): See section 14 of this Policy

EXECUTIVE SUMMARY

Simon Fraser University (the “University”) is committed to protecting the Digital Information and Electronic Systems that are critical to teaching, research, business operations, and other University activities and that are vital to the communities we support. This policy establishes standards and guidelines to:

- secure the Regulated personally identifiable Digital Information that our Electronic Systems contain;
- maintain the integrity of those Electronic Systems, and
- safeguard the financial assets of the University.

Access to, and use of, Digital Information and Electronic Systems will be granted using Role-Based Access principles. This enables Users to access Digital Information and Electronic Systems only as required for their role at the University, and only at the level required to perform their role. Everyone who accesses or uses Digital Information and Electronic Systems must do so ethically, responsibly, lawfully, and in a manner consistent with the Procedures, Standards, Guidelines, Controls, and Processes associated with this and any other relevant University policy or procedure.

Commented [JA1]: New Comment: - Privacy office had recommended that we mention University rather than SFU. Recommendation was incorporated

Commented [JA2]: New Comment: - Privacy office recommended to change the word Critical as it was used twice in the same sentence. Recommendation was implemented with the change of “Critical” to “Vital”

Commented [JA3]: New Comment: - Privacy office recommended to add the term sensitive information as the security of both sensitive and personally identified information must be addressed. Recommendation was incorporated by adding the word “Regulated” in compliance with the definition provided in Appendix A

Commented [JA4]: New Comment: - Privacy office had recommended that we add “any other relevant University policy or procedure”. Recommendation was incorporated
# TABLE OF CONTENTS

Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>1.0 PREAMBLE</td>
<td>3</td>
</tr>
<tr>
<td>2.0 PURPOSE</td>
<td>3</td>
</tr>
<tr>
<td>3.0 SCOPE AND JURISDICTION</td>
<td>3</td>
</tr>
<tr>
<td>4.0 DEFINITIONS</td>
<td>3</td>
</tr>
<tr>
<td>5.0 POLICY</td>
<td>3</td>
</tr>
<tr>
<td>6.0 ROLES AND RESPONSIBILITIES</td>
<td>65</td>
</tr>
<tr>
<td>7.0 REPORTING</td>
<td>8</td>
</tr>
<tr>
<td>8.0 RELATED LEGAL, POLICY AUTHORITIES AND AGREEMENTS</td>
<td>8Z</td>
</tr>
<tr>
<td>9.0 ACCESS TO INFORMATION AND PROTECTION OF PRIVACY</td>
<td>8Z</td>
</tr>
<tr>
<td>10.0 RETENTION AND DISPOSAL OF DIGITAL INFORMATION</td>
<td>8Z</td>
</tr>
<tr>
<td>11.0 POLICY REVIEW</td>
<td>8Z</td>
</tr>
<tr>
<td>12.0 POLICY AUTHORITY</td>
<td>8Z</td>
</tr>
<tr>
<td>13.0 INTERPRETATION</td>
<td>8Z</td>
</tr>
<tr>
<td>14.0 PROCEDURES AND OTHER ASSOCIATED DOCUMENTS</td>
<td>98</td>
</tr>
</tbody>
</table>
1.0 PREAMBLE

1.1 The University will strive to balance the need for security with the open pursuit of academic activities. Security concerns may place limits on the way in which work is done, but not on the research or inquiry that is pursued. When limitations are needed, the University will make reasonable efforts to consult with person(s) impacted to attempt to find appropriate and workable solutions.

1.2 Proper management of the security risks associated with access to and use of Digital Information and Electronic Systems is imperative to support the University’s academic, research, and administrative activities.

1.3 To ensure Digital Information and Electronic Systems remain secure, to a degree that is reasonable and technically feasible and in accordance with FIPPA, the University will grant access to Users by utilizing Role-Based Access principles and security controls.

1.4 Each User of Digital Information and Electronic Systems is responsible for abiding by the University’s Role-Based Access principles and security controls.

2.0 PURPOSE

2.1 This policy, together with its associated Procedures, Standards, Guidelines, Controls, and Processes referenced in section 14, establishes the University’s expectations for access to, and use of, Digital Information and Electronic Systems.

3.0 SCOPE AND JURISDICTION

3.1 This policy applies to all Digital Information and Electronic Systems

3.2 This policy applies to all Service Providers and members of the University Community who are authorized to access and use Digital Information and Electronic Systems for the purpose of creating, storing, transmitting, using, or disposing of SFU Digital Information.

3.3 A breach of this policy may result in the University restricting or withdrawing a User’s access to Digital Information and Electronic Systems, including computing privileges and network access.

4.0 DEFINITIONS

4.1 See Appendix A for the definitions of words used in this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes.

5.0 POLICY

Commented [JA5]: New Comment: Privacy office had recommended to add wording “to a degree that is reasonable and technically feasible and in accordance with FIPPA”. Recommendation was incorporated

Commented [JA6]: New Comment: Privacy office had recommended to remove wording “both administrative and academic” from 3.1 and 3.2, as this was covered in the definition of Digital Information and Electronic Systems. Recommendations were implemented

Commented [JA7]: New Comment: Privacy office had recommended to remove wording “for the purpose of creating, storing, transmitting, using, or disposing SFU Digital Information” from 3.2, as this was covered in the definition of Digital Information and Electronic Systems. Privacy office also recommended to add “Service Providers” in the sentence. Recommendations were implemented

Commented [JA8]: New Comment: Privacy office had recommended to remove wording “for the purpose of creating, storing, transmitting, using, or disposing SFU Digital Information” from 3.2, as this was covered in the definition of Digital Information and Electronic Systems. Privacy office also recommended to add “Service Providers” in the sentence. Recommendations were implemented

Commented [JA9]: New Comment: Privacy office had recommended to remove wording “This policy only applies to Digital Information and Electronic Systems and the University’s digital record keeping processes.” as this was covered in 3.1. and 3.2. Recommendation was implemented

Commented [JA10]: New Comment: Privacy office had recommended to move this section from 5.2.2 to 3.3. As this section would impact the entire user community. Recommendation was incorporated
5.1 Role-Based Access to Digital Information and Electronic Systems

5.1.1 The University will utilize Role-Based Access principles to grant Users access to Digital Information and Electronic Systems. Role-Based Access enables Users to access information and systems only as required for their role at the University, and only at the level required to perform their role.

5.2 Use of Digital Information and Electronic Systems

5.2.1 All Users must:

a. use Digital Information and Electronic Systems responsibly, lawfully, ethically, in accordance with the User’s Role-Based Access, and in adherence to license agreements.

b. ensure the security of the SFU’s Digital Information and Electronic Systems by:
   i. applying the Digital Information Classification Standard to determine which class of SFU’s Digital Information is appropriate: Internal Information, Public Access Information or Regulated Information; and

5.2.2 A breach of this policy may result in the University restricting or withdrawing a User’s access to SFU’s Digital Information and Electronic Systems, including computing privileges and network access.

5.3 Security of Digital Information and Electronic Systems

5.3.1 All Users of Digital Information and Electronic Systems must take appropriate steps to ensure security by (see section 5.2.1, above):

   i. applying the Digital Information Classification Standard to determine which class of Digital Information is appropriate: Internal Information, Public Access Information or Regulated Information; and
   ii. applying the digital information security and domain Standards applicable to each classification of Digital Information.

5.3.2 All Operational Leaders, owners and Service Providers of Digital Information and Electronic Systems, and those who are responsible for maintaining and administering them, must

Commented [JA11]: New Comment: Digital Library Services had recommended to add “and in adherence to license agreement”. Digital Library Services invoke GP 24 when end users contravene library policies or license agreements. Recommendation was incorporated

Commented [JA12]: New Comment: Privacy office had recommended to move this section from 5.2.1 b to 5.3.1. This section was referred from 5.3; this section is more suitable under the “Security of Digital Information and Electronic Systems”. Recommendation was implemented

Commented [JA13]: New Comment: The term owner was overlapping with the Operational Leader. Privacy office recommended to remove owner and state Operational Leader. Operational Leader is also defined in Appendix. Recommendation was implemented
protect the systems from cybersecurity or other threats by managing and remediating any vulnerabilities throughout the Electronic System’s lifecycle.

5.3.3 Disclosure of Information - Administrative Continuity

In cases of the absence, retirement or termination of an employee engaged in administrative duties, there may be occasions where Units need access to that individual’s emails or files to conduct business as permitted under section FIPP Act (RSBC 1996, c. 165). In such cases the Unit head can obtain access by making a request to the Chief Privacy Officer. Any information released under this provision may not be used for any employee discipline or other purpose except administrative continuity and any personal information shall be kept confidential.

5.3.4 Role Accounts

Role accounts (that is, those accounts granted to a role or organizational position rather than to an individual for business purposes) may be shared amongst Users as determined by the appropriate Operational Leader. Role accounts must have one responsible owner as appointed by the Operational Leader but may be shared amongst Users as determined by the appropriate Operational Leader. Role accounts cannot be used to store Personal Information as they are subject to access by the University to conduct its operations. The Chief Information Security Officer has the authority to permit an Operational Leader to access and disseminate the information contained in a Role account. Role accounts cannot be used to share licensed software in a manner that may violate the license. Use of Role accounts may be prohibited in specific systems and processes if the use of Role accounts fails to meet regulatory or legislative requirements.

5.4 Use of Non-University Systems for University Business

5.4.1 To optimize the security of Digital Information and Electronic Systems and to ensure administrative effectiveness and the best use of University resources, Units should choose to use approved Electronic Systems.

5.4.2 When approved Electronic Systems are not available Users or Units who wish to store, transmit, use, or dispose of Regulated Information or Internal Information using systems other than Electronic Systems must be pre-authorized by the Chief Information Security Officer (“CISO”) to do so. Once approved, adherence to the Procedures, Standards, Guidelines, Controls, and Processes associated with this policy is required.

5.5 CISO - Emergency Authority
5.5.1 If an emergency arises that threatens the security of Digital Information or Electronic Systems, the CISO has the authority and responsibility to implement emergency response measures to shut down the risk and to mitigate further damage. Those affected by such actions shall be notified as soon as practicable.

5.5.2 The CISO will immediately report any such emergency response measures to the Executive Team. The Executive Team will work with the CISO to evaluate the risk and review next steps.

6.0 ROLES AND RESPONSIBILITIES

6.1 Chief Information Security Officer

6.1.1 The CISO (or delegate) shall perform a coordinating role in the implementation, administration, and support of this policy by:

a. developing, issuing, and regularly reviewing the Procedures, Standards, Guidelines, Controls, and Processes;

b. providing guidance on compliance with the policy;

c. providing an ongoing security awareness training program;

d. assisting in the investigation of breaches and potential breaches of the policy; and

e. consulting with the Access and Privacy Program at the Archives and Records Management Department to determine the potential privacy impact associated with any information security incident or breach.

6.2 Operational Leaders

6.2.1 Operational Leaders of Academic or Administrative Units are responsible for maintaining the security of their local Digital Information and Electronic Systems. Their responsibilities include:

a. assigning access, renewing, retiring, or revoking User authorizations within their area of responsibility based upon the User’s role within the Unit (Role-Based Access) following the Principle of Least Privilege

b. ensuring that Digital Information and Electronic Systems are secured, with particular care concerning User identification and validation measures;

c. ensuring that Digital Information, within their area of responsibility, is maintained, transmitted, stored, retained and disposed in a secure and consistent manner that adheres to all relevant University policies including Procedures, Standards, Guidelines, Controls, and Processes, record retention schedules and disposal authorities and the Freedom of Information and Protection of Privacy Act.

Commented [JA18]: New Comment: Privacy office recommended to add the word “Department” to the Archives and Records Management. This was to standardize the language. Recommendation was incorporated

Commented [JA19]: New Comment: Privacy office recommended to add retention and disposition to this section. Digital information should be retained and disposed of according to an approved Records Retention Schedule and Disposition Authority. This was to ensure the entire lifecycle of digital information is addressed. Recommendation was incorporated
d. ensuring that breaches and potential breaches of this policy occurring within their Unit are reported to the CISO, then continuing to assist in the investigation, while preserving evidence where required;

e. ensuring that technical staff within their Unit are aware of and adhere to this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes;

f. ensuring their technical staff support University security standards in the design, installation, maintenance, training, and use of Digital Information and Electronic Systems; and

g. working with Chief Information Officer (“CIO”) and CISO to make training, other information, and resources necessary to support this policy available to their Unit.
7.0 REPORTING

7.1 The CISO will report to the Audit, Risk, and Compliance Committee of the Board of Governors on matters related to the security and use of Digital Information and Electronic Systems.

8.0 RELATED LEGAL, POLICY AUTHORITIES AND AGREEMENTS

8.1 The legal and other University Policy authorities and agreements that may bear on the administration of this policy and may be consulted as needed include but are not limited to:

8.1.1 University Act, RSBC 1996, c 468
8.1.2 Freedom of Information and Protection of Privacy Act, RSBC 1996, c 165
8.1.3 Enterprise Risk Management (GP 42)
8.1.4 The University’s Information Policy Series, including Protection of Privacy (I 10.11)

9.0 ACCESS TO INFORMATION AND PROTECTION OF PRIVACY

9.1 The information and records made and received to administer this policy are subject to the access to information and protection of privacy provisions of British Columbia’s Freedom of Information and Protection of Privacy Act and the University’s Information Policy series.

10.0 RETENTION AND DISPOSAL OF DIGITAL INFORMATION

10.1 Information and records made and received to administer this policy are evidence of the University’s actions to guide access to, and the use and security of, Digital Information and Electronic Systems. Digital Information and records must be retained and disposed of in accordance with a records retention schedule approved by the University Archivist.

11.0 POLICY REVIEW

11.1 This policy must be reviewed every five years but may be reviewed as needed.

12.0 POLICY AUTHORITY

12.1 This policy is administered under the authority of the Vice-President Finance and Administration.

13.0 INTERPRETATION

13.1 Nothing in this policy should be interpreted in a manner that is inconsistent with the University’s legal obligations, including its obligations under any relevant collective agreement or employment policy with non-unionized employees.
13.2 Questions of interpretation or application of this policy shall be referred to the Vice-President Finance and Administration who will decide for determination, and whose decision shall be final.

14.0 PROCEDURES AND OTHER ASSOCIATED DOCUMENTS

14.1 Appendix A contains the definitions applicable to this policy and its associated Procedures, Standards, Guidelines, Controls, and Processes.

14.2 The Procedures, Standards, Guidelines, Controls, and Processes associated with this policy include but are not limited to:

   14.2.1 Digital Information Classification Standard;
   14.2.2 Acceptable Use of Electronic Systems Standard;

14.3 The associated Procedures, Standards, Guidelines, Controls, and Processes listed above will be published on the [Web Site TBD].

1.0 PURPOSE

1.1 The purpose of this Appendix is to define the words used in the Acceptable Use and Security of Digital Information and Electronic Systems Policy [GP-NEW] and its associated procedures, standards, guidelines, controls, and processes.

2.0 DEFINITIONS

2.1 Chief Information Security Officer (“CISO”) means the position at SFU responsible for Digital Information and Electronic Systems in relation to risk, security, technology standards, compliance, and enterprise security architecture.

2.2 Digital Information means information that is stored or processed by Electronic Systems to conduct University Business.

2.3 Electronic Systems means all electronic devices, computers, applications, storage, networking infrastructure, or processes used to create, store, transfer, secure, exchange or dispose of all forms of Digital Information, within the services, devices and facilities that are owned, leased, or provided by the University, and that are used to store, process, or transmit Digital Information.
This includes, but is not limited to:
- computers and computing facilities;
- computing hardware and equipment;
- mobile computing devices;
- digital storage media;
- communication gateways and networks;
- email systems;
- telephones or other communication systems; and
- software.

**Executive Team** is the senior management team of SFU chaired by the President.

### 2.4

**Internal Information** means a class of Digital Information that access is limited to employees and other authorized Users and is stored within a controlled access system. This is the default category, used for information that is not Public Access Information or Regulated Information. Internal Information is available to those employees with a need for access as part of their job duties. Examples of Internal Information include student transcripts, employee emails in their Computing-ID and role-based University email accounts, and employee emergency contact information.

Internal Information is a class of SFU Digital Information that is information that access is limited to employees and other authorized Users and is stored within a controlled access system. This is the default category, used for information that is not Public Access Information or Regulated Information. Internal Information is available to those employees with a need for access as part of their job duties. Restrictions are applied based on a need-to-know basis. Access is assigned by the employee's job responsibilities. Examples of Internal Information include student grades transcripts, employee emails in their Computing-ID and role-based University email accounts, and personal employee emergency contact information.

### 2.6

**Operational Leader of an Academic or Administrative Unit** means a person who oversees the day-to-day use of Digital Information and Electronic Systems within their faculty or Unit department of the University, responsible for the overall procurement, development, integration, modification, operation, maintenance and retirement of Electronic Systems. The responsibilities of an Operational Leader may be assigned or delegated to a system administrator, a service owner, an academic or non-academic Director or to another position within a specific area of the University.

### 2.7

**Principle of Least Privilege** means the concept that a User should only have access rights to information as needed to perform their responsibilities, and no more.

### 2.8

**Public Access Information** means a class of Digital Information that is information that is generally available to the public. This information is deemed to be public by legislation or policy. Examples include information contained in the University’s annual report, published convocation lists, statistical reports on enrolment and information about an employee’s position, function, or remuneration.

Commented [JA3]: New Comment: The definition for “Executive team” was missing. “Executive Team” is mentioned in the GP 24 section 5.5.2. Recommendation was implemented

Commented [JA4]: New Comment: Privacy office had recommended to add more examples i.e. “transcripts, employee emails in their Computing-ID and role-based University email accounts, and employee emergency contact information”. Recommendation was implemented

Commented [JA5]: New Comment: Privacy office had recommended to add language defining the role of operational leader “responsible for the overall procurement, development, integration, modification, operation, maintenance and retirement of Electronic Systems”. Recommendation was implemented

Commented [JA6]: New Comment: Privacy office had recommended to simplify the definition of “Principle of Least Privilege”. Recommendation was implemented
2.9 Regulated Information means a class of Digital Information which means information of a nature that is protected from general distribution and is stored within a controlled access system. This information may be protected by legal contract, legislation, or regulation. Special authorization must be obtained before regulated information is made available. The level of access will be determined based on the end-user’s role requirements. Examples of limited access information include, but are not limited to, employment and education equity declarations, and records pertaining to disciplinary actions. The authorization and requirements will be tracked by ITS.

2.10 Role Based Access means a model to restrict a User’s access to certain Digital Information and Electronic Systems based on their role (e.g., prospect, student, alumni, staff, faculty member, retiree). Role Based Access is based on the concept that a User should only have access to the information and systems that they absolutely need to perform their responsibilities, and no more.

2.11 Service Provider means a person or company retained under contract to perform services for the University, include technical staff, work units or external service providers/vendors who design, manage, and operate electronic information systems (e.g., project managers, system-designers, software developers, business analysts, application administrators, cloud tenant administrators, cloud service providers, or network and system administrators).

2.12 University means Simon Fraser University (“SFU”).

2.13 University Business means activities in support of the administrative, academic, research, or other mandates of the University.
2.11 University Community means all students and employees of the University, and all people who have a status at the University mandated by legislation or other University policies, including research assistants, post-doctoral fellows, members of Senate and the Board of Governors, volunteers, visiting and emeritus faculty, and visiting researchers.

2.15 User means any individual who uses or accesses Digital Information and Electronic Systems working for the University in any capacity, whether paid or unpaid, including University employees, Service Providers, student employees, volunteers, visitors and as well as students who use or access SFU Digital Information and Electronic Systems.

2.16 Unit means a group of Users linked by a common interest or purpose, including, but not limited to, faculties, departments, divisions, schools, offices, or centres.

Commented [JA10]: New Comment: Privacy office had recommended to simplify the definition of “Users”. Recommendation was implemented

Commented [JA11]: New Comment: Privacy office had recommended to add the definition of “Unit”. Recommendation was implemented
MEMO

Date: October 2022
To: Senate
From: Julia Denholm, Dean, Lifelong Learning
Re: 2021/2022 Senate Committee on Continuing Studies Annual Report to Senate

For Senate’s information, please find enclosed the 2021/2022 Annual Report of the Senate Committee on Continuing Studies.

Within Lifelong Learning, the Continuing Studies area offers over two dozen programs and hundreds of courses to learners on virtually every continent. We partner with numerous associations to align our programming with professional certifications that meet learners' goals throughout their careers. Last year, non-credit education provided flexible learning opportunities to over 5,500 students of all ages.

The Senate Committee on Continuing Studies is responsible to review all non-credit certificates and diplomas offered by the University. On behalf of the University, I would like to thank the members of the committee for supporting this important work.

As our SFU Lifelong Learning Community Report for 2021/2022 highlights, your support helps to empower learners, build communities and extend the reach of SFU within Canada and around the world.

Julia Denholm, PhD
Chair, Senate Committee on Continuing Studies
Dean, Lifelong Learning
Composition and Mandate

The current membership of the Senate Committee on Continuing Studies (SCCS) is the Dean of Lifelong Learning (chair), Dean of Libraries, two faculty members, two at-large members, one convocation member and one student (see Appendix A). The SCCS meets twice each calendar year (fall and spring) and is responsible to advise Senate on policy with respect to the overall development of the University’s non-credit certificates and diplomas. The Committee also reviews and approves proposals for non-credit certificates and non-credit diplomas, which includes the establishment of, changes to, and discontinuance of non-credit certificates and non-credit diplomas. The SCCS reports its activities annually to Senate.

Actions of the SCCS in Academic Year 2021/2022

The Senate Committee on Continuing Studies met on October 14, 2021 and May 19, 2022

At the Fall 2021 meeting the Committee
  • ratified the Annual Report to Senate for 2020/2021
  • approved 410 non-credit certificate and diploma graduates

At the Spring 2022 meeting the Committee:
  • approved 517 non-credit certificate and diploma graduates

Total enrollments in Lifelong Learning’s credit and non-credit courses are provided in Appendix B.
Appendix A

Senate Committee on Continuing Studies, 2021-2022 Members

Julia Denholm, Dean, Lifelong Learning (Chair)
Gwen Bird, Library Services
Peter Hall, Senator (at-large)
Lara Campbell, Faculty Member
Ena Lee, Faculty Member
Abhishek Parmar, Senator (at-large)
Abdul Zahir, Member of the University Community (at-large)
Matt Martell, Convocation Senator
Winfield Chen, Student
Pooria Arab, Student (alternate)
### Appendix B

**Lifelong Learning Enrollment, Fiscal Year 2021/2022**

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>FEE-BASED REGISTRATIONS</th>
<th>FREE and SPONSORED REGISTRATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career and Professional Programs</td>
<td>7,740</td>
<td>2,155</td>
</tr>
<tr>
<td>Creative Writing Program</td>
<td>599</td>
<td>2,088</td>
</tr>
<tr>
<td>English Language and Culture Program</td>
<td>181</td>
<td>-</td>
</tr>
<tr>
<td>Leadership and Community Building Programs</td>
<td>1,905</td>
<td>1,635</td>
</tr>
<tr>
<td>Liberal Arts and 55+ Programs</td>
<td>1,619</td>
<td>2,778</td>
</tr>
<tr>
<td><strong>Total Enrollment</strong></td>
<td><strong>12,044</strong></td>
<td><strong>8,656</strong></td>
</tr>
</tbody>
</table>
MEMORANDUM

ATTENTION: Senate

FROM: Jeff Derksen, Dean of Graduate and Post-Doctoral Studies and Associate-Provost, and Acting Chair, SCUP on behalf of Wade Parkhouse, Provost and Vice-President Academic

RE: SCUP 22-23 Establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS)

At its meeting on November 16, 2022, SCUP reviewed and approved the establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS) for a five-year term.

Motion: That Senate approve and recommend to the Board of Governors the establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS) as an Institute for a five-year term.

C: M. Richards, C. Coljin, K. Lee, V. Farrally
Memorandum

From: Michael Richards, Associate Vice-President, Research
Date: Nov 02, 2022

Re: Pacific Institute on Pathogens, Pandemics and Society (PIPPS)

To: Wade Parkhouse, Chair, Ex-officio, Senate Committee on University Planning (SCUP)

Attached is a proposal for the establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS). The proposal is led by the inaugural Directors of the Institute, Drs. Caroline Coljin, Professor and Canada 150 Research Chair, Department of Mathematics, and Dr. Kelley Lee, Professor and Tier 1 CRC Chair, Faculty of Health Sciences.

As a ‘collaborative institution’, PIPPS is an interdisciplinary Institute that works closely with other research institutes and organizations, all levels of government and the Public. PIPPS’ unique collaborative model informs and supports the development of a ‘whole of society’ and planetary response to understanding the emergence and spread of pathogens and major infectious disease events and strengthen the capacity to ‘prevent, prepare, respond, and recover’, which is consistent with the United Nations’ 2030 Agenda for Sustainable Development and recognition of a changing planet. PIPPS will support the provincial government to build core population health capacities that provide added value to BC’s existing academic health complex through new research, training, and educational opportunities. It will generate and mobilize knowledge to optimize evidence-informed decision-making that strengthens prevention preparedness, response and recovery by individuals and communities throughout BC.

Prior to this application, PIPPS members have collaborated on a wide range of projects. Dr. Lee and Dr. Julia Smith (PIPPS Health and Social Inequities Theme Lead) are longstanding collaborators on projects related to tobacco control and global health governance. During the covid-19 pandemic, each established and is leading major new projects (the pandemics and borders project and gender and covid-19 project) with substantial new grant funding. In addition, each contribute to the project of the other. Both projects will be brought under the umbrella of the new institute.

PIPPS will be governed by an Advisory Board comprised of members representing not only Simon Fraser University but, given its intention to develop as a ‘collaborative institution’, representation also has been sought from other research-intensive universities in BC, the Office of the Provincial Health Officer, and the BC Indigenous research community. The SFU Vice-President Research and International (VPRI) (Dr. Dugan O’Neil) will chair the Advisory Board. The level of collaboration across fields as different as mathematics and social sciences reflects a highly modern perspective and opens PIPPS to many funding opportunities that a strictly discipline-based approach would not.

I recommend approval as a Research Institute according to Policy R40.01.

Motion:

That SCUP approve the establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS) as an institute for a five-year term.
Attachments:
• PIPPS Research Institute application
• Letter of support from the Dean of Faculty of Science
• Letter of support from the Dean of Faculty of Health Sciences

Strong support for PIPPS was received from BC’s five regional health authorities and First Nations Health Authority during a recent consultation process.
November 1, 2022

Dear Members, Senate Committee on University Priorities (SCUP):

RE: LETTER OF SUPPORT, PIPPS

I am writing to express my enthusiastic support of the Pacific Institute on Pathogens, Pandemics, and Society’s (PIPPS) application to be formally recognized as an SFU Institute. PIPPS will raise the SFU’s national and international profile in the area of infectious disease, pandemic prevention, response, and resilience. It will bring a new level of engagement between SFU and policy makers in public health. It has a unique combination of expertise that is usually siloed – modelling, evolution, data science, social science, and communications. An SFU Institute, PIPPS will enable researchers who work in these critically important disciplines to collaborate to the best effect, and to build a leading presence in a unique and important area.

PIPPS has two scientific co-directors: Dr. Caroline Colijn, Professor and Canada 150 Research Chair, Department of Mathematics, and Dr. Kelley Lee, Professor and Tier 1 CRC Chair, Faculty of Health Sciences. This joint leadership of the new Institute reflects its interdisciplinary focus, bringing the best of the quantitative and qualitative worlds together to focus on common problems associated with understanding emerging pathogens and preventing and mitigating outbreaks and future pandemics.

As the world slowly emerges from the ongoing COVID-19 pandemic, it has become abundantly clear that not only were we not sufficiently prepared for the pandemic, but there were also vast differences in the capacity to respond and the effectiveness of responses from country to country and even region to region within countries. Although the reasons vary widely, a common issue was lack of an integrated approach across sectors and disciplines.

The establishment of PIPPS addresses this challenge by bringing together multiple disciplines, clearly illustrated by its leadership and initial membership. This multidisciplinary approach will assist SFU to become a global leader in this field, building on the existing strengths and track records of Dr. Colijn and Dr. Lee.

Dr. Colijn is a key figure in BC’s pandemic response. She has developed many pandemic models and scenarios, sharing this work with the BC Government, the Public Health Agency of Canada, the National Committee on Immunization and other policy makers. She has played a key role in, and co-founded, the BC COVID-19 Modelling group, and was consulted frequently and extensively by the media throughout the pandemic. It is no surprise to me that she received an SFU Newsmaker award and a Radio-Canada Scientist of the Year Prize. SFU’s Faculty of Science gave her our 2021 Excellence in Science Public Engagement and Outreach Award. Dr. Colijn has an excellent track record of interdisciplinary research spanning public health, infectious disease, evolution, and mathematics.

PIPPS research leaders include two additional Faculty of Science researchers: Dr. Ben Ashby and Dr. Jessica Stockdale. Dr. Ashby recently received a $202,000 NSERC discovery grant to study microbial evolution along the parasitism-mutualism continuum. Dr. Stockdale is one of our newest faculty members, and will be working on establishing the data
science that is needed for infectious diseases that pose a substantial population-level threat. This field continues to grow in importance and scope, as climate change and other forces contribute to the risk of future pandemics and infectious diseases with the potential to cause high consequences for human populations by leading to new infections, antibiotic-resistant forms of bacterial infection, new variants of SARS-CoV-2, new influenzas, and more.

Dr. Colijn and Dr. Lee have assembled an excellent team of scientists spanning more than one Faculty, whose complementary skills and knowledge will contribute greatly to developing strategies for how British Columbia, Canada, and the world can respond to the next pandemic or emerging infectious disease crisis. The work of PIPPS will put SFU in a position to inspire multi-sectoral approaches, to work with policy-makers to have impact, and to develop a unique platform for research and training on pathogens, pandemics, and society.

I provide my strongest support for making the Pacific Institute on Pathogens, Pandemics, and Society an SFU Institute.

Sincerely,

Angela Brooks-Wilson
Dean, Faculty of Science
Simon Fraser University

ABW/el
November 1, 2022


To whom it may concern:

This letter is to express my strong support for the formal establishment of the Pacific Institute on Pathogens, Pandemics and Society (PIPPS) as an institute of Simon Fraser University.

The inaugural Scientific Co-Directors of PIPPS are Professor Kelley Lee, a Tier 1 Canada Research Chair and distinguished member of the Faculty of Health Sciences, and Professor Caroline Colijn, an internationally recognized Canada 150 Chair in the Department of Mathematics, Faculty of Science, as the inaugural Scientific Co-Directors. This co-leadership model reflects the priority commitment given to interdisciplinarity of the new Institute as a starting point. By bringing together a wide range of academic disciplines and perspectives, PIPPS will serve as an innovative research and training platform to champion a full society approach to infectious disease that have potentially significant impacts on the health and well-being of populations and societies. Its vision and mission aligns closely with the interdisciplinary “cell to society” perspective of FHS, and the challenge areas and crosscutting themes that define the Faculty’s strategic plan.

Importantly, FHS faculty and researchers has been foundational to the establishment of PIPPS. Professor Lee leads the Pandemics and Borders Project (funded by the New Frontiers in Research Fund, Canadian Institutes of Health Research) which is now housed under the PIPPS umbrella. Dr. Julia Smith, who leads the Gender and COVID-19 Project, has assumed the role of heading the Health and Social Inequities Theme. Dr. Kiffer Card, notable for his work on public health epidemiology and health services research, leads the development of PIPPS rapid response analytical services. Both are supported by prestigious salary awards from Michael Smith Health Research BC. Dr. Anne-Marie Nicol, who has applied her expertise on health and risk communication throughout the COVID-19 pandemic within the BCCDC, leads knowledge translation activities within PIPPS. Dr. Kaylee Byers, with expertise spanning in animal and human health, has been appointed as a University Research Associate to lead the Institute’s work on One Health.

In addition, many FHS trainees are already based within or engaged in PIPPS projects including postdoctoral fellows, PhD students and MSc students. The number of trainees will substantially increase alongside engagement of graduate and undergraduate students in FHS and across SFU in specific projects and training activities.

As Dean of this Faculty, I have been pleased to work with Professor Lee and others on the initial funding and development of PIPPS. I have advised on initial academic appointments and strategic planning, and to provide guidance on PIPPS’ engagement with key external stakeholders and partners.

For the above reasons, I write this letter to express my strong support for PIPPS to be formally recognized as an SFU Institute.

Sincerely,

Tania Bubela, BSc (Hons), PhD, JD, FCAHS, FRSC
Professor and Dean

SIMON FRASER UNIVERSITY  ENGAGING THE WORLD
NAME OF INSTITUTE:
Pacific Institute on Pathogens, Pandemics and Society (PIPPS)

DESCRIPTION OF PROPOSED INSTITUTE:
Please include a statement of the Research Institute’s special purpose and how its work aligns with University priorities and the VPRI Strategic Research Plan.

The Pacific Institute on Pathogens, Pandemics and Society (PIPPS) is concerned with major infectious disease risks and events that have the potential to cause large-scale disruption to health and well-being. PIPPS begins with the recognition that events like the COVID-19 pandemic are public health emergencies with broad societal effects and that place sudden, urgent, and heavy demands on health care and other public services. Accordingly, the Institute focuses on identifying and understanding the potential for the emergence and spread of pathogens and the broad impacts of major disease outbreaks and pandemics on population and public health.

Vision
A full society approach to collectively address major infectious disease events with wide-ranging consequences

Mission
To become a world-leading collaborative institute that:
• Generates and mobilizes interdisciplinary knowledge that matters
• Champions multi-sector approaches to infectious disease
• Strengthens the bridge between research and policy

Achieving PIPPS Vision and Mission requires an interdisciplinary lens. Accordingly, PIPPS is an ‘interdisciplinary institute,’ bringing diverse disciplines together to explore common problems and strengthen their working interface. As a ‘collaborative institution,’ PIPPS also works closely with other research institutes and organizations, all levels of government, and the public.

These important strategic foundations align with the expectations set out in SFU’s Strategic Research Plan: supporting and strengthening participation, cooperation, empowerment and knowledge translation that will lift up and strengthen the capacity of SFU’s researchers and students to engage respectfully and ethically with community members.

PIPPS’s focus on developing a whole of society and planetary response is consistent with the United Nations’ 2030 Agenda for Sustainable Development and the recognition of a changing planet. As recently suggested in a Lancet Planetary Health Viewpoint (Nov 2021), COVID-19 has disrupted and transformed the world. However, the transformations catalyzed by this
pandemic should be used to improve human and planetary health and well-being. This paradigm shift requires decision-makers and policymakers to go beyond building back better, by nesting the economic domain of sustainable development within social and environmental domains.

The Lancet concludes that recovery and transition from the COVID-19 pandemic, which delivers the future humanity want and needs, requires more than a technical understanding of the transformation at hand. It also requires commitment and courage from leaders and policymakers to challenge dominant constructs and to work towards a truly thriving, equitable, and sustainable future to create a world where economic development is not an end goal itself, but a means to secure the health and wellbeing of people and the planet. This precisely, is the interconnected and interdisciplinary work that PIPPS is focused on.

RATIONALE FOR ESTABLISHING THE INSTITUTE:

Please include statements on the added value to the research collaborative and to the University in receiving this designation, as well as any potential societal impact (beyond what would be accomplished by individual faculty members).

PIPPS’s unique interdisciplinary faculty and collaborative model informs and supports the development of a ‘whole of society’ multi-sectoral response to understanding the emergence and spread of pathogens and major infectious disease events and strengthen global capacity to ‘prevent, prepare, respond, and recover.’ PIPPS research will support all levels of government to build core population health capacities. Provincially, the Institute will offer added value to the existing academic health complex through its new research, training, and educational opportunities. It will generate and mobilize knowledge to optimize evidence-informed decision-making that strengthens prevention preparedness, response and recovery by individuals and communities throughout BC.

Prior to applying for Research Institute Status, Members of Research Institutes should normally have a history of collaborative activity as a group.

* e.g. co-supervision of students, co-publications, or shared research data, funding, and/or projects.

Prior to this application, PIPPS members have collaborated on a wide range of projects. Dr. Lee and Dr. Julia Smith (PIPPS Health and Social Inequities Theme Lead) are longstanding collaborators on projects related to tobacco control and global health governance. During the COVID-19 pandemic, each established and is leading major new projects (the Pandemics and Borders project and Gender and COVID-19 project) with substantial new grant funding. In addition, each contributes to the project of the other. Both projects will be brought under the umbrella of the new institute.

Dr. Colijn, Dr. Anne-Marie Nicol (PIPPS Knowledge Translation Lead) and Dr. Jessica Stockdale (PIPPS Analytics and Data Science Theme Lead) also are collaborating with Dr. Lee on the Pandemics and Borders project.
IF THE OBJECTIVES OF THE PROPOSED INSTITUTE OVERLAP WITH AN EXISTING RESEARCH CENTRE OR INSTITUTE, PLEASE PROVIDE EVIDENCE OF CONSULTATION WHERE A POTENTIAL CONFLICT HAS BEEN IDENTIFIED.

PIPPS is a unique organization that does not duplicate existing research centers or institutes.

PROPOSED DIRECTOR(S):

**Caroline Colijn**, Department of Mathematics, Faculty of Science

Caroline Colijn is Professor and Canada 150 Research Chair in Mathematics for Infection, Evolution, and Public Health in the Department of Mathematics, at Simon Fraser University (SFU). She has broad interests in applications of mathematics to questions in evolution and public health and was a founding member of the Centre for the Mathematics of Precision Healthcare at Imperial College London. Her research in modelling during the COVID-19 pandemic has been widely recognized. She currently holds grants worth >CDN$3 million and has been funded by major research councils and governments. She has authored/co-authored 90+ publications and leads the Mathematics, Genomics and Prediction in Infection and Evolution (MAGPIE) research group.

**Kelley Lee**, Faculty of Health Sciences

Kelley Lee is Professor and Tier 1 Canada Research Chair in Global Health Governance in the Faculty of Health Sciences, at Simon Fraser University (SFU). Her research focuses on strengthening collective action to mediate the population health impacts of globalization. She was the former head of the WHO Collaborating Centre on Global Change and Health and chaired the WHO Resource Group on Globalization, Trade and Health. She has received >CDN$21 million over a 30-year career, leading major projects on global infectious disease governance, globalization and health, tobacco control, and health diplomacy. She has authored/co-authored 200+ publications, and currently leads the Pandemics and Borders Project.

Current PIPPS faculty membership:

<table>
<thead>
<tr>
<th>PIPPS Faculty Members &amp; Affiliates</th>
<th>Home Departments and Faculties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Ben Ashby</td>
<td>Department of Mathematics</td>
</tr>
<tr>
<td>Dr. Kaylee Byers</td>
<td>Faculty of Health Sciences</td>
</tr>
<tr>
<td>Dr. Kiffer Card</td>
<td>Faculty of Health Sciences</td>
</tr>
<tr>
<td>Dr. Caroline Colijn</td>
<td>Department of Mathematics</td>
</tr>
<tr>
<td>Dr. Will Hsiao (Affiliate)</td>
<td>Faculty of Health Sciences</td>
</tr>
<tr>
<td>Dr. Kelley Lee</td>
<td>Faculty of Health Sciences</td>
</tr>
</tbody>
</table>
Additional PIPPS members are being recruited as the Research Themes and Platforms continue to be developed and additional Research Themes identified. Discussions currently are underway with several individuals in the Faculties of Science, Health Sciences, and Applied Science.

In addition, the Affiliates Program, further detailed below, will invite applications from academic faculty and research scientists affiliated with other academic institutions to become a formal Affiliate of the Institute. As noted below, the addition of Affiliates will build interdisciplinary and intersectoral connections and collaborations and catalyze existing SFU expertise.

INTERNAL GOVERNING PROCESS:

PIPPS will be governed by an Advisory Board comprised of members representing not only Simon Fraser University but, given its aim to evolve as a ‘collaborative institution’, representation from other research-intensive universities across BC, the Office of the Provincial Health Officer, and the BC Indigenous research community. The SFU Vice-President Research and International (VPRI) (Dr. Dugan O’Neil) will chair the Advisory Board.

The role of the Board includes provision of strategic oversight, including guidance in establishing strategic directions and plans and considering major strategic level changes. Draft terms of reference have been developed for review and approval by the inaugural Board.

ADVISORY BOARD MEMBERSHIP:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Department</th>
<th>Faculty</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Dugan O’Neil</td>
<td>Vice-President</td>
<td>Research and International</td>
<td>SFU</td>
<td></td>
</tr>
<tr>
<td>(Chair)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Tania Bubela</td>
<td>Dean</td>
<td>Faculty Health Sciences</td>
<td>SFU</td>
<td></td>
</tr>
<tr>
<td>Dr. Angie Brooks-Wilson</td>
<td>Dean</td>
<td>Faculty of Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Lisa Kalynchu</td>
<td>Vice President</td>
<td>Research and Innovation</td>
<td>UVIC</td>
<td></td>
</tr>
<tr>
<td>TBD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dr. Anne Marie Nicol    Faculty of Health Sciences
Dr. Sandy Rutherford   Department of Mathematics
Dr. Jessica Stockdale   Department of Mathematics
Dr. Julia Smith         Faculty of Health Sciences
Dr. Eric Werker (Affiliate) Beedie School of Business
ORGANIZATION STRUCTURE:

Three core functions serve as the PIPPS organizing framework: 1) Research, 2) Learning and Teaching, and 3) Convening.

1. The RESEARCH CORE FUNCTION involves activities usually associated with a research institute. Excellence in research is PIPPS’ flagship activity and represents its largest investment. The Research Core Function currently includes three Research Themes, although additional themes may be added in future based on observed gaps and consultation (examples proposed to date include Rural and Remote Populations, Behavioral Health, and Prevention). Each Theme has a Lead who has the responsibility for the overall Theme strategic direction, recruitment of faculty, and facilitation of members’ participation in wider PIPPS functions and activities.

The current three Research Themes are as follows:
1) Health and Social Inequities
   - The Health and Social Inequities Theme focuses on identifying and understanding the disproportionate impact of social and economic inequities across population groups within the context of pandemic preparedness and response and which lead to disproportionate effects.
   - It explores such impacts and outcomes across sex, gender, race, ethnicity, age, ability, etc., and seeks to understand the relationships between the social determinants of health and pandemics; analyze how public health and social measures interact with social determinants to mitigate or exacerbate inequities and understand inequitable impacts of public health emergencies.
   - The Health and Social Inequities Theme draws upon expertise in policy analysis, sociology, anthropology, and methods of qualitative analysis.

2) Emerging and Evolving Pathogens
   - The Emerging and Evolving Pathogens Theme focuses on identifying the emergence of pathogens, the dynamics of their geographic dispersion and subsequent transmission, and the changing patterns of selection that influence their continued emergence and evolution.
   - The Theme draws upon expertise in infectious disease epidemiology and surveillance, respiratory viruses, zoonotics, evolutionary biology, and data and modelling.

3) Analytics and Data Science
   - The Analytics and Data Science Theme focuses on the estimation of key infectious disease parameters, including providing estimates and analytics in real-time as a pathogen or
pandemic emerges.

- It supports the development of new and improved statistical methods and the “data science of emerging pathogens and pandemics” for application in BC and elsewhere.
- The Theme draws upon expertise in biostatistics, modelling, and methods of quantitative analysis.

Recognizing that research must be shared to have value, PIPPS also is invested in two additional Core Functions that are aimed at supporting researchers, the public sector, and society’s access to and understanding of research.

2. The LEARNING AND TEACHING CORE FUNCTION is focused on strengthening and supporting provincial research and researcher capacity, across SFU and with other BC research institutions and organizations as well as across the public health sector. Its three major activity streams are as follows:
   1) Share specialized research knowledge
      • Teaching undergraduate and graduate students, postdoctoral fellows and other trainees
      • Creating and offering new specialized courses and other learning opportunities, both online and in person and accredited and non-accredited (e.g. MOOC, webinars, workshops, short courses, etc.)
   2) Sponsor fellowships & internships
      • Supporting additional postgraduates, fellows, and intern positions, including in collaboration with other academic institutions and research organizations
   3) Develop research connections
      • Working with other academic institutions to jointly develop and offer specialized courses, providing added value to existing post graduate programs (e.g., UBC School of Population and Public Health graduate programs)
      • Engaging and embedding researchers and trainees at SFU and other academic institutions

3. The CONVENING CORE FUNCTION involves concrete actions to reduce the gap between policy and practice, improve and facilitate knowledge mobilization within and between the academic and public health sectors, and strengthen the public’s understanding of how the science of pathogens and pandemics can help individuals, population groups and communities to increase their resiliency in the face of future outbreaks and pandemics. Its four major activity streams are as follows:
   1) Support Evidence to Policy and Practice
      • PIPPS supports public health sector decision-makers by conducting or commissioning:
        - Summaries of existing research findings, including rapid, systematic, scoping and literature reviews, evidence maps, meta-analyses, etc.
        - Smaller-scale and shorter-term research projects, through internal or open competition funding calls.
2) Embed Collaborative Research
   • Working with BC health authorities and other organizations, PIPPS scientists develop embedded multi-expertise research teams to strengthen researcher capacity, bring focus to high-priority public health issues, expand health authority access to advanced analytical supports, and enhance and enrich the research-practice continuum.
   • Establishing opportunities for Research Affiliates to expand the capacity and reach of PIPPS and share knowledge and expertise

3) Strengthen Public Health Sector Capacity
   • Working with a variety of partners and stakeholders, PIPPS supports science-based knowledge dissemination activities, such as workshops, conferences, and short courses, to strengthen the public health sector. A specific focus will be on the needs of health authorities, non-profit service providers, and other relevant provincial and community organizations.
   • PIPPS supports initiatives to enable researchers, policymakers and practitioners to jointly observe and participate in exchange activities with the aim of better understanding other domains, increasing joint knowledge creation and producing shared outputs.

4) Enhance Public Understanding and Awareness
   • PIPPS works to strengthen individual and societal resilience by supporting the development of science-based strategies to increase public knowledge and understanding of emerging pathogens and major infectious disease events, their impacts and appropriate public health responses.
   • PIPPS helps to customize strategies to meet the unique needs of at-risk populations differentially affected by age, sex and gender, race and ethnicity, socioeconomic status, or other social stratifications.
   • PIPPS provides programs for the public health sector and the public, including journalists, community influencers, and other non-health sector decision-makers, to demystify research and broaden non-researchers’ understanding of its importance and appropriate use in the public domain.

In addition to the three Core Functions, PIPPS also includes two Platforms, each with a dedicated Lead. The Platforms are intended to provide support across the Research Themes and help link and interface PIPPS with other academic institutions, all levels of government, and the public.

The RAPID RESPONSE PLATFORM provides researchers and BC public health system researchers and policymakers with access to rapid systematic reviews, literature and scoping reviews, meta-analyses synthesis and response research capacity. The KNOWLEDGE TRANSLATION PLATFORM will strengthen systems and strategies for pandemic knowledge sharing across both academic and public sectors.

The Scientific Co-Directors provide academic leadership to the Institute, with a non-academic Executive Director providing institute management and administration. The Research Management Committee, which includes the Co-Directors, Research Theme Leads, Platform Leads, and Executive Director, provides oversight of the Institute.
In addition to more faculty members, PIPPS is recruiting additional staff to support the non-academic activities associated with non-research functions that have been established to meet the requirements set out in the government funding transfer agreement.

PROCEDURES FOR RATIFYING NEW MEMBERS:

The Institute will recruit and fund through full or partial salary additional scientists, based at SFU or elsewhere, who will be considered members. These roles may be to establish and lead further research themes or as research scientists within the Institute. Funding may come from the initial investment from the Government of BC or from external grants. The recruitment process will largely be open and competitive although there may be exceptions when targeted appointments are made. Consideration will be given to cross-appointments with other universities.

AFFILIATES:

The PIPPS Affiliates Program invites applications from academic faculty, research scientists, trainers and educationalists, and public health practitioners from across BC and beyond to become an Affiliate of the Institute. Its purpose is to extend the reach of the Institute, build interdisciplinary and intersectoral connections and collaborations, and catalyze existing expertise. While not official representatives of PIPPS, Affiliates are invited to work with PIPPS to amplify the capacities of the Institute and advance the mission of PIPPS for the benefit of the province. Contributions of Affiliates include:

- Collaborating on a research project with PIPPS research scientists,
- Supporting the delivery of services by the Rapid Response Hub or Knowledge Translation platform
- Producing outputs relevant to PIPPS’ mandate such as research papers, policy briefs, briefing notes, podcasts and presentations
- Participating in the development and funding of strategic research initiatives that strengthen BC capacity
- Contributing to funding proposals and advancement efforts
- Support training activities by supervising a trainee, producing resources or co-delivering/co-hosting training activities
- Hosting PIPPS events that bring together researchers, practitioners, policymakers and/or community members
- Participating in knowledge translation and public engagement activities
- Promoting the work of PIPPS through professional and community networks

An Affiliate is eligible for a range of benefits from PIPPS, which may include the following:

- Influencing the development and implementation of work plans for research themes
- Networking and collaborating with PIPPS scientists, institutional partners, and other Affiliates
- Priority access to workshops and training opportunities offered to research scientists, public health practitioners, and trainees
• Collaborating on research projects and the co-production of outputs
• Collaborating on the submission of funding proposals with PIPPS research scientists and affiliates

Applications for Affiliate status will be reviewed twice yearly (March/September) by the PIPPS Research Management Committee. Successful applicants will be appointed to a three-year term and renewable upon review. Applicants will be notified by email.

Application for Affiliate status is based on the following criteria:
- Excellence in research, teaching, practice, or community impact
- Relevance of Applicant’s expertise to one or more PIPPS research themes
- Extent the Applicant’s proposed contributions will strengthen and support the vision and mission of PIPPS
- Capacity of PIPPS to support the preferred needs of the Applicant

Together, Research Affiliates and Collaborators extend the reach of the Institute, help to build connections and collaborations across the province’s research and practice community, catalyze existing expertise, and amplify the capacities of the Institute.

TRAINING AND MENTORSHIP OPPORTUNITIES FOR STUDENTS:

As above, PIPPS includes three core functions, one of which is Learning and Teaching. A key component within this core function is a focus on training and mentoring opportunities for fellows, interns, and trainees, both across SFU and in other BC research institutions and organizations.

The Learning and Teaching core function includes three major activity streams as follows:
1) Share specialized research knowledge
   • Teaching undergraduate and graduate students, fellows and interns
   • Creating and offering new specialized courses and other learning opportunities, both online and in person and accredited and non-accredited (e.g. MOOC, workshops, short courses, etc.)
2) Sponsor fellowships & internships
   • Supporting additional postgraduates, fellows, and intern positions, including in collaboration with other academic institutions and research organizations
3) Develop research connections
   • Working with other academic institutions to jointly develop and offer specialized courses, providing added value to existing post-graduate programs (e.g., UBC School of Population and Public Health
   • Engaging researchers and trainees both at SFU and across other academic institutions
## PIPPS Five Year Goals, Objectives & Metrics 2022-2027

### Goal One: Achieve Excellence

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Recruit high calibre research scientists</td>
<td>Number of permanent PIPPS research scientists</td>
</tr>
<tr>
<td>ii. Increase the value of PIPPS external research awards for pandemic-related research</td>
<td>Research awards and grants received by PIPPS researchers, numbers, value, and sources</td>
</tr>
<tr>
<td>iii. Raise the profile of PIPPS as a global research institution</td>
<td>Number of publications, presentations, and citations</td>
</tr>
</tbody>
</table>

### Goal Two: Build Researcher Capacity

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>iv. Support collaboration and knowledge management across academic institutions</td>
<td>Number of formal cross-institution partnerships/joint research partnerships with other research institutions and organizations</td>
</tr>
<tr>
<td>v. Strengthen and expand researcher knowledge and specialized skills</td>
<td>Number of new teaching and training opportunities (course events, SFU/other institution students)</td>
</tr>
<tr>
<td>vi. Increase post graduate students, fellows, and interns</td>
<td>Number of graduate students, postdoctoral fellows sponsored by PIPPS</td>
</tr>
</tbody>
</table>

### Goal Three: Transfer Knowledge

<table>
<thead>
<tr>
<th>Objective</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>vii. Support the research to policy agenda by supporting rapid analysis of research findings and commissioned research</td>
<td>Rapid Response Platform activity and user evaluation</td>
</tr>
<tr>
<td>viii. Strengthen the public health sector’s capacity by facilitating greater access to and participation in research</td>
<td>Number of embedded researchers/joint PH sector/PIPPS research projects</td>
</tr>
<tr>
<td>ix. Strengthen the public’s resiliency to future pandemics by increasing broad public understanding of the science of pathogens and pandemics through public awareness and education strategies</td>
<td>Formal strategies in place and events held (e.g., conferences, webinars, Grand Rounds, poster sessions, etc.), participation of health regions/communities/groups, citations in popular press, evaluation results associated with specific projects</td>
</tr>
</tbody>
</table>

### Current Resources and Future Sustainability:

Collaborations:
As a collaborative institute, PIPPS already has established a wide range of important working partnerships and collaborators, including:
Funding:
While PIPPS was initially established through the generosity of a $15M three-year (extended to five years) grant from the BC Government, in less than two years PIPPS researchers have attracted over $6M in competitive research grants and contracts.

PIPPS also receives in-kind support from SFU and is eligible to receive cash support from university donors. A fundraising strategy will be established with the SFU Advancement Office.

Sustainability Plan:
The initial $15M received from the BC Government has financially supported the establishment of PIPPS foundations. Projecting the current success with external research awards and contracts promises ongoing sustainably.

WOULD THE ESTABLISHMENT OF THIS INSTITUTE ENABLE THE MEMBER RESEARCHERS TO ATTRACT FUNDING BEYOND WHAT THEY WOULD BE ABLE TO DO ON THEIR OWN? PLEASE EXPLAIN.

As noted above, PIPPS is intentionally designed as a ‘collaborative institution,’ building on SFU’s strong tradition of external engagement. The Institute will work closely with other research institutes and organizations, all levels of government, and the public.

PIPPS also is a uniquely interdisciplinary institute, bringing together researchers from diverse fields to simultaneously address common problems using different lenses, thereby optimizing a ‘whole of society’ response.

The level of collaboration across fields as different as mathematics and social sciences reflects a highly modern perspective and opens PIPPS to many funding opportunities that a strictly discipline-based approach would not.
COMMUNICATION PLAN:

Provide a description of a communication plan that is aligned with University Communication policies, including plans for maintaining an up-to-date web/social media presence.

PIPPS launched its website (https://pipps.ca/) in September 2022, delayed due to an embargo imposed by the provincial government. A more comprehensive communications plan is an essential component of the Knowledge Translation Platform and is under development. One of PIPPS's key objectives is to strengthen systems and strategies for knowledge sharing across both academic and public sectors.

EVIDENCE OF SUPPORT:

Attached to this application are letters of support from the Dean, SFU Faculty of Health Sciences, and the Dean, SFU Faculty of Science.

Strong support for PIPPS was received from BC’s five regional health authorities and First Nations Health Authority during a recent consultation process.

Please include evidence of support from the Dean or Associate Dean, Research of the home Faculty of the proposed Institute Director (mandatory).

Applicants may feel free to submit additional supporting documents such as letters of support and constitutions (if available).

Date: 11/2/2022

Applicant Signature: [Signature]

Interim Executive Director
PIPESS

By signing this form, the applicant confirms they have reviewed SFU Policy R40.01 and related Procedures and agrees to conduct its activities in accordance with University policies.
MEMORANDUM

ATTENTION: Senate
FROM: Jeff Derksen, Dean of Graduate and Post-Doctoral Studies and Associate-Provost, and Acting Chair, SCUP on behalf of Wade Parkhouse, Provost and Vice-President Academic

DATE: November 17, 2022
PAGES: 1/1

At its meeting on November 16, 2022, SCUP reviewed and approved the full program proposal for the Japanese Studies Certificate in the Department of World Languages and Literature within the Faculty of Arts and Social Sciences.

**Motion:** That Senate approve and recommend to the Board of Governors the Full Program Proposal for the Certificate in Japanese Studies in the Department of World Languages and Literature within the Faculty of Arts and Social Sciences effective fall 2023.

C: A. Yamini-Hamedani, J. Fei, N. Takei
MEMORANDUM

ATTENTION: Senate Committee on University Priorities

FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies

RE: Faculty of Arts and Social Sciences (SCUS 22-65)

DATE: November 4, 2022

For information:

Action undertaken by the Senate Committee on Undergraduate Studies at its meeting of November 3, 2022, gives rise to the following recommendation:

Motion

That SCUP approve and recommend to Senate the Full Program Proposal for the Certificate in Japanese Studies in the Department of World Languages and Literature within the Faculty of Arts and Social Sciences, effective fall 2023.

The relevant documentation for review by SCUP is attached.
Japanese Studies Certificate

Full Program Proposal

August 31, 2022
Department of World Languages and Literatures
1 Executive Summary

a) An overview of the institution’s history, mission, and academic goals:

As Canada’s engaged university, Simon Fraser University is defined by its dynamic integration of innovative education, cutting-edge research and far-reaching community engagement. SFU was founded in 1965 with a mission to bring an interdisciplinary approach to learning, embrace bold initiatives, and engage with communities near and far. Today SFU is consistently ranked amongst Canada’s top comprehensive universities and is one of the world’s leading teaching and research institutions.

The proposed certificate aims to support SFU’s vision and mission by offering students opportunities to earn a credential for their foreign language skill/knowledge and cross-cultural understanding, which are critical for their future successful careers as both local and global leaders.

b) Credential to be awarded:

Japanese Studies Certificate
The Japanese Studies Certificate is in the Department of World Languages and Literatures within the Faculty of Arts and Social Sciences.

Calendar Entry is included as Appendix 8.1.

c) Location of certificate:

Burnaby Campus. Some classes may be offered at Harbour Centre Campus.

d) Faculty offering the proposed new certificate:

Dr. Naoko Takei, Senior Lecturer
Dr. Chie Furukawa, Lecturer
De. Melek Su Ortabasi, Associate Professor

Department of World Languages and Literatures (WLL).

*NOTE: When discussed as a department, the World Languages and Literatures Department will be referred to throughout this document as “WLL”.
e) **Anticipated certificate start date:**
   September 2023.

f) **Anticipated completion time:**
   Students who select this certificate will require six terms of completion time on the Burnaby campus.

g) **Summary of the proposed program**

- **Aims, goals, and objectives:**
  The proposed certificate intends to support learners to achieve an intermediate level of cross-cultural communication skills in Japanese language through well-planned instruction guided by a standard curriculum that is the most commonly used among post-secondary institutions across Canada. Learners who have acquired this certificate will be able to demonstrate understandings and functional skills in Japanese language and culture that are equivalent to learners at a similar level from other post-secondary institutions around the world.

  The certificate is for those who wish to enhance their Japanese language and cultural knowledge for cultural, professional or employment purposes, or who desire official certification of Japanese proficiency. This certificate is intended for students with no or limited prior knowledge of the Japanese language. The certificate may be completed concurrently with major and minor programs in areas such as literature, history, humanities, international studies, and political science.

  Those students planning to obtain a Bachelor of Arts within the Faculty of Arts and Social Sciences (FASS) may complete the certificate in such a way that some of the FASS breadth requirements are fulfilled by the same courses. Courses used toward the certificate may also be used toward a major and minor.

  Enrollment in all Japanese courses has been steady and strong for the past decade (See Appendix 8.3 for Japanese enrollment data). The past five-year record shows that the lower division courses had 3085 enrollments ranging from 581 to 665 per fiscal year. The upper division courses were offered seven times in the past five years with an actual enrollment ratio at 99% and a total of 174 enrollments. It is our department’s priority to find strategies to increase the offerings of the upper division courses and boost the enrollments in the future.

  The proposal for a Japanese Studies Certificate is developed in response to demands
Japanese Studies Certificate

from students who have completed the intermediate level courses. The proposed certificate parallels other certificates within WLL such as the German Studies Certificate, the Spanish Studies Certificate, and the Chinese Studies Certificate.

● **Contribution to the mandate and strategic plan of the institution:**

This certificate contributes to SFU’s strategic vision in terms of internationalization, diversity, and community engagement. Learning foreign languages and cultures is vital for students seeking to build a successful international career while developing their intercultural awareness and sensitivities. Among the foreign languages offered at SFU, Japanese has the highest enrollments annually, benefitting from a surge of interest in Japan’s globally recognized pop culture along with the constant popularity of its unique traditional cultures. See Appendix 8.3.

Promoting Japanese studies through this certificate also contributes to fulfilling SFU’s broader mandate in community engagement. BC hosts a large Japanese community after a long and complex immigration history dating from the 19th century. Currently, most Japanese Canadians and Japanese expatriates live in the Vancouver area. Strengthening Japanese studies will help SFU and the community build a closer relationship by offering a deeper understanding of Japanese culture and its relation to Canada and BC.

● **Linkages between certificate outcomes and curriculum design:**

Obtaining this certificate demonstrates that the student has acquired intermediate proficiency in the Japanese language (writing, reading, listening, and speaking). Encouraging and assisting students to complete intermediate level (currently the highest level) courses is one of the main goals of the Japanese language certificate at SFU as it better prepares students for future careers requiring knowledge of Japanese language and culture and/or deep cross-cultural understanding.

The textbooks of the courses for Japanese 100-210, Genki series, are designed for the students to comprehensively build communicative competencies across all four skill areas—listening, speaking, reading, and writing. Marugoto series, the textbooks for Japanese 300/301 are further focused on real communications based on different tasks within culturally varied and unique contexts. Through taking the courses from 100 to 300 levels, students are able to establish a solid foundation while obtaining communicative and intercultural competences that can be used in real-life situations.

Upon completion of each Japanese language course, students’ performances are carefully evaluated through multiple and diverse means using a set of standards that are
Japanese Studies Certificate

informed by international proficiency standards such as the JF Standard for Japanese Language Education. Overall, students who have obtained the Japanese certificate are expected to demonstrate: 1) an intermediate level of Japanese language proficiency, and 2) a solid understanding of cultural diversity and intercultural competencies, which are critical for future leaders in the globalized world.

No work/practicum experience is required.

● **Potential areas/sectors of employment for graduates or opportunities for further study:**

Undergraduate students may apply for the Canada-Japan Co-op program. In this program, students spend up to 12 months living and working in Japan, gaining hands-on experience in the Japanese industry. Upon completion of the program, some students find employment in Japan. The Japanese Exchange Teaching program (known as JET), where the participants contribute to internationalization of Japanese communities by teaching English at schools in Japan, is a very popular career path for students who take Japanese language courses. Although it does not offer a permanent position, participants obtain invaluable experience, which eventually helps them secure employment in Japan or elsewhere.

- The Canada-Japan Co-op program: [https://thecoopjapanprogram.com/](https://thecoopjapanprogram.com/)

● **Delivery methods:**

The certificate will be primarily delivered in-person at the Burnaby campus; however, there will be occasional courses offered at the Vancouver and Surrey campus, and variations in blended [B] and online [OL] classes.
Japanese Studies Certificate

● **Program strengths:**

Japanese language studies have had a very steady and strong enrollments for the past decade. The Japanese Studies Certificate is developed in response to high demands from learners who have completed the intermediate level courses. The intermediate level courses had an enrollment of 122 students in the past three years. Those students are the target audience for the certificate and would be able to obtain the certificate in a few terms once the certificate launches.

The certificate will be well implemented and supported by three full time, continuing or tenured faculty members who are experts in the field of Japanese language or literature education. Having worked closely and are well connected with the local Japanese community, our faculty members would be able to advise certificate holders on future professional and academic opportunities in their career path.

● **Level of support and recognition:**

A consultation letter was sent on the 30th of July to Nadine Attewell, Director of the Global Asia Program (GA) at SFU, Seiko Roberts, Japanese language instructor at Kwantlen Polytechnic University (KPU), Dr. Timothy Iles, Associate Professor In the Department of Pacific and Asian Studies at Uvic, and Dr. Nina Langton, Associate Professor at UBC-O. All of them have expressed their support to the New Japanese Studies Certificate.

Global Asia Director expresses that “The proposed certificate complements Global Asia programming by crediting students who build strength in Japanese related course offerings in GA, WLL, and across FASS with a formal credential.” Dr. Langton (UBC-O) believes that “the proposed program offers a good balance of language and culture courses, the study of which will enrich the student experience.” Dr. Iles (Uvic) states that the Japanese Studies Certificate “will offer students a very solid introduction to the language and culture of contemporary Japan […] it provides meaningful value to undergraduate students in the SFU community,” and instructor Roberts (KPU) sees that “[for] those students who are unable to pursue the Minor in Language and Culture at KPU, the proposed certificate in Japanese Studies would provide an opportunity to achieve a meaningful credential that would contribute to their educational and career ambitions.” See Appendix 8.4.
**Related programs:**

The department of Asian Studies at UBC offers two different programs, Asian Studies and Asian Language and Culture for undergraduate students. Students in the Asian Language and Culture program select an area of focus such as China, Korea or Japan and choose among major, minor and honours options. The requirement involves both 300- and 400-level language courses and represents more rigorous courses than proposed here. The Department of Languages and Literatures of UBC Okanagan offers a similar range of Japanese-related courses to those at UBC Vancouver, but without a certificate focused on Japanese Studies. Students who complete the Japanese Studies courses at UBC Okanagan may use their credits to fulfill a requirement for the Cultural Studies or the Language major or minor. Additionally, a proposal for a new major in World Literatures and Intercultural Communication is currently awaiting Ministry approval.

Students within the British Columbia post-secondary education system will be admissible and able to transfer into the program.

**h) Contact information:**

Dr. Azadeh Yamini-Hamedani  
Chair & Associate Professor  
Department of World Languages and Literatures  
Faculty of Arts and Social Sciences  
Simon Fraser University  
8888 University Drive  
Burnaby, B.C.  
CANADA V5A 1S6  
WLL_chair@sfu.ca

Dr. Jia Fei  
Undergraduate Curriculum Chair  
Department of World Languages and Literatures  
Faculty of Arts and Social Sciences  
Simon Fraser University  
8888 University Drive  
Burnaby, B.C.  
WLLugcc_chair@sfu.ca
2 Credential Recognition and Nomenclature

2.1 Post-secondary recognition
The Japanese Studies Certificate proposal was submitted to Dr. Iles at the University of Victoria (UVic) and Ms. Langton at the University of British Columbia Okanagan (UBC-O). These two institutions have expressed their support to the new certificate. Please refer to Appendix 8.4.

The department of Asian Studies at UBC offers two different programs, Asian Studies and Asian Language and Culture. While the department of Pacific and Asian Studies at Uvic offers a major program, they also have a certificate in Language and Culture proficiency. There is no certificate at UBC-O, but the credits from the Japanese language courses can be counted towards a major or minor in Culture Studies or Language at the Faculty of Creative and Critical Studies.

2.2 Industry/employer recognition
N/A

3 Curriculum/Certificate Content

3.1 Certificate Structure

The certificate serves full and part-time students seeking educational enrichment in Japanese language and culture. The certificate offers intermediate proficiency in the Japanese language (writing, reading, listening, and speaking).

The certificate may be completed concurrently with, and complements, major and minor programs in areas such as literature, history, humanities, international studies, and political science.

Those students planning to obtain a Bachelor of Arts within the Faculty of Arts and Social Sciences (FASS) may complete the certificate in such a way that some of the FASS breadth requirements are fulfilled by the same courses. Courses used toward the certificate may also be used toward a major and/or minor.
This certificate requires a minimum of 18 units as stipulated below.

Students complete four Japanese courses including all of:

- JAPN 100 - Japanese I (3)
- JAPN 110 - Japanese II (3)
- JAPN 200 - Japanese III (3)
- JAPN 210 - Japanese IV (3)

and a minimum of one course selected from the following list:

- JAPN 300 - Intermediate Japanese I (3)
- JAPN 301 - Intermediate Japanese II (3)
- JAPN 351 - Japanese Language and Culture through Film (3)*
- JAPN 360 - Japanese Literature as World Literature (4)
- Any related WL course that contains Japanese literature and cultural production, or that reflects on issues of translation and intercultural exchange more broadly.

* This course has been taught as STT. The New course form has been attached along this New Program Form.

Since WL courses (like WL 201 East/West Encounters) are taught by different instructors, each focusing on their own areas of expertise, a broader approach to intercultural exchange would present an expedient provision scheduling-wise, allowing students to complete the certificate when more narrowly defined WL requirements are not available for any given reason.
To fulfill the minimum 18 units requirement, students may choose one course from the following list:

HIST 206 - Imperial Japan (ca. 1868-1952) (3)
HIST 236 - Japan from 1603 to 1867: Peasants, Merchants, Warriors (3)
*HIST 368W - Selected Topics in the History of the Wider World (4)
HIST 371 - The Asia-Pacific War in Modern Japanese History (4)
HIST 447W - The Nikkei Experience in North America (4)
*HIST 464 - Problems in Modern Asian History (4)
HIST 471W - Women in Japanese History (1600-1952) (4)
*GA 202 - Studies in Asian Cultures (3)
*GA 301 - Asia-Canada Identities: Experiences and Perspectives (3)
GA 303 - Selected Topics in Japanese Studies (3)
*GA 400 - Selected Topics in Global Asia (3)
POL 381 - Japanese Politics (4)

* When the topic is Japan related. Students should consult the program advisor.

With prior permission from the departmental advisor, students may take any other Japan-related courses in Global Asia and/or History, or other Japan-related courses which do not appear in this list.

Work experience/practicum term is not required.

**Transfer Units**

A maximum of six transfer units of 100 division language courses (only JAPN 100 and/or JAPN 110) may be used toward this certificate. Such requests must be submitted to the departmental advisor.
Japanese Studies Certificate

Course Challenge Units

A maximum of six challenge units of 100 division language courses (only JAPN 100 and/or JAPN 110) may be used toward this certificate. Such requests must be submitted to the departmental advisor.

Students can only choose one option between the 6 course challenge units or the 6 course transfer units, not both.

3.2 Core Courses

JAPN 100 - Japanese I (3)
Introduction to Japanese for students with no background in that language. Introduces basic oral and written skills and the three Japanese writing systems (Hiragana, Katakana and Kanji). Students who took Japanese courses in secondary school and/or with previous knowledge of Japanese may need to be evaluated for placement into JAPN 110 or higher level of courses and are required to contact the instructor before enrollment. Students enrolled directly into JAPN 110 may not take this course for credit.

JAPN 110 - Japanese II (3)
Follows JAPN 100. Students will acquire elementary conversational skills and basic reading ability. Students successfully completing the course attain proficiency equivalent to the level N5 Japanese Language Proficiency Test. Prerequisite: JAPN 100 or equivalent. Students who took Japanese courses in secondary school and/or with previous knowledge of Japanese may need to be evaluated for placement into JAPN 110 or higher level of courses and are required to contact the instructor before enrollment. Students enrolled directly into JAPN 200 may not take this course for credit. Students with credit for JAPN 101 may not take this course for further credit.

JAPN 200 - Japanese III (3)
Follows JAPN 110. Everyday language usage is emphasized in providing students with communicative skills at the advanced introductory level of Japanese. Students learn to comprehend everyday language in various situations using the appropriate speech style,
Japanese Studies Certificate

and to read adapted texts and write coherently. Prerequisite: JAPN 110 (or JAPN 101) or equivalent.

JAPN 210 - Japanese IV (3)
Follows JAPN 200. Provides a solid foundation in Japanese through oral and written communicative skills and prepares students for the intermediate level. Common grammatical structures and forms are introduced. At the completion of the course, students should be able to function in day-to-day conversations using Japanese and attain proficiency equivalent to the level N4 Japanese Language Proficiency Test.
Prerequisite: JAPN 200 or equivalent. Students with credit for JAPN 201 may not take this course for further credit.

JAPN 300 - Intermediate Japanese I (3)
Comprehension of intellectually oriented materials, processing information needed for judgment and decision making, and expression of inner feelings and thoughts.
Prerequisite: JAPN 210 (or 201) or by permission of the department.

JAPN 301 - Intermediate Japanese II (3)
Comprehension of intellectually oriented materials, processing information needed for judgment and decision making, and expression of inner feelings and thoughts.
Prerequisite: JAPN 300 or by permission of the department.

*JAPN 351 - Japanese Language and Culture through Film (3)
Acquaints students with the pragmatic use of Japanese. Students are introduced to different styles of Japanese communication and various aspects of Japanese society and culture. Prerequisite: JAPN 300 or permission of the instructor.

*This course has been taught as STT. The New course form has been submitted along this New Program Form.

JAPN 360 Japanese Literature as World Literature (4)
Maps out Japan’s contributions to the world’s literary heritage, whether in the form of one of the nation’s great authorial voices, a particular period or movement, or a defining
Japanese Studies Certificate

theme. This exploration will tease out the ways in which these contributions are inscribed in a dynamic global matrix wherein cultures are negotiated and transformed through on-going dialogue and exchange. Students may repeat this course for further credit. Prerequisite: 45 units or permission of the department.

3.3 Existing and new courses

Required courses for the certificate. See Appendix 8.2 for course outlines.

JAPN 100 - Japanese I
JAPN 110 - Japanese II
JAPN 200 - Japanese III
JAPN 210 - Japanese IV
JAPN 300 - Intermediate Japanese I
JAPN 301 - Intermediate Japanese II
*JAPN 351 - JAPN 351 - Japanese Language and Culture through Film (3)
JAPN 360 - Japanese Literature as World Literature (4)

* This course has been taught as STT. The New course form has been submitted along this New Program Form

3.4 Curriculum and Certificate Goals

This certificate is for students who wish to enhance their Japanese language knowledge for cultural, professional or employment purposes, or who desire official certification of Japanese proficiency. By taking four courses of basic Japanese language and a minimum of two courses of intermediate Japanese or other related courses such as Japanese literature, history or cultures, students will acquire functional Japanese language proficiency and understanding of Japanese cultural backgrounds. Taking a literature course in WL would further prepare these students for a successful career and motivate them to major or minor in WL.

A work experience/practicum experience is not required in this certificate.
3.5 Work experience/field/practicum placement
Work experience/practicum term is not required.

4 Program Resources

4.1 Target audience and enrolment plan
The target audience for the Japanese Studies Certificate includes students who are keen to develop intermediate level of Japanese and seek a credential for such competencies in both the Japanese language and in Japanese culture. More specifically, students who either plan to teach overseas (JET program) or who are pursuing the Certificate in Teaching English as a Second Language (TESL) will find this certificate attractive. Another potential demographic would include students interested in internationally oriented fields of study and career paths.

Currently, Japanese courses attract roughly 350 enrollments in the first course per fiscal year (Please see Appendix 8.3). Based on the survey conducted with the current Japanese learners in fall 2021 and spring 2022, 91% of the respondents (33% response rate) will be interested in registering this certificate, which makes it a total of 105 students. Therefore, we anticipate an annual enrollment around 90-100 in this certificate once it launches.

4.2 Resources
The Japanese certificate will not adversely affect other programs or resources in the Faculty or the University more broadly. Because it will be developed from already existing courses and course structures, it will require no adjustments to the teaching or administrative loads of department faculty or staff. Similarly, no new resources will be required for the implementation of the certificate. The only significant change will be for the departmental and faculty-level advisors, who will need to learn about the new certificate and its possibilities for students; however, advising capacity already exists to support students pursuing the Japanese certificate. This certificate will not incur any additional expenses.

5 Certificate Review and Academic/Administrative Oversight
The certificate will be assessed during the mandated mid-term and 7-year cycle external reviews of WLL.
6 Certificate Consultation

A consultation letter was sent on the 30th of July to Nadine Attewell, Director of the Global Asia Program (GA) at SFU, Seiko Roberts, Japanese language instructor at Kwantlen Polytechnic University (KPU), Dr. Timothy Iles, Associate Professor in the Department of Pacific and Asian Studies at Uvic, and Dr. Nina Langton, Associate Professor at UBC Okanagan (UBC-O). All of them have expressed their support to the New Japanese Studies Certificate.

See Appendix 8.4.

7 Evidence of Student Interest and Labour Market Demand

Past enrollment numbers and a survey conducted in Fall 2021 and Spring 2022 are robust evidence of interest in this certificate.

1) The enrollment in Japanese courses has been high and steady as indicated below. In the past five years alone, the Japanese language courses had a total of 3259 enrollments until summer 2022. The lower division Japanese courses had 3085 enrollments and the upper divisions had 174 enrollments. We project that these numbers will increase once their coursework is recognized in the form of a certificate.


2) Survey results

A survey was conducted in Fall 2021 and Spring 2022 with the current Japanese language learners to better understand their interests in a language certificate as well as in 400 level courses. The survey link was posted and shared with students on the Canvas course page of each Japanese course. The results of the survey demonstrated a high demand for this certificate.

- Total number of students invited to take this survey (students enrolled in all Japanese courses offered in Fall 2021 and Spring 2022): 373
- Total number of responses: 123 (response rate: 33%)
- Total number of respondents who indicated an interest in the Japanese certificate: 112 (91% of the respondents)
- Number of students in upper division Japanese courses who responded in the survey: 30 (response rate: 61%)
- Number of students at upper division level who indicated an interest in the Japanese certificate: 28 (93% of the upper division respondents.)

The data above proves that there is steady and strong interest in Japanese certificates among students. Furthermore, the data shows that there is a high demand among students in the intermediate level Japanese courses, who would soon be able to obtain the Japanese certificate once it is initiated. Overall, it is expected that the Japanese certificate will steadily attract students.

See Appendix 8.5 for full Survey results.
Japanese Studies Certificate

8 Appendices

8.1 Calendar Entry

Japanese Studies

CERTIFICATE

This certificate is for students who aim to develop language competency in and cultural understanding of the Japanese language, culture and society. The certificate offers language courses up to the intermediate level that can build a solid foundation of all aspects in Japanese language as well as communicative competences in everyday settings. Furthermore, the certificate affords opportunities for students to explore and expand their interests and studies in topics related to Japan by offering a variety of elective courses across departments and faculties.

○ Admission Requirements

There are no specific admission requirements. To declare your Japanese studies certificate, please contact the World Languages and Literatures Advisor at wll_adv@sfu.ca.

○ Certificate Requirements

Students complete a minimum of 18 units, of which 12 are earned by completing four required core courses. The remaining courses are selected from the list of electives below. At least 12 units used toward the certificate must be completed at Simon Fraser University.

• Core Courses

This certificate requires a minimum of 18 units as stipulated below.

Students complete four Japanese courses including all of:
JAPN 100 - Japanese I (3)
JAPN 110 - Japanese II (3)
Japanese Studies Certificate

JAPN 200 - Japanese III (3)
JAPN 210 - Japanese IV (3)

and a minimum of one course selected from the following list:

JAPN 300 - Intermediate Japanese I (3)
JAPN 301 - Intermediate Japanese II (3)
JAPN 351 - Japanese Language and Culture through Film (3)
JAPN 360 - Japanese Literature as World Literature (4)

Any related WL course that contains Japanese literature and cultural production, or that reflects on issues of translation and intercultural exchange more broadly (3).

• Electives

To fulfill the minimum 18 units requirement, students may choose one course from the following list:

HIST 206 - Imperial Japan (ca. 1868-1952) (3)
HIST 236 - Japan from 1603 to 1867: Peasants, Merchants, Warriors (3)
*HIST 368W - Selected Topics in the History of the Wider World (4)
HIST 371 - The Asia-Pacific War in Modern Japanese History (4)
HIST 447W - The Nikkei Experience in North America (4)
*HIST 464 - Problems in Modern Asian History (4)
HIST 471W - Women in Japanese History (1600-1952) (4)
*GA 202 - Studies in Asian Cultures (3)
*GA 301 - Asia-Canada Identities: Experiences and Perspectives (3)
GA 303 - Selected Topics in Japanese Studies (3)
*GA 400 - Selected Topics in Global Asia (3)
POL 381 - Japanese Politics (4)

* When the topic is Japan related. Consult the program advisor.
Japanese Studies Certificate

With prior permission from the departmental advisor, students may take any other Japan-related courses in Global Asia and/or History, or other Japan-related courses which do not appear in this list.

Work experience/practicum term is not required.

o Transfer Credit

A maximum of six transfer credit units of 100 division Japanese language courses may be used toward this certificate. Such requests must be submitted to the departmental advisor.

o Course Challenge Credit

A maximum of six challenge credit units of 100 division Japanese language courses may be used toward this certificate. Such requests must be submitted to the departmental advisor.

Students can only choose one option between the 6 course challenge credit units or the 6 course transfer credit units, not both.
8.2 Core Courses and New Course Form

Outlines of required courses:

8.2.1 JAPN 100 - Japanese I
8.2.2 JAPN 110 - Japanese II
8.2.3 JAPN 200 - Japanese III
8.2.4 JAPN 210 - Japanese IV
8.2.5 JAPN 300 - Intermediate Japanese I
8.2.6 JAPN 301 - Intermediate Japanese II
8.2.7 *JAPN 351 - JAPN 351 - Japanese Language and Culture through Film (3)

* This course has been taught as STT. The New course form has been submitted along this New Program Form.
Tutorials start in week one and all students are required to attend the first. Failure to attend the first week of classes will result in withdrawal from the course.

COURSE CONTENT

The course should cover the first 6 lessons in the textbook GENKI volume I. In the first few lessons, students are required to learn both Hiragana and Katakana. Furthermore, a Kanji will be introduced from L 3 to L6. The goal of this course is to comprehend basic grammar points and vocabulary to establish basic speaking and listening abilities. Since each lesson takes approximately 8 hours on average to complete, its workbook should be mainly used as homework except the listening sections in order to reinforce the students’ ability to understand grammars and increase vocabulary.

PLACEMENT: The following students will not be permitted to take Japanese 100;
1) Those who speak Japanese at home with Japanese parents (a native speaker of Japanese)
2) Those who have taken a Japanese language course(s) in their Secondary schools within the past one year from the point of registration.
3) Those who earned 80% or higher average grade in Japanese language course(s) in their Secondary schools within the past two years from the point of registration.

Students with any prior knowledge Japanese must contact the course chair ntakei@sfu.ca to receive permission before registering in the course. The failure to report previous knowledge of Japanese may result in a withdrawal from the course.

REQUIRED TEXTS AND COURSE MATERIALS


GRADING

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Writing Practice</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm &amp; Oral Exam #1</td>
<td>20%</td>
</tr>
<tr>
<td>Final &amp; Oral Exam #2</td>
<td>35%</td>
</tr>
<tr>
<td>Workbook &amp; Class Performance</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Grades are based on individual students’ achievement and not on comparison with other students.*
COURSE CONTENT

Follows JAPN 100. Students will acquire elementary conversational skills and basic reading ability. The course covers Lesson 7 to 12 in the textbook, GENKI Volume I, including 87 Kanji and longer dialogues as well as short reading and writing practices. Students successfully completing the course attain proficiency equivalent to the level N5 Japanese Language Proficiency Test.

NOTE:

1) Tutorials start in week one and all students are required to attend the first tutorial. It is the students’ responsibility to plan well before booking your flight if you are traveling and make sure to come back before the semester begins.

2) The tutorials will be offered mostly in-person sessions that require students’ attendance. Some parts (About 40 minutes per week) will be asynchronous, where students watch lecture videos and complete assignments. Students are expected to be available during the set scheduled class times.

3) There will be no final exam during the final exam period.

PREREQUISITE

JAPN 100 or equivalent. Students who took Japanese courses in secondary school and/or with previous knowledge of Japanese may need to be evaluated for placement into JAPN 110 or higher level of courses and are required to contact the instructor before enrollment. Students enrolled directly into JAPN 200 may not take this course for credit. Students with credit for JAPN 101 may not take this course for further credit.

PLACEMENT

Those with any prior knowledge in Japanese language beyond the level of the course may not register. Students with any prior knowledge of Japanese must contact the course chair <cfurukaw@sfu.ca> to receive advice on their enrollment before registering in the course. The failure to report previous knowledge of Japanese may result in a withdrawal from the course.

REQUIRED TEXTS


**RECOMMENDED READING:**


**GRADING PROFILE**

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>12 %</td>
</tr>
<tr>
<td>Written exam 1 &amp; 2</td>
<td>15 % x2</td>
</tr>
<tr>
<td>Correction of Written exam I and the self-feedback sheet</td>
<td>3 %</td>
</tr>
<tr>
<td>Oral exam 1 &amp; 2</td>
<td>7 % +8 %</td>
</tr>
<tr>
<td>Workbook (At the end of each lesson)</td>
<td>10 %</td>
</tr>
<tr>
<td>Reading &amp; Writing content questions (At the end of each lesson)</td>
<td>10 %</td>
</tr>
<tr>
<td>Dialogue assignment (At the end of each lesson)</td>
<td>10 %</td>
</tr>
<tr>
<td>Attendance and in-class performance</td>
<td>10 %</td>
</tr>
</tbody>
</table>

*Grades are based on individual students’ achievement and not on comparison with other students.*
COURSE CONTENT

Follows JAPN 110. Everyday language usage is emphasized in providing students with communicative skills at the advanced introductory level of Japanese. Students will learn to comprehend everyday language in various situations using the appropriate speech style, read adapted texts, and write coherently. The course covers Lesson 13 to 17 in the textbook, GENKI Volume II with nearly one hundred Kanji. The emphasis of this course is not only to build a solid understanding of the grammatical structure of the language, but also to learn a practical usage of the language.

NOTE:

1) Tutorials start in week one and all students are required to attend the first tutorial. It is the students’ responsibility to plan well before booking your flight if you are traveling and make sure to come back before the semester begins.

2) The tutorials will be offered mostly in-person sessions that require students’ attendance. Some parts (About 40 minutes per week) will be asynchronous, where students watch lecture videos and complete assignments. Students are expected to be available during the set scheduled class times.

3) There will be no final exam during the final exam period.

PREREQUISITE

JAPN 110 (or JAPN 101) or equivalent.

PLACEMENT

Those with any prior knowledge in Japanese language beyond the level of the course may not register. Students with any prior knowledge of Japanese must contact the course chair <cfurukaw@sfu.ca> to have a placement interview before registering in the course. The failure to report previous knowledge of Japanese may result in a withdrawal from the course.

REQUIRED TEXTS


*The Kindle versions are available on Amazon US and Japan. Digital textbook/workbook are also available at https://honto.jp/

RECOMMENDED READING:
ISBN: 978-4-7890-0454-6

GRADING PROFILE

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>12 %</td>
</tr>
<tr>
<td>Written exam 1 &amp; 2</td>
<td>15 % x2</td>
</tr>
<tr>
<td>Correction of Written exam 1 and the self-feedback sheet</td>
<td>3 %</td>
</tr>
<tr>
<td>Oral exam 1 &amp; 2</td>
<td>6 % +7 %</td>
</tr>
<tr>
<td>Workbook (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Reading &amp; Writing content questions (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Dialogue assignment (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Speech</td>
<td>5 %</td>
</tr>
<tr>
<td>Attendance and in-class performance</td>
<td>10 %</td>
</tr>
</tbody>
</table>

*Grades are based on individual students’ achievement and not on comparison with other students.*
COURSE CONTENT

Follows JAPN 200. Provides a solid foundation in Japanese through oral and written communicative skills and prepares students for the intermediate level. Common grammatical structures and forms are introduced. At the completion of the course, students should be able to function in day-to-day conversations using Japanese and attain proficiency equivalent to the level N4 Japanese Language Proficiency Test. The course covers Lesson 18 to 23 in the textbook, Genki Volume II, with nearly 100 Kanji characters are introduced in the course, as well as common grammatical structures, such as the honorific, passive and causative forms.

NOTE:

1) Tutorials start in week one and all students are required to attend the first tutorial. It is the students' responsibility to plan well before booking your flight if you are traveling and make sure to come back before the semester begins.

2) The tutorials will be offered mostly in-person sessions that require students' attendance. Some parts (About 40 minutes per week) will be asynchronous, where students watch lecture videos and complete assignments. Students are expected to be available during the set scheduled class times.

3) There will be no final exam during the final exam period.

PREREQUISITE

JAPN 200 or equivalent. Students with credit for JAPN 201 may not take this course for further credit.

PLACEMENT

Those with any prior knowledge in Japanese language beyond the level of the course may not register. Students with any prior knowledge of Japanese must contact the course chair <cfurukaw@sfu.ca> to have a placement interview before registering in the course. The failure to report previous knowledge of Japanese may result in a withdrawal from the course.

REQUIRED TEXTS


*The Kindle versions are available on Amazon US and Japan. Digital textbook/workbook are also available at [https://honto.jp/](https://honto.jp/)

**RECOMMENDED READING:**

ISBN: 978-4-7890-0454-6

**GRADING PROFILE**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>12 %</td>
</tr>
<tr>
<td>Written exam 1 &amp; 2</td>
<td>15 % x2</td>
</tr>
<tr>
<td>Correction of Written exam 1 and the self-feedback sheet</td>
<td>3 %</td>
</tr>
<tr>
<td>Oral exam 1 &amp; 2</td>
<td>6 % +7 %</td>
</tr>
<tr>
<td>Workbook (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Reading &amp; Writing content questions (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Dialogue assignment (At the end of each lesson)</td>
<td>9 %</td>
</tr>
<tr>
<td>Speech</td>
<td>5 %</td>
</tr>
<tr>
<td>Attendance and in-class performance</td>
<td>10 %</td>
</tr>
</tbody>
</table>

*Grades are based on individual students’ achievement and not on comparison with other students.*
COURSE CONTENT

The course concentrates on the development of listening and speaking skills of students who have established a fundamental grammar knowledge in Japanese language. The course textbook provides ample authentic conversation and speech models on nine different topics. These models including colloquial expressions are recorded at close to natural speech level. While each topic introduces an extensive amount of new vocabulary, students are encouraged to build strategies that allow them to accomplish tasks by picking up necessary information, instead by understating every single word. The course is guided by the JF standards for Japanese Language Education and follows its can-do lists to measure the level and the course outcomes. Thus, the goal of the course is to reach the B1 level. The B1 level is described as follows.

**B1 Level**  
[https://jfstandard.jp/summaryen/ja/render.do](https://jfstandard.jp/summaryen/ja/render.do)
- Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, lecture etc.
- Can deal with most situations likely to arise while traveling in an area where the language is spoken.
- Can produce simple connected text on topics which are familiar or of personal interest.
- Can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.

**Textbook**


**Prerequisites**

JAPN 201 or a placement interview. Students who have completed JAPN 301, and 351 can also register but must receive course placement from the Course Chair, Naoko Takei ([ntakeia@sfu.ca](mailto:ntakeia@sfu.ca)) prior to registering. Course participants are expected to be able to read at least 300 kanji (Chinese characters), and to follow instructions in Japanese.

**Grading**

<table>
<thead>
<tr>
<th>Grade Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocabulary Quiz</td>
<td>10%</td>
</tr>
<tr>
<td>Listening test</td>
<td>10%</td>
</tr>
<tr>
<td>Writing Assignment</td>
<td>12%</td>
</tr>
<tr>
<td>Shadowing recording</td>
<td>8%</td>
</tr>
<tr>
<td>Oral test (10% x 2)</td>
<td>20%</td>
</tr>
<tr>
<td>Written test (8% x3)</td>
<td>24%</td>
</tr>
<tr>
<td>Project</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Grades are based on individual students’ achievement and not on comparison with other students.*
This course will continue to develop communicative skills in Japanese for the students who have established a fundamental grammar knowledge in Japanese language. The course textbook provides ample authentic conversation and speech models in different topics. While each topic introduces an extensive amount of new vocabulary, students are encouraged to build strategies that allow them to accomplish tasks by picking up necessary information, instead of understating every single word. The textbook is guided by the JF standards for Japanese Language Education and follows its can-do lists to measure the level and the course outcomes. The level of this textbook is B1 and it is described as follows (https://jfstandard.jp/summaryen/ja/render.do):

- Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, lecture etc.
- Can deal with most situations likely to arise while traveling in an area where the language is spoken.
- Can produce simple connected text on topics which are familiar or of personal interest.
- Can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.

While the textbook is heavily focused on speaking and listening practices, additional course materials will be provided for reading and writing practices.

By the end of the semester, students in this course will

- be able to read authentic materials on topics in different genres and understand the main idea, supporting details and argumentative structure, as well as the author’s perspective, and be able to provide an oral and written summary or reaction in Japanese;
- be able to make a reasonable argument and demonstrate own opinions both in writing and speaking, based on what were learned through the reading materials in the textbook and through individual research;
- be able to establish an individual study style for extensive learning, by effectively using various Japanese language resources, including papers and electronic dictionaries and online resources;
- be able to conduct basic independent research on assigned topics and present findings in both oral and written Japanese.
REQUIRED TEXTS


RECOMMENDED READING:

GRADING

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>12 %</td>
</tr>
<tr>
<td>Written exam 1 &amp; 2</td>
<td>12 % x2</td>
</tr>
<tr>
<td>Correction of Written exam 1 and the self-feedback sheet</td>
<td>3 %</td>
</tr>
<tr>
<td>Oral exam 1 &amp; 2</td>
<td>7 % x2</td>
</tr>
<tr>
<td>Assignments</td>
<td>15 %</td>
</tr>
<tr>
<td>Short speech</td>
<td>5 %</td>
</tr>
<tr>
<td>Project</td>
<td>17 %</td>
</tr>
<tr>
<td>Attendance and in-class performance</td>
<td>10 %</td>
</tr>
</tbody>
</table>

Japanese 300 or Permission from the department

PLACEMENT

Students with the Japanese language abilities beyond or below the level of the course may not register. Students who have completed 351 or students who have not taken 300 may register but must receive course placement by the course chair prior to registering. Contact cfurukaw@sfu.ca to obtain a permission or arrange a placement interview.
WL 360/JAPN 360 Japanese Literature as World Literature

Cool Japan: How Japanese Pop Culture Took Over the World

Dr. Melek Ortabasi

Are you taking this class because you’ve heard about Japanese pop culture and want to know more? Or are you already a die-hard fan seeking to immerse yourself further? Either way, there’s a transnational story behind the ubiquitous of Japanese literary and cultural products abroad, whether in North America or elsewhere. In this course, we will examine several genres of post-WWII Japanese pop culture: literature, film, manga, anime, and video games, in an effort to understand how texts originally produced for a Japanese audience have traveled, adapted, and succeeded all over the world. While reading and viewing a number of iconic and influential pop cultural texts, we will explore the historical, cultural, and economic conditions that led to their global dissemination and consumption. Knowledge of the Japanese language is welcomed, but is not required.

ASSIGNMENTS:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vlog post</td>
<td>20%</td>
</tr>
<tr>
<td>Quizzes (5)</td>
<td>25%</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>10%</td>
</tr>
<tr>
<td>Position paper</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

PART I

Introduction
  ■ Week 1
    ○ Introduction to the course
    ○ A crash course on modern Japanese history and cultural influences
    ○ The birth of “Cool Japan” in the late 19th century
  ■ Week 2
    ○ What is pop culture? What genres are included?
      ■ “Introducing Japanese Popular Culture,” Freedman & Slade
    ○ How do we read Japanese pop culture in the context of world literature?
      ■ “Who’s the ‘great imitator?’ Critical reflections on Japan’s historical transcultural influence,” Fabienne Darling-Wolf

PART II

Murakami Haruki: Born Translated?
  ■ Week 3
    ○ Contemporary Japanese literature on the world stage
      ■ “Introduction: Theory of World Literature Now,” Rebecca Walkowitz
      ■ Short stories, Murakami Haruki
  ■ Week 4
Contemporary Japanese literature on the world stage

- *Kitchen*, Yoshimoto Banana

**PART III**

*Samurai and Monsters: Japanese Film Classics Abroad*

- **Week 5**
  - How Samurai Became Cowboys
    - *The Seven Samurai* (1954), dir. Akira Kurosawa
    - *The Magnificent Seven* (1960), dir. John Sturges

- **Week 6**
  - Godzilla Lost in Translation
    - *Gojira* (1954), dir. Ishirô Honda
    - “Lost in Translation and Morphed in Transit: Godzilla in Cold War America,” Sayuri Guthrie-Shimizu

**PART IV**

*Manga, Anime, and Global Fandoms*

- **Week 7**
  - The politics and poetics of global fan communities
    - “Introduction: Frictive Pictures,” Sandra Annett
    - “Globalizing Manga: from Japan to Hong Kong and Beyond,” Wendy Siuyi Wong

- **Week 8**
  - Girls’ Manga in Circulation
    - *Hana yori dango* (Boys over Flowers) v. 1, Yôko Kamio
    - “Tracing Asian Franchises: Local and Transnational Reception of *Hana yori dango*,” Rayna Denison

- **Week 9**
  - How an Italian Children’s Classic went to Japan and Back (TV series)
    - *Haha wo tazunete sanzenri* (3,000 Leagues in Search of Mother, 1976), dir. Takahata Isao
    - “From the Appenines to the Andes,” Edmondo de Amicis (trans. Isabel Hapgood)

- **Week 10**
  - Exporting Studio Ghibli (Cinematic Anime)
    - Excerpts from *Sharing a House with the Never-Ending Man: 15 Years at Studio Ghibli*, Steve Alpert
    - *Mononoke hime* (Princess Mononoke, 1997), dir. Miyazaki Hayao

**PART V**

*Virtual Worlds, Idols, and Icons*

- **Week 11**
  - Blurring the local and the global: videogames and “Japaneseness”
    - Excerpts from *From Atari to Zelda*, Mia Consalvo
Week 12
- Pokémon as multimedia franchise, Pokémon as crosscultural narrative
- Excerpts from *Pikachu’s Global Adventure: The Rise and Fall of Pokémon*, Joseph Tobin

PART VI
- Week 13: Conclusions

**FOR LIBRARY CHECK:**

*Primary sources:*

Honda Ishiro, dir. *Gojira*.


Kurosawa, Akira, dir. *Seven Samurai*. Criterion Collection.

Miyazaki, Hayao. *Princess Mononoke*.

Murakami, Haruki. Short stories (from *The New Yorker*)

Sturges, John, dir. *The Magnificent Seven*.


*Secondary sources:*


Course Description
The course is designed to acquaint students with the pragmatic usage of Japanese language. Five different types of movies are viewed throughout the course. By viewing Japanese films, students are introduced to different styles of Japanese communication and various aspects of Japanese society and culture. It also provides students with an opportunity to deepen their understanding of Japanese culture by using appropriate language tied to specific context. The course work is designed to help students develop autonomy by creating discussion topics and questions regarding the movies they view. The final project is for students to make a movie sequel to demonstrate understanding of the movie themes, as well as the appropriate use of expressions and vocabulary in various contexts. These assignments help students to critically engage with the learning material and provide opportunities to use Japanese for meaningful communication. Students are encouraged to express their ideas and opinions in Japanese while learning to convey these ideas and opinions in written form as well. They will be viewing five different types of movie through out the course.

Course Objectives
At the end of the course, successful students will be able to:

- understand various aspects of Japanese society and people
- speak in an appropriate manner according to the situation
- present opinions and ideas in Japanese
- conduct a discussion in Japanese
- write a film review in Japanese

Prerequisites
JAPN 300 or a placement interview. Students who have completed JAPN 201 or 301 can also register in the course. Course participants are expected to be able to read at least 300 kanji (Chinese characters), and to follow instructions in Japanese.
Each student is responsible for their own conduct as it affects the University community. Academic dishonesty, in whatever form, is ultimately destructive of the values of the University. Furthermore, it is unfair and discouraging to the majority of students who pursue their studies honestly. Scholarly integrity is required of all members of the University. SFU’s Academic Integrity site http://www.sfu.ca/students/academicintegrity.html

University academic integrity & Course Policies

*Proficiency level
Mispresenting or falsifying previous experiences in Japanese language is considered to be a violation of the SFU academic integrity policy. Students who do not comply with the University’s academic integrity Policy will be subject to penalty.

*Attendance
Attendance in all scheduled classes is mandatory. If you missed more than six classes, you will NOT receive any class performance mark. If you are in class less than 50 % of the time, it is considered to be an absence. Additionally, students who neglect their academic work and assignments may be excluded from the final examination.

*Assignment
All assignment must be submitted at the beginning of the class hour. A late submission will lead to deduction (25 % per assignment). If you are completing your assignment in class, that assignment will not be accepted. If you wish to consult with the instructor regarding the submission of assignments, you can do it either during break time or right after class.
* Quiz
If you attend less than 50% of the class, you are not allowed to take a quiz. No make-up quiz will be given. If you come late and miss a quiz without any legitimate reasons that an instructor approves. Also when a quiz takes place after a break, your quiz mark will be deducted 50%.

* Equality, Equity, and Respect
The course is committed to creating a classroom atmosphere in which students’ experiences and views are treated with equal respect and value in relation to their gender, racial background, sexual orientation or ethnic backgrounds. In this course, you are not only learning Japanese language but you are also learning how to communicate with others.

* Electronic Devices
A computer or a cell phone are not a requirement of this course (except on specific occasions, e.g., Kahoot); Using these devices are thus strictly prohibited. Tablets may be used for note-taking purposes. If you get caught using a phone in class, you lose participation marks. You need to inform the instructor if you need to use a device in class.

* Assistance
Students requiring accommodations as a result of a disability must contact the Centre for Accessible Learning (https://www.sfu.ca/students/accessible-learning.html). During the course, if you encounter medical, emotional or personal problems that affect your attendance or academic performance, please notify the instructor.

**Course Schedule**

<table>
<thead>
<tr>
<th>W</th>
<th>Date</th>
<th>Contents</th>
<th>Quiz</th>
<th>Assignments</th>
</tr>
</thead>
</table>
| 1 | Jan 6 | Orientation  
**Movie 1: Classical Japanese movie** 変動期の日本『東京物語』（小津安二郎）  
Background of movie, Vocabulary & Grammar | | |
| 2 | 8 | Dictation & Character analysis  
Comprehension question  
Oral practice | | Decide on a group and a choice of movie |
| 3 | 13 | Dictation  
Discussion  
Oral Practice | Quiz 1 | |
| 4 | 15 | Discussion & Memory test  
Reading  
**Practice Writing movie review** | Quiz 2 | |
<p>| 5 | 20 | Oral test 1 (5 %) | | |
| 6 | 22 | Group Work day | | Hand in learning material package (G1) |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Movie Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Movie 2: Japanese family orientation · 日本人の家族観:「そして父になる」(是枝裕和)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Quiz 3</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Quiz 4</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Movie 3: Japanese Animation · 日本のいじめ「聲の形」(京アニ製作)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Hand in learning material package (G2)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Quiz 5</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Family Day (no class)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Reading Break (no class)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Share the theme of Group movie</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Quiz 6</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>March 2</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Written Test 1 (10%)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Movie 4: Japanese foods 日本の食生活「Udon」(本広克行)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Quiz 7</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Quiz 8</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Movie 5: Death in Japan · 日本人の生死観「おくりびと」(滝田洋二郎)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Quiz 9</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Quiz 10</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Movie 5 review in class (4%)</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Written test 2 (10%)</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Oral exam 2 (5%)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Movie Viewing/Sharing</td>
<td></td>
</tr>
</tbody>
</table>
Quiz 10%

There are two short quizzes for each movie. As indicated on the schedule, the first quiz covers vocabulary and grammar, while the second includes kanji from the reading materials. No make-up quiz will be given except under exceptional circumstances when prior approval is granted. In case of sickness documentation (e.g. doctor’s note) will be required.

Oral Exam 1 & 2 (5%×2) 10%

This is an individual test but you will be required to attend with a partner, so that you may comment on your partner’s remarks or to ask questions. Each pair spends approx. 10 minutes. The main goal of the oral exam is for you to show that you can express your movie review orally. Thus, you want to make sure that you will be able to use all the necessary vocabulary and expressions to convey your ideas. The instructor will ask you to describe characters’ personality or role in the movie.

Written Test 1 & 2 (10%×2) 20%

Each written test lasts approximately one hour and covers vocabulary, grammar, and the kanji learned from the films. The conditions are the same as the quizzes (e.g. there will be no make-up exam without permission). Details will be announced on Canvas.

Learning materials (group) 10%

You work with your group members to create the following materials. 1). Movie information, 2) Vocabulary list, 3) Dictation, 4) comprehension questions, 5) discussion questions, 6) memory test questions, 7) kanji info. Please see the details. As the instructor prepares all these materials for the movie, you will see sample question. You will submit the above list as a package on the requested date.

Movie making (group) 20%

You become a movie director and actor and create a short film with your group members. The film's theme should either contain an alternative ending or be the continuation of a film you viewed in class. The length of the movie should be between 7 to 10 minutes. As an option, you can create a movie poster or a 45 second promotion video. All the created movie will be viewed and shared on the last day. Through the movie making, you will demonstrate your understanding or interpretation of the movie themes, and at the same time to showcase the appropriate use of expression and vocabulary to deliver your message clearly to your audience.
Writing review (6% x 3 + 4%) 22%

You are required to write a movie review for Movie 2, 3, and 4. You should NOT mix a movie review and a summary of the synopsis. You are asked to state your opinions on the movie.

Discussion Participation 8%

Movie viewing is followed by group discussion. The discussion topics are provided by the group that is presenting the movie; They will moderate the group discussion and evaluate your participation.
8.3 Enrollment Data

Note: Total Enrollments per fiscal year for six major foreign language offerings in WLL/SFU
## Total Enrollment by Course

** Filters applied to this report:**
- Fiscal Year: 2017/18
- Subject: Japanese
- Course Division: Lower Division

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Code</th>
<th>Term</th>
<th>Section</th>
<th>Credit</th>
<th>Class</th>
<th>Section</th>
<th>Credit</th>
<th>Class</th>
<th>Capacity</th>
<th>Enrolm</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>C100</td>
<td>3.00</td>
<td>30</td>
<td>35</td>
<td>86%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>D100</td>
<td>3.00</td>
<td>26</td>
<td>25</td>
<td>104%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>D200</td>
<td>3.00</td>
<td>22</td>
<td>24</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>D300</td>
<td>3.00</td>
<td>24</td>
<td>24</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>D400</td>
<td>3.00</td>
<td>24</td>
<td>24</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1174</td>
<td>E100</td>
<td>3.00</td>
<td>22</td>
<td>24</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>C100</td>
<td>3.00</td>
<td>32</td>
<td>35</td>
<td>91%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D100</td>
<td>3.00</td>
<td>28</td>
<td>25</td>
<td>112%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D200</td>
<td>3.00</td>
<td>26</td>
<td>25</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D300</td>
<td>3.00</td>
<td>24</td>
<td>24</td>
<td>94%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D400</td>
<td>3.00</td>
<td>24</td>
<td>24</td>
<td>79%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D500</td>
<td>3.00</td>
<td>19</td>
<td>24</td>
<td>79%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1177</td>
<td>D600</td>
<td>3.00</td>
<td>19</td>
<td>24</td>
<td>79%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>C100</td>
<td>3.00</td>
<td>33</td>
<td>35</td>
<td>94%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D100</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D200</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D300</td>
<td>3.00</td>
<td>22</td>
<td>24</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D400</td>
<td>3.00</td>
<td>22</td>
<td>24</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D500</td>
<td>3.00</td>
<td>21</td>
<td>24</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D600</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D200</td>
<td>3.00</td>
<td>26</td>
<td>25</td>
<td>104%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D300</td>
<td>3.00</td>
<td>20</td>
<td>25</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D400</td>
<td>3.00</td>
<td>18</td>
<td>25</td>
<td>72%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D500</td>
<td>3.00</td>
<td>17</td>
<td>25</td>
<td>68%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D600</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sciences</td>
<td>Literature</td>
<td>JAPN</td>
<td>1181</td>
<td>D100</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Total: 622
Enroll ratio: 90%

---

Run Date: Sep 19, 2022
Institutional Research and Planning, Simon Fraser University
www.sfu.ca/irp | askirp@sfu.ca
### Total Enrolment by Course

**Filters applied to this report:**
Fiscal Year: 2018/19  
Subject: Japanese  
Course Division: Lower Division

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Name</th>
<th>Term</th>
<th>Secti</th>
<th>Hours</th>
<th>Enrolm</th>
<th>Capacity</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1184</td>
<td>D100</td>
<td>3.00</td>
<td>20</td>
<td>25</td>
<td>80%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1184</td>
<td>D200</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1184</td>
<td>D300</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1184</td>
<td>D400</td>
<td>3.00</td>
<td>21</td>
<td>23</td>
<td>91%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1184</td>
<td>D500</td>
<td>3.00</td>
<td>20</td>
<td>24</td>
<td>83%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>D200</td>
<td>3.00</td>
<td>17</td>
<td>24</td>
<td>71%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>D300</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>E100</td>
<td>3.00</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>E200</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>D100</td>
<td>3.00</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>D200</td>
<td>3.00</td>
<td>24</td>
<td>25</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>D300</td>
<td>3.00</td>
<td>15</td>
<td>19</td>
<td>79%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>D400</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>D500</td>
<td>3.00</td>
<td>24</td>
<td>25</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1191</td>
<td>E100</td>
<td>3.00</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1184</td>
<td>D100</td>
<td>3.00</td>
<td>18</td>
<td>25</td>
<td>72%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1184</td>
<td>D200</td>
<td>3.00</td>
<td>22</td>
<td>24</td>
<td>92%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1184</td>
<td>E100</td>
<td>3.00</td>
<td>19</td>
<td>24</td>
<td>79%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1187</td>
<td>D200</td>
<td>3.00</td>
<td>14</td>
<td>24</td>
<td>58%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1191</td>
<td>D100</td>
<td>3.00</td>
<td>53</td>
<td>63</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1187</td>
<td>D200</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>26</td>
<td>25</td>
<td>104%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1187</td>
<td>D100</td>
<td>3.00</td>
<td>15</td>
<td>22</td>
<td>68%</td>
</tr>
</tbody>
</table>

Run Date: Sep 19, 2022  
Institutional Research and Planning, Simon Fraser University  
www.sfu.ca/irp | askirp@sfu.ca

Annual Tot  587  Enroll ratio  87%
<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Course Name</th>
<th>Term</th>
<th>Class Section</th>
<th>Credit Hours</th>
<th>Total Enrolment</th>
<th>Class Capacity</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1194</td>
<td>D100</td>
<td>3.00</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1194</td>
<td>D200</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1194</td>
<td>D300</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1194</td>
<td>E100</td>
<td>3.00</td>
<td>14</td>
<td>19</td>
<td>74%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>D200</td>
<td>3.00</td>
<td>23</td>
<td>25</td>
<td>92%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>D300</td>
<td>3.00</td>
<td>16</td>
<td>19</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>D400</td>
<td>3.00</td>
<td>15</td>
<td>19</td>
<td>79%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>D500</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1197</td>
<td>E500</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1201</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1201</td>
<td>D200</td>
<td>3.00</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1201</td>
<td>D300</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1201</td>
<td>D500</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1201</td>
<td>D700</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1194</td>
<td>D100</td>
<td>3.00</td>
<td>14</td>
<td>19</td>
<td>74%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1194</td>
<td>D200</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1194</td>
<td>D300</td>
<td>3.00</td>
<td>15</td>
<td>19</td>
<td>79%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1197</td>
<td>D100</td>
<td>3.00</td>
<td>11</td>
<td>25</td>
<td>44%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1197</td>
<td>D200</td>
<td>3.00</td>
<td>9</td>
<td>19</td>
<td>47%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1197</td>
<td>D300</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1201</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1201</td>
<td>D200</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1201</td>
<td>D300</td>
<td>3.00</td>
<td>16</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1194</td>
<td>D100</td>
<td>3.00</td>
<td>24</td>
<td>25</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1197</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1194</td>
<td>D100</td>
<td>3.00</td>
<td>19</td>
<td>25</td>
<td>76%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1197</td>
<td>D100</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1201</td>
<td>D100</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
</tbody>
</table>
## Total Enrollment by Course

**Filters applied to this report:**
- **Fiscal Year:** 2020/21
- **Subject:** Japanese
- **Course Division:** Lower Division

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Name</th>
<th>Term</th>
<th>Section</th>
<th>Enrolment</th>
<th>Capacity</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1204</td>
<td>D100</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1204</td>
<td>D200</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1204</td>
<td>D300</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1204</td>
<td>D400</td>
<td>17</td>
<td>25</td>
<td>68%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1204</td>
<td>E100</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D100</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D200</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D300</td>
<td>16</td>
<td>19</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D400</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D500</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D600</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1207</td>
<td>D700</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>D100</td>
<td>24</td>
<td>25</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>D200</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>D300</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>D400</td>
<td>18</td>
<td>19</td>
<td>95%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>D500</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>E100</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1211</td>
<td>E200</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1204</td>
<td>D100</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1204</td>
<td>D200</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1204</td>
<td>D300</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1207</td>
<td>D100</td>
<td>23</td>
<td>25</td>
<td>92%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1207</td>
<td>D200</td>
<td>16</td>
<td>19</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1207</td>
<td>D300</td>
<td>15</td>
<td>19</td>
<td>79%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1211</td>
<td>D100</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1211</td>
<td>D200</td>
<td>13</td>
<td>19</td>
<td>68%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1211</td>
<td>D300</td>
<td>19</td>
<td>19</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1204</td>
<td>D100</td>
<td>20</td>
<td>25</td>
<td>80%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1207</td>
<td>D100</td>
<td>28</td>
<td>32</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1211</td>
<td>D100</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1204</td>
<td>D100</td>
<td>19</td>
<td>25</td>
<td>76%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1207</td>
<td>D100</td>
<td>16</td>
<td>25</td>
<td>64%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 201</td>
<td>1211</td>
<td>D100</td>
<td>22</td>
<td>25</td>
<td>86%</td>
</tr>
</tbody>
</table>

Annual Enrollment: 665
Enrollment Rate: 91%
### Total Enrollment by Course

**Filters applied to this report:**
- Fiscal Year: 2021/22 to 2022/23
- Subject: Japanese
- Course Division: Lower Division

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Course Name</th>
<th>Term</th>
<th>Class Section</th>
<th>Credit Hours</th>
<th>Total Enrollment</th>
<th>Class Capacity</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D00</td>
<td>3.00</td>
<td>10</td>
<td>19</td>
<td>90%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D300</td>
<td>3.00</td>
<td>19</td>
<td>13</td>
<td>72%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D400</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>90%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D100</td>
<td>3.00</td>
<td>19</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D500</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>92%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D600</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D100</td>
<td>3.00</td>
<td>19</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D300</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D400</td>
<td>3.00</td>
<td>16</td>
<td>19</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D500</td>
<td>3.00</td>
<td>17</td>
<td>19</td>
<td>90%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>D600</td>
<td>3.00</td>
<td>14</td>
<td>19</td>
<td>74%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 100</td>
<td>1224</td>
<td>E100</td>
<td>3.00</td>
<td>14</td>
<td>19</td>
<td>74%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1214</td>
<td>D100</td>
<td>3.00</td>
<td>10</td>
<td>25</td>
<td>40%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1214</td>
<td>D200</td>
<td>3.00</td>
<td>13</td>
<td>19</td>
<td>68%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 101</td>
<td>1214</td>
<td>D100</td>
<td>3.00</td>
<td>10</td>
<td>19</td>
<td>53%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1217</td>
<td>D100</td>
<td>3.00</td>
<td>7</td>
<td>25</td>
<td>28%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1217</td>
<td>D200</td>
<td>3.00</td>
<td>10</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1217</td>
<td>D100</td>
<td>3.00</td>
<td>7</td>
<td>19</td>
<td>37%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1217</td>
<td>D200</td>
<td>3.00</td>
<td>17</td>
<td>25</td>
<td>68%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1217</td>
<td>D300</td>
<td>3.00</td>
<td>16</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1221</td>
<td>D100</td>
<td>3.00</td>
<td>13</td>
<td>25</td>
<td>52%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1221</td>
<td>D200</td>
<td>3.00</td>
<td>10</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 110</td>
<td>1221</td>
<td>D300</td>
<td>3.00</td>
<td>11</td>
<td>19</td>
<td>58%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 120</td>
<td>1224</td>
<td>D100</td>
<td>3.00</td>
<td>13</td>
<td>25</td>
<td>52%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 120</td>
<td>1224</td>
<td>D200</td>
<td>3.00</td>
<td>10</td>
<td>19</td>
<td>93%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 120</td>
<td>1224</td>
<td>D300</td>
<td>3.00</td>
<td>7</td>
<td>19</td>
<td>37%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1217</td>
<td>D100</td>
<td>3.00</td>
<td>16</td>
<td>25</td>
<td>64%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1217</td>
<td>D200</td>
<td>3.00</td>
<td>20</td>
<td>25</td>
<td>80%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1221</td>
<td>D100</td>
<td>3.00</td>
<td>21</td>
<td>25</td>
<td>84%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 200</td>
<td>1221</td>
<td>D200</td>
<td>3.00</td>
<td>12</td>
<td>25</td>
<td>48%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 210</td>
<td>1217</td>
<td>D100</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 210</td>
<td>1221</td>
<td>D100</td>
<td>3.00</td>
<td>13</td>
<td>25</td>
<td>52%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 210</td>
<td>1221</td>
<td>D200</td>
<td>3.00</td>
<td>13</td>
<td>25</td>
<td>52%</td>
</tr>
</tbody>
</table>

**Annual Total:** 630 **Enrollment ratio:** 73%
## Total Enrolment by Course

 Filters applied to this report:  
 Fiscal Year: 2017/18 to 2022/23  
 Subject: Japanese  
 Course Division: Upper Division  
 Course Level: 300

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Department</th>
<th>Course Name</th>
<th>Term</th>
<th>Section</th>
<th>Hours</th>
<th>Enrolmen</th>
<th>Capacity</th>
<th>Utilization Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 300</td>
<td>1197</td>
<td>D100</td>
<td>3.00</td>
<td>27</td>
<td>25</td>
<td>108%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 300</td>
<td>1211</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>100%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 300</td>
<td>1221</td>
<td>D100</td>
<td>3.00</td>
<td>26</td>
<td>25</td>
<td>96%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 301</td>
<td>1191</td>
<td>D100</td>
<td>3.00</td>
<td>30</td>
<td>25</td>
<td>120%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 301</td>
<td>1217</td>
<td>D100</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>92%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 351</td>
<td>1181</td>
<td>E100</td>
<td>3.00</td>
<td>22</td>
<td>25</td>
<td>88%</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>World Languages and Literatures</td>
<td>JAPN 351</td>
<td>1201</td>
<td>D200</td>
<td>3.00</td>
<td>25</td>
<td>25</td>
<td>88%</td>
</tr>
</tbody>
</table>

Annual Total: 174 Enrolment 99%
8.4 Consultation comments and letters of support
August 15, 2022

Re: Japanese Certificate (World Languages and Literatures)

Dear Dr. Yamini-Hamedani,

The Global Asia Program is pleased to support the Department of World Languages and Literatures in its proposal to create a new Japanese Studies Certificate. The proposed certificate complements Global Asia programming by crediting students who build strength in Japanese-related course offerings in GA, WLL, and across FASS with a formal credential. It may also draw new students to Global Asia courses and perhaps even the minor itself.

We look forward to supporting you in this work.

Sincerely,

Nadine Attewell  
Director, Global Asia Program  
Simon Fraser University
August 29, 2022

Azadeh Yamini-Hamedani, Ph.D.
Chair Department of World Languages and Literatures
Simon Fraser University
8888 University Drive
Burnaby, B.C. V5A 1S6

Dear Dr. Yamini-Hamedani,

I am writing with regards to the proposed Certificate in Japanese Studies at Simon Fraser University, which I have been asked to review by Naoko Takei. I believe that the proposed program offers a good balance of language and culture courses, the study of which will enrich the student experience. The University of British Columbia Okanagan also offers various certificate programs, but the definition, outcomes and purpose of these differ from that of other institutions. Therefore, the certificate may not be recognized in a transfer situation. However, the proposed program name and content is consistent with standards and current usage in other institutions, and should provide positive outcomes for students enrolled in it. I support the implementation of the Japanese Studies Certificate.

Sincerely,

Nina Langton, Associate Professor
Languages and World Literatures (Japanese Studies)
To:

Dr. Naoko Takei, Ph.D
Department of World Languages and Literatures
Simon Fraser University

Regarding: Proposed Certificate in Japanese Studies

Dear Dr. Takei;

I have reviewed the proposed contents of the Certificate in Japanese Studies which the Department of World Languages and Literatures at Simon Fraser University hopes to establish, and I can see that this program will offer students a very solid introduction to the language and culture of contemporary Japan. I fully support the establishment of this program; it provides meaningful value to undergraduate students in the SFU community.

I have compared the certificate requirements for those in other programs in the Department of World Languages and Literatures, and find that they are quite reasonable in their scope. The certificate in Japanese Studies parallels those in Chinese and German Studies, while offering a less-intensive program than, for example, the Minor in Italian. Because students can complete the certificate with primarily lower-level courses, students retain flexibility to participate in other Major programs which may have restrictions on the number or type of upper-level courses they must take. This is a reasonable approach to maximising the merit of this program to a wide range of students.

Allowing students to complete courses in other departments helps to supplement the types of content they encounter during their education, while removing potential burdens from the Department of World Languages and Literatures to offer courses beyond the scope of current faculty members. Personally, I would hope that at some point the department will grow sufficiently to be able to offer all courses in-house, although I am very aware of the structural realities of departments that must operate within particular constraints; my own department suffers from numerous such issues.

Overall, the addition of the Certificate in Japanese Studies will be an overwhelmingly positive development for the Department of World Languages and Literatures, its students, and the SFU community as a whole. This type of innovative packaging of courses provides solid value in educational opportunities, and I am fully in support of it.

Sincerely,

Timothy Iles, PhD
Associate Professor, Japanese Studies
Department of Pacific and Asian Studies
University of Victoria
August 30, 2022

Azadeh Yamini-Hamedani, Ph.D.
Chair & Associate Professor
Department of World Languages and Literatures
Faculty of Arts and Social Sciences
Simon Fraser University
8888 University Drive
Burnaby, B.C.

Dear Dr Azadeh Yamini-Hamedani,

The proposed certificate in Japanese language and culture would be very attractive to students who are interested and motivated to learn Japanese. There are many students who choose to major in academic fields other than Japanese studies. Annually, Kwantlen Polytechnic University (KPU), has seen approximately 300 to 400 students taking Japanese language courses and 100 students taking Japanese culture courses, namely Introduction to Contemporary Japanese Society and Culture, Japanese Culture through Film, and Japanese Culture and Business. There is no Bachelor’s Degree offered in any languages at KPU. Although the department of Language and Cultures offer a BA Minor in Language and Culture, it would be difficult to complete the degree focusing solely on Japanese language and culture since all the required courses are upper level except a linguistics course.

At KPU, those students who take Japanese language and culture courses are genuinely interested in Japanese culture. Quite a few alumni have shown their interests in the fields of business or education. Pre-pandemic, we constantly had students applying for the Japanese Exchange Teaching Programme. For those students who are unable to pursue the Minor in Language and Culture at KPU, the proposed certificate in Japanese Studies would provide an opportunity to achieve a meaningful credential that would contribute to their educational and career ambitions.

I support this proposal.

Sincerely,

Seiko Roberts
Instructor
Department of Language and Cultures
Kwantlen Polytechnic University
8.1 **Abbreviated Curricula Vitae**

8.1.1 Dr. Naoko Takei: second language acquisition, and intercultural competence.
8.1.2 Dr. Chie Furukawa: identities, cultures, and languages in transnational spaces
8.1.3 Dr. Melek Ortabasi: translation theory and practice, popular culture and transnationalism, and internationalism in children’s literature
Melek Su Ortabasi
Curriculum Vitae

PROFESSIONAL EXPERIENCE

Simon Fraser University
Chair, January 2020 – September 2021
Director, September 2015 – December 2019
Associate Professor, 2012 – present
Assistant Professor, 2008 – 2012
Program in World Literature, Faculty of Arts and Social Sciences

Hamilton College
Assistant Professor of Japanese and Comparative Literature, 2002 – 2008
Department of Comparative Literature

EDUCATION

University of Washington, Seattle
Ph.D., Comparative Literature, 2001.
Dissertation title: “Japanese Cultural History as Literary Landscape: Scholarship, Authorship and Language in Yanagita Kunio’s Native Ethnology”
M.A., Comparative Literature (Japanese and German), 1994.

Stanford Inter-University Center, Yokohama

University of California, Berkeley
B.A., Comparative Literature (Japanese and German), 1992.

FELLOWSHIPS, GRANTS, AND HONORS (most recent, in $CAD)

Simon Fraser University
• David Lam Centre Research Grant, 2019 ($4,375)
• David Lam Centre Research Grant, 2018 ($4,250)
• Emergency Rapid Response Grant, FASS Dean’s Office, 2017 ($800)
• FASS Canada 150 Teaching Grant, 2016 ($25,000; declined)
• Chairs’ Research Grant, 2015, 2016, 2017, 2018, 2019 ($5,000 annually)

Northeast Asia Council
• Research Travel Grant, 2019 ($3,750)

Kanagawa University, Yokohama
• Visiting Researcher, October 2021 – September 2022

Goethe Universität, Frankfurt
• Visiting Scholar, June-July 2017

Ludwig-Maximilians-Universität, Munich
• Visiting Scholar, June 2016
• Erasmus+ EU Grant recipient, June 2016 ($2,810)

Meiji Gakuin University, Tokyo
• Visiting Researcher, August 2014 – June 2015

Internationale Jugendbibliothek, Munich
• Research fellowship, June – August 2016 ($5,326)
• Visiting Researcher, July – August 2014

Japan Foundation
• Research Fellowship for 10 months of research in Japan at Kanagawa University, 2021. ($50,000)

PUBLICATIONS

Books


Refereed Journal articles/Book chapters/Conference Proceedings

“Sekai bungaku to shite no ‘Tôno monogatari.’” Gendai shisô 50.8 (June 2022): 155-166.


“Youth, Transnationalism, Identity: Young Adult Literature and World Literature,” in Teaching Young Adult Literature, ed. Mike Cadden, Karen Coats, and Roberta Seelinger Trites. Modern Languages Association, 2020, pp. 45-54.


“Randoku no kuse: Meiji Taishô no erîto to kodomo jidai no dokusho keiken.” Kokusaika jidai o shiya ni ireta bunka to kyôiku ni kansuru sôgôteki kenkyû. Tokyo Gakugei University, 2016, pp. 78 – 84. (conference proceedings)

Other publications


Interview of Stephen Snyder, translator of Confessions by Minato Kanae, for SCBWI Japan Translation Group (March 2015), https://ihatov.wordpress.com/2015/03/21/an-interview-with-stephen-snyder/.

RESEARCH INTERESTS

- Modern Japanese literature and popular culture
- Translation theory and practice
- Popular culture and transnationalism
- World children’s literature
- History of reading culture
CHIE FURUKAWA
Curriculum Vitae

TEACHING EXPERIENCE

Lecturer, Department of World Languages and Literatures, Simon Fraser University, January 2018 - present.

Adjunct Instructor, Department of Anthropology, Sociology, and Languages, University of Missouri-St. Louis, August 2013 - December 2013, January 2016 - March 2017.

Adjunct Instructor, University College at Washington University in St. Louis, August 2015-December 2016.


Teaching Assistant, Department of East Asian Languages and Cultures, University of Illinois, 2005-2008

EDUCATION

University of Illinois at Urbana-Champaign, Urbana, IL

Ph.D. in Education, May 2016
(Family care leave 2010-2012)
Dissertation Adviser: Professor William T. Trent

University of Tokyo, Japan

M.A. in Sociology of Education, March 2005
Thesis Title: “The Study of Institutionalization of Gap Year in the U.K. — Focusing on the Changes of Social Awareness”
Thesis Adviser: Professor Teruyuki Hirota

B.A. in Sociology, March 2002

RESEARCH INTEREST

Study abroad and immigration of young people / youth culture, identity, work and education/ Japanese language/ Comparative studies/ Globalization/ Qualitative methodology.

REFEREED PUBLICATION


OTHER PUBLICATION

(conference proceedings online).


RESEARCH PAPERS

- Study abroad Experiences as Processes of Forming, Negotiating, and Resisting Neoliberal Subjectivities. (Research paper based on University of Illinois at Urbana-Champaign Ethnography of the University Initiative project conducted with Chen, B. and Choi, H., Spring 2008).
- Information Flow among the Users of Long-Term Care Insurance. (Research paper based on the Research Project “Building Community Welfare,” University of Tokyo Department of Sociology Research Group in collaboration with the Green Co-op Welfare Foundation, pp. 208-211., Fall 2000).

CONFERENCE PRESENTATIONS

- Rethinking the Evaluation of Study Abroad: Contextualizing Study Abroad Experiences in Japanese Young Adults’ Life-Course. Paper presented at 2008 AERA annual meeting (N.Y., March 2008).

HONORS, AWARDS, FELLOWSHIPS, AND SCHOLARSHIPS

- 2008 Conference Travel Grant (AERA Annual meeting), College of Education, University of Illinois at Urbana-Champaign
- 2007 Conference Travel Award, 3rd Conference on Emerging Adulthood
- 2005-2008 Teaching Fellowship, Department of East Asian Languages and Cultures, University of Illinois at Urbana-Champaign
- 2005-2006 Heiwa Nakajima Foundation Scholarship ($50000 award to support graduate study abroad)
- 2002 University of Illinois Hachiro Koyama Memorial Scholarship
- Graduate Teaching Award, University of Illinois at Urbana-Champaign, 2005-2008
Curriculum Vita

Naoko Takei Ph.D.

TEACHING EXPERIENCE

Senior Lecturer 2013 – present
World Languages and Literatures, Simon Fraser University

Lecturer 2007 ~ 2013
Language Training Institute, Simon Fraser University

Sessional Instructor 2004~ 2006
Language Training Institute, Simon Fraser University

Teaching Assistant 2002 ~2004
University of British Columbia,
Teacher, Summer Intensive Course 2001~ 2003
Kyoto International Center of Languages, summer in 2003
Gifu Prefecture, language training program for technical researchers, Summer in 2001~ 2002
Teacher, as a member of the Japanese Oversea Cooperation Volunteers 1996~1998
Nixia University, China, the program in the Japan International Cooperation agency, held by the Mister of Foreign Affair
Teacher, 1992~ 1996
local language schools, Kansai Bunri Gaku, Japanese International Language Academy, The Times Academy and Kyoto Ryoyo Japanese Language School, in Kyoto

EDUCATION

PhD in Faculty of Education, Simon Fraser University, Sep 2008 ~2015

Non-degree in Faculty of Education, Simon Fraser University, 2005~2007
Completed courses in Curriculum Theory, Contemporary Education Theory, and Research Methodology.


TEACHING CERTIFICATE

Japanese Language Teaching Certification Course (UK) --- Completed in 1991
Obtained certificate of completion for a 50 hour course on fundamentals of Japanese language teaching

Japanese Teacher Certificate Course (Japan) --- Completed in 1992
Obtained certificate of completion for a 80 hour course on language phonology, syntax, teaching methodology, and history of the Japanese language. 
Japanese Language Teaching Competency Test Japan ---Passed in 1993
Designated test by the Japanese Ministry of Education, Culture, Sports, Science, and Technology

PUBLICATIONS


CONFERENCES PRESENTATIONS


Takei N. & Otsuka M. (2019, August) Analysis of interview project from an interviewer’s strategy perspective. Annual conference of Canadian Association for Japanese Language Education, University of Victoria, Canada,


**AWARDS, FELLOWSHIPS, GRANTS, AND HONORS**


Simon Fraser University, Institute for the Study of Teaching and Learning in the Disciplines. New Ways of Teaching, New Ways of Learning Grant Program. 2020, ($5000)

The Ph.D. Dissertation was nominated to the CAGS/ ProQuest Distinguished Dissertation Awards by the Faculty of Education, 2016

**RESEARCH INTEREST**

Japanese Heritage Language, Second Language Acquisition, Intercultural competence, Language assessment,
8.5 Market analysis – student interest and labour market demand

8.5.1 Article: Japan to Start New Language Test to Ease Labor Immigration

8.5.2 Survey done to SFU students of Japanese in Fall. 2021
By April next year, Japan will introduce a new Japanese language proficiency test with more emphasis on the practical expression used in businesses with an aim to get more immigrants to work in the country.

The test will be administered both within and outside Japan to assess applicants’ ability to understand and use Japanese in daily life and business settings, according to a report in Japanese business daily Nikkei. The examination will include tests like making telephone calls and scheduling meetings.

With a low birth rate and aging population, Japan is facing labor shortage and is trying to fill the gap with immigrants from Asian countries.

Japan’s foreign ministry is leading the project as the country plans to relax immigration norms to cope with its deepening labor shortage. The test will serve as one of the main criteria for evaluating job applicants. Japan has very few immigrants working in its industries as it has a very strict immigration policy but the government is warming up to allowing more immigrants now.

Applicants from Southeast Asian countries like Vietnam and the Philippines will be the first to get the proposed tests. Officials are planning to administer it by computers rather than on paper to speed the processing of results, the publication said, adding that the new test will have both listening and reading components for now while writing and speaking sections may be added later.

Current tests used by employers and work programs in Japan, notably the Japanese-Language Proficiency Test (JLPT), are heavily weighted towards language used in academic settings and student life, and one-third of the
people taking the JLPT are exchange students studying in Japan, the report added. According to critics, these tests are not well designed to assess the language skills needed by workers.

Japan is facing labor shortages in various sectors, including construction, farming, and nursing care, and with a view to fill that gap, the country will institute a five-year work permit next April that will not limit applicants to specific job categories, the paper said.

In October 2017, about 1.28 million foreigners were working in the country, the most ever and an 18 percent increase from the year before, according to statistics from Japan’s Ministry of Health, Labor and Welfare.

The country's overall population fell by 199,000 in 2017, with the number of Japanese nationals decreasing by 374,000 and this was offset by an increase of 174,000 foreigners moving to the country, roughly halving the population shrinkage, the Nikkei said in another report, citing figures from the Ministry of Internal Affairs and Communications.
Q3 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 8  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It would be great if there was a certificate because I am interested in teaching English in Japan.</td>
<td>12/13/2021 11:35 AM</td>
</tr>
</tbody>
</table>
Q4 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 8  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>25.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>25.00%</td>
</tr>
</tbody>
</table>

#   COMMENT                           DATE
1   for the same reason as stated above. 12/13/2021 11:35 AM
Q5 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 8  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

#  COMMENT                                      DATE
1   Same reason as above.                   12/13/2021 11:35 AM
Q1 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 26   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.77%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>19.23%</td>
</tr>
</tbody>
</table>

TOTAL: 26

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENTS</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It would be amazing if this was offered as there are already certificate programs for other languages but not for Japanese.</td>
<td>12/13/2021 10:22 PM</td>
</tr>
<tr>
<td>2</td>
<td>As Japanese isn’t the main degree I am aiming for, I’m not sure if I would be able to take enough classes to complete a Japanese certificate as well.</td>
<td>12/13/2021 2:08 PM</td>
</tr>
<tr>
<td>3</td>
<td>Definitely</td>
<td>12/12/2021 9:38 PM</td>
</tr>
</tbody>
</table>
Q2 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 26  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.77%</td>
</tr>
<tr>
<td>No</td>
<td>7.69%</td>
</tr>
<tr>
<td>Not sure</td>
<td>11.54%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>

# COMMENTS
1. I am interested in taking higher-level courses about learning more about speaking & understanding the Japanese language.  
   Date: 12/15/2021 11:48 AM
2. It will be great if there are more spots to the japanese classes or more flexible time slots.  
   Date: 12/14/2021 9:41 PM
3. Would really like to take my Japanese language skills as far as I can in university.  
   Date: 12/12/2021 10:40 PM
4. If they are offering a certificate or a minor in Japanese language that requires 400 level courses, I would be very much interested. But if it is solely for the purpose of learning the language, I think 300 levels would be the maximum I would be taking.  
   Date: 12/12/2021 9:38 PM
Q3 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 26  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>84.62%</td>
</tr>
<tr>
<td>No</td>
<td>3.85%</td>
</tr>
<tr>
<td>Not sure</td>
<td>11.54%</td>
</tr>
</tbody>
</table>

TOTAL 26

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENTS</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I may consider once the pandemic situation settles down.</td>
<td>12/14/2021 9:41 PM</td>
</tr>
<tr>
<td>2</td>
<td>I heard that exchange programs or overseas Co-op placements on Japan was possible, but I wasn't able to explore my options earlier during my study, and now I am already approaching the end of my program, so it is quite unfortunate.</td>
<td>12/12/2021 9:38 PM</td>
</tr>
</tbody>
</table>
Q4 Feel free to write any comments about the Japanese program.

Answered: 8    Skipped: 18

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I enjoyed the JAPN courses that I took; I would like it if SFU were to offer further courses in speaking and understanding Japanese, similar to what is offered by UBC.</td>
<td>12/15/2021 11:48 AM</td>
</tr>
<tr>
<td>2</td>
<td>The experience from the Japanese courses I took so far (from 110-210) has been really great. Sometime I get worried about whether I be able to attend the course due to not enough space or the class time slot does not fit with other classes well. Otherwise, it was a really great experience and I got to learn a lot.</td>
<td>12/14/2021 9:41 PM</td>
</tr>
<tr>
<td>3</td>
<td>I love the Japanese program however it almost feels a tiny bit pointless from a career standpoint. It does teach you Japanese, however, there is no certificate or documentation showing your completion. If there was some form of certificate or program specifically for Japanese it would help a lot with that problem. I am also already looking into the study abroad for the chance to travel to, live, and study in Japan so a program specifically for Japan would be amazing.</td>
<td>12/13/2021 10:22 PM</td>
</tr>
<tr>
<td>4</td>
<td>I would like to take more courses in the Japanese program, but it would be easier with more sections. For example, I can’t take Japn200 this upcoming semester as the section that’s offered interferes with 2 of my other courses.</td>
<td>12/13/2021 2:08 PM</td>
</tr>
<tr>
<td>5</td>
<td>The Japanese program at SFU has been a wonderful experience so far, and I think that extending it to offer certificates and/or 400-level Japanese courses would be very beneficial.</td>
<td>12/13/2021 12:10 PM</td>
</tr>
<tr>
<td>6</td>
<td>looking forward to this.</td>
<td>12/13/2021 11:23 AM</td>
</tr>
<tr>
<td>7</td>
<td>I’m enjoying it very much (have taken JAPN 110 and 200, taking 210 next semester), but I would be interested in more options for courses with subject matter like the JAPN 351 class as well.</td>
<td>12/12/2021 10:40 PM</td>
</tr>
<tr>
<td>8</td>
<td>I’d love this!</td>
<td>12/12/2021 10:28 PM</td>
</tr>
</tbody>
</table>
Q6 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 15   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86.67%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>13.33%</td>
</tr>
</tbody>
</table>

**TOTAL**: 15

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I would really love to be able to have a certificate since I have taken every Japanese course at SFU!</td>
<td>12/15/2021 8:25 PM</td>
</tr>
<tr>
<td>2</td>
<td>I have already finished my undergraduate, so I'm not sure if I would return. If this was available while I was still doing my undergrad I probably would not hesitate.</td>
<td>12/15/2021 5:45 PM</td>
</tr>
<tr>
<td>3</td>
<td>I would absolutely love to receive a certificate now that I have finished all of the JAPN courses offered</td>
<td>12/14/2021 12:33 PM</td>
</tr>
<tr>
<td>4</td>
<td>I think a certificate would be a really good idea as proof someone learned Japanese at a university.</td>
<td>12/14/2021 12:16 AM</td>
</tr>
<tr>
<td>5</td>
<td>I would like to obtain a certificate but I don't think that I will be able to take another JAPN class in the future.</td>
<td>12/12/2021 10:39 PM</td>
</tr>
</tbody>
</table>
Q7 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 15  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>93.33%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>6.67%</td>
</tr>
</tbody>
</table>

TOTAL 15

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am graduating so maybe not for me but it would be great if 400 courses are available in the future.</td>
<td>1/1/2022 12:31 AM</td>
</tr>
<tr>
<td>2</td>
<td>As above.</td>
<td>12/15/2021 5:45 PM</td>
</tr>
</tbody>
</table>
Q8 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 15   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>20.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20.00%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>As above.</td>
<td>12/15/2021 5:45 PM</td>
</tr>
<tr>
<td>2</td>
<td>I would be definitely be interested, but am currently uncertain how that may affect my work scheduling.</td>
<td>12/13/2021 9:54 PM</td>
</tr>
</tbody>
</table>
Q1 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 17  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>94.12%</td>
</tr>
<tr>
<td>No</td>
<td>5.88%</td>
</tr>
<tr>
<td>Not sure</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
</tr>
</tbody>
</table>
Q2 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 17   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>58.82%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>41.18%</td>
</tr>
</tbody>
</table>

TOTAL 17

# COMMENT             DATE
1 Not sure of what level 400 courses might consist of. 3/7/2022 2:21 PM
Q3 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 17   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>88.24%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>11.76%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
</tr>
</tbody>
</table>

# COMMENT                      DATE
1  How much will the program cost?  3/7/2022 2:21 PM
Q4 Feel free to write any comments about this class and/or the Japanese program as a whole at SFU.

Answered: 3   Skipped: 14

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I hope I can take more Japanese course in SFU</td>
<td>3/8/2022 10:34 AM</td>
</tr>
<tr>
<td>2</td>
<td>I really like Japanese, and I hope there is a program for getting a certification.</td>
<td>3/7/2022 1:43 PM</td>
</tr>
<tr>
<td>3</td>
<td>Japanese is a language that it's getting more popularity lately and I think it would very meaningful if SFU offered a certificate for the students interested in improving their language skills</td>
<td>3/7/2022 12:41 PM</td>
</tr>
</tbody>
</table>
Q1 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 36    Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>94.44%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>5.56%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q2 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.56%</td>
</tr>
<tr>
<td>No</td>
<td>5.56%</td>
</tr>
<tr>
<td>Not sure</td>
<td>13.89%</td>
</tr>
</tbody>
</table>

**COMMENT**

1. It is my interest to dive into the culture and understand it.  3/12/2022 8:09 PM
2. Depends on the course load  3/11/2022 8:29 PM
3. Yes please!!  3/9/2022 3:40 AM
4. Based on my experience with JAPN 100 and 110, there is a drastic jump in difficulty between the two and I feel quite discouraged to study Japanese any further.  3/8/2022 12:53 PM
5. Absolutely yes!!  3/8/2022 12:39 PM
Q3 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 36  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91.67%</td>
</tr>
<tr>
<td>No</td>
<td>2.78%</td>
</tr>
<tr>
<td>Not sure</td>
<td>5.56%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q4 Feel free to write any comments about this class and/or the Japanese program as a whole at SFU.

Answered: 11  Skipped: 25

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It is great. The only parts I find truly challenging are due to the reality of dealing with covid. Oh well</td>
<td>3/12/2022 8:09 PM</td>
</tr>
<tr>
<td>2</td>
<td>These classes are very fun and enjoyable! I would love to continue my Japanese knowledges!</td>
<td>3/10/2022 4:22 PM</td>
</tr>
<tr>
<td>3</td>
<td>It would be great if the certificate programs could be available to graduate students since a lot of graduates have projects that may compel us to learn languages or research that will take us to other geographies. So in that respect, a cultural and linguistic program would really benefit graduates if they know it's an option. It's quite difficult to predict that it's something we'll need or like to do when we're still in our undergrad since we're still figuring out what we want to study, or how we want to go about our research.</td>
<td>3/9/2022 2:45 PM</td>
</tr>
<tr>
<td>4</td>
<td>I think the Japanese program progression flows very nicely with half of GENKI each term. I also really like the atmosphere of the classroom (being able to interact with classmates in a small classroom as opposed to listening all the time in a lecture hall). Also, the way the teachers teach Japanese really makes learning a language very fun and engaging!</td>
<td>3/9/2022 3:40 AM</td>
</tr>
<tr>
<td>5</td>
<td>asap</td>
<td>3/9/2022 2:34 AM</td>
</tr>
<tr>
<td>6</td>
<td>One of the best programs at SFU.</td>
<td>3/8/2022 10:52 PM</td>
</tr>
<tr>
<td>7</td>
<td>I've looked at the Japanese program at UBC, and these changes would make SFU's more similar to theirs.</td>
<td>3/8/2022 2:46 PM</td>
</tr>
<tr>
<td>8</td>
<td>I have loved the Japanese courses that I have been taking so far and would be extremely interested in pursuing a study abroad program or a certificate.</td>
<td>3/8/2022 12:56 PM</td>
</tr>
<tr>
<td>9</td>
<td>I have only taken JAPN 100 and 110, therefore I can only say what I experienced. I feel that there is a big gap in both difficulty and teaching style between the two intro courses, which is also based on what I have gathered from my friends who took 100 and 110 as well. JAPN 100 is very friendly to beginners, but 110 is a lot harsher to people who just took 100, and teachers in 110 are expecting their students to know and remember everything or nearly everything they learned in 100 when 100 is an open-book course for everything. JAPN 110 often rushes the course materials and personally, I failed to understand many things in the course, therefore I think the department should look into the gap between 100 and 110, and see if there are any adjustments the department can possibly balance the gap between these two courses.</td>
<td>3/8/2022 12:53 PM</td>
</tr>
<tr>
<td>10</td>
<td>I would be really excited if SFU offers 4-level Japanese classes!!</td>
<td>3/8/2022 12:39 PM</td>
</tr>
<tr>
<td>11</td>
<td>I really like the Japanese class and program at SFU. I feel that I am learning a lot and I am enjoying the content. I hope the program offers a Japanese certificate as that is the only improvement and feedback I have for the program.</td>
<td>3/8/2022 11:36 AM</td>
</tr>
</tbody>
</table>
Q1 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 6  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83.33%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>16.67%</td>
</tr>
</tbody>
</table>

| TOTAL           | 6         |

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It would depend on how long it'll take and what we could do with it after.</td>
<td>3/5/2022 1:58 PM</td>
</tr>
</tbody>
</table>
Q2 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 6  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>50.00%</td>
</tr>
</tbody>
</table>

TOTAL 50.00%  6

<table>
<thead>
<tr>
<th>#</th>
<th>COMMENT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It would be difficult with other higher level courses.</td>
<td>3/5/2022 1:58 PM</td>
</tr>
</tbody>
</table>
Q3 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 6  Skipped: 0

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83.33%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>16.67%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#</th>
<th>Comment</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes but realistically, no money.</td>
<td>3/5/2022 1:58 PM</td>
</tr>
</tbody>
</table>
Q4 Feel free to write any comments about this class and/or the Japanese program as a whole at SFU.

Answered: 1  Skipped: 5

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I think giving students ideas of what they can do with Japanese, the certificate, and jobs related with it would help because of uncertainty. doing all Japanese courses and not having a career related to it would be a waste of all the classes.</td>
<td>3/5/2022 1:58 PM</td>
</tr>
</tbody>
</table>
Q1 Are you interested in obtaining a Japanese certificate at SFU, if it is offered?

Answered: 15  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>100.00%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>0.00%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

# COMMENT
There are no responses.
Q2 Are you interested in taking any 400 level courses of Japanese in the future if they are offered?

Answered: 15  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86.67%</td>
</tr>
<tr>
<td>No</td>
<td>6.67%</td>
</tr>
<tr>
<td>Not sure</td>
<td>6.67%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q3 Are you interested in a study abroad (in Japan) program as a course credit if it is offered?

Answered: 15   Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>93.33%</td>
</tr>
<tr>
<td>No</td>
<td>0.00%</td>
</tr>
<tr>
<td>Not sure</td>
<td>6.67%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6.67%</td>
</tr>
</tbody>
</table>

#  COMMENT  DATE
There are no responses.
Q4 Feel free to write any comments about this class and/or the Japanese program as a whole at SFU.

Answered: 1  Skipped: 14

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I've been waiting for this! I need 400~500 or even further japanese classes provided at SFU. I'm also desperate for a japanese certificate if possible!</td>
<td>3/5/2022 12:30 AM</td>
</tr>
</tbody>
</table>
8.6 Abbreviated Curricula Vitae

8.6.1 Dr. Naoko Takei: second language acquisition, and intercultural competence.
8.6.2 Dr. Chie Furukawa: identities, cultures, and languages in transnational spaces
8.6.3 Dr. Melek Ortabasi: translation theory and practice, popular culture and transnationalism, and internationalism in children’s literature
TEACHING EXPERIENCE

Senior Lecturer 2013 – present
World Languages and Literatures, Simon Fraser University

Lecturer 2007 – 2013
Language Training Institute, Simon Fraser University

Sessional Instructor 2004 – 2006
Language Training Institute, Simon Fraser University

Teaching Assistant 2002 – 2004
University of British Columbia,

Teacher, Summer Intensive Course 2001 – 2003
Kyoto International Center of Languages, summer in 2003
Gifu Prefecture, language training program for technical researchers, Summer in 2001 – 2002

Teacher, as a member of the Japanese Oversea Cooperation Volunteers 1996 – 1998
Nixia University, China, the program in the Japan International Cooperation agency, held by the Mister of Foreign Affair

Teacher, 1992 – 1996
local language schools, Kansai Bunri Gaku, Japanese International Language Academy, The Times Academy and Kyoto Ryoyo Japanese Language School, in Kyoto

EDUCATION

PhD in Faculty of Education, Simon Fraser University, Sep 2008 – 2015

Non-degree in Faculty of Education, Simon Fraser University, 2005 – 2007
Completed courses in Curriculum Theory, Contemporary Education Theory, and Research Methodology.


TEACHING CERTIFICATE

Japanese Language Teaching Certification Course (UK) --- Completed in 1991
Obtained certificate of completion for a 50 hour course on fundamentals of Japanese language teaching

Japanese Teacher Certificate Course (Japan) --- Completed in 1992
Obtained certificate of completion for a 80 hour course on language phonology, syntax, teaching methodology, and history of the Japanese language.

**Japanese Language Teaching Competency Test Japan ---Passed in 1993**
Designated test by the Japanese Ministry of Education, Culture, Sports, Science, and Technology

**PUBLICATIONS**


**CONFERENCES PRESENTATIONS**


Takei N. & Otsuka M. (2019, August) *Analysis of interview project from an interviewer’s strategy perspective*. Annual conference of Canadian Association for Japanese Language Education, University of Victoria, Canada.


**AWARDS, FELLOWSHIPS, GRANTS, AND HONORS**


**Simon Fraser University, Institute for the Study of Teaching and Learning in the Disciplines.**
New Ways of Teaching, New Ways of Learning Grant Program. 2020, ($5000)

The Ph.D. Dissertation was nominated to the CAGS/ ProQuest Distinguished Dissertation Awards by the Faculty of Education, 2016

**RESEARCH INTEREST**

Japanese Heritage Language, Second Language Acquisition, Intercultural competence, Language assessment,
CHIE FURUKAWA
Curriculum Vitae

TEACHING EXPERIENCE
Lecturer, Department of World Languages and Literatures, Simon Fraser University, January 2018 - present.

Adjunct Instructor, Department of Anthropology, Sociology, and Languages, University of Missouri-St. Louis, August 2013 - December 2013, January 2016 - March 2017.

Adjunct Instructor, University College at Washington University in St. Louis, August 2015-December 2016.


Teaching Assistant, Department of East Asian Languages and Cultures, University of Illinois, 2005-2008

EDUCATION
University of Illinois at Urbana-Champaign, Urbana, IL
Ph.D. in Education, May 2016
(Family care leave 2010-2012)
Dissertation Adviser: Professor William T. Trent

University of Tokyo, Japan
M.A. in Sociology of Education, March 2005
Thesis Title: “The Study of Institutionalization of Gap Year in the U.K, — Focusing on the Changes of Social Awareness”
Thesis Adviser: Professor Teruyuki Hirota
B.A. in Sociology, March 2002

RESEARCH INTEREST
Study abroad and immigration of young people / youth culture, identity, work and education/ Japanese language/ Comparative studies/ Globalization/ Qualitative methodology.

REFEREED PUBLICATION

OTHER PUBLICATION
(conference proceedings online).


RESEARCH PAPERS

- Study abroad Experiences as Processes of Forming, Negotiating, and Resisting Neoliberal Subjectivities. (Research paper based on University of Illinois at Urbana-Champaign Ethnography of the University Initiative project conducted with Chen, B. and Choi, H., Spring 2008).
- Information Flow among the Users of Long-Term Care Insurance. (Research paper based on the Research Project “Building Community Welfare,” University of Tokyo Department of Sociology Research Group in collaboration with the Green Co-op Welfare Foundation, pp. 208-211., Fall 2000).

CONFERENCE PRESENTATIONS

- Rethinking the Evaluation of Study Abroad: Contextualizing Study Abroad Experiences in Japanese Young Adults’ Life-Course. Paper presented at 2008 AERA annual meeting (N.Y., March 2008).

HONORS, AWARDS, FELLOWSHIPS, AND SCHOLARSHIPS

- 2008 Conference Travel Grant (AERA Annual meeting), College of Education, University of Illinois at Urbana-Champaign
- 2007 Conference Travel Award, 3rd Conference on Emerging Adulthood
- 2005-2008 Teaching Fellowship, Department of East Asian Languages and Cultures, University of Illinois at Urbana-Champaign
- 2005-2006 Heiwa Nakajima Foundation Scholarship ($50000 award to support graduate study abroad)
- 2002 University of Illinois Hachiro Koyama Memorial Scholarship
- Graduate Teaching Award, University of Illinois at Urbana-Champaign, 2005-2008
Melek Su Ortabasi  
Curriculum Vitae

PROFESSIONAL EXPERIENCE

Simon Fraser University
Chair, January 2020 – September 2021  
Director, September 2015 – December 2019  
Associate Professor, 2012 – present  
Assistant Professor, 2008 – 2012  
Program in World Literature, Faculty of Arts and Social Sciences

Hamilton College
Assistant Professor of Japanese and Comparative Literature, 2002 – 2008  
Department of Comparative Literature

EDUCATION

University of Washington, Seattle
Ph.D., Comparative Literature, 2001.  
Dissertation title: “Japanese Cultural History as Literary Landscape: Scholarship, Authorship and Language in Yanagita Kunio's Native Ethnology”  
M.A., Comparative Literature (Japanese and German), 1994.

Stanford Inter-University Center, Yokohama

University of California, Berkeley
B.A., Comparative Literature (Japanese and German), 1992.

FELLOWSHIPS, GRANTS, AND HONORS (most recent, in $CAD)

Simon Fraser University
• David Lam Centre Research Grant, 2019 ($4,375)  
• David Lam Centre Research Grant, 2018 ($4,250)  
• Emergency Rapid Response Grant, FASS Dean’s Office, 2017 ($800)  
• FASS Canada 150 Teaching Grant, 2016 ($25,000; declined)  
• Chairs’ Research Grant, 2015, 2016, 2017, 2018, 2019 ($5,000 annually)

Northeast Asia Council
• Research Travel Grant, 2019 ($3,750)

Kanagawa University, Yokohama
• Visiting Researcher, October 2021 – September 2022

Goethe Universität, Frankfurt
• Visiting Scholar, June-July 2017

Ludwig-Maximilians-Universität, Munich
• Visiting Scholar, June 2016
• Erasmus+ EU Grant recipient, June 2016 ($2,810)

Meiji Gakuin University, Tokyo
• Visiting Researcher, August 2014 – June 2015

Internationale Jugendbibliothek, Munich
• Research fellowship, June – August 2016 ($5,326)
• Visiting Researcher, July – August 2014

Japan Foundation
• Research Fellowship for 10 months of research in Japan at Kanagawa University, 2021. ($50,000)

PUBLICATIONS

Books


Refereed Journal articles/Book chapters/Conference Proceedings

“Sekai bungaku to shite no ‘Tôno monogatari.’” Gendai shisô 50.8 (June 2022): 155-166.


“Youth, Transnationalism, Identity: Young Adult Literature and World Literature,” in Teaching Young Adult Literature, ed. Mike Cadden, Karen Coats, and Roberta Seelinger Trites. Modern Languages Association, 2020, pp. 45-54.


“Randoku no kuse: Meiji Taisho no erito to kodomo jidai no dokusho keiken.” Kokusaika jidai o shiya ni ireta bunka to kyôiku ni kansuru sôgôteki kenkyû. Tokyo Gakugei University, 2016, pp. 78 – 84. (conference proceedings)

Other publications


Interview of Stephen Snyder, translator of Confessions by Minato Kanae, for SCBWI Japan Translation Group (March 2015), https://ihatov.wordpress.com/2015/03/21/an-interview-with-stephen-snyder/.

RESEARCH INTERESTS

- Modern Japanese literature and popular culture
- Translation theory and practice
- Popular culture and transnationalism
- World children’s literature
- History of reading culture
MEMORANDUM

ATTENTION: Senate
FROM: Jeff Derksen, Dean of Graduate and Post-Doctoral Studies and Associate-Provost, and Acting Chair, SCUP on behalf of Wade Parkhouse, Provost and Vice-President Academic
RE: SCUP 22-25 Centres and Institutes Annual Report (for information)

DATE: November 17, 2022
PAGES: 1/1

At its meeting on November 16, 2022, SCUP reviewed for information the Centres and Institutes Annual Progress Report 2021/22. These are attached for the information of Senate.

C: M. Richards
Memorandum

From: Michael Richards, Associate Vice-President, Research

Date: Nov 02, 2022

Re: Centres and Institutes – Annual Progress Reports 2021/2022

To: Wade Parkhouse, Chair, Ex-officio, Senate Committee on University Planning (SCUP)

As per Policy R40.01, Research Centres and Institutes, I am pleased to submit to the Senate Committee for University Priorities (SCUP) the annual reports on the activities of the research Centres and Institutes.

The research Centres and Institutes are an integral part of research at SFU. Research Centres are formally designated, non-departmental units facilitating collaborative research mainly within a single Faculty, and report to the Faculty Dean. Research Institutes are formally designated non-departmental units facilitating extensive multi-Faculty collaborative research, often enhanced by research relationships with other universities and/or other stakeholders. Research Institutes report to the Vice-President, Research and International.

Please forward the reports to Senate and the Board of Governors for information.

Attachments: Submissions Status Summary
Annual Progress Reports
Faculty of Applied Sciences:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Water Research Centre (PWRC)</td>
<td>Reviewed (Approved)</td>
<td>Zafar Adeel (Executive Director)</td>
</tr>
</tbody>
</table>

Faculty of Arts and Social Sciences:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Research Centre</td>
<td>Reviewed (Approved)</td>
<td>Elizabeth Cooper (Director)</td>
</tr>
<tr>
<td>Bill Reid Centre for Northwest Coast Studies</td>
<td>Reviewed (Approved)</td>
<td>Bryan Myles (Associate Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Deanna Reder (Director)</td>
</tr>
<tr>
<td>Centre for Comparative Muslim Studies</td>
<td>Reviewed (Approved)</td>
<td>Amal Ghazal (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adel Iskandar (Acting Director)</td>
</tr>
<tr>
<td>Centre for Public Policy Research</td>
<td>Reviewed (Approved)</td>
<td>Genevieve LeBaron (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Director and Professor, School of Public Policy)</td>
</tr>
<tr>
<td>Centre for Restorative Justice</td>
<td>Reviewed (Approved)</td>
<td>Brenda Morrison (Director)</td>
</tr>
<tr>
<td>Centre for Scottish Studies</td>
<td>Reviewed (Approved)</td>
<td>Leith Davis (Director)</td>
</tr>
<tr>
<td>First Nations Language Centre</td>
<td>Reviewed (Approved)</td>
<td>Marianne Ignace (Director)</td>
</tr>
<tr>
<td>Gerontology Research Centre</td>
<td>Reviewed (Approved)</td>
<td>Andrew Wister (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theodore Cosco (Associate Director)</td>
</tr>
<tr>
<td>Institute for the Humanities</td>
<td>Reviewed (Approved)</td>
<td>Samir Gandesha (Director)</td>
</tr>
<tr>
<td>Mental Health, Law and Policy Institute</td>
<td>Reviewed (Approved)</td>
<td>Ronald Roesch (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kevin Douglas (Associate Director)</td>
</tr>
<tr>
<td>Stavros Niarchos Foundation Centre for Hellenic Studies</td>
<td>Reviewed (Approved)</td>
<td>Dimitrios Krallis (Director)</td>
</tr>
<tr>
<td>The SFU Morgan Centre for Labour Research</td>
<td>Reviewed (Approved)</td>
<td>Kendra Strauss (Director)</td>
</tr>
</tbody>
</table>

Beedie School of Business:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Global Workforce</td>
<td>Reviewed (Approved)</td>
<td>Mila Lazarova (Director)</td>
</tr>
<tr>
<td>Strategy</td>
<td>Status</td>
<td>Director(S)</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>Charles Chang Institute for Entrepreneurship</td>
<td>Reviewed (Approved)</td>
<td>Sarah Lubik (Director)</td>
</tr>
<tr>
<td>Jack Austin Centre for Asia Pacific Studies</td>
<td>Reviewed (Approved)</td>
<td>Jing Li (co-Director) Daniel Shapiro (co-Director)</td>
</tr>
</tbody>
</table>

**Faculty of Education:**

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Education, Law and Society</td>
<td>Reviewed (Approved)</td>
<td>Wanda Cassidy (Director) Ozlem Sensoy (Associate Director)</td>
</tr>
<tr>
<td>Centre for Research on International Education</td>
<td>Reviewed (Approved)</td>
<td>Kumari Beck (Director) Roumiana Ilieva (co-Director)</td>
</tr>
<tr>
<td>Centre for the Study of Educational Leadership and Policy</td>
<td>Reviewed (Approved)</td>
<td>Michelle Pidgeon (Associate Director, CSELP</td>
</tr>
<tr>
<td>David Wheeler Institute for Research in Mathematics Education</td>
<td>Not Submitted</td>
<td>Sean Chorney (Director)</td>
</tr>
<tr>
<td>The Centre for Imagination in Research, Culture &amp; Education</td>
<td>Reviewed (Approved)</td>
<td>Mark Fettes (Director)</td>
</tr>
</tbody>
</table>

**Faculty of Environment:**

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Sustainable Development</td>
<td>Reviewed (Approved)</td>
<td>Meg Holden (Director)</td>
</tr>
<tr>
<td>Cooperative Resource Management Institute</td>
<td>Reviewed (Approved)</td>
<td>Jonathan Moore (Director)</td>
</tr>
</tbody>
</table>

**Faculty of Health Sciences:**
<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Applied Research in Mental Health and Addiction</td>
<td>Reviewed (Approved)</td>
<td>Julian Somers (Director)</td>
</tr>
<tr>
<td>Children’s Health Policy Centre</td>
<td>Reviewed (Approved)</td>
<td>Charlotte Waddell (Director)</td>
</tr>
<tr>
<td>HIV/AIDS Research Centre (HRC)</td>
<td>Reviewed (Approved)</td>
<td>Mark Brockman (co-Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Angela Kaida (co-Director)</td>
</tr>
</tbody>
</table>

**Faculty of Science:**

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Cell Biology, Development and Disease (C2D2)</td>
<td>Reviewed (Approved)</td>
<td>Esther Verheyen (co-Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Damon Poburko (co-Director)</td>
</tr>
<tr>
<td>Centre for Experimental and Constructive Mathematics</td>
<td>Reviewed (Approved)</td>
<td>Michael Monagan (Professor)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nils Bruin (Director)</td>
</tr>
<tr>
<td>Centre for High-Throughput Chemical Biology (C-HTCB)</td>
<td>Reviewed (Approved)</td>
<td>Roger Linington (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>David Vocadlo (co-Director)</td>
</tr>
<tr>
<td>Evolutionary and Behavioural Ecology Research Group</td>
<td>Reviewed (Approved)</td>
<td>Ronald Ydenberg (Director)</td>
</tr>
</tbody>
</table>

**Institutes:**

<table>
<thead>
<tr>
<th>INSTITUTE</th>
<th>STATUS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Institute for Studies in Publishing</td>
<td>Reviewed (Approved)</td>
<td>John Maxwell (Director)</td>
</tr>
<tr>
<td>Centre for Education Research and Policy</td>
<td>Reviewed (Approved)</td>
<td>Jane Friesen (Director)</td>
</tr>
<tr>
<td>Centre for Forensic Research</td>
<td>Reviewed (Approved)</td>
<td>Gail Anderson (co-Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hugo Cardoso (co-Director)</td>
</tr>
<tr>
<td>Chronic Pain Research Institute</td>
<td>Reviewed (Approved)</td>
<td>Diane Gromala (Director)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chris Shaw (Professor)</td>
</tr>
<tr>
<td>Digital Democracies Institute</td>
<td>Reviewed (Approved)</td>
<td>Wendy Chun (Director)</td>
</tr>
<tr>
<td>Indigenous Research Institute</td>
<td>Reviewed (Approved)</td>
<td>Vicki Kelly (Director)</td>
</tr>
<tr>
<td>Institute for Environmental</td>
<td>Reviewed (Approved)</td>
<td>David Zandvliet (Director)</td>
</tr>
<tr>
<td>Institute</td>
<td>Reviewed (Approved)</td>
<td>Director</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Institute for Intersectionality Research and Policy</td>
<td></td>
<td>Olena Hankivsky (Director)</td>
</tr>
<tr>
<td>Institute for Neuroscience and Neurotechnology</td>
<td>Reviewed (Approved)</td>
<td>Randy McIntosh (Director)</td>
</tr>
<tr>
<td>Institute for Performance Studies (IPS)</td>
<td>Reviewed (Approved)</td>
<td>Peter Dickinson (Director)</td>
</tr>
<tr>
<td>Institute for the Reduction of Youth Violence</td>
<td>Reviewed (Approved)</td>
<td>Robert McMahon (Director)</td>
</tr>
<tr>
<td>Institute for Transpacific Cultural Research (ITCR)</td>
<td>Reviewed (Approved)</td>
<td>Helen Leung (Director)</td>
</tr>
<tr>
<td>International Centre for Criminal Law Reform &amp; Criminal Justice Policy</td>
<td>Reviewed (Approved)</td>
<td>Peter German (Acting Executive Director)</td>
</tr>
<tr>
<td>Pacific Institute for the Mathematical Sciences (PIMS)</td>
<td>Reviewed (Approved)</td>
<td>Weiran Sun (Director)</td>
</tr>
<tr>
<td>Vancouver Institute for Visual Analytics (VIVA)</td>
<td>Reviewed (Approved)</td>
<td>Lyn Bartram (Director)</td>
</tr>
<tr>
<td>Western Canadian Universities Marine Sciences Society (Bamfield)</td>
<td>Reviewed (Approved)</td>
<td>Sean Rogers (Director)</td>
</tr>
</tbody>
</table>
General Information

Name of the Centre/Institute: Pacific Water Research Centre (PWRC)
Website: https://www.sfu.ca/pwrc.html
Faculty: Applied Sciences
Director: Zafar Adeel
Director’s term end: 2021-06-30
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
Universal water security and sustainable aquatic ecosystems lie at the core of sustainable human, economic, and social development. Climate change impacts, anthropogenic pressures such as urbanization and population growth, deteriorating ecosystem quality, and aging water infrastructure all pose serious challenges that must be overcome. Maintaining safe water supply in the face of global pandemics has emerged as a new existential challenge in many parts of the world. The Pacific Water Research Centre was created in response to these existing and emerging challenges – a research and knowledge hub that addresses these water challenges through targeted research, technological innovation, partnership-based initiatives, and policy-relevant outputs.

The vision of the Pacific Water Research Centre (PWRC) is to promote and mobilize research and technologies that address water issues on multiple scales ranging from local communities to national to global.

To achieve this vision, PWRC connects critical findings from natural science, social science, and humanities research domains with local knowledge to identify innovative technological solutions, inform policy, and drive social change. In doing so, the Centre provides a forum for advancing evidence-based research, offering a testbed for technology deployment, and supporting development of information tools that help identify emerging trends. The Centre fosters community partnerships that build a common understanding of water values, which is critical to the success of its research endeavors.

In September 2021, PWRC was formally re-located from the Faculty of Environment (FENV) to the Faculty of Applied Sciences (FAS). In a broad sense, this transition embraces the FAS approach for “Technology for Good,” and positions PWRC as an agent of change that connects across the schools and departments to foster new collaborations. In February
2022, PWRC was provided laboratory space in the Sustainable Energy Engineering Building; this space will be key in conducting targeted research and setting up technology demonstrations in collaboration with industrial partners.

**The Centre/Institute’s membership and organization structure:**

The PWRC is a research centre as defined in SFU Research Policy R 40.01. It is governed in accordance with University policies, including the Procedure for Research Centre under the SFU Research Policy R 40.01. The PWRC connects people and organizations to advance evidence-based research (science and local knowledge) and societal change. Its members are drawn from faculty and students across SFU. As part of the transition to FAS, concerted effort are being made to engage FAS faculty members in an interactive dialogue to identify “big research” questions and develop research priorities.

Key individuals outside the SFU are formalized through associate membership. Institutional partnerships are developed and formalized around specific projects and activities. The Centre will link with key industrial and private-sector partners, establishing institutional partnerships that can further its research agenda and create opportunities for FAS students through co-op placements and internship opportunities.

The PWRC Steering Committee (SC) provides strategic advice and operational guidance to the Executive Director of PWRC in accordance with the SFU principles and policies. The SC comprises faculty members from SFU and representatives from the student body. The SC members are selected for a two-year period, with the possibility of renewal. A new Steering Committee will be established in Fall 2022, comprising key individuals across FAS departments and schools, as well as other SFU academic units.

As part of PWRC’s renewal process, a new Advisory Board will be established in 2022 to guide the direction-setting of the Centre. It will be drawn from prominent leaders in water technology and policy innovations in BC and elsewhere. A significant focus of the AB will be to draw in industrial partners that can help advance the research and technology agenda of the Centre.

**Significant accomplishments:**

1) Costing Floods and Other Extreme Events (2018-2021):

This project was supported by the Commission on Environmental Conservation (CEC), led by PWRC, and engaged partner institution from Canada, Mexico, and the United States. It successfully concluded in summer 2021.

The overall objective of this project was to formulate a standardized methodology for assessing the cost of extreme floods in the US, Mexico, and Canada. The methodology was
developed in close cooperation between interested government agencies, Indigenous community representatives, private sector partners, and domain experts. The composition of this group included the end-users of this methodology and data generated from it, particularly those designing infrastructure investments, enhancements to community resilience, and long-term planning. This project further extended this methodology through case studies in each of the three countries and initiated discussion on a multi-hazard assessment that incorporated other extreme events (such as hurricanes, tornadoes, forest fires, landslides, etc.). Such integrated and standardized methodologies did not exist before.

The outputs from the project included three peer-reviewed papers and targeted policy recommendations provided to the federal governments of Canada, Mexico, and the United States (please see the publication list provided separately).


This is a Pacific Water Research Centre project that works with diverse First Nation communities in British Columbia. The goal of this project is to improve the health, prosperity and economic wellbeing of these communities to achieve food sovereignty while ensuring sustainable access to water and energy. We work with Indigenous leaders to build capacity in their communities to be self-reliant in a way that increases their resilience to societal disruptions such as the COVID-19 pandemic and environmental stresses of climate change.

In the reporting period, the N-EAT project expanded its collaboration in addition to continuing to work with Kitasoo / Xai’xais First Nation, and engaged with the Old Massett village in Haidi Gwaii and the Stó:lō Nation in BC. This continuation was enabled through the generous external funding provided by the Willow Grove Foundation, Real Estate Foundation of BC (REFBC), and the Commission for Environmental Commission (CEC). It also indicated that value-add provided by the N-EAT project in facilitating food sovereignty for Indigenous communities.

**Notable media successes:**

1) The following two media stories mentioned PWRC, focusing on the extreme heat event summer of 2021 in B.C.:

1. Extreme heat shatters B.C. temperature records in June [Vancouver Sun, 3 July 2021]

   Quote from the story:

   Zafar Adeel, executive director of the Pacific Water Research Centre at Simon Fraser University, said the wildfires following the heat wave were an example of what he called a “cascading hazard,” where one extreme event — such as a heat wave — triggers others.
“Heat waves, as you can imagine, can trigger or amplify forest fires,” he said, “but after forest
fires, because your surface is denuded of vegetation, you get these extreme flash floods
coming through, which he saw as a “cascading hazard,” where one extreme event — such as
a heat wave — triggers others.

2. All the Apocalyptic Things That Happened Because of the Heat Wave [Vice News, 8
July 2022]

Quote from the story:

In late June, the town of Lytton, in the interior of B.C., broke national heat records three days
in a row, with the highest temperature reaching 49.6 C on June 29; dozens of other
communities broke daily heat records, with temperatures in the high 30s and 40s.

Zafar Adeel, executive director of the Pacific Water Research Centre at Simon Fraser
University, told the Vancouver Sun the province should expect more intense and frequent
heat waves.

Heat waves can result in “cascading hazards”—triggering other extreme weather events,
including flash flooding and wildfires, Adeel said.

2) In response to UN report on Climate Change (IPCC Sixth Assessment), the following
media stories covered PWRC’s perspectives:

1. Using Our Own Agency to Tackle Climate Change and Promote Sustainability [Toronto
Star, 10 August 2021]

In an interview with the Toronto Star, Dr. Zafar Adeel maintained that one of the most
important ways by which individuals could influence the future of climate change was by
making it clear to politicians that it was a major priority area.

2. Avoiding Climate Catastrophe by Reducing Greenhouse Gas Emissions [Chatelaine, 18
August 2021]

In an interview with Chatelaine, Dr. Zafar Adeel maintained that it is possible to "limit
human-induced global warming" provided that "we are able to reduce greenhouse gas
emissions and achieve net zero".

3) Following the disastrous flooding in parts of BC in November 2021, the following story
mentioned PWRC:

The Challenge of Rebuilding Flood-Damaged Roads in British Columbia [ICI Radio-Canada,
Dr. Zafar Adeel informed ICI Radio Canada that quantifying the economic damage sustained as a result of devastating floods in British Columbia in late 2021 would be difficult in view of the fact that Canada does not have an effective mechanism to accurately calculate the indirect economic losses associated with floods or other natural disasters.

4) Messages and action on Earth Day 2022 [CBC Radio, 22 April 2022]

Dr. Zafar Adeel spoke to CBC Radio - BC Today with Michelle Elliot - on the significance of Earth Day and discussed some of the progress made in confronting the challenge of climate change.

**Events, workshops, public outreach events:**


Dr. Zafar Adeel, Executive Director PWRC, sat down with fellow panellists Rebecca Ilunga, Adaption Network Manager for C40 Cities, and Themba Gumbo, Director of Cap-Net, for a comprehensive discussion on the important issue of urban water resilience.

Recording of the seminar is available on YouTube: [https://www.youtube.com/watch?v=63EUjAfEHKc](https://www.youtube.com/watch?v=63EUjAfEHKc)


PWRC partnered with the Global Water Futures (GWF) program at the University of Saskatchewan to co-organize the following panel discussion: "Interactive Panel - Improving Knowledge, Education and Communication." The session details are as follows:

**Co-chairs**
- Hon. Terry Duguid, MP, Government of Canada
- Corinne Schuster-Wallace, Associate Director, Global Water Futures

**Moderator**
- Zafar Adeel, Pacific Water Research Centre, Simon Fraser University

**Keynote speaker**
Panelist

- Kristine Tovmasyan, Programme Specialist, Almaty Office, UNESCO
- Kajol Basnet, Youth Representative, Small Earth Nepal
- Ms. Yolanda Lopez-Maldonado, Yucatec hydrologist and Indigenous Knowledge specialist
- Ms Bouman-Dentener, Co-founder, Cansu Global

Rapporteur

- Robert Sandford, Global Water Futures Chair, United Nations University Institute for Water, Environment, and Health


The Public Law and Human Rights Forum (CPLR) organized its fifth webinar in the Asian Perspectives on Human Rights Series, titled "Water as a Human Right: Critical Asian Perspective on its Present and Future Dimensions" on Thursday 9 June 2022. This webinar was moderated by Dr. Fozia Lone, Associate Director CPLR. Experts on the human right to water included: Otto Spijkers (Professor at Wuhan University’s China Institute of Boundary and Ocean Studies), Zafar Adeel (Executive Director at Pacific Water Research Centre) and Shahbaz Khan (Director of UNESCO Beijing). The experts discussed how the governance framework for equitable access to water can be further scrutinized and improved.

The webinar's recording is available on YouTube: https://www.youtube.com/watch?v=FflvNOP5TdA

Supporting documents:
PWRC_Project_Related_Publications__2021-2022_icfMqP1.pdf (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No
Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
Willow Grove Foundation (PWRC operational funds): $25,000
Commission for Environmental Cooperation: $10,000
Costing Floods and Other Extreme Events; additional grant related to project-focused publications
Willow Grove Foundation: $25,000
Project: Nutrition through Engagement and Agricultural Technologies (N-EAT); grant for continued work in Klemtu, BC
Real Estate Foundation: $20,000
Grant 2021-115, Stó:lo Food Security Evaluation and Strategic Road map Development; a grant for continuation of the N-EAT project in the Stó:lo Nation, BC.
Commission for Environmental Cooperation: $165,000
Grant received under CEC’s North American Partnership for Environmental Community Action (NAPECA) grant program.
Grant title: “Enhancing Food Sovereignty & Resiliency of Remote, Indigenous Communities in BC”; a grant for continuation of the N-EAT project in Klemtu, BC.

Confirm policy review:
Yes

Submitted by:
Zafar Adeel, Executive Director

Director’s comments:
The current reporting period was a remarkable period of renewal and growth for the Pacific Water Research Centre (PWRC). In September 2021, PWRC transitioned its administrative support from the Faculty of Environment (FENV) to the Faculty of Applied Studies (FAS). This transition was accompanied by envisioning and planning for the next five years, including setting up strategic objectives, targets, and timelines. The SFU office of Vice President Research and International reviewed the application submitted by PWRC and
approved it for a period of five years. In early 2022, FAS provided lab space to PWRC in its state-of-the-art Sustainable Energy Engineering Building on the SFU Surrey Campus. This approval and support by the SFU leadership is indicative of the value that PWRC has generated for SFU and the water research community since its inception in 2015.

The research work of PWRC and its policy impact continued during the reporting period. Two notable achievements were: (a) the conclusion of a multi-year, trinational project on flood-costing, and (b) the continued and expanded support for the PWRC project "Nutrition through Engagement and Agricultural Technologies (N-EAT).” The former project was supported by the Commission on Environmental Conservation (CEC) and engaged experts from Canada, Mexico, and the United States. The remarkable achievement for the CEC project was the engagement of a broad range of stakeholders including interested government agencies, Indigenous community representatives, private sector partners, and domain experts. The outputs from the project included policy recommendations provided to the federal governments of Canada, Mexico, and the United States.

The N-EAT project focuses on improving the health, prosperity, and economic wellbeing of Indigenous communities in BC to achieve food sovereignty while ensuring sustainable access to water and energy. PWRC works with Indigenous leaders to build capacity in their communities to be self-reliant in a way that increases their resilience to societal disruptions such as the COVID-19 pandemic and the environmental stresses related to climate change. In the reporting period, the N-EAT project expanded its collaboration in addition to continued work with Kitasoo / Xai'xais First Nation, and engaged with the Old Massett village in Haidi Gwaii and the Stó:lō Nation in BC. This continuation was enabled through the generous external funding provided by the Willow Grove Foundation, Real Estate Foundation of BC (REFBC), and the Commission for Environmental Commission (CEC).

PWRC has not been immune to the impacts of the COVID-19 pandemic during the reporting period. While PWRC had put together a COVID response and a list of water-related resources in mid-2020, the public outreach activities were significantly impacted. The range of public activities was significantly curtailed and limited to organizing or participating in virtual events. With the COVID-19 restrictions gradually lifting in the summer of 2022, we anticipate a revival of various public outreach events, including regular lunch-time seminars.

PWRC continued to increase its presence online, notably by expanding its coverage via various social media outlets. It also engaged with the communication team at FAS to ensure that significant events and news get adequate and university-wide coverage.

Looking ahead, there are two areas of action that will be significantly important in the 2022-2023 period. First, the organizational elements of PWRC - including its Steering Committee and an external Advisory Board - will be renewed. These mechanisms are meant to provide directional and strategic guidance to PWRC as it tackles new and emerging challenges.
Second, PWRC aims to expand its project base - most notably collaborating with the SFU Surrey Campus in creating new student-engaged projects, which are based on the underlying notion of using SFU as a “living lab”.

Reviewer's Section

Reviewed by:
Parvaneh Saeedi, Associate Dean, Research

Reviewer's decision:
Approved

Reviewer's comments:
PWRC was created in mid-2015 to address existing and emerging water-related challenges (both in local and global communities) through targeted research, technological innovation, partnership initiatives, and policy-relevant outputs. It has had a successful run within the Faculty of Environment over most of its life.

In Sept. 2021, PWRC was formally relocated from the Faculty of Environment to the Faculty of Applied Sciences (FAS). PWRC has a laboratory space in the Sustainable Energy Engineering building to conduct targeted research and set up technology demonstrations in collaboration with industrial partners.

With the vision of connecting critical findings from natural science, engineering, and humanities research domains, PWRC positioned itself as an agent connecting across three engineering schools at FAS to bring innovative technological solutions, inform policy, and drive social change. In doing so, the Centre provides a forum for advancing evidence-based research, offering a testbed for technology deployment, and supporting the development of information tools that help identify emerging trends. In addition, PWRC fosters community partnerships that build a common understanding of water values, which is critical to the success of its research endeavors.

PWRC has added value to ongoing and emerging research activities at SFU by engaging SFU’s faculty members, researchers, and research partners both inside and outside Canada. Some of its accomplishments include:


Supported by the Commission on Environmental Conservation, PWRC led this project and engaged with partners from Mexico and the USA. This project aimed to formulate a standardized methodology for assessing the cost of extreme floods in the USA, Mexico, and Canada. The research led to three peer-reviewed papers and targeted policy recommendations provided to the federal governments of Canada, Mexico, and the United

PWRC Centre has collaborated with diverse First Nation communities in BC to improve the health, prosperity, and economic well-being of these communities to achieve food sovereignty while ensuring sustainable access to water and energy. The N-EAT project has expanded its collaboration BC’s Kitasoo / Xai’xais First Nation, and engaged with the Old Massett village in Haidi Gwaii and the Stó:lō Nation. PWRC secured $245,000 to support the continuation of this project.

A wide range of activities has allowed PWRC to have an impact on several important agendas, such as creating knowledge-based solutions for the Columbia River Treaty, addressing gender, water security, and peacebuilding nexus in the Arab Middle-East, building flood-resistant rain gardens, providing sustainable potable water and greenhouse crops, developing international water decade alliance, and providing support to the municipality for its adaptation to green infrastructure.

PWRC has received attention from media that includes:

1. Extreme heat shatters B.C. temperature records in June [Vancouver Sun, 3 July 2021].
2. All the Apocalyptic Things That Happened Because of the Heat Wave [Vice News, 8 July 2022].
3. Using Our Own Agency to Tackle Climate Change and Promote Sustainability [Toronto Star, 10 August 2021].
6. Messages and action on Earth Day 2022 [CBC Radio, 22 April 2022].

PWRC has participated in organizing seminars and conference events, including:


We believe that the PWRC will be able to conduct and to take advantage of technological research in important fields such artificial intelligence, remote sensing, simulation and modelling, data mining, and real-time data sampling and analysis after moving to the SEE building. Additionally, It should enable PWRC to engage and collaborate with new industrial and private-sector partners, leading to more innovative and robust institutional partnerships that can further its research agendas. Such a transition also provides new inter- and trans-disciplinary research opportunities for FAS’s students.

FAS would particularly want to see more partnerships with the SFU Surrey Campus to develop new student-engaged projects based on using SFU as a "living lab" at both the graduate and undergraduate levels.
PWRC’s Project-related Publications:


**General Information**

**Name of the Centre/Institute:** Africa Research Centre  
**Website:** [https://www.sfu.ca/african-studies-group/people.html](https://www.sfu.ca/african-studies-group/people.html)  
**Faculty:** Arts and Social Sciences  
**Director:** Elizabeth Cooper  
**Director's term end:** 2025-11-01  
**Renewal date:** 2025-11-01

**Details**

**Description of the Centre/Institute:**  
The mandate of the SFU Africa Research Centre (ARC, or the Centre) is to promote research and organize related activities with a focus on issues and perspectives that are of particular relevance to Africa and for people of African identities.

The Africa Research Centre (ARC) was proposed by the SFU African Studies Working Group (ASWG) and approved by the SFU Senate in April 2020. However, the ASWG steering committee (comprised of continuing faculty and staff) decided not to publicly launch the Africa Research Centre at that time given important public reckonings with anti-Black racism in broader society and our university. During 2020 and 2021, ASWG instead chose to support the work of the newly constituted Black Caucus at SFU in two ways: 1) by providing funding for the Black Caucus to hire a graduate student organizer; and 2) by not pursuing an active agenda while the Black Caucus was conducting a process of engagement and agenda-setting. This deliberate pause of the ARC/ASWG work has been taken in ongoing consultation with leadership of the SFU Black Caucus, and conversations continue regarding how Africa-focused research at SFU can best be supported.

Faculty and staff who have been involved with ASWG (e.g. as steering committee members and other interested affiliates) remain interested and engaged in the original goals of supporting and developing Africa-focused research at and through SFU. That said, the future of the Africa Research Centre is not yet clear as ASWG steering committee members and other members seek to learn and support the priorities of the SFU Black Caucus.

**The Centre/Institute’s membership and organization structure:**  
As per above, the Africa Research Centre has not been formally constituted. That work has
been paused to ensure space for the outcomes of the SFU Black Caucus’s ongoing processes of consultation and agenda-setting.

**Significant accomplishments:**
Given the decision to pause ARC’s launch and active agenda out of respect for the consultations and agenda-setting work of the SFU Black Caucus, ARC/ASWG has not been actively pursuing accomplishments. However, ASWG has provided financial and organizational support to three initiatives organized by SFU-affiliated staff, faculty, and community partners (described under the public outreach section below).

**Notable media successes:**
- 

**Events, workshops, public outreach events:**

  1) Public talk, September 14, 2021: ‘Protesting Democracy in Africa: Social Movements and the Future of Global Order’ featuring guest speaker Dr. Zachariah Mampilly (Marxe Chair of International Affairs at the Marxe School of Public and International Affairs, City University of New York, where he is the Co-Founder of the Program on African Social Research). This event was an in-person, public and free event held at SFU Harbour Centre. The event was organized by International Studies assistant professor Dr. Jason Stearns, and financially supported and advertised by ASWG. The event was well-attended by SFU students, alumni, faculty, staff, and community members.

  2) Community-engaged research, report, and dialogue sessions: ‘Worlds Within: Diverse Histories, Identities, and Experiences of Black People of African Ancestry in British Columbia’ is an output of the African Ancestry Project, led by SFU research fellow Alice Mũrage, highlighting the diversity of Black people in BC. It centers the stories of over 160 project participants who were included in the 2020-2021 project through group discussions, interviews, and surveys. ASWG supported this project as a collaborator to Alice Mũrage’s SFU Community Engagement Initiative grant, and with financial support for the study, report printing, and a public dialogue session sharing the report in March 2021.

  3) Public talk and film screening, April 19, 2021: 'An Evening with Boniface Mwangi' featuring Boniface Mwangi, a celebrated photographer, TED fellow, Kenyan peace activist, and recipient of a Luxembourg Peace Prize. The event included a talk by Mwangi and screening of his award-winning documentary film Softie, about his political activism. This event was organized by the Kenyan Community in BC and ASWG provided financial and organizational support. It was a free, public event held at SFU Harbour Centre that was well-attended.
Supporting documents:
-

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Elizabeth Cooper, Director

Director’s comments:
-

**Reviewer’s Section**

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
The Africa Research Centre is currently on hiatus. Though approved by Senate in 2020, the Africa Studies Research Group steering committee has chosen to support SFU's Black Caucus in its own work of agenda-setting and engagement.
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Bill Reid Centre for Northwest Coast Studies
Website: http://www.sfu.ca/brc.html
Faculty: Arts and Social Sciences
Director: Deanna Reder (Director)
Bryan Myles (Associate Director)
Director’s term end: 2022-09-01
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
The Bill Reid Centre engages collaboratively with Indigenous and academic communities to explore the material and visual belongings of Coastal First Peoples past and present. Located within the Department of Indigenous Studies at SFU, we practice and disseminate decolonial research methods and share best practices for academic engagements with Indigenous belongings, arts, cultural heritage and intellectual property.

The Centre/Institute’s membership and organization structure:
The Centre/Institute’s membership and organization structure:

The Centre is headed by a Director, Dr. Deanna Reder, and governed by a Steering Committee. The Director of the Centre is an SFU faculty member and appointed by the Dean, Faculty of Arts and Social Sciences under advisement from the Centre’s Steering Committee.

The Steering Committee consists of 5 members including the Director, who also serves as Chair. The Chair of the Department of Indigenous Studies is a de facto member of the Steering Committee. By approval of the Steering Committee, the Centre may have an Associate Director.

Despite having numerous contributors and collaborators, the BRC does not currently have an official membership list.

Significant accomplishments:
1) “Open to Collaborate”: Local Contexts, SFU Library, and the Bill Reid Centre
• For over ten years the BRC has worked closely with SFU Library to create public access to a selection of digitized images from the George and Joanne MacDonald Research Collection.

• In 2020, SFU Library engaged in a process to decolonize the library by ensuring that Indigenous peoples and their perspectives are represented in library activities, collections, and spaces.

• BRC and SFU Library engaged in a conversation re: Local Contexts project and Cultural Institution (CI) Notices.

• Local Contexts is an initiative that supports Indigenous communities to manage their cultural heritage and intellectual and cultural property in digital environments.

• Local Contexts has developed Cultural Institution (CI) Notices. CI Notices are icons and associated descriptions designed to be used by collecting institution who are engaged in processes of collaboration and trust building with Indigenous communities.

• BRC worked over the past year to attribute “Open to Collaborate” CI Notice to our entire collection. This notice indicates a commitment to collaborate with Indigenous communities as we continue our important work of decolonizing and reconciling at Simon Fraser University.

2) Dorothy Grant: Making Living Haida Culture

• During the fall semester of 2021, the Bill Reid Centre in partnership with the Department of Indigenous Studies, had the unique privilege of hosting our first Bill Reid Centre Visiting Fellow, Dorothy Grant.

• Dr. Dorothy Grant, OC, a member of the Kaigani Haida Raven Clan, is a trailblazing Haida fashion designer who received the Order of Canada in 2015, and an Honorary Degree from SFU in 2019.

• BRC hosted a welcome reception for Dr. Grant on October 13th, 2021

• Screened a pre-recorded interview, and hosted a live Q&A session for a mixed online and in-person audience on November 23rd 2021.

• The interview, which draws on numerous photographs from Grant’s own personal collection, as well as that of the Bill Reid Centre, is accessible via YouTube. (https://www.youtube.com/watch?v=N75v5hS7yS8)
• INDG and the BRC hosted an uts'am, a Coast Salish witnessing ceremony, conducted by Chief Ian Campbell.

• In accordance with Coast Salish tradition, we blanketed our honoured guest to show the high esteem that we hold her in and to recognize the important contributions she has made to both fashion and Indigenous entrepreneurship.

3) Decolonizing Metadata: A Pilot Project with Haida Gwaii Museum, Parks Canada and the Bill Reid Centre.

• The Bill Reid Centre at SFU holds thousands of digitized images of Haida villages and belongings.

• These images are of great interest to the Haida for both their quantity and the high quality of the scans.

• With funding from Parks Canada, the Haida Gwaii Museum and the Bill Reid Centre engaged in a pilot project that saw Haida youth attribute descriptions and Haida language metadata to the BRC’s digital image files.

• The goals of the project are two-fold: 1) To shape a process for an expanded initiative to attribute Haida knowledge and perspectives to digital photographic belongings; and 2) To create a valuable resource for the Haida Watchmen operating within Gwaii Haanas National Park and Haida Heritage Site, as they expand their knowledge and interpret their heritage to visitors.

• Using the content management system, Omeka, metadata was recorded that incorporates Xaayda Kil (southern Haida dialect), and which also creates relationships between the digitized belongings.

• The BRC, HGM and Parks Canada are excited to continue this project in fiscal 2023 with SFU Library similarly interested in contributing to the collaboration.

**Notable media successes:**
No notable media engagement this year

**Events, workshops, public outreach events:**
• BRC hosted a welcome reception for Dr. Dorothy Grant on October 13th, 2021

• BRC screened a pre-recorded interview, and hosted a live Q&A session for a mixed online and in-person audience on November 23rd 2021.
INDG and the BRC hosted an uts'am, a Coast Salish witnessing ceremony, conducted by Chief Ian Campbell on November 23rd 2021.

**Supporting documents:**
Centres_and_Institute_Annual_Reporting_O4NjmiQ.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
Yes

**External funding details:**  
65k in private donations to support the position of Associate Director

**Confirm policy review:**  
Yes

**Submitted by:**  
Bryan Myles, Associate Director

**Director's comments:**  
-

**Reviewer's Section**

Reviewed by:  
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:  
Approved

Reviewer's comments:  
The Bill Reid Centre continues its important work of connecting the belongings held in its collections with Haida, and other Indigenous people. Projects shared with the SFU Library, with the Haida Gwaii Museum and Parks Canada encourage and advance meaningful collaborations with Indigenous communities, heritage experts, and youth. Such
collaborations encourage the use of Xaayda Kil language, help individuals using the collections to see the relationships between belongings, between belongings and communities and between historical belongings and today’s artistic production. Highlights of this year include the hosting of acclaimed Haida designer Dorothy Grant as the first Bill Reid Visiting Fellow.

The Centre is well-funded through an endowment, supporting the position of an Associate Director. The Indigenous Studies department chair holds the position of Director. Due to the current transition in that role, Dr. Natahnee Winder, will be the Director for the coming year.
“Open to Collaborate”: Local Contexts, SFU Library, and the Bill Reid Centre

The Bill Reid Centre is very excited to share an important initiative regarding the digital collections we care for. For over ten years we have worked closely with SFU Library to create public access to a selection of digitized images from the George and Joanne MacDonald Research Collection. That collection of over 5000 images and associated metadata is consistently one of the most viewed digital collections hosted by the library. In 2020, SFU Library engaged in a process to decolonize the library by ensuring that Indigenous peoples and their perspectives are represented in library activities, collections, and spaces. As part of that process, Dr. Alix Shield, Indigenous Digital Content Specialist at SFU Library, and a close colleague of the BRC, initiated a conversation with the Bill Reid Centre regarding the Local Contexts project and Cultural Institution (CI) Notices.

Local Contexts is an initiative that supports Indigenous communities to manage their cultural heritage and intellectual and cultural property in digital environments. The project is grounded in the recognition of the inherent sovereignty that Indigenous communities have over knowledge and data that comes from their lands, territories, and waters.

The colonial collecting process was a destructive force in which Indigenous cultural materials were removed from communities and detached from their local knowledge systems. Visual
materials, such as many of those possessed by the Bill Reid Centre, remain dispersed and physically distant from the people and places they represent. These important links to family and community are similarly lodged within foreign legal systems that do not account for third-party ownership, local claims of stewardship, or cultural protocols that dictate how things circulate within Indigenous contexts.

The Local Contexts project has examined the use of digital collections and the circulation of digital content to reimagine the intellectual property needs of Indigenous communities as they seek to manage, preserve, and reuse their digital cultural heritage. In response to the above concerns, Local Contexts has developed Cultural Institution (CI) Notices. CI Notices are icons and associated descriptions designed to be used by collecting institution who are engaged in processes of collaboration and trust building with Indigenous communities. The CI Notice is one way for the Bill Reid Centre to signal to library users/site visitors that we are actively working to improve our Indigenous collections, and that we welcome collaborations with Indigenous communities in this work moving forward.

Thus, the BRC is proud to attribute the "Open to Collaborate" CI Notice to our entire collection. This notice indicates a commitment to collaborate with Indigenous communities as we continue our important work of decolonizing and reconciling at Simon Fraser University.
Dorothy Grant: Making Living Haida Culture

During the fall semester of 2021, the Bill Reid Centre in partnership with the Department of Indigenous Studies, had the unique privilege of hosting our first Bill Reid Centre Visiting Fellow.

Dr. Dorothy Grant, OC, a member of the Kaigani Haida Raven Clan, is a trailblazing Haida fashion designer. Her work has been seen on the Oscars red carpet in 2016, and she has exhibited her work at the Canadian Museum of History, the Natural History Museum in New York, and in fashion shows around the world. Grant received the Order of Canada in 2015, and an Honorary Degree from SFU in 2019.

The BRC Visiting Fellowship creates a space for the SFU community to engage with artists and scholars whose work address social, economic, and political issues facing Indigenous peoples. The intent is to support the fellow’s long-term practice, while simultaneously contributing to thought-provoking discussions among students, peers, and faculty. Having Dorothy Grant as the Bill Reid Centre inaugural fellow was particularly fitting as it was in conversation with Bill Reid in the 1980s that she was inspired to fuse Haida art and fashion.
Due to COVID-related restrictions, the inaugural fellowship needed to be scaled back somewhat. However, while with the BRC, Dr. Grant engaged with faculty and students, collaborated on art exhibits, and performed research using the BRC physical and digital libraries and archives.

We were very fortunate that within a short window of loosened COVID restrictions, we were able to host a small welcome reception for Dr. Grant on October 13th, 2021, and screen a pre-recorded interview and Q&A session for a mixed online and in-person audience on November 23rd, 2021. The interview, which draws on numerous photographs from Grant’s own personal collection, as well as that of the Bill Reid Centre, is accessible via YouTube. ([https://www.youtube.com/watch?v=N75v5hS7yS8](https://www.youtube.com/watch?v=N75v5hS7yS8))

To show our appreciation to Dr. Grant, INDG and the BRC hosted an uts’am, a Coast Salish witnessing ceremony, conducted by Chief Ian Campbell. In the context of the ceremony, and in accordance with Coast Salish tradition, we blanketed our honoured guest to show the high esteem that we hold her in and to recognize the important contributions she has made to both fashion and Indigenous entrepreneurship.

The BRC is incredibly proud that we were able to work with Dr. Grant to showcase and contribute to her ongoing work in Haida art and fashion design. We look forward to further strengthening our relationship with her. We also look forward to building from this success as we explore candidates and funding streams for the next BRC Visiting Fellowship.

![Figure 3: Dorothy Grant and Chief Ian Campbell during the uts’am ceremony.](image-url)
Decolonizing Metadata: A Pilot Project with Haida Gwaii Museum, Parks Canada and the Bill Reid Centre.

The Bill Reid Centre at SFU holds thousands of digitized images of Haida villages and belongings acquired by Dr. George MacDonald over his long career in Northwest Coast anthropology and archaeology. In particular, the historic images he had digitized for the publication Haida Monumental Art (1983) are of great interest to the Haida in both their quantity and the high quality of the scans. Of importance to the Haida Gwaii Museum and the Bill Reid Centre at SFU, is the lack of Haida generated metadata (data that describes these images and their contents) associated with these images, which were predominantly created and collected to represent the lives of First Peoples to non-Indigenous publics, and academic “experts”.

In partnership with Parks Canada, the Haida Gwaii Museum and the Bill Reid Centre engaged in a pilot project that saw Haida youth attributing descriptions and Haida language metadata to the BRC’s digital image files. The goals of the project are two-fold: 1) To shape a process for an expanded initiative to attribute Haida knowledge and perspectives to digital photographic belongings; and 2) To create a valuable resource for the Haida Watchmen operating within Gwaii Haanas National Park and Haida Heritage Site, as they expand their knowledge and interpret their heritage to visitors.

As a starting point, the parties agreed to begin with one of the most popular sites in Gwaii Haanas, the village of SGang Gwaay. The Bill Reid Centre at SFU holds 564 digitized images of the architecture and monuments that once stood in the village. We made these images visually available to the Haida youth working on the project via an online content management system called Omeka. We similarly made the metadata for each image available via the web using Google Sheets. These tools allowed for the work to take place both synchronously and asynchronously as participants time permitted.

Youth participants went through the images describing the monuments and houses. They linked their descriptions to the house numbering scheme first developed by anthropologists Wilson Duff and Michael Kew in 1957, and repeated by Dr. George MacDonald in his 1983 publication.

In addition to information being recorded in the “Description” field that incorporates Xaayda Kil (southern Haida dialect), data was also recorded in fields that create relationships between the digitized belongings. For example, here is the record for a photo of mortuary posts taken in 1980. Text in blue links to other images or categories in the collection.
The BRC, HGM and Parks Canada is excited to continue this project in fiscal 2023 with SFU Library similarly interested in contributing to the collaboration.
**General Information**

**Name of the Centre/Institute:** Centre for Comparative Muslim Studies  
**Website:** [http://sfu.ca/ccms](http://sfu.ca/ccms)  
**Faculty:** Arts and Social Sciences  
**Director:** Amal Ghazal (Director)  
**Director’s term end:** 2020-08-01  
**Renewal date:** 2023-04-01

**Details**

**Description of the Centre/Institute:**

CCMS fosters academic and public discussion and understanding of Muslim societies and cultures. It shifts the analysis from the notion of a single religious landscape defined by the religion of Islam to that of Muslims of different experiences and interpretations as agents in the construction of their societies and cultures within specific contexts.

CCMS conducts its activities in such a way as to serve SFU’s mission of engaging the community and the world along the core values of diversity, equity and inclusion, and to enhance the reputation of the research and academic programs of the University. It achieves its purpose by curating events and programs that create a safe space for discussion, relationship building and academic and community outreach.

**The Centre/Institute’s membership and organization structure:**

The Centre is run by the director and the steering committee. It has associate members who are SFU faculty members. It typically has three part time permanent staff and hires research assistants on contractual basis.

**Significant accomplishments:**

1) Digital Community Iftars: CCMS community engagement coordinator Aslam Bulbulia received $19,100 Healthy Communities Grant from Infrastructure Canada for virtual Ramadan programming (in response to the pandemic) in collaboration with the Tessellate Institute. Created Digital Iftars website with toolkit in 5 languages that had over 450 unique visitors. Engaged with 14 community partners and hosted 32 virtual iftars with a combined estimate of 500+ participants in over 11 Canadian cities. Notable participants included
Prime Minister, Justin Trudeau. The project was featured in national and international news outlets.

2) Organized a historic 3-day event entitled “Muslims on Turtle Island” which featured over 40 speakers and participants addressing themes such as Muslim settlement on the continent, building spaces of learning, fostering relationships and discussing responsibility among academics, artists and activists on what it means to Muslim on this land, as well as the ethical and moral implications of being settlers and migrants.

3) Continued to host, for the third consecutive year, the International Virtual Internship Program with Agha Khan University Network, which has since been rolled out to several departments across SFU. Internship lasted 12 weeks, and interns report a positive experience that enriched their professional lives by providing future career direction. This year’s intern is an established, respected, and accomplished video journalist and communication specialist with a Ugandan-based United Nations’ project who has contributed significantly to the quality of CCMS’ social media platforms.

4) Following the extended hiatus in programming due to the COVID pandemic, CCMS hosted its single largest in-person Iftar to commemorate the Holy Islamic Month of Ramadan which included poetry readings, Quranic recitals, presentations, spoken word, reflections, and commitments to demonstrate solidarity with the Indigenous communities across the Lower Mainland. This program comes after the remarkable success of the Digital Iftars—an alternative set up when public health orders made it impossible to break the Ramadan fast in person.

5) CCMS continued to celebrate Islamic History Month with a dynamic program that featured a collaboration with the Vancouver Public Library to host author Omar Mouallem who discussed his new book “Praying to the West: How Muslims Shaped the Americas.” This was followed by a full day art exhibition and reception entitled “Healing Together: Overcoming Anti-Indigenous Racism and Islamophobia” and featured the works of Muslim artists, sculptors, writers, and poets from across the Lower Mainland with a special exploration of how to heal in the face of anti-Indigenous racism and Islamophobia. This was the very first in person event for CCMS in two years following the public health orders to reopen and reconvene. The attendance was at full capacity!

6) The Centre was also thrilled to be a partner and sponsor of the immensely successful MENA Film Festival this year in its most ambitious in-person iteration and as part of the Vancouver International Film Festival (VIFF). I had the pleasure of offering remarks at the Opening Ceremony of this festival which is pushing the boundaries of decolonial, local, and diasporic cinematic production from and about the SWANA region and whose films are a much needed offering for audiences in the Lower Mainland. CCMS also sponsored two panels featuring filmmakers and critics entitled “Systems of Accountability: Arts & Culture and the Israeli Occupation of Palestine” and “Finding Home: Being Jewish and Moroccan in
7) Collaborated with the Ismaili Centre Vancouver on a global broadcast event on Ismaili.tv to commemorate the occasion of the Prophet Mohamed’s birthday (Milad/Moulid el Nabawy) which included speeches, poetry, Quranic recitation and reflections.

8) Partnered with several departments at SFU as well as the VPA Office to bring forth an important and urgent lecture series entitled “Conversations on Islamophobia” held by the Ismaili Centres of Vancouver and Toronto organized by CCMS’ Scholar-in-Residence Dr. Amyn Sajoo. The series spanned a period of 4 months and covered a wide range of topics, hosted some of the country’s top scholars, and garnered significant audience attendance and interaction both in person and online.

9) As a long-time supporter of the study of the Middle East and Muslim Communities across the British Columbia, CCMS continued its collaboration with partner universities in the province to make possible the regular student conference MEICON (Middle East and Islamic Consortium of BC), held this year by our friends at UBC under the direction of Dr. Pheroze Unwalla. The event was immensely successful and highlighted stellar student research on a plethora of themes and topics from universities across western Canada and beyond.

10) CCMS hosted the global in-person launch of "The Colour of God," the deeply personal memoir of respected scholar and Canada Research Chair in Religion, Law and Social Justice at UBC Dr. Ayesha Chaudhry. It is the story of a child raised in Canada by parents who embraced a puritanical version of Islam to shield them from racism. She explores the joys and sorrows of growing up in a fundamentalist Muslim household, wedding historical narratives of colonialism and migration to the small intimate heartbreaks of modern life.

11) In a continuation of our work on examining the racialization of communities, we collaborated with The Caucus--a student led progressive group at SFU--to hold a panel discussion entitled "Reflections on Space Making in Institutions for Black Muslim Youth." A very lively and compassionate conversation ensued that brought to the fore the struggles with Islamophobia and racism in a colonial context among progressive Black Muslim youth as they face social stigmas within institutions.

12) For the first time in over two years, we were able to hold a large community Iftar in Ramadan at SFU--a free catered public event that featured uplifting poetry, reflections, and spoken word from members of the community. The event was also a fundraiser for Nisa Homes, a transitional shelter in Surrey for Muslim women and children who are victims of domestic violence and abuse.

13) CCMS had the distinct pleasure of partnering with The Caucus, the SFU Simon Fraser Student Society (SFSS), the School of International Studies (SIS) and the Institute for the Humanities to organize "Palestine Days @ SFU"--the single most extensive and ambitious 3-
day program on Palestine at the university to date. Organized in the three cities housing SFU campuses--Burnaby, Vancouver, and Surrey--the program included a lecture by educator Bassam Abun-Nadi entitled "A Sky With No Stars" about the history of Palestinian leadership during the British Mandate (organized by The Caucus) at KPU-Surrey.

14) As part of Palestine Days @ SFU, CCMS organized "A Night of Celebration: Recognizing Student and Community Organizing for Palestinian Liberation" held at SFU-Burnaby which commemorated the historic Boycott Divestment and Sanctions (BDS) resolutions passed by the Student Council. The evening featured a recognition of all the persons and organizations that contributed to this effort. Award-winning Palestinian-American journalist Ahmed Shihab-Eldin sent a video message congratulating the student-led initiatives and discussing the importance of sound coverage of the occupation of Palestine.

15) On the final day of Palestine Days, CCMS partnered with the MENA Film Festival and the The Toronto Palestine Film Festival to deliver a program entitled "Telling the Stories of Palestine" showcasing Canada-based Palestinian films made as part of a residency. We also heard remarks from Amnesty International's envoy to the UN Sherine Tadros, who is also the coauthor of the vital report on Israeli apartheid against Israelis as well as Emmy and Edward R. Murrow award recipient Dena Takruri of digital journalism platform AJ+ who spoke about her work covering Palestine. The evening came to a close with the powerful reflections of Vancouver-based Palestinian filmmaker Sobhi Al-Zubaidi on the quest to document the tragedy of forgetting the losses of life and the memory of a nation.

16) CCMS held a special evening of poetry and remembrance in honour of recently deceased Iraqi revolutionary socialist poet Muthaffar Al-Nawab led by scientist and humanist writer Dr. Wadood Hamad.

17) CCMS Continued to strengthen existing and build new partnerships and collaborations: locally, with Solid State Community Industries, the Vancouver Art Gallery, MENA Film Festival, and Mavins Media; nationally, with ICOMOS Canada, Islamic History Month Canada, and Islamic History Month Kingston; and internationally, with the Agha Khan University Network and Scholars at Risk. In addition, nourished old partnerships with local Indigenous nations, the City of Vancouver, the Ismaili Council of BC, and Agha Khan University, London. For the first time in many years, CCMS began its work with student organizations and initiatives including, and not limited to, SFFS and The Caucus, to name a few.

18) Initiated a project executed by CCMS Research Assistant Sabah Ghouse with the objective of conducting interview on video with researchers across SFU whose work falls under the mandate of the Centre and generate content for distribution on social media. Also worked to strengthen the Centre’s archive to ensure its work remains accessible and available for distribution and dissemination.

19) In collaboration with the David Lam Center for International Communication, CCMS
launched the inaugural provincial event to commence Uyghur Studies in BC. Featuring workshops, lectures, teach-ins and other activities, the 3 day event is the most important academic Uyghur event in recent memory and the beginning of a new direction in research on this community at SFU, UBC and other universities in the province.

20) Worked closely with SFU International and its new Executive Director Shaheen Nanji to coordinate partnerships with the Aga Khan Development Network (AKDN) and the Aga Khan University in Kenya. This collaboration bore fruit in rendering the operations of the Centre more sustainable.

21) Coordinated lighting up Vancouver City Hall to celebrate Islamic History Month.

22) The Endowed Professorship in the Comparative Muslim Studies, funded largely by the Endowment for CCMS will be activated in the fall of 2022 with the objective of hiring an incoming tenure-track faculty member in History whose work will contribute to the life of the Centre.

23) Interim Director of CCMS Adel Iskandar served on the SFU EDI Advisory Committee.

24) CCMS welcomed the arrival of incoming Research Associate Dr. Nozhat Ahmadi and Scholar-in-Residence Dr. Kamran Bashir who will enliven CCMS with their research work and intellectual contributions in the academic year 2022-3.

25) CCMS welcomed the incoming director for academic year 2022-3, our Dr. Tamir Moustafa, Professor of International Studies and outgoing Director of the School of International Studies at SFU. A renowned scholar whose work falls squarely under the mandate of the Centre, he will be shepherding CCMS through this forthcoming year. We greatly look forward to his leadership in this period of great promise and opportunity.

Notable media successes:
1) Featured in the very first online broadcast of the Milad al-Nabi (Prophet Mohammed’s birthday) on Ismaili TV channel. The program included remarks by director Adel Iskandar on the occasion. The event has been viewed over thousands of times online.

https://www.youtube.com/watch?v=UUhjs5GNYq4

2) Featured in BCIT News to discuss the rise of violent crimes against Muslims in Canada

https://bcitnews.com/2022/01/11/for-the-record-canada-has-the-highest-rate-of-murders-perpetrated-against-muslims-than-any-other-g-7-country/?fbclid=IwAR2MZM4yOV_AMBV45BU1ASgCBSP2YZ_3yJc-sieYODJsWSpmpPBy4ii38rhQ
3) Director was featured on several occasions across provincial and national media to discuss rising Islamophobia and ways to counter it

4) The Peak covered a lecture on Palestinian Leadership in the Mandate Era

https://the-peak.ca/2022/06/a-talk-on-palestinian-leadership-under-the-british-mandate/

Events, workshops, public outreach events:
1) September 1, 2021

Muslims in Turtle Island & Abya Yala: Intersections of White Supremacy, Islamophobia, and Anti (Afro) Indigeneity

2) September 1, 2021

Decolonization Through Poetry:

3) September 1, 2021

Muslims on Turtle Island: Being Human

4) September 2, 2021

Photography: Halal Activism on Turtle Island?

5) September 2, 2021

Searching for Home: Indigeneity, Displacement and Colonization

6) September 2, 2021

Problematizing the Claim to being a “Settler Colonist”

7) September 3, 2021

Holding Faith on Stolen Land: Lessons, Learnings from the United Church and a Path Forward.

8) September 3, 2021
Islamic Texts and Indigenous Rights: Rereading the Canon

9) October 28, 2021

Healing Together: Overcoming Anti-Indigenous Discrimination and Islamophobia

(Celebration of Islamic History Month—Art exhibition, poetry, and recitation)

10) November 20-25, 2021

Sponsor for the 2021 MENA Film Festival

11) November 25, 2021

Systems of Accountability: Arts and Culture and the Israeli Occupation of Palestine

(Panel part of the MENA Film Festival)

12) November 28, 2021

Finding Home: Being Jewish and Moroccan in Canada

(Panel part of the MENA Film Festival)

13) March 18, 2022

Reflections on Space Making in Institutions for Black Muslim Youth

14) March 25, 2022

Book Launch: The Colour of God by Ayesha S. Chaudhry

15) March 26, 2022

Middle East and Islamic Studies Conference (MEICON) in British Columbia in collaboration with UBC

16) April 20, 2022

Community Iftar Dinner

17) May 14, 2022
Learning Islamophobia: A Conversation with Anver Emon

18) June 1, 2022

A Sky with No Stars: Palestinian Leadership and Resistance Under the Mandate”

19) June 2, 2022

Night of Celebration: Student and Community Organizing for Palestine

20) June 2, 2022

Palestine Film Screenings, courtesy of the MENA Film Festival

21) June 3, 2022

Telling the Stories of Palestine—with Sherine Tadros, Dena Takruri and Sobhi Al-Zubaidi

22) June 23, 2022

Muthafar an-Nawwab: Portrait of a Revolutionary Poet

23) August 10, 2022

Uyghur Studies: A Workshop on Global Histories and Contemporary Economy with Rian Thum and Laura Murphy

24) September 17, 2022

Sociology and Muslim Studies with Dr. Jasmin Zin

25) October 22, 2022

Journalism and Muslim Communities with Dr. Kamal al-Solaylee

Supporting documents:
-

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No
Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Adel Iskandar, Acting Director

Director’s comments:
The Centre for Comparative Muslim Studies (CCMS)--supported by a generous endowment--continued to produce landmark programming to enrich our understanding of the diversities and complexities of Muslim communities. Despite the COVID pandemic restrictions impacting the Centre’s operations for long periods in the academic year 2021/2 resulting in high turnover for staff, the Centre continued to move confidently in the direction of greater impact work. From community outreach events to academic talks that empower students and young researchers, CCMS has dedicated much of its energies on foster a stronger and more robust relationships with partners within the university, in the community, or globally through the Centre’s extensive and growing networks of collaboration. Despite the challenges faced by the Centre during this academic year, I am thrilled to report that we have come out of this period with a more formidable budgetary situation, stronger connections with our partners and collaborators, a broader footprint for our programming, and a calendar full of significant and well-attended events that reignited interest in the Centre, its operations, and mandate. I am confident that the coming years will so even greater progress on all these fronts particularly with restrictions on events being lifted.

Reviewer's Section

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
The CCMS is implementing its five-year plan admirably well. Fostering connections across communities it will continue to play an important role in community engaged research and outreach. Hiring a new Director will solidify the forward momentum.
General Information

Name of the Centre/Institute: Centre for Public Policy Research
Website: http://www.sfu.ca/mpp/centre_for_public_policy_research.html
Faculty: Arts and Social Sciences
Director: Genevieve LeBaron
Director's term end: 2025-01-31
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
The purpose of the Centre (CPPR) is to promote multi- and interdisciplinary research, education, and dialogue on a broad range of public policy issues in Canada. The Centre supports and initiates research, publications, colloquia, conferences, visiting researchers and speakers. It is the research arm of the School of Public Policy at SFU (SPP).

The Centre/Institute's membership and organization structure:
Membership in the CPPR is open to any faculty member and graduate student at SFU who is interested in public policy research and outreach. All members of the School of Public Policy are active and the School manager keeps a list of faculty in other departments within the Faculty of Arts and Social Sciences and other departments at SFU who participate in our conferences, workshops, colloquia and Policy Spotlight talks.

The CPPR is headed by a Director who is currently also the Director of the School of Public Policy. It is governed by a Steering Committee that consists of all active faculty in the SPP. The SPP Manager provides administrative support. We engage with other units and associated faculty from other departments for events the Centre sponsors. As Faculty Associates are added to SPP, they will also be members of the Centre. We expect in the next five years to have a much broader reach within SFU with the pending introduction of the undergraduate minor in public policy analysis.

Significant accomplishments:
1) Policy Spotlight Seminar Series: These are held approximately every two to three weeks during the Fall and Spring semesters of each year. MPP students and faculty are in residence
and all talks are open to the SFU community, and external participants. The talks are always well attended and are given by local, provincial, national, and international public policy experts from the public and private sectors, faculty from the SPP, other SFU departments, and other universities. This past year talks were virtual on Zoom as well as in person. Our Policy Spotlight series included: Jill Atkey  CEO, BC Non-Profit Housing Association; Laya Behbahani  Sessional Lecturer, SFU Labour Studies program and Director of the Student Experience Initiative, SFU; Julie Chace  Executive Director, Strategic Services and Compliance Division, BC Environmental Assessment Office; Geordie Hungerford  CEO, First Nations Financial Management Board; Sobhana Jaya-Madhavan  Associate Vice-President, External Relations, SFU; Genevieve LeBaron  Director, School of Public Policy, SFU; Fancy Poitras, Indigenous Relations Manager, City of Burnaby (MPP alumnus); Neil Bouwer  Vice-President, Innovation and Skills Development Branch, Canada School of Public Service; Christine Massey  Deputy Minister, BC Ministry of Mental Health and Addictions; Graham Stuart  Manager of Corporate Planning, City of Coquitlam.

2) BC Priorities Projects: The Centre supports major group projects that are undertaken by first year students in our Policy Analysis (PLCY 800 and 807) course sequence. Topics are chosen by external entities including provincial ministries, municipal governments, crown corporations, social enterprises, other public sector organizations, and NGOs. Students hone their analysis skills by interacting with the agency to define the problem, undertake the research, and produce a major report that is presented to the agency and may be posted on their web site. These public policy reports have led to op-eds, disseminated to other agencies, presented at conferences, and have influenced policy decisions. This research program develops students' skills, showcases their abilities, and creates links for further engagement between students, faculty and public policy agencies. We have many agencies coming back with new topics for subsequent studies. The CPPR provides support for travel to Victoria and primary research expenses. This year's projects (sponsors) included: BC Housing, Extreme heat, wildfire smoke and the social housing sector; Provincial Health Services Authority, Policy effectiveness and compliance at PHSA; Streetohome, Shared housing models; Canadian Institute on Climate Choices, Supporting low-income renters to transition to emissions reducing and cost-saving technologies; Ministry of Advanced Education and Skills Training.

**Notable media successes:**
As I understand it, there are none to report on behalf of the Centre but individual faculty in the School have been active in media.

**Events, workshops, public outreach events:**
Events were curtailed this year due to the pandemic and the challenges of bringing staff and
students and the public together. Policy Spotlights were publicly announced and available to be joined on Zoom.

Supporting documents:

-  

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Genevieve LeBaron, Director and Professor, School of Public Policy

Director's comments:
I am new to SFU as of January 2022 and was transferred the Directorship of this Center only a few weeks ago. I have therefore relied on information provided by my predecessor as I wasn’t Director during much of this reporting period. I would also note that our School manager is on medical leave so the information available to me was highly limited. I’ve done the best I can to complete the report under these circumstances.

Since becoming Director of the School, I have initiated discussions and planning around how to revitalize and scale up the ambition of CPPR, including by launching a Faculty Fellows program that draws together policy researchers from across SFU to collaborate, apply for large interdisciplinary grants, and co-author. I am also excited to create new partnerships and methods of engagement that can bolster CPPR’s profile and reputation, and in turn, create exciting new opportunities for faculty and students. This will take some time, given the current state and capacity of the Policy School, with all staff currently on medical leave, a wave of faculty retirements and limited renewal.

Reviewer's Section

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International
**Reviewer's decision:**
Approved

**Reviewer's comments:**
The Centre has continued its work through two key community engagement and pedagogical programs: the Policy Spotlight Seminar Series; and BC Priorities Projects. A new Director is in place bringing fresh ideas to the Centre that include the development of a Faculty Fellows program that would bring together policy experts from the across the University to collaborate.
General Information

Name of the Centre/Institute: Centre for Restorative Justice
Website: http://www.sfu.ca/crj.html
Faculty: Arts and Social Sciences
Director: Brenda Morrison
Director's term end: 2019-09-01
Renewal date: 2026-07-01

Details

Description of the Centre/Institute:
Simon Fraser University’s Research and Engagement Centre for Restorative Justice (ReCRJ - pronounced riˈsərj) was founded in 1998 as the Centre for Restorative Justice under the auspices of the Criminology Research Centre. The name was changed to the Research and Engagement Centre for Restorative Justice in 2021 in accordance with the new policy on research centres at SFU. The Research and Engagement Centre for Restorative Justice conducts and mobilizes research and engagement in restorative justice, collaborating in projects with community, university, government and NGO’s, locally, nationally and internationally. Our collaborating partners are initiatives, programs, non-profits and institutions with similar mandates, serving as a bridge and providing a responsive node for community-engaged research and learning that works within policy and practices that invite equity, diversity and inclusion. Restorative justice is collectively understood as an opportunity for learning and growth, grounded in a relational orientation of human development and security.

The Centre/Institute’s membership and organization structure:
The Research and Engagement Centre for Restorative Justice is headed by a Director and governed by a Steering Committee. The Centre also has Associates who participate in the research and engagement activities of the Centre. Associates represent initiatives, community NGOs and universities who engage with the research and development of the practice of restorative justice (please see attached document below for a full list of over 40 Associates). Given the multi-disciplinary nature of restorative justice the Steering Committee reflects this collaborative multi-disciplinary work:

1) Stuart R. Poyntz, Ph.D. -
Director | SFU’s Community Engaged Research Initiative (CERi); Associate Professor | School of Communication

2) Heesoon Bai, PhD, RCC
Professor, Philosophy of Education | Faculty of Education

3) Layana Patrick
Assistant Professor, Indigenous health and justice, Faculty of Health Sciences

4) Joanna Ashworth
Director of Professional Programs and Partnerships, Faculty of Environment

5) Helene Love
Lecturer, School of Criminology, Faculty of Arts and Social Sciences

6) Ron Johnson,
Director, Office for Aboriginal Peoples

7) Bettina Cenerelli
Director of Strategic Academic Planning and Student Affairs

8) Shauna Sylvester
Director, Centre for Dialogue

9) Shanthi Besso
Director | Leadership + Community Building Programs, Lifelong Learning

10) David Gustafson, PhD
School of Criminology Adjunct and Founding Associate and Steering Committee of CRJ

11) Barry Stuart, JD, PhD
Criminology Adjunct and Founding Associate and Steering Committee of CRJ
12) Dorothy Vaandering, Associate Professor, Faculty of Education, Memorial University, St. John’s, NL

Director of Relationships First - Restorative Justice, NL.

13) Jennifer Llewellyn

Professor of Law; The Chair in Restorative Justice and Director of the Restorative Research, Innovation and Education Lab (RRIELab)

Schulich School of Law, Dalhousie University

**Significant accomplishments:**

1) National Restorative Justice Symposium - SFU’s ReCRJ supports the Annual Restorative Justice Symposium each year. In 2020 and 2021 the symposium was held virtually, given the pandemic. ReCRJ supported the virtual space to host the annual symposium, in partnership with a number of ReCRJ Associates.

https://www.crjc.ca/national-symposium

2) Child and Youth Participatory Research Network - ReCRJ partnered with SFU’s CERi to launch the Child and Youth Participatory Research Network, hosting a number of webinars:

https://www.sfu.ca/ceri/archive/videos/tell-us-what-we-can-do.html

https://www.sfu.ca/ceri/archive/videos/holding-space-vs-making-space.html

Other webinars are planned for the fall, including the authors of this book:


3) The Unbounded Classroom: A Symposium on Teaching, Learning and Research for Democratic Participation

ReCRJ partnered with SFU’s CERi and the Faculty of the Environment to host a three day symposium to deepen our understanding and opportunity to practice democracy in the classroom at SFU. Panels spoke on: Why democracy in the classroom; Relevance to Equity Diversity and Inclusion; Relevance to Decolonization; Pedagogical approaches to Democracy in the classroom (Funded by SSHRC Connection Grant - $8,500)

https://www.sfu.ca/content/dam/sfu/feny/PDF/Democratic%20T%20+%20L%20Web

In partnership with a number of the ReCRJ Associates this keynote lead to a number of follow-up call with a range of post-secondary institutions in British Columbia. Development of an archive of material in partnership with KPU.

5) International Encyclopedia of Restorative Justice - Through our networks in Canada, and international, SFU’s ReCRJ was chosen to represent Canada for the inaugural International Encyclopedia of Restorative Justice (Elevyn Publishing). We are carrying out the largest environmental scan of restorative justice in Canada (14 jurisdictions), editing the corresponding jurisdictional entries, and editing 13 thematic paper on systemic issues.

6) International Encyclopedia of Social Justice in Education - Through our networks in Canada, and international, SFU’s ReCRJ was chosen to edit a single volume on restorative justice for the inaugural International Encyclopedia of Social Justice in Education (Bloomsbury). With our networks, we are creating a signal comprehensive volume on the praxis of restorative justice, which will provide a comprehensive overview, together with 100 distinct international authors. This volume will contribute to setting the direction of this field of study for the next decade.

7) Department of National Defence (Sexual Misconduct) - Through our collaborative work the ReCRJ associate’s are supporting the work of Canada’s Department of National Defence to respond to sexual misconduct and support culture change.

8) A Restorative Approach to Health Care - A restorative approach to health care is being developed in British Columbia, and recently launched at BC Quality Health Care Forum. Project partners include UBC Nursing and Medical Schools, Healthcare Excellence Canada, BC’s Health Authorities, First Nations Health Authority, BC Patient Safety and Quality Council, BC’s Ministry of Health along with New Zealand’s Diana Unwin Chair of Restorative Justice, Dalhousie’s Restorative Justice Lab and SFU’s Research and Engagement Centre for Restorative Justice.

9) Evaluating for Restorative Outcomes – The ReCRJ, in partnership with B.C.’s Ministry of Public Safety, the Restorative Justice Association of British Columbia and over 60 community-based restorative justice providers, is conducting the most comprehensive evaluation of community-based restorative justice in Canada. The evaluation instrument was developed in partnership with this same collaborative team.

10) Youth Justice Lab - The ReCRJ partnered with North Shore Restorative Justice
Society (NSRJS) to deliver the second iteration of the Youth Justice Lab. This project is a cohort-based opportunity for youth on the North Shore, ages 15 to 19. Through this virtual 8-week Lab, youth will deepen connections between themselves, local mentors, and community leaders in order to (1) learn and think critically about a variety of social justice issues, (2) gain awareness about their role in relation to issues of the world at large, their local community, and school, and (3) identify their power in tackling justice issues and develop skills to become change-makers.

The SFU Centre was an advisor and resource for the development and implementation of this project. Each week, youth will be engaged by guest speakers and NSRJS staff. Youth participants will develop group projects to tackle justice issues they care about over the course of the Lab, with support from local mentors, including SFU alumni. Through this experience, youth participants built life skills in mediation, teamwork, project management, and networking.

**Notable media successes:**

- 

**Events, workshops, public outreach events:**

- 

**Supporting documents:**

- 

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university? No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence? Yes

**External funding details:**

2022 - Evaluating for Restorative Results: Instrument Pilot - Solicitor General’s Office of British Columbia, Principle Investigator ($20,000)

2022 - Community Engagement Grant (SFU) "Exploring a Restorative Approach through Anti-Oppression and Social Development Lens" ($5,200)
2022 - Community Engagement Grant (SFU) "The Social Echoes: Learning to Unlearn". ($6400)

2022 – “Exploring the lived experiences of youth with intellectual and developmental disabilities in the criminal justice system” - SSHRC Partnership Development Grant ($199,991)

2021 – Community Engagement Grant (SFU) – Youth Justice Lab with North Shore Restorative Justice ($5,000)

2021 – “Exploring the lived experiences of youth with intellectual and developmental disabilities in the criminal justice system” - King’s College Strategic Research Opportunities Fund - Research Grant 2021 ($60,000)

2021 – Democracy in the Classroom – SSHRC Connection Grant – ($8,500)

2021 – Evaluating for Restorative Results: Instrument Pilot – SSHRC Small Grant – ($10,000)

2020/21 – Developing a Restorative Approach in Response to Harm in the Healthcare Setting. Michael Smith Foundation for Health Research – Convening/Collaborating (C2) ($15,000) & BC Patient Safety and Quality Council ($150,000)

Confirm policy review:
Yes

Submitted by:
Brenda Morrison, Director

Director's comments:
2021 was a milestone year for SFU’s ReCRJ, significantly furthering its collaborative research and engagement work within SFU, within British Columbia, across Canada and Internationally. Within SFU, the Centre now works with a multidisciplinary team of researchers including the faculties of health sciences, communication, education, environment and CERi. Within the province of British Columbia, the Centre works collaboratively with the Restorative Justice Association of B.C, a range of community based restorative justice providers (e.g. North Shore Restorative Justice and the Vancouver Association of Restorative Justice), Ministry of Public Safety, Ministry of Public Health, a number of health care providers, authorities and regulators, and a range of post-secondary institutions interested in restorative justice. Nationally, the Centre works with the Ministry of Justice and the Department of National Defence. Internationally, the Centre is a lead researcher and editor for two inaugural encyclopedias of restorative justice.

Reviewer's Section
Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
The Centre continues its many collaborations both locally and nationally through a variety of small scale and internal funding sources as well as a newly received SSHRC Partnership Development Grant.
General Information

Name of the Centre/Institute: Centre for Scottish Studies
Website: http://www.sfu.ca/scottishstudies.html
Faculty: Arts and Social Sciences
Director: Leith Davis
Director's term end: 2024-04-30
Renewal date: 2026-11-01

Details

Description of the Centre/Institute:
The Research Centre for Scottish Studies at Simon Fraser University was founded in 1998 under the title Centre for Scottish Studies as a joint venture between faculty and individuals in the community. The name was changed to Research Centre for Scottish Studies in 2021 in accordance with the Policy R 40.01. The Research Centre for Scottish Studies conducts and mobilizes research in the area of Scottish Studies, engaging in projects with other university-wide, national and international units and institutions with similar mandates, serving as a bridge between academic and general audiences and providing a hub for community-engaged research on Scottish topics in the greater Vancouver area.

Our research activities include: collaborative projects with colleagues in Canada, the US and the UK; conferences and symposia; the “Scottish Voices from the West” Oral History project; We also organize an annual St Andrew’s and Caledonian Society talk; and award an annual graduate fellowship (the David and Mary Macaree Graduate Fellowship) and one undergraduate award (the Jennifer Prosser Wade Family Undergraduate Scholarship).

As the only institution in Western Canada with a Scottish Studies focus, we collaborate with other academic institutions in Canada interested in Scottish Studies such as the University of Guelph and St. Mary’s University.

The Centre/Institute's membership and organization structure:
The Research Centre for Scottish Studies is headed by a Director and governed by a Steering Committee. The Director of the Research Centre for Scottish Studies is appointed by the Dean of Arts upon recommendation by the Steering Committee. The Research Centre for Scottish Studies also has members who participate in the activities of the Research Centre for Scottish Studies.
The Steering Committee is made up of no less than three and no more than five Simon Fraser University faculty members. The task of the Steering Committee is to determine the overall direction of the Research Centre for Scottish Studies and to oversee the management of its operations. While it normally operates by consensus, when necessary it can make decisions by majority vote, including the appointment of new members of the Steering Committee. The Director has the right to vote.

The Director of the Centre, in consultation with the Steering Committee, may appoint individuals from the community as affiliate members of the Research Centre for Scottish Studies. Affiliate members may be invited to attend the Centre's annual general meeting and may collaborate with members of the Steering Committee on projects undertaken by the Centre.

The Centre has extremely close ties with Scottish community groups in the local area. Members of the St. Andrews and Caledonian Society, the Scottish Cultural Centre Society and the United Scottish Cultural Society (representing the prominent Scottish societies in the Vancouver area) are affiliates of the Centre. The USCS Board of Directors operates ScotFestBC, and members of the Centre regularly present research there.

**Significant accomplishments:**

1) Publication: Director Dr. Leith Davis' co-edited collection of essays, the International Companion to Scottish Literature in the Long Eighteenth Century, was published in October, 2021. It contains: an Introduction and essay by Davis; an essay co-written by Davis and Jasreen Janjua, a former MA student who was the 2019 recipient of the Centre's David and Mary Macaree Graduate Fellowship; and an essay by Dr. Emma Pink, a former SFU RCSS PhD student who was the 2016 recipient of the Centre's David and Mary Macaree Graduate Fellowship.

2) Publication: Director Leith Davis' book, Mediating Cultural Memory in Britain and Ireland, 1688-1745, containing three chapters investigating: the Scottish Darien venture; the 1715 Rising; and the 1745 Rising, was published in March, 2022 with Cambridge University Press.

3) Research Grant: The RCSS was awarded a SSHRC Partnership Engage Grant of $17,787 for a research project on "Engaging Public and Academic Audiences to Recover Lost Voices of Scottish History: 'The Lyon in Mourning' Manuscript and the Jacobite Networks of the 1745 Rising." The partner for the project is the National Library of Scotland; the grant also includes the Digital Humanities Innovation Lab of SFU as collaborator.

4) Research Grant: The Director of the RCSS was awarded a SSHRC Connection Grant of $24,905 to host a symposium, "Networking Jacobites, 1688 to the Present." The University
of Guelph’s Scottish Studies Centre is a co-investigator, and the symposium will be held Aug. 27-28, 2022 at the University of Guelph. This is the first official collaboration between the RCSS and Guelph’s Centre for Scottish Studies.

"Networking Jacobites" will mobilize knowledge by creating a new research network comprising 20 established and emerging scholars, 4 library archivists, 2 PhD students, 4 MA students and 1 artist from Canada, the US and the UK to consider Jacobitism from different disciplinary, national and linguistic perspectives. It will be the first international event held in North America to address Jacobitism and will include panels examining topics such as: Jacobite archival resources; material networks of Jacobitism; Jacobites in cultural memory; the role of Jacobitism in the development of Scottish tourism; and big data projects on Jacobitism.

5) HQP: The Centre awarded the 2021-22 David and Mary Macaree Graduate Studies Fellowship to English MA Student Taylor Breckles who will be working with the RCSS’s Director Leith Davis on a project comparing language loss and recovery in the work of a Gaelic poet/songwriter and a Cree poet/singer-songwriter.

6) Scholarly Publication Award: The Centre was awarded $5000 by SFU’s Library to complete the digitization of the items in its Oral History Project, Voices of the West, and to digitize papers connected with the project and the history of the Centre.

7) HQP: Two English MA students were trained (Alyssa Bridgman and Taylor Breckles) and employed in writing transcriptions and summaries for the Voices of the West Oral History Project.

8) HQP: With the help of the SSHRC Partnership Grant and Director Davis’s SSHRC Insight Grant, the RCSSS trained and employed five students (2 PhDs [Jasmyn Bojakli and Kaitlyn MacInnis], 3 MAs [Taylor Breckles, Alyssa Bridgman and Shauna Irani]) in summer and fall 2022 in TEI encoding, transcription and qualitative and quantitative data analysis as well as community outreach in conjunction with the “Lyon in Mourning” Digital Humanities project.

9) HQP: Starting April, 2022, the RCSS currently employs one PhD student (Jasmyn Bojakli), 3 MA students (Taylor Breckles, Shauna Irani and Julianna Wagar) and 1 undergraduate (Emma Trotter) in TEI encoding, transcription and qualitative and quantitative data analysis as well as community outreach in conjunction with the “Lyon in Mourning” Digital Humanities project. The four graduate students will be travelling with the Director to present at a symposium which the Centre is organizing at the Institute for Advanced Studies in the Humanities at Edinburgh University June 30, 2022.

10) HQP: Undergraduate student Emma Trotter received an VP Undergraduate Research Award to train with and work with the RCSS’s "Lyon in Mourning" Digital Humanities project team.


**Notable media successes:**
Director Leith Davis was interviewed for Robert Burns Day for Corus/Global national evening talk show on Jan. 25.

**Events, workshops, public outreach events:**
1) The RCSS co-sponsored the virtual Robert Burns Celebration (January, 2022) with the United Scottish Cultural Society. The Director Leith Davis and two students (Pailin Sumannaruang and Julianna Wagar) presented. 150 people attended from around the world.

2) The Director Leith Davis presented “Hidden Voices of the Jacobites: The 'Lyon in Mourning' Manuscript of Robert Forbes” at ScotFestBC, September 5, 2022 in order to share the research of the RCSSS on Jacobites.

3) Director Leith Davis gave an online public lecture to Vancouver's Brock House Society May 4, 2021 on the "The 'Lyon in Mourning' Manuscript of Robert Forbes and the 1745 Jacobite Rising."

4) Director Leith Davis gave an online public talk for the Centre for Data, Culture and Society on "Networking Jacobites and 'The Lyon in Mourning' Manuscript of Robert Forbes" at Edinburgh University, May 12, 2021.

5) Director Leith Davis gave an online public talk for the National Library of Scotland on "'The Lyon in Mourning Manuscript” of Robert Forbes Digital Research Project’.
The St. Andrews and Caledonian Society public lecture for 2022 was held remotely November 20 with an online lecture by Dr. Ralph McLean from the National Library of Scotland on "The Lyon in Mourning," Manuscripts in the National Library of Scotland." Over 60 people attended.

Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
The Centre was able to attract external funding for two SSHRC grants in order to collaborate with colleagues nationally and internationally. 1. A SSHRC Partnership Engage award with the National Library of Scotland as partner and 2. a SSHRC Connection Grant for which the RCSS was PI with the University of Guelph’s Scottish Studies Centre as co-investigator.

In addition, the Director of the RCSS helped secure funding for an annual endowed scholarship for a student studying Scottish Studies, the Jennifer Prosser Wade and Family Scottish Studies Award

Confirm policy review:
Yes

Submitted by:
Leith Davis, Director

Director's comments:
The Centre has had a very successful year. In order to pursue its mandate of collaborating nationally and internationally, the Centre was awarded a SSHRC Partnership Grant (with the National Library of Scotland) and a SSHRC Connection Grant (to work with colleagues at the University of Guelph's Scottish Studies Centre to host an international symposium on Jacobites). It also was able to secure funding from the Library’s Scholarly Digitization fund to complete digitization and metadata recording for its Scottish Voices of the West Oral History Project. In addition, despite the continuing COVID situation, the Centre has also been able to maintain a high level of community involvement offering its annual St. Andrews...
and Caledonian Society lecture online as well as sponsoring a virtual Burns Day Celebration that attracted an international audience of 150 people. The Director also delivered 3 online public talks on the RCSS’s current research project for the National Library of Scotland; the Centre for Data Culture and Society at Edinburgh University; and Brock House.

As a result of its successful “Decolonizing Scottish Studies” virtual event held in April, 2021, the Centre’s Director was also approached by Edinburgh University Press regarding pursuing the subject in a collection of essays that EUP would publish; that is a future possibility.

The Centre receives no funding from the university, and its Director receives no course release or compensation for activities involving the Centre. Given these limitations on funding and time, the Centre has done incredibly well in pursuing its research agenda and engaging with local, national and international communities both academic and more general. Additional resources of time, funding and personnel would enable the Centre to expand its research (including its research on decolonization and a new iteration of its Oral History project based on born-digital interviews).

**Reviewer’s Section**

**Reviewed by:**
Mary-Ellen Kelm, Associate Dean, Research & International

**Reviewer’s decision:**
Approved

**Reviewer’s comments:**
Director Leith Davis has worked very hard to transition the Centre from primarily a public-facing Centre engaged deeply with the aspirations of the Scottish diasporic community in the Lower Mainland to a Centre that embraces the research focus indicated by the policy shift in R40. New partnerships with the Scottish National Library and the University of Guelph’s Scottish Studies have been developed and awarded SSHRC Connection Grant and SSHRC Partnership Engage Grant in 2022. Endowment terms of reference have been refreshed and renewed.
First Nations Language Centre

Website: https://www.sfu.ca/fnlc
Faculty: Arts and Social Sciences
Director: Marianne Ignace
Director's term end: 2021-04-01
Renewal date: 2026-07-01

Details

Description of the Centre/Institute:
The First Nations Language Centre aims to:

- maintain and develop ongoing partnerships with First Nations communities engaged in language revitalization efforts;

- provide academic support for community-based efforts to revitalize seriously endangered languages in First Nations communities throughout British Columbia and neighbouring areas;

- offer research expertise with a focus on First Nations language revitalization theory and practice in communities;

- support language curriculum development, and facilitate research in the applied and descriptive linguistics of critically endangered languages; and

- facilitate communication between First Nations communities and the university.

The Centre/Institute's membership and organization structure:
FNLC is headed by a Director and governed by a Steering Committee. The Steering Committee, including the director, is made up of eight faculty members, postdoctoral fellows and graduate students. Members serve for a two-year term, renewable.

Significant accomplishments:
1) Lucy Bell conducted 10 interviews with Haida elders, artists and Haida museum and
repatriation professionals. She created a presentation on sGaaga, medicine-man materials in museums in Xaad kil, the Haida language with ancient philosophical beliefs on traditional healing. She became a Smithsonian Fellow and was accepted by the Burke Museum’s Bill Holm visiting scholar program. Received BC Museums Association’s Museum Stewardship Award. UBC Centre for Applied Ethics and Museum of Anthropology. Keynote address. Tla yaahda: Making it right. Repatriation, a Haida perspective. Sterling Prize Ceremony lecture: https://www.youtube.com/watch?v=nFP89saYjRY

2) Heather Bliss research accomplishments:


Digital media projects

Áíkamotsiipohtoo’p Siksikáípowahsin (Principal Investigator; funded by a SSHRC Connection Grant)

Anno Kitsiksaahkominnon (This is Our Land). Linguistic consultation, including script development, transcription, and voice coaching

Indigenous Languages Program Glossary. Project lead; funded by a SFU Library Indigenous Digital Media Grant; co-developed with SFU students

Mioohpokoiiksi: Stories and Games for our Children. Project lead (with Annette Bruised Head Fox)

3) Marianne Ignace:

New Frontiers in Research Transformation Grant - LOI stage successful
SFU Distinguished Professor

Co-PI (with Sealaska Heritage Institute, Alaska, USA), US National Science Foundation Grant, Enhancing linguistic infrastructure through the documentation of conversational expression of an endangered language (Xaad Kil, Northern Dialects). $314,857 US over 3 years

Publications


Forthcoming. Ignace, Marianne, Ronald Ignace eds., Re-Imagining Tlli7sa: Secwépemc Stories reclaimed into our language. Twenty-five Secwepemc narratives in bi-lingual edition with more than 100 illustrations by Tania Willard and Braden Hallett. To be published by McGill-Queens University Press, 2022-23.


Notable media successes:

Events, workshops, public outreach events:
SFU at the Bill Reid Gallery. Sterling Prize Ceremony lecture. https://www.youtube.com/watch?v=nFP89saYjRY

Canadian Museums Association. Radical Truths as Radical Empathy- Canadian Museums and the Changing Tide.


Indigenous Graduate Student Conference. Indigenous Sovereignty in Museums.

Association of Canadian Archivists. Keynote address. Putting out the Fire in Archives.

Canadian Association for Conservation. Haida conservation concerns.


University of Fraser Valley. Keynote address. One Drop at a Time: Decolonizing institutions

**Supporting documents:**


**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
Lobstick Foundation awarded $150,000 as an endowment for graduate and undergraduate awards at SFU to support indigenous language learning and revitalization.

Confirm policy review:
Yes

Submitted by:
Mark Campbell, Coordinator

Director's comments:
The Steering Committee unanimously agreed in June 2022 to change the name of the Centre to Indigenous Languages Research Centre.

Please let Mark Campbell know what steps we need to take now to formalize this in the SFU
Reviewer's Section

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
Indigenous Language Research Centre.

Renewed last year. The accomplishments of its members continue to be impressive. Lucy Bell’s Sterling Prize award and the resultant public events at the Bill Reid Centre were important and timely, especially given the controversy around the BC Museum’s planned (and then cancelled) massive renovation. Mariane Ignace’s receipt of SFU Distinguished Professor indicates SFU’s ongoing appreciation of both her and the Centre’s ongoing work in revitalizing critically endangered Indigenous languages. The planned NFRF submission will continue to fund this work and to bring the Centre’s work into further international collaborations.
General Information

Name of the Centre/Institute: Gerontology Research Centre
Website: http://www.sfu.ca/grc
Faculty: Arts and Social Sciences
Director: Andrew Wister (Director)
Theodore Cosco (Associate Director)
Director’s term end: 2022-08-31
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
Established in 1982, the Simon Fraser University Gerontology Research Centre (GRC) promotes and conducts innovative interdisciplinary research on topics relating to individual and population aging and provides research and consultation services to the academic community, government, public and private organizations. The GRC has served as a focal point for interdisciplinary research, education, and information on individual and population aging in several strategic areas at Simon Fraser University. As we approach the 40-year milestone, the GRC has matured into a phase of rapid growth in size, research activity, training of gerontologists, and societal impact. The GRC supports a full-time Communications Officer; has an active publications program (including our two newsletters, “GRC News” and “Seniors’ Housing Update”); hosts workshops and conferences (John K. Friesen Conference in Gerontology, Ellen M. Gee Memorial Lecture); and provides free public lectures (https://www.sfu.ca/grc/about.html). The GRC maintains an exceptional national and international reputation as a top-tier centre.

The primary research activities of the GRC entail both basic and applied gerontology in the following six thematic areas:

1. Aging and the Built Environment — Research on planning, design, development and evaluation of housing, care facilities, community environments and enabling technology.

2. Changing Demography and Lifestyles — Examination of the impact of changes in the timing of life events and in retirement, pension and income support policy and programs.

3. Health Promotion/Population Health and Aging — Examination of determinants and consequences of population aging and health, development and evaluation of programs that
assist seniors to improve their mental and physical health, resilience, ability to cope with chronic illness and the prevention of disability.

4. Prevention of Victimization and Exploitation of Older Persons — Research and development of programs that prevent financial, psychological, physical and sexual abuse of older people, and facilitate access to rights and services.

5. Technology and Aging Research — Development and evaluation of technologies that support independent living and enhance quality of life.

6. Culture and Aging — Examination of ethno-cultural dynamics of aging, including access to services, diaspora, family relationships and resilience.

In addition to these six thematic areas, the COVID-19 pandemic has required that the GRC pivot its research activities in order to participate in the knowledge-based response to this crisis over the last year.

The Centre/Institute’s membership and organization structure:
The GRC is a Schedule A Centre and comes under the direct authority of the Dean of Arts and Social Sciences. The GRC is governed by the GRC Steering Committee which provides guidance to the GRC Director; fosters the interests of the GRC within SFU and the wider academic community; reviews the position of Director and recommends reappointment or succession; reviews the strategic plan of the GRC and provides guidance in its primary goals, resources and feasibility.

The GRC Director (Prof. Wister) was appointed Sept. 1, 2016, and reappointed Sept. 1, 2019. The GRC appointed a new Steering Committee in 2016/17 to reflect the GRC aging-related research themes at SFU and updated its constitution in 2020.

The Centre is overseen by a Steering Committee comprised of:

Scott Lear, Chair of GRC Steering Committee, Professor, Health Sciences, SFU

Andrew Wister, GRC Director, Professor, Gerontology, SFU

Theodore D. Cosco, GRC Associate Director, Assistant Professor, Gerontology, SFU

Habib Chaudhury, Chair/Professor, Gerontology, SFU Nancy Olewiler, Director, School of Public Policy, SFU

Steve Robinovitch, Professor, Engineering Science, SFU
Nadine Schruuman, Professor, Geography, SFU

Dawn Mackey, Associate Professor, Biomedical Physiology and Kinesiology, SFU

Dan Levitt, CEO, Kin Village

Core People

GRC core researchers and staff are listed below:

Director: Dr. Andrew Wister, Sept. 1, 2016–present

Associate Director: Dr. Theodore D. Cosco, Sept. 1, 2019–present

Research Associate/Prof. Emerita: Dr. Gloria Gutman, 2016-present

University Research Associate: Dr. John Best, Aug. 1, 2019–present

Post-Doctoral Fellow: Dr. Lun Li, Sept. 1, 2019-present

Post-Doctoral Fellow (BC Real Estate): Dr. Daniel R. Y. Gan, Feb. 1, 2018-present; & Post-Doctoral Fellow, CIHR+GRC top-up (Chaudhury/Wister supervisors) March 1, 2022-present

Post-Doctoral Fellow (BC Real Estate): Dr. John Pickering, Feb. 1, 2022-present

Post-Doctoral Fellow: Dr. Laura Kadowaki, Jan. 1, 2021-present

Manager, CLSA Data Collection Site: Dr. Heather Stewart, Sept. 1, 2016–present (+8 RAs/staff)

Manager, CLSA CATI Site: Nicole Pernat, Sept. 1, 2016–present (+4 RAs/staff) Statistician: Ian Fyffe, Sept. 1, 2016–September 2021

Graduate Student RAs: PhDs - Erieann O’Dea; Boah Kim; MAs – Isaac Adedeji; Undergrad - Claire Wang

Communications Officer: Kevin Wagner, Nov. 1, 2018–Jan. 31, 2022

Research & Communications Officer: Sarah Qiu, Feb. 1, 2022–present

Manager (Department & GRC): Anne Marie Barrett, Sept. 1, 2015–present
Significant accomplishments:

1) **CLSA** - The GRC continues to house and run two labs that support data collection associated with the 20-year (2012–2032) Canadian Longitudinal Study on Aging (CLSA) with over 51,000 participants. One of these is at the Surrey Campus — one of the 11 Comprehensive Cohort Data Collection Sites in Canada (full comprehensive data from cell to social); the other is at the Vancouver Campus at Harbour Centre — one of only four Computer Assisted Telephone Interview Sites in Canada. All staff (12) had to be retrofitted to remote work during the previous year and transitioned back to in-person or hybrid work in 2022. In addition, several CLSA COVID-19 studies were funded (see below), and staff were realigned to collect these data. GRC researchers have numerous publications based on CLSA data (including multimorbidity, resilience, social isolation, caregiving and mental health clusters). A three-year grant funded by the Canadian Foundation for Innovation in support of the CLSA Follow-up 3 was received last year (April 2021 – March 2024. Total: $24,550,211 National; Direct to Wister at SFU - $1,273,698). A new $52 Million CIHR grant was submitted to support CLSA Follow-up 3 (over $1 Million to GRC - Wister). Also, a new CLSA Healthy Brains, Healthy Aging Initiative funded by the Weston Family Foundation grant, including collaboration with the ImageTech lab under the director of Carolyn Sparrey (April 2021– March 2024. Total $12,000,000 National; Direct to Wister at SFU - TBD).

2) **Pandemic Research** - The GRC has received several grants (see grant list), and has submitted new grants in the areas of health behaviours, mental health, technology and resilience specific to COVID-19 based on national and international collaborations. Significant funds come directly to the GRC Core Members ($2.2 Million). A large number of publications pertaining to the COVID-19 pandemic were published over the last year, and several more are being produced, including 12 articles based on the CLSA COVID-19 Surveys (see publication list for articles published up until March 31, 2022).

3) **New Post-doctoral fellows** - With respect to new human resources, a post-doctoral fellow (Kadowaki, L.) was hired Jan. 1, 2021 to conduct research in the areas of social isolation among older adults during the pandemic and integrated care models; and another hired in the Real Estate Foundation of BC (REFBC) fellow position (Pickering, J) in rural aging, social isolation and resilience, and applications have been submitted to CIHR and MSFHR for a new post-doctoral student (Ferris, J.) in multimorbidity and brain health. Also, the prior REFBC post-doc (Gan, D.) has transitioned into a CIHR post-doc (supervisors: Chaudhury & Wister) with GRC top-up funds.

4) **Current Grant Funding** - Significant funds come directly to the GRC (see below). Approximately $4.2 million in direct GRC funding under the core GRC researchers (see below); and over $70 million in total new and ongoing grant funding as collaborative researchers (see grant section).

5) **GRC 40th Anniversary Activities** – The GRC has been actively involved in the organization of numerous activities to celebrate its 40th Anniversary in combination with
the Gerontology Department. These include retrofitting all major events, including, John K. Friesen Conference, Lecture Series, Ellen Gee Memorial Lecture, Graduate Student Career’s Night, and a New SFU Research Day in Aging to be unveiled.

6) Tong Louie Living Lab Revitalization - A new TLLL web site has been created under the GRC web site (Projects), and the TLLL Executive Committee (EC) was reformed, see [https://www.sfu.ca/grc/research/projects/tong-louie-living-lab/about.html](https://www.sfu.ca/grc/research/projects/tong-louie-living-lab/about.html). A revitalized research plan will entail: 1) developing new collaborations between SFU and BCIT; 2) develop new collaborations with community partners to build and leverage research capacity. The latter is particularly topical, given the effect of the COVID-19 pandemic on elder-care and environmental adaptation, and current limitations on Tri-council funding. A five-year report of TLLL research and activities was revised in 2021 [https://www.sfu.ca/grc/about/annual-reports.html](https://www.sfu.ca/grc/about/annual-reports.html). In collaboration with SFU Advancement, the Director has produced a TLLL Endowment Concept Proposal to pursue additional contributions to our endowment targeting the GRC 40th Anniversary activities between 2022 and 2023.

7) Real Estate Foundation of BC Report – An updated report has been produced in support of this endowment [https://www.sfu.ca/grc/about/annual-reports.html](https://www.sfu.ca/grc/about/annual-reports.html). Similarly, in collaboration with SFU Advancement, the Director has produced a REFBC Endowment Concept Proposal to pursue additional contributions to our endowment targeting the GRC 40th Anniversary activities between 2022 and 2023.

8) Cutting Edge Research Initiatives – Several key publications and conferences in the areas of Resilience and Aging; Social Isolation among Older Adults; Pandemic Effects on Mental Health; and Integrated Care Models have increased the profile of the GRC and fostered new national and international collaborative research activities. A new book was published based on the 2019 Friesen Lecture Series conference - Wister, A. V. & Cosco, T. (Eds). (2020/2021). Resilience and Aging: Emerging Science and Future Possibilities. New York, NY.: Springer. A new article was published in 2022 in Frontiers in Public Health (Wister, A. V., Klasa, K. & Linkov, I) entitled A Unified Model of Resilience and Aging: Applications to Covid-19, providing the theoretical/conceptual backbone for new research initiatives (see grants).

Several articles and a new federal report address social isolation among older adults during the pandemic. The federal report received national media recognition. Several articles and a new federal report address social isolation among older adults during the pandemic. Also, a number of published articles address pandemic effects on mental health and aging.

In line with one of the WHO Healthy Aging 10 year Strategic Areas, a new book contract has been received from UBC Press to (Kadowaki, L. & Wister, A.) A Critical Analysis of Integrated Continuing Care Systems in Canada, Denmark, and Australia.
Notable media successes:
1) (Includes media in April 2022 related to reports released in March 2022)

Wister, A.V. CBC News – The Dan Burritt Show “A Dual Pandemic: Social Isolation Among Marginalized Older Adults” April 6, 2022. Also repeated on CBC Radio, April 7, 2022.

2) Wister, A.V. CTV TV News – “Social Isolation among Older Adults during the Pandemic” April 6, 2022, April 13, 2022.


4) Wister, A.V. Guest on CBC, Stephen Quinn Show, “Social Isolation and Older Adults during the Pandemic,” April 12, 2022.


Events, workshops, public outreach events:
1) Due to the pandemic, our annual spring semester two-day conference funded from endowments each year (John K. Friesen Conference in Gerontology) was postponed. We also had to delay the endowment-funded annual fall semester Ellen M. Gee Memorial Lecture. These are being reinstated in 2022. We are planning significant events in 2022/23 in support of the 40th Anniversary of the GRC and the Gerontology Department.

2) The GRC published three issues of the GRC News (including the Seniors Housing Update) that is sent to over 2,000 individuals and organizations (see https://www.sfu.ca/grc/stories/grc-news.html). We have also developed a strong social media presence, including Twitter, Facebook, Instagram, and YouTube with over 2,000 followers, which provides public knowledge translation and promotion of community forums and public lectures.

3) The GRC continues to collaborate with community organizations (see CIHR partnership grants and MSFHR seniors centre collaboration grant), although some of these initiatives have had to be delayed due to the pandemic.
4) The Precision Mental Health project established a Research Advisory Panel consisting of 12 community-dwelling older adults who inform and oversee the development of research materials, ethics applications, and knowledge translation/mobilization.

Supporting documents:
Master_copy_GRC_2022_ANNUAL_REPORT_SUPPLEMENTARY_FILES_3nTVvcb.docx (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
Yes

SFU account number:
S210063

Opening balance:
$47,789.66

Revenues:
$226,014.75

Expenditures:
$261,608.14

Closing balance:
$12,196.27

Financial report:
S210063_March_31_2022_U9oGsDp.pdf (See attachment below)

Financial contributions from the university:
The GRC Operating budget is supported from interest generated by several long-standing university held external Endowment funds. SFU provides a teaching release each semester to the GRC Director Dr. Andrew Wister, which is covered by GRC endowments as per an MOU between the GRC and FASS Dean.

List of major equipment provided by the university:
All of the GRC’s equipment has been purchased from Endowment fund interest, external grants (especially the CLSA CFI) and contracts.
**University personnel:**
All GRC staff are supported by interest from endowment funds and/or external grants and contracts. This includes a Communications Officer, 2 part time University Research Associates and 5 Post-doctoral Fellows/URAs (1 Full time, 4 part time). The GRC also hires Research Assistants (RAs) for short term contracts to work on specific projects. Many of the RAs are graduate students in the Gerontology Department.

**Space provided by the university:**
SFU has provided space to the GRC since its establishment in 1982. The space currently allocated to the GRC at Harbour Centre is 6 offices. Space allocated for CLSA research includes a computer assisted telephone interview lab and office at Harbour Centre (1100 sq ft), and a comprehensive (blood collection, physical data, etc.) lab at the Surrey campus (1,000 sq ft). These were constructed using CLSA CFI funding under the signature of the Director, A. Wister.

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
Yes

**External funding details:**
Please see the Summary of External Funding uploaded to Supporting Documents.

**Confirm policy review:**
Yes

**Submitted by:**
Andrew Wister, Director

**Director's comments:**
Over the April 1, 2021 - March 31, 2022 period, the GRC continued to make significant pivots in its strategic plan and research initiatives in order to pursue COVID-19-related research initiatives; maintain the health and safety of over 20 staff and researchers consistent with provincial and SFU COVID-19 policies, including the transitioning of the two Canadian Longitudinal Study on Aging (CLSA) SFU data collection labs from remote back to in-person (or hybrid) work. This period entailed developing a research agenda to address pandemic rebuilding with a focus on social isolation, resilience and mental health among older adults and the organizations that serve them (see remaining report and supplementary grant and publication sections of report). The last year (as well as 2019-2021) have been the most intensive in terms of work for the Director since a faculty member at SFU (1991).

The GRC Director, Andrew Wister, is in the final year of a three-year appointment (total six years), and is seeking reappointment for a final four years consistent with the GRC
Constitution, which allows for a maximum of 10 years. This will provide continuity and strong strategic direction of the GRC through these difficult and unprecedented times.

**Reviewer's Section**

**Reviewed by:**
Mary-Ellen Kelm, Associate Dean, Research & International

**Reviewer's decision:**
Approved

**Reviewer's comments:**
Endowed Centre running long term research on aging supplemented in recent years with work on the pandemic. The highly-successful and well-positioned Canadian Longitudinal Study on Aging research project has successfully transitioned through the various phases of the SFU Covid Safety Plan requirements. The Centre continues to be directed by Andrew Wister and Theodore Cosco and a steering committee comprised of faculty and community researchers. Expanded work involves collaborations with BCIT through the Tong Louis Living Lab. Andrew Wister is recommended for reappointment.
### Object Description

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4012</td>
<td>BC Grant General</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4100</td>
<td>Indiv - Grant</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4104</td>
<td>Indiv - Gift</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4162</td>
<td>Nonprofit - Contract</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4260</td>
<td>Conference Registrant Revenue</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4680</td>
<td>Subscription Revenues</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4899</td>
<td>Other Revenues</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4920</td>
<td>Royalty Revenues</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

### Revenues

- **Subtotal**: 0.00

### Expenses

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5132</td>
<td>Tenure Trac</td>
<td>0.00</td>
<td>0.00</td>
<td>5,070.52</td>
<td>10,386.01</td>
<td>0.00</td>
<td>10,386.01</td>
<td>0.00</td>
</tr>
<tr>
<td>5285</td>
<td>Acad Salary-Internal Recovery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5290</td>
<td>Acad Salary-External Recovery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5327</td>
<td>Hourly Staff - Student</td>
<td>0.00</td>
<td>0.00</td>
<td>1,326.00</td>
<td>10,120.30</td>
<td>0.00</td>
<td>10,120.30</td>
<td>0.00</td>
</tr>
<tr>
<td>5378</td>
<td>Salaried Staff-Students</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5416</td>
<td>Salaries Research Assoc</td>
<td>0.00</td>
<td>0.00</td>
<td>9,180.86</td>
<td>57,309.49</td>
<td>0.00</td>
<td>57,309.49</td>
<td>0.00</td>
</tr>
<tr>
<td>5420</td>
<td>Stipend Research Time</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5430</td>
<td>Sal Non-Students RA</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>18,038.49</td>
<td>0.00</td>
<td>18,038.49</td>
<td>0.00</td>
</tr>
<tr>
<td>5436</td>
<td>Sals Masters RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5440</td>
<td>Sals Doctorate RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>117.00</td>
<td>0.00</td>
<td>117.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5442</td>
<td>Sals Doctorate RA Foreign</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5444</td>
<td>Sals Post-Doc RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>5,519.50</td>
<td>0.00</td>
<td>5,519.50</td>
<td>0.00</td>
</tr>
<tr>
<td>5446</td>
<td>Sals Post-Doc RA Foreign</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>854.27</td>
<td>0.00</td>
<td>854.27</td>
<td>0.00</td>
</tr>
<tr>
<td>5460</td>
<td>Sals Non-Students Hourly</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-1,346.72</td>
<td>0.00</td>
<td>-1,346.72</td>
<td>0.00</td>
</tr>
<tr>
<td>5462</td>
<td>Sals Non-Students Salaried</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5674</td>
<td>Sal Research Secretar-Clerical</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5785</td>
<td>Support Staff-Internal Revry</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5834</td>
<td>Stipends-Adm-Instr and Res</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>5842</td>
<td>Speaker and Consult Fee</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>50.00</td>
<td>50.00</td>
<td>0.00</td>
<td>-50.00</td>
</tr>
<tr>
<td>5844</td>
<td>Invited Speakers Honoraria</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5862</td>
<td>Subject Payments - AP Only</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5911</td>
<td>Welfare Benefits</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>3,734.92</td>
<td>24,083.22</td>
<td>0.00</td>
<td>-24,083.22</td>
</tr>
<tr>
<td>6000</td>
<td>Office Classroom Equip under 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6010</td>
<td>Computer Hardware under 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>1,530.78</td>
<td>3,523.15</td>
<td>0.00</td>
<td>-3,523.15</td>
</tr>
<tr>
<td>6090</td>
<td>Equipment - General under 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6092</td>
<td>Equipment - General over 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6100</td>
<td>Office Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6116</td>
<td>Books and Publications</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6120</td>
<td>Lab Equipment and Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6164</td>
<td>Software License and Purchases</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6199</td>
<td>Materials and Supplies - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6161</td>
<td>Library - Open Access</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6512</td>
<td>Postage Courier and Delivery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>29.75</td>
<td>48.86</td>
<td>0.00</td>
<td>-48.86</td>
</tr>
<tr>
<td>6514</td>
<td>Customs and Brokerage</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6516</td>
<td>Service Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>3,000.00</td>
<td>9,000.00</td>
<td>0.00</td>
<td>-9,000.00</td>
</tr>
<tr>
<td>6520</td>
<td>Printing and Duplication Exp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-259.95</td>
<td>0.00</td>
<td>-259.95</td>
</tr>
<tr>
<td>6610</td>
<td>Consulting Services</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>803.44</td>
<td>0.00</td>
<td>-803.44</td>
</tr>
<tr>
<td>6650</td>
<td>Advertising and Promotion</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>338.83</td>
<td>0.00</td>
<td>-338.83</td>
</tr>
<tr>
<td>6660</td>
<td>Telecommunication Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>93.00</td>
<td>1,435.00</td>
<td>0.00</td>
<td>-1,435.00</td>
</tr>
<tr>
<td>6662</td>
<td>Long Distance Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.11</td>
<td>0.00</td>
<td>-0.11</td>
</tr>
<tr>
<td>6664</td>
<td>Cell Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6712</td>
<td>Food Services and Catering</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6722</td>
<td>Equipment and Furniture Renti</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6910</td>
<td>General Program Costs</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>94.70</td>
<td>94.70</td>
<td>0.00</td>
<td>-94.70</td>
</tr>
<tr>
<td>6920</td>
<td>Repairs and Renovations</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6970</td>
<td>Petty Cash Clearing</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6972</td>
<td>Purchase Card Clearing</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6998</td>
<td>External Expense Recovery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6999</td>
<td>Internal Expense Transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7000</td>
<td>Employee Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>827.96</td>
<td>6,096.36</td>
<td>0.00</td>
<td>-6,096.36</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>7002</td>
<td>Employee Field Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7020</td>
<td>Non-Employee Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7022</td>
<td>Non-Employee Field Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7030</td>
<td>Visitor Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7040</td>
<td>Conference Registration</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>550.32</td>
<td>0.00</td>
<td>-550.32</td>
<td>-550.32</td>
</tr>
<tr>
<td>7042</td>
<td>Training and Development</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7044</td>
<td>Membership Fees - Individuals</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>160.94</td>
<td>0.00</td>
<td>-160.94</td>
<td>-160.94</td>
</tr>
<tr>
<td>7050</td>
<td>Meals Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>56.36</td>
<td>0.00</td>
<td>-56.36</td>
<td>-56.36</td>
</tr>
<tr>
<td>7054</td>
<td>Relocation and Moving Costs</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7060</td>
<td>Recruiting Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>357.34</td>
<td>0.00</td>
<td>-357.34</td>
<td>-357.34</td>
</tr>
<tr>
<td>7099</td>
<td>Other Personnel-related Exp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7414</td>
<td>MECS Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7418</td>
<td>Print-Digital Svs Intln Chrg</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7430</td>
<td>Creative Svcs Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7450</td>
<td>Facilities Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7460</td>
<td>Safety Risk Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7468</td>
<td>Information Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>175.00</td>
<td>0.00</td>
<td>-175.00</td>
<td>-175.00</td>
</tr>
<tr>
<td>7499</td>
<td>Internal Charges - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>328.00</td>
<td>0.00</td>
<td>-328.00</td>
<td>-328.00</td>
</tr>
<tr>
<td>7500</td>
<td>Internal Recoveries - General</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7862</td>
<td>Credit Card Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7900</td>
<td>InterFund Transfer To-From</td>
<td>226,014.75</td>
<td>226,014.75</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>226,014.75</td>
<td>226,014.75</td>
</tr>
<tr>
<td>7910</td>
<td>Internal Capital Fund Transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7915</td>
<td>Budget Balance Forward</td>
<td>47,789.66</td>
<td>47,789.66</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>47,789.66</td>
<td>47,789.66</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>273,804.41</td>
<td>273,804.41</td>
<td>48,146.03</td>
<td>261,608.14</td>
<td>0.00</td>
<td>12,196.27</td>
<td>12,196.27</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>273,804.41</td>
<td>273,804.41</td>
<td>48,146.03</td>
<td>261,608.14</td>
<td>0.00</td>
<td>12,196.27</td>
<td>12,196.27</td>
</tr>
</tbody>
</table>
6. External Funding Details (divided into COVID-19 and Non-COVID-19)

GRC COVID-19 Grants covering period 2021/22


- **Cosco, T. D.**.: PI. (Student: Indira Riadi) Digital interventions to improve social connectedness and mental wellbeing of vulnerable older adults during COVID-19 and beyond. Mitacs: Accelerate Award. April 2021-March 2023, Two year total: $60,000


Non-COVID External Funding


• Cosco, T. D.: PI (Co-Is:Ester, M., Moreno, S. Wister, A.) Artificial intelligence approaches to precision mental health: Convening experts and stakeholders to ensure the acceptability and feasibility of motion-sensing data-capture technology in older adult populations. CIHR: Planning and Dissemination Grant. December 2018–March 1, 2022, Total: $25,000 / $50,000 (including fund matching from Digital Health Circle).


• Gutman, G. Prevalence and predictors of elder abuse among LGBTQ2S+ and heterosexual older adults. CREA - Council to Reduce Elder Abuse of BC. December 2021-December 2022 ($10,000).


• Low, G., Gao, Z., Gutman, G., & Wilson, D. Mentally healthy living after social distancing


• Shuzhou Li. PI. Co-Inv: (A. Wister, M. Silverstein & I. Chi.). “Study on the Dynamic Evolution of Pandemic Risk of Old-Age Support and Wellbeing of the Elderly in Rural Anhui China.” National Natural Science Foundation of China (grant number 72074177). January 2021 – December 2024. Four year ($500,000 RMB - $100,000 CAD) Social Sciences & Humanities Research Council of Canada: Partnership Grants. April 2020- March 2025, Total: $2,499,996


• **Wister, A. (PI).** Collaborators: L. Kadowaki; Mr. Anthony Kupferschmidt (Research User Co-Lead); Research users (Ms. Leslie Remund, Mr. Douglas Dunn). “The Role of Senior Centres in Promoting the Health and Well-being of Older Adults: Co-developing a research agenda with Vancouver seniors centres.” MSFHR Convening and Collaborating Grant. 1.5 years ($15,000).

• **Wister, A. V. (Co-Inv.),** Principal Investigator (Anthony McIntosh), Co-Inv. (Andrew Wister, Viktor, Jirsa; Brianna Kent; Petra Ritter; Andrew Sixsmith). “Multiscale Modelling for Integrated Biological and Psychosocial Risk and Mitigation of Dementia.” New Frontiers in Research Fund – Exploration. March 2022 – March 2024 ($250,000).


on Aging (CLSA) Phase 4 - Follow-up Wave III Comprehensive and Tracking Cohorts.” Targeted 3-year direct CIHR grant. April 2021 – March 2024. Total $52 Million National; Direct to Wister - ~$600,000 for Surrey Data Collection Site and $400,000 for Vancouver Campus Computer Assisted Telephone Interview site, Total to Wister ~$1 Million.

- **Wister, A. V.** (SFU PI Lead/Co-Investigator with Carolyn Sparrey ImageTech, SFU; PIs: (P.Raina; S. Kirkland; C. Wolfson, plus 7 Co-Invs.) “CLSA Healthy Brains, Healthy Aging Initiative.” April 2021 – March 2024. Three year grant funded by the Weston Family Foundation grant (Total $12,000,000 National; Direct to Wister at SFU - $TBD).

7. GRC Publications

Books:


Peer-reviewed Articles/Chapters:


• **Ng, T. K. S., Gan, D. R., Mahendran, R., Kua, E. H., & Ho, R. C.** (2021). Social connectedness as a mediator for horticultural therapy’s biological effect on community-dwelling older adults: Secondary analyses of a randomized controlled trial. Social Science & Medicine, 284, 114191.


**Chapters & Major Reports:**


• **Wister, A.V. & Kadowaki, L.** for the Federal/Provincial/Territorial (FPT) Forum of Ministers Responsible for Seniors. (2021). *Social Isolation Among Older Adults During the Pandemic*. (130 pgs.). Employment and Social Development Canada.

**Selected Keynotes/Invited Lectures:**


General Information

Name of the Centre/Institute: Institute for the Humanities
Website: http://www.sfu.ca/humanities-institute.html
Faculty: Arts and Social Sciences
Director: Samir Gandesha
Director's term end: 2023-03-31
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
Now in its 39th year, the Institute for the Humanities at SFU seeks to accomplish these basic objectives: stimulate student interest and faculty research in demonstrating the importance and value of humanistic perspectives in understanding some of the most pressing social, economic, political and environmental problems we face and, above all, to engage the many publics beyond the academy in city, the province, the country and, indeed, the wider world. The Institute remains well placed, therefore, to play a key role making SFU one of Canada's premier “student-centred, research-driven and community-engaged” universities.

The Centre/Institute's membership and organization structure:
The Institute consists of the Director, Program Assistant, and 7 other members of the Steering Committee who meet at least once a semester to discuss and decide on the yearly theme, events, and co-sponsorships. The Institute also has a group of local, national, and international Associates who serve two-year terms and commit themselves, where possible, to attending and supporting Institute events to help build, deepen and extend the Institute's networks. Biographies of Director, Steering Committee members and Associates can be found here http://www.sfu.ca/humanities-institute/people/Faculty.html

Significant accomplishments:
1) Our program over the past two years has been somewhat hampered by the Covid-19 Pandemic. Nonetheless, we have managed to mount several public outreach events via Zoom, including a lecture series entitled “Thinking Through the Pandemic,” which included academics, journalists, politicians and activists. We are editing a volume that will be comprised of essays based on these talks. We have also published an issue of our journal Contours on the topic of “Art and Work” http://www.sfu.ca/humanities-
2) In the Spring Semester, we had the privilege of hosting three Visiting Fellows. Kathy Kiloh Associate Professor of philosophy at OCAD University in Toronto; Roberto Longoni a PhD student in the Sociology program at the Instituto de Ciencias Sociales y Humanidades ‘Alfonso Vélez Pliego’-BUAP, as well as a professor of Political Philosophy in the Department of Humanities at the Universidad Iberoamericana (Puebla); and, Rogelio Regalado a PhD student in Subjectivity and Critical Theory at the Instituto de Ciencias Sociales y Humanidades ‘Alfonso Vélez Pliego’-BUAP, as well as professor in International Relations program at the same university. He is also editor of ‘Grietas. Revista Crítica de Política Internacional’, a publication of the Instituto de Ciencias Jurídicas de Puebla.

**Notable media successes:**
Director's media engagement:

https://www.youtube.com/watch?v=A5fVGflqps4&t=2004s

https://www.youtube.com/watch?v=BYdOhNzPhe4&t=3188s

https://www.youtube.com/watch?v=YsLr9pFqEJs&t=4s

**Events, workshops, public outreach events:**
1) We organized the following events:

- Panel Discussion on “No Farmers, No Food: Indian Farmers Confront Authoritarian Neo-Liberalism,” September 18, 2021

- Panel: Fairy Creek and the Climate Emergency, October 13, 2021

- Jerry Zaslove: A Memorial,” November 10, 2021

- Panel Discussion: “Being Black in Canada,” February 15, 2022


2) In May, our partner organization, co-founded by the late SFU Professor Emeritus, Dr. Chinmoy Banerjee, the Westcoast Coalition Against Racism, inaugurated what we hope will be an annual anti-racism symposium. The event entitled “Roots, Rhythm and Resistance” ran from May 21-23 and featured panels on food sovereignty, labour justice, abolitionism, updates from land/water/air defenders, and racism in healthcare. It also featured film
screenings, food and performances by Buckman Coe, Onibana Taiko, Old Rebel Soul, and Butterflies in Spirit. https://www.wc-cars.org/events

**Supporting documents:**

- 

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**

No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**

Yes

**External funding details:**

For Fiscal 2021-22, we received $15,000 for programming support and $5000 for Summer RA support from the Simons Foundation.

**Confirm policy review:**

Yes

**Submitted by:**

Samir Gandesha, Director

**Director’s comments:**

Despite the uncertainties of resulting from the transition from the Covid-19 pandemic to epidemic, deepening economic crises caused by the dramatic rise in inflation and downward trajectory of equity markets, this is nonetheless a very exciting time for the Institute as we anticipate our 40th anniversary next year.

The Institute continues to be very well supported by Dr. Jennifer Simons and the Simons Foundation. I see no reason for this to change in the foreseeable future.

We will be inaugurating an annual lecture in anti-racism dedicated to the memory of Dr. Banerjee this fall. We have invited Leanne Simpson and Robyn Maynard to discuss their most recent co-authored book Rehearsals for Living.

We are also in the process of developing exciting new research and engagement partnerships with institutions such as the Vienna Academy of Fine Art, UC Irvine, the Nietzsche Kolleg in Weimar, the Vienna University of the Applied Sciences and the University of Bologna. These partnerships are being leveraged to launch international research
projects and conferences on topics such as "Nietzsche and the New Moralism," "Municipal Socialism in Global Perspective," and "History and Class Consciousness at 100." The Institute is also now hosting the Journal of Adorno Studies.

Our key project for next year is a conference celebrating our fortieth anniversary in 2023. From its inception, the Institute has maintained a robust critical spirit of public engagement and has sought to foster a sense of active and informed citizenship in British Columbia, Canada and beyond. With an impending crisis of misinformation, the pervasiveness of conspiracy theories and the overall crisis of liberal-democracy, such public engagement has never been more important. The Institute's mission is to address the key issues of our age—economy, society, art, philosophy and culture, to more specific questions such as the role of religion in society, extractivism, the limits and possibilities of liberal-democracy, etc. By drawing upon the rich interdisciplinary tradition of the humanities, the Institute has aimed to bring critical thought to bear on public issues. In the 1990s, we sponsored a major, impactful conference on rise of political authoritarianism entitled The Spectacular State. In 2014, the conference The State of Extraction highlighted Indigenous resistance (and the importance of Canada’s commitment to UNDRIP) to extractive industries in tandem with critiques of corporate and financial capital in the context of the climate emergency.

Three years later, coming on the heels of the election of Donald J. Trump as the 45th President of the United States, the Brexit Referendum and the deepening of authoritarianism in the BRIC countries as well as in Turkey, Hungary and Poland, the Institute organized a series of panels and roundtables. We also organized a lecture series entitled Spectres of Fascism as well as a major international conference on the 50th anniversary of the publication of two texts that would play a key role in the dramatic events the Paris Spring in 1968, namely Raoul Vaneigem's Revolution of Everyday Life and Guy Debord's Society of the Spectacle. Several of the lectures delivered at the Free School were collected and, with other specially-commissioned essays, were published as Spectres of Fascism: Historical, Theoretical and International Perspectives (Pluto, 2020), edited by the Institute Director, Samir Gandesha.

Following its four-decade defence of the humanities and critical analysis of authoritarian politics and corporate economics, the Institute for the Humanities is planning a major international conference on "Neo-liberal Authoritarianism and the Future of Democracy." We are planning to generate a book with a major university press out of the conference.

Our public presence continues to grow and we are developing and defining a sharp global profile by means of social media. Our mailing list has approximately 1500 subscribers, our YouTube channel https://www.youtube.com/c/InstitutefortheHumanities/videos has some 1.85K subscribers, we have 2300 followers on Twitter, and 6300 followers on Facebook. The future has never looked brighter for the Institute as we enter our fourth decade next year.

Reviewer's Section
Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
Continues to be sustained through Simons Foundation funding and to focus on important public intellectual activity and community engagement.
General Information

Name of the Centre/Institute: Mental Health, Law and Policy Institute
Website: http://members.psyc.sfu.ca/labs/mhlpi/
Faculty: Arts and Social Sciences
Director: Ronald Roesch (Director)
          Kevin Douglas (Associate Director)
Director’s term end: 2024-06-30
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The Mental Health, Law, and Policy Institute (MHLPI) was established under SFU Policy AC 35 in 1991 to promote interdisciplinary collaboration in research and training in areas related to mental health, law and policy. The SFU policy for research centres and institutes has been revised, so the Constitution has been updated to conform to SFU Policy R 40.01. To conform with R 40.01 policy, the Centre will now be referred to as the Mental Health, Law and Policy Institute Research Centre (MHLPIRC). Membership of the MHLPIRC is drawn from the Department of Psychology, the School of Criminology, and the Faculty of Health Sciences at Simon Fraser University as well as government and community agencies in Canada and internationally. The Director of the MHLPIRC is Ron Roesch and Kevin Douglas was appointed as the first Associate Director. The MHLPIRC has received federal and provincial grants for a variety of research projects in the area of mental health and law, and also sponsors lectures and workshops. The MHLPIRC also publishes forensic psychology books, including manuals for assessing risk for violence and recidivism, fitness to stand trial, and mental health issues in pretrial jails. The MHLPIRC website can be accessed at www.sfu.ca/psychology/research/mhlpi.html

The Centre/Institute’s membership and organization structure:
The list of current official and affiliate members, including their name and department or community affiliation, is attached. There are currently 18 SFU Faculty Members (representing the Department of Psychology, School of Criminology, and the Faculty of Health Sciences) and 66 Associate Members representing 18 countries (Argentina, Canada, Columbia, England, Italy, Lithuania, Mexico, New Zealand, Argentina, Nigeria, Norway, Poland, Portugal, Scotland, South Africa, Spain, the Netherlands, United States). In addition, there are 29 SFU Graduate Student Members.
The following are members of the Steering Committee:

Ron Roesch (Director), Department of Psychology

Kevin Douglas (Associate Director), Department of Psychology

Stephen Hart, Department of Psychology

Marlene Moretti, Department of Psychology

David Cox, Department of Psychology

Raymond Corrado, School of Criminology

**Significant accomplishments:**

1) As noted in our report last year, the MHLPI is in a transition. The current director, Dr. Ron Roesch, is retiring next year. He has been working with the Associate Director, Dr. Kevin Douglas to plan for this transition. Dr. Douglas is likely to assume the role of Director when Dr. Roesch retires. They have discussed future directions and will be preparing a discussion paper to review possible future options with the MHLPI Management Committee.

Dr. Roesch has collaborated with two MHLPI members, once from South Africa and one from the United States, on a study comparing the forensic assessment practices in the three countries. A manuscript was completed and submitted to a journal where it is now under review.

Dr. Roesch is continuing his efforts with the Canadian Psychological Association Criminal Justice Taskforce to change the Canadian Criminal Code to better reflect the role of psychologists in pretrial assessments.

The MHLPI continued its publication of a number of forensic assessment instruments (FAIs) that are used in both research and clinical practice throughout the world.

The MHLPI provided travel support for four graduate student members to attend the American Psychology-Law Society Conference in Denver, Colorado.

2) Currently, MHLPI member Dr. Gatner and Associate Director Dr. Douglas are developing an application to both BC Mental Health and Substance Use Services and SFU to establish an on-going research platform between BCMHSUS and SFU faculty and students. This research project is meant to serve as a large ongoing project of outpatient forensic mental health assessment services with emphasis on violence risk assessment methods (e.g., validity,
reliability of structured risk tools and psychological testing). The project is intended to be on-going, and able to support research projects for students and faculty at SFU, in addition to serving as a potential partner for joint efforts in Canada and internationally.

**Notable media successes:**
The MHLPI does not have a social media presence but we intend to establish that in the coming year. This might include a Twitter account that could announce member accomplishments and updates on current projects or activities.

**Events, workshops, public outreach events:**
-

**Supporting documents:**
-

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**
No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
No

**Confirm policy review:**
Yes

**Submitted by:**
Ronald Roesch, Director

**Director’s comments:**
The Director and Associate Director have discussed a number of future possibilities. One is to reestablish our research and training relationship with two primary institutions in BC--Corrections and Forensic Services. We have had contracts in the past with both of these institutions and had reinitiated discussions when Covid-19 forced us to set aside plans.

We have discussed ways in which the MHLPI can facilitate collaboration of MHLPI members throughout the world on research and training activities, such as the one recently completed by members in Canada, South Africa, and the United States.
We also discussed the possibility of creating a specialty interest group within the International Association of Forensic Mental Health Services that would focus on international collaborations. The Director and a number of MHLPI members were founding members of IAFMHS when it was established in 2001.

Another project that is in the early stages of development is a biennial international survey "taking stock of the field." The MHLPI has members representing 18 countries. We would solicit information on the current main trends and concerns, and successes, in forensic mental health internationally, with the expectation to publish the results in the International Journal of Forensic Mental Health. Interested MHLPI members could develop and disseminate the survey to their relevant national organizations. We would invite members to include a local student, thus ensuring training opportunities for the next generation of forensic researchers and practitioners. Leadership of the project would be a small steering committee to develop areas of inquiry, take responsibility for analyzing the survey, and ensure there is a publishable paper.

**Reviewer's Section**

**Reviewed by:**
Mary-Ellen Kelm, Associate Dean, Research & International

**Reviewer's decision:**
Approved

**Reviewer's comments:**
As the Director notes, the Institute is in transition as the Associate Director and steering committee members seek new directions in the work of the Institute, and new international collaborations. The Institute has been a leader in forensic mental health assessment and resultant policy interventions.
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Stavros Niarchos Foundation Centre for Hellenic Studies
Website: http://www.sfu.ca/hellenic-studies.html
Faculty: Arts and Social Sciences
Director: Dimitrios Krallis
Director's term end: 2021-04-01
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The SNF Centre for Hellenic Studies at Simon Fraser University is a leading site in North America for the research, study, and promotion of Greece’s history, language and culture. Building on existing infrastructure for the study of Greece and its civilization, that was based in the Hellenic Canadian Congress of British Columbia Chair in Hellenic Studies, established in 1996, the SNF Centre was itself established in 2011 through a generous multi-million-dollar donation by the Stavros Niarchos Foundation. The SNF Centre for Hellenic Studies seeks to promote a better understanding of and awareness of Hellenism and Hellenic issues, in the local and international community by staging events for academic and lay audiences, such as public lectures, symposia, and conferences, throughout the year and supports undergraduate and graduate studies, as well as advanced research, on Greece's language, history and culture in its home department of the Humanities. The SNF Centre for Hellenic Studies maintains a technology lab called the SNF New Media Lab, which is dedicated to the application of innovative, technological solutions to the teaching, learning, and promotion of Greece’s language, history and culture.

The Centre/Institute's membership and organization structure:

Broad Structure

In its operations the Centre moves in the following directions:

1) Support of Faculty Research by means of seminars, conferences, the invitation of colleagues working of cognate fields

2) Support of Research in general by way of Student Fellowships for graduate work
3) Support of Early Career Researchers by way of postdoctoral fellowships that also enhance the SFU research complement (when funds are available)

4) Knowledge translation by way of technology, as coordinated by the SNF New Media Lab

5) Public Outreach by way of academic and lay audience oriented seminars, talks, and public events (scholarly, artistic and other).

Governance

As per clause 2.4 of the Centre Constitution, the Centre is headed by a Director and governed by a Steering Committee. The Centre also has members that participate in its activities. The Centre also has an Advisory Board. The Steering Committee normally consists of four SFU faculty members, as well as the Director, who serves as Chair.

All Steering Committee meetings are also attended by non-voting participants, including the Centre’s outreach and community engagement coordinator, as well as the manager of the Department of Humanities.

Membership in the Centre (clause 2.10 of the Constitution) is by application to the Director and the Steering Committee, who may also recruit members to apply. There are four categories of membership:

1) Faculty members: SFU continuing faculty actively teaching and conducting research related to the stated purpose of the Centre;

2) Associate members: Contract and Adjunct faculty at SFU teaching and/or conducting research related to the stated purpose of the Centre;

3) Affiliate members: Faculty and students from other Canadian and international post-secondary institutions teaching and/or conducting research at SFU related to the stated purpose of the Centre; and

4) Graduate and postdoctoral members: Graduate and postdoctoral students who are conducting research at SFU related to the stated purpose of the Centre.

There is also an Advisory Board which consists of leading members of the business, professional and cultural communities with interest in the Centre’s purpose. Membership in the Board will be at the invitation of the Steering Committee subject to the approval of the Dean, Faculty of Arts and Social Sciences.

As the Constitution has only recently be revised and the advisory board just created in the
context of revisions of the Centre TOR, the Centre has not yet selected anyone for membership in the board.

Director: Dimitris Krallis

Steering Committee: James Horncastle, Sabrina Higgins, David Mirhady, Eirini Kotsovili and Dimitris Krallis

Official Members: Evdoxios Doxiadis, Nick Hedley, Panayiotis Pappas, Mike Richards, Jovana Andjelkovic, Aurora Camano, Mete Oguz, Goran Sanet, Megan Wong, Andreas Avgousti, Naz Vardar, Juliette Halliday and Ethan Schmidt

**Significant accomplishments:**

1) A full list of SNF Centre for Hellenic Studies events from April 1, 2021, to March 31, 2022, can be found in the additional documents section. Last year, members of the Centre’s Steering Committee published works for which you may consult the relevant attached paper on events and conferences in the accompanying documents section.

2) In August of 2021, the Centre released the 8th volume of its Agora magazine, which has been attached to this report.

3) SNF Centre member, Dr. Sabrina Higgins, assistant professor in the Departments of Humanities and Archaeology and the holder of the Hellenic Studies Professorship in Aegean and Mediterranean Societies and Cultures, along with her colleagues, Nicholas Hedley, associate professor in the Department of Geography and founder of SFU's Special Interface Research Lab, were awarded a Social Sciences and Humanities Research Council (SSHRC) Insight Grant in August of 2021 for a new project, Picturing Religion: The Philae Temple Graffiti Project: [https://www.sfu.ca/hellenic-studies/newsroom/news/Philae-temple-project.html](https://www.sfu.ca/hellenic-studies/newsroom/news/Philae-temple-project.html)

4) The SNF Centre for Hellenic Studies continued to operate, alongside UCLA's SNF Center for Hellenic Culture, the West Coast Byzantinists' Seminar (WCBS), which brings together academics and graduate students from UCLA, SFU, and UBC to foster scholarly dialogue across campuses and borders, breaking out of the relative isolation that both geography and pandemic impose on us.

5) In Fall 2021 the SFU and UCLA Centres for Hellenic Studies together developed an application submitted early in 2022 to the SNF for the support of a three-year pilot initiative on faculty, student, artist, and writer mobility. In Spring 2022 the grant was approved by the SNF and we are in the initial stages of planning for the project.

6) In the fall of 2021, the Centre hired Dr. Danai Thomaidis as its 2021-2022 Hellenisms
Past and Present, Local and Global Postdoctoral Fellow. Thomaidis' work focuses on the reception of Byzantine icons in the West, Marian studies, the materiality of the sacred and artistic and cultural interactions in the Mediterranean. In the spring of 2022, the Centre advertised for the 2022-2023 postdoctoral fellowship, which is scheduled to begin September 1, 2022.


8) In the fall of 2021 and spring of 2022, the SNF Centre collaborated with the Department of Art and Archaeology, National and Kapodistrian University of Athens (NKUA) and the Center for European Studies, Rutgers University New Brunswick, to host a lecture and an academic workshop on the theme of Archaeopolitics.

9) As part of the 2021 Spring competition, the SFU/SSHRC Institutional Grants Committee awarded Dr. James Horncastle with a SSHRC Small Research Grant totalling $6,628.00 to support his project on the Internal Macedonian Revolutionary Organization (United) and Macedonian Identity.

10) Dr. Sabrina Higgins received a Digital Humanities Innovation Lab Grant from SFU in 2021.

11) Peopling the Past, a digital humanities initiative co-founded by Dr. Sabrina Higgins and five other North American scholars, wins the following awards:

• 2022. Elaine Fantham Award in Public Engagement, Classical Association of Canada

• 2021. National Geographic Society Funds - COVID-19 Remote Learning Emergency Fund for Educators (Peopling the Past; $2,000)

• 2021. Public Scholarship Award, Women’s Classical Caucus (Peopling the Past, $300)

• 2021. Emerging Open Scholarship Awards, Canadian Social Knowledge Institute (Peopling the Past, Honourable Mention)

Notable media successes:
1) On April 15, 2021, the Stavros Niarchos Foundation recognizes the impact of its grants related to promoting Hellenic Studies, mentioned Simon Fraser University’s SNF Centre for Hellenic Studies. Dr. Dimitris Krallis is interviewed as part of the piece:

3) Dr. Dimitris Krallis, Director of the SNF Centre for Hellenic Studies, is interviewed by Nikos Bakounakis on the occasion of the publication of Βίος και πολιτεία ενός βυζαντινού μανδαρίνου: Το Βυζάντιο ιδωμένο αλλιώς. (October 1, 2021): https://www.lifo.gr/podcasts/vivlia-kai-suggrafeis/mihail-attaleiatis-enas-byzantinos-mandarinos-ton-11o-aiona

4) Dr. Dimitris Krallis was interviewed by the hosts of the podcast Byzantio Explained about his monograph titled: Βίος και πολιτεία ενός βυζαντινού μανδαρίνου: Το Βυζάντιο ιδωμένο αλλιώς (November & December, 2021): https://anchor.fm/byzantioexplained/episodes/15----------SFU-e1bbd88 (November) & https://open.spotify.com/episode/46DDvHf8bNCFRpkG62Mt00?si=8c084bd9a72b4fcc&nd=1 (December)

5) Staellinika is mentioned:

On February 9th, 2022, International Greek Language Day, the Centre, in collaboration with the General Secretariat for Greeks Abroad and Public Diplomacy of the Ministry of Foreign Affairs of the Hellenic Republic, and in partnership with the Greek Orthodox Archdiocese of America, announced the release of new Staellinika learning material. Specifically, a new mini course on Greek holidays and traditions as well as additional resources for language teachers: https://www.sfu.ca/hellenic-studies/newsroom/news/staellinika-GRK-Lang-Day-2022.html


6) Promotion of the theatrical performance, Makriyannis Unplugged, hosted by the SNF Centre for Hellenic Studies, UCLA's SNF Center for the Study of Hellenic Culture, and the Gennadius Library of the American School of Classical Studies at Athens:

https://www.greeknewsagenda.gr/interviews/arts-in-greece/7641-makriyannis-unplugged
Events, workshops, public outreach events:
1) The SNF Centre for Hellenic Studies is an outward facing entity. Our activities are too numerous to mention and may be perused in the attached Agora publication, and in the separate word doc listing all talks, conferences, and public events of the past year.

2) In 2021 and 2022, we continued with our annual speaker series, which has consistently drawn to SFU (or, in pandemic times, online) upwards of 10 scholars working on various aspects of Greek language, culture, and history from all over the world each year. This speaker series has been instrumental in fostering a robust practice of academic dialogue and discourse. In an effort to build upon collaborations with UCLA’s SNF Center for the Study of Hellenic Culture, several of the talks were co-hosted via Zoom to expand the reach.
of both units.


4) Dr. James Horncastle presented “Grabbing the Lion by the Tail: The Macedonians in the Greek Civil War, 1946-49” at Association for the Study of Nationalities based in New York, NY, 8 May 2021.

5) Dr. Sabrina Higgins presented ‘Engagement Strategies for Public Scholarship with Peopling the Past’, Stavros Niarchos Centre for Hellenic Studies Professional Development Workshop, SFU, Burnaby, June 7th, 2021 (Virtual).


7) Dr. Sabrina Higgins presented ‘Beyond the Gospels: Creating a Visual Identity for the Virgin Mary in Late Antique Egypt’, Archaeological Institute of America, Spokane Chapter, Spokane, WA, October 21st, 2021 (Virtual).

8) Dr. James Horncastle presented “Using the Lion to Catch an Eagle: Greece’s use of the Macedonian Question in Greek-American Relations, 1947-1949” at Cold War (A)Symmetries: Conflict, Cooperation, and Trade based in Târgovite, RO, 28 October 2021.

9) Dr. Eirini Kotsovoli presented at the annual Modern Language Association Convention (2021) on Marginalized Female Subjects in Greek and Canadian Literature.

10) Dr. Eirini Kostovili co-organized/ presented on the works of celebrated Greek authors Margarita Liberaki (1919-2001) and Ioanna Karystiani (1952-) at two events organized by the Consulate General of Greece in Vancouver, Alliance Française – Vancouver branch and EUNIC member, in collaboration with the Vancouver Public Library. Co-organized/- presented on the works of celebrated Greek authors Margarita Liberaki(1919-2001) and Ioanna Karystiani (1952-) at two events organized by the Consulate General of Greece in Vancouver, Alliance Française – Vancouver branch and EUNIC member, in collaboration with the Vancouver Public Library.

11) From March 9th-12th, 2022, the Centre sponsored the "Virgin Beyond Borders International Conference” multi-day event over Zoom. The Conference contributed to the Virgin Beyond Borders Research Project, led by the Institute of Historical Research of the National Hellenic Research Foundation and the SNF Centre for Hellenic Studies at Simon Fraser University. Conference Organizers include the Institute of Historical Research of the
National Hellenic Research Foundation, the SNF Centre for Hellenic Studies at Simon Fraser University, the Center for Hellenic Studies at Harvard University, Washington, the Center for Hellenic Studies in Greece, Harvard University, and the Oxford Centre for Byzantine Research (OCBR).

12) In March 2022, Dr. David Mirhady presented at the Centre for Oratory and Rhetoric (Royal Holloway) / International Society for the History of Rhetoric Rhetorical Get Togethers, a talk titled, “Slandering Socrates, on diabolē and Plato’s Apology”.

13) On April 3rd, 2022, the SNF Centre for Hellenic Studies at SFU successfully hosted Makriyannis Unplugged, a theatrical performance commemorating 200 years since the creation of the modern Greek state, in collaboration with UCLA's SNF Center for the Study of Hellenic Culture. The event was originally scheduled to take place in 2021 but was delayed due to COVID–related restrictions.

14) Dr. James Horncastle presented “Understanding the War in Ukraine: A Panel with SFU Experts” SFU Public Square, in Burnaby, Canada 13 April 2022.

Supporting documents:
1) Centre_Members_Publications_Ipno4Ar-2_hHMQ3X4.pdf (See attachment below)
2) Agora8-4_uV2aiP9.pdf (See attachment below)
3) SNF_Centre_Events_21-22_Final_mSCOe4U.pdf (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university? Yes

SFU account number: 62-E432474

Opening balance: $172,455.87

Revenues: $426,488.04

Expenditures: $395,422.77

Closing balance: $203,521.14
Financial report:
fast_2021_2022_SNF.aspx_QbO8nQV.pdf (See attachment below)

Financial contributions from the university:
The SNF Centre for Hellenic Studies is funded from an endowment created through a $7M gift from the Stavros Niarchos Foundation in 2011. In 2021-2022, SFU’s Graduate and Postdoctoral Studies Office provided $21,000 in graduate student fellowships for graduate students affiliated with the Centre.

List of major equipment provided by the university:
The university does not provide any major equipment to the SNF Centre for Hellenic Studies, beyond several desktop computers, telephones, and access to other standard office equipment.

University personnel:
In addition to Centre director and Humanities professor, Dimitris Krallis, the Centre is further supported by Department Humanities staff, manager, Cristina Serverius and administrative coordinator, Lauren Gilbert.

Space provided by the university:
The SNF Centre for Hellenic Studies’ New Media Lab is located on the 6th floor of the AQ, in room 6188.

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence? Yes

External funding details:
The Centre was leveraged to draw the following donations:

1) McWhinney professorship (topped up by SNF): CAD 2,250,000

2) Aegean Civilizations professorship (SNF): CAD 2,885,000

3) Rebooting the Greek Language SNF grant: CAD 2 million

4) The Edward and Emily McWhinney Hellenic Studies Graduate Scholarship: CAD 125,000

Confirm policy review:
Yes

Submitted by:
Lauren Gilbert, Administrative coordinator

**Director's comments:**
The SNF Centre for Hellenic Studies continued to support faculty and student research over the course of the past year. It also encouraged dialogue and knowledge of Hellenic Studies through public and private programming. The Centre sponsored over 15 events, the majority of which, it also organized. Almost all events were accessible to the public, albeit over Zoom until almost the end of the Spring term, and brought together an impressive range of interdisciplinary scholars all working on themes in Hellenic Studies. In the coming year, we will aim to return to in-person. However, we will also prioritize increasing our reach by continuing to provide hybrid (streamed) events, as well as recording events, whenever possible, so that they are available for viewing at a later date.

Staellinika, our Greek language learning application and platform for youth in the Greek diaspora, continued to grow its registered numbers of users, which now totals well over 30,000+ around the world. Not only did the SNF New Media Lab create new content for students and parents/teachers, but it also embarked on plans to extend Staellinika to a Latin American audience and beyond, as requested by the Secretariat for Greeks Abroad and Public Diplomacy.

In the fall of 2021, the SNF Centre for Hellenic Studies Steering Committee, and affiliated members, prepared for an informal external review scheduled for the upcoming spring, as requested by our major donor, the Stavros Niarchos Foundation. This opportunity allowed for faculty and students to reflect on the current operations of the Centre, and provided us with constructive feedback which we will be looking to adopt in the coming year. The feedback we received was overwhelmingly positive and satisfied the objectives of our donor.

The third and fourth quarters were largely spent responding to a request from our major donor, the Stavros Niarchos Foundation, which asked us to build upon our existing relationship with UCLA’s SNF Centre for the Study of Hellenic Culture. This resulted in a proposal for a three-year pilot program targetting academic mobility, professionalization, and digital skills building. In the coming years, we seek to expand our current programming with this exciting new grant, as well as increase connections between our students and faculty at SFU and other Hellenic Studies scholars and artists along our West Coast and in Greece.

Please contact me if you have any questions or concerns regarding this report. Thank you.

**Reviewer's Section**

**Reviewed by:**
Mary-Ellen Kelm, Associate Dean, Research & International
Reviewer's decision:
Approved

Reviewer's comments:
The Centre continues to fund research, community engagement in Hellenic Studies and through its New Media Lab, language learning. As with many Centres, the pandemic and transition to Zoom expanded the reach of SNF Centre events beyond the region to an international audience. The new collaboration with the SNF Centre at UCLA will foster increasing international collaborations. It will be useful to see what recommendations have emerged from the external review.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4124</td>
<td>Corp - Gift</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4164</td>
<td>Nonprofit - Gift</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4260</td>
<td>Conference Registran Revenue</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>4440</td>
<td>Interest Income LT - General</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-456,488.04</td>
<td>0.00</td>
<td>456,488.04</td>
</tr>
<tr>
<td>4445</td>
<td>Principal Addition</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>30,000.00</td>
<td>30,000.00</td>
<td>0.00</td>
<td>-30,000.00</td>
</tr>
<tr>
<td>4899</td>
<td>Other Revenues</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>30,000.00</td>
<td>-426,488.04</td>
<td>0.00</td>
<td>426,488.04</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5134</td>
<td>Lecturer/Senior Lecturer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5154</td>
<td>Limited Term</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5162</td>
<td>Sessional Instructor</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5285</td>
<td>Acad Salary-Internal Recovery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5372</td>
<td>Hourly Staff - Student</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5416</td>
<td>Salaries Research Assoc</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5430</td>
<td>Salas Non-Students RA</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5436</td>
<td>Salas Masters RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5442</td>
<td>Salas Doctorate RA Foreign</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5562</td>
<td>Wages/Temp Non-Union/Prof</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5576</td>
<td>Salas Cupe Temp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5842</td>
<td>Speaker and Consult Fee</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5844</td>
<td>Invited Speakers Honoraria</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5911</td>
<td>Welfare Benefits</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5922</td>
<td>Benefits - Internal Recovery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6000</td>
<td>Office Classroom Equip under 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6010</td>
<td>Computer Hardware under 5k</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6092</td>
<td>Equipment - General over 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6100</td>
<td>Office Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6116</td>
<td>Books and Publications</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>6120</td>
<td>Lab Equipment and Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6164</td>
<td>Software License and Purchases</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6199</td>
<td>Materials and Supplies - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6512</td>
<td>Postage Courier and Delivery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6514</td>
<td>Customs and Brokerage</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6516</td>
<td>Service Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6520</td>
<td>Printing and Duplication Exp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6532</td>
<td>Membership Fees - Institutional</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6610</td>
<td>Consulting Services</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6616</td>
<td>Performers and Artists Fees</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6650</td>
<td>Advertising and Promotion</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6660</td>
<td>Telecommunication Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6662</td>
<td>Long Distance Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6664</td>
<td>Cell Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6712</td>
<td>Food Services and Catering</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6749</td>
<td>Contract Services - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6772</td>
<td>Equipment and Furniture Rental</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6910</td>
<td>General Program Costs</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6999</td>
<td>Internal Expense Transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>292,737.44</td>
<td>395,422.77</td>
<td>-395,422.77</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7000</td>
<td>Employee Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7020</td>
<td>Non-Employee Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7022</td>
<td>Non-Employee Field Travel Exp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7030</td>
<td>Visitor Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7040</td>
<td>Conference Registration</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7044</td>
<td>Membership Fees - Individuals</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7050</td>
<td>Meals Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7060</td>
<td>Recruiting Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7414</td>
<td>MECS Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7416</td>
<td>Parking Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7418</td>
<td>Print-Digital Svcs Intrnl Chrg</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7430</td>
<td>Creative Svcs Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7450</td>
<td>Facilities Internal Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>7460</td>
<td>Safety Risk Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7468</td>
<td>Information Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7499</td>
<td>Internal Charges - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7500</td>
<td>Internal Recoveries - General</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7650</td>
<td>Student Support</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7915</td>
<td>Budget Balance Forward</td>
<td>0.00</td>
<td>172,455.87</td>
<td>172,455.87</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>172,455.87</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>0.00</strong></td>
<td><strong>172,455.87</strong></td>
<td><strong>172,455.87</strong></td>
<td><strong>292,737.44</strong></td>
<td><strong>395,422.77</strong></td>
<td><strong>0.00</strong></td>
<td><strong>-222,966.90</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>0.00</strong></td>
<td><strong>172,455.87</strong></td>
<td><strong>172,455.87</strong></td>
<td><strong>322,737.44</strong></td>
<td><strong>-31,065.27</strong></td>
<td><strong>0.00</strong></td>
<td><strong>203,521.14</strong></td>
</tr>
</tbody>
</table>
SNF Centre for Hellenic Studies Members’ Publications since 2016
List includes published work by core faculty members and Graduate Students of the Centre

D. Krallis

Monographs
- Βίος και πολιτεία ενός βυζαντινού μανδαρίνου: Το Βυζάντιο ιδωμένο αλλιώς (Αλεξάνδρεια: Αθήνα, 2021)

Journal articles and book chapters

D. Mirhady

Journal Articles and Book Chapters

Book Reviews
• Adriaan Lanni, Law and Order in Ancient Athens, Cambridge 2016, in Polis 35 (2018) 316-18,

E. Kotsovili

Monographs

Journal articles and book chapters

Book Reviews

S. Higgins

Journal articles and book chapters

J. Horncastle

**Monographs**


**Journal articles and book chapters**

SNF Centre for Hellenic Studies Events (2021-2022)

- **April 9, 2021:** Adoption, Memory, and Cold War Greece – Public Lecture  
  o Ft. Gonda Van Steen
- **April 10, 2021:** Fighters and Victims: Women’s Lives During the Greek Revolution – Public Lecture  
  o Ft. Eleni Angelomatis-Tsougarakis  
  o Co-hosted with UCLA
- **June 7, 2021:** Engagement Strategies for Public Scholarship with Peopling the Past  
  o Workshop for students
- **September 17, 2021:** Paramilitarism, Patronage and Nation-Building in Civil War Greece – Public Lecture  
  o Ft. Spyros Tsoutsoumpis
- **September 24, 2021:** Come to the Cabaret: Where to Look for Cosmopolitan Egypt – Public Lecture  
  o Ft. Raphael Cormack
- **September 25, 2021:** Byron’s Romantic Philhellenism – Public Lecture  
  o Ft. Maria Schoina  
  o Co-sponsored with UCLA
- **October 21, 2021:** The Instrumental Past: Colonialism and Ethno-Nationalism in South Asia and Eastern Europe (Seminar talks focused on colonialism, inter-war Europe and Archaeopolitics)  
  o Co-hosted with the Center for European Studies at Rutgers
- **October 22, 2021:** Meeting Communities Half-Way: A Launch Presentation for “Project Africanisms” Powered by the Benaki Museum – Public Lecture  
  o Ft. Sophia Handaka, Grace Nwoke and Menelaos Karamaghiolis
- **November 5, 2021:** Icons as Goods of Self-Expression from Byzantium to Medieval and Renaissance Venice – Public Lecture  
  o Ft. Danai Thomaidis (SFU SNF Centre Postdoc)
- **November 26, 2021:** Sexuality, Tourism and Social-Political Transformations in Greece, 1960s-Early 1980s – Public Lecture  
  o Nikolaos Papadogiannis
- **December 3, 2021:** The Works of Theodoros Hyrtakenos: Rhetorical Commentary and Authorial Self-Presentation in the Corpus of an Early-Palaiologan Man of Letters – Public Lecture  
  o Ft. Ethan Schmidt (SFU graduate student)
- **January 9-11, 2022:** Colonialism, Interwar Europe and Archaeopolitics (Online International Workshop)  
  o Co-hosted with the Department of Art and Archaeology, National and Kapodistrian, University of Athens (NKUA) and the Center for European Studies, Rutgers University New Brunswick
- **February 4, 2022:** Intimacy with the Gods: Nude Female Imagery in Greek Sanctuaries – Public Lecture  
  o Ft. Megan Daniels (UBC)
• **March 4, 2022:** From Macedonian Outpost to a Hellenistic Polis: The Ancient City of Kabyle in Thrace – public lecture
  o Ft. Ilaylo Lozanov (Sofia University; SFU Adjunct with Arch)

• **March 9th-12th, 2022:** Virgin Beyond Borders International Conference
  o led by the Institute of Historical Research of the National Hellenic Research Foundation and the SNF Centre for Hellenic Studies at Simon Fraser University. Conference Organizers include the Institute of Historical Research of the National Hellenic Research Foundation, the SNF Centre for Hellenic Studies at Simon Fraser University, the Center for Hellenic Studies at Harvard University, Washington, the Center for Hellenic Studies in Greece, Harvard University, and the Oxford Centre for Byzantine Research (OCBR).
  o SNF Centre’s Sabrina Higgins was one of the organizers and participants

• **March 11, 2022:** Dialect Diversity in the Greek of Greek Canadians – public lecture
  o Ft. Panayiotis Pappas (SFU)

• **March 18, 2022:** Securing Power in Gaul: The Donation of Constantine – public lecture
  o Ft. Elizabeth DePalma Digeser (UC Santa Barbara)

• **April 3, 2022:** Makriyannis Unplugged – theatrical performance
  o Directed, adapted and performed by Yorgos Karamihos
  o Sponsored by the Consulate General of Greece in Vancouver and the Hellenic Canadian Congress of British Columbia
  o Co-organized with UCLA's Stavros Niarchos Foundation Center for the Study of Hellenic Culture, SFU's Stavros Niarchos Foundation Centre for Hellenic Studies and the Gennadius Library at the American School of Classical Studies in Athens (ASCSA)

• **April 29, 2022:** Strangers No More: Constantinople, Tenochtitlan, and the Trauma of the Conquest -
  o Ft. Eleni Kefala (University of St Andrews)
  o Co-sponsored with UCLA
Video Recordings:
“SNF Centre for Hellenic Studies at SFU” YouTube Channel
https://www.youtube.com/channel/UCY75nKgl0tOrPJWgY1pUDK6A

Social Media Presence
Recorded June 11, 2022:
Instagram
  •  Followers: 492
  •  Posts: 431
Facebook
  •  Page Likes: 2,226
  •  Page Follows: 2,366
LinkedIn:
  •  Followers: 760
Twitter:
  •  Followers: 1,392
YouTube:
  •  Views on Channel: 9,110
  •  Subscribers: 151
General Information

Name of the Centre/Institute: The SFU Morgan Centre for Labour Research
Website: https://www.sfu.ca/labour/research/morgan-centre.html
Faculty: Arts and Social Sciences
Director: Kendra Strauss
Director's term end: 2021-04-01
Renewal date: 2023-11-01

Details

Description of the Centre/Institute:
The objectives of the SFU Morgan Centre for Labour Research are to:

- promote and undertake research in areas related to working people and their organizations in British Columbia, Canada and globally;

- facilitate links with labour unions and labour researchers in Canada and abroad;

- to generate and disseminate knowledge about the B.C. labour market, its regulation, and the issues facing workers in our province;

facilitate links with, and undertake, community-based projects with labour-movement partners; and,

- to provide an institutional home in FASS for researchers, post-doctoral fellows, graduate and undergraduate students in the field of Labour Studies and related disciplines.

The Centre promotes research by bringing together the expertise of SFU faculty and other individuals, groups, and organizations, within and beyond the academic community, to engage in work that meets goals and objectives specified by and meaningful to workers and their organizations. The Centre also promotes collaborative research projects within the university.

The Centre/Institute's membership and organization structure:
As per policy R40.1, the Director of the SFU Morgan Centre for Labour Research must be a
continuing faculty member of the University. The Director of the Centre is the serving Director of the Labour Studies Program (hereafter “the Program”), unless the Centre Steering Committee votes to appoint a Director who is not Director of the Labour Studies Program. The Director is currently Kendra Strauss, who is also there Director of the Labour Studies Program. The Centre is governed by a Steering Committee consisting of the Director and a minimum of size (6) Associate Members of the Labour Studies Program. Members of the Labour Studies Advisory Committee are automatically Associate Members of the Centre, and members may also be nominated by both committees. Ratification of appointments is electronic voting of Steering Committee members and terms are normally for three (3) years.

**Significant accomplishments:**
- The Centre hosted a series of national and international webinars titled "JUST RECOVERY? LABOUR, ORGANIZING AND THE FUTURE WE WANT". Six webinars covered topics ranging from paid sick leave policy to organizing creative workers, with the final webinar in September 2022.

- The SSHRC Partnership project, Understanding Precarity in BC (UP-BC), kicked off in summer 2021. The Partnership, co-directed by Kendra Strauss and Iglika Ivanova of the CCPA-BC office, includes more than 60 academic and community partners. The first all-team meetings were held in February 2022, and thematic working groups on employment-based precarity, policy and regulation, place and social difference, and data and methods met in May and June 2022. The first research projects will launch in September 2022.

- The draft of the report on the pilot of the BC Precarity Survey was completed in 2021 and has gone through a peer review process, with an intended public launch date of Sept. 2022.

- The Centre supported research conducted by the Contract Worker Justice campaign at SFU. This research appeared in a report on wages and working conditions of contract cleaning and food services workers at SFU. We also held a webinar event in support of the campaign.

**Notable media successes:**
- Kendra Strauss has appeared on CBC radio in Vancouver, Victoria, Kelowna, and Prince George on topics including paid sick leave and pandemic impacts on workers.

- She appeared on CBC’s nationally broadcast program "The Current" to discuss paid sick leave and precarious work.

- She has been interviewed for multiple news outlets, including the Globe and Mail.
Events, workshops, public outreach events:
Please see information on our webinar series, above. These averaged between 50-70 attendees, almost all from outside of SFU.

Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Kendra Strauss, Director

Director's comments:
The Centre currently operates a small surplus and does not incur any ongoing staffing costs. Most expenditures have been to support events and related outreach. The Centre's future research activities will be funded by the UP-BC Partnership, which includes funds to support SFU faculty and research associated with the Centre to undertake projects related to understanding precarity in British Columbia. The budget from SSHRC is just under $2.5 million over 6-7 years.

Reviewer's Section

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved

Reviewer's comments:
The research focus of the Centre has been on precarious labour, including the BC Precarity Survey, the results of which will be released shortly. A multi-year plan of research is being
funded through a $2.5 million SSHRC Partnership grant. Zoom webinars have increased the reach of the Centre’s community engagement work on the nature of post-pandemic recovery.
General Information

Name of the Centre/Institute: Centre for Global Workforce Strategy
Website: http://beedie.sfu.ca/cgws/
Faculty: Beedie School of Business
Director: Mila Lazarova
Director's term end: 2021-04-01
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
The Centre for Global Workforce Strategy carries out multidisciplinary research on issues surrounding the effective workforce management strategies on a global scale. Since its foundation, the Centre has been involved in research on cross-cultural management, international human resource management and broader management and HR issues in diverse workplaces. Key current projects supported by the Centre are the 5C project (Cross Cultural Collaboration on Contemporary Careers), Cranet (the Cranfield Network of International Human Resource Management, and a project on Skilled Migrants Workplace Integration.

In addition to supporting research, the Centre activities have included: developing doctoral students, supporting and networking with scholars in the fields of cross-cultural management and IHRM, professional outreach, professional development workshops, supporting conferences or public forums on topical subjects, and workshops to promote the activities and findings of the Centre to both academic and business audiences.

The Centre/Institute’s membership and organization structure:
The Centre is headed by a Director and has traditionally had a number of research fellows as members. Research fellows were primarily scholars involved in the core projects that the Centre supported. Such membership was never exclusive, however, as any one member of the Beedie faculty, or indeed, any established or emerging scholar in the field could approach the Centre. The Centre’s early work was overseen by an Advisory Board comprised of business leaders. There was natural attrition from the Advisory Board, as the individuals involved were drawn to other professional commitments and were not replaced. The Centre director works with a de-facto internal advisory board, through regular consultations with members of the Beedie’s leadership team, which over the years has
included the Dean, the Associate Dean - Research and International, and the Assistant Dean - Alumni & External Relations. The Centre is supported by a part-time staff member, on 'as needed' basis.

Redesigning the Centre's structure has been "on hold" for the last several years. It first experienced the departure of its founding director and several PhD students that have engaged with the Centre over the years (with no new PhD students working in research areas supported by the Centre). A number of meetings were held with now three deans (or acting deans) over the last three years regarding the future organizational structure and membership. Unfortunately, over two years of a pandemic and Beedie now being on its fourth dean/acting dean since summer of 2020, and while there are plans in progress - notably regarding the structure (e.g., adding an Associate Director, Dr. Jeffrey Yip) and membership (e.g., engaging more of the Beedie faculty), said plans have not been fully executed.

**Significant accomplishments:**

1) Despite organizational and funding challenges, the Centre has been quite successful in terms of the relatively limited activities it can afford to put together.

Two data collection efforts launched in early 2021 were completed in the report period: One in support of the 5C project (Cross Cultural Collaboration on Contemporary Careers), and another, in support of the Cranet Project (the Cranfield Network of International Human Resource Management. Data from the first dataset has already been used in research papers: a symposium (including these papers) organized by the 5C consortium has been accepted for presentation at the Academy of Management meeting that will take place in August 2022.

2) Additional data collection efforts are underway, on a project of workplace integration of skilled immigrants. Interviews are currently being conducted with employers on programs and initiatives they (may) have on attracting, developing, and retaining skilled immigrants in workplaces in Canada. The project includes the participation of scholars across career stages and universities (including a colleague from University of Victoria)

3) "Write Club", a peer writing group where interested Beedie faculty members exchange drafts of current work and receive feedback was organized through the Centre in early 2021. The group continues its work and meets regularly. Several of the papers that had been discussed during Write Club meetings are at various stages in the review process, and two have been accepted for publication since the group began its work.

4) Perhaps the most significant accomplishment is the webinar series on International Human Resource Management that was initiated by the Centre in 2020 and has continued to generate great interest. The webinar series is conducted together with the Center for
International Human Resource Management at Penn State University (USA) and ESCP-Europe (Berlin & Paris) and comprises of keynote type presentations of eminent international HRM scholars. The webinars are broadcast in real time over Zoom and are also recorded. Real time attendance (per webinar) has often been in the hundreds and attendees from over 50 countries have joined the sessions. We have generated a list of unique registrants’ emails and as of early 2022, there were over 2,000 people that had registered and/or attended one of the webinars (a full list of webinars in the report period be provided below). We have created a YouTube Channel <https://www.youtube.com/c/IHRMWebinarSeries/videos> where the videos of the presentations are posted. The channel now has over 410 subscribers (as a point of comparison, the Academy of International Business, the most prestigious academic association of international business scholars that has existed for decades, currently has 470 subscribers) and the IHRM webinar videos have been viewed over 7,300 times to-date.

5) The Centre Director participated in a webinar dedicated to promoting research on Managing Gender Equity and Diversity Across Borders, organized by WAIB, Women in Academy of International Business, a special interest group within the Academy of International Business dedicated to providing new means for promoting research on gender-related issues in international business, as well as supporting the professional needs of women in the field (May 2021).

6) The Centre director moderated a panel on HR and Diversity experts on International Women’s Day 2022 (“Beedie Breaks the Bias”). The panel discussed the challenges and opportunities of creating diverse and supportive workplaces, with a focus on gender equity. The panelists were high profile HR experts from the private and the public sector in BC.

7) The Centre’s director represented the Centre at the high profile Academy of Management academic conference.

Notable media successes:

n/a

Events, workshops, public outreach events:

1) IHRM Webinar Series between April 1, 2021 and March 31, 2022:

1) Zeynep Aycan (Koç University, Turkey), What is wrong with “Leader Emergence”? The emergence-effectiveness gap and the role of agency; April 2021

2) Anne-Wil Harzing (Middlesex University, UK), Dare to be different! Why (IHRM) Research Needs to Change; April 2021
3) Vlad Vaiman (California Lutheran University, USA), The Rise of Fluid Work: Latest Developments and Implications for Talent Management; May 2021

4) Paula Caligiuri (Northeastern University, USA), How to Build Cultural Agility; June 2021

5) Fang Lee Cooke (Monash University, Australia); Brining IB and IHRM Together through Sustainable Development Goals, September 2021

6) Michael Morley (University of Limerick, Ireland); How have Management and HRM scholars shaped the conversation on the COVID-19 Pandemic?; October 2021

7) Emma Parry (Cranfield School of Management, UK), Jon Briscoe (Northern Illinois University, USA), Rick Cotton (University of Victoria, Canada) and Mila Lazarova (Simon Fraser University, Canada) “Developing IHRM Insight using effective cross-national research”; December 2021

8) Aida Hajro (U of Leeds, UK), Milda Zikinskaite (WU, Austria), and Paul Baldassari (Flex, Austria); Migration and Business: Current Issues and Future Trends, January 2022

9) Helen De Cieri (Monash U, Australia), Karin Sanders (UNSW Business School, Australia) IHRM research: It’s time to review, re-set and reimagine; March 2022

**Supporting documents:**
Financials_2021-2022_GBs38t.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Mila Lazarova, Director

Director's comments:
My comments are quite similar to the ones I have had for the last two years. The Centre is finding its new footing in a fast-changing external and internal environment. The Covid19 pandemic has had a definite impact, beyond internal restructuring decisions. The Centre internal ‘reboot’ is still effectively suspended. Having said all that, although our activities are limited, we have turned the virtual IHRM webinar series into a great success and have launched other interesting activities that have been well received.

The Centre has been underfunded for years and operates based on in-kind support provided by Beedie and people volunteering their time. Before Dean’s Dastmalchian’s sudden and untimely passing, he had committed limited financial resources to the centre. These resources were materialized. An initial conversation with our newly appointed Dean suggested that he is interested in developing the research centres and will attend to this once he handles more pressing matters.

**Reviewer's Section**

**Reviewed by:**
Christina Atanasova, Associate Dean, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
-
<table>
<thead>
<tr>
<th>Fund</th>
<th>Dept</th>
<th>Program</th>
<th>PC Unit</th>
<th>Project</th>
<th>Activity ID/Object</th>
<th>Tran Date</th>
<th>Doc Number</th>
<th>Description</th>
<th>Reference</th>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>2830</td>
<td>90140</td>
<td>PCU13</td>
<td>N876703</td>
<td>--</td>
<td>2021/06/01</td>
<td>0000102782</td>
<td>Renewal of acct &quot;bzelun&quot;</td>
<td>BJORN</td>
<td>SSJ</td>
<td>25.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td>25.00</td>
</tr>
</tbody>
</table>
General Information

Name of the Centre/Institute: Charles Chang Institute for Entrepreneurship
Website: https://beedie.sfu.ca/ccie
Faculty: Beedie School of Business
Director: Sarah Lubik
Director’s term end: 2021-04-01
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:

The Charles Chang Institute for Entrepreneurship was established to support a continuum of entrepreneurial mindset development programming across and between all disciplines at SFU, from K-12 outreach to entrepreneurial mindset across undergrad, grad and exec ed programming to early stage incubation. A nascent research stream looks at the entrepreneurial mindset and the conditions under which it thrives, including innovation programming, policy and EDI in investment.

The Centre/Institute’s membership and organization structure:

The Chang Institute is housed in the Beedie School of Business, the Executive Director of the Institute reports to the dean. The institute has an operations arm that includes HR, recruitment and marketing, and a programming arm, which includes events and early stage incubation. The institute acts as a platform to support interdisciplinary collaboration and thus also supports a council of 50+ faculty and staff members from across all disciplines at the university as well as incubators, the library and student services. This council oversees the Charles Chang certificate in innovation and entrepreneurship and also works together to create, coordinate and amplify entrepreneurship and innovation offerings at SFU.

Significant accomplishments:

1) The Charles Chang Institute for Entrepreneurship’s major KPIs are linked to HQP training across a continuum of entrepreneurship and innovation education, mindset development and hands-on experience. This includes curricular programming, extra and co-curricular programming (including co-op, eCo-op and incubation), community outreach
(see public outreach), event and volunteer participation.

These include:

Curricular Participation:

Registrations in BUS238: 276

Charles Chang Institute for Innovation and Entrepreneurship New Declarations: 34

Certificate Registrants Total: 81

Tech e@SFU Registrants (2021-22 Cohort): 15

Charles and Eve Chang Foundation Award for Entrepreneurial Mindset Award Recipients: 4

Entrepreneurship Co-op (eCo-op): 11

Co-ops employed by the Chang Institute: 6

Opportunity Fest - April 2022

Participating Students: 346

Volunteer Students: 36

Guest mentors and moderators: 68

2) Incubator Metrics

TOTAL Mentoring Hours: 1286

Total participation numbers: 2083

Early Stage Business / teams mentored: 152

Individual early Stage entrepreneurs mentored: 280

# of teams in incubator: 41

# of participants: 76

# of new teams in incubator: 23
# teams graduated from incubator: 14

# of teams in the Science Entrepreneur Accelerator (SEA): 6 (7 Participants)

# Teams in the Founder’s Circle Pilot: 2 (5 Participants)

# of SPARK (self-driven workbook) downloads: 64

Value of Awards: $80,750

Embedded Mentors: 35 Teams 110 unique participants

Mentor Meet: 76 Teams, 94 Unique Participants

# of volunteers: 95

3) Other notable contributions include economic, social and environmental impacts

ECONOMIC DEVELOPMENT: Coast Capital Savings Venture Connection’s early-stage incubator provides mentoring and services to support the growth of ventures and development of young entrepreneurs. The incubator provides a safe environment where young entrepreneurs can experience success and learn from failure, while guided by seasoned industry professionals. This year, 41 startup teams were supported through the incubator for business validation/launch. We continue to see tremendous success and growth coming out of graduated incubator companies and past participants – two such examples are:

o 2020 Venture Prize winner Mala the Brand and its young founder Melody Lim, whose products are now carried online with Nordstrom and online/in-store with Chapters and has recently opened her own warehouse to scale up production.

o Moment Energy, with 4 co-founders out of Mechatronics and the TechE certificate, recently raised $3.5M, opened their own offices and are in plans to open a Surrey-based R&D facility.

o This past year, CCSVC incubator participants raised more $6.8M dilutive and non-dilutive investment, generated more than $1.6M in revenue* and created 60 new FTEs. *includes $415K of flow through revenues for a cryptocurrency exchange venture

4) SOCIAL and ENVIRONMENTAL BENEFITS: Students are creating benefits across the continuum of entrepreneurship support at the Chang Institute. Supporting social changemakers, the Venture Connection incubator is seeing increased participation amongst
social purpose ventures, and helps to support youth leaders who are dedicated to enriching the lives of youth and our communities. Glow Within (Chang Certificate, OppFest, eCoop alumni and Venture Connection Client) and Youth Helping Youth are two such organizations, providing empowerment, support and education opportunities to segments of the youth market. Past founder of SPARK foundation (eCoop and Incubator alumni) Rochelle Prasad was recently recognized by the Surrey Board of Trade as winner of its Emerging Leader award and as a Globe and Mail Top 50 Changemakers.

4. impact-driven entrepreneurs include, the founders of ODEN Health Solutions, founded by recent alumni from the Faculty of Applied Sciences, a medical device company offering harm reduction solutions to reduce the number of deadly overdoses in Canada. Edee Care, founded by a recent Mechatronics graduate, with a mission to improve the lives of people with chronic conditions using cost-effective wearable smart technology and Labora (founded by a EMBA and i2I graduate), providing safe, effective and affordable payment processing systems for seasonal agriculture workers.

**Notable media successes:**

# of SFU Internal Media Pieces: 14

# of External Media Pieces: 45

Selected Media/PR Highlights for the Year

External Sources

VC alumni, Streamline Athletes featured in The Globe & Mail for their athlete recruitment platform in an era where high school athletes struggle to get attention from varsity coaches – The Globe and Mail

VC alumni and Moment Energy co-found, Gabriel Soares along with other SFU students recognized in this year’s Surrey Board of Trade Top 25 Under 25 – Surrey Board of Trade

MeaningfulWork featured for platform of helping companies navigate their relationships – Techcouver

Two VC alumni founders, Rene Blanco and Sumreen Rattan were announced as Globe & Mail’s Report on Business Changemakers and included in the published report distributed nationally – The Globe and Mail

VC alumni, Moment Energy featured on efforts bringing renewable energy to remote communities - Business in Vancouver
VC alumni founder, Sumreen Rattan, was featured in an article of teens and 20-somethings who are the sustainable leaders of 2021 - Corporate Knights

VC Alumni, Melody Lim featured on the Daily Hive for sustainable Canadian candle brand Mala – Daily Hive Vancouver

Internal Sources

Seasonal worker payroll startup Labora wins SFU’s largest entrepreneurship competition - April 22, 2021

SFU students recognized in this year’s Surrey Board of Trade Top 25 Under 25 - April 23, 2021

After an 11-year journey, SFU grad dedicates his degree to late grandfather - June 7, 2021

SFU alumn

Events, workshops, public outreach events:
1) In addition to OppFest (above, which had participation from PowerPlay students in Atlantic Canada and guest mentors from Ontario for the first time this year), the Chang Institute also runs other signature public events and competitions, including:

Competitions and Showcases:

Coast Capital Savings Venture Prize

Participants: 121

Judges: 27

#MadebySFU

Participants: 12

Judges: 3

We also have the following partnerships:

Internal Departmental Partnerships

VentureLabs
SFU Work Integrated Learning & Co-op
SFU Communications/News
4D Labs
Technology Licensing Office SFU-Surrey Campus
International Student Services
SFU Ancillary Services
External Partnerships
PowerPlay Young Entrepreneurs
Surrey Board of Trade
YELL Canada
BLG
Startup Surrey
Genome BC
Foresight CleanTech Accelerator
PacifiCan (formerly WD)
New Ventures BC
RocketBuilders
Mitacs
Providence Health
Fraser Health
Acetech
2) The Chang Institute also focuses on outreach to throughout the university community, including:

Other events:

80 Events

1990 Participants

From

Entrepreneurial Competencies Club (university community)

Coast Capital Speaker Series (university community)

Venture Connection Incubator Workshop Series (university community)

Women’s Entrepreneurial Leaders Series (university community)

BUS 202 Co-Curricular Fair (university community)

Venture Prize Workshop Series (university community)

Venture Prize Pitch Panels (university community)

#MadeBySFU Workshop Series (university and alumni community)

Science Entrepreneur Accelerator (SEA) Series (university community)

PowerPlay Workshop Series (external audience, SFU student participation)

Supporting documents:

- 

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?

No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?

Yes
External funding details:
The Chang Institute is predominantly funded by endowed advancement funds and other external funding, and thank the Beedie School for funding toward OppFest and a one time funding toward recruitment support. The Institute has 6 funds that it manages (21, 25 and 31). We are currently working with Beedie Advancement and Finance to finalise a sustainable model for accounting and reporting purposes.

Over the 2021-22 programming year the Institute’s operating budget was approx $1.2M, much of which derives from leveraged funding; sources include but are not limited to:

Contributions from the ongoing $1.9M 3-yr agreement through PacifiCan

$129,200 through Genome BC

$200,000 through a bridge year agreement with Coast Capital

$49,000 in sponsorship (internal and external to SFU) for Venture Prize competitor awards (as well as almost $30K of in-kind funding for awards)

$35000 from Prospera towards costs of OppFest

$45000 in SWP funding to provide more opportunities for co-op and eCoop

$$172,152 from Charles Chang in endowment funds (do we want to include this?)

$100,000 from cash drawdown from Chang gift

Moreover the Institute is set up for ongoing success through negotiation of a new multi-year agreement with Genome BC ($129,200/year for 2 years) and a new Coast Capital agreement ($200K/year for 3 years), both of which are active starting Apr 1 2022.

The Institute is in a strong financial position. This funding covers all annual expenses, including:

Personnel costs (leadership, staff and co-op)

Entrepreneurship Co-op (eCo-op)

Sponsorships

Awards
Events

Other

Confirm policy review: Yes

Submitted by: Sarah Lubik, Director

Director's comments: -

Reviewer's Section

Reviewed by: Christina Atanasova, Associate Dean, Research

Reviewer's decision: Approved

Reviewer's comments: -
General Information

Name of the Centre/Institute: Jack Austin Centre for Asia Pacific Studies
Website: http://beedie.sfu.ca/jack-austincentre/
Faculty: Beedie School of Business
Director: Jing Li (co-Director)  
Daniel Shapiro (co-Director)
Director's term end: 2021-06-01
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
The Centre was established in 2009 with a mandate to be a preeminent independent research institution that:

• Is recognized and respected for its expertise in Canada Asia business issues;

• Helps inform and shape public policy, academic research, business practice, and business school curricula;

• Engenders better mutual understanding and relations between Canada and Asia.

The Centre focuses its research efforts along three major themes:

• Canada – Asia Mutual Investments (Capital, People, Knowledge)

• Innovation and Entrepreneurship

• Environmental, Social and Corporate Governance.

The Centre works to generate new knowledge in these areas of focus, disseminate our knowledge and understanding of critical issues affecting Canada-Asia business relations, engage the wider community in conversation on these issues, and help develop educational and training programs and courses that incorporate our research and understanding of key issues.
The Centre/Institute’s membership and organization structure:
Centre’s activities are managed and coordinated by two Co-directors (Jing Li and Daniel Shapiro), both report to the Dean of the Beedie School of Business. The Centre is governed by an Advisory Committee which at present consists of 12 members, appointed by the Dean in consultation with the Directors and Jack Austin. The Centre also has 17 Faculty Fellows (SFU/Beedie faculty with research interests that align with the Centre’s mandate), and 10 Distinguished International Faculty Fellows (chosen from academia, practice and policy communities for their expertise in relevant subjects). Additionally, the Centre supports 1 PhD student and 1 post-doctoral fellow to work on relevant research with faculty. The Centre hosts 1 visiting scholar. The Centre also encourages on-going participation from all faculty and students in its events, seminars, and research projects.

Significant accomplishments:
1) The Centre organized one major conference—The Sixth Global Strategy and Emerging Markets Conference (GSEM) on May 7-8, 2022. The Jack Austin Centre for Asia Pacific Business Studies and partners — Cornell University Emerging Markets Institute, Northeastern University Center for Emerging Markets, and University of Texas at Dallas Center for Global Business — hosted the Sixth GSEM at the SFU Vancouver campus. The theme of the conference is “Geopolitics, Emerging Markets, and Global Strategies.” The conference brought together scholars, corporate executives, and policymakers to explore three interrelated topics—geopolitics, climate change, and energy transition—and to understand how multinational enterprises navigate an increasingly uncertain environment. This conference provided a platform to bring together senior and junior scholars, doctoral students, and practitioners in the fields of international business and strategy, cross-cultural management, technology strategy, and global entrepreneurship with shared interests in global strategy, emerging markets, and emerging market multinationals. The conference attracted 45 in-person attendees and 101 online participants from universities from all over the world, companies, and think tanks. The conference received lots of positive feedback. Attendees especially appreciated the conversations between practitioners and scholars on the challenges, opportunities, and solutions for businesses in the dynamic global environment.

2) Publications, working papers, and conference presentations


3. Jing Li, Daniel Shapiro, Anastasia Ufimtseva, & Peng Zhang. Techno-nationalism and


3) 6. Fernando Angulo-Ruiz, Albena Pergelova, William X. Wei. 2022. The influence of motivations on international location choice in least developed, emerging and developed countries: evidence from Chinese MNEs. Chinese Management Studies. (William Wei was a visiting scholar at the Centre).


Notable media successes:
-

Events, workshops, public outreach events:
1) 1. The Sixth Global Strategy and Emerging Markets Conference (GSEM). May 7-8, 2022. Co-chairs for this conference include Jing Li and Daniel Shapiro (Simon Fraser University), Lourdes Casanova (Cornell University), Alvaro Cuervo-Cazurra and Ravi Ramamurti (Northeastern University), and Mike Peng (University of Texas at Dallas). The conference had a hybrid format and three main components. First, there were 45 in-person attendees from universities in Canada, the UK, and the US including Concordia University, George Washington University, King’s College London, University of Illinois at Urbana-Champaign, University of Victoria, University of Massachusetts Amherst, University of Sheffield, University of Southern California, Western University, and York University. The conference attracted scholars at different career stages including PhD students. These scholars presented their research in the areas of geopolitics and implications for multinational corporations, corporate identity and reputation, innovation and institutional environment, political risk and economic decoupling, and corporate social responsibility and sustainability.
2) Second, about 40 scholars joined the online development sessions led by the conference co-chairs; these scholars were from universities in Argentina, China, Canada, Denmark, France, Japan, Malaysia, Singapore, South Korea, the Netherlands, and the US. The topics covered national security and international agreements, institutional voids and changes, learning and knowledge transfer, emerging market multinationals, corruption and foreign direct investment, and sociopolitical risk and firm activities.

3) Third, to take advantage of the hybrid format, we made four keynote panels of the conference as webinars free to the public. We also recorded videos of these panels and made them publicly available. There were 81 online and 45 in-person attendees for these events. The four panels were:

a. Yuen Pau Woo, Senator of Canada and former president and CEO of the Asia Pacific Foundation of Canada, discussed geopolitics and, in particular, global relations with Asia.

b. Featured keynote speaker, Randy MacEwen, CEO of Ballard Power Systems, led a discussion on the nature and importance of hydrogen fuel cell products and technologies in the energy transition.

c. A keynote panel including Professor Ans Kolk of the University of Amsterdam, Professor Jorge Rivera of George Washington University, and Dr. Jason Miklian at University of Oslo discussed academic research on climate change in a geopolitical context, including corporate responses and responsibility.

d. A.J. Nichols from Vale S.A., a Brazilian multinational mining corporation, discussed the importance of geopolitics and critical minerals in the evolution of the mining industry as well as the corporate social responsibility issues confronting mining companies.

4) 2. The Sixth China-North America Economic Forum VI. August 26. 2021. The US and China signed the Phase One trade deal on January 15, 2020. How has the agreement been implemented? What is the impact of the trade deal on the US, China, and other countries such as Canada? What are the prospects for future trade agreements between the US and China and between Canada and China? The Optimal Valley Institute for Free Trade and SFU's Jack Austin Center for Asia Pacific Business Studies organized the Sixth China-North America Economic Forum to discuss these and related issues. This online forum featured five distinguished speakers from Canada, China, and the US: David Dollar, Senior Fellow, Brookings Institution; Martin Chorzempa, Senior Fellow, Peterson Institute for International Economics; Runjuan Liu, Professor of Business Economics, University of Alberta; Miaojie Yu, Boya Professor of Economics, Peking University; Carlo Dade, Canada West Foundation. The event was co-moderated by Bo Chen, Professor of Economics, Huazhong University of Science and Technology, China; and Jing Li, Professor of International Business and Codirector of the Jack Austin Center, Simon Fraser University. There were 149 registrants from corporations, universities, think tanks, and government agencies.
Supporting documents:
-

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
No

Confirm policy review:  
Yes

Submitted by:  
Jing Li, co-Director

Director's comments:  
The Centre has played a key role in helping expand research, education, and, outreach and community engagement with a focus on Asia. Our aspiration is to become a key player and a knowledge broker on important issues relating to Asia and the global business environment. Indeed, we see several opportunities that could provide a stimulus to our work, including: a) Asia's expanding role and influence in global affairs; b) Increasing demand for policy and business expertise, research, and students educated in Asian affairs; c) Our location, cultural heritage, and history of engagement with diverse community partners; d) Changing geopolitical situation, which may push Canada to play a defining role in free trade, sustainability, diversity, and mutual understanding across cultures; e) Our unique position as one of the very few research centers devoted to Canada-Asia business issues. We intend to capitalize on these opportunities and expand our impact globally.

Reviewer's Section

Reviewed by:  
Christina Atanasova, Associate Dean, Research

Reviewer's decision:  
Approved

Reviewer's comments:
General Information

Name of the Centre/Institute: Centre for Education, Law and Society
Website: http://www.sfu.ca/education/cels
Faculty: Education
Director: Wanda Cassidy (Director)
Ozlem Sensoy (Associate Director)
Director’s term end: 
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The Centre for Education, Law and Society (CELS) is an endowed centre, established in 1984 and given formal approval in 1994 by the Board of Governors at Simon Fraser University. The central purpose of the Centre is to improve the legal literacy of children, youth, and young adults through a program of research, teaching, curriculum development, and community initiatives. Legal literacy encompasses: an understanding of the role of law in society and its impact on the individual; the interrelationship between law, democracy and citizenship; social justice issues; civil and human rights; conflict and dispute resolution; and policies and practices that impact school culture. CELS works with educational and legal organizations and other stakeholder groups to advance its mandate. The Centre’s faculty and affiliates conduct research and develop programs that focus on social justice, equity, citizenship, cyberbullying, media literacy, anti-racism, marginalized youth, the ethics of care, school culture, and law-related pedagogy.

The Centre/Institute's membership and organization structure:
Director
Dr. Wanda Cassidy, Professor, Faculty of Education

Associate Director
Dr. Özlem Sensoy, Professor, Faculty of Education

Project Coordinator
Dr. Chantal Faucher, Manages CELS Website; researches cyberbullying (former Post Doc)

Faculty Affiliates

Dr. Kumari Beck, Associate Professor, Faculty of Education (equity, social justice, human rights research)

Dr. Margaret Jackson, Professor Emerita, Criminology, SFU (cyberbullying research)

Dr. Amal Ghazal, Professor, Centre for Comparative Muslim Studies, History Dept, SFU (Teaching against Islamophobia web portal for educators)

Dr. Genevieve Fuji-Johnson, Professor, Dept. of Political Science, SFU (Community Engaged Research Initiative with Özlem Sensoy)

Research Assistants

Somayeh Bahrami, DGSW doctoral student (Teaching against Islamophobia web portal)

Sabah Ghouse, MA student, Equity Studies in Education (Teaching against Islamophobia web portal)

Sabrina Ngo, F of E doctoral student, Educational Theory & Practice (de-colonizing legal education; equity research; CELS digitization project)

Carolyn Tinglin, F of E doctoral student, Educational Theory & Practice (teacher education; special ed policy schooling; equity and BIPOC youth)

Sonja van der Putten, F of E doctoral student, Educational Theory & Practice (research into settlement issues and educational goals for female refugees; instructor)

Cari Zall, F of E doctoral student, Educational Theory & Practice (research into identity and civic education/engagement; CDOTE course designer & instructor)

Work Study Students

Sude Guvendik, (assistance with CELS website and Teaching against Islamophobia web portal)

Arpit Kaur, (CELS website and Teaching against Islamophobia web portal)

Structure
The CELS Directors, Coordinator, affiliates, and research assistants typically meet once per semester to discuss projects and set priorities. Additional meetings with relevant individuals are held for each project; for e.g. the Teaching against Islamophobia Resource Portal, the Scholars in Law and Justice film series, the Equity Studies lectures, cyberbullying research initiatives, the web-site re-development, the CELS 40-year history digitization project.

**Significant accomplishments:**

1) **The Diversity Portal:**

CELS began development of an educational resource portal we are calling “The Diversity Portal” which is intended to be a research-informed, resource space for educators throughout the K-16 spectrum, on social issues and their relationship to rights and civic responsibilities. The first “issue” under grant-supported development is the "Islamophobia" resource project. This project began prior to Covid and the pandemic related changes in all our lives. As such, we have been working with the funder to extend our timelines, and working with our teacher partners to allow for their now-more limited capacity to participate in lesson plan development and review. Despite these challenges, the research assistants under the guidance of the Director and Associate Director have been working on a robust resource list and developing lesson plans that are curriculum-responsive in terms of the BC school curriculum. The Islamophobia resource project is also supported by our partners in the Dept of History's Centre for Comparative Muslim Studies. As such, this cross-university partnership will hopefully serve as a model for future cross-Centre collaborations across SFU. In addition to the Islamophobia issue, there are 3 additional issues that are under development for the Diversity Portal project: cyberbullying, racism, and disableism. Each issue will have a resource pool of lesson plans across K-16 settings, and professional development materials to support educators.

2) **Publications: Özlem Sensoy**


Johnson, G. F., Sensoy, Ö., Chenier, E. (in press). Gender, racialization, and university leadership: Findings from a diversity audit of Canadian universities and (relatively easy and more difficult) steps to address the barriers. In B. Momani & R. Johnstone (Eds.), Gender in the academy (pp. xx-xx). Vancouver: UBC Press.


3) Publications: Wanda Cassidy, Chantal Faucher, Sabrina Ngo (doctoral student/RA)


4) Re-development of Law-related Faculty of Education UG Course into CDOTE format

CELS Faculty members originally developed 3 undergraduate law-related education courses, which became regular offerings on campus and through distance education. The distance education courses have been revised several times over the years and in the past fiscal year, Dr. Cassidy worked with doctoral student and RA, Cari Zall, to re-design Education 448, Teaching About Justice, Law and Citizenship, using the new CDOTE criteria and format. This new-format course is being offering for the first time in 2022-2. The second course, Legal Context of Teaching will be revised, according to CDOTE criteria, in the coming year.

5) Providing Support and Training for HQP

The Centre provides funding, opportunities, and support for several graduate students to advance their academic careers.

Sonja van der Putten: Bombardier Doctoral Fellow. Recommended to teach a Faculty of
Sabrina Ngo: Secured funding from the Dean's office for the annotated bibliography on equity issues and tenure/promotion decisions; secured funding from the Associate Dean of Education Research to digitize CELS historical documents; secured additional funding from the Library and CELS endowment for ongoing digitization; provided support to her SSHRC applications (which passed Faculty & SFU levels).

Cari Zall: Secured funding from UG Programs in Education to re-design Educ 448 into the required CDOTE distance education version; teaching first offering of the revised course.

Carolyn Tinglin: SFU Community Education Impact Graduate Award recipient. Funded through the Centre digitization project and CELS Endowment.

Somayeh Bahrami: Bombardier Doctoral Fellow. Law Foundation funded Teaching against Islamophobia project and CELS Endowment.

Sabah Ghouse: Law Foundation funded Teaching against Islamophobia portal project.

6) CELS Website Renewal

The CELS team has been actively working on the development of a new CELS website on the WordPress platform. This work has included consultations with Quincy Wang (Website Coordinator, FOE), outside web developers, several research assistants, and two work-study students. Reflections on making the content more easily accessible, searchable, and usable have guided this deliberate updating process. The new website will also encompass the Islam/Muslims resource portal, a portal on cyberbullying, and additional portals related to social justice to be developed over time. It is intended to be launched in Fall 2022.

7) Documenting and Celebrating CELS History and Contributions over 40 Years

In 1982, The Law Foundation of BC provided initial seed funding to conceptualize a centre in the Faculty of Education that would address the legal literacy needs of youth in schools in British Columbia. Forty years later, the Centre for Education, Law and Society has made significant contributions to law-related education through our research, teaching, curriculum projects, and community-based initiatives.

We are planning a major celebration in Fall 2022, which will engage the funders to our endowment, our research and community partners, our current and former graduate students, and other relevant parties. Our planning process began in the 21/22 fiscal year:

1) Re-visioning our website, with a new logo, more accessible design, and centre name change;
2) Changing the name of the centre to better reflect our work, and to honour the centre’s co-founder, Dr. Cassidy, who is retiring in 2022. The name change to Cassidy Centre for Education Justice was unanimously approved by SCUP at their October 2021 meeting;

3) Digitizing key scholarly contributions of the Centre over the past 40 years. To this end, we applied for and received, a $5000 grant from the SFU Library. This grant provides support to doctoral student, Sabrina Ngo, in the coming fiscal year;

4) Producing a video highlighting the contributions and impact of the Centre; will be completed and posted on the website in Fall 2022.

8) Collaborative Institutional Grant

In addition to the grant CELS received from the Library (digitization work to be completed in 22/23), Dr. Sensoy also received an institutional grant with Dr. Fuji Johnson, Dept. of Political Science (2021-23; $40,000). Leadership demographics: Understanding representational gap. Internal Funder: Community Engaged Research Initiative (CERI), Office of the VP Research, SFU.

Notable media successes:

Wanda Cassidy

(2022, June 8). CBC TV The New Hour. Interview with host Anita Bathe regarding cyberbullying, prevention and interventions.

(2022, June 6). CBC The National. Interview regarding the Supreme Court of BC trial of the man accused of online harassment of Amanda Todd.

(2021, January 1). Vancouver Sun (online and print). Article by Lori Culbert, “COVID-19: Isolated youth online more than ever, increasing risk of bullying and other cyber crimes.”

Events, workshops, public outreach events:

1) Knowledge mobilization through the CELS website:

Users of the website in the 2021-22 fiscal year came from: Canada (74%), USA (7.5%), India (2%), Iran, the United Kingdom, the Philippines (1-2% each), and 128 other countries (12%); 93.5% were first-time visitors. On average, there were 764 visitors to the website per month (an increase of nearly 200 visitors per month overall, compared to previous years), for a total of 10064 sessions and 12915 pageviews. It should also be noted that the month of September had an exceptionally high number of visitors (approximately six times
more than the average for several preceding months). This month alone increased the overall average number of viewers for the year. However, the comparison of the average for the five months preceding September 2021 and the six months following it indicates an increase of 166 users per month after September.

The CELS home page, the teaching/curriculum resources pages, videos/films, and the legal information pages attracted the most visitors. The “share” button added to the site has allowed several hundreds of visitors to share material, mainly on Facebook (23.3% of users are directed to our site through Facebook links). The Bilingual Corner is also very well used, although only one new feature was posted this year. Articles from 2014-17 continue to be regularly viewed.

2) Scholarly Films on CELS website:

CELS did not produce any new films during this fiscal year due to the restrictions brought by the pandemic. However, the films we produced in the past continue to be viewed with regularity. Dr. Robin DiAngelo’s film On Racism and Whiteness has been viewed 910 times on our website (52 times this fiscal year) and 1987 times on YouTube. The film on the legacy of Dr. Isidore Starr, Leading a Revolution in Civics, was viewed 359 times on our CELS website and Vimeo account and 1226 times on YouTube. Collectively these two films had a cumulative total of 4482 plays.

The more recent 2020 film with Dr. Gerald Walton of Lakehead University (On Culture, Politics, and Bullying) has been viewed 86 times (30 this fiscal year) and the 2019 film with Dr. Colette Langos of the University of Adelaide (On Cyberbullying and Law) has been viewed 124 times (21 this fiscal year). The 2019 lectures by Drs. Shirley Steinberg and Yasmin Jiwani were viewed 116 (27 this fiscal) and 167 (36 this fiscal) times, respectively.

To provide additional educational support for these films, Dr. Faucher prepared discussion guides to be used by instructors who use the films in educational settings (e.g. schools, university classrooms, community group settings.)

3) Podcasts and International Presentations:

Drs. Sensoy and Cassidy both contributed podcasts. These were listened to over a hundred times (through the CELS website):


• #EduCrush podcast episode 10 on media literacy: Why Take Media Seriously in School, featuring Özlem Sensoy (Jan 27, 2021).
• Online Abuse and Education podcast episode 6: Two conversations with Dr. Wanda Cassidy and George Veletsianos (April 27, 2022).

Wanda Cassidy was a featured speaker at the invitational Workshop on Sexual Harassment in Academia, European Union TARGET partnership. Institute for Advanced Studies, Vienna, Austria (May 2021). Her talk on "Cyberbullying at university: Gendered experiences and challenges" was filmed and made available to European partner institutions and EU policy makers.

Özlem Sensoy was a presenter at the prestigious Presidential Session of the American Education Research Association conference.

Sensoy, Ö. (April, 2022). Structural and institutional racism in schools. AERA Presidential Session: Cultivating and Expanding Equitable Education Opportunity by Implementing Multicultural Research, Policy, and Practice. Presenters: James Banks, Chair, Univ of Washington; Pedro A. Noguera, USC; Özlem Sensoy, SFU; Christine E. Sleeter, CSU; Tyrone C. Howard, UCLA; Linda DaLinda Darling-Hammond, Stanford; Discussant: Diana Hess, Univ of Wisconsin.

4) Dr. Sensoy conducted a two part session for lead teachers in the Surrey School District’s central offices. The professional development workshops were on the topics of a) understanding social justice issues in school interactions, and b) constructively responding to social injustice. The workshops were developed to support the next phase of implementation of practices in response to the recommendations in a district-report called "Racing to Equity: Racial Equity Environmental Assessment" (2021), commissioned by the Surrey School Board.

Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
The Law Foundation of BC funded project: Teaching Against Islamophobia. We are in the final year of this project ($73,000).
Confirm policy review:
Yes

Submitted by:
Wanda Cassidy, Director

Director’s comments:
The coming year will be one of celebration, transition, and new opportunities. We are looking forward to celebrating the 40th Anniversary of the founding of the Centre on December 15th, which will bring together many of our partners and contributors: funders, academic colleagues, staff, graduate students, teachers and teacher-educators, and community groups. This event will also feature the short film we are developing on the history and impact of the Centre, and highlight the Centre’s new name and website.

Central to our revised website will be The Diversity Portal, which will include our K-16 teaching resources on diversity issues. The first “issue” we are developing is the Teaching Against Islamophobia project. We are also in the planning stages of developing resources for the issues of cyberbullying, racism, and disableism. Other issues will continue to be developed in this new and novel resource Portal for educators.

The digitization of the Centre’s documents and scholarly material over the past four decades, funded in part by the SFU Library, will be completed in the coming year. Also, the revision of the second law-related education undergraduate course, Legal Context of Teaching, will be revised using the new CDOTE format. The pandemic has negatively impacted the semi-annual public lectures we co-sponsor with Equity Studies in Education, the Associate Dean Graduate Studies Office, and other partners, although we were able to hold a talk (with Covid-safety protocols) with Dr. Gerald Walton, entitled “The Polarization of Privilege,” on May 31st. The recording of Dr. Walton’s lecture, along with a discussion guide prepared by CELS Coordinator Dr. Faucher, are posted on the CELS website. We are hopeful that at least one additional academic presentation can be offered in the coming fiscal year.

With Dr. Cassidy retiring at the end of December, and Dr. Sensoy becoming Director, there are new opportunities to use her skills and expertise to build on the successes of the Centre and extend its work in social and educational justice. The by-line of the Cassidy Centre for Educational Justice, captures our founding values and the research, teaching, and outreach activities that will continue to arise from them: “Working for justice in education through social awareness, institutional literacy, and civic responsibility.”

Reviewer’s Section

Reviewed by:
Nathalie Sinclair, Associate Dean, Research and International

**Reviewer's decision:**
Approved

**Reviewer's comments:**
Congratulations for an excellent year. I wish to acknowledge the phenomenal work of Dr. Cassidy over the years and also to express gratitude to Dr. Sensoy for taking over the reins of the Centre. The quality and quantity of work being done at CELS is exemplary.
General Information

Name of the Centre/Institute: Centre for Research on International Education
Website: http://www.sfu.ca/crie.html
Faculty: Education
Director: Kumari Beck (Director)
          Roumiana Ilieva (co-Director)
Director's term end: -
Renewal date: 2025-08-14

Details

Description of the Centre/Institute:
The Center for Research on International Education fosters and supports collaborative and interdisciplinary research on international education in its diversity, while honouring commitments to educational equity and social justice.

The primary goals of the Centre are to foster research on international education, promote collaborative and interdisciplinary research, and secure grants for scholarly work in international education, through activities such as conferences, seminars, public lectures, publications, reports and mentoring of students.

The Centre is committed to developing collaborative relationships across Canada and internationally, with individual scholars, and other research centres and institutes researching international education.

The Centre/Institute's membership and organization structure:
The Centre is constituted as a Schedule A Centre at Simon Fraser University under the terms of SFU Policy R 40.01. The centre is under the direct authority of the Dean of Education and conducts its affairs in accordance with all other University policies.

The Director of the Centre is a full-time member of the Faculty of Education at SFU, nominated by the Centre’s Steering Committee and approved by the Dean of the Faculty of Education. Since its inception, the Centre has had two Co-Directors.

Directors: Kumari Beck, Associate Professor; Roumiana Ilieva, Associate Professor
The Steering Committee of the Centre consists of 3 – 5 members, both Faculty and Graduate students, in addition to the Director/s. Since the inception of the Centre, the Director of the International Office at the Faculty of Education has served on the Committee, but she retired recently and plans for her replacement are currently on hold.

The following currently serve on the Steering Committee:

Angel M. Y. Lin, Professor & Tier 1 Canada Research Chair in Plurilingual and Intercultural Education;

Masahiro Minami, Assistant Professor, Counselling;

Student position: Juliana Ferreira

With Directors Kumari Beck and Roumi Ilieva

Membership in the Centre is open to any faculty member, student, staff or administrator who has an interest in international education and advancing research and knowledge building work of the Centre.

**Significant accomplishments:**

1) The work of the Centre, as were many research activities in the university, were greatly impacted by the ongoing restrictions imposed by the pandemic. Yet, there has now been greater involvement of graduate students in the work of the centre compared to the first year of the pandemic. Thanks to their involvement, work on the CRIE website update has partially begun with content revision to happen over the summer.

2) Internationalization in the Faculty of Education

Centre Directors continued working with the Associate Dean (Research and International), and the Director, International Office (prior to her retirement), revisiting the Faculty’s 5-year internationalization strategic plan (2019-2024) in light of the challenges posed by the pandemic. It was determined that a re-focus of the strategic plan would entail an emphasis on faculty-driven ideas and the establishment of a start-up grant at the faculty level to promote research in international education with competition to be held twice a year. The Centre Directors worked with the Associate Dean (Research and International) and the Director, International Office, to finalize the criteria and application process for FIRE (Funds for International Research in Education) and participated in the adjudication of the first two FIRE grants of $7000 each to two members of the Faculty of Education in May 2022.

3) SSHRC Small grant $10,000
A proposal by Beck and Ilieva for a study titled Post-pandemic futures for internationalization of the university was funded in December 2020. Due to pandemic challenges which included the unavailability of RAs, the start of the project was postponed until spring 2022. The project received ethics approval and currently 3 RAs are involved in literature review and data collection. A symposium involving 2 of the RAs and the Directors was held as part of the annual CSSE conference in May 2022.

4) Edited Book: Language, Culture, Learning and Teaching in an Internationalizing University

Editors: Kumari Beck and Roumiana Ilieva

The book, work on which started in 2021, is a collection of research informed chapters on international education, language and culture in an Anglo-dominant Canadian university and will provide a critical, interdisciplinary, local and global view of contemporary international higher education, applicable to other global contexts.

The authors are all SFU faculty and graduate students. Work on the book is ongoing.

5) Conferences

2022


Ilieva, R. & Suhr, C. (2022, May). Informal leadership in scholarly collaborations of applied linguists and content faculty in support of multilingual students. CAAL annual conference, paper presented virtually


2021


6) Publications
(although some of the chapters listed are single authored, they emerged from a research collaboration or Project with the Editors of each, who invited CRIE to be part of the project)

2022 (see 2021 below)


7) The Centre has been involved with the activities of the Critical Internationalization Studies Network, a global forum for scholars, educators, students, and community organizations interested in reimagining dominant patterns of relationships and resource distribution in the internationalization of education. It has been especially active within the subgroup focusing on Race and Racism on the network.

8) We were invited to join the Global Citizenship-Study Abroad Researchers and Administrators (GC-SARA) network as a founding member. Kumari Beck will be adding other interested members of CRIE to the network, and has been invited to participate in delivering a workshop and participating in SA research with Dr. Labake Fakunle (Ghana and U of Edinburgh)

9) Invited Speaker


A Facilitated Forum on Anti-Black, Anti-Indigenous and Anti-Asian Racism and CIESC with Ali A. Abdi (UBC), Kumari Beck (Simon Fraser), Shibao Guo (Calgary), and Jacqueline Ottman
The Need for Indigenous and Racialized Senior Leaders on Campus. Chair and Moderator: Jerome Cranston (Regina)

Kumari Beck (Simon Fraser), Karen Ragoonaden (Manitoba), Jacqueline Ottmann (Saskatchewan), Angelina Weenie (First Nations University), Ann Lopez (OISE-UT)


Beck, K. (2021). The intersections of race and culture. Featured panelist, Changing the narrative; The importance of intercultural competence in a post-pandemic world. BCCIE webinar


10) Publications 2021


Notable media successes:

-
Events, workshops, public outreach events:

Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Kumari Beck, Director

Director's comments:
We have had a slow restart, but are pleased with the invitations we are now receiving to join research networks.

One unexpected activity was the number of requests we received to participate in webinars on international education and related topics. The growth of virtual events made that possible, and resulted in our research being more widely disseminated.

We note with great sadness, the unexpected early retirement of Catherine Price, the Director, International Education in the Faculty of Education, and a steering committee member of CRIE. The Faculty's international office, a great support to CRIE and all international activities, is now inactive. Some activities are now run under the AD Research and International, but we feel that the continuity of and enthusiasm for internationalization in our faculty has suffered from the loss of Catherine and the Office of international education. We hope that under interim dean Kris Magnusson, there will be support for a more positive direction, and that we can re-establish international education as a priority, for the incoming dean next year. CRIE hopes to take leadership in that regard.

Four of our RAs involved with CRIE were all international students themselves, and indeed,
one of them still is, pending PR status.

Our plans for the coming year are modest: focus on supporting and mentoring our graduate students; complete our SSHRC small grant project; present our findings at conferences, and submit articles for publication.

**Reviewer's Section**

**Reviewed by:**
Nathalie Sinclair, Associate Dean, Research and International

**Reviewer's decision:**
Approved

**Reviewer's comments:**
Despite pandemic-related challenges, CRIE has continued to engage in significant activities that have contributed to SFU’s international profile, while working within the stated values of the Faculty of Education. I too hope that with the new interim Dean, increased international education and research will occur this upcoming year.
General Information

Name of the Centre/Institute: Centre for the Study of Educational Leadership and Policy
Website: https://www.sfu.ca/education/cselp.html
Faculty: Education
Director: Michelle Pidgeon (Associate Director, CSELP | Associate Professor)
         Michelle Nilson Levisohn (Director of CSELP | Associate Professor)
Director’s term end: 2023-06-30
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
The Centre for the Study of Educational Leadership and Policy (CSELP) engages the education community in the production and dissemination of research, in order to strengthen policy and practice.

The Centre/Institute's membership and organization structure:
The work of the Centre is guided by its Steering Committee in consultation with an advisory board. CSELP’s Advisory Board consists of individuals who have shown a demonstrated commitment to the development of educational leadership and policy. CSELP’s research agenda is specifically realized through the work of the Steering Committee and affiliated scholars, with the help of affiliated graduate students. For more information see: https://www.sfu.ca/education/cselp/about-CSELP.html

Significant accomplishments:
1) 1) SUILC Partnership. With the Surrey Urban Indigenous Leadership Committee (SUICL), we have partnered to understand Indigenous urban leadership. We applied for and were successful in securing support this community-based research: SSHRC Partnership Development Grant ($199,686) building upon our 2021 grant success for this collaboration.

2) 2) Constructive Deliberations. Curriculum content was been finalized in 2021/2022 and now is integrated into the CSELP website. and ready for website. (e.g., digital curriculum
content and interviews with symposium participants as embedded video content, instructional team interviews to guide users to the online content/tools).

3) CSELP continues to support the Faculty of Education Summer Institute, in 2021 this was virtual event and in 2022 the event will be held in Prince George, BC to support the culminating project presentations of 18 MEd students.

4) CSELP continues to support the International Journal of Education Policy and Leadership (IJEPL).

5) In 2021, CSELP provided financial support to the publication of The Future of Action Research in Education edited by Kurt Clausen and Glenda Black, Dan Laitsch (CSELP) was a contributing author. This publication is a direct outcome of a long term collaboration with CAARE, which began in 2004, and aligns with the Centre's mandate. [https://www.mqup.ca/future-of-action-research-in-education--the-products-978022800983.php](https://www.mqup.ca/future-of-action-research-in-education--the-products-978022800983.php). In 2022 CSELP was part of the formal book launch.

**Notable media successes:**
CSELP supported the use of Facebook for IJEPL to provide further access to this open source journal. We continue to use Twitter to help profile members CSELP and/or our partners and other related content for our followers

**Events, workshops, public outreach events:**
N/A due to COVID 19

**Supporting documents:**
- 

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

**External funding details:**
SSHRC Development Grant ($199,686) held by PI Dr. Pidgeon but directly related to work of CSELP, who provided a letter of support for this community-university partnership.
Confirm policy review:
Yes

Submitted by:
Michelle Pidgeon, Director

Director's comments:
While our activities, particularly outreach were confined due to COVID19, we were able to advance in very meaningful ways our partnerships with our collaborators with the SUILC Indigenous Women's Leadership project. CSELP also continues to support open-access publications via the journal. We look forward to the return to in-person activities and ongoing research collaborations.

Reviewer's Section

Reviewed by:
Nathalie Sinclair, Associate Dean, Research and International

Reviewer's decision:
Approved

Reviewer's comments:
CSELP continues to engage in significant work, advancing its mandate to strengthen policy and practice through practice. The SUILC partnership is particularly exciting. I look forward to continued high quality activity in the coming year, with the constraints of the pandemic (hopefully) loosening up.
General Information

Name of the Centre/Institute: The Centre for Imagination in Research, Culture & Education
Website: http://www.circesfu.ca/
Faculty: Education
Director: Mark Fettes
Director's term end: 2021-04-01
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
CIRCE is an international research centre affiliated with the Faculty of Education, Simon Fraser University, in British Columbia, Canada. We are interested in imagination in all its varied forms. Our deepest roots are in education, and many of us work directly with educators, schools and other site of learning and teaching. At the same time, we recognize the countless ways in which imagination is entwined with the world – not only human culture and societies, but the life of the Earth itself.

Our approach to imagination is grounded in curiosity and humility. We take it for granted that imagination exceeds our attempts to understand and to harness it for particular ends. We also believe that imagination is of vital importance to all efforts to cultivate human and more-than-human flourishing. Our central purpose is to share ways of nourishing and developing this extraordinary capacity in the service of more just, ecologically sane, and existentially healthy communities and organizations.

The Centre/Institute's membership and organization structure:
The work of the Centre is guided by an Advisory Board, consisting of scholars and educators (currently 18) from a number of countries and with a demonstrated interest in imagination and education. Inter-university contacts and collaboration are coordinated in part through a larger Academic Council which meets several times a year. The day-to-day running of the Centre is in the hands of a small Steering Committee consisting of SFU faculty and staff and led by a Scientific Director who must hold a faculty position at SFU.

Significant accomplishments:
1) Continuation of university partnerships with Chile and Mexico

An ongoing partnership with Universidad Finis Terrae (UFT) in Santiago, Chile, continued with a four-day online workshop for teachers and graduate students held from January 11-14, 2022, with more than 80 people attending. The nine presenters were all faculty or graduates (master’s or doctoral) from SFU. Discussions are underway regarding an eventual return to in-person seminars in Vancouver and/or Santiago, as well as the possibility of organizing an international conference on imagination and education at UFT. A joint mentoring and research program in imaginative education remains in development, in collaboration with the Instituto Tecnológico y de Estudios Superiores de Monterrey in Mexico. CIRCE Director Mark Fettes is serving as an external supervisor for a doctoral student at the latter university, Carolina López, who also holds a master’s degree from SFU.

2) Geopoetics Symposium held successfully after two-year delay

CIRCE Director Mark Fettes and Academic Council member Michael Datura worked closely with Dr. Stephen Collis of the SFU Institute for Humanities to jointly sponsor, plan and fundraise for a unique Geopoetics Symposium and Residency on Cortes Island, BC. After two successive postponements due to the Covid-19 pandemic, the event finally took place from April 19-27, 2022, bringing together educators, geographers, environmental philosophers, poets, musicians and visual artists from as far away as Australia and Ireland. The event was supported by grants from the SSHRC Connections program and the SFU VPA Conference Fund.

3) Publication of "Ecoportraiture" brings CIRCE research to a wider audience

Edited by CIRCE Steering Committee members Mark Fettes and Sean Blenkinsop and Academic Council member Laura Piersol, the book "Ecoportraiture: The Art of Research When Nature Matters" appeared in April 2022 as part of the Peter Lang series "Rethinking Environmental Education." Drawing on SSHRC-funded research by the editors and their collaborators, the book offers a variety of perspectives, examples, and practical techniques for adapting the research tradition of portraiture to include the voices and interests of the more-than-human world. In a field traditionally dominated by more quantitative and human-centred methodologies, the work offers a fresh set of possibilities for research in place-, nature- and land-based education.

Notable media successes:

- 

Events, workshops, public outreach events:

1) Online celebration and memorial for CIRCE founder Dr. Kieran Egan
In Spring 2022, CIRCE Director Mark Fettes and former Executive Director Gillian Judson initiated plans for an online celebration of the impact of Dr. Kieran Egan’s work, timed to mark the 25th anniversary of the publication of “The Educated Mind” in which he gave the fullest account of the developmental scheme underpinning imaginative education. Sadly, Dr. Egan’s health declined rapidly in subsequent weeks and he passed away shortly before the intended event date. A postponed event, extended to include the sharing of personal memories of Dr. Egan and attended by two family members, was held on June 23, 2022, with several international contributors and more than 100 registered participants.

2) The Walking Curriculum Challenge remains a draw for teachers

Led by CIRCE Academic Council member Gillian Judson, the Walking Curriculum Challenge 2022 invited educators around the world to commit to taking their students outside every day for 30 days, starting on Earth Day (April 22), rain or shine. Judson’s book “The Walking Curriculum: Evoking Wonder And Developing A Sense of Place” is offered as an optional guide and source of inspiration. Registrations for the Challenge, at just under 400, were down on 2021’s record of more than 800 teachers across BC and beyond, but it is clear that the Walking Curriculum continues to attract practitioners by word of mouth and social media.

Supporting documents:
-

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Mark Fettes, Director

Director’s comments:
Not included in this report are ongoing outreach and collaborations with individual researchers. In recent months I have supported applications by Prof. Hoy-Yong Kim of Pusan
University, South Korea, and doctoral student Alessandro Gelmi of the University of Bolzano, Italy, both of whom are seeking funding from their universities to support research visits to SFU in connection with imaginative education. I have also not reported on the current work to completely redesign the CIRCE website, on which we working with Vancouver communications design company ThompsonStenning; the new site will bring together a much greater range of research projects and findings than the old one.

**Reviewer's Section**

**Reviewed by:**
Nathalie Sinclair, Associate Dean, Research and International

**Reviewer's decision:**
Approved

**Reviewer's comments:**
Excellent work! Multiple forms of output and strong engagement with diverse communities. Thanks for your excellent leadership, Mark.
Report Type: Annual Report

Reporting Year: 2022

**General Information**

Name of the Centre/Institute: Centre for Sustainable Development
Website: [http://www.sfu.ca/sustainabledevelopment/about-us.html](http://www.sfu.ca/sustainabledevelopment/about-us.html)
Faculty: Environment
Director: Meg Holden
Director's term end: -
Renewal date: 2025-07-30

**Details**

Description of the Centre/Institute:
The Centre for Sustainable Development (CSD) is the research focal point for SFU’s commitments to becoming “a leading institution in the transition to a sustainable society” (GP #38, "Sustainability"). The CSD uses the resources and talents of the University to encourage the study of sustainable development within and beyond the University, through research and community engagement. The CSD uses the resources and talents of the University to encourage the study of sustainable development within and beyond the University, through research and community engagement.

The Centre/Institute's membership and organization structure:
Steering committee is in the process of being reconstituted.

Significant accomplishments:
Participation in SFU institutional initiatives with VP External (Times Higher Education Global Forum) and Institutional Strategic Awards (Canada First Research Excellence Funds).

Research output by Director related to CSD mission includes: article in City Journal based on international research collaboration on model sustainable neighbourhood redevelopment; article in Urban Affairs Review on greenspace provision policies in City of Surrey; chapter in major planning book, Planning and Regulation, on the BC Step Code in terms of what it promises for a zero carbon built environment. CSD director also was an invited discussant at an American Association of Geographers session on Humanist planning in the Anthropocene and a presenter also at the Royal Geographical Society - Institute of British Geography.
One Master of Urban Studies student graduated with a thesis based on analysis of the outcomes of model sustainable community development in Richmond, BC.

Given the timing of taking up the directorship, I have not yet put in place a process for reporting by members of the CSD Steering Ctte regarding their Centre-related accomplishments, which I know anecdotally to be numerous and can report on next year.

**Notable media successes:**
Interview with Radio Canada on City of New Westminster urban forest strategy; media blog posts related to neighbourhood-based COVID-19 recovery via SFU Community Engaged Research Initiative and HazNet: the Magazine of Canadian Risk and Hazards Network.

**Events, workshops, public outreach events:**
Meg Holden participated in planning led by the VP External for the Times Higher Education Global Impact Forum on Sustainable Cities, hosted by SFU, which was postponed until September 2022.

Keynote lecture offered by Director at the Vivre en Ville conference on livable communities in Montreal on sustainable neighbourhood redevelopments around the world.

Two sessions organized and offered at the inaugural Community Engaged Research Initiative Horizons conference.

**Supporting documents:**
-

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
Centre is a core member of team for SFU CFREF application, Community-Centred Climate Innovation. Successful at LOI stage submitted April 2022, proceeding to full proposal stage for submission August 2022.
Confirm policy review:
Yes

Submitted by:
Meg Holden, Director

Director's comments:
Meg Holden took up the role of director of the CSD during a period of administrative leave 2021-22 and has taken the time to meet with past and continuing members of the CSD Steering Committee during this past year, and to recruit a few new members. In the coming year, the steering committee will be convened and will ratify a terms of reference and undertake a refresh of the basic structure and operations of the CSD, including a webpage refresh and plan for working together in the next two years.

Reviewer's Section

Reviewed by:
Valorie Crooks, Associate Dean, Research & Graduate

Reviewer's decision:
Approved

Reviewer's comments:
Great to see involvement by this centre in the CFREF submission
Report Type: Annual Report
Reporting Year: 2022

General Information

Name of the Centre/Institute: Cooperative Resource Management Institute
Website: https://www.sfu.ca/rem/CRMI.html
Faculty: Environment
Director: Jonathan Moore
Director’s term end: 2021-04-01
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The Cooperative Resource Management Institute (CRMI) aims to link academic and government scientists towards effective natural resource management. The Institute can facilitate solutions to difficult multidisciplinary issues in resource management by providing an environment where personnel from different management agencies can work side-by-side along with Simon Fraser University faculty, as well as associated graduate students, post-doctoral fellows, and research associates. The unit also serves to support personnel from natural resource management agencies that are physically located at SFU’s Burnaby campus as per a Memorandum of Understanding between SFU Faculty of Environment and Fisheries and Oceans Canada. CRMI currently has strong expertise in fisheries and aquatic ecosystem science and management. The university benefits from a direct connection to expert Provincial and Federal scientists that are working to inform stewardship of natural resources and from new opportunities and funding for multidisciplinary, collaborative research programs. Graduate students and other early career scientists also gain valuable experience and training by working alongside agency scientists. This experience provides students with professional connections that can enhance graduate job prospects. The agencies involved with the Institute benefit from cooperative work with SFU scientists, which brings academic capacity to tackle problems in resource management.

CRMI connection also provides access for SFU researchers to DFO facilities, representing hundreds of thousands of dollars of in-kind support. DFO scientists at SFU have a strong track record of enabling SFU researchers to use the remarkable research facilities at DFO labs at the Cultus Lake Biological Station and West Vancouver in the Pacific Science Enterprise Centre.

CRMI supports and advances strategic plans and visions of SFU and our agency partners. CRMI advances SFU’s vision as a leading engaged university. CRMI membership has
particular expertise in the linked fields of fisheries, fish, and fish habitat, with specific focus on salmon. This focus is strongly aligned with Federal and Provincial commitments to the restoration and sustainability of salmon and their fisheries.

The Centre/Institute's membership and organization structure:
CRMI membership consists of both on-campus and off-campus members. These members are either SFU faculty or provincial/federal scientists who actively collaborate with SFU scientists. The organizational structure of this institute is that it has a director, Jonathan Moore, and an advisory board that provides guidance to the institute. Current membership includes thirteen members, a mix of SFU faculty members and agency scientists.

Significant accomplishments:
1) Impactful and prolific publications on applied science. CRMI members have published 34 papers and reports in the last year, including papers in the top journals in the field, such as Science, as well as the go-to journals for applied managers, such as Canadian Journal of Fisheries and Aquatic Sciences. These papers are not only advancing scientific understanding of how aquatic systems work, but they are also addressing emergent environmental challenges. Examples include:
   o Johnston, F.D., S. Simmons, B. van Poorten, P. Venturelli. 2022. Comparative analyses with conventional surveys reveal the potential for an angler app to contribute to recreational fisheries monitoring. Canadian Journal of Fisheries and Aquatic Sciences 79(1):31-46.
   o Braun, Naman, etc: National CSAS research document: Science on the use of timing windows as a mitigation measure. In revision for publication as a CSAS Research Document.

2) Training and mentoring graduate students as the next generation of natural resource managers. CRMI members supervised or co-supervised at least 50 masters and doctoral graduate students that graduated over the last five years. Over this time period, at any given
year, CRMI members supervised between 23 and 48 students, a remarkable critical mass of emerging scholars whose research and training is on applied sciences of natural resource management. CRMI members have also provided opportunities to recent graduates, as well as current students in MRM and Earth Sciences. Over the last year, CRMI members supervised 31 graduate students and had 9 additional students graduate and become the next generation of scientists and managers. For example:

- **Dylan Cunningham** conducted a large-scale field research project that examined forestry impacts on coho salmon rearing streams. His project investigated how different forestry activities, such as forest harvest and the development of roads, relates to instream habitat characteristics that are important to juvenile coho salmon. He found that streams with higher proportions of riparian habitat harvested were associated with higher summer temperatures. Specifically, streams with high riparian harvest rates (35%) had average daily maximum summer temperature that were 3.7°C higher than in streams with low riparian harvest rates (5%). His work has critical implications for forestry management for fish. (Co-supervised by Braun and Moore)

3) **Tackling key challenges in natural resource management.** CRMI membership, through collaborations between university and management agencies, continues to tackle foundational issues and emergent challenges in natural resource management.

Examples from 2021-2022 include:

- **Research projects in collaboration with the provincial government, including**
  - Satellite telemetry of Steelhead Kelts to estimate dispersal, range and mortality mechanisms in the North east Pacific
  - Survival and dispersal of hatchery Nechko River white sturgeon.

- **John Reynolds** is currently the Chair of COSEWIC, overseeing the status assessments of multiple populations of Chinook salmon

- **Directing freshwater habitat research together with Dave ties act renewal scientists**

- **Building the freshwater spatial ecology group at cultus and psec (Josie Iacarella lead)**

- **Ongoing hiring and program development in freshwater research at DFO**

4) **Research Funding.** Members of CRMI obtained >$5.3 million in research funding such as to support research projects and students.
Funding partners include:

- Habitat Conservation Trust Foundation
- Department of Fisheries and Oceans
- BC SRIF
- Pacific Salmon Commission – Southern Endowment Fund
- Sitka Foundation
- Fisheries and Oceans Canada
- MakeWay Foundation
- NSERC
- Hakai
- Wilburforce Foundation
- Nature Trust BC
- Wild Salmon Center

**Notable media successes:**
CRMI members and their research consistently garner widespread media coverage given the impactful and relevant nature of their research. In the last year, CRMI researchers and members were featured in 11 media coverage.

Examples of some of the media coverage that CRMI members received during 2020-2021 include:

- Pacific Wild (video featuring Reynolds Lab research)
- The Narwhal (Budget cuts and impact on salmon populations, featuring CRMI members research)
- Toronto Star (Michael Tutton on Jeff Hutchings, independent fisheries scientist)
- CTV (Michael Tutton on Jeff Hutchings, independent fisheries scientist)
Events, workshops, public outreach events:
Every year, CRMI members engage with the general public, decision-makers, and policy makers. This strong outreach and engagement links applied science to its positive impact. Examples include:

- Van Poorten. partnership with Gwich’in and Inuvialuit communities along the Arctic coast to use TK as the basis for DFO fisheries thresholds and indicators.

- Reynolds. Hosted and delivered online events: Capilano University, Prairie Conservation Action Planning Group, Stanley Park Ecological Society, Tri-Cities Nature Challenge, UBC, Central Okanagan Naturalists, Bamfield Marine Sciences Centre, the Board of Directors for the Canadian Wildlife Federation, Valdes Island Conservancy, the Victoria Natural History Society, the Royal BC Museum, and a national event for GIS Day.

- Braun. Update collaborations with Simpcw First Nation and Secwépemc Fisheries Commission on a research program focused on land use impacts on salmon watersheds and juvenile habitat use. During these meetings CRMI graduate students give presentations and receive feedback on their work from community members; presentations to Fish and Fish Habitat Protection.

- Patterson. Presentations to Canada-US bilateral Fraser Panel; to Big Bar Landslide Response tri-lateral governance body.

- Moore. Webinar delivered by Watershed Futures Initiative on "Sharing Stories on Climate Change and Cumulative Effects" for Indigenous technical experts from nations across BC; online presentation to Pacific Salmon Commission.

Supporting documents:
Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
CRMI helped facilitate major grants to support collaborative research, as noted in the "Accomplishments" section.

Confirm policy review:
Yes

Submitted by:
Jonathan Moore, Director

Director's comments:
I believe that collaborative hubs at academic institutions can simultaneously perform cutting-edge research that addresses critical emergent natural resource challenges while also training the next generation of scientists and managers. University programs such as CRMI can thus support management agencies such as DFO and other partners in advancing the delivery and future capacity for effective science-based stewardship of natural resources. This role of CRMI is arguably more important than ever. Indeed, aquatic ecosystems and the species they support, such as Pacific salmon, are threatened by climate change and myriad of human impacts. CRMI membership has particular strength in the applied science of these aquatic ecosystem. Many salmon populations are now considered at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC; led by CRMI member Reynolds). There is an urgent need to tackle the complex challenges that underpin this crisis and transform the state of salmon systems.

I recognize and appreciate that, according to SF Policy, Centres must *normally* include the word “research” in the title. Given that the Cooperative Resource Management Institute is named as such in the official MOU with Fisheries and Oceans Canada that took several years to secure, I would hope that it would be reasonable to keep the current name until it is time for a renewed MOU (2023). Upon that time, I can integrate a name update with MOU renewal and update.

Over the last year, CRMI and its membership made major contributions to its mission--to
deliver collaborative research that addresses key management issues. Evidence of success and impact include: powerful research productivity (34 papers published, 9 in review) including in the top fields of science (e.g., Science), extensive collaborative graduate mentoring (31 graduate students currently advised; 9 graduated last year), >$5.3 million in research funding, and numerous specific activities, media successes, and outreach. Accordingly, I believe that CRMI is providing key benefits to the university.

Thank you for your consideration and support.

Sincerely,

Jonathan Moore

**Reviewer's Section**

**Reviewed by:**
Valorie Crooks, Associate Dean, Research & Graduate

**Reviewer's decision:**
Approved

**Reviewer's comments:**
CRMI has supported a robust listing of scholarly and public activities. The director also provides a compelling justification for retaining the current name, which does not include the word 'research'. I am supportive of this.
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for Applied Research in Mental Health and Addiction
Website: http://www.sfu.ca/carmha.html
Faculty: Health Sciences
Director: Julian Somers
Director's term end: -
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
The Centre for Applied Research in Mental Health and Addiction (CARMHA) is a source for change. CARMHA's applied research includes an internationally recognized body of work addressing addiction, mental illness, and wellness. Members of CARMHA include multi-disciplinary clinicians and applied researchers who work closely with diverse stakeholders including branches of government. Major projects completed by CARMHA's members address: the epidemiology of addiction and mental illness; recovery and harm reduction; housing and homelessness; diversion from crime; primary healthcare; and telehealth. CARMHA is part of Simon Fraser University’s Faculty of Health Sciences and is based in downtown Vancouver Canada.

With a focus on making a positive impact, CARMHA's primary mission is to conduct research, generate evidence, and translate knowledge into policies and practices that reflect evidence regarding the most effective ways to prevent addiction and mental illness, and to promote recovery.

CARMHA is committed to the academic training of undergraduate, graduate and post-graduate students and trainees, many of which are actively involved in research projects undertaken at CARMHA.

The Centre/Institute's membership and organization structure:
Julian Somers, PhD, CARMHA Director

Paul Farnan, MD,
Significant accomplishments:


Drugs: A Rapid Review. Commissioned by the Alberta Ministry of Health.


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers


CARMHA Co-Investigators: Paul Farnan, Carson McPherson, Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers

CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers


Notable media successes:


6) Somers JM. Breaking addiction ad threading the needle of homelessness culture. Culture at a Crossroads Podcast.

7) Stueck W & Hipolito C. Pandemic underscores a lack of affordable housing, homeless issues in BC. Globe and Mail. Featuring CARMHA research.

Events, workshops, public outreach events:


3) Parpouchi, M. Nominated by the President and CEO of the Pierre Elliott Trudeau Foundation to serve as an ambassador at the Global Fellowships Forum. (2022, May 25-27). The invitation involved working with former Posse Scholars, McCall MacBain scholars, Rhodes Scholars, Mandela Rhodes Scholars, Loran Scholars, Knight-Hennessy Scholars, and Schwarzman Scholars to define goals and a structure for a global network of alumni and joint alumni programming, New York City, New York.

Columbia. Invited address supported by the American Academy for Advancement of Science.


Supporting documents:
1) SFU-MoH_Rapid_Review_DCS_July_14_2021_plVdIYn.pdf (See attachment below)
2) SFU_PSAD_RapidReview_2_uXaJfUN.pdf (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university? 
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence? 
Yes

External funding details:
Approximate total: $766,000

Research Funding:


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers

2022 Transitions to Adulthood Among Youth in Government Care: Public Duty and Collective Opportunity. British Columbia Ministry of Mental Health and Addiction. Total: $30,000
CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers


CARMHA Co-Investigators: Paul Farnan, Carson McPherson, Akm Moniruzzaman, Stefanie N Rezansoff, Paul Sobey, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers


CARMHA Co-Investigators: Akm Moniruzzaman, Stefanie N Rezansoff, Julian M Somers

Confirm policy review:
Yes

Submitted by:
, Applied Scientist

Director's comments:
In the past year important steps were taken to re-establish CARMHA as Western Canada’s premier applied research group addressing addictions and all other forms of mental illness.

CARMHA was selected to lead research for multiple provincial ministries in British Columbia and Alberta. Our applied and clinical researchers spent nearly one year preparing results for the BC Justice Summit, an invitation only event that includes the most senior members of BC’s justice sector. CARMHA also completed detailed policy reports on urgent priority topics for BC’s Ministry of Attorney General, Solicitor General, Ministry of Health, and Ministry for Mental Health and Addiction. In addition, CARMHA was selected as the lead external resource supporting Alberta’s Ministry of Health as that province undertakes a massive overhaul to improve rates of recovery from addiction and mental illness. We are
working with some of society’s most vulnerable and excluded citizens, and with policy makers to redesign services across government in order to hasten the implementation of humane, respectful, and effective policies and services. This work fundamentally involves the implementation of evidence-based practices that apply the powerful influence of social determinants of addictions and other mental illnesses, work that is fundamental to the ethos of the Faculty of Health Sciences.

Our specific projects, reports, and publications are listed separately. Our major projects include a comprehensive analysis of substance-related harms among members of the BC construction sector, funded by the BC Construction Safety Alliance. In Alberta we are leading a detailed research project examining the needs and experiences of people who are profoundly marginalized and struggling with opioid dependence, funded by the Ministry of Health. Our policy reports have addressed topics such as Drug Checking Services and the Public Supply of Addictive Drugs. The latter report was elevated to the agenda of Federal/Provincial/Territorial ministers and public officials as a central resource informing policy development addressing the current drug poisoning crisis. In BC CARMHA led the development of a provincial plan addressing homelessness, addiction, and mental illness. With support from SFU’s senior leaders, the resulting Call to Action was accompanied by a detailed budget and delivered directly to senior ministers.

CARMHA’s success is a function of our people, and the past year was an important time of renewal. We were fortunate to attract outstanding leaders as Adjunct Faculty members, including the former president of the Canadian Society of Addiction Medicine, and the Director of Research in Psychiatry at St Paul’s Hospital. Each of the four Adjunct Faculty added in the past 12 months were vital co-applicants on our funded research projects, and are integral to the successful growth that CARMHA is experiencing. That growth is continuing in the first quarter of the new year, and there is every reason to believe that CARMHA’s next annual report will reflect another substantial expansion in activity and influence for the wellbeing of Canadians regarding mental illness and addiction. Thank you for caring about our mission and our success, and please enjoy reviewing our achievements!

Sincerely,

Julian

Reviewer’s Section

Reviewed by:
Robert Hogg, Associate Dean, Research

Reviewer’s decision:
Approved
Reviewer's comments:
I have discussed the report with Julian. The report here reflects the current membership in the Centre and who provided material to Julian.
Select Key Findings:

No systematic reviews, economic analyses, or experimental studies satisfied our review criteria.

No original research studies were identified that empirically demonstrated the effectiveness of drug checking services (DCS) to reduce poisonings, promote engagement with services, or advance public health surveillance.

The most common methods used to examine research questions related to DCS were questionnaires and interviews. Notably, interviews are well-suited to the process of co-designing services with potential DCS clients.

Socially marginalized people who use drugs report ambivalence about existing DCS and have described some of their limitations as well as ways to improve their effectiveness.

DCS may be made more relevant to marginalized people who use drugs by improving access beyond settings that may confer stigma and by providing information about the full composition of samples and risks associated with their use alone and in interaction with other drugs.

Surveillance is not well supported by person-level testing due to incomplete utilization.

---

1 All authors contributed equally and are listed alphabetically
Abou this Rapid Review

Simon Fraser University provides time-sensitive scientific support to the British Columbia Ministry of Health by producing rapid reviews of evidence. The scope of rapid reviews includes identifying systematic reviews and economic evaluations, and identifying relevant primary research when systematic reviews are scarce. Rapid reviews are expected to include key findings from systematic reviews and relevant primary research, an appraisal of the quality of scientific evidence, and critical observations regarding the representativeness of populations included in the contributing research.

The current 12-day rapid review investigated drug checking services as a means of reducing harm among people who are socially marginalized and who use illicitly obtained opioids. The precise wording of our reference question and key areas of interest were developed collaboratively by SFU and MoH teams (see Introduction). A sustained poisoning crisis has affected British Columbians with profound force over recent years and provides essential context. The methodology used in this review is inclusive of all relevant empirical evidence. Our discussion of findings is oriented to the application of current evidence to British Columbia.

For the purposes of this review the MoH advised that drug checking refers to a service that enables people who use drugs to chemically analyze their street-acquired drugs and receive individualized and fact-based consultation regarding the contents, and the associated risks, of compounds detected in their samples. Drug checking services include devices that can be administered by oneself, services provided in specific locations with near immediate results, and services that involve transport of samples to a lab.

This report details our search methods, presents the resulting inventory of research articles, and discusses implications of the identified research for practice and policy development.
Introduction

Drug checking services (DCS) gained popularity at festivals, raves, and other party settings. More recently, the proliferation of fentanyl, related analogues, and new or novel substances has stimulated consideration of the potential value of DCS as a means of reducing harms associated with fluctuations in the potency and composition (active ingredients, binding agents and adulterants) of illicit drugs used by people who are socially marginalized.

Methods used to test drugs present trade-offs related to speed, cost, sensitivity, specificity, and completeness (Wallace, Hills, Rothwell, et al., 2020; Green, Park, Gilbert et al., 2020). DCS have a high degree of face valid potential to reduce harms by providing access to relevant details of illicitly obtained drugs, and to promote the engagement of socially isolated people with sources of assistance that may benefit them. Moreover, DCS may also contribute to reduced harm by enabling community-level monitoring of illicit drugs and the detection of meaningful changes in supply with implications for intervention.

A recent systematic review (Maghsoudi et al., 2021) addressed “The Implementation of Drug Checking Services for People Who Use Drugs”. Due to its broad inclusion criteria the review was ineligible for the current rapid review (RR). However the results offer relevant context. Of the 90 studies included in the review, 72% originated in Europe with emphasis on risk reduction among people using drugs in festive settings. When describing the overall quality of all included studies, the authors reported: “All studies were of relatively poor quality and limitations related to cross-sectional study designs and an absence of clear, valid, reliable, and consistently implemented outcome measures.” The review identified that “The most common outcome measures related to the influence of DCS on behaviour were intent to use the analyzed substance (14.4% of studies, n=13), influence of analysis results on drug use behaviour (11.1%, n=10), and disposal of the analyzed substance (8.9%, n=8)”. However, “Only one study linked intended behaviours to observed health outcomes.” Understandably, the review concluded with a call for more rigorous research investigating the potential for drug checking services to address behavioural outcomes among people who use drugs.

Although not designed for point of care applications, fentanyl test strips have been implemented in supervised consumptions sites in British Columbia (BC) and elsewhere. However, investigators have emphasized caution with respect to the singular role of test strips, including high rates of false positive results (e.g., Lockwood, Vervoort, and Lieberman, 2021) and the potential superiority of combined testing technologies with complementary strengths and limitations (e.g., Ti et al., 2020).

---

2 In addition to the mismatch between the scope of Maghsoudi et al.’s manuscript and that of the current review, their paper is not Indexed on Medline, perhaps due to its very recent publication, and would have been omitted.
Several recent peer-reviewed publications have summarized and commented on the state of empirical evidence involving drug checking as a means of reducing opioid-related harms (e.g. McGowan et al., 2018; Bardwell and Kerr, 2018). The conclusions reached by these authors emphasize caution and a need to invest in specific areas of original research.

Bardwell and Kerr (2018) advised that “Given the lack of rigorous DCT [drug checking technologies] evaluations involving people who use opioids, further research on DCT’s should now be prioritized to determine the true impacts of different DCT models across settings” (p.2). Related observations were made by McGowan and colleagues (2018). With reference to the use of self-administered fentanyl test-strips, the authors conclude: “There is currently limited evidence on the acceptability of the test strips among people who use drugs” and “We draw attention to the weak research evidence informing the use of fentanyl self-testing strips.” (p.34). These authors advocate for qualitative research investigating the impact of providing drug checking services and the delivery of results, emphasizing the importance of research designs that are sensitive to the detection of “unexpected and unintended effects” (p.34).

Recent publications in the United States (Weicker et al., 2020) and BC (Karamouzian et al., 2020) confirm that fentanyl is pervasive in local drug markets and that substantial proportions of people who use drugs intentionally and knowingly seek out fentanyl and related analogues. In these contexts drug checking technologies such as test strips are unlikely to discourage or mitigate the use of high-potency opioids when these are the substances being sought.

Further complicating the effective use of drug checking as a means of reducing harm is emerging evidence concerning poly-pharmacy, or the concurrent involvement of multiple substances alongside fentanyl(s) as contributors to poisoning risk. In BC, evidence provided by the Coroner’s Service (2021) confirms that fatal poisonings overwhelmingly implicate multiple drugs alongside fentanyl. Across BC’s five geographic Health Authorities, fatal poisonings between July 2020 and May 2021 varied (lowest to highest) with respect to the presence of benzodiazepines (32% - 52%) stimulants (69% - 80%), fentanyl & analogues (89% - 92%) and numerous additional drug types. The drug types tested for by the Coroner’s Service are not exhaustive. Among women and men who experienced opioid-related poisonings in BC between January 2015 and November 2016, pharmacy records revealed extremely high rates of prescribed benzodiazepine (67%, 49%), antidepressant (75%, 57%), and antipsychotic (49%, 42%) medications during the preceding five years (Smolina, Crabtree, and Chong et al., 2019). In addition, people who use illicit drugs in BC are more likely to report knowingly using fentanyl if they tested positive for methadone (Karamouzian et al., 2020), consistent with earlier research identifying high rates of illicit drug use among BC methadone recipients (Parpouchi et al., 2017). Hayashi and colleagues (2018) reported toxicological results among people who inject drugs in Vancouver, finding that among those who tested positive for fentanyl substantial proportions also tested positive for methadone (51%), benzodiazepines (24%), cocaine (74%), amphetamine/methamphetamine (75%) and morphine/heroin (90%). These findings suggest that individual-level risk is a function of the substance(s) in a particular sample and their interactions with other drugs. The effectiveness of DCS to reduce harm in this context is unclear, as is the rate at which research is providing relevant guidance.
Drug Checking Services: Rapid Review

In order to assess the status of this active and emerging area of empirical research, the British Columbia Ministry of Health commissioned this rapid review (RR) investigating the following question:

*What evidence supports the effectiveness of drug checking services as a means of reducing harm among socially marginalized illicit drug users?*

**Specific areas of interest are the effects of drug checking on:**
1. Fatal poisonings;
2. Service engagement;
3. Surveillance concerning health harms associated with illicit drug supply changes.

**Methods**

The rapid review search strategy was guided by the PICOTS framework: Population; Intervention; Comparator; Outcome; Timeframe; and Setting. PICOTS provides guidance to systematic reviewers in the formulation of research questions, analysis of published research and discussion with stakeholders (Samson & Schoelles, 2012).

We set our parameters to identify published, peer-reviewed research that examined the impact of drug checking services (Intervention); on adverse outcomes, harm reduction behaviours, service engagement, and public health surveillance (Outcomes); among socially marginalized people who use illicit drugs (Population). Given that drug checking is an emerging topic, the framework was adapted to maximize findings. Timeframe and Setting were not restricted and Comparators were excluded.

The literature search was performed using MEDLINE (via the PubMed interface) in order to address the time demands of the rapid review. MEDLINE is considered to be the most comprehensive database for health-related topics (Lal & Adair, 2014) and a validated source of peer-reviewed literature addressing health services and public health (Wilczynski et al., 2013). The search was conducted on June 30th, 2021, focused on English, peer-reviewed, full text articles using all available time, and undertaken with a 12-day deadline. A librarian (Simon Fraser University) with specific expertise in search methods reviewed the search approach and provided advice to optimize rigour and soundness. The research team was comprised of a postdoctoral fellow, a senior statistician and a senior clinical scientist.

Search terms corresponding to drug checking services (Intervention); harm reduction (Outcome) and socially marginalized people who use illicit drugs (Population) were identified. Titles and abstracts were examined by all three reviewers working independently prior to meeting to compare appraisals of the initial search results. Consensus was reached remotely using Zoom.
Drug Checking Services: Rapid Review

Results

‘Drug checking’ has not yet been indexed as a MESH term. Accordingly, a non-MESH keyword search was conducted using the following terms: drug checking; drug testing; pill checking; and pill testing. Our search parameters yielded 1,939 articles. Publication dates ranged from December 1, 1968 to July 1, 2021\(^3\). Articles were screened by at least two reviewers and excluded based on information in the title and abstract. Search history details and strategy are provided in Table 1. An archive of all 1,939 citations is available at the following link: https://www.ncbi.nlm.nih.gov/sites/myncbi/akm.moniruzzaman.1/collections/60942858/public/

Table 1: Search History for Medline Database

<table>
<thead>
<tr>
<th>Search number</th>
<th>Query/Key words</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>drug checking</td>
<td>20,062</td>
</tr>
<tr>
<td>2</td>
<td>drug testing</td>
<td>163,281</td>
</tr>
<tr>
<td>3</td>
<td>pill testing</td>
<td>4,165</td>
</tr>
<tr>
<td>4</td>
<td>pill checking</td>
<td>341</td>
</tr>
<tr>
<td>5</td>
<td>(((drug checking) OR (drug testing)) OR (pill testing)) OR (pill checking)</td>
<td>186,120</td>
</tr>
<tr>
<td>6</td>
<td>drug dependence</td>
<td>327,573</td>
</tr>
<tr>
<td>7</td>
<td>addiction</td>
<td>123,843</td>
</tr>
<tr>
<td>8</td>
<td>PWUD</td>
<td>322</td>
</tr>
<tr>
<td>9</td>
<td>PWID</td>
<td>1,993</td>
</tr>
<tr>
<td>10</td>
<td>illicit</td>
<td>25,897</td>
</tr>
<tr>
<td>11</td>
<td>marginalized</td>
<td>7,624</td>
</tr>
<tr>
<td>12</td>
<td>(((((drug dependence) OR (addiction)) OR (PWUD)) OR (PWID)) OR (illicit)) OR (marginalized)</td>
<td>408,457</td>
</tr>
<tr>
<td>13</td>
<td>(((drug checking) OR (drug testing)) OR (pill testing)) OR (pill checking)) AND (((((drug dependence) OR (addiction)) OR (PWUD)) OR (PWID)) OR (illicit)) OR (marginalized))</td>
<td>14,262</td>
</tr>
<tr>
<td>14</td>
<td>harm reduction</td>
<td>10,671</td>
</tr>
<tr>
<td>15</td>
<td>poisoning</td>
<td>363,426</td>
</tr>
<tr>
<td>16</td>
<td>adverse events</td>
<td>275,002</td>
</tr>
<tr>
<td>17</td>
<td>overdose</td>
<td>27,877</td>
</tr>
<tr>
<td>18</td>
<td>(((harm reduction) OR (poisoning)) OR (adverse events)) OR (overdose)</td>
<td>660,087</td>
</tr>
<tr>
<td>19</td>
<td>(((((drug checking) OR (drug testing)) OR (pill testing)) OR (pill checking)) AND (((((drug dependence) OR (addiction)) OR (PWUD)) OR (PWID)) OR (illicit)) OR (marginalized))) AND (((harm reduction) OR (poisoning)) OR (adverse events)) OR (overdose))</td>
<td>1,747</td>
</tr>
<tr>
<td>20</td>
<td>service engagement</td>
<td>49,117</td>
</tr>
<tr>
<td>21</td>
<td>(((((drug checking) OR (drug testing)) OR (pill testing)) OR (pill checking)) AND (((((drug dependence) OR (addiction)) OR (PWUD)) OR (PWID)) OR (illicit)) OR (marginalized))) AND (service engagement)</td>
<td>226</td>
</tr>
</tbody>
</table>

\(^3\) Our search was conducted on June 30 PST and was capable of including manuscripts with a July 1 publication date due to differences in time zones.
Sixty-two articles were considered sufficiently relevant to warrant full text review (35 articles selected by both JMS and SNR; 27 articles selected by both JMS and AM). These were examined for the inclusion of systematic reviews. Articles were otherwise included on the basis of relevance to our research questions and restricted to original research. Commentaries and discussions of findings without additional results were excluded. Details of all articles selected for full article review are provided in Appendix A.

There were no systematic reviews addressing the impact of drug checking services on harm reduction among socially marginalized people who use illicit drugs. Twelve articles met our inclusion criteria and were selected. Table 2 presents summary details of the 12 studies, followed by a brief discussion of each. Appendix 2 illustrates the steps involved in the selection and appraisal of articles.

Of the twelve original research papers that met our inclusion criteria, five reported the results of one-on-one interviews (Bardwell et al. 2019; Reed et al., 2021; Wallace et al., 2020; Wallace et al., 2021; Weicker et al., 2020), six reported questionnaire results (Beaulieu et al., 2020; Long et al., 2020; McCrae et al., 2020; Park et al., 2020; Park et al., 2021; Peiper et al., 2019), and one combined drug testing results and questionnaire findings (Karamouzian et al., 2018).
**Table 2: Selected full articles for Rapid Review (n=12)**

<table>
<thead>
<tr>
<th>Title, Authors and Publication Year</th>
<th>Participants (Population, setting, Sample size)</th>
<th>Methods (Aim, study design, study period, variables of interest, outcome, analysis)</th>
<th>Key findings/Main results</th>
<th>Conclusions</th>
<th>Quality of study &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I probably got a minute”: Perceptions of fentanyl test strip use among people who use stimulants. Reed et al. 2021</td>
<td>N=15; Philadelphia, USA; recruited from jail-based overdose education and naloxone distribution program</td>
<td>Willingness to use FTS; semi-structured interviews; January 2019 - January 2020; thematic content with constructs</td>
<td>All participants were aware of potential presence of fentanyl in stimulants &amp; susceptibility to OD; perceived benefits of FTS limited by barriers (e.g., testing in public, delayed drug use); HRB following positive test results constrained by structural factors (e.g., discarding drugs is unrealistic)</td>
<td>FTS were a desired HR tool by many participants who used stimulants &amp; should be distributed w/in this sub-population of PWUD; promotion of risk reduction activities is crucial (e.g., testing small amount for potency); FTS should be offered as part of a suite of HR options</td>
<td>Exploratory research limited to hypothetical use of FTS; small sample size &amp; ethnic homogeneity of participants; findings based on self-report; hypothetical response to negative test not examined</td>
</tr>
<tr>
<td>“We don’t got that kind of time, man. We’re trying to get high!”: Exploring potential use of drug checking technologies among structurally vulnerable people who use drugs. Bardwell et al. 2019</td>
<td>N=20; Downtown East side, Vancouver, Canada; PWUD recruited from ongoing cohort studies – (VIDUS &amp; ACCESS)</td>
<td>Willingness to use various drug checking technologies; semi-structured interviews; December 2017 - February 2018; thematic analysis</td>
<td>Reported willingness to use DCS was low; themes identified: (1) giving up a drug sample; (2) time dedication; (3) measurements and accuracy; (4) positive fentanyl results; (5) ambivalence to overdose risk; and (6) availability, accessibility, and feasibility of drug checking technologies.</td>
<td>Willingness to use DCS is constrained by structural vulnerabilities faced by PWUD</td>
<td>Small sample size; all participants &gt;30 yrs of age; examined hypothetical use of DCS; sample not representative of all PWUD</td>
</tr>
<tr>
<td>A fentanyl test strip intervention to reduce overdose risk among female sex workers who use drugs in Baltimore: Results from a pilot study. Park et al. 2020</td>
<td>N=103; Baltimore City, MD, USA; female sex workers reporting past month illicit opioid use; recruited b/n April 2018 – Feb 2019</td>
<td>Baseline survey with test results &amp; brief intervention training (5 FTS, naloxone &amp; HR messaging); surveyed after 1 month re. HR measures (pre-test - post-test)</td>
<td>66% completed follow-up; 84% used≥1 FTS; 86% had ≥1 positive result; 69% engaged in HR measures following positive result; 96% reported being likely to use FTS in future</td>
<td>High FTS acceptability; reduced drug use frequency &amp; solitary drug use following FTS use; FTS have potential to reduce OD risk</td>
<td>Concluded “high acceptability” but 51% did not use all 5 FTS (over course of 1 month); 12% used FTS after drug use only; survey findings subject to bias &amp; not necessarily generalizable to BC</td>
</tr>
</tbody>
</table>
| Agency in the fentanyl era: Exploring the utility of fentanyl test strips | N=20; PWUD with recent opioid use in Baltimore, MD, USA | Understanding utility of FTS in fentanyl-saturated markets; interviews; October 2018 - December 2019; coded | Fentanyl perceived as highly prevalent & dangerous; limitations of binary reporting; majority would use drugs regardless of test results; | FTS have HR value in markets where fentanyl is ubiquitous/for people | Small sample size; self-report; examined hypothetical use of FTS; ‘street-
<table>
<thead>
<tr>
<th>Title, Authors and Publication Year</th>
<th>Participants (Population, setting, Sample size)</th>
<th>Methods (Aim, study design, study period, variables of interest, outcome, analysis)</th>
<th>Key findings/Main results</th>
<th>Conclusions</th>
<th>Quality of study &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>in an opaque drug market. Weicker et al. 2020</td>
<td>analysis including major concepts like fentanyl, harm reduction strategies, and changes to the drug market</td>
<td>‘off-label’ use of FTS can empower PWUD to make decisions/change behaviours &amp; disseminate info w/in drug networks, including drug sellers</td>
<td>who intentionally use fentanyl</td>
<td>recruitment’ limits socio-demographic diversity of participants &amp; generalizability of findings to BC</td>
<td></td>
</tr>
<tr>
<td>Effect of witnessing an overdose on the use of drug checking services among people who use illicit drugs in Vancouver, Canada. Beaulieu et al. 2020</td>
<td>Multivariable logistic regression of questionnaire responses to estimate effect of witnessing an OD on use of DCS; June-Dec 2018</td>
<td>54% reported witnessing OD; 14% reported using DC in last 6 months; positive association (OR:2.32)</td>
<td>Witnessing OD may motivate use of DCS; small proportion reported using DCS (low uptake); discordance b/n ‘acceptability/willingness’ and behaviour, possibly due to sense of invincibility or ambivalent view of death</td>
<td>Correlational survey findings reported as ‘causal’ (e.g., “effect of witnessing….”); clients prefer FTIR w/ FTS (used in this study) – to know quantity of fentanyl</td>
<td></td>
</tr>
<tr>
<td>Evaluation of a fentanyl drug checking service for clients of a supervised injection facility, Vancouver, Canada. Karamouzian et al. 2018</td>
<td>Cross-sectional study using drug testing results and questionnaire findings; July 2016-June 2017; opportunity to test drugs with FTS; logistic regression to assess assoc b/n test results and dose reduction/drug disposal</td>
<td>1% of visits included DCS; 80% of 1,411 DCs found positive for fentanyl; no assoc b/n DC result &amp; intended drug disposal; most tests conducted post-consumption; given positive DC, 36% reported planning to reduce dose; 11% reported planning disposal; intended dose reduction significantly assoc with reduced odds of OD (OR=0.41)</td>
<td>Very low uptake, high proportion of samples contained fentanyl; further implementation &amp; evaluation is required</td>
<td>Impossible to know how many individual clients used the DCS or if clients who used it did so regularly; INSITE clients are much less likely to dispose of drugs found positive for fentanyl than festival attendees; some clients may seek fentanyl (knowing they can be treated for OD); qualitative detection of fentanyl may be less relevant in this context</td>
<td></td>
</tr>
<tr>
<td>Title, Authors and Publication Year</td>
<td>Participants (Population, setting, Sample size)</td>
<td>Methods (Aim, study design, study period, variables of interest, outcome, analysis)</td>
<td>Key findings/Main results</td>
<td>Conclusions</td>
<td>Quality of study &amp; Comments</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Evaluation of fentanyl test strip distribution in two Mid-Atlantic syringe services programs. Park et al. 2021</td>
<td>N=123 PWUD in Baltimore (urban) and 102 in Delaware (urban, sub-urban &amp; rural), USA (representing &lt;5% of clients from SSPs in each location)</td>
<td>Comparing implementation experiences, FTS acceptability and utilization patterns between SSP clients in Baltimore City and Delaware; Questionnaire; January - March 2019; Outcomes of interest included types of drugs tested, positivity rates, risk reduction rates and interest in future FTS use</td>
<td>70-77% of participants reported using ≥1 FTS within a 2-month period; FTS used to test range of drugs; majority of tests screened positive; 23-69% of participants reported using HRB following positive test result; 49-74% reported interest in future use</td>
<td>Uptake of FTS is high (70–77%), when integrated into existing services at SIFs; DCS provide novel information to the community, promote risk reduction behaviors, and are easily integrated into existing services</td>
<td>Convenience sample limits generalizability; FTS were distributed but findings based on self-report; use of ≥1 FTS in 2-month period cannot be characterized as 'highly utilized'; descriptive analysis (no comparison of HRB including OD between participants who used FTS and those who didn’t)</td>
</tr>
<tr>
<td>Factors associated with drug checking service utilization among people who use drugs in a Canadian setting. Long et al. 2020</td>
<td>N=828 individuals recruited from three ongoing prospective cohort studies of PWUD in Vancouver, BC, Canada (VIDUS, ACCESS, ARYS)</td>
<td>Identifying factors associated with drug checking uptake; cohort study using questionnaire; June - November 2018; outcome of interest: self-reported DCS use in the past 6 months; multivariable logistic regression</td>
<td>21% of participants reported use of DCS in last 6 months; homelessness, living in DTES, daily crack use &amp; involvement in drug dealing significantly associated with DCS use; reasons for not using DCS include not interested in knowing drug contents (33%), no alternatives (dope sick, high prevalence of fentanyl, etc.), unaware of service &amp; accessibility of DCS</td>
<td>Uptake of DCS was low; positive association b/n drug dealing and DCS may imply potential for improving drug market safety; further evaluation of DCS (especially outside the context of party &amp; music festival settings) is required</td>
<td>Large sample; adjusted analysis; self-reported DCS use;</td>
</tr>
<tr>
<td>Fentanyl test strips as an opioid overdose prevention strategy: Findings from a syringe services program in the Southeastern United States. Peiper et al. 2019</td>
<td>N=125; community-based sample PWID; Greensboro, NC</td>
<td>Can FTS facilitate safer drug use behaviour &amp; protect against OD? Anonymous online survey re most recent FTS use (Sept-Oct 2017)</td>
<td>FTS correlates: previous OD, experience w/ naloxone, SSP use, seeking fentanyl, previous FTS use, result from last FTS test. Higher uptake prior to consumption than reported in Cdn Lysyshyn study (81% vs. 38%)</td>
<td>FTS use &amp; positive test results assoc with changes in behaviour: (using less drug, pushing plunger slower, tester shot, snorting vs injecting) but not discarding drugs.</td>
<td>Higher uptake m/b due to increasing proportion of PWID who prefer IMF (stronger rush; higher tolerance due to IMF saturation in illicit drug market) Do these HRB reduce risk of OD (see study above).</td>
</tr>
</tbody>
</table>
### Drug Checking Services: Rapid Review

<table>
<thead>
<tr>
<th>Title, Authors and Publication Year</th>
<th>Participants (Population, setting, Sample size)</th>
<th>Methods (Aim, study design, study period, variables of interest, outcome, analysis)</th>
<th>Key findings/Main results</th>
<th>Conclusions</th>
<th>Quality of study &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The effect of injecting alone on the use of drug checking services among people who inject drugs. McCrae et al. 2020</td>
<td>N=793 individuals from three ongoing prospective cohort studies of PWID in Vancouver, BC, Canada (VIDUS, ACCESS, ARYS)</td>
<td>What is the association between injecting alone and use of drug checking services? Cross-sectional questionnaire study embedded within a prospective cohort study; May 2018 - December 2018; outcome of interest: self-reported DCS use in the past 6 months; multivariable logistic regression</td>
<td>579 (73.0%) injected alone and 177 (22.3%) used DCS in the last 6 months; 15% of sample preferred use of fentanyl; injecting alone was negatively associated with use of DCS (Adjusted Odds Ratio = 0.65; 95% Confidence Interval: 0.44–0.97).</td>
<td>People who inject alone are less likely to access drug checking services; may be due to factors that prevent them from accessing HR services (e.g., stigma, criminalization of drug use, area restrictions); more research on these socio-structural barriers &amp; on relationship (direction of causality) b/n DC &amp; injecting alone is required; safe supply initiatives would eliminate need for DCS; decriminalization &amp; more HR services required</td>
<td>Large sample; adjusted analysis; study sample limits generalizability to other settings/ PWUD sub-population; findings based on self-report; negative association b/n accessing DCS and injecting alone m/b due to residual confounding (PWUD who use DCS may inject w/ others b/c they know the contents of their drug/may use at SIFs b/c they are there to access DCS)</td>
</tr>
<tr>
<td>The potential impacts of community drug checking within the overdose crisis: qualitative study exploring the perspective of prospective service users. Wallace et al. 2021</td>
<td>27 people who use or have used substances, family or friends of people who use substances, and/or people who make or distribute substances. Victoria, BC, Canada</td>
<td>What are the impacts of drug checking as a HR response? interviews; November 2018 - February 2019</td>
<td>4 themes identified re benefits/impacts of DCS: improved health/wellbeing of PWUD; increased quality control; healthier environments; mediating polices re. substance use (safe supply, criminalization)</td>
<td>Benefits of DCS extend beyond individual-level intervention; DCS must meet needs of diverse populations &amp; must not be focused on abstinence-based outcomes/behaviour change; future research is required to explore perspective of 3rd party testers (i.e., dealers)</td>
<td>Generalizability given recruitment at HR sites; many participants had little knowledge/experience of DCS</td>
</tr>
<tr>
<td>What is needed for implementing drug checking services in the context of the overdose crisis? A qualitative study</td>
<td>University and community researchers conducted 27 in-depth interviews with potential service users at prospective drug checking sites</td>
<td>To explore the implementation of DCS as a potential HR response to the overdose crisis; interview study November 2018 - February 2019; thematic analysis</td>
<td>Stigmatization, criminalization and trauma experienced by potential users of DCS are the most significant challenges to implementation; DCS must provide confidential &amp; anonymous services;</td>
<td>Risk of stigmatization &amp; criminalization is critical to acceptability of DCS – benefits of DCS must exceed these risks</td>
<td>Current DCS are severely limited re. identified needs (e.g., FST binary test results; accessibility of other technologies that can</td>
</tr>
</tbody>
</table>
Drug Checking Services: Rapid Review

<table>
<thead>
<tr>
<th>Title, Authors and Publication Year</th>
<th>Participants (Population, setting, Sample size)</th>
<th>Methods (Aim, study design, study period, variables of interest, outcome, analysis)</th>
<th>Key findings/Main results</th>
<th>Conclusions</th>
<th>Quality of study &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>explore perspectives of potential service users. Wallace et al. 2020</td>
<td>identified the most relevant constructs</td>
<td>accurate &amp; detailed info re composition; free and fast results using a small sample; information on specific HR info related to drug composition and should be easily accessible in a variety of settings &amp; PWLE</td>
<td>determine potency; criminalization of drug trade, etc.); generalizability of findings is limited given recruitment at HR sites; many participants had little knowledge/experience of DCS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1st reviewer: JMS; 2nd reviewer: SR; 3rd reviewer: AM

Abbreviations: FTS, fentanyl testing strips; OD, overdose; HRB-harm reduction behaviours; PWUD, persons who use drugs; HR, harm reduction; VIDUS, Vancouver Injection Drug Users Study; ACCESS, AIDS Care Cohort to Evaluate Exposure to Survival Services; ARYS, At Risk Youth Study; DCS, drug checking services; FTIR, Fourier-transform infrared spectroscopy; SSP, syringe service programs; DC, drug checking; PWID, persons who inject drugs; IMF, illicitly manufactured fentanyl; SIF, supervised injection facility; PWLE, persons with lived experience
Bardwell et al. (2019) present results of 20 interviews with “structurally vulnerable” people who use drugs in Vancouver for their perspectives on the potential use of multi-method drug checking technologies (DCTs). The researchers concluded that “we found that many participants expressed skepticism about and thus unwillingness to use DCTs, and this unwillingness was shaped by a variety of factors, in particular those factors associated with their structural vulnerability (e.g., due to poverty and drug prohibition)”. Specific impediments included an unwillingness to part with samples of drugs and the length of time needed to derive useful feedback about a sample’s composition prior to use.

Beaulieu et al. (2020) investigated the association between self-reported “witnessing an overdose” and use of drug checking services by examining questionnaire results among cohorts of people who use drugs (n=1,426) in Vancouver. About 54% of respondents reported having “Witnessed an overdose” in the preceding six months and about 14% reported “Use of drug checking services” in the same period. Adjusted multivariable modelling indicated that factors most strongly associated with “Use of drug checking services” were “Use of drugs that contained fentanyl” (AOR=3.35) “Witnessed an overdose” (AOR=2.32) and “Daily injection drug use” (AOR=2.00). Interpreting their results the investigators wrote: There appears to be a discordance between availability and willingness to use drug checking services and uptake of drug checking services. This discordance may be partially attributable to a sense of invincibility, or an ambivalent view of death.”

Karamouzian et al. (2018) investigated the use of a drug checking service located within Insite, a well-established supervised drug consumption facility in downtown Vancouver. “Insite’s staff offered all clients the opportunity to check their drugs for the presence of fentanyl”. A primary finding from this study is that 1411 out of 134,176 Insite visits (1%) took advantage of the available drug checking services. Of the samples tested about 80% were positive for fentanyl. The investigators concluded that “It is possible that the limited uptake of this intervention might reflect clients’ reluctance to check their drugs when they suspect the majority of street drugs to be adulterated”.

Long et al. (2020) report results from among three cohorts of people who use drugs in Vancouver and factors associated with use of drug checking services (DCS). Results overlap with those reported by Beaulieu et al. (2020) above but in the current study were restricted to people who endorsed the use of illicit opioids in the 6 months preceding questionnaire administration (n=828). The researchers found that reported “uptake of DCS was low, with only one-in-five using the services in the past month”, and that the “most commonly reported reason for not using the DCS was no interest in knowing the contents of the drug”. Adjusted multi-variable modeling indicated that the odds of endorsing use of drug checking were greatest among people who reported living in the Downtown Eastside neighbourhood (AOR=1.68), dealing drugs (AOR=1.59) and being homeless (AOR=1.47).
McCrae et al. (2020) report results of a cross-sectional BC survey (n=793) of people who report injecting drugs. The majority reported injecting alone (73%) and less than one quarter (22%) reported use of drug checking services. In multivariable modelling the reported use of drug checking was negatively associated with injecting alone. The authors concluded that concentrating DCS within supervised drug consumption facilities will be ineffective for people who use drugs alone.

Park et al. (2020) sought to examine the effect of a brief fentanyl test strip intervention (consisting of brief counseling and provision of 5 test strips and Naloxone) among female sex workers in Baltimore Maryland. Of 103 participants receiving the intervention 68 contributed results to the follow up survey. Comparisons of pretest-posttest findings indicate reductions in several risky behaviours (e.g., injection frequency), but no change in preference for drugs containing fentanyl.

Park et al. (2021) recruited convenience samples from among the users of syringe services programs in Baltimore (n=123) and Delaware (n=102), and collected data via anonymous surveys related to participants’ experiences with the implementation of fentanyl test strips. The survey results indicate high rates of utilization (70% and 77% in the two sites), risk reduction behaviours (23% and 69%) and interest in the future use of test strips (49% and 74%). The authors recommend “[s]hifting the surveillance burden from criminal justice to public health”, and tentatively advise broad implementation of fentanyl strips in the service of that objective.

Peiper et al. (2019) report results from an anonymous online survey administered to people who inject drugs in Greensboro North Carolina and who had used a fentanyl test strip (FTS) service (n=125). The majority of respondents (63%) reported having received a positive test strip result. The investigators concluded that “Although we found no statistically association between FTS results and perceptions of overdose risk, a high percentage of respondents (77%) indicated that FTS made them feel more able to protect themselves from overdose”.

Reed et al. (2021) recruited participants (n=15) through a Philadelphia Department of Prisons program, and interviewed people who reported stimulant use regarding their perceptions of fentanyl and willingness to use test strips. Participants were identified as Black (87%), with an average of 10 lifetime arrests, most recently for property (40%) violent (27%) or drug-related (20%) offences. The investigators reported their findings as exploratory and concluded that “Participants expressed concern about barriers to using test strips and a lack of realistic actions to stay safe if their drugs tested positive for fentanyl”.

Wallace et al. (2021) interviewed 27 people in Victoria BC regarding potential benefits of drug checking services. Most of their sample reported using substances daily and were either homeless or living in single room occupancy or “supported or subsidized” housing. The primary source of income for 59% of the sample was “disability benefits”. Participants reported interest in the full composition of drugs, including non-psychoactive as well as psychotropic ingredients along with information regarding their effects. Results were interpreted for their implications for individuals (e.g., promoting personal safety), markets (e.g., influencing purchases),
communities (e.g., extending safety to carers and friends of people who use drugs), and policies (e.g., law reform).

Wallace et al. (2020) reported the results of 27 interviews with people who use illicit drugs in Victoria BC regarding the potential for drug checking services to reduce harm including the risk of poisoning. Support for drug checking among respondents was related to the ability of services to provide “accurate information on the composition of substances”, and the availability of “quick services, multiple sites and extensive hours”, a recommendation for “mobile drug checking services”. In addition, investigators emphasize that “Our study concurs with findings from recent Canadian and American research teams that discarding one’s drugs is a much less relevant and respectful service objective for community drug checking services seeking to reach people impacted by poverty, homelessness and other structural vulnerabilities”.

Weicker et al. (2020) interviewed 20 people in Baltimore who reported opioid use in the past 30 days. Respondents’ reports indicate that “Fentanyl was viewed as pervasive, dangerous, and difficult to avoid”. Participants described fentanyl test strips as “Not really helping” due to the lack of full spectrum ingredient information combined with meaningful advice. Instead, participants described using test strips to confirm drug contents: “When I buy something, I’m like, “Are you sure if has fentanyl in it? Because that’s what I need.”
Discussion

No systematic reviews, economic analyses, randomized trials or quasi-experimental studies are among the publications identified by this review. Participants in all twelve selected studies were socially and structurally marginalized and at risk for poisoning, with most samples including people who had experienced poisoning previously. Participants in four of the selected studies were recruited from the same Vancouver cohorts, and a fifth Vancouver paper set at Insite is likely to include some of the same cohort members. Two papers report results of interviews conducted in Victoria BC. The remaining five papers present findings generated in the US. Only one paper described an intervention, and was a self-described “pilot project” in which 32% of participants were lost to follow up over 1 month. Overall the selected studies provide preliminary evidence, although the fact that most were conducted in BC strengthens the external validity of their findings for local policy and service planning.

This review identified no intervention studies investigating the effectiveness of drug checking services on any of the specific outcomes of interest, namely: poisoning reduction; improved engagement with services; or public health surveillance. Despite the small number of studies, the available research indicates a large discrepancy between self-reported intention to use drug checking services and actual use of services when provided. Only one of the reviewed manuscripts reported actual rates of using DCS, with most findings based solely on questionnaires. The level of deprivation experienced by many marginalized people who use drugs may contribute to a tendency to endorse forms of help when offered. Individuals who sell drugs and those who are homeless were more likely than others to self-report having used DCS although none of the studies reviewed objectively observed high rates of DCS use in any samples or subgroups.

Among the reasons commonly provided for not using DCS was that the information is not relevant. Ambivalence regarding the consequences of drug use was also commonly reported in many of the included studies. In some settings DCS appear to have been implemented on the assumption that a positive result for fentanyl would stimulate caution and a reduced likelihood of use. The selected studies confirm that many marginalized people seek fentanyl as their preferred drug while concurrently using multiple additional forms of prescription and illicitly obtained drugs. Interview findings indicate that people who are marginalized and who use illicit drugs nevertheless foresee value in checking services, provided that such services are co-designed with people who are their ostensive beneficiaries, that results are timely and meaningful, and that using a DCS does not expose clients to external threats to their agency such as arrest or being urged to dispose of drugs. Although the selected studies reported high rates of polypharmacy (i.e., use of multiple additional drugs alongside fentanyl or other opioids), none called for an assessment of drug-related risks involving a particular sample in the presence of other drugs.

It may be instructive to compare the approach taken by many DCS with analogous services for the general population. BC’s PharmaNet system provides comprehensive surveillance of
dispensed medications and promotes individual harm reduction by enabling pharmacist assessment of drug combinations and interactions. Extending a similar benefit to people who use illicit drugs might entail assessing the potency and composition of substances that a person plans to consume, integrating these details with knowledge of drugs already consumed, and providing an interpretation that takes into account individual tolerance. Very recently the first reported pharmacist-led DCS has been implemented in North Somerset “in line with the UK drug strategy and commitment to harm reduction with the aims to reduce demand, restrict supply, and build recovery capital” (Guirguis, Gittins, and Schifano, 2020). The self-described pilot project provides details of drug composition and “discussion of adverse effects that may result from drug–drug interactions such as synergistic or additive effects, including QT prolongation” (p.8). The authors report the feasibility of implementing this novel service and call for future research “to measure the impact of the intervention” (p.15).

Few of the identified studies described DCS that were designed by or with people who use drugs. Notably, the two studies originating in Victoria BC articulate a commitment to the co-design of services with prospective clients, reflecting harm reduction’s original emphasis on “grassroots” sources of knowledge while seeking to increase agency and influence among people whose lives are often defined by powerlessness (e.g., Marlatt, 1996). A large body of evidence supports the effectiveness of enhanced agency as a means of reducing harm and promoting wellbeing among marginalized people who use drugs. However evidence relating this literature to the implementation of DCS is at most incipient.

Several of the reviewed studies address the relationship between effective DCS and the enforcement of current drug laws. Some study participants expressed concern that personal drug checking equipment could be interpreted as “drug paraphernalia” and added to police charges. Locating drug checking services in select settings such as consumption sites was described as a disincentive for some people who use drugs and also for people who may seek access to a checking service for a loved one or friend. Law reform and stigma reduction were interconnected themes articulated by interview participants in relation to realizing the potential benefits of drug checking.

Potential limitations of this review include our restriction to Medline and English language publications. Comprehensive citation chaining (i.e., review of references among selected articles) was not conducted. These practices may have resulted in the exclusion of relevant articles indexed by other databases or in languages other than English. Nevertheless, our findings corroborate those of the more inclusive systematic review published April 30, 2021 by Maghsoudi and colleagues, who observed “Key methodological limitations among studies reporting on behaviour of PWUD” and recommended that the further implementation of DCS’s should be accompanied by “research on enacted behaviours, linking behaviours to health outcomes” (p.9). BC researchers have contributed substantially to the studies included in this review, and comprise a resource that can help ensure that future DCS’s are designed and operated in ways that maximize benefits to people who are marginalized and who use drugs.
References


Drug Checking Services: Rapid Review


Drug Checking Services: Rapid Review


Krieger MS, Yedinak JL, Buxton JA, Lysyshyn M, Bernstein E, Rich JD, Green TC, Hadland SE, Marshall BDL. High willingness to use rapid fentanyl test strips
Drug Checking Services: Rapid Review


Drug Checking Services: Rapid Review


Drug Checking Services: Rapid Review

Oct 11. PMID: 31610451; PMCID: PMC6893085.


## Appendix A: Articles Selected for Full Text Review (n=62)

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors and Publication Year</th>
<th>Selected</th>
<th>Reviewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I probably got a minute&quot;: Perceptions of fentanyl test strip use among people who use stimulants</td>
<td>Reed MK et al. 2021</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>&quot;We don't got that kind of time, man. We're trying to get high!&quot;: Exploring potential use of drug checking technologies among structurally vulnerable people who use drugs</td>
<td>Bardwell G et al. 2019</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>A cross-sectional analysis of fentanyl analog exposures among living patients</td>
<td>Chhabra N et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>A fentanyl test strip intervention to reduce overdose risk among female sex workers who use drugs in Baltimore: Results from a pilot study</td>
<td>Park JN et al. 2020</td>
<td>Yes</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>A Low-Barrier and Comprehensive Community-Based Harm-Reduction Site in Vancouver, Canada</td>
<td>Olding M et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Acceptability of implementing community-based drug checking services for people who use drugs in three United States cities: Baltimore, Boston and Providence</td>
<td>Sherman SG et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Adulterants and altruism: A qualitative investigation of &quot;drug checkers&quot; in North America</td>
<td>Palamar JJ et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Agency in the fentanyl era: Exploring the utility of fentanyl test strips in an opaque drug market</td>
<td>Weicker NP et al. 2020</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>An assessment of the limits of detection, sensitivity and specificity of three devices for public health-based drug checking of fentanyl in street-acquired samples</td>
<td>Green TC et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>An overview of forensic drug testing methods and their suitability for harm reduction point-of-care services</td>
<td>Harper L et al. 2017</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Analysis of recreational drug samples obtained from patients presenting to a busy inner-city emergency department: a pilot study adding to knowledge on local recreational drug use</td>
<td>Wood DM et al. 2011</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Brief Report: Rates of Fentanyl Use Among Psychiatric Emergency Room Patients</td>
<td>Elmarasi M et al. 2021</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Canadian harm reduction policies: A comparative content analysis of provincial and territorial documents, 2000-2015</td>
<td>Wild TC et al. 2017</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Definitive urine drug testing in office-based opioid treatment: a literature review</td>
<td>Barthwell AG et al. 2018</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Detecting fentanyl using point-of-care drug checking technologies: A validation study</td>
<td>Ti L et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Drug Checking and Its Potential Impact on Substance Use</td>
<td>Betzler F et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Drug checking as a potential strategic overdose response in the fentanyl era</td>
<td>Laing MK et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Drug checking at an electronic dance music festival during the public health overdose emergency in British Columbia</td>
<td>Mema SC et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Title</td>
<td>Authors and Publication Year</td>
<td>Selected</td>
<td>Reviewers</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------------------</td>
<td>----------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Drug checking services at music festivals and events in a Canadian setting</td>
<td>McCrae K et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Drug checking to detect fentanyl and new psychoactive substances</td>
<td>Palamar JJ et al. 2020</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Drug checking: a potential solution to the opioid overdose epidemic?</td>
<td>Bardwell G et al. 2018</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Ecstasy pill testing: harm minimization gone too far?</td>
<td>Winstock AR et al. 2001</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Effect of witnessing an overdose on the use of drug checking services among people who use illicit drugs in Vancouver, Canada</td>
<td>Beaulieu T et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Evaluating networked drug checking services in Toronto, Ontario: study protocol and rationale</td>
<td>Maghsoudi N et al. 2020</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Evaluation of a drug checking service at a large scale electronic music festival in Portugal</td>
<td>Valente H et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Evaluation of a fentanyl drug checking service for clients of a supervised injection facility, Vancouver, Canada</td>
<td>Karamouzian M et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Evaluation of fentanyl test strip distribution in two Mid-Atlantic syringe services programs</td>
<td>Park JN et al. 2021</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Factors associated with drug checking service utilization among people who use drugs in a Canadian setting</td>
<td>Long V et al. 2020</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Fentanyl and fentanyl analogs in the illicit stimulant supply: Results from U.S. drug seizure data, 2011-2016</td>
<td>Park JN et al. 2021</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Fentanyl self-testing outside supervised injection settings to prevent opioid overdose: Do we know enough to promote it?</td>
<td>McGowan CR et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Fentanyl test strips as an opioid overdose prevention strategy: Findings from a syringe services program in the Southeastern United States</td>
<td>Peiper NC et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Focused use of drug screening in overdose patients increases impact on management</td>
<td>Erdmann A et al. 2015</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Harm reduction measures employed by people using opioids with suspected fentanyl exposure in Boston, Baltimore, and Providence</td>
<td>Rouhani S et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>High concentrations of illicit stimulants and cutting agents cause false positives on fentanyl test strips</td>
<td>Lockwood TE et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>High willingness to use rapid fentanyl test strips among young adults who use drugs</td>
<td>Krieger MS et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Implementing an integrated multi-technology platform for drug checking: Social, scientific, and technological considerations</td>
<td>Wallace B et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Initial results of a drug checking pilot program to detect fentanyl adulteration in a Canadian setting</td>
<td>Tupper KW et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Is expected substance type associated with timing of drug checking service utilization?: A cross-sectional study</td>
<td>Beaulieu T et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Title</td>
<td>Authors and Publication Year</td>
<td>Selected</td>
<td>Reviewers</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>----------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Known fentanyl use among clients of harm reduction sites in British Columbia, Canada</td>
<td>Karamouzian M et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Music festival attendees' illicit drug use, knowledge and practices regarding drug content and purity: a cross-sectional survey</td>
<td>Day N et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>New psychoactive substances: Current health-related practices and challenges in responding to use and harms in Europe</td>
<td>Pirona A et al. 2017</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Patterns of use and toxicity of new para-halogenated substituted cathinones: 4-CMC (clephedrone), 4-CEC (4-chloroethcatinone) and 4-BMC (brephedrone)</td>
<td>Grifell M et al. 2017</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Pill testing at music festivals: is it evidence-based harm reduction?</td>
<td>Scott IA et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Pill testing or drug checking in Australia: Acceptability of service design features</td>
<td>Barratt MJ et al. 2018</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Pill testing warrants assessment in careful pilot programmes</td>
<td>Komesaroff PA et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Pill-testing as a harm reduction strategy: time to have the conversation</td>
<td>Morgan J et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Piloting the UK’s First Home-Office-Licensed Pharmacist-Led Drug Checking Service at a Community Substance Misuse Service</td>
<td>Guirguis A et al. 2019</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Risk intentions following pill test scenarios are predicted by MDMA use history and sensation seeking: A quantitative field study at an Australian music festival</td>
<td>Hollett RC et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Stakeholder perspectives on implementing fentanyl drug checking: Results from a multi-site study</td>
<td>Glick JL et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Substances injected at the Sydney supervised injecting facility: A chemical analysis of used injecting equipment and comparison with self-reported drug type</td>
<td>Lefrancois E et al. 2020</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Testing wastewater from a music festival in Switzerland to assess illicit drug use</td>
<td>Benaglia L et al. 2020</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>The dawn of a new synthetic opioid era: the need for innovative interventions</td>
<td>Pardo B et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>The effect of injecting alone on the use of drug checking services among people who inject drugs</td>
<td>McCrae K et al. 2020</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>The importance of drug checking outside the context of nightlife in Slovenia</td>
<td>Sande M et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>The Increasing Prevalence of Fentanyl: A Urinalysis-Based Study Among Individuals With Opioid Use Disorder in New York City</td>
<td>Martinez S et al. 2021</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>The Opioid Epidemic Within the COVID-19 Pandemic: Drug Testing in 2020</td>
<td>Niles JK et al. 2021</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>The potential impacts of community drug checking within the overdose crisis: qualitative study exploring the perspective of prospective service users</td>
<td>Wallace B et al. 2021</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
</tbody>
</table>
## Drug Checking Services: Rapid Review

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors and Publication Year</th>
<th>Selected</th>
<th>Reviewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time-series Analysis of Fentanyl Concentration in the Unregulated Opioid Drug Supply in a Canadian Setting</td>
<td>Tobias S et al. 2021</td>
<td>No</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Trusting the source: The potential role of drug dealers in reducing drug-related harms via drug checking</td>
<td>Bardwell G et al. 2019</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>Use of rapid fentanyl test strips among young adults who use drugs</td>
<td>Krieger MS et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
<tr>
<td>What is needed for implementing drug checking services in the context of the overdose crisis? A qualitative study to explore perspectives of potential service users</td>
<td>Wallace B et al. 2020</td>
<td>Yes</td>
<td>1st &amp; 3rd Reviewer</td>
</tr>
<tr>
<td>Willingness to use drug checking within future supervised injection services among people who inject drugs in a mid-sized Canadian city</td>
<td>Kennedy MC et al. 2018</td>
<td>No</td>
<td>1st &amp; 2nd Reviewer</td>
</tr>
</tbody>
</table>

1st reviewer: JMS; 2nd reviewer: SR; 3rd reviewer: AM
Appendix B: Flowchart Illustrating Article Selection

1939 records identified from Medline Database (December 01, 1968 – July 01, 2021)

No duplicates

1939 title and abstracts screened

1977 excluded as out of scope

62 full texts examined

50 full-text articles were excluded based on results of full text review

12 citations included for current RR
PUBLIC SUPPLY OF ADDICTIVE DRUGS:
A RAPID REVIEW
SELECT KEY FINDINGS

Nineteen studies met our inclusion criteria by: 1. reporting original research findings; 2. advocating for safe supply; and 3. appearing in peer-reviewed journals.

None of the identified studies were systematic reviews, economic analyses, or randomized controlled trials.

None of the identified studies investigated outcomes associated with providing addictive drugs for personal use outside the context of a structured program.

The results most commonly reported confirmed extremely high rates of homelessness, unemployment, food insecurity, and other indicators of poverty and social exclusion among people at high risk for poisoning.

Only one of the included studies recommended specific evidence-based interventions to address the risk factors for addiction reported in their results.

Most of the identified studies (n=15) were conducted in British Columbia by teams with primary expertise in infectious diseases (e.g., HIV).
REVIEW TEAM MEMBERS

DR. AKM MONIRUZZAMAN
Akm Moniruzzaman, MD, PhD, is specialist in statistical methods and has served as the senior statistician on a body of addiction research including randomized trials, quasi-experimental studies, and population-level analyses of multi-sectoral linked data. He is a senior research associate at CARMHA.

DR. STEFANIE N REZANSOFF
Stefanie N Rezansoff MSc, PhD has earned national and international awards for her research addressing practices that divert people who experience addiction and mental illness from the criminal justice system and toward wellness. Dr Rezansoff is a research scientist at CARMHA.

DR. PAUL SOBEY
Paul Sobey, MD is a former president of the Canadian Society of Addiction Medicine. He has been a full-time addiction medicine physician with focus on occupational and recovery medicine for the last 22 years. Dr. Sobey is an Adjunct Professor at CARMHA.

DR. JULIAN M SOMERS
Julian M Somers, MSc, PhD, RPsych is a clinical psychologist and specialist in addiction since 1987. His body of research includes theoretical, clinical, and empirical advances addressing harm reduction and recovery from addiction. He has led numerous large studies investigating ways of helping people who experience addiction, mental illness, homelessness, and involvement with corrections. He is a Distinguished SFU Professor and the Director of CARMHA.
ABOUT THIS RAPID REVIEW

Researchers and clinicians at Simon Fraser University provide time-sensitive expert support to branches of government, including reviews of evidence. The scope of rapid reviews includes the identification of systematic reviews and economic evaluations, and the inclusion of relevant primary research when systematic reviews are scarce. Rapid reviews are expected to summarize key findings from relevant peer reviewed publications, appraise the quality of available evidence, and assess the generalizability of the available research to other contexts.

The current rapid review incorporates the Alberta Legislature’s Select Special Committee to Examine Safe Supply’s concept of safe supply.\(^2\) The intervention and target population are defined as follows:

- **The provision of pharmaceutical opioids, heroin, crystal methamphetamine, cocaine, or other substances;**
- **To people who are addicted to or dependent on these substances and who are at high risk for poisoning;**
- **For witnessed or unwitnessed consumption.**

Specific outcomes of interest were:

- **Fatal and non-fatal poisoning;**
- **The health and safety of individuals or communities (e.g., crime, drug diversion);**
- **Any other benefits or consequences.**

Alberta’s Ministry of Health specified that the current review should discuss the findings in the context of relevant evidence concerning alternative approaches for addressing fatal and non-fatal overdoses and associated impacts, including current standards of care for promoting recovery from addiction.

The term safe supply may suggest to some readers that research already establishes the safety and effectiveness of the practices defined previously. For the purposes of this report we have adopted terminology that does not presume the outcome of our review and refer to the Public Supply of Addictive Drugs (PSAD), which avoids implying safety and effectiveness while accurately describing the practice of interest.

The methodology used in this review is inclusive of peer reviewed publications indexed on MEDLINE. We also included articles provided directly by advocates for PSAD. Our findings are discussed in the broader context of evidence based practices related to the prevention of poisonings and other harms among people who are at high risk.

\(^2\)Alberta Legislature’s Special Select Committee to Examine Safe Supply, Mandate, available online: www.assembly.ab.ca/assembly-business/committees/ESS
INTRODUCTION

Over recent decades Canada and the United States have experienced catastrophic increases in addiction and related consequences, including fatal poisonings. The extraordinary rise in fatal poisonings in North America coincides with the fact that per-person consumption of opioids in Canada and the US exceeds that of other high income countries (International Narcotics Control Board, 2013). However, factors other than opioid prescribing are strongly associated with the rise in fatalities. British Columbia has by far the highest per capita poisoning mortality rate in Canada, claiming the lives of an estimated 2,224 people in 2021. The drugs identified among decedents in BC have varied considerably in recent years, and in 2021 included synthetic opioids such as fentanyl (91%), stimulants (74%) benzodiazepines (44%) and various other drugs (BC Coroners Service, 2022). These findings are indicative of a poly-substance use crisis rather than one that narrowly implicates opioids.

In response to the current crisis many have called for a Public Supply of Addictive Drugs (PSAD), referred to by advocates as safe supply. Commentators have called for “…a large-scale public health model of safe supply” (Ryan et al., 2020), arguing that “the only pragmatic and ethical way forward is to offer a regulated, safer supply” (Tyndall, 2020). In order to successfully reduce harms among people who are most at risk for poisoning, PSAD aims to provide drugs that would otherwise be obtained from illicit sources, in forms that match drug users’ preferred route(s) of administration, and for use independently. PSAD is specifically described as “non-treatment based” (Ivsins, Boyd, Beletsky, et al., 2020) in order to reach individuals who are currently not engaged by health or other services. The Government of Canada states (Government of Canada, n.d.-a) that “safer supply services may offer:

- a range of medication options
- accessible locations
- flexible eligibility requirements
- flexible dosing conditions and carrying rules (for example, clients may be able to pick up their supply and use as needed)
- flexible client goals (for example, focusing on improving health and not requiring that clients stop using illegal drugs)”

FORERUNNING RESEARCH

Some proponents of PSAD claim support from two Canadian studies that examined the administration of otherwise illicit substances (Oviedo-Joekes et al., 2009, 2016). These two studies are briefly discussed here as background to PSAD.

The North American Opioid Medication Initiative (Oviedo-Joekes et al., 2009) was a randomized trial comparing oral methadone with twice daily injected diacetylmorphine (DAM; the active ingredient in heroin). Participants in the trial were homeless (73%), had been charged with crimes (94%), were hepatitis positive (63%), and 24% were Indigenous, more than four times the provincial prevalence of Indigenous peoples. The investigators report that “All patients were offered a comprehensive range of psychosocial and primary care services”, but do not indicate whether evidence-based housing, employment support, or addiction treatment were among the comprehensive offerings.
The comparison between groups is described by the investigators: “The first primary outcome was retention in addiction treatment at 12 months (defined as receipt of the study medication on at least 10 of the 14 days before the 12-month assessment or confirmation of retention in any other treatment program or abstinence from opioids during this interval)”. A second primary outcome was reduction in illegal activities, ascertained by self-report. Over 12 months of follow up more than half of the people randomized to receive methadone “discontinued the intervention” compared to about one-third of the diacetylmorphine group. Participants in both groups reported marked decreases in their use of “street heroin”, with a comparatively greater decrease in the DAM group. The authors report that no one in either study group acknowledged any suicidal ideation throughout the trial. The authors conclude from their results that “Injectable diacetylmorphine was more effective than methadone”. In a subsequent manuscript addressing needs among Indigenous participants, the authors conclude: “Offering medically prescribed diacetylmorphine or hydromorphone to Aboriginal people with severe long-term opioid dependence could be an effective means of attracting and retaining them in treatment” (Oviedo-Joekes et al., 2010). Alternative interventions that might be attractive to Indigenous people experiencing homelessness and opioid dependence aren’t discussed.

The Study to Assess Longer-term Opioid Medication Effectiveness (Oviedo-Joekes et al., 2016) recruited 202 people who were randomly assigned to receive injections of either hydromorphone or diacetylmorphine. The goal of the study was “To test if injectable hydromorphone hydrochloride is noninferior to injectable diacetylmorphine in reducing illicit heroin use for chronic injection opioid users after 6 months of intervention.” About 1/3 of the study participants were Indigenous and about 2/3 were unstably housed. The presence of concurrent mental illnesses is not reported, nor are the goals of study participants.

From the manuscript: “The primary outcome measure was street heroin use, defined as the number of days of use in the prior 30 days by means of self-report.” The investigators identified Serious Adverse Events among nearly one-quarter of study participants (47/202), the most common of which was acute poisoning or overdose. The authors report that “the primary outcome did not show noninferiority”, but nevertheless conclude that “these results suggest that injectable hydromorphone is as effective as injectable diacetylmorphine for long-term injection street opioid users not currently benefiting from available treatments.”

The extent to which people are “benefitting from available treatments” is necessarily a function of the effectiveness of those treatments that are available. The authors do not discuss evidence-based interventions addressing homelessness, unemployment, or addiction treatment. Nor do they refer to the importance of reconciliation as it relates to the reduction of addiction among the high proportion of Indigenous people who participated in their trials. As above, a subsequent paper concentrates on Indigenous participants (Oviedo-Joekes et al., 2018) and concludes that: “…injectable hydromorphone (and DAM when available) offers an opportunity to integrate additional wholistic and culturally safe approaches to treatment to meet the needs of Indigenous patients.”

Both of the aforementioned trials focus on differences associated with specific formulations of opioids among people who experience profound addictions while living in poverty. In contrast to PSAD, neither trial provided people with their choices of addictive drugs for independent use. And by definition, both trials included people who were willing to participate in a structured program, in contrast to those who are the intended targets for PSAD. Last, neither trial addressed social determinants of addiction, which we briefly discuss below.

Reconciliation is a guiding construct that seeks to supplant the legacy of colonization with partnership and respect for all relations, and was introduced in the Government of Canada’s 1998 report Gathering Strength: Canada’s Aboriginal Action Plan.
**PSYCHOLOGICAL AND SOCIAL DETERMINANTS OF POISONING**

The likelihood of both fatal and non-fatal poisoning is strongly associated with evidence of social and psychological distress. At the community level, poisonings are related to the Area Deprivation Index (Kurani et al., 2020), a validated measure that integrates poverty, education, housing, and employment (Singh, 2003). Fatal poisonings are significantly more likely in lower-income communities (Pear et al., 2019) and among people living in poverty (Monnat, 2018). The term *deaths of despair* refers to mortality attributed to poisoning, suicide and liver disease (Case & Deaton, 2017). At the individual level, those at highest risk for *deaths of despair* are people with disabilities, Indigenous peoples, and those who are unemployed (Olfson et al., 2021).

A considerable body of research investigates the psychological wellbeing of people who meet criteria for opioid use disorder (OUD) and who experience drug poisonings. More than half of those who survive drug poisonings report suicidal intent (i.e., wanted to die, didn’t care about the risks), and the likelihood of suicidal ideation increases with the number of non-fatal poisonings that a person has experienced (Gicquelais et al., 2020). In a large (n=36,309) representative US sample of adults, those with OUD experienced significantly impaired health-related quality of life and were half as likely to be employed compared to those without OUD (Rhee & Rosenheck, 2019). Consistent with research identifying suicide and despair among victims of poisoning, concurrent mental illness is significantly associated with the likelihood of overdose (Dilokthornsakul et al., 2016).

**HARM REDUCTION, SUBSTANCE USE, QUALITY OF LIFE**

Principles of *harm reduction* are summarized in Figure 1 (Marlatt, Somers, Tapert, 1993). The figure acknowledges the close relationship between personal risk and the extent of substance use, and the ethos that *harm reduction* promotes movement toward decreased risk.

**Figure 1: Original Illustration of Harm Reduction**
(Marlatt, Somers, Tapert, 1993)

The term recovery has gained strength in the addiction field after having been refined in relation to mental illnesses and refers to the experience of substantially improved quality of life (QoL) following illness (e.g., Leamy et al., 2011). The relationship between harm reduction and recovery-oriented approaches is illustrated by adding a third axis to Figure 1 ranging from low to high QoL, revealing that the overall goal of both harm reduction and recovery-oriented approaches is to promote “steps in the right direction” (please see Figure 2).

**Figure 2: Overlap between Harm Reduction and Recovery-Oriented Approaches**

In the years since harm reduction was introduced there have been substantial developments in the identification of practices that reduce drug-related risks. The second edition of the influential text Harm Reduction observes: “From its grassroots and activist beginnings, harm reduction has expanded to become an even more inclusive and globally applied platform for a broad range of approaches that are focused toward reducing harm and increasing QoL among individuals engaging in high-risk behaviors and their communities” (Collins et al., 2012, p. 26). In practice, one of the major advances in the science of harm reduction has been the identification of connections between individual-level risk and community-level characteristics, as illustrated in the preceding section and discussed later.
HARM REDUCTION GOALS OF PEOPLE AT RISK FOR POISONING

The practice of harm reduction embraces human agency, or self-determination, as a fundamental aspect of wellness. This focus has resulted in a body of research detailing the preferences and goals of people who are at risk.

People who have experienced an overdose articulate different priorities than those who haven’t. A sample of 440 people with OUD was recruited from a detox facility in Massachusetts and asked: “If you had unlimited treatment options and all were free, which one would work best for you when you leave here?” Options included medication, informal treatment (12-step programs), and residential treatment. People who had experienced a poisoning episode in the past year were nearly 7 times more likely than those with no prior poisonings to select residential treatment (Stein et al., 2017).

The goals of people diagnosed with OUD are often neglected or ignored by public addiction service providers and researchers. Measures that are commonly used to assess the success of public addiction programs are impacts on illicit opioid use and retention in a prescribing program (Dennis et al., 2020). However, these outcomes bear little resemblance to the goals articulated by people who seek help for addiction.

Over one thousand clients spanning 33 addiction agencies in Scotland were interviewed about their goals for treatment (McKeganey et al., 2004). More than half (56.6%) of the sample (n=1,007) reported that achieving “abstinence” was the only change they were seeking from treatment. By contrast, few reported the goal of “reduced drug use” (7.1%) and fewer than 1% identified the goal of “safer drug use”.

In Ontario over 2,000 people receiving Opioid Agonist Therapy (OAT) for OUD were asked the question “What are your goals in treatment?” (Rosic et al., 2021). The most frequent response by far was to “Stop or taper off treatment” (68.3%), indicating that one of the measures used to define OAT success (i.e., program retention) is diametrically opposed to the goals of clients. The second most common treatment goal was to “Stay or get clean” (36.6%), reinforcing that the avoidance of drug use, rather than ongoing use via an alternative supply, is a priority among those currently receiving opiate agonist therapies.

Harms associated with drug use are among the most commonly reported sources of motivation for changing addictions. Pettersen and colleagues (Pettersen et al., 2018) interviewed people who had been diagnosed with substance use disorder and who had been abstinent for at least five years, finding that: “Their main reasons for quitting were experiencing the harmful consequences of substance use, concerns and pressure from close family members, countering doubt, having hope, and being aware of available treatment options.” Among people who formerly identified as problematic heroin users, the factors cited most often as contributing to abstinence were being tired of the lifestyle and motivation to improve their psychological health (Best et al., 2008). In the same study, factors associated with sustained abstinence involved “moving away from drug-using friends and support from non-using friends” and improvements in “accommodation and employment” (Best et al., 2008).

Research on the preferences of people who meet criteria for SUD has extended to include the topics of drug legalization and decriminalization, revealing: “The majority of our participants were not in favor of legalizing nor decriminalizing heroin and cocaine, even if they or someone they knew had suffered legal consequences related to substance use, or if they themselves met criteria for a SUD. These findings suggest that this population would not support policy changes related to heroin and cocaine legalization/decriminalization, which may reflect their own experiences, making them more cautious about increasing availability of these drugs.” (Hammond et al., 2020).
Numerous randomized controlled trials demonstrate the feasibility and effectiveness of providing people who experience addictions and homelessness with supports that address their chosen priorities involving improved housing, employment, and overall wellbeing. Individual Placement and Support is a structured employment program that was originally developed for people with serious mental illness (Mueser et al., 2016) and is similarly effective among people diagnosed with concurrent addictions (LePage et al., 2016). Canada’s seminal At Home/Chëz Soi study (Goering et al., 2011) demonstrated that recovery-oriented housing for people with severe addictions and mental illness results in extremely high housing stability (Palepu et al., 2013) and substantial reductions in both crime (Somers et al., 2013) and medical emergencies (Russolillo et al., 2014) compared to standard care in the same communities. Importantly, these results are derived from a randomized trial design and use of administrative data sources (e.g., Provincial Corrections, Emergency Department records) rather than client self-report. In addition to responding to the stated goals of people living in extreme vulnerability, recovery-oriented housing has been shown to be highly cost-effective (Latimer et al., 2020).

REVIEWS ADDRESSING PSAD

A limited number of literature reviews have focused on PSAD. A rapid review conducted by the Ontario HIV Treatment Network (2020) addressed the question: “What are possible benefits of providing a safe supply of substances to people who use drugs during public health emergencies such as the COVID-19 pandemic?” The reviewers concluded: “We found no peer-reviewed literature on the potential benefits or harms of safe supply programs.”

A scoping review (Bonn et al., 2020) included opioid agonist therapies (OAT) in the definition of safe supply. The review, which was co-led by people who use drugs, focussed on barriers and facilitators of accessing addictive drugs during COVID-19. The review identified “restrictive drug laws or policies” among the most frequently cited barriers to securing safe supply or OAT. The review concludes by recommending “an immediate scale up of a safe supply of pharmaceutical-grade drugs and substances”, to be followed by research. The review did not discuss other services that people who use drugs may desire apart from improvements to the way they access drugs.

A review conducted as part of the respected Cochrane Library examined supervised versus take-home opioid substitution treatment: “The objective of this systematic review is to compare the effectiveness of opioid substitution treatment (OST) with supervised dosing relative to dispensing of medication for off-site consumption” (Saulle et al., 2017). When discussing the results of their review and Implications for Practice the authors state: “Evidence on the use of supervised dosing in the context of opioid substitution treatment (OST) for the management of opioid dependence was limited to six studies, some of them we considered at high risk of bias. At present, there is uncertainty about the effects of supervised dosing compared to unsupervised medication due to the low and very low quality of the evidence.” Importantly, none of the studies included in their review involved the dispensing of addictive drugs other than those used in OST (e.g., methadone, buprenorphine). And none of the reviewed articles presented findings outside the context of addiction treatment. With one exception, the authors report: “we did not identify any studies combining OST and psychosocial measures such as supportive counselling, psychotherapy, assistance with social needs such as housing, employment, education, welfare and legal problems.” (Saulle et al., 2017).
Very recently a Stanford-Lancet Commission report (Humphreys et al., 2022) was published, responding to “soaring opioid-related mortality in the USA and Canada over the past 25 years” and “with the goals of understanding the opioid crisis, proposing solutions domestically, and attempting to stop its spread internationally” (Humphreys et al., 2022, p. 1). Their report describes the genesis of the current crisis and details the magnitude of the gap between best practices in the field of addiction and the services that are available publicly. The Commission identifies critical failings in both the Canadian and US public systems of care for people diagnosed with Opioid Use Disorder (OUD), and discusses the destructive influence of commercial interests that seek to profit from publicly funded services. They caution that: “Opioid medications can be powerful and effective in the treatment of OUD, but should not be used as an informal system of pharmacological sedation of poverty” (Humphreys et al., 2022, p. 24).

Reflecting the Commissioners’ grounding in the literature on addiction, their report emphasizes that “many patients with OUD have serious, unaddressed psychiatric, medical, family, employment, and housing issues that medication alone will not solve” (Humphreys et al., 2022 p.24). Alongside their recommendations to improve the prevention and treatment of OUD, the authors issue the following caution: “Policies that should attract skepticism include the dispensing of hydromorphone from vending machines and prescribing a range of potent opioids and other drugs (e.g., benzodiazepines, stimulants) to individuals with OUD in hopes of creating a safe addictive-drug supply” (Humphreys et al., 2022, p. 24).

The current review differs from those referred to above by investigating peer-reviewed studies that report original research findings which the authors interpret as indicating the need for safe supply.
METHODS

The rapid review search strategy was guided by the PICOTS framework: Population; Intervention; Comparator; Outcome; Timeframe; and Setting. PICOTS provides guidance to systematic reviewers in the formulation of research questions, analysis of published research and discussion with stakeholders (Samson & Schoelles, 2012).

The quality and robustness of evidence were assessed following the guidance of the Oxford Centre for Evidence Based Medicine (OCEBM) Levels of Evidence (2011). In general, systematic reviews of randomized trials represent the most robust level of evidence, followed by individual randomized controlled trials. Less robust levels of evidence include non-randomized cohort studies followed by case series. Per the OCEBM: “Level may be graded down on the basis of study quality, imprecision, indirectness”.

Search parameters were selected to identify published, peer-reviewed research that examined the Public Supply of Addictive Drugs (Intervention); on beneficial or adverse outcomes (Outcomes); among socially marginalized people who use illicit drugs (Population). In order to include as much relevant research as possible, the parameters of Timeframe and Setting were not restricted and Comparators were not included (see Table 1).

The literature search was performed using MEDLINE (via the PubMed interface) in order to address the time demands of the rapid review. MEDLINE is considered to be the most comprehensive database for health-related topics (Lal & Adair, 2014) and a validated source of peer-reviewed literature addressing health services and public health (Wilczynski et al., 2013). The search focused on English, peer-reviewed, full text articles using all available time, and undertaken with a 30-day deadline. A librarian (Simon Fraser University) with specific expertise in search methods was consulted prior to the search and provided advice to optimize the rigour and soundness of rapid reviews. The research team was comprised of senior (PhD, MD, or both) researchers and licensed clinicians with primary expertise in addiction, drug safety and effectiveness, pharmacoepidemiology, and statistics. We also reviewed and included papers submitted directly by advocates for PSAD.

Search terms were used to identify included articles. Titles and abstracts were examined by at least two team members working independently, followed by more detailed relevance review by at least three reviewers. Consensus was reached remotely using Zoom.

The final search was completed on January 28, 2022 and included manuscripts published and indexed on or before January 15, 2022.
## RESULTS

Results of the search procedure are presented in Table 1 and are available here: [www.ncbi.nlm.nih.gov/sites/myncbi/akm.moniruzzaman.1/collections/61613950/public/](www.ncbi.nlm.nih.gov/sites/myncbi/akm.moniruzzaman.1/collections/61613950/public/)

### TABLE 1: SEARCH HISTORY OF MEDLINE DATABASE

<table>
<thead>
<tr>
<th>Search using PICO method</th>
<th>Query/Key words</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population</strong></td>
<td>drug user* OR &quot;drug user** OR substance user* OR &quot;substance user** OR opioid crisis OR overdose OR addiction OR addict* OR PWUD OR PWID OR &quot;toxic drug supply&quot; OR illicit drug user* OR &quot;marginalized people&quot; OR opioid user* OR depressant* OR stimulant* OR analgesic OR narcotic* OR psychotropic* OR psychoactive OR benzodiazepine* OR prescription drug* OR opioid* OR methamphetamine OR cocaine OR fentanyl OR morphine OR hydromorphone OR diacetylmorphine OR oxycontin OR oxycodone</td>
<td>1,311,483</td>
</tr>
<tr>
<td><strong>Safe supply as Intervention</strong></td>
<td>safe supply OR safer supply OR &quot;safe supply&quot; OR &quot;safer supply&quot; OR &quot;substance supply&quot; OR safer opioid distribution OR &quot;safer opioid prescribing&quot; OR &quot;safer opioid** OR &quot;pharmaceutical opioid**&quot;</td>
<td>69,085</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>overdose OR poisoning OR &quot;drug diversion&quot; OR recovery OR adverse events OR retention OR harm* OR abstinence OR employment OR unemployment OR quality of life OR homeless* OR reunification OR social integration OR community integration OR jail OR incarceration OR crim*</td>
<td>2,367,510</td>
</tr>
<tr>
<td><strong>Combined search (intervention and population and outcome)</strong></td>
<td>((safe supply OR safer supply OR &quot;safe supply&quot; OR &quot;safer supply&quot; OR &quot;substance supply&quot; OR safer opioid distribution OR &quot;safer opioid prescribing&quot; OR &quot;safer opioid** OR &quot;pharmaceutical opioid**&quot;) AND (drug user* OR &quot;drug user** OR substance user* OR &quot;substance user** OR opioid crisis OR overdose OR addiction OR addict* OR PWUD OR PWID OR &quot;toxic drug supply&quot; OR illicit drug user* OR &quot;marginalized people&quot; OR opioid user* OR depressant* OR stimulant* OR analgesic OR narcotic* OR psychotropic* OR psychoactive OR benzodiazepine* OR prescription drug* OR opioid* OR methamphetamine OR cocaine OR fentanyl OR morphine OR hydromorphone OR diacetylmorphine OR oxycontin OR oxycodone)) AND (overdose OR poisoning OR &quot;drug diversion&quot; OR recovery OR adverse events OR retention OR harm* OR abstinence OR employment OR unemployment OR quality of life OR homeless* OR reunification OR social integration OR community integration OR jail OR incarceration OR crim*)</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td>Filters: from 1950/1/1 - 2022/1/15</td>
<td>839</td>
</tr>
</tbody>
</table>
There were no meta-analyses, systematic reviews, randomized controlled trials, or quasi experimental studies that met our inclusion criteria. Nineteen peer-reviewed publications were identified that both: presented original research findings; and advocated for “safe supply”.

All of the included studies employed interviews or surveys among cohorts or case series, and twelve included between 9 and 91 participants. Studies that reported the characteristics of participants identified high rates of homelessness, unemployment, food insecurity, and poverty. Indigenous ethnicity was as high as 42% among respondents. None of the included studies reported results associated with the provision of addictive drugs (i.e., fentanyl, cocaine, heroin, crystal methamphetamine) for personal use outside the context of treatment. The overall level of evidence was low, affected by both the indirectness of evidence and imprecision of key terms (e.g., safe supply).

None of the included studies presented diagnostic details regarding the type(s) of Substance Use Disorders experienced by their study participants, the prevalence and type(s) of concurrent mental illness(es), the presence and severity of suicidal ideation, or participants’ preferences for addiction treatment, housing or other forms of social support.

Fifteen of the included papers (79%) were conducted in BC and only one was conducted outside Canada. All of the BC-based papers were led (i.e., first or senior author) by researchers with expertise in HIV/AIDS.

Papers that described a “root cause” of the poisoning crisis specified that the cause was a “toxic drug supply”. None referred to causes of addiction involving psychological or social factors.
This study (Ali et al., 2021) reports “changes in substance use frequency, substance use characteristics, and substance supply”, based on the results of questionnaires administered by phone to 200 people across Canada who either use illicit drugs or receive methadone. Most respondents identified as poly-substance users and stimulants were reported as the most commonly used class of drugs (74% of the sample).

The authors interpret their results as demonstrating that “Supply disruptions have had further unintended consequences such as ‘substitution’ effects, where PWUD have had to supplement their preferred substance for other – potentially more dangerous – products because of accessibility and affordability issues. This has created an unprecedented vulnerability…”

The living situations among respondents from BC were categorized as “Homeless/street” (37.5%), “Shelter” (9.5%), or “Transient” (12.5%). When asked about the current pandemic’s impact on the likelihood of poisoning, a minority (38%) expressed the belief that “their level of risk had increased since COVID-19”. The results do not indicate the prevalence of non-fatal poisonings in the sample.

The authors advocate for the provision of take-home naloxone, telemedicine, sterile supplies, and drug testing kits, adding “Although these interventions are necessary to address increased risk for overdoses and health concerns which have been exacerbated during the pandemic, they do not address the root cause of these issues, which is primarily related to the contaminated drug supply. As such, there need to be options for PWUD who are at risk of overdose to have access to an uncontaminated supply of pharmaceutical-grade substances (e.g., opioids or stimulants), alternatively knowns as ‘Safe Supply’.” The authors do not discuss criteria for identifying who is at risk of overdose, or define the elements of “safe supply” such as the range of included drugs, potencies, and amounts to be provided. The manuscript does not discuss any recommendations regarding addiction treatment, housing or homelessness.


The authors (Ferguson et al., 2022) report: “The aim of this study was to identify opioid preferences and associated variables”. Participants (n=367) were recruited from “a network of sites which distribute supplies for safer sex and substance use” in BC. A paper-based questionnaire was administered to a convenience sample, taking roughly 10 minutes to complete. “Participants received $10 CAD for participation and the sites received $5 per participant recruited”.

Less than 30% of the sample reported being “stably housed” (28.3%) and less than one in five were “currently employed (19.9%). Indigenous ethnicity comprised 42% of the sample. Nearly three-quarters (74%) reported use of crystal methamphetamine.
There is no mention of evidence-based interventions that address homelessness, unemployment, the treatment of addiction, or reconciliation in the interpretation of results. In contrast, the term “safe supply” appears fifteen times in the short Discussion without being clearly defined (e.g., drug types, doses, amounts, any contraindications, etc.). The authors recommend that drug users should determine the types of drugs that are made available to them: “Providing choice will result in most equitable and accessible safe supply programs”.


Salters and colleagues (2021) report results from an ongoing study involving people living with HIV (PLWH) who received antiretroviral therapy (ART) and were also enrolled in a drug treatment database (n=1,000). The overall study objective was “to evaluate the impact of health care engagement and social determinants of health on PLWH who have accessed ART in BC”. The current study examined mortality within the cohort “to inform our public health approaches and reorganize our efforts to provide comprehensive and responsive care for all PLWH”.

Poisoning (“Drug use/Overdose”) was the most common cause of death among decedents (57 out of 208 deaths). Nearly half (47.9%) of decedents lacked stable housing and over three-quarters (76.2%) reported food insecurity.

Despite their stated focus on improving social determinants of health, the authors do not cite any evidence-based practices addressing homelessness, food insecurity, or addiction treatment. Instead, they conclude that these findings highlight the dire need for life-saving interventions, including increased safe supply options. A definition of “safe supply” is not provided.


This study (Olding et al., 2019) reports results from 19 individuals “who reported helping someone inject for the first time”. The authors discuss moral conflicts described by participants, including their “legal and moral culpability” in the context of increasingly potent drugs.

The authors interpret their findings as support for “enacting policies conducive to a safer supply of opioids, including those that end drug prohibition and facilitate distribution of pharmaceutical-grade opioids”. The majority of the 19 participants reported using cocaine, crystal methamphetamine, and other drugs alongside opioids, yet the authors do not discuss the potentially fatal contributions of other substances when advocating for safe supply.
The authors (Parent et al., 2021) state that “the objectives of this study are to identify the prevalence and correlates associated with smoking opioids”, and report results derived from a questionnaire administered in 22 BC sites as described above (see Study #2).

The study sample consisted of 369 people who reported using opioids in the past 3 days and results are presented comparing those who smoked opioids with those who ingested opioids via other means (e.g., snorting, injecting). The overall sample reported very high prevalence of unemployment (77.2%) and lack of “regular housing” (35.2%), both of which were more prevalent among opioid smokers. Opioid smokers were also more likely than other opioid users to report using crystal methamphetamine. Among the entire sample (n=369) the use of multiple drugs was reported including: methamphetamine (77.8%); cocaine (25.2%); and crack (19.2%). In addition, 30.9% reported receiving opiate agonist therapy in the past 3 days.

The authors do not cite any specific evidence-based interventions addressing homelessness, unemployment, or addiction treatment. Instead they conclude: “Our findings highlight important correlates associated with smoking opioids, particularly the concurrent use of methamphetamines. These findings can support concrete actions to better respond to the overdose crisis, such as targeting harm reduction approaches, educating on the risks of smoking opioids, advocating for consumption sites where people can smoke drugs, as well as providing a safer opioid supply with known content that can be smoked.” Despite the high prevalence of poly-substance use in their sample, the authors do not include drugs other than opioids in their description of “safe supply”.

This study (Bardwell, Ivsins, et al., 2021) presents results from interviews with 24 people in Vancouver who reported using prescription opioids (PO) that were not prescribed to them. The authors’ stated objective is to explore “the rationale and perceived benefits of using a variety of diverted POs.”

Nearly all participants (22/24) reported that income assistance was their primary source of income. Use of multiple types of drugs was common, including fentanyl (n=16), heroin (n=13), crystal methamphetamine (n=11), and crack cocaine (n=10) among others. A substantial proportion of the sample also received drugs by prescription including methadone (n=11) and morphine (n=7).

The authors conclude: “In summary, many participants preferred using POs because of their perceived known contents and lower overdose risk profile”. Potentially dangerous interactions between diverted POs and other drugs reportedly used by participants are not discussed. The authors acknowledge the apparently high prevalence of “economic deprivation” in their sample, but do not refer to specific evidence-based practices that reduce poverty among marginalized drug users, concluding that: “These findings emphasize the need for the continued implementation and evaluation of safer drug supply initiatives, including those providing access to a variety of drug types.”

The authors (Milaney et al., 2021) state: “The main purpose of this study was to explore if there was an association between unstable housing and hospital use for people who use opioids”. They present self-reported results collected from surveys of 432 Albertans who all reported use of opioids.

The majority of respondents (55.6%) reported having unstable housing. One-third of respondents (32.6%) identified as Indigenous, and nearly one-third reported experiencing an overdose (31.7%).

“Results revealed that being unstably housed was associated with receiving hospital care even after accounting for the additional variables”.

The authors state: “Our findings support the growing evidence base highlighting the importance of housing and recovery-oriented models such as Housing First”. They explain: “Housing First models are rooted in the belief that housing, not compliance or sobriety, is the foundation for improved health and wellbeing and once housing has been secured a person can successfully address other areas in their life such as physical health, mental health, substance use, employment, and education”.

The authors conclude: “Results highlight the importance of concurrently addressing housing instability alongside the provision of harm reduction services such as safe supply and supervised consumption sites”, specifying that: “Implementation of safe supply initiatives including regulated and safe opioid distribution are necessary.” They do not provide a definition of “safe supply” and do not list any non-opioids (e.g., cocaine, crystal meth, benzodiazepines) in their recommendation.


“(T)he aim of this study was to assess the effects of using diverted POs [prescription opioids] on fentanyl exposure among people who use drugs (PWUD)”.

A sample was identified from among two longitudinal cohort studies, consisting of 1150 people who reported using drugs in the previous six months and who had results from a urine drug test. Of the total sample, 241 (21.0%) reported using diverted prescription opioids “defined as reporting having used oxycodone, codeine, morphine, methadone, buprenorphine, hydromorphone, hydrocodone, or meperidine from any of the following sources: illegitimate prescription, given/ taken from family member, partner of friend, or bought on the street in the previous six months.”

Employment was low among those who reported using POs (24.9%) as well as among the remainder of the sample (26.5%). Homelessness was significantly more prevalent among those who reported using diverted POs. Among those who reported using diverted POs the results of urine drug testing (UDT) were positive for: morphine (70.8%), methadone (45.6%); cocaine (51.9%); amphetamine (54.1%); and benzodiazepine (20.0%). Alongside these extremely high rates of polysubstance use, the authors focus on a particular relationship in their findings: “…the effect of using diverted POs on fentanyl exposure differed in relation to distinct patterns of opioid use. Specifically, among PWUO [defined by the authors as “people who use opiates”] in our sample, use of diverted POs was associated with approximately half the odds of fentanyl exposure, but this protective effect was not observed among participants with negative morphine UDT.”
The authors do not discuss any specific evidence-based interventions addressing treatments for poly-substance addiction or addressing unemployment and homelessness. The prevalence of severe mental illness (e.g., schizophrenia, bipolar disorder) in their sample is unreported. The authors interpret the results as evidence of possible public health benefits associated with the diversion of prescription opioids, and conclude: “These findings suggest the potential positive benefits of PO diversion during an opioid epidemic as well as the potential of having access to a regulated supply of pharmaceutical grade opioids as a way to reduce fentanyl related harms”.


Pauly and colleagues (2020) present the results of interviews with service users (n=12) and staff (n=15) employed at three sites in BC. The sites are described as “overdose prevention sites” (OPS) and are contrasted with “supervised consumption sites” on the bases that they are “staffed by experiential (people with living experience of drug use) and non-experiential harm reduction workers and are provincially rather than federally-sanctioned as a temporary emergency measure”. “The overall focus of our research was to explore the early implementation and impacts of OPSs through a rapid case study design”.

Participants were described as overwhelmingly without housing (50% no fixed address; 33% shelter; 17% supported housing) and only 17% reported any employment income. The authors interpret their findings as having strong implications for reducing poisonings: “From the perspective of all participants, the most agreed-upon positive impact across all three sites was the fact that zero deaths had occurred in any OPS. When asked directly about successes, one staff person stated “we’re saving lives, that’s successful””.

The authors do not identify any evidence-based practices to address employment, homelessness, or treat addiction. They interpret their results as addressing “the importance of moving from safer supplies to safer spaces”, and argue that “the next step has to be a safer source of substances”.


This study (Aronowitz et al., 2021) reports results from 30 one-on-one, semi-structured, in-depth interviews to assess how Philadelphia's harm reduction advocates, community organizers, and substance use disorder treatment clinicians have responded to the overdose and homelessness crises during COVID-19”.

Results are discussed thematically and attest to the deterioration of services for people who are homeless and who use drugs. No specific evidence-based interventions addressing homelessness or addiction treatment are discussed. The authors observed that “participants in our study discussed using the heightened need and increased attention caused by the pandemic to push for more radical measures like universal housing, sanctioned encampments, and safe supply of substances”. The authors do not define “safe supply”.


“This study (Papamihali et al., 2020) aims to identify prevalence and reasons people report for using drugs alone, and to identify barriers to safer drug use practices in a population who access harm reduction supply distribution sites across BC.” The sample was drawn from 22 sites in BC as described above (see Study #2).

No measures were included addressing mental illness, housing/homelessness, unemployment, social isolation or suicidal ideation.

Discussing their findings, the authors report: “In this study, we found that comfort and convenience was the most commonly reported reason for using alone”.

Specific recommendations made by the authors are: “Public health messaging that urges individuals to avoid using drugs alone and to use in observed consumption spaces is important and provides options for PWUD to be safer in their drug use.” And “it is also important to implement interventions that do not rely solely on individual behaviour changes but rather address the source of the opioid overdose epidemic—the toxic illicit drug supply.” They conclude that “providing a safer supply of drugs and eliminating stigma, are paramount to mitigate harms”.


The authors (Goodyear et al., 2020) report results from 50 semi-structured interviews with “sexual minority men ages 15–30 who use substances and live in Vancouver, Canada, to identify how patterns and contexts of substance use are occurring in the context of the opioid overdose crisis.”

Alcohol (94%) and cannabis (82%) were the substances used most prevalently in the past 12 months, while relatively few members of the sample consumed heroin (10%), fentanyl (8%), or other opioids (8%). Results include descriptions of drug procurement practices that “attempt to mitigate overdose risk by procuring substances from sources they perceive as trustworthy (e.g., online drug markets, trusted drug dealers).”

The authors conclude that “our findings illustrate the need for a safe and regulated drug supply”, adding “we argue for urgent and significant structural intervention that includes the decriminalization of drug use and the introduction of an accessible, regulated, and safe drug supply.”

This study (Kolla & Strike, 2019) presents results related to “satellite sites” in Toronto, described as “a program where PWUD are employed by a community health center to operate satellite harm reduction programs within their homes.” Results were derived from direct observation in seven sites, interviews with five site workers, and a focus group with four site workers and the satellite site program coordinator.

Themes of homelessness and eviction were described as pervasive challenges among satellite site users, and housing precarity was also described as a substantial concern among site operators.

The authors conclude that their findings support the need for “decriminalization and an expansion of safer supply interventions”. The term “safe supply” is not defined (e.g., types of drugs, doses, screening/assessment, contraindications, cost, etc.).

All 21 recruited participants reported receipt of social assistance. “The majority of participants (n = 19) diverted their own prescriptions”.

The authors conclude that “participants identified a variety of benefits to diversion such as providing a safer drug supply to others to prevent overdose and other harms, helping people who are dope sick, and getting money to pay for other expenses (e.g., food, other drugs).”

No evidence-based interventions addressing unemployment, homelessness, food insecurity, or addiction are discussed.


The authors “examine barriers and facilitators to uptake of, and engagement with, a novel opioid distribution program operating in Vancouver, Canada’s Downtown Eastside neighborhood involving the distribution of physician-prescribed hydromorphone (HDM) tablets”.

Results are based on interviews with 42 service users and observations conducted on the premises of the program.

The most common sources of income among participants in the past 30 days were: social assistance (n=39); reselling goods (n=24); panhandling (n=17); recycling/binning (n=17); and drug selling (n=12). Housing was most commonly described as single room accommodation (n=18); apartment (n=10); and unhoused/outside (n=9). Of the 42 participants the rates of reported use of drugs in the past 30 days was: heroin (n=30); fentanyl (n=38); crystal meth (n=32); and “other opiates” (n=27).
The authors identify structural barriers experienced by program clients: “For example, participants with unstable housing or mobility issues described difficulty fully engaging with the program because of its restrictive schedule and operating hours.”

No specific evidence-based interventions are mentioned addressing precarious housing, homelessness, unemployment, or treatment of addictions.

The authors conclude: “That the program is so well received among program participants (given enrollment and waitlist numbers) points to the crucial need for immediate scale-up of safe supply programs across North America.” The authors do not specify whether their support for “safe supply” includes all of the drugs types used by the participants in their study.


The authors (Wallace et al., 2021) describe the goals of this study as follows: “In this study, we explore how community drug checking may have different impacts beyond individual behaviour change, when examined through a socioecological model. We drew on critical perspectives of harm reduction and social justice to reconceptualise effectiveness of drug checking services within the context of an illicit drug overdose crisis, and the ongoing criminalization and stigmatization of people who use substances.”

Results are drawn from 27 interviews “conducted with people who use or have used substances, family or friends of people who use substances, and/or people who make or distribute substances.” Participants were recruited from “sites that were proposed as locations for the pilot project’s drug checking services.” The interview script was developed “to seek perspectives on how best to deliver drug checking services”.

The results include no objective measures of harm reduction associated with drug checking, and do not address any form of drug supply. However, the authors conclude: “Community drug checking may operate as a meaningful harm reduction response with impacts at and beyond the individual level. These include increasing power and accountability within the illicit drug market, improving the health of communities, and supporting safer supply initiatives and regulation of substances at the policy level.”


The authors report: “In this paper we present outcomes from a qualitative evaluation of the Molson hydromorphone tablet distribution program” (Ivsins et al., 2021; also see study #15 above). Results are based on 42 interviews and observations conducted on the premises of the program.

The characteristics of program participants are the same as those reported under Study #15. Most of the participants (n=42) lived outside (n=9), in shelters (n=5) or in single room accommodations (n=18). Nearly all (n=39) received income from social assistance. While receiving hydromorphone, the past month use of additional illicit drugs was...
identical to the distribution reported in study #15. Participants identified several limitations with the program including:

Demands on their time:
“So for me to come here five times a day, that means either I come down here and I wait for the five hours, or I go home for ten minutes and then come back, go home for ten minutes and come back, go home for ten minutes and come back, right?”

Conflicting with their objective to stop using drugs: “You have to deal with people using drugs that you’re trying to get off and it’s not good”;

Not effectively supplanting their preferred drugs: “It’s a good idea, but it’s... like they say it’s supposed to replace the fentanyl, right? That’s what it’s supposed to be, is for a clean supply, right? Whereas I’m still using fentanyl, because of the hydromorphone pills that they’re getting are shit, I think.”

No evidence-based interventions are cited that address the “high levels of poverty, homelessness, and drug use” identified in their sample. Instead, the authors conclude that: “Our findings provide evidence of the need for, and feasibility of, safer supply programs”. Details of the intended model of “safe supply” are not provided.

This study (Mayer et al., 2020) presents the results of 52 interviews with people who receive either injectable hydromorphone or diacetylmorphine (HDM/DAM). Questions addressed participants experiences initiating injectable HDM/DAM “(e.g. Can you tell me about when you first started the injectable opioid agonist treatment program?)” and “the impacts of structural vulnerabilities (e.g. housing vulnerability, poverty) on treatment experiences”.

Participants were disproportionately Indigenous (40%), living in Single Room Occupancy (SRO) hotels (46%), shelters (14%), or unsheltered/ outside (15%); and receiving income in the past 30 days from social assistance (90%), drug selling (33%), recycling (31%), “vending (e.g., selling items on the street)” (27%), part time employment (27%), panhandling (23%) and “Boosting (e.g., Shoplifting, theft)” (23%).

The authors’ thematic analysis identifies that structural and poverty-related risks were significant sources of motivation leading people to access injectable HDM/DAM. The authors acknowledge the importance of dangerous drug use and “economic precarity linked to food and housing insecurity” in their sample. No specific evidence-based practices that address homelessness, unemployment, or addiction treatment are mentioned.

This brief (2-page) manuscript (Olding et al., 2020) presents an evaluation of a supervised consumption site (also described as an overdose prevention site [OPS]) based on “91 interviews with people about their experiences using services, five interviews with peer staff regarding program operations, and 200 hours of ethnographic observation.” The authors conclude that “This evaluation indicates benefits” of their service and “suggest that OPSs are promising sites for colocated iOAT, drug checking, and “safe supply” programs that distribute pharmaceutical drug”. The authors do not define “safe supply”.


DISCUSSION

This rapid review replicates the results obtained by previous reviewers (Ontario HIV Treatment Network, 2020) who concluded: "We found no peer-reviewed literature on the potential benefits or harms of safe supply programs."

The manuscripts that met our inclusion criteria reported the characteristics of people who are at high risk for poisoning and in a few cases also described the experiences of family members and carers acting in peer-based as well as professional roles. The results confirm that people at greatest risk of poisoning are overwhelmingly likely to experience homelessness or inadequate housing, unemployment, food insecurity, and consequences of colonization. Carers and drug users alike report the dearth of assistance and widespread experiences of stigma when seeking help. The primary results presented in each of the included manuscripts are based on either interviews or questionnaires, many involving relatively small sample sizes or overlapping cohorts.

Only one of the included papers acknowledged the relationship between social exclusion and addiction, and was conducted in Alberta (Milaney et al., 2021). The overwhelming majority of manuscripts included in this review were conducted in British Columbia and none interpreted their results as indicative of the need for evidence-based housing, employment assistance, or addiction treatment.

Authors from BC were particularly clear in their advocacy for the Public Supply of Addictive Drugs (PSAD), as illustrated by the following selection of quotes:

“These findings warrant the need for increased accessibility of safe supply programs” [Study # 1] (Ali et al., 2021)

“...these findings highlight the dire need for life-saving interventions, including increased safe supply options” [Study # 3] (Salters et al., 2021)

“Implementation of safe supply initiatives including regulated and safe opioid distribution are necessary.” [Study # 7] (Milaney et al., 2021)

“...the next step has to be a safer source of substances” [Study # 9] (Socias et al., 2021)

“...our findings illustrate the need for a safe and regulated drug supply” [Study # 12] (Goodyear et al., 2020)

“...participants identified a variety of benefits to diversion such as providing a safer drug supply to others to prevent overdose and other harms, helping people who are dope sick, and getting money to pay for other expenses (e.g., food, other drugs).” [Study # 14] (Bardwell, Small, et al., 2021)

“That the program is so well received among program participants (given enrollment and waitlist numbers) points to the crucial need for immediate scale-up of safe supply programs across North America.” [Study # 15] (Ivsins, Boyd, Mayer, et al., 2020)

“Our findings provide evidence of the need for, and feasibility of, safer supply programs”. [Study # 17] (Ivsins et al., 2021)
None of the manuscripts defined their use of the term “safe supply” (see Ethical and Legal Considerations below). Several refer to the provision of opioids only, despite the fact that self-reported use of stimulants and other drugs was pervasive in their samples (e.g., Olding et al., 2020). None of the BC-based papers discuss evidence implicating the importance of mental illness and suicidal ideation among people who experience poisonings related to addiction, the long-term harms of using addictive drugs, or the interventions that respond effectively to the expressed needs of people living with addictions (see Standard of Care below).

One potential explanation for the consistencies across the BC-based papers may be that all were conducted by authors with primary expertise in infectious diseases (e.g., HIV/AIDS). Infectious diseases are understood to involve vector-borne pathways of transmission and require treatments that are overwhelmingly pharmacological. Applied to the phenomenon of addiction it may seem reasonable to assume the presence of a vector (e.g., a “toxic drug supply”) and the need for a pharmacological intervention that disrupts the vector (i.e., PSAD). To illustrate, the Canadian AIDS Treatment Information Exchange (CATIE; nd) describes itself as “Canada’s source for HIV and hepatitis C information”, and features an article advocating for safe supply. The first sentence of the article states the purported cause of poisonings: “Canada is experiencing an overdose crisis caused by a toxic illicit drug supply.” The article emphasizes that “…a “safe supply” of drugs is urgently needed to address the toxic illicit supply”, adding that: “The goal of safe supply is to enable people who use drugs to access regulated substances from a legal source”, including “heroin, fentanyl, cocaine, methamphetamines, and MDMA”. All of CATIE’s top tier donors are pharmaceutical companies.

The metaphor of an infectious disease fits extremely poorly with the phenomenon of addiction. Rather than focusing on vectors associated with the “supply” of drugs, the clinical science of addiction has articulated the conditions that create “demand” for drugs. Nearly every adult in North America has access to drugs, including alcohol, cannabis, and others. However, as summarized in our Introduction, problems of addiction and poisonings are concentrated among people who are psychologically and socially excluded. The relationship between social and psychological integration and addiction has been demonstrated in seminal animal studies (e.g., Alexander et al., 1978), in large natural experiments such as the return of Vietnam Veterans who were addicted to heroin (Robins et al., 1974), in the pioneering methadone programs that stimulated the massive expansion of Opioid Agonist Therapy (OAT) by President Nixon in the 1970s (Dole et al., 1968), and in the dramatic reversal of poisonings accomplished by the Portuguese Drug Strategy (Portuguese Government, 1999). In practical terms, the overwhelming majority of factors that contribute to harm reduction, or the prevention and treatment of addiction, involve relationships and are social.

**PSAD OUTSTANDING ISSUES**

Several crucial implications of PSAD have not been addressed by advocates. These include: the relationship between PSAD and the standard of care for treating persons with addictions; the clinical importance of medical and psychiatric comorbidities in populations that have been prioritized by advocates to receive PSAD; the size of the eligible population and per person costs of implementing PSAD; impacts of PSAD on drug shortages; and medico-legal and ethical ramifications. We address these points briefly below to illustrate their importance.
**STANDARD OF CARE (SOC)**

Evidence regarding biomedical and psychosocial interventions for treating substance use disorders is diverse and the care provided by a physician or psychologist addiction specialist assumes a broader and more informed perspective than that of generalists or specialists in other areas. Certain populations routinely receive a higher SoC and achieve markedly better outcomes. Physicians who experience addictions are supported by highly effective and well-established programs referred to as Physician Health Programs (PHP) (Brewster et al., 2008; Gary et al., 2017). Based on their record of success, the PHP model has been extended to an array of healthcare professionals (e.g., nurses and paramedics), lawyers, persons employed in safety sensitive occupations, and public servants. The same standard informs care provided in major private programs (e.g., Betty Ford).

The PHP approach incorporates several key elements:

- Early identification with comprehensive evaluation.
- Rapid offer of comprehensive treatment for a broad array of potentially impairing medical and psychiatric illnesses.\(^3\)
- An alternative to a disciplinary process.
- Comprehensive continuing care, monitoring, and support within an intensive psychosocial and contingency managed approach.
- Extensive use of evidence based non-professional mutual help (Kelly, Abry, et al., 2020; Kelly, Humphreys, et al., 2020) and professional evidence based interventions (e.g., Cognitive-behavioural Therapy, Motivational Enhancement Therapy, Contingency Management) and limited of use of medications.
- Orientation toward sustained long-term recovery versus acute care responses to short-term harms.
- An integrated continuum of community-based supports for recovering individuals and their families.

The psychosocial emphasis of PHP’s was evident in the SoC used in North America’s original methadone programs, which reported achieving a “high rate of social productivity, as defined by stable employment and responsible behavior” (Dole et al., 1968, p. 2711), and “94% success in ending the criminal activity of former heroin addicts” (Dole et al., 1968, p. 2708). The researchers explained that their results “of course, cannot be attributed to the medication, which merely blocks drug hunger” (Dole et al., 1968, p. 2711), and instead credited their prolonged and intensive relationships with clients, including weeks of inpatient care and months or years of community-based support.

Heterogeneity between people experiencing addiction is not an indication that this SoC should be abandoned. Rather, evidence-based, theoretically sound interventions must be adapted to each individual’s circumstances, as illustrated by the success of recovery-oriented housing and the transformative reduction in poisonings achieved in Portugal. From the Portuguese National Strategy: “Strictly speaking, there is no such thing as treatment without social reintegration” (Portuguese Government, 1999, Chapters IX, Pt 74).

In relation to this SoC, the scale-up of PSAD to people who are physically and mentally unwell, at high risk for poisoning with minimal access to social determinants of health (SDoH; Government of Canada, n.d. b) is strongly contraindicated.

\(^3\)In Canada this includes access to highly comprehensive inpatient and outpatient programs for addiction and complex comorbid mental health and medical issues (Homewood Traumatic Stress Injury and Concurrent Disorders Program and others and Bellwood Concurrent Trauma & Addiction Program and others) which initiate remission and facilitate transfer to comprehensive aftercare programs.
Alternatively, adapting addiction best practices to populations experiencing deficits in SDoH requires:

- An expectation that complex psychosocial, medical, psychiatric and health needs interact with polydrug use.
- Recognizing that the population will often live in environments that perpetuate ill health and act as a barrier to wellness.
- Implementing single-source teams that provide evidence-based recovery oriented housing (Palepu et al., 2013; Patterson et al., 2013), Individualized Placement and Support (Bond et al., 2019; Wallstroem et al., 2021), peer-support and coaching, and professional specialists.
- Employing contingency management and community reinforcement to create an expectation of wellness and increased agency, both being integral to effective harm reduction and to recovery.

The influence of the above SoC is reflected at the jurisdictional level in policies addressing addiction. The term recovery-oriented systems of care (ROSC) has been defined by the US Substance Abuse and Mental Health Services Administration (Substance Abuse and Mental Health Administration (SAMHSA), 2010) as: “a coordinated network of community-based services and supports that is person-centered and builds on the strengths and resiliencies of individuals, families, and communities to achieve improved health, wellness, and quality of life for those with or at risk for mental health and substance use problems.” The guiding influence of ROSC determines funding for addiction services in the US (Substance Abuse and Mental Health Administration (SAMHSA), 2012), and defines the orientation of governments in England (HM Government, 2017), Scotland (Scottish Government, 2018), Belgium and the Netherlands (Bellaert et al., 2021), and other jurisdictions at the national, state, or provincial levels. The vision of an all-of-society approach to addressing addiction is prominent in Portugal’s National Strategy, which introduces itself as “a reveille that will mobilise all elements of Portuguese society: institutions, families and, above all, the younger generations” (Portuguese Government, 1999 Introduction).

Opioid Agonist Therapy (OAT) employing recognized best practices should be offered to individuals meeting criteria for OUD and for a duration determined by the individual in consultation with their care providers and other supports. However, as a component of the SoC to treat opioid addiction, OAT must be accompanied by social and psychological services, including those related to independent housing and employment. Summarizing evidence from the field of addiction, recent systematic reviewers emphasized that: “Studies show that employment is one of the strongest predictors of positive outcomes for persons with SUD, including more frequent treatment completion, lower incidence of relapse, less criminality and parole violations, and improved quality of life” (Magura & Marshall, 2020). Current publicly-funded OAT services ignore this evidence. In a year-long Vancouver study participants received injectable opioids up to three times a day and “only 2 (1%) participants were employed at all 5 timepoints” (Nikoo et al., 2018, p. 20). In 2017 130,300 people received prescriptions for opiate use disorder across the United States and fully 75% were unemployed (Krawczyk et al., 2021). In Ontario’s provincial OAT program, each year on methadone “was associated with a 7% increase in the odds of women engaging with criminal activity” (van Reekum et al., 2020, p. 1). The failure of public OAT programs to promote employment and reduce crime will not be improved by providing more and stronger addictive drugs.
Numerous prescription drugs are associated with adverse events including mortality. A review of fatal drug poisonings concluded that “Overdoses involving prescription drugs in the United States have reached epidemic proportions”, involving various classes of drugs including sleep aids (e.g., zolpidem), muscle relaxants (e.g., carisoprodol), and anxiolytics (e.g., alprazolam, diazepam) alongside opioids (Paulozzi, 2012). Nine different prescription opioids contributed to Australian emergency hospitalizations over a ten-year period (Lam et al., 2022), revealing that “In contrast to most opioids, fentanyl and methadone were relatively more likely to be involved in non-intentional poisonings” (p633). Some advocates for PSAD appear dangerously ignorant of this evidence, writing in Canada’s Globe & Mail that: “People who use psychoactive drugs from a known source, with a known potency, free of contaminants, will not overdose and die.” (Dodd et al., 2022). Populations prioritized by advocates to receive PSAD include many who currently receive OAT, and are known to experience significant medical and psychiatric comorbidities that exacerbate risks associated with pharmaceuticals (NIMH (National Institute of Mental Health), n.d.; Strain, n.d.). The lifetime risk of developing a co-occurring mental disorder among individuals with opiate use disorder is about 50%. Chronic non-cancer pain is exceedingly common in OAT populations, estimated at more than 60% (Dunn et al., 2014; Peles et al., 2011; Rosenblum et al., 2003). The prevalence of traumatic brain injury among OUD patients has increased markedly due to anoxia associated with acute poisoning (Winstanley et al., 2021) and has in turn been postulated to perpetuate OUD (Corrigan & Adams, 2019). Given the history of prolonged use of illicit opioids and OAT including methadone and buprenorphine in this population, the likelihood of experiencing altered pain perception including Opioid-Induced Hyperalgesia (OIH) is substantial if not ubiquitous (Compton et al., 2012; Dunn et al., 2014; Higgins et al., 2019; Zahari et al., 2016). This results in the individual experiencing a paradoxical heightened sensitivity to pain and pain’s emotional consequences and experiencing pain at lower thresholds. As a consequence, individuals that use opioids tend to experience more disability from pain as well as more prolonged recovery from injuries (Rivat & Ballantyne, 2016). Additionally, evolving medical literature supports the long-held suspicion that opioid induced pain sensitivity changes are permanent (Wachholtz & Gonzalez, 2014). OIH is clearly dose-dependent. Fatal poisonings are overwhelmingly associated with polydrug use. The Government of Alberta reports: “In 2020, 82 per cent of unintentional fentanyl related deaths listed at least one other substance as contributing to death, the most frequent being methamphetamine (58 per cent) and cocaine (30 per cent).” (Government of Alberta - Health, 2020, p. 5). In BC the Coroners Service (2022) reports that the top four detected drugs among poisoning victims between 2018-21 were fentanyl (86.7%), cocaine (48%), methamphetamines/amphetamines (39.7%) and other opioids (29.1%). Alcohol (28%) and benzodiazepines (7.9%) were also part of the polysubstance use profiles of poisonings in BC. Medical comorbidities involving cardiac and respiratory disease are substantial. Also notable is the correlation between poor retention rates in populations receiving OAT and lack of access to SDoH. These are among the populations most often prioritized to receive PSAD. Acute and chronic use of opioids, including typical opioids such as fentanyl and hydromorphone and medications such as methadone cause a broad range of cognitive and psychomotor impairments, endocrine dysfunction (Chou et al., 2015; Hallinan et al., 2009), sleep disorders (Dunn et al., 2018), increased likelihood of falls (Bond et al., 2019), and immune system dysfunction (Baldacchino et al., 2012). The medical literature consistently identifies deficits in verbal working memory, risk-taking and cognitive flexibility. Ongoing use of opioids by depressed individuals
can perpetuate a vicious cycle, further negatively impacting mood and pain perception (Scherrer et al., 2016). Pain and depression are known to mutually perpetuate each other; pain negatively affects the recognition and treatment of depression and is associated with more severe depressive symptoms. Additionally, depressed individuals with pain complain more of pain and have greater impairment (Bair et al., 2003). Lastly, OUD is strongly associated with fatal and non-fatal poisoning (Hser et al., 2015, 2017).

As indicated above, non-fatal poisoning with brain anoxia is a proxy for traumatic brain injury. Traumatic brain injury results in cognitive impairments, increased risk of depression and decreased occupational functioning (Drake et al., 2000).

Chronic cocaine and methamphetamine use result in neurocognitive deficits (Potvin et al., 2014; Scott et al., 2007) and multiple psychiatric adverse events including psychotic disorders, mood, and anxiety disorders. Although the literature concerning benzodiazepines is less robust, this drug class is known to cause neurocognitive deficits that persist following withdrawal (Crowe & Stranks, 2018). The detected prevalence of benzodiazepines among decedents in BC has surged in recent years to 50% (BC Coroners Service, 2022).

In performing a risk-benefit analysis we weighed the potential adverse outcomes of PSAD against established, evidence based interventions for OUD and other substance use disorders. The population that is most likely to receive PSAD is a population with the highest likelihood of experiencing the above mentioned medical and psychiatric comorbidities. It is probable, if not certain that high-dose, oral or intravenous opioids provided within a PSAD context will perpetuate and aggravate pre-existing cognitive or psychomotor deficits, OIH, endocrine, sleep and mood disorders, and may precipitate these events among vulnerable individuals. Guidelines to manage adverse events associated with opioid prescribing uniformly do not recommend dose increase. Similarly, provision of prescription stimulants (methylphenidate, dextroamphetamine) or illicit stimulants (cocaine, methamphetamine) can reasonably be assumed to exacerbate existing psychotic, mood and anxiety symptoms in a stimulant-dependent population. Lastly, we are aware of no high quality evidence indicating that prescribing benzodiazepines in a polydrug dependent population is either safe or would mitigate adverse consequences associated with this drug class.

**COST ESTIMATION**

To our knowledge no comprehensive cost analysis for PSAD has been performed. Establishing a cost estimate for the provision of cocaine or methamphetamine within a PSAD context is currently not possible due to lack of drug price data from licit sources.

We are able to provide a limited cost estimate for use of intravenous fentanyl. Consistent with advocacy for providing drug users with their preferred drugs and formulations, we estimated costs involving IV fentanyl because hydromorphone or morphine are insufficient to replace the drugs sought by many drug users.

To estimate daily IV fentanyl requirements we focused primarily on clinical experience. Individuals with OUD stabilized on Kadian (long acting oral morphine) and who are not receiving other long-acting opioids such as methadone generally require 800 mg - 1200 mg of Kadian per day. Use of additional illicit opiates is precluded as evidenced by opioid negative biological testing. We note that 800 mg to 1200 mg is substantially more than the recommended dose of 480 mg of long-acting morphine per the January 2022 BC Center on Substance Use Guideline (BC Centre on Substance Use, 2022, p. 31).

Kadian 800 mg to 1200 mg daily use converts to a range of IV fentanyl 1865 µg - 4000 µg to 2800 µg – 6000 µg (ClinCalc, n.d.).
This assumes no reduction for cross tolerance and no additional long-acting opioids.

The cost of 50 µg of IV fentanyl is $2.7290 (Alberta Government, n.d.). As such, the daily cost to maintain an individual receiving Kadian 800 mg to 1200 mg per day with IV fentanyl would range from $101.79 to $327.48 per day (1865 ÷ 50 = 37.3 x $2.729 to 6000 ÷ 50 = 120 x $2.729). This would equate to a drug cost of between $37,153.34 to $119,530.20 per person per year. Our cost estimate is solely for one opioid and does not assume additional costs for startup, pharmacist and other associated staffing costs, IT, billing, prescription monitoring, lease, and security.

None of the reviewed manuscripts discussed the estimated cost of “safe supply”. Moreover, details that are ordinarily essential to the financing, planning and implementation of health and social services are notably absent from advocacy for PSAD, including:

- The criteria that would be used to establish eligibility;
- The estimated size of the eligible population;
- The specific medications, doses, and formulations that would be included;
- The estimated annual public cost of PSAD;
- Demonstration that the costs of PSAD compare favourably to established interventions that reduce harms among people who experience addiction, mental illness, and poverty;
- Criteria signifying that PSAD should be stopped.

Canada has experienced significant drug shortages and notably, shortages of anesthetic drugs including fentanyl (Hall et al., 2013). PSAD would deplete current provincial formularies of IV fentanyl and other drugs with implications for surgical procedures and other hospital-based pain management services.

**ETHICAL AND LEGAL CONSIDERATIONS**

The results of our review indicate that polydrug dependent and marginalized populations with low access to SDoH are most often described as potential beneficiaries of PSAD. We recognize that the SoC for addiction is not well implemented for this population in Canada’s publicly-funded system. Nevertheless, the provision of PSAD deviates markedly from existing SoC for addiction treatment, and no high quality scientific research (e.g., RCTs, meta-analyses) addresses fundamental questions about the proposed approach, including: Does PSAD decrease or increase illicit opioid or polydrug use and drug use consequences such as fatal and non-fatal poisonings?; Will PSAD lead to increased diversion creating an expanded illicit market and more cases of OUD and other substance use disorders?; Is PSAD cost-effective compared to well established (and costed) interventions that reduce criminal justice involvement, medical emergencies, and housing instability among people living with profound addictions?

The absence of any careful articulation of these details raises serious ethical concerns. Provision of PSAD is associated with highly probable adverse effects while diverging from the SoC that guides effective addiction treatment. Consent to an ill-defined high-risk intervention may not be reasonably obtained among prospective recipients of PSAD, particularly if established evidence-based interventions are not offered as alternatives. In this context, PSAD represents a human experiment that conflicts with the ethical principles of physicians, clinical psychologists and other regulated health professionals.
The recent Stanford–Lancet Commission emphasized the role of commercial, particularly pharmaceutical, interests and a multi-system regulatory failure as contributors to the current drug poisoning crisis (Humphreys et al., 2022). The Commission detailed an urgent need to prevent profit driven clinicians and industries from influencing addiction policies and practices. Among their recommendations to reduce the influence of profit, the Commission recommends: “Bodies with legal or regulatory power to shape prescribing should not accept industry funding or include people with direct financial ties to the pharmaceutical industry” (Humphreys et al., 2022, p. 16). The Commission details the destructive consequences of pharmaceutical industry funding on medical education and research, skewing practice toward prescribing addictive drugs at the expense of psychosocial services that define the SoC for addiction. Successful legal actions brought against tobacco and opioid manufacturers and distributors underscore the potentially massive medico-legal risks associated with PSAD. Decision-makers and insurers should carefully scrutinize relationships between advocates for PSAD and related financial interests involving pharmaceuticals or devices.
CONCLUSION

We found no evidence demonstrating benefits of PSAD, replicating the results of previous reviewers. Nevertheless, we found numerous publications that advocated for “safe supply”, often forcefully, but without defining the term or addressing fundamental details such as eligibility, estimated costs, and responsibility for adverse consequences. At the same time, these publications detail stunning evidence of poverty and social exclusion among the people at greatest risk for poisoning. Nearly 80% of the publications that advocated for PSAD were conducted in BC, and none of these recommended evidence-based interventions addressing homelessness, unemployment, addiction treatment, concurrent mental illness, or discussed implications for reconciliation with First Peoples. Regardless of the intentions of each of the contributing teams of investigators, these studies are now cited uncritically as the scientific basis for PSAD.

The term safe supply, as used by most advocates, might reasonably be assumed to indicate that evidence is already available demonstrating the safety and effectiveness of an established model of practice. Our review found no evidence supporting either of these assumptions, suggesting that at present, safe supply represents a loosely defined slogan to increase the distribution of publicly-funded addictive drugs to people whose life circumstances perpetuate profound addictions.

In order for PSAD to potentially reduce the current rate of poisonings two things are required. First, a system would need to be created that attracts highly marginalized people who are excluded from existing services and provides them with an ongoing array of addictive drugs that are manufactured by pharmaceutical companies, distributed by regulated professionals, and paid for by the public.

The second requirement for the “success” of PSAD is that policy makers must ignore high-quality evidence detailing the preferences of marginalized people experiencing profound addictions, the evidence-based interventions that effectively support their goals, and evidence of the abundant adverse consequences associated with continued exposure to opioids and other addictive drugs. Only by ignoring this evidence can advocates hope to demonstrate potential benefits of PSAD, while perpetuating what the Stanford-Lancet Commission describes as “an informal system of pharmacological sedation of poverty” (Humphreys et al., 2022, p. 24).

An alternative approach is exemplified by the standard of care used to successfully treat addictions among physicians, public servants and other groups, and that is reflected in the growing number of jurisdictions that have embraced recovery-oriented addiction policies. This standard of care recognizes that nearly all of the modifiable factors associated with addictions are social and psychological. Poisonings and addictions flourish in settings where large numbers of people are socially excluded and live in poverty. Reversing these harms has been demonstrated in Canadian randomized trials and through large scale national reforms such as Portugal’s National Strategy, which recognize that “Strictly speaking, there is no such thing as treatment without social reintegration” (Portuguese Government, 1999, Chapters IX, Pt 74).
BIBLIOGRAPHY


Somers, J. M., Rezansoff, S. N., Moniruzzaman, A., Palepu, A., & Patterson, M. (2013). Housing First Reduces Re-offending among Formerly Homeless Adults with Mental Disorders: Results of a Randomized Controlled Trial. PLoS ONE, 8(9). doi.org/10.1371/journal.pone.0072946


General Information

**Name of the Centre/Institute:** Children's Health Policy Centre  
**Website:** [https://childhealthpolicy.ca/](https://childhealthpolicy.ca/)  
**Faculty:** Health Sciences  
**Director:** Charlotte Waddell  
**Director's term end:** 2023-12-31  
**Renewal date:** 2023-04-01

Details

**Description of the Centre/Institute:**  
We are an interdisciplinary research group in the Faculty of Health Sciences (FHS) at Simon Fraser University (SFU). We focus on improving social and emotional wellbeing for all children and on the public policies needed to reach these goals. Our work complements the mission of the Faculty of Health Sciences to improve the health of populations—locally, nationally and globally.

**The Centre/Institute's membership and organization structure:**  
Drs. Charlotte Waddell, Nicole Catherine and Christine Schwartz continue to be the Centre’s leadership team. Eight dedicated team members also carry out the Centre’s work: Jen Barican, Brigitte Bennetsen, Ange Cullen, Daphne Gray-Grant, Katie Hjertaas, Tim Sucic, Donna Yung and Yufei Zheng. All team members report to the Director or her delegate(s). The Director is responsible for overall academic and administrative leadership. Her academic leadership roles include: ensuring the intellectual and financial viability of the Centre; developing and maintaining strategic research and policy collaborations; recruiting, supervising and retaining research staff/mentees, students, contractors and associate faculty; consulting with governments and with other research groups; and responding to policymaker, practitioner, student, media and public information and consultation requests. Her administrative leadership roles include: negotiating funding agreements and ensuring accountability with funders; ensuring the acquisition and management of office space and equipment; ensuring appropriate data security; overseeing strategic communications including the development and maintenance of the Centre’s website; and overseeing human resources activities including procuring independent legal counsel and ensuring appropriate salaries and benefits, job descriptions, employment contracts, performance reviews and staff development.
**Significant accomplishments:**

1) 1. Completing the BC Healthy Connections Project

We are pleased to be nearing completion of our randomized controlled trial evaluating the Nurse-Family Partnership (NFP) program with nearly 1,500 mothers and children across BC. NFP involves nurses providing intensive home visits with disadvantaged families—starting in early pregnancy and continuing until children reach age two years. In 2020 we published our first outcomes paper showing that NFP reduced prenatal nicotine and cannabis exposure. We are currently completing our analyses on the program’s impact on child injuries, cognitive and language development and mental health, as well as on maternal wellbeing. We will complete these outcomes papers later in 2022. We continue to collaborate with our policy partners in the BC Ministries of Health, Children and Family Development and Mental Health and Addictions—as well as with Fraser, Interior, Island and Vancouver Coastal Health Authorities who are continuing to deliver NFP. We are also collaborating with the BC Ministry of Health to locate and re-interview the children—who are now age five to seven years—to learn about long-term program benefits. This work continues to be supported by a large team of investigators from McMaster University, UBC, the University of Victoria and the Public Health Agency of Canada. This project has also allowed us to train a large cadre of mentees, most of whom have gone on to further academic or health professional training.

2) 2. Learning from Indigenous families in the BC Healthy Connections Project

Among our nearly 1,500 participants, 27% (200 mothers and 237 children) are Indigenous—a proportion far higher than in the general population. When the study started, these young mothers-to-be were experiencing many adversities including limited income and unstable housing. Yet they overcame the obstacles to improve their children’s wellbeing. To learn from these mothers, we are collaborating with BC’s First Nations Health Authority and with Indigenous scholars to analyze the data and prepare new reports with an Indigenous focus. Through these reports, forthcoming later in 2022, we are celebrating the strengths and resilience of Indigenous families. This work will also inform the development and delivery of more culturally sensitive policies and programs in BC and beyond.

3) 3. Improving mental health services for children

Through the Children’s Mental Health Research Quarterly, we continue to summarize the best available research evidence on relevant children’s mental health topics for policymakers and practitioners in BC and across Canada. The goal is to improve children’s services so that every child gets the help they need, when they need it. Quarterly issues are available free online, are sent to approximately 2,000 subscribers, and reach as many as 15,000 additional readers annually through our Centre website. As well, we give public talks and policy consultations to accompany each Quarterly issue. 2021 topics included treating
posttraumatic stress disorder in young people; combatting racism; stopping childhood bullying; and helping children with obsessive-compulsive disorder. Beyond the Quarterly and associated talks and consultations, we also provide a rapid research response service to the BC Government covering children’s mental health topics of particular policy salience or urgency. Recent rapid responses have included: addressing discrepancies between public and epidemiological data on autism prevalence, with implications for public funding for families; managing suicide risk in children; making safety plans for children at risk; supporting parents with virtual/online groups; and adapting mental health programs for Indigenous children.

4) 4. Informing public conversations about better meeting children’s needs

All children have the right to adequate health, social and educational services—including mental health services. To inform public conversations to better address this right, in 2021 we published three research reports for policymakers on: effective psychosocial interventions for promoting mental health in the early years; lessons from the BC Healthy Connections Project on better reaching underserved children and families; and the prevalence of 12 common childhood mental disorders and associated service gaps. The early years report identified effective prevention and treatment interventions for childhood anxiety, attention and behaviour problems—with cognitive-behavioural therapy and parent training standing out. The report on reaching families synthesized data from 3,700 BC Healthy Connections Project interviews, highlighting the intensive resources needed to sustain engagement with underserved families. The prevalence report showed that at any given time, approximately 13% of children aged 4–18 years have mental disorders, yet fewer than half receive any services for these conditions—suggesting stark service shortfalls. This prevalence work was also published in the peer-reviewed journal, Evidence-Based Mental Health, and garnered international news media attention. Public talks and policy consultations accompanied these reports.

5) 5. Learning from families who are coping with adversity

As a charitable organization, the Elizabeth Fry Society of Greater Vancouver offers housing and treatment and support programs for 10,000 girls and women annually who are experiencing adversities such as poverty, homelessness, racism, justice-system involvement and mental health problems including problematic substance use. Crucially, most girls and women served by Elizabeth Fry have young children whose wellbeing must also be addressed. Building on what we have learned from the BC Healthy Connections Project, we are pleased to be collaborating with Elizabeth Fry in Surrey, BC. Specifically, we are exploring ways to engage mothers in an intensive parenting program being offered as part of Elizabeth Fry’s suite of services, using both qualitative and quantitative research methods. By listening to the voices of these young mothers, we will learn how to better support some of BC’s most disadvantaged children.
6) Evaluating the impact of COVID-19 on child health in Canada

A McMaster University team is leading Canada’s first comprehensive investigation of the impact of the COVID-19 pandemic on child health, with Centre team members serving as Co-Principal Investigator and Co-Investigator. Partnering with Children’s Healthcare Canada, we are building on Statistics Canada’s uniquely positioned 2019 Canadian Health Survey of Children and Youth—conducted just prior to the start of the pandemic with young people aged one through 17 years of age. In longitudinally re-interviewing this representative national sample of approximately 25,000 young people, we will be able to measure the impact of COVID-19 and associated pandemic responses on mental and physical health as well as learning and social inequities. Initial results are anticipated later in 2023. Centre team members are also providing supports for an associated study of the pandemic’s impact on Ontario children. Results are anticipated later in 2022. Beyond this, we contributed to a Royal Society of Canada volume outlining safe ways for children to return to school during the COVID-19 pandemic.

7) Promoting healthy development for Indigenous children in BC

BC’s Nuu-chah-nulth Tribal Council (NTC), based on the west coast of Vancouver Island, is leading a groundbreaking research project aimed at improving healthy development for Indigenous children—entitled, Hishuk-ish tsawalk (everything is one, everything is connected): Using two-eyed seeing to optimize healthy early life trajectories for Indigenous Peoples. With Centre team members serving as Co-Principal Investigator and Co-Investigator, we are pleased to be part of this historic project, which merges the best of both Indigenous Knowledge and Western scientific methods. The NTC is leading all aspects of the work, which they have organized as a form of Nation rebuilding through community leadership of research. Initial stages have involved: recruiting Indigenous staff and graduate students; building community research capacity; evaluating exemplary NTC maternal-child programs; and interviewing Elders and other Knowledge Holders to inform long-term study design. The team is now applying for long-term funding to follow a cohort of children and families over the coming 10–20 years, with a focus on building resilience and strength. BC’s First Nations Health Authority is a collaborator, as is an extensive international team of Co-Investigators. Initial results are anticipated later in 2022.

8) Exploring the needs of Indigenous children in Canada

In the spirit of truth and reconciliation, a Centre team member is serving as Co-Investigator on newly funded research being led by Indigenous scholars, in collaboration with Indigenous organizations and the Correctional Service of Canada. Together, we will identify specific steps that the justice system can take to better understand the impact of Indigenous maternal incarceration on child health and wellbeing. Building on lessons learned from Indigenous participants in the BC Healthy Connections Project cohort, this work will generate new knowledge to inform the development of culturally relevant policies and
programs to better support Indigenous children.

9) Pathways to better outcomes for children with autism spectrum disorder

Since 2004, a national team led by researchers at the University of Toronto and McMaster University has followed a cohort of children with autism spectrum disorder, for which a Centre team member has served as Co-Investigator. For this study, known as Pathways, young people with autism and their families participate in annual check-ins to learn about developmental progress and service needs. Centre team members led an associated qualitative study on the experiences of parents of children with autism and the extraordinary influence of these parents on policy—which has informed the larger team’s efforts to improve services across Canada. A Centre team member also served as Co-Investigator on an associated study comparing autism services across different Canadian provinces. Pathways participants are now entering early adulthood and the team is preparing for a fourth cycle of funding, which will include giving voice to these young people directly. The project has resulted in hundreds of publications and presentations, including many research and practice mentees.

Notable media successes:
In 2021–2022, we were pleased to engage with local, national and international news organizations regarding: the lack of child mental health services in high-income countries (SFU News, Burnaby, BC); pre-pandemic mental health and young people in Canada (The House, CBC National Radio, Ottawa, ON); service shortfalls in children’s mental health as a rights violation (Education Review, Sydney, Australia); high prevalence and impact of childhood mental disorders (Verywell Family, New York, US); and child mental health service shortfalls (Reuters Health, London, England). As well, we upgraded our website as a platform for regularly sharing messages and newsworthy items with the public, for example, honouring Indigenous children and drawing attention to children’s mental health and policy issues on a weekly and monthly basis. As noted above, our website is now reaching as many as 15,000 readers annually.

Events, workshops, public outreach events:
Community and policy engagement and outreach are central to our work. We therefore continued: maintaining close linkages with government partners concerned with child health; supporting innovative new research projects being led by Indigenous and other community groups; sustaining an ongoing program of systematic review and consultation work for and with policymakers on effective childhood interventions; leading quantitative studies evaluating important public programs; and providing public talks. During this reporting period, specifically, we provided talks, consultations and expert input with: the BC Ministry of Children and Family Development; the BC Ministry of Health; the BC Health Officers’ Council; the BC Representative for Children and Youth; and regional Health
Authorities including Fraser, Interior, Island. Northern and Vancouver Coastal Health. We were also pleased to present to researchers and mentees at: McMaster University’s national Pathways in Autism Graduate Training Seminar; UBC’s graduate School of Population and Public Health; and SFU’s Inaugural FHS Student Research Conference. As well, Centre team members were invited to present to the Prince George Native Friendship Centre, a non-profit organization that promotes healthy development for Indigenous children and families.

**Supporting documents:**
1) Barican_Prevalence_Review_EBMH_2021_bTxjunC.pdf (See attachment below)
2) RCY_Early_Years_2021.12.10_B1LpumV.pdf (See attachment below)
3) RCY_Reaching_Underserved_Families_2021.12.10_BS3UWUc.pdf (See attachment below)
4) CHPC_Summary_of_Publications_and_Presentations_2021_2022_FQxC8KL.pdf (See attachment below)
5) Research_Quarterly_15.2_2021_Spring_ajrqcTf.pdf (See attachment below)
6) Research_Quarterly_15.3_2021_Summer_dix5hbu.pdf (See attachment below)
7) Research_Quarterly_15.4_2021_Fall_DN8LEDQ.pdf (See attachment below)
8) Research_Quarterly_16.1_2022_Winter_dTxCJjd.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university? 
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence? 
Yes

**External funding details:**
The Centre has been pivotal, as an entity, in allowing us to leverage to attract external funding including research contracts, donations and peer-reviewed grants. Since our inception in the FHS at SFU in 2007, the Centre’s existence has been essential to acquiring and sustaining this funding—giving confidence to policymakers and private donors that we have been and will remain “a going concern” in seeking to improve the lives of children, as well as helping us attract peer-reviewed funding. Our Centre’s research track record and administrative infrastructure provide assurance that we will manage our resources well and will continue to produce research that is both rigorous and relevant for children—while also engaging in substantial public and policy outreach. Our successes would not have been possible without the Centre. (See details on accomplishments above and details on funding below.)

External funding details
We continue to lead research funded by long-term contracts with: the BC Ministry of
Children and Family Development ($924K 2019–2022) with a three-year research contract
renewal just completed ($900K 2022–2025); the BC Ministry of Health ($6.86M 2011–
2023); and the BC Representative for Children and Youth ($203K 2020–2023). As well, we
are very fortunate to receive generous and dedicated ongoing donor supports from the Dr.
Djavad Mowafaghian Foundation, the R. and J. Stern Family Foundation and Ms. Nessa
Herman. Partnering regional Authorities—Fraser, Interior, Island and Vancouver Coastal
Health—also contributed many resources enabling the BC Healthy Connections Project.

Regarding peer-reviewed funding, Centre staff were Co-Principal Investigators or Co-
Investigators on grants from: the Canadian Institutes for Health Research (CIHR) Institute of
Indigenous People’s Health ($1.01M 2019–2022 for the NTC project); Province of Ontario
($576K 2020–2022 for the provincial children and COVID-19 project); Western University
Strategic Support for CIHR Success Accelerator Program ($29K 2020–2021 for the walk-in
clinic project); CIHR Institute of Human Development, Child and Youth Health ($3.1M 2021–
2026 for the national children and COVID-19 project, with matching funds from Statistics
Canada); the Social Sciences and Humanities Research Council of Canada (SSHRC) ($25K for
the Elizabeth Fry project); and CIHR Institute of Indigenous People’s Health ($500K 2021–
2024 for the Indigenous maternal health and wellness project).

We are also grateful for the substantive supports we received from the FHS in this reporting
period including: supplying a $50K grant to support the general work of the Centre;
planning for long-term Centre leadership succession through hosting an international
recruitment for a new Canada Research Chair (CRC), Tier 2, in Children’s Health Policy who
will assume the Directorship in future, a search which has successfully concluded resulting
in a new CRC 2 award for a current Centre faculty member, Nicole Catherine (to start
September 2022); supporting the recruitment of an additional tenure-track faculty position
to be affiliated with the Centre, funded by income from the Mowafaghian endowment which
has long been dedicated to the Centre and to child health policy; and committing to
providing ongoing administrative supports, which have been covered by the Director’s
grants to date. We are grateful for these long-term commitments to the Centre which will
enable us to expand our reach to encompass and support additional FHS faculty members
with interests in child health and policy, as well as supporting more mentees. We are
honoured to continue to contribute to the FHS and SFU and to child health policy in Canada.

Confirm policy review:
Yes

Submitted by:
Charlotte Waddell, Director

Director’s comments:
In addition to the above details, Centre team members have mentored numerous students
and have taught undergraduate and graduate classes in the FHS: on children’s mental health (Health Sciences 485); and on child health policy (Health Sciences 891). We have continued to be particularly proud of our team’s accomplishments as COVID-19 and the associated pandemic restrictions persisted—with most team members working remotely. As well, we have continued to experience increased requests for policy consultations, policy research reports, rapid research responses, public talks and news media interviews. We were pleased to be able to respond to these requests. Most importantly, the support of our funders and donors—including the BC Ministry of Health, the BC Ministry of Children and Family Development, the BC Representative for Children and Youth, the Dr. Djavad Mowafaghian Foundation, the R. and J. Stern Family Foundation, Nessa Herman, the CIHR and SSHRC—enable us to continue to be a strong voice for children.

**Reviewer's Section**

**Reviewed by:**
Robert Hogg, Associate Dean, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
Thank you for your continued leadership in this area.
Prevalence of childhood mental disorders in high-income countries: a systematic review and meta-analysis to inform policymaking

Jenny Lou Barican, Donna Yung, Christine Schwartz, Yufei Zheng, Katholiki Georgiades, Charlotte Waddell

ABSTRACT

Question Mental disorders typically start in childhood and persist, causing high individual and collective burdens. To inform policymaking to address children’s mental health in high-income countries we aimed to identify updated data on disorder prevalence.

Methods We identified epidemiological studies reporting mental disorder prevalence in representative samples of children aged 18 years or younger—including a range of disorders and ages and assessing impairment (searching January 1990 through February 2021). We extracted associated service-use data where studies assessed this. We conducted meta-analyses using a random effects logistic model (using R metafor package).

Findings Fourteen studies in 11 countries met inclusion criteria, published from 2003 to 2020 with a pooled sample of 61,545 children aged 4–18 years, including eight reporting service use. (All data were collected pre-COVID-19.) Overall prevalence of any childhood mental disorder was 12.7% (95% CI 10.1% to 15.9%; I²=99.1%). Significant heterogeneity persisted to diagnostic measurement and study location. Anxiety (5.2%), attention-deficit/hyperactivity (3.3%), oppositional defiant (3.3%), substance use (2.3%), conduct (1.3%) and depressive (1.3%) disorders were the most common. Among children with mental disorders, only 44.2% (95% CI 37.6% to 50.9%) received any services for these conditions.

Conclusions An estimated one in eight children have mental disorders at any given time, causing symptoms and impairment, therefore requiring treatment. Yet even in high-income countries, most children with mental disorders are not receiving services for these conditions. We discuss the implications, particularly the need to substantially increase public investments in effective interventions. We also discuss the policy urgency, given the emerging increases in childhood mental health problems since the onset of the COVID-19 pandemic (PROSPERO CRD42020157262).

BACKGROUND

Mental disorders typically start in childhood and adolescence (hereafter childhood) and significantly interfere with well-being and development. Now the leading cause of childhood disability globally, these disorders often persist into adulthood, adding greatly to the burden for individuals. The collective social and economic burdens are also high due to associated healthcare, education, child protection and justice system costs—and to the cost of lost human potential. Service shortfalls have compounded the burdens, even in high-income countries such as the UK, USA and Canada. This is despite growing health expenditures in these countries over the years, and despite considerable research evidence describing effective interventions for preventing and treating childhood mental disorders.

To address children’s mental health needs, policymakers require pooled prevalence data from multiple high-quality epidemiological studies using current or recent diagnostic standards. Studies using rigorous diagnostic measures in large representative/probabilistic samples and examining a range of mental disorders across multiple age groups provide accurate and comprehensive population estimates—and therefore the most accurate estimates of community burden. At the same time, data on associated patterns of mental health service use can also assist policymakers in identifying and remediating gaps.

Systematic review and meta-analysis methods are an optimal way of synthesising large bodies of research evidence to inform policymaking. However, recent reviews on the prevalence of childhood mental disorders have had policy-relevant limitations including: accepting less rigorous studies; reporting on a relatively limited number of disorders; and/or omitting service use data. As well, to our knowledge no reviews have included studies applying the latest diagnostic standards from the American Psychiatric Association’s (APA’s) Diagnostic and Statistical Manual of Mental Disorders (DSM) or the World Health Organization’s (WHO’s) International Classification of Diseases (ICD).

Objective To inform policymaking intended to address children’s mental health in high-income countries, we therefore conducted a systematic review and meta-analysis to identify comprehensive and updated data on the prevalence of childhood mental disorders and, where possible, associated service use. To ensure robust data, we aimed to identify recent high-quality epidemiological studies. We focused on high-income countries.
METHODS

Search strategy
We followed the Meta-analysis of Observational Studies in Epidemiology (MOOSE)33 and Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA)34 guidelines for this systematic review and meta-analysis. (Online supplemental appendix A provides MOOSE and PRISMA checklists.) We registered this review with PROSPERO (number CRD42020157262; see www.crd.york.ac.uk/PROSPERO/; no amendments added).

To identify relevant studies, we searched EMBASE, MEDLINE and PsycINFO databases using the following terms: mental disorders; child; adolescent; epidemiology; prevalence; incidence; health survey; survey; population; community; representative; stratified; probability. (We did not conduct separate searches for service use because we aimed to extract these data from the prevalence studies that met our eligibility criteria.) Search dates were January 1990 through February 2021. The year 1990 was chosen to capture the WHO’s ICD 10th and later editions (1990–2020)28 and the APA’s DSM fourth and later editions (1994–2013).13 We limited our searches to prevalence studies conducted with children aged 18 years or younger and published in peer reviewed journals. We did not include language limiters and used Google Translate to assess studies published in languages other than English. We also hand-searched relevant systematic reviews retrieved through our database searches to identify additional publications (eg, Erskine et al23 and Polanczyk et al26). For applicability to policymaking in high-income countries, we excluded studies conducted in low- and middle-income countries (according to World Bank classifications).35 (Online supplemental appendix B gives search strategy details.)

Study selection
After title screening, two authors independently assessed all abstracts. Relevant studies were retrieved and independently assessed, again by two authors, identifying those that met all inclusion criteria, which were established a priori. To ensure inclusion of rigorous studies, we applied quality indicators requiring representative/probabilistic sampling and reliable and valid child diagnostic measures, including assessment of impairment; we excluded studies that used only clinical records for diagnoses. We required studies to provide overall prevalence for any disorder since this figure is particularly relevant for policymakers. For comprehensiveness, we also required studies to report on three or more individual disorders or disorder groups. We excluded studies that only reported lifetime prevalence because of potential recall bias and because such data provide less accurate estimates of current service needs.33 Next, we identified all supplemental publications making use of data from the accepted original studies, searching Web of Science by study names and/or titles and/or authors. Throughout the process, any disagreements were resolved by consensus involving two or more authors. (Online supplemental appendix C provides study inclusion criteria; figure 1 shows the search process; Online supplemental appendix D provides included studies.)

Data extraction and quality assessment
We extracted data on the prevalence of any mental disorder and on the prevalence of individual disorders or disorder groups where possible. We also extracted data on potential moderators of prevalence including: overall study design; study location (continental); sampling area (national vs regional); data collection years; sampling frame; child age and sex; diagnostic standard; diagnostic measure; informants; diagnostic algorithm for reporting/combining data from different informants; and time-frames for assessing symptoms and impairment.25

To determine the prevalence of mental health-related service use, we extracted data from all accepted studies that assessed this variable among children who had mental disorders—including any service contacts for mental health needs regardless of type, setting or provider. One author extracted all salient data; a second author then independently verified this work, with input from other authors as needed. We also contacted study authors when we required additional information.

Beyond applying our inclusion criteria, we also assessed study quality using an adapted risk-of-bias tool developed by Hoy et al for prevalence studies.36 This tool assessed selection, non-response and measurement biases, as well as biases related to analysis. Scores of 0–3 were deemed low risk of bias, 4–6 moderate, and 7–10 high. (Online supplemental appendix E gives the quality assessment tool and results.)

Data synthesis
We conducted a meta-analysis using a random effects logistic model to calculate the pooled overall prevalence estimate for any mental disorder and its 95% confidence interval (95% CI). We performed the same analysis to calculate pooled prevalence estimates for individual disorders and service use among children with mental disorders when relevant data were available from at least two studies. For our meta-analyses, where possible we used prevalence data that study authors reported regardless of diagnostic algorithms used. These algorithms included: using clinical judgement; applying an ‘OR’ rule whereby disorders were counted if diagnostic thresholds were met by any informant (child OR parent); or relying on a single informant. Thirteen studies provided overall estimates for the whole sample, or a weighted average, that we used in our analyses. For one study that reported separate prevalence estimates by informant, with no weighted average for the whole sample, we selected estimates based on the most appropriate informant (for example, parent report for conduct disorder, child report for anxiety), then calculated a weighted average.37 38

Regarding impairment, while precise definitions were not provided for all accepted studies, most reported definitions aligned with moderate-to-severe levels. Therefore, for the one study that reported separate estimates for mild, moderate and severe/’serious’ impairment, we reported data that aligned with the other studies—in this case, ‘serious’ impairment which was defined as moderate impairment in most areas or severe impairment in at least one area.45 Heterogeneity was assessed using I². We conducted univariate meta-regression analyses to identify potential sources of heterogeneity for the pooled prevalence estimates for any mental disorder. We also performed a random effects meta-analysis to calculate pooled prevalence of mental health-related service use among children with mental disorders across studies. All statistical analyses were conducted using the metafor package for R.38

FINDINGS

Study characteristics
We identified 159 studies for full-text assessment. Fourteen studies, described in 249 articles, met all inclusion criteria. Published between 2003 and 2020, these studies were conducted...
in 11 countries: the USA (four studies) and Australia, Canada, Chile, Denmark, Great Britain, Israel, Lithuania, Norway, South Korea and Taiwan (one study each). Sample sizes ranged from 957 to 10 438; child ages ranged from 4 to 18 years; 51.2% of participants were girls. Eleven of 14 studies used DSM-IV or DSM-IV-TR diagnostic standards, while two used ICD-10 and one used DSM-5. Most studies reported diagnoses using assessments of symptoms and impairment over one-year periods. (Table 1 describes the characteristics of the 14 included studies; online supplemental appendix F lists excluded studies.) Included studies determined diagnoses by interviewing children, parents and/or teachers using measures that included: Child and Adolescent Psychiatric Assessment; Composite International Diagnostic Interview; Development and Well-Being Assessment (DAWBA); Diagnostic Interview Schedule for Children-IV; Kiddie Schedule for Affective Disorders and Schizophrenia-Epidemiological; and Mini-International Neuropsychiatric Interview for Children and Adolescents. Among the seven studies that reported their specific criteria for assessing impairment, five required at least one severe or at least two moderate ratings of impairment in school achievement and/or relationships with family, friends or teachers, while two studies required moderate impairment in one of these domains.

Studies also varied in their use of informants for determining diagnoses. For four studies, diagnoses were established using computer algorithms based on symptoms reported by either parents or children. For the five studies using DAWBA, symptom responses from all informants were considered, then diagnoses were made using clinical judgement. For the remaining studies, prevalence estimates were informed by a single source: one using child report only; two using parent report only; and two using child and parent reports with estimates provided separately based on informant. All studies were deemed low risk regarding selection, non-response, measurement and analysis biases. (See online supplemental appendix E)

**Pooled prevalence of any mental disorder**

The pooled overall prevalence of any mental disorder was 12.7% (95% CI 10.1% to 15.9%; $I^2=99.1$), based on 14 studies with a pooled sample size of 61 545 children. The following
Table 1  Childhood mental disorder prevalence study characteristics

<table>
<thead>
<tr>
<th>Study</th>
<th>Study location</th>
<th>Data collection year(s)</th>
<th>Sampling frame</th>
<th>Sample size*</th>
<th>Ages (years)</th>
<th>Diagnostic standard</th>
<th>Diagnostic measure†</th>
<th>Informant(s)</th>
<th>Timeframe‡ (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canino 2004²</td>
<td>Puerto Rico (USA)</td>
<td>1999–2000</td>
<td>Households</td>
<td>1897</td>
<td>4–17</td>
<td>DSM-IV</td>
<td>DISC-IV</td>
<td>Child or parent</td>
<td>12</td>
</tr>
<tr>
<td>Chen 2020³</td>
<td>Taiwan</td>
<td>2015–2017</td>
<td>Schools</td>
<td>4816</td>
<td>7–14</td>
<td>DSM-5</td>
<td>K-SADS-E</td>
<td>Child</td>
<td>6</td>
</tr>
<tr>
<td>Costello 2003⁴</td>
<td>North Carolina (USA)</td>
<td>1993–2000</td>
<td>Schools</td>
<td>1420</td>
<td>9–16</td>
<td>DSM-IV</td>
<td>CAPA</td>
<td>Child or parent</td>
<td>3</td>
</tr>
<tr>
<td>Elberling 2015⁵</td>
<td>Copenhagen (Denmark)</td>
<td>2000</td>
<td>Population registry</td>
<td>1585</td>
<td>5–7</td>
<td>KCD-10</td>
<td>DAWBA</td>
<td>Parent + teacher</td>
<td>1–12</td>
</tr>
<tr>
<td>Kessler 2012¹⁰</td>
<td>USA</td>
<td>2001–2004</td>
<td>Households + schools</td>
<td>6483</td>
<td>13–17</td>
<td>DSM-IV</td>
<td>CIDI</td>
<td>Child or parent</td>
<td>12</td>
</tr>
<tr>
<td>Lawrence 2016¹¹</td>
<td>Australia</td>
<td>2013–2014</td>
<td>Households</td>
<td>6310</td>
<td>4–17</td>
<td>DSM-IV</td>
<td>DISC-IV</td>
<td>Parent§</td>
<td>12</td>
</tr>
<tr>
<td>Lesinkiene 2018¹²</td>
<td>Lithuania</td>
<td>2004–2007</td>
<td>Schools</td>
<td>3309</td>
<td>7–16</td>
<td>KCD-10</td>
<td>DAWBA</td>
<td>Parent + child + teacher</td>
<td>1–12</td>
</tr>
<tr>
<td>Merikangas 2010¹³</td>
<td>USA</td>
<td>2001–2004</td>
<td>Population registry</td>
<td>3042</td>
<td>8–15</td>
<td>DSM-IV</td>
<td>DISC-IV</td>
<td>Child or parent</td>
<td>12</td>
</tr>
<tr>
<td>Park 2015¹⁴</td>
<td>Seoul (South Korea)</td>
<td>2005–2006</td>
<td>Schools</td>
<td>1645</td>
<td>6–12</td>
<td>DSM-IV</td>
<td>DISC-IV</td>
<td>Parent</td>
<td>12</td>
</tr>
<tr>
<td>Vicente 2012¹⁵</td>
<td>Cautín, Conception, Iquique, Santiago (Chile)</td>
<td>2007–2009</td>
<td>Households</td>
<td>1558</td>
<td>4–18</td>
<td>DSM-IV</td>
<td>DISC-IV</td>
<td>Child/parent</td>
<td>12</td>
</tr>
</tbody>
</table>

* Diagnoses determined using clinical judgement combining information from multiple informants.
† Diagnoses determined relying on a single informant based on disorders and/or age ranges; figure 2 gives details on data used in meta-analysis. (Online supplemental appendix D lists references s1 to s15). *0.2% of participants were girls.
‡ Fully structured measures included CAPA, CIDI, DISC-IV and MINI-KID; semi-structured measures included DAWBA and K-SADS-E.
§ While 11- to 17-year-olds were informants for one disorder, only parent reported estimates were used in meta-analyses due to insufficient data for calculating overall rate for 11- to 17-year-olds.
# While 11- to 17-year-olds were informants for one disorder, only parent reported estimates were used in meta-analyses due to insufficient data for calculating overall rate for 11- to 17-year-olds.

CAPA, Child and Adolescent Psychiatric Assessment; CIDI, Composite International Diagnostic Interview; DAWBA, Development and Well-Being Assessment; DISC-IV, Diagnostic Interview Schedule for Children; DSM, Diagnostic and Statistical Manual of Mental Disorders; ICD, International Statistical Classification of Diseases and Related Health Problems; K-SADS-E, Kiddie Schedule for Affective Disorders and Schizophrenia-Epidemiological; MINI-KID, Mini-International Neuropsychiatric Interview for Children and Adolescents.
covariates were identified as potential sources of heterogeneity: study location (continent); overall study design; diagnostic standard; diagnostic measure; informants; diagnostic algorithm for reporting/combining data from different informants; and time-frames for assessing symptoms and impairment. Covariates with no moderating effects on prevalence included: sampling area (national vs regional); sampling frame; data collection years; and child age and sex. (Figure 2 provides the forest plot for any disorder; online supplemental appendix G provides details on our meta-regression findings.)

Pooled prevalence of individual disorders and disorder groups
Pooled prevalence was calculated for individual disorders and/or disorder groups when such data were reported in two or more studies. The most common conditions were: any anxiety disorder, pooled prevalence 5.2% (95% CI 3.2% to 8.2%); attention-deficit/hyperactivity disorder (ADHD) 3.7% (95% CI 2.3% to 5.7%); oppositional defiant disorder 3.3% (95% CI 2.4% to 4.6%); any substance use disorder 2.3% (95% CI 2.1% to 2.6%); conduct disorder 1.3% (95% CI 0.8% to 2.3%); major depressive disorder 1.3% (95% CI 0.6% to 2.9%); and alcohol use disorder 1.2% (95% CI 1.0% to 1.4%). Prevalence rates for other conditions were: cannabis use disorder 0.6% (95% CI 0.4% to 1.0%); autism spectrum disorder 0.4% (95% CI 0.2% to 0.8%); obsessive-compulsive disorder 0.3% (95% CI 0.1% to 0.6%); bipolar disorder 0.3% (95% CI 0.1% to 1.1%); eating disorders 0.2% (95% CI 0.1% to 0.5%); post-traumatic stress disorder 0.1% (95% CI 0.02% to 0.5%); and schizophrenia 0.1% (95% CI 0.1% to 0.3%). Ten of 14 studies reported on concurrent disorders. Among children with mental disorders, 26.5% (weighted average; range 14.0–37.0%) had two or more disorders. (Table 2 presents pooled prevalence estimates for these disorders and/or disorder groups, including number of studies and pooled sample sizes; online supplemental appendix H presents forest plots for individual disorders and disorder groups.)

Pooled prevalence for service use
For children with mental disorders, we extracted data on any services accessed for mental health concerns, provided in eight studies. These studies varied considerably regarding measurement of services. Some included only mental healthcare, such as counselling provided by psychologists or psychiatric medications prescribed by physicians, while others included a much wider range, such as complementary medicine and youth justice services. Studies also varied regarding assessment of timeframes for service use. While most measured past-year use, three-month and six-month use were each assessed in a single study. Across these studies children were also defined as being recipients of services regardless of the intensity or duration of care provided. Informants also differed across the studies—involving children or parents or both.
Table 2  Pooled prevalence of childhood mental disorders

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Age* (years)</th>
<th>Number of studies</th>
<th>Sample size</th>
<th>Prevalence (%) (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any anxiety disorder†</td>
<td>4–18</td>
<td>12</td>
<td>53 663</td>
<td>5.2 (3.2 to 8.2)</td>
</tr>
<tr>
<td>Specific phobia</td>
<td>4–18</td>
<td>7</td>
<td>37 170</td>
<td>3.4 (1.9 to 5.9)</td>
</tr>
<tr>
<td>Separation anxiety disorder</td>
<td>4–18</td>
<td>10</td>
<td>46 935</td>
<td>1.6 (1.0 to 2.6)</td>
</tr>
<tr>
<td>Social anxiety disorder</td>
<td>4–18</td>
<td>10</td>
<td>46 935</td>
<td>1.2 (0.6 to 2.3)</td>
</tr>
<tr>
<td>Generalised anxiety disorder</td>
<td>4–18</td>
<td>11</td>
<td>49 977</td>
<td>0.9 (0.4 to 1.7)</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>4–18</td>
<td>9</td>
<td>38 881</td>
<td>0.1 (0.1 to 0.3)</td>
</tr>
<tr>
<td>Agoraphobia</td>
<td>4–18</td>
<td>5</td>
<td>26 691</td>
<td>0.1 (0.04 to 0.4)</td>
</tr>
<tr>
<td>Attention-deficit/hyperactivity disorder</td>
<td>4–18</td>
<td>14</td>
<td>61 545</td>
<td>3.7 (2.3 to 5.7)</td>
</tr>
<tr>
<td>Oppositional defiant disorder</td>
<td>4–18</td>
<td>10</td>
<td>47 299</td>
<td>3.3 (2.4 to 4.6)</td>
</tr>
<tr>
<td>Any substance use disorder 2</td>
<td>12–18</td>
<td>4</td>
<td>15 788</td>
<td>2.3 (2.1 to 2.6)</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>12–18</td>
<td>3</td>
<td>9114</td>
<td>1.2 (1.0 to 1.4)</td>
</tr>
<tr>
<td>Cannabis use disorder</td>
<td>12–18</td>
<td>2</td>
<td>2631</td>
<td>0.6 (0.4 to 1.0)</td>
</tr>
<tr>
<td>Any depressive disorder§</td>
<td>4–18</td>
<td>7</td>
<td>31 737</td>
<td>1.8 (0.8 to 3.8)</td>
</tr>
<tr>
<td>Major depressive disorder‡</td>
<td>4–18</td>
<td>11</td>
<td>45 696</td>
<td>1.3 (0.6 to 2.9)</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>4–18</td>
<td>4</td>
<td>8142</td>
<td>0.2 (0.1 to 0.7)</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>4–18</td>
<td>13</td>
<td>59 960</td>
<td>1.3 (0.8 to 2.3)</td>
</tr>
<tr>
<td>Autism spectrum disorder</td>
<td>4–18</td>
<td>4</td>
<td>21 629</td>
<td>0.4 (0.2 to 0.8)</td>
</tr>
<tr>
<td>Obsessive-compulsive disorder</td>
<td>4–18</td>
<td>7</td>
<td>33 769</td>
<td>0.3 (0.1 to 0.6)</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>12–18</td>
<td>2</td>
<td>8128</td>
<td>0.3 (0.1 to 1.1)</td>
</tr>
<tr>
<td>Eating disorders</td>
<td>12–18</td>
<td>5</td>
<td>21 194</td>
<td>0.2 (0.1 to 0.5)</td>
</tr>
<tr>
<td>Post-traumatic stress disorder</td>
<td>4–18</td>
<td>8</td>
<td>35 839</td>
<td>0.1 (0.04 to 0.4)</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>12–18</td>
<td>2</td>
<td>5500</td>
<td>0.1 (0.1 to 0.3)</td>
</tr>
<tr>
<td>Any disorder¶</td>
<td>4–18</td>
<td>14</td>
<td>61 545</td>
<td>12.7 (10.1 to 15.9)</td>
</tr>
</tbody>
</table>

*Earliest age in the ranges provided reflects when disorders typically emerge.2
†For any anxiety disorder, 6 studies included post-traumatic stress and/or obsessive-compulsive disorders.
‡For any substance use disorder, 2 studies included alcohol, cannabis, nicotine and other substances; 1 included alcohol and drugs; and one did not specify.
§For any depressive disorder, 4 studies included major depressive disorder (MDD) and dysthymia; 1 included MDD and depression not specified; 1 included MDD, dysthymia and bipolar; and 1 did not specify.
¶Overall estimate for children with any disorder is less than the sum of estimates for the specific disorders because 26.5% of children had two or more disorders concurrently.

Our meta-analysis found that only 44.2% children with mental disorders received any services for their mental health concerns (95% CI 37.6% to 50.9%; $I^2=95.5\%$). The one study that assessed service use by disorder severity found a gradient—with greater use for children with severe impairment relative to moderate impairment. (Figure 3 gives the forest plot for service use findings.)

DISCUSSION

To inform policymaking to address children’s mental health in high-income countries, we conducted a systematic review and meta-analysis to determine the prevalence of childhood mental disorders and, where possible, associated service use. Fourteen high-quality studies from 11 high-income countries met the inclusion criteria, with a pooled sample of 61 545 children aged 4 to 18 years; eight studies also examined service use. The overall prevalence of any childhood mental disorder was 12.7%. The most common conditions were: any anxiety disorder 5.2%; specific phobia 3.4%; separation anxiety disorder 2.5%; oppositional defiant disorder 1.3%; and major depressive disorder 1.3%. Among those with disorders, 26.5% had two or more disorders concurrently. Concerningly, only 44.2% of children with mental disorders received any services for these conditions.

These findings add to the extant literature in several ways that are salient for informing policymaking. To provide accurate population estimates, we have reported on only the most rigorous studies. To ensure comprehensiveness, we have included new studies not captured in previous reviews and have provided estimates for 12 of the most common disorders or disorder groups across a range of child ages. To inform service planning, we have also depicted the proportion of children in the general population who meet diagnostic disorder thresholds—including having both symptoms and impairment—and who therefore require mental health treatment services. As well, we have provided salient new data on service use by children with mental disorders.

We believe that our review can enable policymakers to better understand the mental health needs of children in high-income countries. In particular, policymakers can use our prevalence figures as benchmarks—calculating the numbers needing treatment at any given time within a given population or jurisdiction, then comparing the numbers in need with the numbers actually receiving mental health services. Service use does not always equate with need as defined by disorder prevalence. For example, families may seek services for children experiencing distress who do not meet diagnostic criteria. Consequently, prevalence data may under-represent service needs. However, prevalence data still provide critical population-level information for service planning. Importantly, our data cover children who are not receiving services—thereby providing a crucial supplement to administrative data on mental health service use. Beyond this, our data depict levels of need before the COVID-19 global pandemic. These pre-pandemic baseline data can facilitate planning, for example, to meet the increased children’s mental health needs that have emerged during the pandemic and that are predicted to continue.43,44
We acknowledge several limitations in the included studies. Our meta-regression analysis identified significant heterogeneity, particularly regarding measurement approaches used to determine diagnoses—underscoring longstanding methodological concerns about the use of differing measures and differing informants.\textsuperscript{25 46 47} While the studies we reported nevertheless arrived at robust estimates suitable for informing policymaking, future child mental health epidemiological research would benefit from better harmonisation of measures—including ensuring consistent and well-defined criteria for measuring impairment. As well, studies assessing service use mainly captured contacts (only). Future studies would benefit from adding more specific measures of intervention type, duration and intensity—data that would allow policymakers to gauge the reach, for example, of effective (vs unproven, ineffective or harmful) interventions.\textsuperscript{15–17} Such data could also inform more nuanced service planning, for example, informing tiered or layered approaches whereby more moderately-affected children might receive prevention services or services through schools and primary care, reserving specialist mental healthcare for those more severely affected.\textsuperscript{48}

These limitations notwithstanding, we believe that urgent policy implications arise from our review. While it is not a new finding that high child mental disorder prevalence is coupled with severe service shortfalls, our updated data necessitate re-invigorated collective responses. Addressing children's mental health first requires coherent central policy commitment and leadership—making this issue a priority and ensuring sustained engagement across all relevant public sectors including children's services, healthcare, public health and education.\textsuperscript{48 49} Addressing children's mental health also requires the development of comprehensive plans for: reducing avoidable adversities that contribute to the development of selected childhood mental disorders, such as socioeconomic disparities; preventing disorders in children at risk; providing treatment for all children with disorders; and tracking population outcomes through national surveillance programmes.\textsuperscript{10 48} As well, given that only an estimated 44.2% of children with mental disorders are receiving any services for these conditions, many countries will need to substantially increase children's mental health budgets—and protect these budgets.\textsuperscript{48}

Given severe service shortfalls, it is also crucial to consider quality assurance and efficiency. Quality assurance involves ensuring that effective—and only effective—interventions are offered, particularly given considerable high-quality research evidence on both prevention and treatment in the children's mental health field.\textsuperscript{15–17} Quality assurance can also involve tracking child outcomes in general and clinical populations in order to evaluate the impact of policy efforts and to alter course and redeploy resources as needed.\textsuperscript{50} Efficiency, meanwhile, can involve building in prevention programming to avert avoidable individual burdens and to in turn reduce the burdens on treatment systems. While prevention programming has often been under-appreciated in the children's mental health field, economic evaluation data suggest that preventing even just one case of a severe problem, such as childhood conduct disorder, may save an estimated $5.6 million (2021 USD equivalency) in lifetime costs—through averted healthcare, special education, child protection and justice system costs.\textsuperscript{9} In addition, adopting innovative service strategies and establishing tiers of service aligned with the type and intensity of need can help extend the reach of practitioners while also reaching more children—another form of efficiency.\textsuperscript{50} Beyond this, it is important to understand barriers to accessing services and how these may be addressed—to ensure that all children can access the mental health services they need when and where they need them.

**CONCLUSIONS**

We have depicted a high prevalence of childhood mental disorders coupled with unacceptable service shortfalls in high-income
countries—to a degree that violates children's rights.14 In essence, we have illuminated an invisible crisis in children's mental health. In contrast, robust services are in place for child physical health problems such as cancer, diabetes and infectious diseases in most of these countries.11,12 Typical health expenditure levels indicate that high-income countries can also afford to do better.11–13 We therefore believe that our findings constitute a call to public action, taking the steps outlined above. This is particularly urgent given documented increases in children's mental health needs since the onset of the COVID-19 pandemic—needs which are predicted to continue.14–16 The need for public action therefore could not be more urgent. Such action is essential if all children are to flourish. This collective flourishing will in turn benefit all—when fewer children needlessly experience mental disorders and associated disability, and when more children go on to thrive, contribute and meet their full potential.

Acknowledgements KG holds the David R. (Dan) Offord Chair in Child Studies. During this project, CW was supported by a Canada Research Chair, Tier 2, in Children’s Health Policy. We also thank our reviewers, whose input greatly strengthened the manuscript.

Contributors All authors contributed significantly to this manuscript, including the follow specific roles. Study concept and design: JLB, DY, CS and CW. Data acquisition: JLB, DY and CS. Data analysis: YZ, JLB and DY. Data interpretation: JLB, DY, CS, YZ, KG and CW. Drafting of manuscript: JLB, CS and CW. Revising of manuscript: JLB, DY, CS, YZ, KG and CW. All authors approved the final version.

Funding The British Columbia Ministry of Children and Family Development, Child and Youth Mental Health Branch, funded this work (grant # BCMCFD#SL00444501). (A short report summarizing the findings was provided to the funder).

Competing interests KG and CW participated in the Ontario Child Health Study [reference s8] as Co-Principal Investigator and Co-Investigator, respectively. They therefore did not participate in decisions about inclusion, data extraction or interpretations regarding this study. KG was also an author on one other included study [reference s10] and did not participate in decisions about inclusion, data extraction or interpretation regarding this study. These two authors have no other conflicts to declare. All other authors declare no conflicts.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data covered in this systematic review and meta-analysis are available from the corresponding author, upon reasonable request.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iD
Charlotte Waddell http://orcid.org/0000-0002-2036-4472

REFERENCES
17 Schwartz C, Yung D, Barican L. Preventing and treating childhood mental disorders: effective interventions. Vancouver, BC: Children’s Health Policy Centre, Faculty of Health Sciences, Simon Fraser University, 2020.


Commissioned Policy Research Reports


Commissioned Policy Rapid Research Responses


Refereed Scholarly Journal Articles


Invited Presentations

*Interventions for Indigenous children’s mental health*
Presentation, Prince George Native Friendship Centre, Prince George, BC

*Childhood mental disorders: Prevalence and associated service use*
Presentation, Child and Youth Mental Health Provincial Leadership Network, BC MCFD, Victoria, BC

Waddell, C. (2021)
*Child health policy research*
Presentation, Inaugural FHS Student Research Conference, Faculty of Health Sciences, SFU, Burnaby, BC

*Helping children cope with trauma*
Presentation, Child and Youth Mental Health Provincial Leadership Network, BC MCFD, Victoria, BC

Waddell, C., Catherine, N. (2021)
*Nurse-Family Partnership in BC: What we know so far*
Presentation, BC Health Ministry and Northern Health Authority, Victoria, BC

Waddell, C. (2021)
*Children’s mental health policy: What’s the role for research?*
Pathways in Autism National Training Seminar, McMaster University, Hamilton, ON
Preventing childhood mental disorders: Effective interventions
Presentation, Health Officers Council of BC, Vancouver, BC

Childhood bullying: Time to stop
Presentation, Child and Youth Mental Health Provincial Leadership Network, BC MCFD, Victoria, BC

Catherine, N., Waddell, C. (2022)
Nurse-Family Partnership in BC: What we know so far
Policy Charette, Public Health Prevention and Planning Branch, BC Ministry of Health, Victoria, BC

Helping children with obsessive-compulsive disorder
Presentation, Child and Youth Mental Health Provincial Leadership Network, BC MCFD, Victoria, BC

Waddell, C. (2022)
Children’s mental health surveillance and monitoring
Presentation, School of Population and Public Health, UBC, Vancouver, BC
Promoting Mental Health in the Early Years: Effective Psychosocial Interventions

A Research Report

Charlotte Waddell
Nicole Catherine
Jen Barican
Donna Yung
Ange Cullen
Daphne Gray-Grant
Christine Schwartz
We celebrate the Indigenous Peoples on whose traditional territories we are all privileged to live and work.

Citing This Report

Acknowledgements
The British Columbia Representative for Children and Youth funded this report.

Children’s Health Policy Centre
Faculty of Health Sciences, Simon Fraser University
2435 – 515 West Hastings Street, Vancouver, BC V6B 5K3
778.782.7775 | childhealthpolicy.ca
# Contents

**Executive Summary** ................................................................................................................................. 4  

1. **Background** .............................................................................................................................................. 5  
   1.1 Importance of Social and Emotional Wellbeing in Children’s Early Years ........................................ 5  
   1.2 Purpose of This Research Report ........................................................................................................... 6  

2. **Methods** ................................................................................................................................................... 6  

3. **Findings** .................................................................................................................................................... 8  
   3.1 Overview .................................................................................................................................................. 8  
   3.2 Early Interventions for Anxiety Disorders ............................................................................................ 9  
      3.2.1 Prevention ....................................................................................................................................... 9  
      3.2.2 Treatment ....................................................................................................................................... 9  
   3.3 Early Interventions for Attention-Deficit/Hyperactivity Disorder ...................................................... 10  
      3.3.1 Prevention ..................................................................................................................................... 10  
      3.3.2 Treatment ..................................................................................................................................... 10  
   3.4 Early Interventions for Behaviour Disorders ....................................................................................... 11  
      3.4.1 Prevention ..................................................................................................................................... 11  
      3.4.2 Treatment ..................................................................................................................................... 11  

4. **Discussion** ............................................................................................................................................... 13  
   4.1 Summary .................................................................................................................................................. 13  
   4.2 Policy Implications ................................................................................................................................. 14  
      4.2.1 Ensure effective prevention programs for all children who could benefit .................................. 14  
      4.2.2 Ensure effective treatment programs for all children with disorders ........................................ 14  
      4.2.3 Address underlying health and social disparities ........................................................................ 14  
      4.2.4 Address research gaps ................................................................................................................... 15  
   4.3 Conclusions ............................................................................................................................................. 15  

5. **References** .............................................................................................................................................. 16  

6. **Appendices** ............................................................................................................................................. 22  
   6.1 Search Strategy ...................................................................................................................................... 22  
   6.2 Search Process ...................................................................................................................................... 23  
   6.3 Randomized Controlled Trial Inclusion Criteria .................................................................................. 24
Executive Summary

Mental health — or social and emotional wellbeing — begins in the early years and underpins the overall health of both individuals and populations. At the same time, many young children experience avoidable adversities, such as family socioeconomic disadvantage, which can contribute to the development of mental disorders. So, early childhood is the optimal time to intervene — particularly to prevent the onset of mental disorders, and to treat these disorders. To inform policymaking, we therefore sought high-quality research evidence on effective psychosocial interventions for preventing and treating three of the most common mental health conditions that start in early childhood: anxiety, attention-deficit/hyperactivity disorder (ADHD) and behaviour disorders.

On balance, we found strong evidence supporting cognitive-behavioural therapy for anxiety — with two prevention and four treatment programs showing success. We also found strong evidence supporting parent training for behaviour problems — with 11 prevention and two treatment programs showing success. As well, we found evidence supporting parent training for ADHD — with four prevention and three treatment programs showing some success. As a result, there is ample evidence to act on — starting with early childhood anxiety and behaviour programs, where the research evidence is strongest. Prevention, in particular, is also cost-effective. For example, preventing just one case of a severe childhood behaviour disorder can save millions of dollars in averted lifetime costs. Investments in effective prevention programs in early childhood can therefore benefit not only children and families, but also society.

Given the potential to improve developmental trajectories starting early in life, there is a collective ethical imperative to ensure that the prevention of mental disorders is a top population health and public policy priority. Offering effective prevention programs to all in need will help to create conditions that enable more children to flourish and meet their potential — in turn contributing to addressing health and social disparities. Ensuring that all young children with mental disorders are identified early and receive timely and effective treatment programs is also crucial — in keeping with international commitments to meet children’s needs and honour their rights. In turn, collective flourishing will be enhanced by wise public investments in mental health in early childhood.

Children’s social and emotional wellbeing, or mental health, is crucial for healthy development — particularly during the early years, which lay the foundations for flourishing and resilience across the lifespan.
1. Background

1.1 Importance of Social and Emotional Wellbeing in Children’s Early Years

Children’s social and emotional wellbeing, or mental health, is crucial for healthy development — particularly during the early years, which lay the foundations for flourishing and resilience across the lifespan. More than the absence of mental illness, mental health is also a dynamic state of wellbeing that underlies the health of both individuals and populations. Conditions that respect, meet and protect children’s basic needs contribute to mental health and so should be ensured for all children. At the same time, avoidable early adversities such as family socioeconomic disadvantage are associated with not only the development of mental disorders but also the fuelling of lifelong health and social disparities.

Effective early interventions can prevent mental disorders or greatly mitigate their impact — ensuring that children flourish both socially and emotionally.

Partly due to avoidable early adversities, such as family socioeconomic disadvantage, most mental disorders first emerge in childhood and adolescence, — with some cases occurring in very young children, an issue which is not always widely appreciated. Mental disorders are now a leading cause of childhood disability, with as many as 12.7% of young people being affected at any given time. The incidence of mental health problems has also increased during the global COVID-19 pandemic. Even more concerning, only an estimated 44.2% of children with mental disorders receive any services for these conditions, based on a systematic review of high-quality studies from high-income countries. There are even greater service shortages for marginalized populations such as Indigenous children. Childhood mental disorders then often persist unnecessarily and affect lifelong development — with high associated costs for individuals and for society.

Yet these costs are not inevitable. Effective early interventions span a continuum from universal or targeted prevention programs that are offered before problems emerge or become entrenched, to case identification and clinical treatments that are offered when children have disorders. These interventions can prevent new cases of mental disorders or greatly mitigate their impact — thereby ensuring that children flourish both socially and emotionally.
1.2 Purpose of This Research Report

This report therefore aims to identify the best available research evidence on effective psychosocial interventions for preventing and treating mental disorders in the early years — to inform policymaking intended to better meet children’s needs. We focused on anxiety, attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant and conduct (behaviour) disorders because these conditions start early and are relatively common. As well, psychosocial interventions have been developed and evaluated for each of these conditions for young people. The larger context is that of taking a population health approach to improving children’s mental health: addressing avoidable adversities and promoting mental wellbeing for all children; providing effective prevention programs for all those who can benefit; providing effective treatments for all those with disorders; and tracking outcomes and collective progress. The context is also that of honouring children’s rights, including children’s right to receive the services they need when they need them.

2. Methods

For this report, we used systematic review methods adapted from the Cochrane Collaboration and Evidence-Based Mental Health to identify randomized controlled trials (RCTs) evaluating psychosocial prevention and treatment interventions for anxiety, ADHD and behaviour disorders. We built on a recent comprehensive systematic review on interventions for children of all ages — extracting data on psychosocial interventions delivered to children up to age six or to their parents. To ensure that we included the most recent research evidence, we also conducted updated searches to identify new RCTs. (Please also see Appendices: Table A1, search strategy; and Figure A1, search process.)

We required RCTs to assess interventions that were delivered to young children and/or their families living in high-income countries (for comparability to BC) and to be published in peer-reviewed journals. Study attrition had to be ≤20% or intention-to-treat analyses had to be performed. For most RCTs, we required two or more informant sources (e.g., child, parent and/or teacher). But we made an exception for studies assessing psychosocial interventions for the prevention of ADHD, requiring only one informant source because there were fewer available studies. As well, we required at least one informant source to be “blinded” — that is, assessors did not know whether children/families were in the intervention or comparison groups. Again, the only exception was for ADHD prevention because few studies included blinding. To ascertain long-term benefits, we also required RCTs to follow children for at least three months after the end of the intervention. (Please also see Appendices: Table A2, RCT inclusion criteria.)
For reporting on intervention effectiveness, we required that two or more RCTs show statistically significant reductions in disorder diagnoses and/or symptoms based on reliable and valid measures at final follow-up. We classified interventions according to their components, such as cognitive-behavioural therapy (CBT). Given the importance of replicating positive findings, we then excluded interventions where program components were supported by only one successful RCT. For example, we excluded Perry Preschool, which involved enriched preschool curriculum coupled with parent-preschool collaboration, evaluated in one RCT. Beyond this, we excluded studies of programs that were delivered by school staff given the older ages of most elementary school students.

Following these steps, we identified 24 RCTs from the previous systematic review that met criteria. Our updated searches also found 228 new articles, allowing us to identify four additional RCTs that met criteria. For the 28 accepted RCTs — evaluating 26 interventions — we then extracted diagnostic and/or symptom outcome data at final follow-up and compiled data tables summarizing the studies and interventions. Throughout our process, all steps were conducted and/or verified by two or more team members, resolving any differences by consensus.

Psychotropic medications were deemed beyond scope for this report because few have been evaluated with children aged six years or younger. As well, many such medications come with side-effects that may be particularly concerning with young children — an even greater concern if pharmacological approaches are used in place of effective psychosocial interventions. But we acknowledge that medications may have a role in some treatment situations, for example, when effective prevention programs and psychosocial treatments have been offered and children have not benefited.

This report is based on research evidence drawn from high-quality quantitative studies evaluating intervention effectiveness, namely RCTs, because these methods are regarded as high-quality scientific evidence for assessing the impact of health-related interventions. We nevertheless acknowledge that this methodology has limitations — including under-representing Indigenous Peoples, methods and perspectives. More studies are needed that are designed for and about Indigenous children and that are led by Indigenous Peoples — informed by Traditional Knowledge as well as scientific methods.
3. Findings

3.1 Overview

We identified effective psychosocial interventions for all three early childhood mental health conditions covered in this review — 17 for prevention and nine for treatment. For anxiety, CBT proved highly successful for both prevention (two programs evaluated in two RCTs) and treatment (four programs evaluated in four RCTs). For ADHD, parent training proved successful for both prevention (four programs evaluated in four RCTs) and treatment (three programs evaluated in four RCTs). (We use the term “parent training” consistent with descriptions in the research of programs that aim to support parents and teach them to encourage their children’s positive behaviours and development.) As well, for behaviour disorders, parent training proved highly successful for both prevention (11 programs evaluated in 12 RCTs) and treatment (two programs evaluated in two RCTs). For prevention, 16 of 17 programs were targeted, that is, delivered to participants deemed to be at risk, while one was universal, delivered to participants representing a given population.

Many of these studies provided data on particularly salient outcomes — namely statistically significant reductions in diagnoses. For prevention, this included reductions in the onset of new cases of disorder (or incidence) for intervention children. For treatment, this included children who had disorders beforehand but who no longer met diagnostic criteria after program completion. Diagnostic reductions were found for five anxiety interventions and one behaviour intervention. Beyond this, many studies also reported statistically significant reductions in symptoms as a result of both prevention and treatment programs.

Many studies also provided data on effect sizes — which indicate the magnitude of the impact, or the degree to which the intervention made a meaningful difference for children’s lives and wellbeing. In the studies reported here, this was measured as Cohen’s $d$ ($d$) or odds ratio (OR) or eta-squared ($\eta^2$). (For $d$, values $>0.40$ are at least moderate; for OR, values $>3.47$ are at least moderate; and for $\eta^2$, values $>0.06$ are at least moderate.)$^{31, 34–35}$ Moderate or greater effect sizes were demonstrated for either diagnoses or symptoms or both for three anxiety, one ADHD and six behaviour interventions. Tables 1–3 below describe the RCTs and their findings for each condition.
3.2 Early Interventions for Anxiety Disorders

3.2.1 Prevention

Two CBT programs, evaluated in two RCTs, proved effective in preventing anxiety diagnoses and/or symptoms for young, at-risk children. Both programs involved parents, educating them about anxiety and teaching them to assist their children to: reduce physical symptoms of anxiety using techniques such as deep breathing; challenge unrealistic and unhelpful anxious thinking; and practice being in fear-provoking situations while managing anxiety. Coping and Promoting Strength stood out. Comparison children had 8.5 times higher odds of developing an anxiety disorder compared with intervention children.

3.2.2 Treatment

Four CBT programs, evaluated in four RCTs, proved effective in treating anxiety in young children. These programs also involved working with parents or families using CBT as described above, with one program also including child social skills training. All four interventions led to reductions in diagnoses, with moderate-to-large effect sizes for three of them. Timid to Tiger stood out. Comparison children had 8.5 times higher odds of continuing to have an anxiety disorder compared with intervention children.

See Table 1 below.

<table>
<thead>
<tr>
<th>Table 1. Early Intervention Studies and Results for Anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program</strong></td>
</tr>
<tr>
<td><strong>Prevention – Targeted</strong></td>
</tr>
<tr>
<td>Cool Little Kids</td>
</tr>
<tr>
<td>Coping and Promoting Strength</td>
</tr>
<tr>
<td><strong>Psychosocial Treatment</strong></td>
</tr>
<tr>
<td>Cool Little Kids plus Social Skills</td>
</tr>
<tr>
<td>Parent Education Program</td>
</tr>
<tr>
<td>Strongest Families – Chase Worries Away</td>
</tr>
<tr>
<td>Timid to Tiger</td>
</tr>
</tbody>
</table>

CBT = cognitive-behavioural therapy; NS = not significant; ↓ = statistically significant reductions; OR = odds ratio; d = Cohen’s d

* Intervention deemed successful if component(s) used showed success in two or more trials, i.e., CBT for anxiety across two prevention and four treatment trials; where “group” is not indicated, intervention was delivered to individual families
3.3 Early Interventions for Attention-Deficit/Hyperactivity Disorder

3.3.1 Prevention

Four group parent training programs, evaluated in four RCTs, each effectively reduced one ADHD symptom for at-risk children.44–50 These programs typically involved coaching parents to encourage children’s positive behaviours with praise and attention, while discouraging difficult behaviours by ignoring minor problems.51 One parent training program also included a child tutoring component.49–50

3.3.2 Treatment

Three parent training programs, evaluated in four RCTs, effectively reduced one or two ADHD symptoms for young children with this disorder.52–55 (One study was a replication trial, testing Parenting Group over a shorter duration.) 55 These programs used the principles described above, mostly in groups, with one also including child behaviour therapy and social skills training.52 Parenting Group stood out based on the second (replication) trial — reducing two symptoms with a strong effect size. 55 See Table 2 below.

Table 2. Early Intervention Studies and Results for Attention-Deficit/Hyperactivity Disorder

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Components*</th>
<th>Child Ages</th>
<th>Duration</th>
<th>Follow-Up</th>
<th>ADHD Outcomes (Effect Sizes)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevention – Targeted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incredible Years44</td>
<td>PT (group)</td>
<td>3–4 years</td>
<td>3 months</td>
<td>3 months</td>
<td>↓ 1 of 1 symptom</td>
</tr>
<tr>
<td>Incredible Years + Literacy training45–46</td>
<td>PT (group)</td>
<td>5–6 years</td>
<td>6½ months</td>
<td>4 months</td>
<td>↓ 1 of 1 symptom</td>
</tr>
<tr>
<td>Legacy for Children47–48</td>
<td>PT (group)</td>
<td>Prenatal</td>
<td>3¼ years</td>
<td>2 years</td>
<td>↓ 1 of 1 symptom (OR=2.00)</td>
</tr>
<tr>
<td>SAFE Children49–50</td>
<td>PT (group) + child tutoring</td>
<td>6 years</td>
<td>5 months</td>
<td>4¼ years</td>
<td>↓ 1 of 6 symptoms</td>
</tr>
<tr>
<td><strong>Psychosocial Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural and Social Skills Class52</td>
<td>PT, child behaviour therapy + social skills training (groups)</td>
<td>5–12 years</td>
<td>1¾ months</td>
<td>3 months</td>
<td>↓ 1 of 2 symptoms</td>
</tr>
<tr>
<td>New Forest Parenting Programme53</td>
<td>PT</td>
<td>3–7 years</td>
<td>2¼ months</td>
<td>8¼ months</td>
<td>↓ 1 of 3 symptoms (d=0.25)</td>
</tr>
<tr>
<td>Parenting Group54</td>
<td>PT (group)</td>
<td>5–18 years</td>
<td>3 months</td>
<td>1 year</td>
<td>↓ 1 of 5 symptoms</td>
</tr>
<tr>
<td>Parenting Group†55</td>
<td>PT (group)</td>
<td>5–18 years</td>
<td>1½ months</td>
<td>6 months</td>
<td>↓ 2 of 8 symptoms (η² =0.10)</td>
</tr>
</tbody>
</table>

PT = parent training; ↓ = statistically significant reductions; OR = odds ratio; d = Cohen’s d; η² = eta-squared

* Intervention deemed successful if component(s) used showed success in two or more trials, i.e., PT for ADHD across four prevention and four treatment trials; where “group” is not indicated, intervention was delivered to individuals

† Trial replicating earlier RCT on Parenting Group
3.4 Early Interventions for Behaviour Disorders

3.4.1 Prevention

Eleven parenting training programs, evaluated in 12 RCTs, effectively reduced early childhood behaviour symptoms — one delivered universally\(^ {56-57}\) and 10 delivered with at-risk groups.\(^ {58-70}\) (One study was a replication trial testing Incredible Years Basic with slightly older children).\(^ {60}\) These programs typically focused on supporting parents and teaching them to encourage children’s positive behaviours with praise and attention, while discouraging negative behaviours by ignoring minor problems.\(^ {71}\) Triple P and Incredible Years stood out by showing success in reducing symptoms across multiple RCTs — albeit using different program versions — including one version of each with large effect sizes.\(^ {59, 69}\)

3.4.2 Treatment

Two parent training programs, evaluated in two RCTs, effectively reduced behaviour diagnoses and/or symptoms for young children with these disorders.\(^ {72-74}\) Both parent training programs included elements described above. Incredible Years again stood out — for significantly reducing diagnoses in addition to symptoms. Specifically, five months after the program ended, comparison children had five times the odds of still meeting diagnostic criteria for oppositional defiant disorder compared to children whose parents received Incredible Years. See Table 3 below.

---

Investments in effective prevention programs in early childhood can benefit not only children and families but also society.

---
**Table 3. Early Intervention Studies and Results for Behaviour Disorders**

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Components*</th>
<th>Child Ages</th>
<th>Duration</th>
<th>Follow-Up</th>
<th>Behaviour Outcomes (Effect Sizes)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevention – Universal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triple P**</td>
<td>Parent training (PT) (group)</td>
<td>3–6 years</td>
<td>1 month</td>
<td>4 years</td>
<td>↓ 2 of 8 symptoms</td>
</tr>
<tr>
<td><strong>Prevention – Targeted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chicago Parent Program**</td>
<td>PT (group)</td>
<td>2–4 years</td>
<td>2¼ months</td>
<td>1 year</td>
<td>↓ 2 of 4 symptoms</td>
</tr>
<tr>
<td>Incredible Years Basic**</td>
<td>PT (group)</td>
<td>3–4 years</td>
<td>2¼ months</td>
<td>3¼ months</td>
<td>↓ 2 of 4 symptoms (d=0.63–0.89)</td>
</tr>
<tr>
<td>Incredible Years Basic Enhanced†</td>
<td>PT (group)</td>
<td>4–8 years</td>
<td>3½ months</td>
<td>4 months</td>
<td>↓ 1 of 2 symptoms (d=0.08)</td>
</tr>
<tr>
<td>Infant Behavior Program‡</td>
<td>PT</td>
<td>1–1¼ years</td>
<td>1½ months</td>
<td>6 months</td>
<td>↓ 1 of 2 symptoms (d=0.51)</td>
</tr>
<tr>
<td>Nurse-Family Partnership¶</td>
<td>PT</td>
<td>Prenatal</td>
<td>2¼ years</td>
<td>13 years</td>
<td>↓ 3 of 14 symptoms</td>
</tr>
<tr>
<td>Parent-Child Interaction Therapy§</td>
<td>PT</td>
<td>2–7</td>
<td>2½ months</td>
<td>6–9 months</td>
<td>↓ 1 of 2 symptoms</td>
</tr>
<tr>
<td>Parent-Management Training – Oregon¶</td>
<td>PT (group)</td>
<td>6–10 years</td>
<td>3¼ months</td>
<td>8¼ years</td>
<td>↓ 3 of 3 symptoms (d=0.28)</td>
</tr>
<tr>
<td>Strongest Families Smart Website‡</td>
<td>Self-directed PT with coaching</td>
<td>4 years</td>
<td>10 months</td>
<td>1¼ years</td>
<td>↓ 1 of 2 symptoms (d=0.22)</td>
</tr>
<tr>
<td>Triple P Online‡</td>
<td>Self-directed PT with coaching</td>
<td>2–8 years</td>
<td>4 months</td>
<td>5 months</td>
<td>↓ 2 of 3 symptoms (d=0.70–1.28)</td>
</tr>
<tr>
<td>Triple P Online Brief†</td>
<td>Self-directed PT</td>
<td>2–9 years</td>
<td>2 months</td>
<td>9 months</td>
<td>↓ 2 of 4 symptoms (d=0.39–0.41)</td>
</tr>
<tr>
<td><strong>Psychosocial Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incredible Years Basic‡</td>
<td>PT (group)</td>
<td>3–7 years</td>
<td>3–3¼ months</td>
<td>7¼ years</td>
<td>↓ Oppositional defiant diagnoses (OR=5.00)</td>
</tr>
<tr>
<td>Parent-Child Interaction Therapy¶</td>
<td>PT</td>
<td>2–7 years</td>
<td>5 months</td>
<td>1 year</td>
<td>↓ 1 of 3 symptoms (d=0.61–0.64)</td>
</tr>
</tbody>
</table>

* Intervention deemed successful if component(s) used showed success in two or more trials, i.e., PT for behaviour across 12 prevention and two treatment trials; where “group” is not indicated, intervention was delivered to individuals
† Trial replicating earlier RCT on Incredible Years Basic with slightly older children
‡ Based on Parent-Child Interaction Therapy (PCIT)
§ Shortened version of PCIT was considered “usual care”
¶ Trial included only boys

PT = parent training; ↓ = statistically significant reductions; d = Cohen’s d; OR = odds ratio

Promoting Mental Health in the Early Years: Effective Psychosocial Interventions
© Children’s Health Policy Centre, Faculty of Health Sciences, Simon Fraser University, 2021
4. Discussion

4.1 Summary

Mental health — or social and emotional wellbeing — begins in the early years and underpins the health of both individuals and populations.\textsuperscript{4–5} At the same time, many young children experience avoidable adversities, such as socioeconomic disadvantage, which can contribute to the development of mental disorders.\textsuperscript{9} So, early childhood is the optimal time to intervene to prevent these disorders and to treat them.

To inform policymaking, we therefore sought research evidence on effective psychosocial interventions for preventing and treating three of the most common mental health conditions that start in early childhood: anxiety, ADHD and behaviour disorders. Our systematic review identified 28 RCTs meeting criteria: six for anxiety, eight for ADHD and 14 for behaviour disorders. These RCTs evaluated 26 programs: six for anxiety (two prevention, four treatment); seven for ADHD (four prevention, three treatment); and 13 for behaviour problems (11 prevention, two treatment). Program components involved CBT for anxiety and parent training for ADHD and behaviour.

On balance, we found strong evidence supporting CBT for anxiety, with one of two prevention programs and four of four treatment programs reducing disorder diagnoses, as well as reducing symptoms in some cases. We also found strong evidence supporting parent training for behaviour problems, with 11 of 11 prevention programs reducing symptoms and one of two treatment programs reducing both diagnoses and symptoms. As well, there was evidence supporting parent training for ADHD, with four prevention and three treatment programs reducing symptoms (only). As a result, there is ample evidence to act on — starting with programs for anxiety and behaviour, where the research evidence is strongest.

For BC, delivering successful interventions such as CBT and parent training should be feasible because of their relatively short durations in community settings. As well, both CBT and parent training can be adapted for different cultural contexts — for example, with Indigenous communities.\textsuperscript{75–76} CBT has the added benefit of already being delivered by many community practitioners\textsuperscript{77} while efforts to increase the availability of parent training are ongoing.\textsuperscript{78}

Prevention, in particular, is also cost-effective. For example, economic analyses in the United States (US) have shown that preventing just one case of a severe childhood problem such as conduct disorder may save an estimated $5.6 million (2021 USD equivalency) in averted lifetime costs across multiple public sectors including healthcare, special education, child protection and justice.\textsuperscript{79} As well, prevention programs such as Nurse-Family Partnership have been estimated to pay for themselves when averted health care, child protection and justice costs are amortized over 10 years or more.\textsuperscript{80} Therefore, investments in effective prevention programs in early childhood can benefit not only children and families but also society.
4.2 Policy Implications

4.2.1 Ensure effective prevention programs for all children who could benefit

Effective prevention programs, such as those reviewed here, should be scaled up and offered widely in BC — addressing anxiety with CBT and addressing behaviour problems with parent training. Supporting cultural adaptations will help enhance safety, relevance and results. Tracking outcomes will also inform ongoing program improvements. Yet policy responsibilities for mental health in early childhood typically span multiple public sectors and agencies which can impede efficiency and coordination. In BC this includes among others: the BC Ministries of Children and Family Development, Health, and Mental Health and Addictions; the Provincial Health Services Authority; five regional Health Authorities; and the First Nations Health Authority. Collective leadership on mental health in early childhood therefore needs to include these groups. However, while ADHD prevention is also important, given weaker evidence, further program evaluations are warranted prior to scale up. Putting this research in context, it is important to acknowledge that recommendations on effective prevention programs presuppose adequate service system capacity — including accurate identification of children at risk who can benefit from targeted programs, in addition to program delivery. So increasing overall prevention capacity is essential.

4.2.2 Ensure effective treatment programs for all children with disorders

Effective treatment programs, such as those reviewed here, should also be offered to all children in need, preferably early in the course of disorder — addressing anxiety with CBT and addressing ADHD and behaviour with parent training. But recognition of mental disorders in early childhood is not always widespread. Practitioner leaders can therefore play important roles — ensuring that children with disorders are identified early and receive careful assessments, and that they then receive effective treatments with appropriate follow-up. Both CBT and parent training can also be provided by a range of practitioners in a range of community settings, which should enhance access. However, this will require coordination, for example, across the children’s services and health sectors, among others. Policymakers can also play crucial leadership roles in ensuring adequate funding and supports for early childhood mental health care — and in fostering greater public recognition of the mental health needs of young children and the importance of meeting these needs. Beyond this, as with prevention, recommendations on effective treatments presuppose adequate service system capacity — including assessment and diagnostic capacity, in addition to treatment delivery. So increasing treatment capacity is also essential.

4.2.3 Address underlying health and social disparities

Young children, by definition, are embedded within their families and communities, so it is crucial to support these families and communities. Yet many BC families continue to struggle with socioeconomic disadvantage — which in turn can contribute to early childhood mental health problems, further fuelling cycles of health and social disparities. Public initiatives that address these disparities will therefore help in addressing mental health in early childhood. Examples include enacting policies and programs that better reach and support disadvantaged families with enriched child benefits and income supplements.
Indigenous children and communities in particular merit enhanced resourcing proportionate to need — given the longstanding legacies of colonialism which include socioeconomic inequities, racism, intergenerational trauma and overrepresentation of Indigenous children in child welfare systems.\textsuperscript{81–82} Initiatives led by and for Indigenous communities are the first step — which Indigenous leaders are taking, highlighting the strength and resiliency of their communities.\textsuperscript{83}

4.2.4 Address research gaps

While we found many RCTs on early interventions, some of which included children from diverse cultural backgrounds, we found no studies conducted with a significant proportion of Indigenous children that met our criteria. This gap needs to be addressed with increased funding and opportunities for Indigenous-led research — which is occurring through new programs such as the Canadian Institutes for Health Research Indigenous Healthy Life Trajectories Initiative\textsuperscript{84} — which includes a long-term early child development project being led by BC’s Nuu-chah-nulth Tribal Council.\textsuperscript{85}

4.3 Conclusions

Given the potential to reduce avoidable adversities and improve developmental trajectories starting early in life, we have a collective ethical responsibility to ensure that preventing mental disorders is a top population health and public policy priority. Offering effective prevention programs to all in need will help to create conditions that enable more children to flourish and meet their potential — in turn contributing to addressing health and social disparities. Ensuring that all young children with mental disorders are identified early and receive timely and effective treatment programs is also crucial — in keeping with international commitments to meeting children’s needs and honouring their rights. Collective flourishing will in turn be enhanced by wise public investments in mental health in early childhood.

\begin{quote}
Given the potential to reduce avoidable adversities and improve developmental trajectories starting early in life, we have a collective ethical responsibility to ensure that preventing mental disorders is a top public policy priority.
\end{quote}
5. References


   http://www.incredibleyears.com
52. Tutty S, Gephart H, & Wurzbacher K. (2003). Enhancing behavioral and social skill functioning in
   children newly diagnosed with attention-deficit hyperactivity disorder in a pediatric setting. *Journal of
   Developmental and Behavioral Pediatrics, 24*, 51–57.
   Psychiatry, 57*, 593–602.
   programme for parents of children and adolescents with ADHD: Immediate and long-term effects using
55. Ferrin M, Perez-Ayala V, El-Abd S, et al. (2020). A randomized controlled trial evaluating the efficacy of
   a psychoeducation program for families of children and adolescents with ADHD in the United
   Kingdom: Results after a 6-month follow-up. *Journal of Attention Disorders, 24*, 768–779.
   universal prevention trial through a positive parenting program: Is it worth the effort? *Child and
   Adolescent Psychiatry and Mental Health, 4*, 1–14.
   controlled trial of Triple P Group for parent and child outcomes". *Prevention Science, 18*, 491–503.
   outcomes for African American and Latino parents of young children. *Research in Nursing & Health, 35*,
   475–489.
   at risk of developing conduct disorder: Pragmatic randomised controlled trial. *British Medical Journal,
   334*, 1–7.
   Years: New insights into sociodemographic and intervention-based moderators. *Behavior Therapy, 48*,
   1–18.
   for antisocial behavior: Long-term effects on child physical aggression and parenting practices. *Journal of
   Clinical Child and Adolescent Psychology, 37*, 386–396.
   criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *Journal of the
   American Medical Association, 280*, 1238–1244.
   comparing the efficacy of a briefer, more intensive version of Parent-Child Interaction Therapy (I-


78. Forgatch MS, Patterson GR, & Gerwitz AH. (2013). Looking forward: The promise of widespread implementation of parent training programs. Perspectives in Psychological Sciences, 8, 682–694.


Competing interests: Charlotte Waddell and Nicole Catherine are co-leading BC’s RCT on Nurse-Family Partnership, one of the interventions discussed in this review.

Cover photo is from Bigstock.
6. Appendices

6.1 Search Strategy

Table A1. Search Strategy

<table>
<thead>
<tr>
<th>Databases</th>
<th>CINAHL, ERIC, Medline and PsycINFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Terms</td>
<td>Anxiety disorder, anxiety, agoraphobia, generalized anxiety disorder, panic disorder, phobic disorder, selective mutism, separation anxiety disorder, social anxiety disorder, social phobia or specific phobia and prevention, intervention or treatment</td>
</tr>
<tr>
<td></td>
<td>Attention deficit disorder with hyperactivity, ADHD, attention deficit, attention disorder, hyperkinesis and prevention, intervention or treatment</td>
</tr>
<tr>
<td></td>
<td>Conduct disorder, oppositional defiant disorder, aggressive behaviours, child behaviour disorders or juvenile delinquency and prevention, intervention or treatment</td>
</tr>
<tr>
<td>Limits</td>
<td>Peer-reviewed articles published in English through until mid-April 2021†</td>
</tr>
<tr>
<td></td>
<td>Child participants aged 18 years or younger†</td>
</tr>
<tr>
<td></td>
<td>RCT methods used</td>
</tr>
</tbody>
</table>

* Updating searches were conducted building on the previous report, which had search dates spanning from database inception to: 2018 for anxiety, 2020 for ADHD and 2017 for oppositional and/or conduct disorders
† To ensure that we captured all potentially relevant studies, we initially included children up to age 18 years, then extracted data from accepted RCTs for only young children
6.2 Search Process

Figure A1. Search Process

Records identified through database searching
Anxiety: n = 1560
ADHD: n = 165
ODD/CD: n = 665

Records excluded
Anxiety: n = 1022
ADHD: n = 47
ODD/CD: n = 342

Abstracts screened for relevance
Anxiety: n = 538
ADHD: n = 118
ODD/CD: n = 323

Abstracts excluded
Anxiety: n = 486
ADHD: n = 75
ODD/CD: n = 190

Full-text articles assessed for eligibility
Anxiety: n = 52
ADHD: n = 43
ODD/CD: n = 133

Full-text articles excluded
Anxiety: n = 52
ADHD: n = 42
ODD/CD: n = 130

New RCTs included
Anxiety: n = 0
ADHD: n = 1
ODD/CD: n = 3

* Adapted from Preferred Reporting Item for Systematic Reviews and Meta-Analyses86
### 6.3 Randomized Controlled Trial Inclusion Criteria

**Table A2. RCT Inclusion Criteria**

**General**
- Random assignment to intervention or control/comparison groups (i.e., no intervention or usual care)
- Clear descriptions provided of participant characteristics, settings and psychosocial interventions
- Participants included children aged six years or younger
- Interventions aimed to prevent or treat anxiety, ADHD,\(^*\) oppositional defiant and/or conduct disorders
- Interventions were not delivered by school staff, for applicability to the early years
- Interventions evaluated in a high-income country for comparability with Canadian policy and practice settings
- For prevention studies, most participants did not have a primary diagnosis of anxiety, ADHD or oppositional defiant and/or conduct disorders at study outset
- For treatment studies, most participants had a primary diagnosis of anxiety, ADHD or oppositional defiant and/or conduct disorders, or had been referred for treatment for behavioural problems, at study outset
- Outcome indicators included diagnoses and/or symptoms of the disorder of interest, assessed at follow-up
- Follow-up was three months or more from the end of the intervention
- Attrition rates were 20% or less at follow-up and/or intention-to-treat analyses was used
- Reliability and validity of all primary outcome measures or instruments was documented
- Levels of statistical significance were reported for primary outcome measures
- Interventions were not focused on specialized subpopulations which would limit applicability to most children

**Anxiety, Oppositional Defiant and/or Conduct Disorders**
- For prevention and treatment studies, outcome indicators included either one diagnostic measure where the diagnostician was blinded, or two symptom measures, completed by two or more informant sources, e.g., child or parent or teacher, at least one of whom was blinded to participants' group assignment

**ADHD**
- For prevention studies, outcome indicators completed by at least one informant source\(^*\)
- For treatment studies, outcome indicators completed by two or more informant sources, e.g., child or parent or teacher, at least one of whom was blinded to participants' group assignment

\(^*\) For ADHD, because there were few prevention studies, inclusion criteria were more expansive to allow for the incorporation of more studies, including studies aiming to prevent other disorders but where ADHD was also assessed
Reaching Underserved Children and Families: Lessons from the British Columbia Healthy Connections Project

A Research Report

December 2021

Nicole Catherine
Kathleen Hjertaas
Ange Cullen
Yufei Zheng
Haneen Amhaz
Rosemary Lever
Daphne Gray-Grant
Charlotte Waddell
We celebrate the Indigenous Peoples on whose traditional territories we are all privileged to live and work.

Citing This Report

Acknowledgements
We acknowledge the children and families who generously gave their time to the British Columbia Healthy Connections Project (BCHCP). The BC Representative for Children and Youth funded this report. We also appreciate the feedback provided by the BCHCP Steering Committee. As well, we are grateful to the BC Ministry of Health, who is funding the BCHCP with support from the BC Ministries of Children and Family Development and Mental Health and Addictions – and with support from Fraser, Interior, Island and Vancouver Coastal Health Authorities.
Contents

Executive Summary ............................................................................................................................................. 4

1. Background .......................................................................................................................................................... 5
   1.1 Importance of Reaching Underserved Children and Families ............................................................. 5
   1.2 Learning From the British Columbia Healthy Connections Project ................................................. 6
   1.3 Purpose of This Research Report ............................................................................................................... 7

2. Approach ............................................................................................................................................................. 7

3. Findings ................................................................................................................................................................ 8
   3.1 Identifying Those in Need .......................................................................................................................... 8
      3.1.1 Recruitment Processes ....................................................................................................................... 8
      3.1.2 Initial Recruitment Challenges and Approaches for Addressing These ................................... 8
   3.2 Sustaining Engagement With Children and Families ............................................................................ 9
      3.2.1 Developing a Protocol ....................................................................................................................... 9
      3.2.2 Tuning the Protocol .......................................................................................................................... 10
   3.3 Learning From Participants ...................................................................................................................... 11
      3.3.1 Contacts Needed for Sustaining Engagement .............................................................................. 11
      3.3.2 Everyone to the Finish Line ............................................................................................................ 12
      3.3.3 Supports According to Circumstances .......................................................................................... 13
      3.3.4 (In)consistent Access to Technology ............................................................................................. 14
      3.3.5 Did Receiving Nurse-Family Partnership Make a Difference? ................................................... 15

4. Discussion ............................................................................................................................................................ 15

5. References ........................................................................................................................................................... 17

6. Appendices .......................................................................................................................................................... 20
   6.1 British Columbia Healthy Connections Project Governance Structure ............................................. 20
   6.2 British Columbia Healthy Connections Project Interview Measures and Time Points .................. 21
Executive Summary

It is crucial to reach and support children and families who are coping with multiple adversities — yet many are defined by researchers and providers as “hard-to-reach” and therefore are underserved. The British Columbia Healthy Connections Project (BCHCP) entails a randomized controlled trial evaluating Nurse-Family Partnership (NFP), an intensive home-visiting program for disadvantaged, young, first-time mothers and their children. The study team needed to sustain engagement with nearly 1,500 children and mothers for the two-and-a-half years of their participation. So we learned many lessons. The BCHCP is also a “real world” trial, embedded within BC’s public health system. Our findings may therefore have policy salience.

We found that a robust engagement protocol helped families to participate in the six research interviews that we planned. Participants taught us to make frequent contacts — ranging from an average of 6.5 to 14.3 attempts, including on evenings and weekends. More outreach was needed for those experiencing more adversities. Yet participants also told us that they appreciated us persevering so that they could be included. Texting was the most effective approach for reaching the families. As well, it paid off to invest in training and supporting study team members — enabling them to create rapport and sustain long-term relationships. These strategies led to us achieving our goal. More than 80% of families completed the study interviews.

We acknowledge that our findings and their implications may pose challenges for policymakers. Initial costs could be high, for example, involving resources for: training outreach staff and supporting digital inclusion by providing families with cellphones and data plans. Offering evening and weekend appointments may pose particular challenges. Yet we believe that the benefits would be substantial, permitting more equitable inclusion of children and families who are coping with multiple adversities and who can greatly benefit from enhanced programs. We also believe that addressing service barriers for populations in need is feasible. For example, during the COVID-19 pandemic, BC and other jurisdictions provided cellphones and data plans to populations in need — enabling greater remote/virtual service access. So enriched supports for families in need can be, and have been, implemented in BC and elsewhere.

There is a collective ethical imperative to better reach and serve disadvantaged children and families.

Beyond feasibility issues, there is a collective ethical imperative to better reach and serve disadvantaged children and families. Delivering programs with an intensity that is proportionate to need will in turn help address avoidable adversities, such as socioeconomic disadvantage — and will help ensure healthy development and wellbeing for all children. These goals are also in keeping with collective aims to honour children’s rights by ensuring that they receive needed services.
I. Background

1.1 Importance of Reaching Underserved Children and Families

Family socioeconomic disadvantage is a serious problem in British Columbia (BC) and Canada. Its seriousness arises in part from its association with child mental health and developmental difficulties and child maltreatment.\(^1\)\(^-\)\(^5\) Poverty rates, as defined by market basket measures that estimate the cost of modest, basic standards of living, have been decreasing in Canada.\(^4\) Even so, approximately half a million children under age 18 years (8.2%) still live below the poverty line — with higher rates for children living with single mothers or adolescent parents.\(^4\)\(^-\)\(^5\) Income inequality also persists, with Canada ranking poorly relative to other high-income countries.\(^6\) These disparities and their consequences then tend to persist across the life course — at great cost to individuals and to society.\(^7\)\(^-\)\(^9\)

Exacerbating these issues, disadvantaged children and families often face barriers to receiving health and social services.\(^10\)\(^-\)\(^11\) In addition to service shortfalls, these barriers include non-flexible hours, high program costs, limited transportation and language options, long wait times, ineffective programming and cultural insensitivities.\(^12\)\(^-\)\(^15\) Certain populations — notably Indigenous children and families — are also disproportionately affected as a result of overt and entrenched inequalities and racism in service provision.\(^16\)\(^-\)\(^18\) Therefore, the experience of socioeconomic disadvantage is often compounded by being underserved. Adding another layer of disadvantage, underserved children and families have been described by researchers and service providers as “hard-to-reach” — implying individual responsibility for their predicament.\(^19\)\(^-\)\(^20\) In contrast, describing them as “need-to-reach” and focusing on “how-to-reach” them implies collective ethical responsibility — in keeping with longstanding acknowledgement that all children have the right to receive needed services. This latter approach is also consistent with the principle of proportionate universalism which calls for ensuring enhanced services for those who are most in need.\(^21\)\(^-\)\(^24\)

Paradoxically, service barriers persist for disadvantaged children and families despite considerable high-quality research evidence from other countries showing that these populations can indeed be reached — and with programs that can yield significant and enduring benefits. Several examples stand out. Nurse-Family Partnership (NFP) is a home-visiting program that supports disadvantaged young first-time parents and their children over two-and-a-half years, starting prenatally. Randomized controlled trials (RCTs) in the United States (US), the Netherlands and England have shown significant short- and long-term benefits including improved child development and mental health, reduced child maltreatment and improved maternal wellbeing.\(^25\)\(^-\)\(^28\) Perry Preschool is an early childhood education program delivered to disadvantaged three- and four-year-olds over two years. An RCT in the US has shown enduring benefits when participants were 40 years of age, including improved mental health and positive participation in society.\(^29\) Numerous other programs have similarly proven successful at reaching disadvantaged children and families and improving their lives.\(^30\) As well, economic analyses suggest that such programs can be wise public investments — incurring net benefits through averted expenditures in healthcare, special education and the justice and foster care systems.\(^31\)\(^-\)\(^35\) This research evidence on successful programs provides exemplars for better reaching and serving disadvantaged children and families.
1.2 Learning From the British Columbia Healthy Connections Project

Beyond providing evidence on effective program approaches, long-term studies conducted with disadvantaged populations can also inform policy and practice efforts to improve service reach. This is because researchers conducting such studies must minimize dropouts, or attrition, to ensure that results are valid — representing all participants and not just those who are easier to engage. One such study with policy salience is the British Columbia Healthy Connections Project (BCHCP). This RCT is evaluating NFP for the first time in Canada, comparing the program with existing services across BC in a sample of nearly 1,500 children and mothers (2011–2022). The BC Ministry of Health is funding this study with support from the BC Ministries of Children and Family Development and Mental Health and Addictions. The study also involves close collaborations with Fraser, Interior, Island and Vancouver Coastal Health Authorities who are funding NFP delivery — and is guided by a Provincial Advisory Committee comprising numerous BC child- and family-serving organizations including the First Nations Health Authority.

Baseline data showed high rates of adversities in early pregnancy beyond the eligibility criteria (young age, limited income, limited education, being single). These adversities included unstable housing, maltreatment experiences, and mental health problems including substance use. Prenatal findings showed that NFP reduced prenatal use of cigarettes (in smokers) and reduced cannabis use. Findings on child injuries, cognitive/language development, and mental health (behaviour) at age two years, as well as maternal economic self-sufficiency, are anticipated in 2021–2022.

To focus on those most likely to benefit from NFP, pregnant participants were intentionally recruited on the basis of experiencing socioeconomic adversities including limited income, education and social supports, in addition to preparing to parent for the first time at a young age. Identifying these participants and sustaining close connections with them was crucial to ensuring at least 80% retention (the usual RCT standard) across six research interviews over two-and-a-half years. Notably, this intensity and this time frame broadly mirror successful childhood interventions described in the literature, such as NFP and Perry Preschool. Embedded within BC’s public health system, this trial can therefore provide “real world” lessons on creating and sustaining vigorous connections with “need-to-reach” children and families over several years. As well, the trial provides a useful case study for creating and sustaining connections with populations who are coping with multiple adversities. For BCHCP participants, beyond limited income, education and social supports, these adversities included: precarious housing; high rates of mental and physical health problems; and high rates of exposure to violence. These participants therefore epitomize the need for enhanced services proportionate to need.
1.3 Purpose of This Research Report

To inform policy and practice efforts to better reach and serve disadvantaged children and families in BC, this report aims to synthesize lessons from the BCHCP. Specifically, we will:

- Summarize trial recruitment processes and approaches for overcoming challenges;
- Outline a protocol for sustaining engagement; and
- Present data from families on better supporting their inclusion.

The overarching goals are to contribute to ensuring that all children in BC can flourish and that all children and families receive the programs and services they need, when they need them.

2. Approach

In this report, we summarize the trial recruitment processes and the roles that the study team undertook together with policy and practice partners. We also outline initial recruitment challenges and the approaches we used to address these challenges, including using the project’s active and robust research-policy-practice governance structure (see Appendix 1). Next, we outline the intensive protocol that the study team developed to successfully sustain engagement with children and families over their two-and-a-half years of participation.

We then present new analyses of tracking data depicting what we learned from families on the frequency and nature of the connections they required to support their participation. This includes data on: how adverse circumstances increased the needs; preferred modes of connection; and differences between NFP and control groups. Tracking data were collected by field interviewers using a secure web-based application (Research Electronic Data Capture or REDCap) and stored on secure servers at the Children’s Health Policy Centre at Simon Fraser University (SFU). The study team organized and categorized the data and conducted descriptive analyses using SPSS Statistics.39–40 We compared baseline risk factors by retention level using Student’s t-test and Chi-square tests for continuous and categorical data respectively, using R Version 4.0.41 Data were then summarized. All steps were verified by two or more team members to ensure accuracy in analyses and interpretations.

The BCHCP receives ongoing research ethics approvals from SFU, the University of BC, the University of Victoria, McMaster University, the Public Health Agency of Canada, Fraser Health, Interior Health, Island Health and Vancouver Coastal Health Authorities. An independent Data and Safety Monitoring Committee also oversees the trial. (See childhealthpolicy.ca for more information about the BCHCP.)
3. Findings

3.1 Identifying Those in Need

3.1.1 Recruitment Processes

For the BCHCP RCT, Fraser, Interior, Island and Vancouver Coastal Health Authorities identified and recruited pregnant girls and young women who met eligibility criteria. These criteria included: 1) being age 24 years or younger; 2) preparing to parent for the first time; 3) being less than 28 weeks’ gestation; 4) speaking English; and 5) experiencing socioeconomic disadvantage as evidenced by either being an adolescent or being older but coping with added challenges such as limited education, or income, or being single. Public health nurses screened potential participants and obtained consent to pass their information to the SFU study team. The study team then contacted potential participants, introduced the RCT, confirmed eligibility, obtained informed consent and scheduled in-home interviews. Following initial baseline interviews, participants were randomly allocated (like flipping a coin) to either the intervention (NFP plus existing services) or control (existing services) groups. The study team was not involved in NFP delivery. Rather, Health Authorities delivered the program, including ensuring appropriate nurse education and supervision and fidelity with program requirements. The study team conducted five additional interviews beyond baseline with all study participants – at 34–36 weeks’ gestation and when children were two, 10, 18 and 24 months – collecting quantitative data on socioeconomic status, demographics, child and maternal wellbeing and functioning, and service access and use. (Appendix 2 outlines the interview measures and time points.)

3.1.2 Initial Recruitment Challenges and Approaches for Addressing These

Initial recruitment targets were determined based on RCT sample size requirements and on BC Ministry of Health population estimates of the annual number of first births for girls and young women living on low income. Recruitment opened in October 2013, following research ethics approvals from the 10 participating organizations. However, early in the trial, Health Authorities received few referrals via their newly established public health registry systems. Consequently, the Steering Committee harnessed the project’s research-policy-practice collaborations and governance structure to address the recruitment challenges, including extending recruitment by a year. (Formed in 2011, the Steering Committee includes the study team leads from SFU and the project policy leads from the BC Ministries of Health, Children and Family Development, and Mental Health and Addictions; see Appendix 1.) With guidance from the study team and the Provincial Advisory Committee, NFP nurses visited primary care providers, schools and relevant community agencies to increase referrals to the prenatal registries. These approaches met with success. We reached sufficient enrollment numbers by December 2016 and completed all research interviews in November 2019. Even so, enrollment was lower than anticipated based on the initial targets – representing less than 50% of all potentially-eligible girls and young women in BC. This situation underscores the urgency and importance of better identifying and reaching children and families who are experiencing disadvantage.21,36
3.2 Sustaining Engagement With Children and Families

3.2.1 Developing a Protocol

To help sustain long-term connections with children and families, we developed a theory- and research-informed protocol to encourage engagement over the two-and-a-half years of trial participation. This protocol was also intended to help us complete nearly 4,000 research interviews (739 baseline and 3,176 follow up interviews) across a wide geographical area and spanning six years of data collection (2013–2019).21 Protocol development included: identifying potential barriers to participation and creating strategies to mitigate these, such as offering flexible appointment times; investing in training and supporting field interviewers to foster respectful and enduring participant relationships; and building a secure, online tracking database to allow for feedback and refinement. Table 1 highlights crucial components of the protocol including planning, building capacity, communicating, and tracking progress.

Table 1. Approaches to Sustaining Engagement

<table>
<thead>
<tr>
<th>Planning</th>
<th>Building Capacity</th>
<th>Communicating</th>
<th>Tracking Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designing the study</td>
<td>Training and supporting field interviewers</td>
<td>Checking in, offering choices, persisting</td>
<td>Keeping good data</td>
</tr>
<tr>
<td>• To build and maintain rapport, trust and connections, we conducted interviews at baseline in early pregnancy (in participants’ homes) and when children were two, 10, 18 and 24 months (in homes or by telephone).</td>
<td>• To ensure both participant rapport and high-quality data collection, we invested in recruiting and retaining full-time field interviewers — who had bachelor’s or master’s degrees in related fields, with some also having related clinical or research experience. We then provided four weeks of intensive initial training on: maintaining ethical conduct including confidentiality; understanding the study and our participants; cultural safety; conducting interviews with mothers and developmental assessments with children; building rapport and engaging families in lengthy research interviews; managing difficult situations; self-care; and managing data.</td>
<td>• To stay in touch between interviews, we scheduled check-ins via text, email or phone to remind participants about interviews, obtain updates on contact information and let them know their efforts and information were appreciated and integral to study success. With their permission, we also obtained alternate contact information, e.g., family members, partners or friends.</td>
<td>• For each interview, we recorded the number, type and frequency of contacts, including check-ins and completion rates. We also developed a participant engagement database to collect and monitor all communications data, using weekly progress reports to refine our approach.</td>
</tr>
<tr>
<td>• To honour their time, participants received gift cards ($50–$75) after completing each of the six research interviews (typically 2.5 hours in duration).</td>
<td>• Interviewers received weekly supervision and support (more often as needed) and attended annual in-person workshops to ensure their continuing knowledge and skills.</td>
<td>• We gave participants communications choices, e.g., text, email or toll-free telephone. Interviews were also available weekdays, evenings and weekends to accommodate their schedules.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• We made multiple contacts, respecting that participants were busy, with complicated lives.</td>
<td></td>
</tr>
</tbody>
</table>

* Adapted from Catherine 2020a21
3.2.2 Tuning the Protocol

To further track our progress, midway through the six years of data collection a senior research manager conducted in-depth qualitative audits with seven field interviewers — each with an average of three years of full-time trial experience — on their approaches to engaging children and families. We coded the transcripts for frequent themes, discussed the findings during an annual workshop, and incorporated new and refined strategies into our ongoing participant retention efforts. In particular, interviewers described strategies they used to address common barriers to engagement, most involving texting with participants. Table 2 summarizes the barriers and strategies, with illustrative field interviewer quotes.

**Table 2. Barriers and Strategies for Participant Engagement**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancelling interviews frequently</td>
<td>• Reframe as “rescheduling” to create opportunities for follow-up, e.g.,</td>
</tr>
<tr>
<td></td>
<td>“Hi [name], your next appointment is scheduled for tomorrow at 11. Please respond ‘R’ to reschedule and let me know which day works better for you; or respond ‘Yes’ if you are still available. Looking forward to seeing you soon!”</td>
</tr>
<tr>
<td>Rescheduling interviews</td>
<td>• Be specific and provide alternatives rather than leaving it open-ended, e.g.,</td>
</tr>
<tr>
<td></td>
<td>“Hi [name], this is [name] from the BCHCP. Just checking in about rescheduling our interview from yesterday. Would next Tuesday at 1 or Wednesday at 11 work for you? I will get in touch on Friday to follow up if I don’t hear back from you. Talk with you soon!”</td>
</tr>
<tr>
<td>Disengaging for an extended period</td>
<td>• Remind participants of why they are important, e.g.,</td>
</tr>
<tr>
<td></td>
<td>“Hi [name], hope you and [child’s name] are doing well! [Child’s name] must be getting big since we last saw you. You both have made it so far with the study and we are so pleased to have you both involved. Let me know if you are still available for the [date], or if we need to reschedule to a new date and time that works for you. Looking forward to seeing you soon!”</td>
</tr>
<tr>
<td>Being too busy to schedule interviews</td>
<td>• Provide solutions (if appropriate) and express gratitude for their commitment, e.g.,</td>
</tr>
<tr>
<td></td>
<td>“Hi [name], it’s great to hear from you – thanks for following up about rescheduling our appointment. It sounds like you have a lot going on right now with school, work and [child’s name]. I so appreciate you making time for our appointment.</td>
</tr>
<tr>
<td></td>
<td>• Is there anything I can do to make the appointment easier, such as meet over the phone or meet on the weekend? I’m sure that together we can find something that works for you.”</td>
</tr>
<tr>
<td></td>
<td>Provide an opportunity to participate later, e.g.,</td>
</tr>
<tr>
<td></td>
<td>“If you don’t want to commit to booking an appointment right now, how about I get in touch in a month and we can see how you feel then? In the meantime, feel free to get in touch if anything comes up or if you have any questions. Talk soon!”</td>
</tr>
</tbody>
</table>
3.3 Learning From Participants

3.3.1 Contacts Needed for Sustaining Engagement

We believed that it was crucial to learn from participants about the best ways to facilitate sustained engagement over the course of the trial. As one means of doing this, we tracked the number of contacts required to successfully complete each research interview at our five time points over 2.5 years (following the initial baseline interviews). Field interviewers who knew the families made all the contacts. These tracking data showed that we needed to make increasing contacts over time to sustain acceptable overall study retention rates of 80% or more. The mean number of contacts required for each interview ranged from 6.5 for the short time from early-to-late-pregnancy (<28 to 34–36 weeks’ gestation) to 14.3 when children were 24 months old. Yet while requiring increasing amounts of staff time, persistence paid off with us meeting our retention goals — without necessarily being intrusive for participants. As one of our field interviewers explained: “Participants often expressed that they were glad that we continued to reach out to them, that we never gave up. They felt that we cared.” Table 3 shows the number of contacts required to successfully sustain engagement at each time point.

<table>
<thead>
<tr>
<th>Time Point (Child Age)</th>
<th>Mean Contacts (Standard Deviation)*</th>
<th>Completed Interviews†</th>
</tr>
</thead>
<tbody>
<tr>
<td>[&lt;28 weeks’ gestation]‡</td>
<td>[NA]</td>
<td>[100.0%]</td>
</tr>
<tr>
<td>34–36 weeks’ gestation§</td>
<td>6.50 (5.41)</td>
<td>90.1%</td>
</tr>
<tr>
<td>2 months</td>
<td>10.29 (5.99)</td>
<td>91.5%</td>
</tr>
<tr>
<td>10 months</td>
<td>11.49 (8.32)</td>
<td>84.7%</td>
</tr>
<tr>
<td>18 months</td>
<td>12.29 (8.11)</td>
<td>80.1%</td>
</tr>
<tr>
<td>24 months</td>
<td>14.37 (11.02)</td>
<td>82.9%</td>
</tr>
</tbody>
</table>

NA = not available

* Includes all successful and unsuccessful contacts, unrelated to interview completion status
† Proportion of participants who completed the interview
‡ Baseline interviews involved all 739 (100.0%) maternal participants
§ Participant tracking data was only available for a smaller sample at this time point

Participants often expressed that they were glad that we continued to reach out to them, that we never gave up. They felt that we cared.
3.3.2 Everyone to the Finish Line

We explored the number of contacts specifically required to reach and engage the 613 families who completed the final research interviews when children reached age two years — which was 82.9% of the original 739. While 13.9% required four to five contacts, most required six to 10 (44.4%) or 11 or more (41.7%). Again, persistence paid off. As one field interviewer elaborated: “Don’t take ‘no response’ personally as there is a lot going on in people’s lives.” Figure 1 shows the number of contacts required to complete the final interview — to get everyone to the finish line.

Figure 1. Contacts Required to Complete the Final Interview

Don’t take ‘no response’ personally as there is a lot going on in people’s lives.
3.3.3 Supports According to Circumstances

Considering potential differences in participants’ circumstances when they first started the BCHCP, we also examined factors that might influence who required more contacts to complete the final interview – namely, those who were coping with greater adversities in early pregnancy. Compared with mothers who required 10 or fewer contacts to complete the final interview, we found several differences for those requiring more contacts. Specifically, at baseline those requiring 11 or more contacts were statistically significantly more likely to: be younger (54.3% aged 14–19 years versus 43.5% aged 20–24 years; p<.01); have not completed high school (59.4% versus 41.9%; p <.001); and have very limited income (47.9% versus 37.8% had less than $5,000/year; p<.01). These added adversities likely accounted for the more intensive supports that were needed to ensure that these participants, too, could complete their final interviews and have all their data included. As one field interviewer reflected: “Participants told us they felt their voices were being heard — often for the first time.”
3.3.4 (In)consistent Access to Technology

We also explored which modes of communication might work better for participants, by documenting the proportion of successful contacts according to whether we used text, telephone or emails. Successful contacts were defined as those garnering same-day responses, whether initiated by participants or the study team. Using this definition, we observed decreasing success over the two-and-a-half years of study participation. We also found that texting was by far the best mode of communication for our young participants, partly due to inconsistent access to technology — which in turn was influenced by socioeconomic circumstances. As one field interviewer recalled: “Participants were often dealing with limited income, with inconsistent cellphone access or money for minutes, so it was more difficult to reach those we needed to reach.” Table 4 shows the rates of successful (same-day) contacts and the preferred modes of communication.

<table>
<thead>
<tr>
<th>Time Point (Child Ages)</th>
<th>Successful Same-Day Contacts</th>
<th>Mode of Successful Same-Day Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>[&lt; 28 weeks’ gestation]</td>
<td>[NA]†</td>
<td>[NA]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[NA]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[NA]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[NA]</td>
</tr>
<tr>
<td>34–36 weeks’ gestation</td>
<td>50.4%</td>
<td>76.9%</td>
</tr>
<tr>
<td></td>
<td>13.8%</td>
<td>9.3%</td>
</tr>
<tr>
<td>2 months</td>
<td>51.7%</td>
<td>75.1%</td>
</tr>
<tr>
<td></td>
<td>16.6%</td>
<td>8.3%</td>
</tr>
<tr>
<td>10 months</td>
<td>41.7%</td>
<td>73.7%</td>
</tr>
<tr>
<td></td>
<td>14.1%</td>
<td>12.2%</td>
</tr>
<tr>
<td>18 months</td>
<td>36.5%</td>
<td>74.0%</td>
</tr>
<tr>
<td></td>
<td>13.7%</td>
<td>12.2%</td>
</tr>
<tr>
<td>24 months</td>
<td>35.7%</td>
<td>73.9%</td>
</tr>
<tr>
<td></td>
<td>13.7%</td>
<td>12.3%</td>
</tr>
</tbody>
</table>

NA = Not available

* 95.6% of calls involved cellular phones, while 4.4% involved landlines

† Tracking data not available for the first time point

Participants were often dealing with limited income, with inconsistent cellphone access or money for minutes, so it was more difficult to reach those we needed to reach.
3.3.5 Did Receiving Nurse-Family Partnership Make a Difference?

Our findings were embedded within an RCT evaluating NFP. So, we wanted to ascertain whether participants differed depending on whether they were in the NFP or control groups. Specifically, we wondered whether receiving NFP might make it easier for us to locate participants for their final interviews — as many would have been in regular communication with their NFP nurse. But we found no difference between the two groups in overall final interview completion rates or in the proportion of families completing interviews based on fewer (10 or less) versus greater (11 or more) contacts. These findings suggest that skilled field interviewers with retention training and support were able to locate those in the comparison group just as effectively as those who had an NFP nurse — and that our efforts were not reliant on NFP program-specific resources. Our results may therefore be generalizable to policy and practice settings where there is a need to reach similar children and families, without assuming the availability of NFP resources.

4. Discussion

Our experiences with the BCHCP trial suggest successful ways to engage with populations who are experiencing high levels of adversity. These populations are likely to benefit from intensive programs such as NFP yet are often underserved. The BCHCP is also a “real world” trial — embedded within BC’s public health system with active policy participation in its governance. We therefore believe that our findings have salience for informing policy.

We found that developing a thorough engagement strategy helped families to participate over the trial’s two-and-a-half years. Tracking data allowed us to refine the protocol, for example, adapting to accommodate evening and weekend interviews. Participants also provided valuable lessons. Most importantly, they taught us that it was our responsibility to make frequent and respectful contacts to successfully complete our interviews. Contacts ranged from an average of 6.5 attempts early in the trial to 14.3 attempts at the end, with more outreach needed for who had reported experiencing more adversities early in the trial. Participants nevertheless told us that they appreciated us persevering so that they could be included. We also learned of impediments such as limited access to communications technology. Texting was by far the most effective — and cost-effective — approach for reaching these families, given their young age and socioeconomic circumstances. As well, we confirmed that it paid off to invest in the study team members who were engaging with the children and families — training and supporting them to create rapport and sustain long-term relationships. These strategies led to us achieving our goal. More than 80% of families participated in the final research interviews, when children were two years of age.

We acknowledge that our findings and their implications may pose challenges for policymakers. Initial costs could be high, for example, involving resources for: recruiting and training outreach staff; supporting them with participant-centered education and cultural safety training to make multiple contacts and sustain relationships over time; and supporting digital inclusion by providing families with cellphones and data.
plans. Offering flexibility with evening and weekend appointments may pose particular challenges for some agencies. Yet we believe that the benefits would be substantial, permitting more equitable inclusion of marginalized children and families who are coping with multiple adversities and who can greatly benefit from enhanced delivery of intensive supports and programs.

We also believe that addressing service barriers for populations in need is feasible, for example, based on policy initiatives in BC and elsewhere during the COVID-19 pandemic which have involved providing cellphones and data plans. The BC Ministry of Social Development and Poverty Reduction partnered with several organizations to provide 3,500 cellphones (with wi-fi capabilities and $10 for data) to people experiencing homelessness. Similarly, the Yukon Territory provided 325 cellphones (with four-month service plans) to people experiencing adversities such as limited income, unstable housing and exposure to violence — enabling virtual physician visits and increasing connections with family and friends. A for-profit communications company has also delivered more than 10,000 free mobile devices (with no-charge data plans) to Canadians experiencing disadvantage. Ensuring digital inclusion can in turn leverage other forms of inclusion and connection. For example, digital tools that support goal setting, such as GoalMama, have been well-received by families provided NFP in the US. BC’s Interior Health Authority has also developed an NFP telehealth project to increase engagement with families receiving NFP — reaching those living in rural, remote and Indigenous communities and offering virtual visits through videoconferencing and cellphone applications. So enriched supports for families in need can be, and have been, implemented in BC and elsewhere. Texting is also a relatively cost-effective means of reaching families.

But fiscally, are enriched supports for families in need affordable? For 2019, total national health expenditures were estimated at $265.5 billion or more than $7,000 per Canadian — with most spending going towards hospitals, drugs and physicians. BC data mirror these national data. While healthcare (and social) systems have been challenged by the COVID-19 pandemic, these figures nevertheless suggest that public resources are ample. Of total national health spending, however, public health accounted for only 5.7%. This figure suggests that there is room for redistribution to pay for more equitable program delivery — particularly given economic analyses showing net public benefits from programs that support disadvantaged children and families and avert later health and social problems and expenditures. So reaching all families in need should be affordable.

Beyond feasibility and fiscal considerations, we believe that there is a collective ethical imperative to better reach and serve disadvantaged children and families in BC. Delivering programs with an intensity and scale that is proportionate to the level of disadvantage will in turn help ensure that more children and families can participate in needed services — to address avoidable adversities and ensure healthy development and wellbeing for all children. These goals are also in keeping with collective aims to honour children’s rights by ensuring that they receive needed services.
5. References


Competing interests: Nicole Catherine and Charlotte Waddell are co-leading the BCHCP. The other authors have also worked on the BCHCP.

Cover photo is from Bigstock.
6. Appendices

6.1 Appendix 1

Figure A1: British Columbia Healthy Connections Project Governance Structure

* Adapted from Waddell et al., 2016; since study inception, governance has shifted, adding the BC Ministry of Mental Health and Addictions, and closing the Regional Evaluation Advisory Committee, which was a sub-committee of the Provincial Advisory Committee, in 2016.
6.2 Appendix 2

Table A2. British Columbia Healthy Connections Project Interview Measures and Time Points*

<table>
<thead>
<tr>
<th>Measures</th>
<th>Time Point (Child Age)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maternal sociodemographics</strong></td>
<td></td>
</tr>
<tr>
<td>Age, racial/cultural group (at &lt;28 weeks’ gestation only), education and employment, housing stability, relationship status (all time points)</td>
<td>&lt; 28 weeks’ gestation, 34–36 weeks’ gestation, 2 months, 10 months, 18 months, 24 months</td>
</tr>
<tr>
<td><strong>Maternal health and functioning</strong></td>
<td></td>
</tr>
<tr>
<td>Cognitive functioning, history of maltreatment as a child (at &lt;28 weeks’ gestation only); mental health including substance use, physical health, recent intimate partner violence, self-efficacy, mastery (all time points); subsequent pregnancies (postpartum)</td>
<td>&lt; 28 weeks’ gestation, 34–36 weeks’ gestation, 2 months, 10 months, 18 months, 24 months</td>
</tr>
<tr>
<td><strong>Parenting behaviours and beliefs</strong></td>
<td></td>
</tr>
<tr>
<td>Breastfeeding, safe and nurturing home environment, child’s exposure to second-hand smoke</td>
<td>2 months, 10 months, 18 months, 24 months</td>
</tr>
<tr>
<td><strong>Child health and development</strong></td>
<td></td>
</tr>
<tr>
<td>Injuries and ingestions (all time points), physical health, cognition, language and problem behaviour (24 months)</td>
<td>2 months, 10 months, 18 months, 24 months</td>
</tr>
<tr>
<td><strong>Maternal and child service access use</strong></td>
<td></td>
</tr>
<tr>
<td>Financial assistance, prenatal and parenting programs, primary and secondary healthcare, barriers to accessing essential services (e.g., primary healthcare, financial assistance, prenatal programs)</td>
<td>&lt; 28 weeks’ gestation, 34–36 weeks’ gestation, 2 months, 10 months, 18 months, 24 months</td>
</tr>
</tbody>
</table>

* Adapted from Catherine et al., 2016®
Treating posttraumatic stress disorder in children

OVERVIEW
Refining diagnoses, building strengths

REVIEW
Effective treatments for childhood PTSD
Fighting racism

In addition to violating children's rights, racism has a serious impact on children's mental health. We review recent research on this topic and examine interventions designed to help.

How to Cite the Quarterly

We encourage you to share the Quarterly with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

Refining diagnoses, building strengths

At any given time, approximately one in a thousand children (or 0.1%) develop posttraumatic stress disorder (PTSD) after being exposed to serious adversities.\(^1\) According to the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5)*, to receive a PTSD diagnosis, children must meet the following criteria:

- Being exposed to actual or threatened death or serious injury or sexual violence — through directly experiencing or witnessing or learning of such events
- Experiencing clinically significant problems related to the trauma that continue for a month or more and that impair the child’s functioning, including:
  - intrusive, recurrent and distressing memories or dreams or flashbacks, or intense psychological distress or physiological reactions
  - avoidance of associated situations such as specific places or people
  - negative thoughts and emotions such as fear, horror, anger, guilt or shame
  - hyper-reactivity, including anger outbursts and sleep difficulties.\(^2\)

The *DSM-5* also provides separate PTSD diagnostic criteria for children aged six years and younger — recognizing that symptoms may differ when compared with those of older children (and adults). For example, for young children, intrusive symptoms may involve re-enacting trauma during play.\(^2\)

**When children are exposed to repeated traumas**

Even though the *DSM-5* acknowledges different PTSD symptoms among younger children, it has been criticized by practitioners and researchers for omitting complex posttraumatic stress disorder (complex PTSD).\(^3\) This condition is included in the World Health Organization’s *International Classification of Diseases, 11th revision (ICD-11)*.\(^4\) Calls to recognize complex PTSD as a distinct disorder arose from concerns that the PTSD diagnosis may not adequately capture the experiences of those exposed to repeated traumas.\(^5\) Complex PTSD is recognized as typically developing after prolonged exposure to extremely threatening or horrific events such as repeated sexual or physical abuse that the child cannot escape from. Complex PTSD includes all the PTSD criteria — coupled with severe and persistent difficulties in regulating emotions, along with experiencing guilt or shame related to the trauma and challenges in sustaining relationships.\(^4\)
Studies have found complex PTSD to be a valid diagnosis. Specifically, individuals with complex PTSD show distinct difficulties with self-organization that are typically not found with PTSD. Complex PTSD as a diagnosis may therefore be useful in not only characterizing the results of severe child maltreatment, but also encouraging research on prevention and treatment options.

**Identifying risk to encourage resilience**

The research evidence is also clear that many children show great resilience in the face of adversity. In particular, approximately 75–90% of children exposed to trauma do not develop PTSD. Factors that protect children from developing this disorder include strong family and peer supports. (Please see our prior issue for more information on protective factors.)

Besides recognizing protective factors, it is also important to consider risk factors for developing PTSD after trauma. To determine risk factors, researchers systematically identified and analyzed 40 long-term studies on posttraumatic stress reactions in children. Predictors for developing posttraumatic stress reactions included injury severity and days in hospital, as well as the stress symptoms occurring soon after the trauma. Having a parent with posttraumatic stress symptoms also increased risk, as did the child having symptoms of depression or anxiety. In contrast, child age, ethnicity and socio-economic status were unrelated to risk.

The research as to what increases risks for posttraumatic stress also suggests ways to help, for example, by strengthening family supports. But the foremost goal should be to prevent avoidable childhood adversities wherever possible. When trauma cannot be prevented, ensuring the child's basic safety is the first step. And if PTSD symptoms have developed, effective treatments are urgently required. In British Columbia, as many as 700 children may have PTSD at any given time. To address the needs of these young people, the following Review article presents several treatment options.
Effective treatments for childhood PTSD

Once a child has been diagnosed with PTSD, and their safety has been assured, they need immediate access to effective treatments. To inform practice and policy, we therefore conducted a systematic review on what such treatments entail.

We built quality assessment into our inclusion criteria, requiring studies that used randomized controlled trial (RCT) evaluation methods. We searched for RCTs published in the past 11 years, coinciding with when we last reviewed this topic. We also examined a previous Quarterly issue to identify studies that met our current inclusion criteria, including most child participants meeting criteria for PTSD and the reporting of PTSD-related outcomes. (The Methods section gives more details on our search strategy and inclusion criteria.)

We retrieved and evaluated 123 studies, first reviewing those where interventions were compared with a control group. For psychosocial treatments, this included no-treatment and active-control conditions, such as supportive counselling. For medications, we required placebo controls. We then reviewed studies that directly compared two treatments, provided there was evidence of effectiveness for one of the treatments being evaluated against a control group.

Five RCTs met our inclusion criteria. These included two psychosocial interventions — Prolonged Exposure for Adolescents12–14 and KIDNET15 — evaluated in three RCTs. Both Prolonged Exposure and KIDNET were based on cognitive-behavioural therapy (CBT). We also accepted one head-to-head trial comparing CBT to Eye Movement Desensitization and Reprocessing (EMDR).16 As well, one medication RCT met our inclusion criteria, evaluating D-cycloserine.17

Psychosocial studies

The CBT program Prolonged Exposure was tested in two RCTs. The first trial involved Israeli teens with PTSD caused by single traumatic events, such as motor vehicle accidents (42.1%), sexual assaults (21.1%) and terrorist attacks (13.2%).12 Most participants (81.6%) also had concurrent mental health diagnoses. Prolonged Exposure was compared to non-trauma-focused psychodynamic therapy.12
Prolonged Exposure was delivered individually in three stages for up to 15 weeks.\textsuperscript{12} First, practitioners presented the treatment rationale and taught children a breathing exercise. Second, practitioners helped children construct an “exposure hierarchy,” organizing components of the traumatic event from least to most distressing. Children then practised being exposed to these experiences, either by memory or in-person, when it was safe to do so. For example, if a child developed PTSD after being in a motor vehicle accident, the child could practise being in the location where the accident occurred. During exposures that involved recalling the trauma from memory, young people were audiotaped recounting the event. They then listened to the recordings, which exposed them to their traumatic memories, so these memories would no longer evoke high levels of fear and avoidance. The third stage focused on relapse prevention, including identifying potential future challenges and ways of coping with them.

The second Prolonged Exposure trial, for up to 14 weeks, involved ethnically diverse American teen girls who had been sexually abused.\textsuperscript{13} All had PTSD — or nearly met PTSD diagnostic criteria. Most participants (57.4\%) also had concurrent mental health diagnoses. In this RCT, Prolonged Exposure was compared to supportive counselling.

In contrast, the CBT-based KIDNET trial was designed to treat children with PTSD caused by repeated exposure to war and other forms of organized violence.\textsuperscript{15} This RCT, conducted in Germany over eight weeks, included children aged seven to 16 who were refugees from countries such as Syria. These children had faced severe traumas, such as violent attacks on family (73.1\%) or community members (50.0\%). All had PTSD. Many also had concurrent conditions such as separation anxiety disorder (38.5\%), depression (26.9\%) and specific phobias (11.5\%). As well, half were experiencing thoughts of suicide and all faced the possibility of deportation. KIDNET was compared to a no-treatment control group.\textsuperscript{15}

KIDNET practitioners supported children to tell their life stories, with a focus on traumatic experiences.\textsuperscript{15} Practitioners encouraged children to describe their emotions, thoughts and sensory experiences during the traumas, as well as associated physiological reactions. During such exposure exercises, children could also be asked to re-enact their physical positioning during the traumas, such as crouching during a bombing. Throughout, practitioners carefully recorded children’s descriptions and created a document of their experiences with links to specific places and times. They then created a written narrative, including positive and negative events, to continue to assist the child in healing from the trauma.\textsuperscript{18}

**A medication study**

One RCT evaluated D-cycloserine, based on preliminary evidence of its efficacy for adults with PTSD.\textsuperscript{17} (This medication originally used to treat tuberculosis is thought to influence neurotransmitters involved in some mental health problems.)\textsuperscript{19} The RCT involved ethnically diverse American children who had experienced or witnessed at least one life-threatening event. Most had experienced two such events — with sexual (31.6\%) and domestic violence (26.3\%) being the most common. Although children with autism, bipolar disorder or schizophrenia were excluded from participating, children with other concurrent mental disorders were included (however, study authors did not report the concurrent disorders participating children experienced or the percentages of children affected by them).\textsuperscript{17} Control children received a placebo.

Children in both intervention and control groups also participated in CBT for PTSD over 12 weeks, including education, relaxation and exposure exercises. Exposures occurred in practitioners’ offices and in the community. Parents were involved in all sessions. Children took either 50 mg of D-cycloserine or
placebo before therapy sessions 5 through 11 — an hour prior to exposure exercises — to assess whether this medication enhanced CBT’s effects.\textsuperscript{17} Table 1 summarizes the four RCTs.

<table>
<thead>
<tr>
<th>Table 1: Psychosocial and Medication Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
</tr>
<tr>
<td>Prolonged Exposure for Adolescents\textsuperscript{12}</td>
</tr>
<tr>
<td>Prolonged Exposure for Adolescents\textsuperscript{13}</td>
</tr>
<tr>
<td>KIDNET\textsuperscript{15}</td>
</tr>
<tr>
<td><strong>Medication</strong></td>
</tr>
<tr>
<td>D-cycloserine\textsuperscript{17}</td>
</tr>
</tbody>
</table>

**What did the studies show?**

For all studies, we report on PTSD-specific outcomes and overall functioning where available. In the first Prolonged Exposure study, the intervention led to statistically significant improvements for all PTSD-related outcomes.\textsuperscript{12} In particular, 63.2\% of Prolonged Exposure youth were diagnosis free at six-month follow-up, compared to 26.3\% of controls. Prolonged Exposure youth also reported significantly fewer PTSD symptoms, differences that were both statistically significant and clinically meaningful (Cohen’s $d = 0.51$). As well, Prolonged Exposure youth showed improved overall functioning, with a moderate effect size ($d = 0.55$). However, group differences were no longer significant for the one PTSD symptom measure used at 17-month follow-up.

In the second Prolonged Exposure study, the intervention led to significant improvements on most PTSD-related outcome measures.\textsuperscript{13–14} In particular, 89.0\% of Prolonged Exposure youth were diagnosis free at one-year follow-up, compared to 54.7\% of controls.\textsuperscript{13} Prolonged Exposure youth also had significantly milder PTSD symptoms than controls by both self-report and examiner ratings, with a large effect size ($d = 0.81$) for the latter.\textsuperscript{13} But there was no significant difference on a measure that combined the number and severity of self-reported PTSD symptoms.\textsuperscript{14} Finally, overall functioning improved significantly more for Prolonged Exposure youth.\textsuperscript{13}

KIDNET also led to several benefits at four-month follow-up.\textsuperscript{15} Intervention children had significantly fewer intrusive thoughts and avoidance symptoms. KIDNET also significantly reduced the severity of PTSD symptoms — by 60\%. As well, 84.6\% of intervention children no longer met diagnostic criteria for PTSD, compared with 30.8\% of controls. (The authors did not report statistical significance for this finding.) KIDNET also led to better overall functioning. Hyperarousal was the only PTSD symptom that this intervention did not significantly improve.\textsuperscript{15}

The sole medication trial found no difference in posttraumatic stress symptoms for children on D-cycloserine compared with controls at three-month follow-up.\textsuperscript{17} Importantly, both intervention and control children received CBT — and all had significantly lower posttraumatic stress symptom scores at follow-up.

Children should be provided with effective treatments addressing all of their mental health concerns.
In fact, scores were reduced by approximately 50% between baseline and follow-up, suggesting benefits from CBT. Table 2 summarizes outcomes from the four trials.

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Follow-up</th>
<th>Outcomes*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolonged Exposure for Adolescents</td>
<td>6 months</td>
<td>↓ PTSD diagnoses, ↓ PTSD symptoms, ↑ Overall functioning</td>
</tr>
<tr>
<td></td>
<td>17 months</td>
<td>↓ PTSD symptoms</td>
</tr>
<tr>
<td>Prolonged Exposure for Adolescents</td>
<td>12 months</td>
<td>↓ PTSD diagnoses, ↓ PTSD symptoms, ↓ PTSD symptom severity (2 of 2 measures), ↑ Overall functioning</td>
</tr>
<tr>
<td>KIDNET</td>
<td>4 months</td>
<td>↓ PTSD symptoms (2 of 3 measures), ↓ PTSD symptom severity, ↑ Overall functioning</td>
</tr>
<tr>
<td><strong>Medication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D-cycloserine</td>
<td>3 months</td>
<td>↓ PTSD symptoms</td>
</tr>
</tbody>
</table>

* Unless otherwise specified, there was a single measure for each outcome.

↓ or ↑ Statistically significant improvements for intervention compared with control/comparison group.

♀ No significant difference between intervention and control/comparison group.

**A tale of two treatments**

We accepted one trial directly comparing Eye Movement Desensitization and Reprocessing (EMDR) with CBT. (This trial also included a waitlist control group for part of the study.) Both treatments were tested with Dutch children whose PTSD was caused by a single traumatic event, such as sexual abuse (26.2%), physical abuse or assaults (23.3%), and accidents or injuries to loved ones (19.4%). About half of the children met criteria for at least one concurrent mental disorder.

EMDR involved asking children to focus on memories of the traumatic event, including recalling images, thoughts, emotions and physical sensations. Children were then asked to concentrate on emotionally disturbing sensations triggered by the memory while moving their eyes to follow the practitioner’s hand from side to side. Throughout, practitioners regularly stopped the movements and asked children to recall the original memory — repeating this approach until distress no longer occurred. The CBT included education, exposure to memories of the trauma, and cognitive restructuring. Children also produced written narratives summarizing their thoughts, feelings and behaviours during and after the trauma, as well as more adaptive ways of thinking about the experience and coping with it. Table 3 summarizes this trial.

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Approach</th>
<th>Sample size</th>
<th>Ages (country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Movement Desensitization + Reprocessing (EMDR) vs. CBT</td>
<td>Weekly individual EMDR for up to 6 weeks, delivered to children exposed to a single trauma</td>
<td>103</td>
<td>8–18 yrs (Netherlands)</td>
</tr>
<tr>
<td>Cognitive-Behavioural Therapy (CBT)</td>
<td>Weekly individual CBT for up to 6 weeks, delivered to children exposed to a single trauma</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Moving eyes and thoughts to move on from trauma

In the head-to-head trial, both EMDR and CBT led to improvements on PTSD diagnostic measures by three-month follow-up; however, authors did not report whether these reductions over time were statistically significant. Specifically, 86.8–95.0% of children who had been treated with EMDR were diagnosis free after three months, compared with 87.2–89.7% of children who had been treated with CBT (figures varied by informant, whether self- or parent-report), with no significant differences between the two treatments.

At one-year follow-up, even more children were diagnosis free; however, once again authors did not report whether these further reductions over time were statistically significant. By self-report, 100% of EMDR children and 92.1% of CBT children were diagnosis free after one year, with no significant difference between the two groups. But by parent report, there was a statistically significant difference favouring EMDR, with 100% of children who received this treatment being diagnosis free, compared to 88.6% of those who received CBT.

Beyond diagnoses, both EMDR and CBT also reduced PTSD symptoms at three-month and one-year follow-ups, with no significant difference between the two treatments. (Authors again did not report whether these reductions over time were statistically significant.) In sum, both treatments were effective, with EMDR showing only one statistically significant benefit over CBT — greater reductions in PTSD diagnostic rates by parent report at one-year follow-up. Table 4 summarizes these outcomes.

<table>
<thead>
<tr>
<th>Table 4: Psychosocial Intervention Comparison Study Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interventions</td>
</tr>
<tr>
<td>Eye Movement Desensitization + Reprocessing (EMDR) vs. Cognitive-Behavioural Therapy (CBT)</td>
</tr>
<tr>
<td>Follow-up</td>
</tr>
<tr>
<td>3 months</td>
</tr>
<tr>
<td>1 year</td>
</tr>
<tr>
<td>Outcomes</td>
</tr>
<tr>
<td>Both treatments resulted in</td>
</tr>
<tr>
<td>PTSD diagnoses (child + parent report)</td>
</tr>
<tr>
<td>PTSD symptoms (3 of 3 measures)</td>
</tr>
<tr>
<td>EMDR outperformed CBT in</td>
</tr>
<tr>
<td>PTSD diagnoses (parent report)</td>
</tr>
</tbody>
</table>

Implications for practice and policy

The results of this systematic review show that childhood PTSD can be effectively treated with CBT. In fact, three different CBT programs reduced diagnoses and/or symptoms across four different trials. All forms of CBT included a core component — namely, safely exposing children to traumatic memories so they no longer evoked high levels of fear and avoidance. EMDR, which also had children focus on traumatic memories until they no longer experienced distress, showed evidence of effectiveness in a single trial. In contrast, D-cycloserine did not show benefits. Five recommendations follow from these findings.

- **Use CBT when treating childhood PTSD.** Our review showed that CBT was effective for children who had experienced a variety of traumas, including multiple and complex traumas. As well, many children in these studies were experiencing concurrent mental health concerns, and CBT was still effective for their PTSD. This suggests that the findings have “real world” utility. CBT was also effective with ethnically diverse children, across ages ranging from seven to 18 years. So this form of treatment has wide applicability for PTSD in young people.
• **Consider EMDR if CBT does not fully resolve a child’s PTSD.** Although there is more evidence supporting CBT to treat childhood PTSD, Eye Movement Desensitization and Reprocessing showed promise for children exposed to a single trauma, based on one trial. So this treatment could be considered if a child is continuing to experience symptoms after an adequate course of CBT. That said, EMDR needs further rigorous evaluation.

• **Do not rely on medications to treat childhood PTSD.** Based on this review, there are no medications that are effective in treating childhood PTSD. Instead, effective psychosocial treatments should be the mainstay.

• **Treat concurrent conditions using effective interventions.** Some children with PTSD will have concurrent mental disorders. These children should be provided with effective treatments addressing *all* of their mental health concerns. (Information about effective treatments for 12 of the most common disorders is available from our recently released report.)

• **Be prepared for more children to present with PTSD during COVID-19.** Recent estimates suggest that PTSD may greatly increase due to the pandemic as many children may experience the trauma of losing loved ones or witnessing loved ones being seriously affected. CBT should still be used when trauma stems from COVID-19. (For more information on helping children during the pandemic, please see two recent reports on this topic, *COVID-19 and the Impact on Children’s Mental Health* and *Supporting Children — By Supporting Practitioners and Families During COVID-19 and Beyond.*)

No child should be exposed to the kinds of serious adverse experiences that can give rise to PTSD. Prevention of such experiences therefore remains the top priority. But when prevention has not been possible and a child develops PTSD, CBT can help. Children diagnosed with PTSD need rapid access to this effective treatment — to ensure that negative repercussions of any trauma are short-lived and that children can go on to thrive.

Many young people show great resilience in the face of adversity.
We use systematic review methods adapted from the Cochrane Collaboration and Evidence-Based Mental Health. We build quality assessment into our inclusion criteria to ensure that we report on the best available research evidence, requiring that intervention studies use randomized controlled trial (RCT) evaluation methods and meet additional quality indicators. For this review, we searched for RCTs on interventions for treating posttraumatic stress disorder. Table 5 outlines our database search strategy.

Table 5: Search Strategy

<table>
<thead>
<tr>
<th>Sources</th>
<th>• CINAHL, ERIC, Medline and PsycINFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Terms</td>
<td>• Post-traumatic stress disorders, post-traumatic stress, trauma and/or intervention or treatment</td>
</tr>
<tr>
<td>Limits</td>
<td>• Peer-reviewed articles published in English between 2009 and 2020</td>
</tr>
<tr>
<td></td>
<td>• Pertaining to children aged 18 years or younger</td>
</tr>
<tr>
<td></td>
<td>• RCT methods used</td>
</tr>
</tbody>
</table>

To identify additional RCTs, we also hand-searched the Web of Science database, reference lists from relevant published systematic reviews and previous issues of the Quarterly. Using this approach, we identified 123 studies. Two team members then independently assessed each study, applying the inclusion criteria outlined in Table 6.

Table 6: Inclusion Criteria for RCTs

<table>
<thead>
<tr>
<th>Psychosocial Treatment Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Participants were randomly assigned to intervention and comparison groups (i.e., no-treatment or active control) at study outset. Head-to-head comparison trials were only accepted if at least one intervention was already established as being effective in an RCT</td>
</tr>
<tr>
<td>• At least one outcome rater was blinded to participants’ group assignment</td>
</tr>
<tr>
<td>• Follow-up was three months or more (from the end of the intervention)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Participants were randomly assigned to intervention and placebo control groups at study outset</td>
</tr>
<tr>
<td>• Double-blinding procedures were used</td>
</tr>
</tbody>
</table>

Five RCTs met all the inclusion criteria. Figure 1 depicts our search process, adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences between team members were resolved by consensus.

For more information on our research methods, please contact
Jen Barican, chpc_quarterly@sfu.ca
Children’s Health Policy Centre, Faculty of Health Sciences
Simon Fraser University, Room 2435, 515 West Hastings St. Vancouver, BC V6B 5K3
METHODS

Figure 1: Search Process for RCTs

Records identified through database searching (n = 1,960)

Records identified through hand-searching (n = 175)

Total records screened (n = 2,135)

Records excluded after title screening (n = 1,455)

Abstracts screened for relevance (n = 680)

Abstracts excluded (n = 512)

Full-text articles assessed for eligibility (n = 123 studies [168 articles])

Full-text articles excluded (n = 118 studies [155 articles])

Studies included in review (n = 5 RCTs [13 articles])
Practitioners and policy-makers need good evidence about whether a given intervention works to help children.

Randomized controlled trials (RCTs) are the gold standard for assessing whether an intervention is effective. In RCTs, children, youth or families are randomly assigned to the intervention group or to a comparison or control group. In this issue of the Quarterly, some RCTs used a type of comparison group described as active-control conditions. These conditions involved providing other interventions, including supportive counselling and psychodynamic psychotherapy. These two comparison conditions were chosen because they were expected to be less effective than the programs being evaluated. By randomizing participants to these comparison conditions, researchers can help ensure that the only difference between the groups is the intervention.

To determine whether the intervention provides benefits, researchers analyze relevant outcomes. If an outcome is found to be statistically significant, it helps provide certainty the intervention was effective rather than results appearing that way due to chance. In the studies we reviewed, researchers used the typical convention of having at least 95% confidence that the observed results reflected the program’s real impact.

Researchers also use the concept of effect size to help provide certainty the intervention was effective. Effect size is a quantitative measure of the strength of the relationship between the intervention and the outcome. Researchers calculate effect sizes of outcomes, which provide a quantitative measure of the strength of the relationship between the intervention and the outcome. Cohen’s d is a common measure of effect size, which can range from 0 to 2. Standard interpretations are 0 to 0.2 = small effect; 0.2 to 0.5 = medium effect; and 0.5 to 2 = large effect. The studies reported on Cohen’s d effect size of outcomes, which provided a quantitative measure of the strength of the relationship between the intervention and the outcome. Cohen’s d can range from 0 to 2. Standard interpretations are 0 to 0.2 = small effect; 0.2 to 0.5 = medium effect; and 0.5 to 2 = large effect.

Effect sizes calculated effect sizes, providing important information about the difference the intervention made in children’s lives.
REFERENCES

BC government staff can access original articles from BC’s Health and Human Services Library. Articles marked with an asterisk (*) include randomized controlled trial data that was featured in our Review article.


The *Children's Mental Health Research Quarterly* Subject Index provides a detailed listing of topics covered in past issues, including links to information on specific programs.

2021 / Volume 15
1 – Helping children cope with trauma

2020 / Volume 14
4 – Helping young people with psychosis
3 – Psychosis: Is prevention possible?
2 – Mental health treatment: Reaching more kids
1 – Prevention: Reaching more kids

2019 / Volume 13
4 – Preventing problematic substance use among youth
3 – Helping youth who self-harm
2 – Celebrating children’s mental health: 50 lessons learned
1 – Helping youth with bipolar disorder

2018 / Volume 12
4 – Helping children who have been maltreated
3 – Preventing child maltreatment
2 – Treating substance misuse in young people
1 – Preventing youth substance misuse: Programs that work in schools

2017 / Volume 11
4 – Helping children with depression
3 – Preventing childhood depression
2 – Supporting LGBTQ+ youth
1 – Helping children with ADHD

2016 / Volume 10
4 – Promoting self-regulation and preventing ADHD symptoms
3 – Helping children with anxiety
2 – Preventing anxiety for children
1 – Helping children with behaviour problems

2015 / Volume 9
4 – Promoting positive behaviour in children
3 – Intervening for young people with eating disorders
2 – Promoting healthy eating and preventing eating disorders in children
1 – Parenting without physical punishment

2014 / Volume 8
4 – Enhancing mental health in schools
3 – Kinship foster care
2 – Treating childhood obsessive-compulsive disorder
1 – Addressing parental substance misuse

2013 / Volume 7
4 – Troubling trends in prescribing for children
3 – Addressing acute mental health crises
2 – Re-examining attention problems in children
1 – Promoting healthy dating relationships

2012 / Volume 6
4 – Intervening after intimate partner violence
3 – How can foster care help vulnerable children?
2 – Treating anxiety disorders
1 – Preventing problematic anxiety

2011 / Volume 5
4 – Early child development and mental health
3 – Helping children overcome trauma
2 – Preventing prenatal alcohol exposure
1 – Nurse-Family Partnership and children’s mental health

2010 / Volume 4
4 – Addressing parental depression
3 – Treating substance abuse in children and youth
2 – Preventing substance abuse in children and youth
1 – The mental health implications of childhood obesity

2009 / Volume 3
4 – Preventing suicide in children and youth
3 – Understanding and treating psychosis in young people
2 – Preventing and treating child maltreatment
1 – The economics of children’s mental health

2008 / Volume 2
4 – Addressing bullying behaviour in children
3 – Diagnosing and treating childhood bipolar disorder
2 – Preventing and treating childhood depression
1 – Building children’s resilience

2007 / Volume 1
4 – Addressing attention problems in children
3 – Children’s emotional wellbeing
2 – Children’s behavioural wellbeing
1 – Prevention of mental disorders

Photos: Bigstock.com
Fighting racism

OVERVIEW
The impact of racism on children

REVIEW
Childhood interventions to reduce racism
Stopping bullying

Bullying is an unacceptable but frequent experience for children. We examine interventions that aim to reduce in-person and online bullying.

How to Cite the Quarterly

We encourage you to share the Quarterly with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

A S T A T E M E N T O F R E C O G N I T I O N

At the Children’s Health Policy Centre we are deeply saddened to learn of the 215 children whose bodies have been discovered on the site of the former residential school in Kamloops. We are also saddened to learn of similar news coming from other Indigenous communities. In honour of all these children and their families and communities, and in honour of all Indigenous Peoples, we stand with you and we remain committed to moving forward on the path of truth and reconciliation.
**The impact of racism on children**

*People in high school thought racism toward First Nations was funny.*

— An Indigenous person reflecting on their experiences

*A friend’s 5-year-old daughter returned home from her first day in kindergarten in tears and confused because a classmate had taunted her saying: “You brought the China flu! Get away! Yuck!”*

— An individual reflecting on experiences of an Asian child

*The other day my 10-year-old daughter was playing with her friends, and one of the white girls said to her, “Your skin colour is too dark — it’s, like, dirty.” She was so sad when she came home and told me.*

— Mother of a Black child

Racism results in avoidable and unfair disparities in power, resources and opportunities.

“Race” is a social construct used to classify individuals who share common physical features, such as skin colour. Because it is a social construct that does not reflect biology, parameters for classifying individuals or groups have changed over time, as have the words used to described so-called races. (The sidebar provides more information on the language we use in this issue of the Quarterly.)

Racism, in turn, occurs when people’s worth is assigned based on their identified race in ways that unfairly disadvantage some groups while simultaneously advantaging others. Racism results in avoidable and unfair disparities in power, resources and opportunities — for individuals and groups and within institutions and social systems. Racism is therefore never acceptable. When we take a relational world view, thinking of all experience as interconnected, racism also diminishes all of us and divides the world into “us” and “them.” As Martin Luther King Jr. noted: “Whatever affects one directly, affects all indirectly.” Yet the damages caused by racism are far greater for people who are deemed “racialized” by virtue of being Indigenous, Black, Asian or other so-called people of colour — and who therefore take the brunt of racism.

**Respectful communication, communicating respect**

As the Quarterly team, we acknowledge the ongoing roles and responsibilities we all hold as citizens in combatting racism in all its forms. As one small step, throughout this issue we use language that reflects current approaches to respectful communication and communicating respect. Guided by BC’s Office of the Human Rights Commissioner, we use the terms Indigenous, Black, Asian and white. We also use the term racialized to describe individuals or groups who experience economic, political and social disparities, injustices and violence as a result of ‘race.’
**Effects of racism**

As a determinant of health, racism has a profound impact on child well-being. Its many negative effects for racialized young people include:

- restricted access to resources, such as housing, education and employment;
- increased exposure to negative experiences, such as racist incidents and unnecessary contact with the criminal justice system;
- increased engagement in unhealthy behaviours to cope with the stresses of racism, such as substance use; and
- increased rates of physical injury as a result of violence.

To investigate the effects of racism on social and emotional well-being, researchers combined findings from more than 120 observational studies involving young people from birth through age 18. Most of these studies were conducted in the United States, although Canada and many other countries were also represented. Drawing on the experiences of Black, Latinx, Asian and Indigenous children, the meta-analysis found many significant links between racial discrimination and poorer well-being. Mental health concerns were the most frequent, including depression, anxiety and conduct problems, as well as self-esteem and self-worth concerns.

Racism also has detrimental effects on children’s physical health. A study that included more than 95,000 American children aged 18 and younger found that those who experienced racial discrimination had a significantly lower likelihood of reporting that they were in excellent health, compared with those who did not have such experiences. As well, children exposed to racial discrimination were more likely to experience common childhood illnesses. The physical impact of racism also starts early, with low birth weights and preterm births being linked to maternal experiences of racial discrimination.

**What about Canada?**

Data focused exclusively on Canadian children reveal stark differences in the experiences of racialized children compared with non-racialized children — from infancy through adolescence. For example, infant mortality is 3.9 times higher for Inuit, 2.3 times higher for First Nations and 1.9 times higher for Métis children compared with non-Indigenous children. As well, the rate of foster placements is over 13 times higher for Indigenous young people compared with non-Indigenous. Similarly, while Black children make up about 9% of the Canadian population, they represent approximately 24% of children receiving child protection services. (The sidebar describes long-standing efforts to improve equality in access to child welfare and related services for Indigenous children in Canada.)

Racialized Canadian children may also experience greater hardships and disparities in the education system. For example, while high-school graduation rates for Indigenous young people have increased substantially over the past 15 years in British Columbia, they are still lower — at 69.6% for Indigenous students versus 86.5% for non-Indigenous. As well, Ontario data collected over the past two decades show...
that Black students were more likely than non-Black students to receive harsher punishments, to be streamed into academic tracks that excluded post-secondary access, and to drop out of school.\textsuperscript{20}

Youth criminal justice system data also suggest greater inequity for racialized young people. For example, Indigenous youth account for 50\% of admissions to custodial facilities despite representing only 8\% of Canadian youth.\textsuperscript{21} As well, Ontario police data show that Black youth are more likely to be charged and less likely to be only cautioned for minor offences than their non-Black counterparts.\textsuperscript{22}

**The need to fight racism begins in childhood**

Researchers have also long studied the origins of racial identities and prejudicial attitudes — starting in childhood.\textsuperscript{23} Early studies showed that children typically began to identify as belonging to a specific “race” around age three or four years.\textsuperscript{24} Studies have also found that white children begin to show a pro-white bias, including a preference for playing with white peers, when they are as young as three to five years.\textsuperscript{25} These findings suggest that antiracism efforts should begin early. In the Review article that follows, we summarize interventions that aim to reduce racism in childhood. We acknowledge that antiracism efforts must also focus on adults, from whom children learn their early beliefs and behaviours. Yet childhood interventions can also be a starting point. 

Antiracism efforts must focus on adults, from whom children learn their early beliefs and behaviours.
Children's Mental Health Research Quarterly Vol. 15, No. 3 7 © 2021 Children's Health Policy Centre, Simon Fraser University

**REVIEW**

**Childhood interventions to reduce racism**

While children can be educated about the harms caused by racism — and can change their beliefs and behaviours as a result — debate persists about the best ways to achieve this goal. We therefore conducted a systematic review of childhood antiracism interventions to determine which are the most successful.

To ensure high-quality evaluations, we required studies to use randomized controlled trial (RCT) methods. We searched for RCTs in abstract databases from 2010 to 2021 and hand-searched relevant systematic reviews. We accepted only studies conducted in high-income countries to ensure applicability to Canada. As well, outcome measures had to evaluate either attitudes or behaviours toward racialized children. (The Methods section provides details on our search strategy and inclusion criteria.)

We retrieved and evaluated 14 studies. Five RCTs evaluating 11 interventions met our inclusion criteria. Three trials assessed three different interventions within the same study, while two assessed a single intervention each. Interventions varied, ranging from TV shows, books and an approach known as classification skills training to diversity workshops and history lessons. The sidebar highlights an additional experiment that assessed how teacher feedback affected children's acceptance of migrant students.

---

**Can teachers help children to respect diversity?**

Researchers have identified how teacher feedback can affect children's acceptance of migrant peers. They conducted a study with nearly 1,000 students in Grades 3 to 6 in Germany, Austria and Switzerland. First, students saw photos of children they did not know on a computer screen and were asked to rate how much they would like to sit beside them. The photos included both migrant and non-migrant children. Then students were told that teachers often praised the children on the screen for being attentive or, alternatively, often scolded them for being inattentive. Teacher feedback significantly influenced students' stated willingness to sit beside migrant children, with positive comments increasing this willingness and negative comments decreasing it. These results suggest that teachers can play an important role in changing children's attitudes and helping them to appreciate diversity.

**Can pro-diversity TV reduce racism?**

Three different pro-diversity TV shows were assessed with American preschool and kindergarten students. Children were white, attending predominantly white schools in Ohio. The 10-minute programs stressed the similarities of characters from different racial groups and focused on the need to change racist attitudes. Main characters were either cartoons, puppets or actors, with study authors predicting that human actors would have greater impact on anti-Black and anti-Asian attitudes. Control children watched a show with only white characters.
Can books help increase acceptance?

Three different types of pro-refugee books were assessed in elementary schools in suburban and rural England, where most children were not refugees. All study participants were white. The intervention began with children looking at photographs of refugees and a world map highlighting countries the refugees originated from. (Although the study authors did not specifically state that the photos showed refugees identifiable by race, it was likely that they did.) Children then discussed why people might leave their countries and immigrate to England. This discussion was followed with a researcher reading a portion of a book while the children followed along in their own books.

The books all involved close friendships between non-refugee and refugee children, addressing three different themes. Books on positive personal qualities stressed attributes of refugee children, such as liking animals and being good at football. Books on shared characteristics highlighted similarities between English and refugee children, such as attending the same school. Meanwhile, books on dual identity focused on both the shared characteristics of English and refugee children as well as similarities and differences between them. Researchers hypothesized that all three books would engender more positive attitudes toward refugees, with dual identity books being most effective.

For all three book types, the intervention was delivered once a week for 20 minutes, for six consecutive weeks. Control children participated in regular classroom activities.

Teaching children to think more broadly

Researchers assessed pro-refugee books alongside an intervention called classification skills training (described below) in another study with elementary-school students. The students, all of whom were white, were living in a major port of entry for people seeking asylum, where tensions had arisen between majority white English citizens and ethnic minority immigrants. In the pro-refugee book intervention, children were read stories focused on close friendships between English and refugee children (following the same procedures described above except using only one type of book rather than three). Another group received the skills training. For this intervention, children were shown photographs of English and refugee adults and were taught to classify them across multiple dimensions, not just single social categories. This intervention was based on past research showing that when children were able to classify people along multiple dimensions, they had less stereotyped views. A third group received both the pro-refugee books and the training. Control children participated in regular classroom activities.

Offering diversity workshops

Researchers assessed diversity workshops with English students attending elementary schools in low-income neighbourhoods; 85.1% of the students were white and 10.4% were Asian. The workshops included the children watching three brief plays; all featured a character who was initially excluded, followed by all characters recognizing it was better to be inclusive, and the performance ending with everyone playing together. After each play, actors who played excluded characters answered questions about their character’s feelings and experiences. Children then participated in art-based activities and discussions focused on understanding and respecting differences — after the play and in classrooms over the following month. Control children participated in regular classroom activities.
Does teaching history help?

An educational program aimed at reducing anti-Black racism was assessed with white elementary-school students during a summer program in the American Midwest. Children were taught six history lessons featuring biographies of 12 famous individuals, half of whom were white and half of whom were Black. All lessons emphasized the individual’s positive attributes and contributions to society. Children taking part in the intervention also learned about the Black Americans’ experiences of racism, while the control lessons made no reference to discrimination. For all children, lessons lasted 20 minutes and were delivered over six days.

Table 1 summarizes the interventions and the studies.

<table>
<thead>
<tr>
<th>Intervention (# of interventions tested)</th>
<th>Approach</th>
<th>Sample size</th>
<th>Ages (country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pro-diversity TV programs (3)</td>
<td>Children watched one of three 10-minute TV programs with pro-diversity content; shows varied based on main characters being cartoons, puppets or actors.</td>
<td>63</td>
<td>5–6 yrs (United States)</td>
</tr>
<tr>
<td>Pro-refugee books (3)</td>
<td>Children were read books that focused on one of three themes: <em>positive personal qualities</em> of refugees; <em>shared characteristics</em> between refugee + English children; or <em>dual identity</em>, including shared characteristics + differences.</td>
<td>261</td>
<td>5–11 yrs (England)</td>
</tr>
<tr>
<td>Pro-refugee books vs. classification skills training vs. both interventions combined (3)</td>
<td>Pro-refugee books: children read books that focused on shared friendships between refugee + English children; <em>classification skills</em> training: children were taught to categorize individuals based on multiple characteristics; both interventions combined: books + training.</td>
<td>198</td>
<td>6–11 yrs (England)</td>
</tr>
<tr>
<td>Diversity workshops (1)</td>
<td>Children watched brief plays focused on inclusivity + engaged in art-based activities + discussions focused on understanding + respecting diversity.</td>
<td>201</td>
<td>6–7 yrs (England)</td>
</tr>
<tr>
<td>History lessons (1)</td>
<td>Children received six lessons focused on the positive attributes + contributions of famous Black Americans as well as the racism they faced.</td>
<td>48</td>
<td>6–11 yrs (United States)</td>
</tr>
</tbody>
</table>

Pro-diversity TV programs failed to reduce racism

The results of the interventions varied considerably. The pro-diversity TV programs failed to change white American children’s strong pro-white bias. This conclusion was based on children’s responses to a series of questions about their preferences for Asian, Black and white individuals, measured using photos and dolls as proxies for people.

Books can help to change attitudes

All three types of pro-refugee books increased positive attitudes toward refugees relative to the control condition. The books on *dual identity* were significantly more effective than those that stressed *positive personal qualities* and *shared characteristics*. All three types of books also resulted in non-refugee participants viewing themselves — and English children in general — as being more similar to refugee children. However, the books had no significant impact on tasks where children were given hypothetical scenarios and asked how they would respond. (For example, participants were asked to imagine meeting a refugee child they knew and to identify how much they would like to play together or have them to their home for a meal and sleepover.)
Teaching children to think more broadly did not help

The second study on pro-refugee books involved comparing them to classification skills training as well as evaluating the impact of combining both books and training. The pro-refugee books and the combined intervention increased positive attitudes toward refugees relative to the control condition — and relative to training alone. In contrast, classification skills training on its own had no impact on attitudes toward refugees. As well, none of the interventions had a significant impact on tasks where English children were given hypothetical scenarios and asked how they would respond (described above). 29

Diversity workshops did not diversify friendship preferences

White children who received the diversity workshops maintained their preference for choosing white children as friends when presented with photos of Asian and white children, with no statistical difference compared to controls. 30 The diversity workshops also had no impact on white children’s reported happiness at being friends with an Asian child — also assessed with photos — compared to being friends with a white child. 30

Educating the way to equality

Children who received history lessons on the experiences of Black Americans had significantly more positive and significantly fewer negative attitudes toward Black people than children who received history lessons without reference to discrimination. 26 Intervention children also favoured what the authors called “counter-stereotyped views” and valued racial fairness significantly more often than controls. Perceived similarity between Black and white people was the only outcome where the intervention did not make a significant difference. 26 Table 2 summarizes the outcomes for all five RCTs.

<table>
<thead>
<tr>
<th>Table 2: Childhood Antiracism Intervention Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions</strong></td>
</tr>
<tr>
<td>-------------------</td>
</tr>
</tbody>
</table>
| Pro-diversity TV programs 27 | None | All three pro-diversity television programs  
|  |  | Preference for white children over Black children  
|  |  | Preference for white children over Asian children |
| Pro-refugee books 28 | 1–2 weeks | All three pro-refugee books  
|  |  | Positive attitude toward refugees  
|  |  | Perceived similarities with refugees between self + other English children  
|  |  | Hypothetical behaviour toward refugees |
| Pro-refugee books vs. classification skills training vs. both interventions combined 29 | 1 week | Pro-refugee books  
|  |  | Positive attitude toward refugees  
|  |  | Hypothetical behaviour toward refugees  
|  |  | Classification skills training  
|  |  | Positive attitude toward refugees  
|  |  | Hypothetical behaviour toward refugees  
|  |  | Both interventions combined  
|  |  | Positive attitude toward refugees  
|  |  | Hypothetical behaviour toward refugees |
| Diversity workshops 30 | None | Preference for friendships with white children over Asian children  
|  |  | Happiness at having a friendship with an Asian child |
| History lessons 26 | 1–2 days | Positive attitudes toward Black people  
|  |  | Negative attitudes toward Black people  
|  |  | Counter-stereotyped view of Black people  
|  |  | Valuing of racial fairness  
|  |  | Perception of similarities between Black + white people |

|  |  |  |
|  |  |  |

No significant difference between intervention and control group.  
Statistically significant improvements for intervention compared with control group.
Childhood interventions can reduce racism

Based on this systematic review, we found two childhood interventions that reduced racist attitudes. Pro-refugee books, alone and when paired with classification skills training, increased positive attitudes toward refugees. As well, history lessons led to improved attitudes toward Black people and to the increased valuing of racial fairness. Notably, both interventions were relatively brief — only two hours duration. Interventions that had no impact included pro-diversity TV programming, diversity workshops and classification skills training (when delivered alone). No interventions were successful in changing children's responses to hypothetical scenarios, and no studies assessed actual behaviours. As well, we found no assessments of interventions that focused on reducing anti-Indigenous racism. This work is greatly needed.

Still, these results offer an important starting point. Given the success of pro-refugee books, parents, teachers, librarians and practitioners may want to invest in antiracism reading materials with relevance for the current Canadian context. To this end, the Canadian Children's Book Centre provides a reading list for tackling racism. As well, the American Academy of Pediatrics and UNICEF provide helpful antiracism guidelines and resources — suitable for differing development stages from the early years to the teens. Similarly, the Canadian Paediatric Society offers antiracism resources for child and youth health care providers. Finally, given that teaching history has proven benefits, a recent publication aimed at adults, which could be used with youth, provides helpful information on the history of racism in BC.

Beyond supporting anti racism interventions aimed at children, every adult has a role and has the responsibility to address the individual and systemic forms of racism affecting all our communities, places of work and institutions of learning. There are myriad ways in which white adults, in particular, can confront and reduce racism. This includes educating oneself about racial disparities, recognizing one's own racial biases and taking steps to reduce them, and speaking out and taking action on racially biased beliefs and behaviours and policies wherever these occur. As citizens, we hold a collective ethical responsibility to engage in ongoing antiracism efforts — thereby creating a fairer, safer and more equitable world for all children. In the words of Cindy Blackstock, a long-time child advocate: “In my lifetime, I hope to see a generation of First Nations children who can live the lives they wish to have, and a generation of non-Aboriginal children who never have to grow up to say they are sorry.”
We use systematic review methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. We build quality assessment into our inclusion criteria to ensure that we report on the best available research evidence, requiring that intervention studies use randomized controlled trial (RCT) evaluation methods and meet additional quality indicators. For this review, we searched for RCTs on interventions aimed to reduce racism in childhood. Tables 3 and 4 outline our database search strategies.

### Table 3: Search Strategy for Systematic Reviews

<table>
<thead>
<tr>
<th>Sources</th>
<th>• Campbell Collaboration Library, Cochrane Database of Systematic Reviews, Medline, PsycINFO and Google Scholar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Terms</td>
<td>• Anti-racism, racism, cultural diversity or minority groups</td>
</tr>
<tr>
<td>Limits</td>
<td>• Peer-reviewed articles published in English from database inception to 2021</td>
</tr>
<tr>
<td></td>
<td>• Pertaining to children aged 18 years or younger</td>
</tr>
<tr>
<td></td>
<td>• Systematic review or meta-analysis used</td>
</tr>
</tbody>
</table>

Using this approach, we identified one systematic review that examined interventions to reduce prejudice in early childhood. Because this review included only articles published until 2010, we hand-searched its reference list and also conducted an updated search for original studies. We used the same search terms used in the systematic review, which are identified in Table 4.

### Table 4: Search Strategy for Original Studies

<table>
<thead>
<tr>
<th>Sources</th>
<th>• CINAHL, ERIC, Medline and PsycINFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search Terms</td>
<td>• Anti-bias, prejudice reduction, multicultural curriculum, empathy training, intergroup training, diversity training, jig-saw classroom, racial bias, prejudice, inclusion, exclusion, ethnic bias, ethnicity and attitude, attitude change, peer relations, friendship and ethnic, cross-ethnic, interethnic or interracial and intervention, program or evaluation</td>
</tr>
<tr>
<td>Limits</td>
<td>• Peer-reviewed articles published in English between 2010 and 2021</td>
</tr>
<tr>
<td></td>
<td>• Pertaining to children aged 18 years or younger</td>
</tr>
<tr>
<td></td>
<td>• RCT methods used</td>
</tr>
</tbody>
</table>

Using these search strategies, we identified 14 studies. Two team members then independently assessed each study, applying the inclusion criteria outlined in Table 5.

### Table 5: Inclusion Criteria for RCTs

- Participants were randomly assigned to intervention and control groups (i.e., no treatment or active control) at study outset
- Studies provided clear descriptions of participant characteristics, settings and interventions
- Interventions were evaluated in settings comparable to Canada
- Attrition rates were 20% or less at final assessment
- Child outcome indicators included attitudes or behaviours toward racialized children
- Statistical significance was reported for primary outcome measures

Five RCTs met all the inclusion criteria. Figure 1 depicts our search process, adapted from *Preferred Reporting Items for Systematic Reviews and Meta-Analyses*. Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences between team members were resolved by consensus.
**Figure 1: Search Process for RCTs**

- Records identified through database searching (n = 2,828)
- Records identified through hand-searching (n = 33)

Total records screened (n = 2,861)

- Records excluded after title screening (n = 2,809)

Abstracts screened for relevance (n = 52)

- Abstracts excluded (n = 37)

Full-text articles assessed for eligibility (n = 14 studies [15 articles])

- Full-text articles excluded (n = 9 studies [10 articles])

Studies included in review (n = 5 RCTs [5 articles])

**For more information on our research methods, please contact**

Jen Barican, chpc_quarterly@sfu.ca
Children’s Health Policy Centre, Faculty of Health Sciences
Simon Fraser University, Room 2435, 515 West Hastings St. Vancouver, BC V6B 5K3
REFERENCES

BC government staff can access original articles from BC’s Health and Human Services Library. Articles marked with an asterisk (*) include randomized controlled trial data that was featured in our Review article.


The Children's Mental Health Research Quarterly Subject Index provides a detailed listing of topics covered in past issues, including links to information on specific programs.

2021 / Volume 15
2 – Treating posttraumatic stress disorder in children
1 – Helping children cope with trauma

2020 / Volume 14
4 – Helping young people with psychosis
3 – Psychosis: Is prevention possible?
2 – Mental health treatment: Reaching more kids
1 – Prevention: Reaching more kids

2019 / Volume 13
4 – Preventing problematic substance use among youth
3 – Helping youth who self-harm
2 – Celebrating children's mental health: 50 lessons learned
1 – Helping youth with bipolar disorder

2018 / Volume 12
4 – Helping children who have been maltreated
3 – Preventing child maltreatment
2 – Treating substance misuse in young people
1 – Preventing youth substance misuse: Programs that work in schools

2017 / Volume 11
4 – Helping children with depression
3 – Preventing childhood depression
2 – Supporting LGBTQ+ youth
1 – Helping children with ADHD

2016 / Volume 10
4 – Promoting self-regulation and preventing ADHD symptoms
3 – Helping children with anxiety
2 – Preventing anxiety for children
1 – Helping children with behaviour problems

2015 / Volume 9
4 – Promoting positive behaviour in children
3 – Intervening for young people with eating disorders
2 – Promoting healthy eating and preventing eating disorders in children
1 – Parenting without physical punishment

2014 / Volume 8
4 – Enhancing mental health in schools
3 – Kinship foster care
2 – Treating childhood obsessive-compulsive disorder
1 – Addressing parental substance misuse

2013 / Volume 7
4 – Troubling trends in prescribing for children
3 – Addressing acute mental health crises
2 – Re-examining attention problems in children
1 – Promoting healthy dating relationships

2012 / Volume 6
4 – Intervening after intimate partner violence
3 – How can foster care help vulnerable children?
2 – Treating anxiety disorders
1 – Preventing problematic anxiety

2011 / Volume 5
4 – Early child development and mental health
3 – Helping children overcome trauma
2 – Preventing prenatal alcohol exposure
1 – Nurse-Family Partnership and children's mental health

2010 / Volume 4
4 – Addressing parental depression
3 – Treating substance abuse in children and youth
2 – Preventing substance abuse in children and youth
1 – The mental health implications of childhood obesity

2009 / Volume 3
4 – Preventing suicide in children and youth
3 – Understanding and treating psychosis in young people
2 – Preventing and treating child maltreatment
1 – The economics of children's mental health

2008 / Volume 2
4 – Addressing bullying behaviour in children
3 – Diagnosing and treating childhood bipolar disorder
2 – Preventing and treating childhood depression
1 – Building children's resilience

2007 / Volume 1
4 – Addressing attention problems in children
3 – Children's emotional wellbeing
2 – Children's behavioural wellbeing
1 – Prevention of mental disorders

Photos:
Bigstock.com except as noted
Cover: Melody Charlie Photography
Page 3: Roman Catholic Archdiocese of Vancouver
Childhood bullying: Time to stop

OVERVIEW
Bullying: The basics and beyond

REVIEW
Building better antibullying programs
This Issue

Overview 3

Bullying: The basics and beyond
How widespread is childhood bullying? And what makes kids more likely to be a bully or a victim? Our primer on childhood bullying addresses these important questions.

Review 5

Building better antibullying programs
Many different antibullying programs are delivered, but not all of them are equally effective. We review eight interventions, including five that produced some positive effects.

Implications for practice and policy 10

Sidebar
Roots of Empathy in Indigenous communities 8

Methods 11

Research Terms Explained 13

References 14

Links to Past Issues 16

About the Quarterly
We summarize the best available research evidence on a variety of children’s mental health topics, using systematic review and synthesis methods adapted from the Cochrane Collaboration and Evidence-Based Mental Health. We aim to connect research and policy to improve children’s mental health. The BC Ministry of Children and Family Development funds the Quarterly.

About the Children’s Health Policy Centre
We are an interdisciplinary research group in the Faculty of Health Sciences at Simon Fraser University. We focus on improving social and emotional well-being for all children, and on the public policies needed to reach these goals. To learn more about our work, please see childhealthpolicy.ca.

Quarterly Team
Scientific Writer
Christine Schwartz, PhD, RPsych
Scientific Editor
Charlotte Waddell, MSc, MD, CCFP, FRCPC
Research Manager
Jen Barican, BA, MPH
Research Coordinator
Donna Yung, BSc, MPH
Production Editor
Daphne Gray-Grant, BA (Hon)
Copy Editor
Naomi Pauls, MPub

We celebrate the Indigenous Peoples whose traditional lands Quarterly team members live and work on.
Bullying: The basics and beyond

What counts as bullying? Most definitions agree that bullying involves aggression both intentional and repetitive, occurring in situations where there is a power imbalance between individuals.1–2 This definition recognizes that bullying can take various forms, including physical, verbal and social. This definition also acknowledges that proximity can vary, from bullying in person to bullying online.

Regardless of definition, there is no question about the seriousness of childhood bullying, since bullying has led to children dying by suicide.3 Even if the consequences are not as dire, being victimized in childhood has been causally linked with subsequent mental health problems, including anxiety, depression and suicidality.4 As well, longitudinal studies have demonstrated continuing mental health challenges for victims of childhood bullying into middle age.5 As a result, there is a collective ethical imperative to understand and stop childhood bullying.

A worldwide perspective on bullying

To stop childhood bullying, it helps to first understand the extent of the problem. A recent meta-analysis derived estimates by combining results from 80 studies across multiple countries. These studies included youth ages 12 to 18 and inquired about both in-person bullying and cyberbullying.6 Among these youth, 34.5% reported perpetrating in-person bullying and 15.5% reported perpetrating cyberbullying. Meanwhile, 36.0% reported being victims of in-person bullying and 15.2% reported being victims of cyberbullying.6 While rates of in-person bullying were slightly more than double those of cyberbullying, the two types were strongly correlated, leading the study’s authors to conclude that in-person bullying and cyberbullying were in essence just different ways of enacting similar behaviours.

Moving closer to home: Canadian children’s experiences

Data also exist on Canadian children’s experiences with bullying. Specifically, a group of researchers asked roughly 1,000 young people — who were representative of the populations from all 10 provinces — about being victimized.1 Among participating youth ages 10 to 17, 26.2% reported being bullied at least once in the past month, with most reporting both in-person and online experiences. The researchers also examined whether demographic variables were related to bullying experiences. They found that age, gender, country of birth, language, and area of residence (rural versus urban) had no significant impact on victimization rates.1

Bullying experiences have also been documented for youth closer to home. Among BC students aged 12 to 19 years, 53% reported experiencing at least one form of bullying in the past year.7 This included 39% having been socially excluded on purpose, 38% being teased to the point of feeling bad or extremely uncomfortable, and 8% being physically bullied. As well, 4% of students reported missing school due to bullying in the past month.7 Many of the same bullying experiences were documented among Métis students.
in BC. Specifically, 41% were socially excluded on purpose, 47% were teased to the point of feeling bad or extremely uncomfortable, and 13% were physically bullied.

**What puts children at risk?**

Beside knowing its prevalence, understanding risk factors is an important step in efforts to stop bullying. To this end, researchers have examined risk factors for both engaging in bullying and being bullied. One particularly robust meta-analysis incorporated 153 studies that included children from kindergarten to Grade 12. Researchers began by classifying children's experiences with bullying into three categories: perpetrator only, victim only, and both perpetrator and victim. Table 1 details the risk factors identified for each category. Despite needing more research to determine causation, these risk factors nevertheless provide a helpful starting point for informing understanding.

<table>
<thead>
<tr>
<th>Table 1: Risk Factors for Bullying</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Being a bully only (all moderate risk factors)</strong></td>
</tr>
<tr>
<td>• Living in communities experiencing challenges (e.g., high crime rates)</td>
</tr>
<tr>
<td>• Having peers who encourage negative behaviour</td>
</tr>
<tr>
<td>• Having other behaviour challenges (e.g., defiance and disruptiveness)</td>
</tr>
<tr>
<td>• Having challenges in thinking about others (e.g., difficulties with empathy and perspective-taking)</td>
</tr>
<tr>
<td>• Having academic challenges (e.g., poor school achievement)</td>
</tr>
</tbody>
</table>

| **Being bullied only (all moderate risk factors)** |
| • Having lower social status among peers (e.g., frequently being rejected by other children) |
| • Possessing limited social skills |
| • Experiencing emotional problems (e.g., excessive worries or sadness) |

| **Both being a bully and being bullied** |
| **Moderate risk factors** |
| • Having lower social status among peers |
| • Possessing limited social skills |
| • Having challenges in thinking about others |
| • Having other behaviour challenges |
| • Having emotional problems |
| • Having academic challenges |
| • Being a part of a family experiencing challenges (e.g., high levels of conflict) |
| • Attending schools with a "poor climate" (e.g., students perceive unfair treatment) |

| **Large risk factors** |
| • Having peers who encourage negative behaviour |
| • Having a negative view of oneself |

**What protects children?**

Beyond identifying risk factors, it is crucial to identify what can protect children from both bullying others and being bullied. The research is more sparse in this area. But a meta-analysis that included 19 studies of youth aged 11 to 18 years did identify one protective factor: older age reduced the risk of perpetrating bullying. (This meta-analysis did not identify any protective factors in relation to being bullied.)

**Moving from understanding to intervening**

Beyond understanding the problem, to stop bullying, it is crucial to know which interventions are most effective. To inform policy and practice, the Review article that follows presents recent evaluations of eight antibullying programs.
Building better antibullying programs

More than a decade ago, the Quarterly team conducted a systematic review of antibullying programs. In the ensuing years, many new programs have been developed and evaluated — including a number targeting cyberbullying. We therefore conducted a new systematic review to highlight the best recent research evidence.

To ensure high-quality evaluations, we required studies to use randomized controlled trial (RCT) methods. We identified RCTs by hand-searching relevant systematic reviews and by conducting new searches covering publications from 2008 (the last search date for our previous systematic review) to 2021. We also reviewed our past Quarterly issue on bullying to identify RCTs that met current inclusion criteria. We accepted only those studies conducted in high-income countries to ensure applicability to policy and practice in Canada. (The Methods section provides details on our search strategy and inclusion criteria.)

After retrieving and assessing 46 studies, we accepted eight RCTs evaluating eight interventions. Six evaluated school-based programs — five delivered in individual classrooms and one delivered school wide. Although four of these programs aimed to prevent bullying in general, one classroom program and the whole-school program focused exclusively on cyberbullying. We also accepted two RCTs evaluating two clinic-based interventions, both assessing types of family therapy. The eight interventions were delivered to children ranging in age from five to 16 years.

Classroom lessons going beyond the core curriculum

Among the five classroom-based programs, Roots of Empathy included Canadian students in kindergarten and Grades 4 and 8. While content varied depending on children’s ages, the program aimed to reduce bullying, aggression and violence in general. Certified instructors delivered the 27-session program over one school year. It included students observing parent-infant interactions to learn about social inclusion; reading emotional cues; and communicating thoughts and feelings. Roots of Empathy was evaluated in 17 intervention and 10 control schools.
The program Youth Matters began when American students were in Grade 4 and lasted two school years. As well as aiming to reduce bullying and other forms of aggression, the program addressed tobacco use. Curriculum specialists delivered the 40-session program, which included teaching self-control, social competence, emotional awareness, communication skills and problem-solving. The program was evaluated in 14 intervention and 14 control schools.

The classroom program Bullies and Dolls included Italian students in Grades 6 through 9. Beyond aiming to reduce bullying, the program also addressed student violence in the school and family violence in the home. Program videos and booklets provided information on the consequences of bullying and of children witnessing intimate partner violence, including how violence can be learned. Students completed the program in three sessions over three weeks. The program was evaluated in two middle schools and one high school, with each having both intervention and control classrooms.

A fourth classroom program, Media Heroes, involved German students in Grades 7 through 10. Media Heroes aimed to reduce cyberbullying as well as reduce health concerns such as headaches, stomach aches and sleep problems — issues linked to cyberbullying. Classroom teachers received eight hours of training and then delivered the program, which included teaching online safety strategies, providing information on the effects of cyberbullying, and encouraging empathy toward cyberbullying victims. Two versions were evaluated: one with 10 sessions delivered over 10 weeks, and one with four sessions delivered over one day. As well as the components noted above, the 10-session version involved students preparing a short workshop for their parents on lessons they had learned. The program was evaluated in five secondary schools, each with both intervention and control classrooms.

The fifth classroom-based program, Incremental Theory of Personality Intervention (ITPI), included Spanish students in Grades 8 through 10. ITPI focused on reducing bullying by teaching students that personality can change. The self-directed intervention had students read an article about changing brain pathways; write an explanation and read other students’ explanations of how the brain changes; and describe feeling isolated or rejected and then write about how they would help another student in the same situation. Students took approximately one hour to complete the intervention. The program was evaluated in 10 secondary schools, with students randomized to either intervention or control groups within the same classroom. Control students completed similar exercises on the brain and how it adapts to high school.

School-wide anti-cyberbullying efforts

Cyber Friendly Schools, a whole-school intervention, began when Australian students were in Grade 8 and lasted two school years. The program aimed to reduce cyberbullying using a variety of components for students, parents, teachers and school support team members. Student leaders received 20 hours of training equipping them to spearhead activities on the positive use of technology. Student leaders also reviewed relevant school policies, taught staff about students’ technology use, raised students’ awareness of their online rights and responsibilities, and delivered cyberbullying prevention training to students and parents. Teachers received six hours of training to support them in teaching online social skills. Meanwhile, school support teams received 12 hours of training on assessing and improving school antibullying policies and practices. Schools also provided parents with online resources to build their skills and confidence in assisting children to safely navigate cyber environments. The program was evaluated in 35 high schools (19 intervention and 16 control). Table 2 summarizes the six school-based programs.
Out of schools and into clinics to address bullying

Both of the RCTs on clinical interventions evaluated a type of family therapy. Integrative Family Therapy focused on Germany families with teenage boys who had perpetrated bullying for at least six months.\textsuperscript{16} The therapy aimed to encourage family communication and change family interactions that could be contributing to the boys’ behaviour. Two therapists delivered the 18-session intervention to each family over six months. Control families received a “placebo” program of the same duration that included reviewing daily routines and psychological well-being.\textsuperscript{16}

Brief Strategic Family Therapy also focused on German families, in this case with teenage girls who had perpetrated bullying for at least six months.\textsuperscript{17} The goal was to improve girls’ behaviour by fostering family communications and problem-solving, and by helping parents support each other to provide clear rules, consequences and supervision. Therapists and therapists-in-training delivered the 12-session intervention to each family over three months. Control families received a “placebo” program of the same duration that included reviewing family members’ feelings and daily routines.\textsuperscript{17} Table 3 summarizes these therapy approaches.

### Table 3: Clinic-Based Antibullying Intervention Studies

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Approach</th>
<th>Sample size</th>
<th>Ages (country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrative Family Therapy\textsuperscript{16}</td>
<td>18 sessions focused on family communication + family interactions over 6 months</td>
<td>44</td>
<td>14 – 16 yrs (Germany)</td>
</tr>
<tr>
<td>Brief Strategic Family Therapy\textsuperscript{17}</td>
<td>12 sessions focused on family communication, problem-solving + parental provision of supervision over 3 months</td>
<td>40</td>
<td>15 yrs (Germany)</td>
</tr>
</tbody>
</table>
Focusing on behaviour outcomes

Given the purpose of this review, we limited our reporting of program outcomes to bullying perpetration and victimization as well as engagement in prosocial behaviours. Time frames for assessing bullying differed across studies, including past month, two months, three months, six months, school term and unspecified.

How well did the school-based interventions work?

Roots of Empathy resulted in statistically significant reductions in children perpetrating physical bullying compared to controls, according to teacher reports on one measure at three-year follow-up. However, the effect size for this outcome was small (Cohen’s $d = 0.06$). As well, the program made no impact on self-reported perpetration of physical aggression for students in Grades 4 and 8. (Kindergarten children did not complete self-report measures.) There were also no differences in either teacher- or self-reported indirect aggression, which included behaviours such as trying to get others to dislike a person. But Roots of Empathy children did show significantly more engagement in prosocial behaviours, including comforting an upset peer or offering to help a peer who was experiencing difficulty. The effect size for this positive outcome was small, for both teacher-reported ($d = 0.12$) and self-reported ratings ($d = 0.08$). (The sidebar describes implementing Roots of Empathy in Indigenous communities.)

Youth Matters did not significantly reduce the frequency of bullying perpetration or victimization for program participants compared to controls at one-year follow-up. However, the program did lead to some positive outcomes based on classifying students into four categories (victim, perpetrator, both victim and perpetrator, no bullying). Specifically, after a year, significantly more program participants compared to controls had shifted from being a victim to experiencing no bullying, and from being both victim and perpetrator to being neither. However, Youth Matters did not significantly shift the proportion of children classified as perpetrators at follow-up.

For Bullies and Dolls, outcomes varied based on the grade participants were in when they took the program. At four-month follow-up, significantly fewer Grade 8 and 9 intervention students reported being victims compared to controls. In contrast, significantly more Grade 6 and 7 intervention students reported being victims compared to controls. These younger students also engaged in significantly more bullying perpetration relative to controls, while perpetration rates did not differ for older students.

Media Heroes was tested separately for the four- and 10-session versions — and differences were found. Although four sessions did not make a substantial impact, 10 sessions did, significantly reducing cyberbullying perpetration for intervention children compared to controls at six-month follow-up, with a moderate effect size ($d = 0.58$).

ITPI proved not to be effective at reducing bullying. The frequency of cyberbullying and other bullying — both perpetration and victimization — did not significantly differ for program participants compared with controls at one-year follow-up.

Finally, Cyber Friendly Schools, the only whole-school program, did not have a meaningful impact on cyberbullying. At one-year follow-up, there were no differences between program participants and controls.

Roots of Empathy in Indigenous communities

More than 165,000 BC students have participated in Roots of Empathy. And the program’s reach continues to grow. Many First Nations, Inuit and Métis communities in BC and throughout Canada have been delivering the program. Roots of Empathy also garnered noteworthy support from the Assembly of First Nations. In 2008, this organization endorsed a resolution supporting the program, citing its compatibility with traditional First Nations teachings and world views.
regarding the frequency of either perpetration or victimization.

Table 4 summarizes the outcomes for all six school-based interventions.

Table 4: School-Based Antibullying Intervention Outcomes

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 months</td>
<td>Classroom delivery</td>
</tr>
<tr>
<td>6 months</td>
<td>Whole-school delivery</td>
</tr>
<tr>
<td>1 year</td>
<td>Intervention (ITPI)</td>
</tr>
<tr>
<td>3 years</td>
<td>Classroom delivery</td>
</tr>
</tbody>
</table>

In regard to the school-based interventions, Integrative Family Therapy reduced boys’ bullying perpetration compared to controls (31.8%) compared to controls (95.5%) at one-year follow-up. A difference that was not statistically significant. Table 4 summarizes the outcomes for each of these interventions.

Does involving families help?

In regard to the clinical interventions, Integrative Family Therapy reduced boys’ bullying perpetration compared to controls (31.8%) compared to controls (95.5%) at one-year follow-up. However, Brief Strategic Family Therapy was less successful. At one-year follow-up, significantly fewer program boys continued to engage in bullying (31.8%) compared to controls (95.5%).

Table 5 summarizes the outcomes for these two therapeutic interventions.

Table 5: Clinic-Based Antibullying Intervention Outcomes

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 months</td>
<td>Classroom delivery</td>
</tr>
<tr>
<td>6 months</td>
<td>Whole-school delivery</td>
</tr>
<tr>
<td>1 year</td>
<td>Intervention (ITPI)</td>
</tr>
<tr>
<td>3 years</td>
<td>Classroom delivery</td>
</tr>
</tbody>
</table>

In regard to the clinical interventions, Integrative Family Therapy reduced boys’ bullying perpetration compared to controls (31.8%) compared to controls (95.5%) at one-year follow-up. However, Brief Strategic Family Therapy was less successful. At one-year follow-up, significantly fewer program boys continued to engage in bullying (31.8%) compared to controls (95.5%).
Implications for practice and policy

Our systematic review found five interventions that reduced at least one form of bullying, albeit with only modest effects for some interventions. Four of these programs were delivered in classrooms and showed success from the early years to adolescence: Youth Matters (elementary schools); Roots of Empathy (elementary and middle schools); Bullies and Dolls (secondary but not middle schools); and Media Heroes (middle and secondary schools). One clinical intervention — Integrative Family Therapy — was also effective at reducing bullying by teenage boys. These findings suggest several implications for practice and policy.

• **Reach children across a range of ages.** The effective antibullying interventions we identified can be delivered in elementary, middle and secondary schools. So programs can start early and be offered across a range of ages, which means they will reach more children to prevent the harms that come with bullying.

• **Invest in reducing all forms of bullying.** Most of the programs we reviewed aimed to reduce face-to-face bullying. But one program — the 10-session version of Media Heroes — effectively reduced cyberbullying. Efforts to reduce cyberbullying could be modelled on this successful program and evaluated for effectiveness in BC.

• **Ensure adequate program duration.** Two unsuccessful programs stood out for being particularly brief. Both ITPI and the four-session version of Media Heroes were delivered over one day. In contrast, the five successful programs ranged in length from three weeks to two school years. So interventions should mirror these longer durations.

• **Watch for unintended consequences.** Bullies and Dolls led to very different outcomes based on the grades students were in. While the program reduced victimization for students in Grades 8 and 9, it increased both victimization and perpetration for students in Grades 6 and 7. So this program caused harm for younger students and should not be used with them. As well, these findings illustrate the importance of always monitoring outcomes to ensure that program benefits outweigh harms. Evaluating programs in BC is particularly important when programs have been developed and tested elsewhere, and when there are no replication RCTs.

• **Recognize that some children and families can benefit from the help of a mental health practitioner.** Schools are excellent venues for reaching large numbers of children with antibullying programs. But some young people may need the support of a practitioner to address bullying and other aggressive behaviours. The clinic-based Integrative Family Therapy may be a helpful option for teenage boys who bully others.

Adults play crucial roles in creating and sustaining the environments that help children flourish and keep them safe. These roles include striving to ensure that homes, schools and communities are free of bullying in all its forms, for all children. This review points to promising programs to help achieve this goal, reaching children in schools and reaching children in family settings. Although more evaluations are needed, these promising programs are nevertheless a place to start taking action — showing young people how much they matter. 🌟
We use systematic review methods adapted from the Cochrane Collaboration Evidence-based Mental Health. We build quality assessment into our inclusion criteria to ensure that we report on the best available research evidence, requiring that intervention studies use randomized controlled trial (RCT) evaluation methods and meet additional quality indicators. For this review, we searched for RCTs on interventions aimed to reduce bullying in childhood. Table 6 outlines our database search strategy.

### METHODS

Using this approach, we identified four comprehensive systematic reviews and then hand-searched their reference lists. To identify additional studies, we also hand-searched the reference list from the past Quarterly issue on bullying and conducted added searches using Web of Science. Following these steps, we retrieved 53 articles describing 46 studies. Two team members then independently assessed each article, applying the inclusion criteria outlined in Table 7.

### Table 7: Inclusion Criteria for RCTs

<table>
<thead>
<tr>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants were randomly assigned to intervention and control groups (i.e., no-treatment or treatment-as-usual) at study outset.</td>
</tr>
<tr>
<td>Authors provided clear descriptions of participant characteristics, settings and interventions.</td>
</tr>
<tr>
<td>Interventions were evaluated in settings comparable to Canada.</td>
</tr>
<tr>
<td>Attrition rates were 20% or less at final assessment or intervention-to-final assessment period was used.</td>
</tr>
<tr>
<td>Interventions were evaluated in settings comparable to Canada.</td>
</tr>
<tr>
<td>Interventions included clear description of program components, settings and interventions.</td>
</tr>
<tr>
<td>Interventions were randomly assigned to intervention and control groups (i.e., no-treatment or treatment-as-usual).</td>
</tr>
</tbody>
</table>

*Search terms were adapted from identified systematic reviews on school antibullying programs. To capture non-school-based interventions, we expanded our search for original studies using similar terms but excluding school-based or classroom as keywords.

**Updated searches were conducted building on the identified systematic reviews and previous Quarterly issue on bullying, which had search dates spanning from database inception to 2020 and from 1998 to 2008, respectively.

Eight RCTs met all the inclusion criteria. Figure 1 depicts our search process, adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences among team members were resolved by consensus.
Figure 1: Search Process for RCTs

Records identified through database searching (n = 514)

Records identified through hand-searching (n = 40)

Total records screened (n = 554)

Records excluded after title screening (n = 469)

Abstracts screened for relevance (n = 85)

Abstracts excluded (n = 32)

Full-text articles assessed for eligibility (n = 46 studies [53 articles])

Full-text articles excluded (n = 38 studies [42 articles])

Studies included in review (n = 8 RCTs [11 articles])

For more information on our research methods, please contact
Jen Barican, chpc_quarterly@sfu.ca
Children’s Health Policy Centre, Faculty of Health Sciences
Simon Fraser University, Room 2435, 515 West Hastings St. Vancouver, BC V6B 5K3
Practitioners and policy-makers need good evidence about whether a given intervention works to help children. Randomized controlled trials (RCTs) are the gold standard for assessing whether an intervention is effective. In RCTs, children, youth or families are randomly assigned to the intervention group or to a comparison or control group. By randomizing participants — that is, by giving every young person an equal likelihood of being assigned to a given group — researchers can help ensure the only difference between the groups is the intervention. This process provides confidence that benefits are due to the intervention rather than to chance or other factors.

Then, to determine whether the intervention provides benefits, researchers analyze relevant outcomes. If an outcome is found to be statistically significant, it helps provide certainty the intervention was effective rather than results appearing that way due to chance. In the studies we reviewed, researchers used the typical convention of having at least 95% confidence that the observed results reflected the program’s real impact. As well, some studies included in this issue assessed the importance of outcomes by evaluating the degree of difference the intervention made in the young person’s life. This was achieved by calculating the effect sizes of outcomes, which provide a quantitative measure of the strength of the relationship between the intervention and the outcome. The interventions reported on Cohen’s $d$, which can range from 0 to 2. Standard interpretations are $0.2 =$ small effect; $0.5 =$ medium effect; and $0.8 =$ large effect.

Randomized controlled trials provide invaluable evidence about the effectiveness of interventions.
BC government staff can access original articles from BC’s Health and Human Services Library. Articles marked with an asterisk (*) include randomized controlled trial data that was featured in our Review article.


The *Children's Mental Health Research Quarterly* Subject Index provides a detailed listing of topics covered in past issues, including links to information on specific programs.

### 2021 / Volume 15
- 3 – Fighting racism
- 2 – Treating posttraumatic stress disorder in children
- 1 – Helping children cope with trauma

### 2020 / Volume 14
- 4 – Helping young people with psychosis
- 3 – Psychosis: Is prevention possible?
- 2 – Mental health treatment: Reaching more kids
- 1 – Prevention: Reaching more kids

### 2019 / Volume 13
- 4 – Preventing problematic substance use among youth
- 3 – Helping youth who self-harm
- 2 – Celebrating children's mental health: 50 lessons learned
- 1 – Helping youth with bipolar disorder

### 2018 / Volume 12
- 4 – Helping children who have been maltreated
- 3 – Preventing child maltreatment
- 2 – Treating substance misuse in young people
- 1 – Preventing youth substance misuse: Programs that work in schools

### 2017 / Volume 11
- 4 – Helping children with depression
- 3 – Preventing childhood depression
- 2 – Supporting LGBTQ+ youth
- 1 – Helping children with ADHD

### 2016 / Volume 10
- 4 – Promoting self-regulation and preventing ADHD symptoms
- 3 – Helping children with anxiety
- 2 – Preventing anxiety for children
- 1 – Helping children with behaviour problems

### 2015 / Volume 9
- 4 – Promoting positive behaviour in children
- 3 – Intervening for young people with eating disorders
- 2 – Promoting healthy eating and preventing eating disorders in children
- 1 – Parenting without physical punishment

### 2014 / Volume 8
- 4 – Enhancing mental health in schools
- 3 – Kinship foster care
- 2 – Treating childhood obsessive-compulsive disorder
- 1 – Addressing parental substance misuse

### 2013 / Volume 7
- 4 – Troubling trends in prescribing for children
- 3 – Addressing acute mental health crises
- 2 – Re-examining attention problems in children
- 1 – Promoting healthy dating relationships

### 2012 / Volume 6
- 4 – Intervening after intimate partner violence
- 3 – How can foster care help vulnerable children?
- 2 – Treating anxiety disorders
- 1 – Preventing problematic anxiety

### 2011 / Volume 5
- 4 – Early child development and mental health
- 3 – Helping children overcome trauma
- 2 – Preventing prenatal alcohol exposure
- 1 – Nurse-Family Partnership and children's mental health

### 2010 / Volume 4
- 4 – Addressing parental depression
- 3 – Treating substance abuse in children and youth
- 2 – Preventing substance abuse in children and youth
- 1 – The mental health implications of childhood obesity

### 2009 / Volume 3
- 4 – Preventing suicide in children and youth
- 3 – Understanding and treating psychosis in young people
- 2 – Preventing and treating child maltreatment
- 1 – The economics of children's mental health

### 2008 / Volume 2
- 4 – Addressing bullying behaviour in children
- 3 – Diagnosing and treating childhood bipolar disorder
- 2 – Preventing and treating childhood depression
- 1 – Building children's resilience

### 2007 / Volume 1
- 4 – Addressing attention problems in children
- 3 – Children's emotional wellbeing
- 2 – Children's behavioural wellbeing
- 1 – Prevention of mental disorders

**Photos:** Bigstock.com
Helping children with obsessive-compulsive disorder

OVERVIEW
Understanding OCD

REVIEW
Ousting obsessions and cutting compulsions
Overview 3
Understanding OCD
How common is OCD? What puts children at risk for this disorder and what protects them? We address these and other questions about childhood OCD.

Review 5
Ousting obsessions and cutting compulsions
Researchers continue to evaluate treatments for childhood OCD, including different ways of delivering cognitive-behavioural therapy. We report on recent findings to inform the best possible care for children.

Implications for practice and policy 11

Sidebars
What does cognitive-behavioural therapy for OCD involve? 5
Helping parents disengage from supporting compulsions 6

NEXT ISSUE
Childhood mental disorders: Prevalence and service needs
We present findings from a recent systematic review and meta-analysis on the number of children affected by mental disorders. We also dig deeper into the data — looking at how many children with disorders are, or are not, receiving needed treatments, and suggesting ways to address service gaps.

How to Cite the Quarterly
We encourage you to share the Quarterly with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

Vancouver, BC: Children’s Health Policy Centre, Faculty of Health Sciences, Simon Fraser University.
Understanding OCD

Many children experience repetitive thoughts and behaviours. A preschooler may insist on having the same book read to her every night for several months. A middle-schooler may repeatedly express his fear of catching COVID-19 after starting a new afterschool program. But these kinds of typical behaviours differ from the more intense, enduring and impairing obsessions and compulsions that are the hallmarks of obsessive-compulsive disorder (OCD).

Obsessions involve recurrent and persistent thoughts or images that are intrusive, unwanted and time-consuming, taking more than an hour per day. Compulsions, meanwhile, are repetitive behaviours or mental acts that a child feels obliged to do, typically to relieve distress associated with an obsession. Young people with OCD usually experience both obsessions and compulsions. Table 1 describes particularly common obsessions and compulsions that children with OCD experience.

Table 1: Common Themes for Childhood OCD (Adapted from Krebs & Heyman, 2015)

<table>
<thead>
<tr>
<th>Obsessions</th>
<th>Compulsions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contamination (e.g., worrying about germs causing illness or death)</td>
<td>Excessive washing and cleaning</td>
</tr>
<tr>
<td>Aggression/harm (e.g., disturbing thoughts/images about hurting others or harm befalling others)</td>
<td>Checking (e.g., repeatedly ensuring doors are locked)</td>
</tr>
<tr>
<td>Symmetry (e.g., making things “just right”)</td>
<td>Excessive ordering and arranging</td>
</tr>
<tr>
<td>Sexual (e.g., disturbing thoughts/images of a sexual nature)</td>
<td>Checking (e.g., repeatedly keeping hands in places where touching cannot occur)</td>
</tr>
<tr>
<td>Religious (e.g., fear of breaking religious rules or offending God)</td>
<td>Excessive praying</td>
</tr>
</tbody>
</table>

Prevalence and development of childhood OCD

A recent meta-analysis estimated that 0.3% of children meet diagnostic criteria for OCD at any given time, which equates to about 18,500 children in Canada and 2,300 children in BC. OCD also starts early, with nearly 25% of boys developing OCD before age 10 and with 25% of overall cases emerging by age 14. This early onset makes it crucial to identify these young people and provide effective treatments quickly, so children can thrive and so OCD does not persist into adulthood.

What puts children at risk?

Substantial research has explored causal factors for OCD, including the role of biological variables. More specifically, a recent meta-analysis of 113 studies confirmed that multiple polymorphisms, or genetic changes, related to the regulation of neurotransmitters (such as serotonin and catecholamines) played a significant role in the development of OCD.
Yet the study's authors also found that the role of each polymorphism was modest, and suggested that causal mechanisms likely involve small, incremental contributions from multiple genes.

Researchers have also examined possible links between childhood streptococcal infections and the development of OCD.

A recent systematic review and meta-analysis found that children with these infections did not have significantly higher OCD symptom rates.

Rigorous research examining the role of non-biological factors in the development of childhood OCD has also been growing. In particular, a prospective study followed a representative cohort of approximately 1,000 children from birth, while also examining a host of potential risk factors (including perinatal problems, family socio-economic status, child behavior concerns, child cognitive abilities and other child mental health issues).

Only anxiety, depression and substance use difficulties in earlier adolescence were significant predictors for developing OCD by age 18. Still, most youth with these conditions did not go on to develop OCD.

Another study retrospectively assessed the role of stressful life events in the development of OCD among more than 22,000 Swedish twins. Researchers found that child maltreatment and family disruption were associated with greater OCD symptom severity. Notably, these risks remained significant even after adjusting for genes and environments shared by the identical twins.

Although such studies examining potential risk factors for OCD have identified both biological and environmental variables, it is important to recognize that the unique contribution of each of the identified variables was relatively small. This suggests that more research is needed to understand how OCD develops. In particular, studies identifying additional modifiable risk factors will be particularly helpful in informing and guiding the development of preventive interventions.

Research on protective factors for OCD is also beginning to emerge. For example, a prospective study in a representative sample of 515 adolescents identified one modifiable protective factor. Specifically, having lower emotional instability was associated with having fewer OCD symptoms in adolescence.

Can we protect children from developing OCD?

Building the development of preventive interventions

In particular, studies assessing additional modifiable risk factors will be particularly helpful in informing and guiding the development of OCD treatment.

Another study recently assessed the role of stressful life events in the development of OCD in young people. Differences in earlier adolescence were significant predictors for developing OCD by age 18. Mental health issues, such as anxiety and depression, were also associated with a higher risk of developing OCD.

Rigorous research examining the role of non-biological factors in the development of childhood OCD did not identify significant higher OCD symptom rates. Researchers have also examined possible links between childhood stressors and the development of OCD. A recent prospective study and meta-analysis found that childhood stressors were associated with increased risk of developing OCD.

When young people do develop OCD, quick access to effective care is paramount. This is particularly important during the COVID-19 pandemic, as some data suggest OCD symptoms for children and youth worsened during this period.

While research continues on risk and protective factors, we do not yet have definitive answers on how to prevent OCD.

How may new research help children?

Can we protect children from developing OCD?

Building the development of preventive interventions

In particular, studies assessing additional modifiable risk factors will be particularly helpful in informing and guiding the development of OCD treatment.

Another study recently assessed the role of stressful life events in the development of OCD in young people. Differences in earlier adolescence were significant predictors for developing OCD by age 18. Mental health issues, such as anxiety and depression, were also associated with a higher risk of developing OCD.

Rigorous research examining the role of non-biological factors in the development of childhood OCD did not identify significant higher OCD symptom rates. Researchers have also examined possible links between childhood stressors and the development of OCD. A recent prospective study and meta-analysis found that childhood stressors were associated with increased risk of developing OCD.

When young people do develop OCD, quick access to effective care is paramount. This is particularly important during the COVID-19 pandemic, as some data suggest OCD symptoms for children and youth worsened during this period.

While research continues on risk and protective factors, we do not yet have definitive answers on how to prevent OCD.

Can we protect children from developing OCD?

Building the development of preventive interventions

In particular, studies assessing additional modifiable risk factors will be particularly helpful in informing and guiding the development of OCD treatment.

Another study recently assessed the role of stressful life events in the development of OCD in young people. Differences in earlier adolescence were significant predictors for developing OCD by age 18. Mental health issues, such as anxiety and depression, were also associated with a higher risk of developing OCD.

Rigorous research examining the role of non-biological factors in the development of childhood OCD did not identify significant higher OCD symptom rates. Researchers have also examined possible links between childhood stressors and the development of OCD. A recent prospective study and meta-analysis found that childhood stressors were associated with increased risk of developing OCD.

When young people do develop OCD, quick access to effective care is paramount. This is particularly important during the COVID-19 pandemic, as some data suggest OCD symptoms for children and youth worsened during this period. Still, most youth with these conditions did not go on to develop OCD.

Another study retrospectively assessed the role of stressful life events in the development of OCD among more than 22,000 Swedish twins. Researchers found that child maltreatment and family disruption were associated with greater OCD symptom severity. Notably, these risks remained significant even after adjusting for genes and environments shared by the identical twins.

Although such studies examining potential risk factors for OCD have identified both biological and environmental variables, it is important to recognize that the unique contribution of each of the identified variables was relatively small. This suggests that more research is needed to understand how OCD develops. In particular, studies identifying additional modifiable risk factors will be particularly helpful in informing and guiding the development of preventive interventions.

Research on protective factors for OCD is also beginning to emerge. For example, a prospective study in a representative sample of 515 adolescents identified one modifiable protective factor. Specifically, having lower emotional instability was associated with having fewer OCD symptoms in adolescence.

Can we protect children from developing OCD?

Building the development of preventive interventions

In particular, studies assessing additional modifiable risk factors will be particularly helpful in informing and guiding the development of OCD treatment.

Another study recently assessed the role of stressful life events in the development of OCD in young people. Differences in earlier adolescence were significant predictors for developing OCD by age 18. Mental health issues, such as anxiety and depression, were also associated with a higher risk of developing OCD.

Rigorous research examining the role of non-biological factors in the development of childhood OCD did not identify significant higher OCD symptom rates. Researchers have also examined possible links between childhood stressors and the development of OCD. A recent prospective study and meta-analysis found that childhood stressors were associated with increased risk of developing OCD.

When young people do develop OCD, quick access to effective care is paramount. This is particularly important during the COVID-19 pandemic, as some data suggest OCD symptoms for children and youth worsened during this period.

While research continues on risk and protective factors, we do not yet have definitive answers on how to prevent OCD.

Can we protect children from developing OCD?

Building the development of preventive interventions

In particular, studies assessing additional modifiable risk factors will be particularly helpful in informing and guiding the development of OCD treatment.

Another study recently assessed the role of stressful life events in the development of OCD in young people. Differences in earlier adolescence were significant predictors for developing OCD by age 18. Mental health issues, such as anxiety and depression, were also associated with a higher risk of developing OCD.

Rigorous research examining the role of non-biological factors in the development of childhood OCD did not identify significant higher OCD symptom rates. Researchers have also examined possible links between childhood stressors and the development of OCD. A recent prospective study and meta-analysis found that childhood stressors were associated with increased risk of developing OCD.

When young people do develop OCD, quick access to effective care is paramount. This is particularly important during the COVID-19 pandemic, as some data suggest OCD symptoms for children and youth worsened during this period.
Ousting obsessions and cutting compulsions

Nearly a decade ago, the Quarterly team summarized the best available research on treatments for childhood OCD. Cognitive-behavioural therapy (CBT) emerged as having strong evidence of success, with 10 rigorous studies showing positive outcomes, including significant reductions in symptoms and substantial improvements in well-being.11 (Please see the accompanying sidebar for more information on CBT for this disorder.) We also found evidence supporting the medications fluoxetine and sertraline. Both drugs reduced symptoms and had more favourable adverse event profiles than other effective medications, including paroxetine and clomipramine.11 Given new research that has amassed since that issue, the Quarterly team conducted a new systematic review of OCD treatments.

To ensure high-quality evaluations, we required studies to use randomized controlled trial (RCT) evaluation methods. This requirement included comparing psychosocial treatments and medications to control groups (i.e., no treatment, placebo or treatments typically available in community). We also accepted head-to-head trials comparing two treatments, provided one already had established effectiveness compared to a control group. We conducted new searches covering RCTs published in the past eight years. We also required studies to be conducted in high-income countries to ensure applicability to policy and practice in Canada. (The Methods section provides details on our search strategy and inclusion criteria.) Applying these methods, we accepted 12 RCTs from the 299 articles we screened. Four studies evaluated psychosocial treatments compared to controls: two on Family CBT,17–18 one on Internet-based CBT,19 and one on Positive Family Interaction Therapy as a supplement to CBT.20 Three head-to-head studies compared two different types of CBT: Family CBT with less versus more parental involvement;21 In-person versus Telephone-based CBT;22 and In-person versus Internet-based CBT.23 In addition, five studies evaluated medications compared to placebo: one on rituximab;24 and four on medications used to supplement CBT, including three on D-cycloserine25–27 and one on sertraline.28

What does cognitive-behavioural therapy for OCD involve?

CBT for OCD typically begins with practitioners presenting children and parents with information about the disorder, including explaining what the treatment will involve.12–15 As part of this process, children are often encouraged to give the disorder a “hasty nickname” — to help them resist their symptoms and not blame themselves for having OCD.16 Children also identify their specific obsessions, compulsions, triggers and avoidance behaviours as part of developing the treatment plan.12–15

To address physical OCD symptoms, children learn specific behavioural strategies such as relaxation and breathing techniques.12, 13 Children also learn cognitive strategies such as challenging their beliefs about the likelihood of feared outcomes coming true.16 Children then practise exposure and response prevention, the core component of CBT.12–15 This involves children confronting their obsessions while resisting the urge to engage in compulsions.13

Families can play an important role in a child’s treatment for OCD.
New twists on an established treatment

Both Family CBT studies focused on young children. The first compared Family CBT to treatments available in the community (such as parent programs and individual child therapy) for children ages three to eight. Family CBT consisted of 12 sessions focused on typical CBT techniques, including providing education about OCD and its treatment and practising exposure and response prevention. It also included helping parents avoid behaviours that could encourage their child’s symptoms, such as altering family routines to avoid anxiety-provoking situations or assisting in OCD rituals. (Please see the accompanying sidebar for more information on family accommodation of OCD symptoms.)

The second study compared Family CBT to relaxation strategies for children ages five to eight. Family CBT began with two sessions for parents only, focusing on behaviour management skills such as rewarding efforts at exposure and response prevention. These were followed by 10 sessions for parents and children together using typical CBT techniques.

The third psychosocial study compared Internet-based CBT to a waitlist control condition for 12- to 17-year-olds. Internet-based CBT consisted of 12 online sessions providing readings, films and guidance for exposure and response prevention exercises. Internet sessions were supplemented with helping parents avoid behaviours that could encourage their child’s symptoms, such as altering family routines to avoid anxiety-provoking situations or assisting in OCD rituals. (Please see the accompanying sidebar for more information on family accommodation of OCD symptoms.)

The second study compared Family CBT to relaxation strategies for children ages five to eight. Family CBT began with two sessions for parents only, focusing on behaviour management skills such as rewarding efforts at exposure and response prevention. These were followed by 10 sessions for parents and children together using typical CBT techniques.

The third psychosocial study compared Internet-based CBT to a waitlist control condition for 12- to 17-year-olds. Internet-based CBT consisted of 12 online sessions providing readings, films and guidance for exposure and response prevention exercises. Internet sessions were supplemented with helping parents avoid behaviours that could encourage their child’s symptoms, such as altering family routines to avoid anxiety-provoking situations or assisting in OCD rituals. (Please see the accompanying sidebar for more information on family accommodation of OCD symptoms.)

The second study compared Family CBT to relaxation strategies for children ages five to eight. Family CBT began with two sessions for parents only, focusing on behaviour management skills such as rewarding efforts at exposure and response prevention. These were followed by 10 sessions for parents and children together using typical CBT techniques.

The third psychosocial study compared Internet-based CBT to a waitlist control condition for 12- to 17-year-olds. Internet-based CBT consisted of 12 online sessions providing readings, films and guidance for exposure and response prevention exercises. Internet sessions were supplemented with helping parents avoid behaviours that could encourage their child’s symptoms, such as altering family routines to avoid anxiety-provoking situations or assisting in OCD rituals. (Please see the accompanying sidebar for more information on family accommodation of OCD symptoms.)
regular electronic messages from a practitioner plus occasional telephone calls. As well, parents participated in five online sessions focused on the family’s role in accommodating symptoms, on coping strategies and on providing support during exposure and response prevention exercises.¹⁹

The fourth psychosocial study assessed the impact of augmenting CBT with Positive Family Interaction Therapy, compared to augmenting it with a parent education control group, for eight- to 17-year-olds.²⁰ To be included, families had to have two or more indicators — such as high levels of blame and criticism by parents — that have been shown to predict limited child responses to CBT. Children in both conditions received 12 individual CBT sessions, while those randomized to Positive Family Interaction Therapy received six added sessions of this particular treatment. The added sessions included monitoring emotional responses to OCD, practising emotional regulation, and learning problem-solving skills, including disengaging from accommodating OCD symptoms. Parent education consisted of 12 sessions that included receiving information about OCD and reviewing their child’s CBT sessions.²⁰ Table 2 summarizes these four RCTs.

### Table 2: Psychosocial Studies with Control Groups

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Approach</th>
<th>Sample size</th>
<th>Child ages (country)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychosocial treatments assessed independently</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family CBT¹⁷</td>
<td>12 family CBT sessions over 6 weeks</td>
<td>31</td>
<td>3–8 yrs (United States)</td>
</tr>
<tr>
<td>Family CBT¹⁸</td>
<td>2 parent-only CBT sessions + 10 family CBT sessions over 14 weeks</td>
<td>127</td>
<td>5–8 yrs (United States)</td>
</tr>
<tr>
<td>Internet-based CBT¹⁹</td>
<td>12 child CBT sessions + 5 parent sessions both via the internet over 12 weeks</td>
<td>67</td>
<td>12–17 yrs (Sweden)</td>
</tr>
<tr>
<td><strong>Psychosocial treatments assessed as a supplement to CBT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Family Interaction Therapy²⁰</td>
<td>6 family therapy sessions focused on family responses to OCD over 12 weeks</td>
<td>62</td>
<td>8–17 yrs (United States)</td>
</tr>
</tbody>
</table>

### Building on the evidence for CBT

The first Family CBT study showed multiple benefits at the end of treatment.¹⁷ These included large reductions in OCD symptoms based on five measures assessed by blinded raters (including four showing substantial clinical impact, with Cohen’s $d$ ranging from 1.24 to 1.69).¹⁷ Similarly, children’s overall functioning improved, also with a large effect size ($d = 1.31$). Family accommodation of children’s OCD symptoms — including decreases in behaviours such as families participating in the child’s OCD rituals or modifying family routines — was also significantly reduced, again with a large effect size ($d = 1.01$).¹⁷

The second Family CBT study also showed benefits at the end of treatment.¹⁸ These included significant reductions in OCD symptoms based on two measures assessed by blinded raters ($d = 0.31–0.84$). As well, children’s functioning significantly improved based on parent ratings ($d = 0.42$). However, parent ratings did not show a significant improvement in children’s quality of life.¹⁸

Internet-based CBT also had several positive outcomes at the end of treatment.¹⁹ These included significant reductions in OCD symptoms based on three measures assessed by blinded raters ($d = 0.69$), parents ($d = 0.59$) and children ($d = 0.64$), all with medium effect sizes. Also, children’s functioning significantly improved based on parent but not child report. Finally, family accommodation of OCD symptoms was also significantly reduced, with a medium effect size ($d = 0.54$). Researchers also
Conducted cost-effectiveness analyses which found that Internet-based CBT produced net savings of $145 per youth (in 2016 US$). Savings were predominately due to waitlist youth accruing more health care costs. Positive Family Interaction Therapy proved to be a helpful supplement to CBT. At the end of treatment, participating children had significant reductions in OCD symptoms based on two measures completed by blinded raters, including one with a small effect size (φ = 0.28). In addition, children's overall functioning improved according to parent report, and families reduced their accommodation of OCD symptoms according to blinded rater report. Table 3 summarizes outcomes from these four studies.

We accepted three head-to-head RCTs, all comparing different versions of CBT. The first study assessed differing levels of parent involvement in the 14 CBT sessions provided to their 12- to 17-year-old children. In the version with less involvement, one or both parents joined the first, seventh and final sessions. These sessions covered education about OCD and its treatment, updates on therapy progress and plans for success after therapy ended. In the version with more involvement, one or both parents joined all 14 CBT sessions. Parent involvement included helping to develop the treatment plan, assisting in therapy activities such as facing feared situations and rewarding the child's progress.

The second head-to-head trial examined whether telephone-based CBT had the same benefits as Internet-based CBT. All young people received the same number of CBT sessions. The only difference was whether they were seen in-person or by phone. The third head-to-head trial evaluated whether Internet-based CBT had the same benefits as in-person delivery for 8- to 17-year-olds.

The benefits of CBT have been shown to last at least one year after treatment ended.
Table 4 summarizes these three head-to-head RCTs.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 14 CBT child sessions in person over 16 weeks</td>
<td>In-person CBT</td>
</tr>
<tr>
<td>2. 14 CBT child sessions online over 16 weeks</td>
<td>Internet-based CBT</td>
</tr>
<tr>
<td>3. 14 CBT child sessions by telephone over 17 weeks</td>
<td>Telephone-based CBT</td>
</tr>
</tbody>
</table>

Table 5: Psychosocial Head-to-Head Comparison Study Outcomes

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 6 months**</td>
<td>CBT with Less Parental Involvement = Internet-based CBT vs. In-person CBT</td>
</tr>
<tr>
<td>1 year</td>
<td>Telephone-based CBT vs. In-person CBT</td>
</tr>
<tr>
<td>6 months</td>
<td>Telephone-based CBT vs. In-person CBT</td>
</tr>
</tbody>
</table>

* Unless otherwise noted, CBT sessions were delivered individually to children.

** 29.6% of children who had significant symptoms after course of treatment then received 12 in-person CBT sessions resulting in no follow-up; for the remaining children, follow-up was six months.

The first head-to-head trial found that levels of parent involvement in treatment made no significant difference for child OCD outcomes at six-month follow-up. In fact, both levels resulted in statistically and clinically significant reductions in OCD symptoms according to blinded raters. The effect size for both was also large at six-month follow-up (d = 1.53 for less parent involvement vs. d = 1.50 for more).

Similarly, Telephone-based CBT was just as beneficial as In-person CBT at one-year follow-up. Nearly 94.4% of young people reported being satisfied with their treatment, with no differences between Telephone-based or In-person CBT. Follow-up varied, however. Nearly a third of young people (29.6%) continued to have significant symptoms three months after completing either version. For these children, final follow-up occurred just after they received 12 supplemental in-person CBT sessions. For the remaining participants, final follow-up occurred six months after treatment ended. Whether CBT was delivered in person or online, symptoms were substantially reduced on the one blinded rater measure. Most young people also reported high satisfaction with treatment, for both in-person and internet-based CBT.

The first head-to-head trial found that levels of parent involvement in treatment made no significant difference for child OCD outcomes at six-month follow-up. In fact, both levels resulted in statistically and clinically significant reductions in OCD symptoms according to blinded raters. The effect size for both was also large at six-month follow-up (d = 1.53 for less parent involvement vs. d = 1.50 for more).
**Placebo-controlled medication studies**

The riluzole study assessed effectiveness in “treatment-resistant” seven- to 17-year-olds.\(^{24}\) (Treatment resistance was defined as lack of benefit from or inability to tolerate a serotonin reuptake inhibitor, medications typically used to treat OCD.)\(^{35}\) Participants receiving the medication started at a dose of 10 mg daily, gradually increasing to 100 mg daily. Children were not permitted to participate in CBT or other structured psychosocial treatments during the study. Children received riluzole or placebo for 12 weeks.\(^{24}\)

The first D-cycloserine trial assessed the medication’s effectiveness as a supplement to CBT for “difficult to treat” eight- to 18-year-olds.\(^{25}\) (Children were deemed difficult to treat if six or more CBT sessions with adequate exposure and response prevention had limited or no benefit.) All participants received nine CBT sessions, with brief parental involvement at the beginning and end of each. D-cycloserine or placebo was given one hour before the specific sessions that included exposure and response prevention (sessions 5 through 9). This timing was chosen with the expectation that D-cycloserine could reduce fear when children were exposed to anxiety-provoking situations. Children received either 25 or 50 mg of D-cycloserine, depending on their weight.\(^{25}\)

The second D-cycloserine trial also assessed its effectiveness as a supplement to CBT for seven- to 17-year-olds with OCD (without being limited to those deemed “difficult to treat”).\(^{26}\) All participants received 10 Family CBT sessions over eight weeks. D-cycloserine or placebo was given one hour before sessions that included exposure and response prevention (sessions 4 through 10). Once again, children received either 25 or 50 mg of D-cycloserine, depending on their weight.\(^{26}\)

The third D-cycloserine trial assessed its effectiveness as a supplement to CBT with 12- to 18-year-olds.\(^{27}\) All participants received 14 CBT sessions. D-cycloserine (50 mg) or placebo was given after each of the sessions that included exposure and response prevention (sessions 3 through 12).\(^{27}\)

The sertraline trial assessed its effectiveness as a supplement to CBT for seven- to 17-year-olds.\(^{28}\) Both fixed and flexible dosing schedules were evaluated. All intervention participants began at 25 mg daily, with possible increases to 200 mg. Flexible dosing allowed young people to reach maximum dose by five weeks, while fixed dosing enabled them to reach maximum dose by nine weeks. All young people then received either sertraline or placebo for 18 weeks. All participants also received 14 individual CBT sessions.\(^{28}\) Table 6 summarizes these five medication RCTs.

<table>
<thead>
<tr>
<th>Table 6: Placebo-Controlled Medication Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medication</strong></td>
</tr>
<tr>
<td>Riluzole(^{24})</td>
</tr>
<tr>
<td>D-cycloserine(^{25})</td>
</tr>
<tr>
<td>D-cycloserine(^{26})</td>
</tr>
<tr>
<td>D-cycloserine(^{27})</td>
</tr>
<tr>
<td>Sertraline(^{28})</td>
</tr>
</tbody>
</table>
Medications did not show benefits

Riluzole failed to produce benefits at the end of treatment. Specifically, this medication did no better than placebo based on three OCD symptom measures and one overall functioning measure, according to blinded raters. (Because a placebo was used in every included medication study, all outcome raters — including parents and children — were blinded. But we use the term blinded raters here to refer to researchers or clinicians involved in the study.)

The first D-cycloserine trial also failed to show benefits at the end of treatment. D-cycloserine did no better than placebo on OCD diagnosis or symptom measures, including three completed by blinded raters and one completed by parents.

The second D-cycloserine trial similarly failed to show benefits at the end of treatment. The medication did no better than placebo on OCD symptom measures, including three completed by blinded raters and one completed by parents.

The final D-cycloserine trial likewise found no evidence of benefits at one-year follow-up. Specifically, the medication did no better than placebo on three OCD symptom measures — all completed independently by blinded raters, parents and youth. Similarly, there were no significant benefits according to a measure of children's overall functioning, also completed by blinded raters.

Sertraline also failed to produce benefits at the end of treatment. Sertraline did no better than placebo on two OCD symptom measures completed by blinded raters or on two overall functioning measures completed by parents and children. Table 7 summarizes outcomes from these five medication studies.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Follow-up</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessed alone</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Riluzole<sup>24</sup> | None | NS OCD symptoms (3 of 3)  
NS Overall functioning |
| **Assessed as a supplement to CBT** | | |
| D-cycloserine<sup>25</sup> | None | NS OCD diagnosis  
NS OCD symptoms (4 of 4) |
| D-cycloserine<sup>26</sup> | None | NS OCD symptoms (4 of 4) |
| D-cycloserine<sup>27</sup> | 1 year* | NS OCD symptoms (3 of 3)  
NS Overall functioning |
| Sertraline<sup>28</sup> | None | NS OCD symptoms (2 of 2)  
NS Overall functioning (2 of 2) |

NS: No significant difference between intervention and placebo groups.  
* All outcomes were also non-significant between intervention and placebo groups at post-test.

Implications for practice and policy

The findings from this systematic review, coupled with findings from previous Quarterly issues, offer significant hope for children with OCD and their families. Specifically, there is strong support for using CBT to treat childhood OCD — whether in person, by phone or online. Family CBT is also effective for children as young as age three years. And CBT has been successful when young people have concurrent mental health diagnoses. As well, the benefits of CBT have been shown to last at least one year after treatment ended.
When CBT alone does not resolve OCD symptoms, there are other treatment options. Positive Family Interaction Therapy can be helpful when families experience challenges such as parents expressing high levels of criticism towards their child. In addition, as detailed in our previous Quarterly issue, the medications fluoxetine and sertraline can be useful supplements when CBT does not fully resolve the symptoms. (While the sertraline trial featured in the current review did not show effectiveness, two previous RCTs did show significant symptom reductions with moderate effect sizes. Fluoxetine similarly showed significant symptom reductions with moderate effect sizes based on three RCTs.)

On balance, these findings suggest five implications for practice and policy.

- **Start with CBT for childhood OCD.** A strong body of evidence supports CBT — showing that it produces clinically meaningful reductions in both symptoms and diagnoses. It is also effective for children ranging from ages three to 18 years. CBT should therefore be the starting point for treatment. However, if children continue to experience impairing symptoms, even after an adequate course of CBT, family involvement should also be encouraged where feasible. As well, when family issues impede CBT's effectiveness, Positive Family Interaction Therapy may be a helpful addition.

- **Build CBT capacity.** Despite the strong evidence for CBT's effectiveness in treating OCD, many young people with OCD have limited access to CBT. In fact, in most countries, young people have difficulties finding a practitioner to provide this intervention — and so that all children with OCD can receive highly effective treatment in public settings. Consequently, family involvement is critical. Family CBT is the form of CBT that has shown efficacy with children younger than age eight. For older children, family involvement is particularly critical. As well, when family issues impede CBT's effectiveness, Positive Family Interaction Therapy may be a helpful addition.

- **Support family involvement.** CBT for OCD often incorporates families into the treatment. The roles for families can be extensive, ranging from helping to develop treatment goals to encouraging children to practice exposure and response prevention. For younger children, family involvement is particularly important, as Family CBT is the form of CBT that has shown efficacy with children younger than age eight. For older children, family involvement should also be encouraged where feasible. As well, when family issues impede CBT's effectiveness, Positive Family Interaction Therapy may be a helpful addition.

- **Reach more children in need by expanding delivery options.** Many children can benefit from CBT without ever entering a practitioner's office. Studies show the effectiveness of telephone- and internet-based CBT equals that of in-person delivery for many children. These delivery modalities also make it possible to reach more children, including those in more remote communities — particularly helpful during the COVID-19 pandemic as well as beyond. Internet delivery may also help in reducing costs because it requires less practitioner time.

- **Consider medications when CBT does not succeed.** Some children continue to experience impairing symptoms even after an adequate course of CBT. For these children, medications may be needed. The medications fluoxetine and sertraline have shown significant symptom reductions with moderate effect sizes in both adults and children. However, children taking either medication need to be carefully monitored to assess both its effectiveness and potential adverse effects.
Methods

We use systematic review methods adapted from the Cochrane Collaboration.38 We build quality assessment into our inclusion criteria to ensure that we report on the best available research evidence, requiring that intervention studies use randomized controlled trial (RCT) evaluation methods and meet additional quality indicators. For this review, we searched for RCTs on interventions aimed to treat childhood OCD. Table 8 outlines our database search strategy.

<table>
<thead>
<tr>
<th>Table 8: Search Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sources</strong></td>
</tr>
<tr>
<td>• Campbell Systematic Reviews, Cochrane Database of Systematic Reviews, CINAHL, ERIC, Medline and PsycINFO</td>
</tr>
<tr>
<td><strong>Search Terms</strong></td>
</tr>
<tr>
<td>• Obsessive-compulsive disorder or OCD and intervention, prevention or treatment</td>
</tr>
<tr>
<td><strong>Limits</strong></td>
</tr>
<tr>
<td>• Peer-reviewed articles published in English from 2013 to 2021</td>
</tr>
<tr>
<td>• Pertaining to children aged 18 years or younger</td>
</tr>
<tr>
<td>• Systematic review, meta-analysis or RCT methods used</td>
</tr>
</tbody>
</table>

To identify additional RCTs, we also hand-searched the reference lists from relevant systematic reviews and previous issues of the Quarterly. Using this approach, we identified 70 articles describing 35 studies. Two team members then independently assessed each article, applying the inclusion criteria outlined in Table 9.

<table>
<thead>
<tr>
<th>Table 9: Inclusion Criteria for RCTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Study authors provided clear descriptions of participant characteristics, settings and interventions</td>
</tr>
<tr>
<td>• Interventions aimed to reduce OCD symptoms</td>
</tr>
<tr>
<td>• Interventions were evaluated in settings comparable to Canada</td>
</tr>
<tr>
<td>• Attrition rates were 20% or less at final assessment and/or intention-to-treat analysis was used</td>
</tr>
<tr>
<td>• Child outcome indicators included OCD symptoms, assessed using two or more informant sources</td>
</tr>
<tr>
<td>• Reliability and validity were documented for primary outcome measures</td>
</tr>
<tr>
<td>• Statistical significance was reported for primary outcome measures</td>
</tr>
<tr>
<td>• Studies were excluded when authors stated there was insufficient power to detect differences between groups or did not correct for multiple comparisons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychosocial Intervention Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Participants were randomly assigned to intervention and comparison groups (i.e., no-treatment, treatment-as-usual or active control) at study outset</td>
</tr>
<tr>
<td>• Head-to-head comparison trials were only accepted if at least one intervention was already established as being effective in an RCT</td>
</tr>
<tr>
<td>• At least one outcome rater was blinded to participants’ group assignment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Participants were randomly assigned to intervention and placebo control groups at study outset</td>
</tr>
<tr>
<td>• All outcome raters and participants were blinded to participants’ group assignment</td>
</tr>
</tbody>
</table>

Twelve RCTs met all the inclusion criteria. Figure 1 depicts our search process, adapted from Preferred Reporting Items for Systematic Reviews and Meta-Analyses.39 Data from these studies were then extracted, summarized and verified by two or more team members. Throughout our process, any differences among team members were resolved by consensus.

For more information on our research methods, please contact
Jen Barican, chpc_quarterly@sfu.ca
Children’s Health Policy Centre, Faculty of Health Sciences
Simon Fraser University, Room 2435, 515 West Hastings St. Vancouver, BC V6B 5K3
Figure 1: Search Process for RCTs

Records identified through database searching (n = 291)

Records identified through hand-searching (n = 8)

Total records screened (n = 299)

Records excluded after title screening (n = 70)

Abstracts screened for relevance (n = 229)

Abstracts excluded (n = 159)

Full-text articles assessed for eligibility (n = 35 studies [70 articles])

Full-text articles excluded (n = 23 studies [47 articles])

Studies included in review (n = 12 RCTs [23 articles])
Practitioners and policy-makers need good evidence about whether a given intervention works to best help children. Randomized controlled trials (RCTs) are the gold standard for assessing whether an intervention is effective. In RCTs, children or families are randomly assigned to the intervention group or to a control group. By randomizing participants — that is, by giving every young person an equal likelihood of being assigned to a given group — researchers can help ensure the only difference between the groups is the intervention. This process provides confidence that any benefits found are due to the intervention rather than to chance or other factors.

Our review included a different kind of RCT, namely a non-inferiority trial. RCTs are typically designed to determine whether a treatment is superior to a control condition. In contrast, non-inferiority trials aim to show that a treatment is not less effective than a proven treatment.

To determine whether the intervention provides benefits, researchers analyze relevant outcomes. If an outcome is found to be statistically significant, it helps provide certainty the intervention was effective rather than results appearing that way due to chance. In the studies we reviewed, researchers used the typical convention of having at least 95% confidence that the observed results reflected the treatment’s real impact.

Beyond determining whether the outcomes were statistically significant, some studies also evaluated the degree of difference the intervention made in the young person’s life. This was achieved by calculating the effect sizes of outcomes, which provide a quantitative measure of the strength of the relationship between the treatment and the outcome. The interventions reported on Cohen’s $d$, which can range from 0 to 2. Standard interpretations are 0.2 = small effect; 0.5 = medium effect; and 0.8 = large effect. Phi coefficient, $\phi$, was also reported in one study, which can range from 0 to 1. Standard interpretations are 0.2 = small effect; 0.3 = medium effect; and 0.4 = large effect.
BC government staff can access original articles from BC’s Health and Human Services Library. Articles marked with an asterisk (*) include randomized controlled trial data that was featured in our Review article.


LINKS TO PAST ISSUES

The Children's Mental Health Research Quarterly Subject Index provides a detailed listing of topics covered in past issues, including links to information on specific programs.

2021 / Volume 15
4 – Childhood bullying: Time to stop
3 – Fighting racism
2 – Treating posttraumatic stress disorder in children
1 – Helping children cope with trauma

2020 / Volume 14
4 – Helping young people with psychosis
3 – Psychosis: Is prevention possible?
2 – Mental health treatment: Reaching more kids
1 – Prevention: Reaching more kids

2019 / Volume 13
4 – Preventing problematic substance use among youth
3 – Helping youth who self-harm
2 – Celebrating children's mental health: 50 lessons learned
1 – Helping youth with bipolar disorder

2018 / Volume 12
4 – Helping children who have been maltreated
3 – Preventing child maltreatment
2 – Treating substance misuse in young people
1 – Preventing youth substance misuse: Programs that work in schools

2017 / Volume 11
4 – Helping children with depression
3 – Preventing childhood depression
2 – Supporting LGBTQ+ youth
1 – Helping children with ADHD

2016 / Volume 10
4 – Promoting self-regulation and preventing ADHD symptoms
3 – Helping children with anxiety
2 – Preventing anxiety for children
1 – Helping children with behaviour problems

2015 / Volume 9
4 – Promoting positive behaviour in children
3 – Intervening for young people with eating disorders
2 – Promoting healthy eating and preventing eating disorders in children
1 – Parenting without physical punishment

2014 / Volume 8
4 – Enhancing mental health in schools
3 – Kinship foster care
2 – Treating childhood obsessive-compulsive disorder
1 – Addressing parental substance misuse

2013 / Volume 7
4 – Troubling trends in prescribing for children
3 – Addressing acute mental health crises
2 – Re-examining attention problems in children
1 – Promoting healthy dating relationships

2012 / Volume 6
4 – Intervening after intimate partner violence
3 – How can foster care help vulnerable children?
2 – Treating anxiety disorders
1 – Preventing problematic anxiety

2011 / Volume 5
4 – Early child development and mental health
3 – Helping children overcome trauma
2 – Preventing prenatal alcohol exposure
1 – Nurse-Family Partnership and children's mental health

2010 / Volume 4
4 – Addressing parental depression
3 – Treating substance abuse in children and youth
2 – Preventing substance abuse in children and youth
1 – The mental health implications of childhood obesity

2009 / Volume 3
4 – Preventing suicide in children and youth
3 – Understanding and treating psychosis in young people
2 – Preventing and treating child maltreatment
1 – The economics of children's mental health

2008 / Volume 2
4 – Addressing bullying behaviour in children
3 – Diagnosing and treating childhood bipolar disorder
2 – Preventing and treating childhood depression
1 – Building children's resilience

2007 / Volume 1
4 – Addressing attention problems in children
3 – Children's emotional wellbeing
2 – Children's behavioural wellbeing
1 – Prevention of mental disorders

Photos: Bigstock.com
The Children's Mental Health Research Quarterly Subject Index provides a detailed listing of topics covered in past issues, including links to information on specific programs.
General Information

Name of the Centre/Institute: HIV/AIDS Research Centre (HRC)
Website: http://www.sfu.ca/hivresearchcentre.html
Faculty: Health Sciences
Director: Mark Brockman (co-Director)
          Angela Kaida (co-Director)
Director's term end: -
Renewal date: 2025-06-02

Details

Description of the Centre/Institute:
The vision of the SFU Interdisciplinary Research Centre for HIV/AIDS (SIRCH) is to develop strategies for the prevention of HIV/AIDS, to improve the health and well-being of people living with and affected by HIV, and to engage with the public, both domestically and internationally, through HIV/AIDS research, education and dialogue. We are committed to effectively disseminating novel and community-engaged health and biomedical research, while simultaneously addressing social injustices with the intention of reducing health inequities and treating HIV/AIDS.

Our Centre aims to:

1. Provide and disseminate innovative scholarship to improve the health and well-being of individuals living with and affected by HIV in diverse settings;

2. Contribute world-leading HIV vaccine and biomedical research, with the ultimate goal of preventing, controlling and eventually curing HIV

3. Develop and strengthen community and global partnerships to enhance HIV research efforts;

4. Provide a sustainable, multi-disciplinary platform to train and mentor the newest generation of HIV/AIDS researchers.

The Centre/Institute's membership and organization structure:
SIRCH is currently led by two co-Directors, who oversee a network of SFU faculty and
collaborators primarily associated with the Faculty of Health Sciences. The Centre’s organizational structure is otherwise casual to reflect and accommodate the changing needs of the Centre’s membership. The Centre serves as a catalyst for faculty-initiated research and teaching in HIV/AIDS and infectious diseases more broadly, promoting interdisciplinary applications for grant funding and experiential learning opportunities in global health for FHS students.

Co-Director Dr. Angela Kaida, Associate Professor and Canada Research Chair Tier II in Global Perspectives in HIV and Sexual and Reproductive Health in the Faculty of Health Sciences

Co-Director Dr. Mark Brockman, Professor in the Faculty of Health Sciences

Members include:

- Dr. Felix Breden, Professor Emeritus in the Department of Biological Sciences
- Dr. Zabrina Brumme, Professor in the Faculty of Health Sciences and Laboratory Director at the BC Centre for Excellence in HIV/AIDS
- Dr. Kora DeBeck, Associate Professor in the School of Public Policy and Research Scientist at the BC Centre on Substance Use
- Dr. Shira Goldenberg, Adjunct Professor in the Faculty of Health Sciences and Assistant Professor at the School of Medicine, University of California San Diego
- Dr. Kanna Hayashi, Assistant Professor and St. Paul’s Hospital Chair in Substance Use in the Faculty of Health Sciences, and Research Scientist with the BC Centre on Substance Use
- Dr. Robert Hogg, SFU Distinguished Professor in the Faculty of Health Science and Senior Research Scientist at the BC Centre for Excellence in HIV/AIDS
- Dr. Cari Miller, Adjunct Professor in the Faculty of Health Sciences
- Dr. Bohdan Nosyk, Associate Professor and St. Paul’s Hospital CANFAR Chair in HIV/AIDS Research in the Faculty of Health Sciences, and Research Scientist at the BC Centre for Excellence in HIV/AIDS
- Dr. Ralph Pantophlet, Associate Professor in the Faculty of Health Sciences
- Dr. Surita Parashar, Adjunct Professor in the Faculty of Health Sciences and Research Scientist at the BC Centre for Excellence in HIV/AIDS
Significant accomplishments:
1) Publications and Research Outputs (HIV/AIDS):

In 2021, SIRCH members contributed to over 70 peer-reviewed manuscripts in respected academic journals. A full list of publications is provided in the Appendix. These publications reflected the Centre’s diverse expertise, including socio-behavioural and biomedical interventions to prevent HIV; molecular determinants of HIV pathogenesis; immunity to HIV infection; public health impacts of HIV, HCV and other infectious diseases; and challenges related to mental health and addictions for HIV care, among other topics.

For example:

- Kaida developed a “knowledge-to-action” framework to improve HIV care for Canadian women (J Int Assoc Provid AIDS Care)

- Several studies by Kaida, Brockman and colleagues reported on the physical and mental health of South African youth at high risk of acquiring HIV, including gender dynamics, intimate partner violence, depression/anxiety and food insecurity (Front Reprod Health; Glob Health Action; Trop Med Intl Health)
• Pantophlet tested new adjuvants to improve HIV vaccines (Sci Rep)

• Small addressed the dual epidemics of HIV and substance use in Vancouver (Int AIDS Soc; Drug Alcohol Rev)

• Hogg and collaborators continued to lead international efforts to investigate mortality among people living with HIV (AIDS Behav, AIDS Care)

2) Publications and Research Outputs (COVID-19):

SIRCH members have also contributed meaningfully to the academic and public health response to COVID-19, which like HIV is caused by a viral infection.

For example:

• In a national survey, Kaida and colleagues assessed the willingness of Canadians to receive a COVID-19 vaccine (BMC Public Health)

• Salway and colleagues evaluated the mental health impact of COVID-19 on clients seeking sexual health services in BC (Prev Med; Sex Transm Infect)

• Brockman and Brumme, in collaboration with Niikura, Pantophlet and external partners, examined the immune response to COVID-19 vaccines in key at-risk populations, including older adults and people living with HIV (BMJ Open; MedRxiv pre-prints)

• Hogg identified predictors of COVID-19 testing rates in multi-country comparison (Int J Infect Dis)

• Nosyk modeled the impact of COVID-19 on the HIV epidemic and cost-effectiveness of current testing strategies (Clin Infect Dis)

3) New Grant Funding:

SIRCH is well supported by research and training grants from CIHR and other funders. In 2021, members were awarded nearly $4 million in new funding as Principal or Co-Principal Investigator, including:

Canadian Institutes for Health Research (CIHR): “Estimating the value and long-term impact of implementing Risk Mitigation Guidance to reduce the harms of substance use disorders during the COVID-19 pandemic: A simulation modeling analysis” (Nosyk, Co-PI). $925,650

CIHR: “The LGBTQ2 policy paradox: A mixed methods study to improve policy for health equity” (Salway, PI). $432,226
Genome BC: “COVID-19 vaccine immunity in persons with and without HIV” (Brockman, Brumme Co-PIs). $199,750

CIHR: “Defining the Impact of Socio-Structural Determinants of Health on Immune Activation and Inflammation in Adolescents and Young Adults in a Vulnerable Environment” (Kaida, Brockman, Co-PI). $734,400

CIHR: “Evaluating the durability and cross-reactivity of SARS-CoV-2 immunity elicited by COVID-19 vaccines” (Brockman, Breden, Co-PIs). $495,000

CIHR: Wellness in Two-Spirit Communities across Turtle Island: A two-eyed seeing approach to a gender-inclusive community-based 2S research network” (Salway, co-PI). $492,077

CIHR: “Providing insight into and mitigating the impact of the COVID-19 pandemic on the occurrence, severity, complications, and long-health effects of drug overdoses in people living with and without HIV in BC” (Hogg, PI). $480,992

4) 3) Major Awards and Achievements:

Faculty:

Robert Hogg – Fellow, Royal Society of Canada

Angela Kaida - 2022 CAHR-CANFAR Excellence in Research Award, Epidemiology and Public Health

Ralph Pantophlet – 2021 CAHR-CANFAR Excellence in Research Award, Basic Science

Students:

Master’s Award: Canada Graduate Scholarships (Duncan)

BC Graduate Scholarship (Perry-Ens)

Degrees granted to trainees: 3 MPH (Parsons, Gebremedhen, Politeski); 1 MSc (Loh)

**Notable media successes:**


3. 2021 Graduate Student Award and Scholarship Recipients (Goldenberg). FHS news. Sept 20, 2021.


10. Q&A: How SFU’s CL3 Lab is equipping SFU researchers in the global fight against COVID-19 (Pantophlet). SFU news. June 2, 2021

11. $1.2M grant aims to investigate the immune response of LTC residents to COVID-19 vaccines (Brockman, Brumme, Pantophlet, Niikura). FHS news. March 1, 2021.


**Events, workshops, public outreach events:**

1) Experiential learning courses in global health:

SIRCH members lead two experiential learning courses in global health, which are typically held on-site in Durban, South Africa and San Diego, USA. Due to Covid-19, these were moved to an online format in Summer 2021. Nevertheless, both courses attracted a full roster of SFU and non-SFU students. The Durban course (led by Kaida in 2021) is conducted in collaboration with South African colleagues (SANTHE training network) and provides a shared learning environment where SFU students and African students learn about HIV risk.
among young adults in South Africa and other regions where the virus is endemic. The San Diego course (led by Goldenberg) is conducted in collaboration with US colleagues and focuses on migration and immigrant health.

2) HIV and community health:

Kaida is a Co-Founder and Co-Editor of “Life and Love with HIV”, a blog and online community dedicated to de-stigmatizing sexuality and relationships among women, partners, and couples living with HIV (www.lifeandlovewithhiv.ca). This activity is led in partnership with the Viva Women and the International Community of Women Living with HIV.

Kaida and colleagues at Life and Love with HIV also produced a short film, entitled “HIV Made Me Fabulous”, which was released in conjunction with a series of community-based screenings and workshops.

- Kilpatrick E. (Film Producer and Director), Roche J. (Writer and Narrator), Carter A. (Co-producer), & Kaida A. (Co-producer) (2021). Simon Fraser University & Life and Love with HIV. Available at: https://www.lifeandlovewithhiv.ca/film.


3) Social media outreach:

Social media engagement and promotion is increasingly an effective method of reaching the public. The Centre does not have a formal social media plan, but this is being considered for 2022. Nevertheless, individual Centre-affiliated members and research projects are active on Twitter and other platforms. Co-Director Angela Kaida (Twitter @akaida) currently maintains ~1500 followers. The CANOC collaboration led by former Director Hogg (Twitter @CANOCresearch) is also has ~1300 followers.

Supporting documents:
SIRCH_Publications_2021_hhp9qh.pdf (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No
Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
SIRCH members continue to be successful in obtaining external grant funding (as highlighted in Accomplishments above). The Centre brings FHS faculty together to discuss and develop interdisciplinary research projects. While it is difficult to directly attribute new grant funding to the Centre’s efforts per se, we believe that SIRCH plays an important indirect role (along with FHS’ Research Cluster in Infectious Diseases, more broadly) in establishing new collaborations that have led to grant success. In the future, SIRCH may consider taking a more pro-active role to solicit external funding to support the Centre’s work.

Confirm policy review:
Yes

Submitted by:
Mark Brockman, co-Director

Director’s comments:
Despite another challenging year due to COVID-19, SIRCH continues to fulfill its intended purpose by offering a platform for FHS-affiliated faculty and collaborators to come together to discuss interdisciplinary research and training related to HIV/AIDS. Since similar approaches are now being applied in the context of other infectious diseases, the fundamental work of SIRCH investigators is increasingly relevant to a broad range of topics. Indeed, the ongoing COVID-19 pandemic has reminded us of the importance of interdisciplinary research and community engagement when tackling priority issues related to human health at the local and global levels. We are particularly proud that SIRCH members continue to be able to apply their collective expertise of HIV and other infectious diseases meaningfully in the context of COVID-19.

Reviewer’s Section

Reviewed by:
Robert Hogg, Associate Dean, Research

Reviewer’s decision:
Approved

Reviewer’s comments:
Thank you for your strong leadership in this area.


## General Information

**Name of the Centre/Institute:** Centre for Cell Biology, Development and Disease (C2D2)  
**Website:** [http://www.sfu.ca/c2d2.html](http://www.sfu.ca/c2d2.html)  
**Faculty:** Science  
**Director:** Esther Verheyen (co-Director)  
Damon Poburko (co-Director)  
**Director’s term end:** 2024-06-01  
**Renewal date:** 2025-10-27

## Details

**Description of the Centre/Institute:**  
The Centre for Cell Biology, Development, and Disease (C2D2) is an interdisciplinary research unit, whose goal is to promote cell and developmental biology research and education as it relates to health and disease. The research programmes of our members encompass a wide array of biomedical research areas, including cell and developmental biology of plants and animals, host-pathogen interactions, microbiology, molecular physiology, neurobiology, and toxicology.

**The Centre/Institute’s membership and organization structure:**  
Our total faculty complement includes 40 faculty members across multiple departments, academic units, and educational institutions. Please see the attached membership list for a full accounting. The C2D2 co-Directors for this year were Dr. Esther Verheyen and Dr. Damon Poburko. The duties of co-Directors include organizing the monthly seminar series, inviting the Keynote speaker and planning the Annual C2D2 Symposium. Furthermore, the co-Directors liaise with department chairs and other administrators.

**Significant accomplishments:**  
1) C2D2 Website update to CLF4  
The C2D2 website was updated to the common look and feel of SFU’s website. This involved generating new content and resources for C2D2 members.  
2) Infrastructure acquisition
A major goal for C2D2 is to enhance research infrastructure within the host departments through grant applications (both operating and equipment). Several members of C2D2 (Drs. Tibbits, Vocadlo, Braid, Julian) are heavily involved in the establishment of a stem cell facility at SFU, in conjunction with researchers at the BC Children’s Hospital Research Centre. Together, this group prepared a multi-million CFI application to establish facilities at SFU focused on human patient-specific stem cell research and applications. This CFI was submitted in Fall 2021.

C2D2 members were also successful with an NSERC RTI grant application to purchase a new protein crystallization system.

3) Engagement

C2D2 hosts a monthly seminar series, which is open to the SFU research and undergraduate student community in general. This series continued virtually during the 2021-2022 academic year. Seminars were announced broadly through email during the COVID pandemic, and attendance at these Zoom-based seminars rivaled and even surpasses attendance at most departmental seminars (>60 attendees). This was a great pandemic success and reflection of the community support for C2D2. The yearly seminar announcement is included as an attachment.

In May 2022 we held our 5th Annual Symposium both in-person and online via Zoom. We met in the Big Data Hub for an afternoon of talks from trainees spanning diverse disciplines. This event was a great success, and more than 66 people attended in person and another 31 attended virtually. This event allowed our trainees to showcase their work to a broad audience of researchers. A copy the program is attached. We obtained sponsorship from STEMCELL Technologies for some of the refreshments, and also hosted a talk on transitioning from academia to industry from a representative from STEMCELL Technologies.

4) Research

A key goal of C2D2 is to facilitate collaborations amongst members to enhance our competitiveness for operating funds, e.g., CIHR, NSERC grants. Aside from funded equipment grants, numerous co-authored publications have resulted from internal collaborations between C2D2 members (see attached publications list). C2D2 members are encouraged to use the C2D2 affiliation in addition to their SFU departmental affiliation to enhance visibility of C2D2.

Several research grants were obtained by C2D2 members in 2021-2022, including support for innovative crystallization studies, investigations into reproductive health, renewals of
NSERC Discovery grants and studies of diverse diseases of aberrant biochemical signaling. C2D2 members also submitted no fewer than ten grant applications that involve collaborations between C2D2 members. These are listed in the attached document.

C2D2 provides a framework for mentoring of new faculty members and to facilitate collaborative research programs. Please see the attachment listing publications resulting from C2D2 collaborations in 2021-2022.

**Notable media successes:**
C2D2 member often appear in general and topical news publications. Nancy Forde was quoted in an APS News article (May 2022, 31:5) and was interviewed for the National Physics Camp for high-school girls in Pakistan.

Other members of C2D2 also regularly engage in outreach through social media and public speaking forums. C2D2 also has a twitter account @SFU_C2D2 which is used to broadcast events.

**Events, workshops, public outreach events:**
Public outreach activities have begun to recover following the COVID-19 pandemic, and C2D2 members are re-engaging with our communities. Tim Audas was among the key organizers of the RiboWest conference in 2022. Sharon Gorski gave an invited presentation on career in Cancer-related research. Lisa Julian gave five invited seminars, and Nancy Forde and Lorena Braid engaged in local community events like the SoapBox Science program a Riley Park Farmer's Market and Science World’s GirlsAndSTEAM event.

**Supporting documents:**
1) C2D2_2021-2022_Members_w0VZqf7.pdf (See attachment below)
2) C2D2_seminars_2021-2022_n1y5Hno.pdf (See attachment below)
3) C2D2_2021-2022_Publications_18cJ13B.pdf (See attachment below)
4) C2D2_2021-2022_Grants_4ACRbCU.pdf (See attachment below)
5) 2022_5th_Annual_C2D2_Symposium_-_program_61LdsWY.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
No
**Confirm policy review:**
Yes

**Submitted by:**
Esther Verheyen, co-Director

**Director's comments:**
Does your Centre/Institute receive direct financial support from the university?

No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?

Yes, we received $500 in sponsorship from STEMCELL Technologies to support our Annual Symposium. We also received funding from the VP Research to support our Regenerative Medicine session at the annual symposium.

**Reviewer's Section**

**Reviewed by:**
Michael Silverman, Associate Dean, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
C2D2 is an active centre that brings together a significant number of life science-related faculty and trainees at all levels. C2D2 continues its high-profile activities within Science and across campus and off-campus, with well-attended seminars given by internal and external speakers, public outreach, their annual symposium, and ongoing efforts to improve research infrastructure, e.g., writing equipment grants. I fully endorse this Centre and look forward to its ongoing success and contributions to SFU's research pillars around improving health and creating knowledge, and the training of highly qualified personnel.
5th Annual C2D2 Symposium – 28th April 2022
SFU Big Data Hub, Presentation Studio (ASB10900)

Schedule
12:30pm   Welcome
12:35pm   Talk Session 1: Regenerative Medicine and Stem Cells
1:15pm    5 min break
1:20pm    Talk Session 2: Cardiovascular Biology
2:15pm    Coffee break
2:35pm    Talk Session 3: Cell Biology and Signaling
3:15pm    5 min break
3:20pm    Talk Session 4: Modelling Disease
4:40pm    Pizza Social

Zoom link for Remote Attendance:
https://sfu.zoom.us/j/66913324744?pwd=WEIpcTcvMWhtNitkV1pMNFpnTGY4UT09

Survey Monkey Link for speaker judging:
https://www.surveymonkey.ca/r/DPNQC9H

Organizing Committee:
Esther Verheyen, Damon Poburko, Ziwei Ding, Amelinda Firdauzy, Debapriya Roy

For information contact: dpoburko@sfu.ca or everheye@sfu.ca
12:30 pm  Welcome – Dr. Esther Verheyen and Dr. Damon Poburko
 Thanks to our sponsors:

Long Talks (12 mins + 3 mins questions) - Short Talks (3 mins + 1)

12:35 pm  **Talk Session 1: Regenerative Medicine and Stem Cells**

Amelinda Firdauzy (short talk)  Julian Lab, BISC
*A neuron and stem cell co-culture approach to produce a novel human cell model of epileptic brain tissue*

Anthony Piccolo (short talk)  Braid Lab, MBB
*Characterizing phenotypes of zombified mesenchymal stromal cells*

Haider Bilal (short talk)  Braid Lab, MBB
*Validating Human Mesenchymal Stem and Stromal Cell Identity Markers*

George Allen (short talk)  Julian Lab, BISC
*Investigating the Role of Lysosome Biogenesis in Neural Stem Cell Identity*

Shama Nazir  (long talk)  Julian Lab, BISC
*Impact of the Unfolded Protein Response in Neural Precursor Cell Development*

Roger Linnington (long talk)  Centre for High-Throughput Chemical Biology

1:15 pm  5-minute break

1:20 pm  **Talk Session 2: Cardiovascular Biology**

Mohamed Fouda (long talk)  Ruben Lab, BPK
*Anti-inflammatory effects of cannabidiol against lipopolysaccharides in cardiac sodium channels*

Farah Jayousi (short talk via Zoom)  Tibbits Lab, MBB/BPK
*Proteome Profiling for Hypertrophic Cardiomyopathy-Troponin T Mutations*

Javairia Rahim (short talk)  Choy Lab, MBB
*Reparative modification of the endothelial glycocalyx using novel cell surface engineering for prevention of organ transplant rejection*

Khola Bilal (long talk)  Tibbits Lab, MBB/BPK
*A Novel Cardiomyopathic Variant: Cardiac Troponin C (TNNC1) V44M*
2:15 pm  **Refreshment break**

2:35 pm  **Talk Session 3: Cell Biology**

Evgenia A. Momchilova (short talk)  
Audas Lab, MBB  
*Hsp Chaperones Act As Regulators Of A-body Formation*

Franklin F. Tam (long talk)  
Choy Lab, MBB  
*Mechanisms controlling cytokine-mediated induction of HIF-1α*

Stephanie Rayner (short talk)  
Poburko Lab, BPK  
*Intracellular localisation of VNUT*

Shaianne N. Stein (short talk)  
Braid Lab, MBB  
*Characterizing the role of Cathepsin S in Mesenchymal stromal cell function*

Claudia Umaña (short talk)  
Lowenberger Lab, BISC  
*Editing Mosquito Genes*

3:15 pm  5-minute break

3:20 pm  **Talk Session 4: Modelling Disease**

Ravichandra Venkateshappa (long talk)  
Claydon Lab, BPK  
*A novel targeted approach to protect against arrhythmia in Long QT Syndrome*

Kady Tishyadhigama (short talk)  
Beischlag Lab, FHS  
*Mutations in TP53/RB1 could accelerate triple-negative breast cancer metastasis*

Keenan Elliott (short talk)  
Lowenberger Lab, BISC  
*Metabolic profiling of dengue virus challenged Aedes aegypti that are refractory to virus.*

Katja MacCharles (long talk)  
Verheyen Lab, MBB  
*Characterizing Robinow Syndrome-associated DVL1 mutations in Drosophila*

Tianna Beharriell  
Recruiting Team STEMCELL Technologies  
“How to transition from academia to industry and what it takes to start an industrial career”

4:40 pm  **Pizza social**
ABSTRACTS:

Author: Amelinda Firdauzy
Title: A neuron and stem cell co-culture approach to produce a novel human cell model of epileptic brain tissue

Tuberous sclerosis (TS) is an autosomal dominant disorder caused by mutations in hamartin (TSC1) and/or tuberin (TSC2). These proteins play a key role in cell growth, proliferation, migration, and differentiation by inhibiting the mTORC1 signalling pathway. TS is characterized by the development of benign brain tumours called cortical tubers. Tubers are distinguished by the presence of abnormal enlarged neurons, glia, and atypical neural stem cells (NSCs) called “giant cells” that are presumed to impair brain function and cause intractable epilepsy. In my project, I am creating the first human cell model of cortical tubers that contains all three abnormal cell types. I will do this using NSCs carrying a loss of function mutation in the TSC2 gene (TSC2-/-) as 1) a model for the aberrant stem-like giant cells observed in TS patient epileptic lesions, and 2) a source of cells to generate aberrant TS neurons and glia. A similar model will also be developed using wild-type NSCs to permit parallel analysis of control cell types. Neurons and glial cells will be generated using established differentiation protocols from NSCs grown in the lab and, once mature, NSCs will be introduced to determine their effect on synaptic activity. Our lab and others have shown that TSC2-/- neuro-glial cultures are highly hyperactive, and we hypothesize that the presence of TS giant cells (TSC2-/- NSCs) will further increase this synaptic activity. Morphological analyses of neurite length and abundance, and synaptic activity assays such as calcium imaging and multielectrode analysis, will be performed to assess the dose-dependent effects of NSCs on neuro-glial network activity. In the past, there have been no reported human models of the TS giant cells; thus, the TSC field has no understanding of how these aberrant stem cells contribute to epilepsy in patients. My project aims to address this knowledge gap and will allow us to finally ask if abnormal NSCs in TS tubers contribute to epileptic neuronal activity and can hopefully improve the epileptic foci model relevant to TSC patients.

Author: Anthony Piccolo
Title: Characterizing phenotypes of zombified mesenchymal stromal cells

The consequences of physiological aging are an unfortunate but necessary part of life, but why do some people develop aging-related diseases prematurely? Recent studies have shown that there is a population of cells, which are defined as zombie cells, that fail to be cleared naturally from the body and enter a non-proliferative state that is highly inflammatory. This state is called a senescence associated secretory phenotype (SASP) and may be a driver of auto-immune and aging-related degenerative disease. Our lab works with mesenchymal stromal cells, which are a specialized, heterogenous multipotent cell type found in perivascular and stem cell niches throughout the body.

My research has shown that MSCs, naturally and through the exposure to oxidative stressors, can enter a state of zombification, which has been characterized as a non-proliferative state with altered physical intercellular interactions, while remaining metabolically active. The goals of this project are to show that this unique phenotype has SASP characteristics, which means it has qualities that may cause inflammation and a dysregulated metabolism, as well, can be induced prematurely through chronic exposure to known oxidative stressors such as the pesticide Round-Up, and high glucose diets. From these treatments, I will characterize the resultant phenotypes by measuring the expression of a set of SASP-related genes via RT-qPCR to determine whether the treated cells take on a dysregulated gene
Using live cell-imaging and fluorescent dyes, I will also document any unique intercellular dynamics that occur with this phenotype.

Author: Haider Bilal  
**Title: Validating Human Mesenchymal Stem and Stromal Cell Identity Markers**

The Braid lab studies human mesenchymal stem and stromal cells (MSCs). MSCs support tissue development and regeneration in the human body. My research project in this field focuses on identifying MSC identity markers that can distinguish this cell type from a similar type in the body, called fibroblasts. Fibroblasts commonly inhabit the same spaces as MSCs and appear identical. No single marker has been found to detect all types of MSCs. Therefore, the identification of a single biomarker is crucial, as it would allow these cells to be correctly recognized in the human body for further research. This research could determine the roles that MSCs play in human development as well as tissue repair and regeneration. The potential biomarkers I have been testing were identified in a previous bioinformatics study but require validation. This includes using immunocytochemistry to visually label the biomarker proteins in MSCs and fibroblasts. Ultimately, identifying these MSC identity markers is fundamental in recognizing these cells in animal models. Models that are critical in determining the true origins and functions of MSCs in human health, and development.

Authors: George Allen, Lisa Julian  
**Title: Investigating the Role of Lysosome Biogenesis in Neural Stem Cell Identity**

The processes by which embryonic stem cells (ESCs), and later, neural stem cells (NSCs) are produced and decide to differentiate are highly controlled and regulated from inside and outside of the cell. Recent research suggests that cellular organelles have a previously overlooked role in fate decisions of stem cells. We have observed a strong correlation between the level of lysosomes and markers of NSC identity including SOX2, PAX6 and Nestin, which suggests a possible role of lysosome biogenesis in the specification and maintenance of NSCs. To explore the hypothesis that lysosome levels affect NSC identity in the developing brain I am using two human pluripotent stem cell (hPSC) models of genetic brain disorders. One hPSC model we use has an inactivating CRISPR/CAS9 mutation in TSC2 (TSC2 -/-) (and isogenic wild-type [WT] controls), which encodes one of the two proteins that inhibit activation of the homeostatic mTORC1 signaling complex. One of many phenotypes observed in our TSC2--/- versus WT cell lines when induced to a neural fate is heightened levels of lysosomes. The second model is a patient-derived induced PSC model of the lysosomal storage disorder Batten disease (BD), which also includes familial control cell lines. We have also observed altered organelle biogenesis at unexpectedly early stages of NPC induction in the BD patient-derived lines, suggesting that NSC specification may also be altered in BD. Furthermore, we have identified drug compounds that externally increase lysosome biogenesis in healthy and mutant cells, to levels similar to those observed in TSC2--/- NSCs. We are using directed neural cell differentiation approaches, immunostaining and high content fluorescence microscopy, and biochemical approaches to determine the impact of lysosome levels on expression of stem cell identity markers and their differentiation potential. In understanding the mechanisms of dysfunctional differentiation in TSC and BD in our hPSC culture models, we will not only be able to elucidate the cause of disease phenotypes, but also uncover possible roles of organelles in the regulation of the developing brain.

Authors: Shama Nazir, Lisa Julian  
**Title: Impact of the Unfolded Protein Response in Neural Precursor Cell Development**

Aggregation of misfolded proteins is a hallmark of many neurological disorders which leads to endoplasmic reticulum (ER) stress and a subsequent Unfolded Protein Response (UPR) that alters organelles and cell signaling pathways to restore protein homeostasis. Our recent work suggests that UPR activation can impact neural precursor cell (NPC) identity and fate decisions during initial brain development. The rare genetic disorder tuberous sclerosis (TS) is caused by inactivating mutations in...
TSC1 or TSC2 which leads to hyperactivation of the mTORC1 signaling pathway and development of low-grade tumours in multiple tissues including brain (causing epilepsy, autism, and cognitive abnormalities). We have found that human pluripotent stem cells (hPSCs) carrying TSC2 mutations (TSC2-/-) exhibit ER stress and a potent UPR immediately upon induction into NPCs. Moreover, we observe altered expression of NPC identity markers in TSC2-/- NPCs, mirroring phenotypes reported in TS brain tumors (which contain a mixture of abnormal glia, hyperactive neurons, and aberrant NPCs with enlarged vacuoles). Based on these findings we are now testing the hypothesis that UPR activation during early NPC development alters neural cell identity and function, using microscopy and biochemical strategies in parallel with in vitro hPSC-NPC differentiation assays. Strikingly, TSC2-/- cells and those treated with ER stress-inducing compounds (thapsigargin and tunicamycin) during early NPC induction exhibit long-term changes in morphology and cell identity markers. In parallel with altered NPC phenotypes, we observe strong activation of multiple UPR effector proteins (e.g., GRP78, Ire1, PERK, ATF6) and enlarged stress-associated membraneless vesicles. We will further characterize the heterogeneity we observe in "stress-induced" NPC populations compared to wild-type by directed cell differentiation, maturation strategies and immunocytochemistry analysis of NPC, neuronal and glial cell type specific markers (GFAP, Tuj1, NeuN, Tbr2, TMEM119). In parallel, we will functionally characterize the UPR signaling mechanisms associated with these phenotypes. These efforts will help to uncover role of UPR in early brain development that may sensitize neural cells to altered cell fate and disease over the long term.

Authors: Mohamed Fouda, Peter Ruben
Title: Anti-inflammatory effects of cannabidiol against lipopolysaccharides in cardiac sodium channels

Voltage-gated sodium channels are responsible for the depolarizing phase of action potentials in neurons, skeletal muscle, and cardiomcyocytes. Dysfunction in sodium channel inactivation underlies a number of diseases in these tissues, including seizure disorders, myotonia, and cardiac arrhythmias. Cannabidiol, the primary non-psychotropic component of Cannabis sativa, is approved to treat two seizure disorders caused by mutations in sodium channels that disrupt normal channel inactivation. Similar dysfunction in inactivation arises from inflammatory pathologies and may result in a cardiac arrhythmia called Long QT syndrome. We reasoned that, if cannabidiol is effective in treating sodium channel dysfunction in neurons, it might also be effective against the underlying cause of Long QT syndrome. Using inflammatory mediators and cytokines to mimic inflammation and disrupt sodium channel inactivation in human iPSC-derived ventricular cardiomcyocytes, we found that cannabidiol rescues inflammation-induced dysfunction in sodium channel inactivation that underlies Long QT syndrome. Cannabidiol may thus be an effective therapeutic approach to prevent cardiac arrhythmias arising from inflammation.

Author: Farah Jayousi
Title: Proteome Profiling for Hypertrophic Cardiomyopathy-Troponin T Mutations

Hypertrophic cardiomyopathy (HCM) is a genetic disease in which the heart walls become abnormally thick. The thickened muscle makes it difficult for the heart to properly pump blood to the rest of the body. HCM is inherited in an autosomal dominant pattern and is the most common heritable heart disease, often resulting in an increased incidence of arrhythmogenesis which can lead to sudden cardiac arrest (SCA) and death. Its prevalence in the general population is about one in five hundred, making it the leading cause for SCA in young adults. My project focuses on HCM-causing variants in the cardiac-troponin T (TNNT2) gene, which account for five percent of total HCM cases. The three HCM associated TNNT2 mutations that will be investigated are: I79N, R92Q, and R278C. The effects of these variants on the proteome quantity and quality will be studied using bottom-up Mass Spectrometry (MS). Proteomic characterization using MS will provide us with a novel perception regarding the intrinsic mechanisms and pathways responsible for the pathogenic cardiac remodelling seen in HCM patients. This presents a future opportunity to identify new druggable targets and broad-spectrum treatments for this genetically challenging disease.
Authors: Javairia Rahim, Daniel Luo1, Franklin Tam, Winnie Enns, Jayachandran Kizhakkedathu1, Jonathan Choy

Title: Reparative modification of the endothelial glycocalyx using novel cell surface engineering for prevention of organ transplant rejection

The curative potential of transplantation is limited by rejection of almost all transplanted organs and by side effects of systemic immunosuppressive drugs that are needed to prevent rejection. Unregulated glycocalyx damage and shedding triggers the recruitment of immune cells to cause early graft inflammation and injury. A novel cell surface engineering (CSE) approach protects endothelial cells from ischemic and immune-mediated damage during transplantation and prevents rejection of vascular grafts (Siren et al., Nat Biomed Eng, 2021).

My overarching objective is to determine the mechanisms of immune protection by CSE modification of the endothelial glycocalyx against immune-mediated rejection. Sialic acid can bind to receptors, termed siglecs, to modulate the activity of immune cells. Candidate siglecs that are essential for vascular protection by CSE modification will be identified using in-vitro cytotoxicity assays. Mouse homologues of the human siglec(s) will be examined in a mouse model of vascular rejection that measures acute and chronic rejection. Rejection will be examined by histological analysis of H&E-stained arterial cross-sections. Also, the infiltration of immune cells (CD4 and CD8 T cells, macrophages, NK cells) will be quantified by immunohistochemistry.

Author: Khola Bilal

Title: A Novel Cardiomyopathic Variant: Cardiac Troponin C (TNNC1) V44M

Cardiomyopathies, such as hypertrophic cardiomyopathy (HCM) and dilated cardiomyopathy (DCM), are the leading cause of arrhythmias, cardiac arrest, and sudden cardiac death. The cardiac troponin complex (cTn) is known to house numerous cardiomyopathic mutations within its three protein subunits, Troponin T (cTnT), Troponin I (cTnl), and Troponin C (cTnC). While numerous cTnT and cTnl cardiomyopathic mutations have been reported and investigated, cTnC cardiomyopathic mutations are less commonly found. Recently, a novel de novo TNNC1 genetic variant, V44M cTnC, was discovered in a 15-year-old German male who initially presented with HCM that rapidly transitioned into DCM. This project aims to investigate the molecular changes in this potentially cardiomyopathic TNNC1 variant by determine the Ca+2 sensitivity (Kd) using steady-state fluorometry and the Ca+2 dissociation rate (koff) using stopped-flow fluorometry, at the molecular level of the troponin (Tn) complex and reconstituted thin filament (RTF). We propose this variant increases Ca+2 sensitivity, which is reflected by a decrease in both Kd and koff. By revealing the molecular mechanisms of this cardiomyopathic variant in vitro, medicinal therapeutics can be developed that are targeted to combat this variant’s detrimental health effects.

Authors: Evgenia A. Momchilova, Timothy E. Audas

Title: Hsp Chaperones Act As Regulators Of A-body Formation

Amyloid bodies (A-bodies) are subnuclear structures where proteins are sequestered in response to environmental stressors. The A-body proteome is stress-specific, which is theorized to be due to the gradual misfolding or conformational change of proteins exposed to different stressors. A-body formation involves the ribosomal intergenic spacer RNA (rIGS-RNA), which electrostatically interacts with a discrete peptidic sequence - the amyloid-converting motif (ACM), which is theorized to be found in proteins targeted to A-bodies. In this project, we explore regulatory elements involved in A-body formation. We show basal levels of rIGS-RNA transcripts to be present in MCF-7 cells at 37°C, as well as an increase in their expression with temperature. Curiously, a significant increase in rIGS-RNA transcripts is observed at 41°C, while A-bodies are observed to form at 42°C in MCF-7 cells. This suggests another factor is involved and possibly prevents A-body formation in that temperature range. Heat shock proteins (Hsp) are chaperones that respond to stressful environmental conditions and assist with protein folding.
Treatment with Hsp70 and Hsp90 inhibitors prior to and during heat shock treatment results in A-body formation at lower temperatures in MCF-7 cells. We theorize that Hsp70 and Hsp90 proteins are regulators of A-body formation, and they function as potential ‘gatekeepers’.

Authors: Franklin F. Tam, Kevin Luong Ning, Martin Lee, Jonathan C. Choy

Title: MECHANISMS CONTROLLING CYTOKINE-MEDIATED INDUCTION OF HIF-1α

Hypoxia inducible factor 1α (HIF-1α) is the regulatory subunit of the HIF-1 transcription factor that is a regulator of cell physiological responses to hypoxia. In addition to hypoxic responses, HIF-1α controls the inflammatory functions of several cell types, and influences macrophage and T-cell differentiation and effector functions. This transcription factor also plays a crucial role in tumor-promoting inflammation and angiogenesis. Although HIF-1 controls inflammation in normoxic conditions, the mechanisms by which HIF-1α activity is controlled by cytokines in normoxia are poorly understood. Here, we elucidate the mechanisms by which this occurs. HIF-1α expression and nuclear accumulation are increased in A549 lung carcinoma epithelial cells stimulated with a cytokine mixture (CM) consisting of TNFα, IL-1, and IFNγ in normoxic conditions. Neither cytokine alone increased HIF-1α. Pharmacological inhibition of Jak, p38 and JNK pathways inhibited the induction of HIF-1α expression and nuclear accumulation by cytokines, as did siRNA-mediated inhibition of STAT1 expression. When the role of HIF-1α in inflammatory activation of A549 cells was examined, inactivation of the HIF-1α gene by CRISPR/Cas9-mediated gene editing reduced the cytokine-stimulated secretion of CXCL8 but not CCL2 or ICAM expression. Our findings have implications for understanding the role of HIF-1α in cell biology and inflammation.

Author: Stephanie Rayner

Title: Intracellular localisation of VNUT

As a neurotransmitter, adenosine 5′-triphosphate (ATP) is released throughout the central and peripheral nervous systems and it is often released in conjunction with classical neurotransmitters. Vesicular ATP release plays a critical role, not only in synaptic transmission, but also in sympathetic control of smooth muscle in blood vessels and coordinating immune responses. It is widely accepted that ATP is packaged into secretory vesicles for release by the vesicular nucleotide transporter (VNUT). Historically, ATP is thought to be co-stored and co-released with other neurotransmitters. However, research conducted by Dr Poburko’s laboratory indicates that mammalian VNUT, encoded by the SLC17A9 gene, may contain a Golgi retention motif on its C terminus. Using immunofluorescence microscopy, I observed that VNUT is better localised to the golgi apparatus and the endoplasmic reticulum (ER) rather than in the neurotransmitter release sites of mouse neural crest cells. Moreover, live-cell microscopy from Dr. Poburko's laboratory suggests that VNUT is found in less acidic intracellular compartments than traditional vesicles. Taken together, these results suggest mammalian VNUT might not be a synaptic vesicle associated protein, but rather a golgi-derived vesicle protein. Future research will focus on verifying the function of SLC17A9 golgi retention sequences in mammalian VNUTs by swapping the C-terminal domains with those from non-mammalian VNUTs and mammalian neurotransmitters.

Author: Shaianne N. Stein, Jessica R. Willows, Simon J.H Wang and Lorena R. Braid.

Title: Characterizing the role of Cathepsin S in Mesenchymal stromal cell function

Mesenchymal stromal cells (MSCs) are a low-frequency population of progenitor cells found in stem cell and blood vessel niches. MSCs contribute to numerous physiological events including inflammation, regeneration, and angiogenesis. They can also influence matrix remodeling and the behavior of immune and progenitor cells. However, the mechanisms by which MSCs orchestrate these complex processes are elusive.

The Braid lab recently identified the lysosomal cysteine protease Cathepsin S (CTSS) as an unreported mediator of MSC function. Uniquely, it can be secreted and function extracellularly. We examine the
expression and localization of CTSS in primary human MSCs exposed to pro- and anti-inflammatory cytokines. We selected the CTSS substrate Decorin (Dcn) as a possible extracellular target for MSC-mediated mechanisms of action in angiogenesis and immunomodulation.

Cytokine combinations and O2 levels are used to mimic inflammatory environments that MSCs are activated by in vivo. Enzyme-linked immunosorbent assay (ELISA) depicts that more CTSS and Dcn are produced and secreted by MSCs specifically under pro-inflammatory conditions. In an in vitro cleavage assay, we found that CTSS cleaves Dcn, producing several distinct, potentially functional fragments. My data also suggests that CTSS may liberate Dcn from the matrix, enabling its function as a signaling factor in multiple pathways.

Authors: Claudia Umaña Diaz, Keenan Elliott, Diana Giron Ceron, and Carl Lowenberger
Title: Editing Mosquito Genes

Dengue viruses (DENv) infect 50-400 million people annually and can lead to severe morbidity and mortality. There are no effective vaccines or treatment for this disease. Dengue is transmitted by mosquitoes, primarily Aedes aegypti, and most Dengue management programs try to reduce or eliminate the vector population. These strategies involve: 1) Physical controls (insecticides and larvicides), and 2) Biological controls including mosquito biomanipulation or genetic modification techniques to induce sterility, decrease lifespan, or reduce vector competence. Even though these control approaches have shown great promise in developing new and effective vector control strategies, the idea of integrating foreign genes or organisms into a wild species is very controversial.

With colleagues in Colombia we have identified naturally refractory mosquitoes (Cali-R) that co-exist with susceptible mosquitoes (Cali-S) in areas of endemic transmission. Using a combination of molecular biology and bioinformatic analyses we have identified pro-Dengue genes in the Cali-S strain; these are mosquito genes that are essential for DENv to enter and replicate within insect cells. We are using RNAi techniques to confirm the transcriptomic data and are editing these genes in the genome of Ae. aegypti to engineer a genetically stable dengue-refractory strain. In addition we are developing a novel system to deliver constructs in an efficient manner to specific tissues to improve the efficiency of generating transgenic mosquitoes compared with the currently used, highly inefficient, embryo injection system. This will generate another tool to develop ecologically sound, self-sustainable and safe vector control strategies to dampen dengue transmission.

Authors: Ravichandra Venkateshappa and Thomas Claydon
Title: A novel targeted approach to protect against arrhythmia in Long QT Syndrome

The cardiac ion channel, hERG, conducts repolarizing Ikr current during the ventricular action potential. hERG channel loss-of-function due to inherited variants, drug block, or electrolyte imbalance prolongs the action potential resulting in Long QT Syndrome (LQTS). Delayed repolarization in LQTS increases the propensity for triggered activity leading to tachyarrhythmias and sudden cardiac death. Current therapeutic options are limited and not targeted. hERG activator molecules have potential in suppressing triggered activity; however, testing in complex translational systems is limited. RPR260243 is a unique hERG activator that slows channel closing (deactivation). We have investigated the possible beneficial effects of slowed deactivation in multiple systems of increasing complexity: 1) heterologous cell expression systems; 2) in silico kinetic models; 3) beating human induced pluripotent stem cell-derived cardiomyocytes (hiPSC-CMs); 4) whole ex vivo zebrafish hearts. We examined the effects of RPR260243 in the wild-type background, and with an inherited variant (hERG R56Q) associated with LQTS. In heterologous cells we show that the R56Q variant has compromised repolarizing capacity due to faster deactivation and hence offers reduced protection in response to premature depolarizations. RPR260243 application restored wild-type-like repolarizing currents and protection against premature depolarization. Informed by these data, in silico modeling studies predict the effects of RPR260243 to reduce susceptibility to triggered activity. Indeed, in zebrafish whole hearts we found that RPR260243 reduced well-characterized predictors of arrhythmia: action potential triangulation and rate-adaptation in a LQTS
background. Exciting recent findings in CRISPR gene-edited hiPSC-CMs translate the potential of targeted slowing of hERG deactivation in protecting against arrhythmias to humans. We show that the R56Q variant produces an excessive and unstable rate-adaptation response that is known to facilitate ventricular fibrillation. We show that RPR260243 rescues normal rate-adaptation, which likely protects against triggered activity. These studies across multiple systems give strong evidence for developing hERG activators for treating LQTS.

Authors: Tishyadhigama, C.; Payer, R.T.M.; Beischlag, T.V.

Title: Mutations in TP53/RB1 could accelerate triple-negative breast cancer metastasis

Triple negative breast cancer (TNBC) is the most aggressive subtype of breast cancer (BC). It is classified as BC with a loss of estrogen receptor and progesterone receptor expression and a lack of HER2 over-expression. Thus, hormonal therapy, a common, less toxic therapy for BC, is not an option for TNBC patients. TP53 and RB1 tumour suppressor genes are commonly mutated in human cancers, including TNBC. Despite a wealth of knowledge of how mutated TP53/RB1 drive aggressive tumour progression, their potential in promoting metastases, the major cause of death in cancer, remains poorly understood. Mutations in both TP53 and RB1 have a high potential of promoting aggressive early stages of TNBC metastasis. For instance, mutated p53 increases re-organization and degradation of extracellular matrices, a physical barrier for cell migration and invasion. Mutations in RB1 enhance epithelial-mesenchymal transition, the crucial step of initiating metastasis. Loss of function mutation in RB1 also exaggerates metastasis-promoting gene expression, especially in hypoxia, a low oxygen condition commonly found in tumours. To investigate whether mutations of both TP53 and RB1 concomitantly drive TNBC metastases, we generated an in vitro model utilizing CRISPR-Cas9. We knocked out both TP53 and RB1 from MDA-MB-231, a TNBC cell line. Using this model, we propose to investigate the migration and invasion ability using Boyden chamber migration and invasion assays. Transcriptome analysis will be employed to identify how mutations of TP53 and RB1 may drive TNBC metastasis. These experiments will help lay the foundation for a better general understanding of the relationship between TP53/RB1 mutations and TNBC metastases. Importantly, the study can also reveal potential therapeutic targets for metastatic TNBC and possibly other types of cancer which express these mutations.

Authors: Keenan Elliott, Claudia Umaña Diaz, Diana Giron Ceron, and Carl Lowenberger.

Title: Metabolic profiling of dengue virus challenged Aedes aegypti that are refractory to virus.

Dengue virus (DENV) infects 400 million people each year, and developing viral control measures requires a thorough understanding of host-virus interactions. Some naturally occurring populations of Aedes aegypti eliminate DENV and do not transmit the virus. However, the mechanisms governing resistance to DENV infection remain elusive. Our group has isolated two populations with hyper-susceptible and refractory characteristics, which act as a model system for investigating host-virus interactions. Previously, we have utilized genomics, transcriptomics, and microbiome sequencing of these populations to understand DENV susceptibility and uncovered pathways contributing to phenotypic differences. However, despite significant progress, we have been unable to recapitulate a refractory phenotype. Therefore, we sequenced refractory or susceptible insects’ metabolomes to determine biochemical pathways perturbed by the DENV challenge. We used highly sensitive chemical isotope labelling liquid chromatography-mass spectrometry (CIL LC-MS) metabolomics to survey metabolites present in the midguts of refractory and susceptible insects with and without DENV challenge at various times post-infection. Metabolomics has been employed in mosquitoes to elucidate molecules impacting viral replication but has never been performed in naturally occurring resistant and susceptible populations. Our objective is to determine small molecules that influence viral replication with the hopes that these compounds help discover targets for mitigating viral spread.
Human development is regulated by interconnected signal transduction networks. Given the complexity, deciphering the effects of mutations that give rise to abnormal development can be challenging. I am using Drosophila to characterize Dishevelled1 (DVL1) mutations obtained from patients with Robinow Syndrome (RS), a rare genetic disorder associated craniofacial abnormalities and shortened stature. Most of the mutations associated with RS affect components of the non-canonical/Planar Cell Polarity (PCP) Wnt pathway which mediates cytoskeletal rearrangement and orients cell polarity within the epithelial plane. Each of the DVL1 variants I study have unique frameshift mutations that replace the highly conserved C-terminus with the same novel peptide sequence. Using the Gal4-UAS system to express wildtype human DVL1 and three DVL1 variants, I have shown that these patient variants destabilize Armadillo/β-catenin, ectopically induce PCP/JNK signaling and activate apoptosis. Furthermore, the variants induce novel phenotypes in wing tissue, suggesting they disrupt other conserved signaling pathways. By understanding how conserved signaling pathways are altered by these DVL1 variants, we gain insight into the underlying mechanisms of non-canonical Wnt signaling and more broadly, how development in individuals with RS is altered. This information may guide future therapeutics for RS patients.
## Grants awarded:

<table>
<thead>
<tr>
<th>Principal investigator</th>
<th>Co-applicant(s)</th>
<th>Granting Agency &amp; program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa Craig</td>
<td>Tim Audas, Mani Larijani</td>
<td>Natural Sciences and Engineering Research Council, Research Tools and Instruments grants program</td>
<td>$150 000</td>
</tr>
<tr>
<td>David Vocadlo</td>
<td>Lisa Julian</td>
<td>Canadian Glycomics Network Strategic Initiatives Competition 2021</td>
<td>$200 000</td>
</tr>
</tbody>
</table>

## Grants submitted:

<table>
<thead>
<tr>
<th>Principal investigator</th>
<th>Co-applicant(s)</th>
<th>Granting Agency &amp; program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorena Braid</td>
<td>Nancy Forde</td>
<td>NSERC Discovery Horizons</td>
<td></td>
</tr>
<tr>
<td>Sharon Gorski</td>
<td>Greg Morin</td>
<td>Canadian Institutes for Health Research, Project Grant Programs</td>
<td></td>
</tr>
<tr>
<td>Lisa Julian</td>
<td>David Vocadlo, Erin Knock (STEMCELL Technologies)</td>
<td>Natural Sciences and Engineering Research Council, Alliance Grant Program</td>
<td>$176 000</td>
</tr>
<tr>
<td>Lisa Julian</td>
<td>Thomas Claydon, David Vocadlo</td>
<td>Canadian Institutes for Health Research, Project Grant Programs</td>
<td>$1 180 000</td>
</tr>
<tr>
<td>Lisa Julian</td>
<td>David Vocadlo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Granting Agency &amp; program</td>
<td>Amount</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>-------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer Research Society Operating Grant</td>
<td>$120 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chan Zuckerberg Initiative - Patient-Partnered Collaborations for Rare Neurodegenerative Disease</td>
<td>$2 000 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Institutes for Health Research, Project Grant Programs</td>
<td>$950 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALS Canada</td>
<td>$125,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Glycomics Network Strategic Initiatives Competition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Foundation for Innovation, Major Science Initiatives Fund</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Institutes for Health Research, Project Grant Programs</td>
<td>$595 000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CENTRE FOR CELL BIOLOGY, DEVELOPMENT, AND DISEASE (C2D2)

Centre for Cell Biology, Development, and Disease (C2D2) > Researchers

WHO WE ARE

CO-DIRECTORS

Esther Verheyen (MBB) | Website | epithelial cell communication, signaling pathways, cancer, endocytosis, cytoskeletal regulation

Damon Poburko (BPK) | Website | cellular neuroscience, mitochondrial physiology, smooth muscle contraction, vasomotor regulation

MEMBERS

Tim Audas (MBB) | Website | Long noncoding RNAs, stress responses, oncogenes
intracellular trafficking and disease

**Timothy Beishlag** (FHS) | [Website](#) | response to environmental stimuli, anoxia, contaminants

**Sheryl Bisgrove** (BISC) | [Website](#) | cell and developmental biology in plants and algae, cytoskeleton, control of growth and development in response to environmental cues

**Lorena Braid** (MBB) | Website coming soon! | [corporate website](#) | Mesenchymal stem and stromal cells (MSCs), cell therapy, regenerative medicine, senotherapy, immunity, autoimmune disease, aging

synthases, cell death, transplantation, arterial disease

**Julian Christians** (BISC) | [Website](#) | placental and bone physiology, IGF signalling, IGF binding proteins

**David Clarke** (BPK) | [Website](#) | quantitative exercise biology, cellular adaptations to exercise-related stressors

**Tom Claydon** (BPK) | [Website](#) | cardiac potassium ion channels, fluorescence-based electrophysiology

**Nancy Forde** (PHYS) | [Website](#) | collagen mechanics and homeostasis; osteoarthritis and other connective tissue diseases

**Sharon Gorski** (MBB) | [Website](#) | autophagy, apoptosis, cell stress, cancer, treatment resistance, breast cancer, pancreatic cancer

**Julian Guttman** (BISC) | [Website](#) | host-pathogen interactions, bacteria, epithelial cells, cytoskeleton, endocytosis, bioterrorism, enteric infections

**Nick Harden** (MBB) | [Website](#) | epithelial development, synaptic plasticity, signal transduction, developmental biology, wound healing, neurodegenerative disease
Harald Hutter (BISC) | Website | nervous system development, neuronal circuit formation, axon pathfinding

Valentin Jaumouillé (MBB) | Website | Innate immunity, Mechanobiology, Cytoskeleton dynamics, Cancer immunology, Host-pathogen interactions

Lisa Julian (BISC) | Website | Stem cell and developmental biology, cellular neuroscience, human pluripotent stem cell models, rare disease

Mani Larijani (MBB) | Website | 5-dimensional research into genome-mutating processes: mechanisms, structures, evolution, immunity and cancer

Amy Lee (MBB) | Website | Neonatal immune development, neonatal sepsis, antimicrobial resistance, bacterial genomics and multi-omics integration.

Frank Lee (FHS) | Website | Dopamine signalling, protein-protein interactions

Michel Leroux (MBB) | Website | Cilia, disease, sensory biology, signalling, development, cytoskeleton, motors, trafficking, genetics, genomics

Carl Lowenberger (BISC) | Website | Host-parasite interactions, RNAi, apoptosis, innate immunity, Dengue, antimicrobial peptides

Gregg Morin (MBB adjunct; UBC; BC Cancer Agency) | Website | RNA processing in cancer, proteomics

Masahiro Niikura (FHS) | Website | Viruses-host interactions, Marek’s disease virus, immunity

Ed Park (MSE) | Website | Biomechatronics, biorobotics, biomedical engineering
Lakhvir Panja (BISC) | Website | Plant-fungal pathogen interactions, cell and molecular aspects of disease development in plants infected by microbes, fungal development processes

**Lynne Quarmbry** (MBB) | Website | Cilia, cell cycle, cytoskeleton, genetics, calcium signalling

**Gordon Rintoul** (BISC) | Website | Neurodegeneration, mitochondrial dynamics, intracellular calcium homeostasis, reactive oxygen species, optic neuropathies, fluorescence microscopy

**Peter Ruben** (BPK) | Website | Voltage-gated sodium channels, Structure/function, Pathophysiology, Channelopathies, Cardiac arrhythmias, Epilepsy, Electrophysiology

**David Sivak** (PHYS) | Website | Using statistical physics, molecular biophysics, and information theory to elucidate the physical limits placed on biological systems

**Bingyun Sun** (CHEM) | Website | Proteomics, cell surface proteins, embryonic stem cells, N-glycosylation, biomarkers, methodology development for sensitive proteomics

**Glen Tibbits** (BPK) | Website | Cardiac excitation-contraction coupling, inherited cardiac arrhythmias, congenital heart disease and cardiomyopathies

**Ian Tietjen** (FHS) | Website | Viral pathogenesis, antiviral discovery, HIV latency, flaviviruses

**Peter Unrau** (MBB) | Website | Ribozymes, evolution, RNA world

**Amandio Vieira** (BPK) | Nutrition and metabolism; nutrient carrier proteins; endocytic transport of nutrients; cellular redox balance and oxidative stress; amyloidogenic diseases; epigenetics

**David Vocadlo** (MBB, CHEM) | Website | Chemical biology; glycobiology; neurodegenerative diseases; imaging probes; protein stability; metabolic engineering; enzyme inhibitors
Peer-reviewed Journals Published by and Accepted from C2D2 Members

Published


Accepted


2021-2022 Seminars

September 27, 2021
Dr. David Vocadlo
Chemistry & Molecular Biology and Biochemistry

October 25, 2021
Dr. Erin Knock
STEMCELL Technologies & Biological Sciences

November 22, 2021
Dr. Tim Audas
Molecular Biology and Biochemistry

January 24, 2022
Ian Coccimiglio
Biomedical Physiology and Kinesiology & UBC

February 28, 2022
Dr. Lorena Braid
Molecular Biology and Biochemistry

March 28, 2022
Dr. Glen Tibbits
Biomedical Physiology and Kinesiology & MBB

April 25, 2022
Dr. Julian Christians
Biological Sciences

Everyone is invited to attend!
12:30 pm via Zoom

Seminar titles will be announced as dates near

For more information, please contact:
Esther Verheyen – everheye@sfu.ca
Damon Poburko – dpoburko@sfu.ca
General Information

Name of the Centre/Institute: Centre for Experimental and Constructive Mathematics
Website: http://www.cecm.sfu.ca
Faculty: Science
Director: Nils Bruin (Director)
Michael Monagan (Professor)
Director’s term end: 2026-08-31
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
CECM stands for the Centre for Experimental and Constructive Mathematics. CECM’s mandate is to explore and promote the interplay of conventional mathematics with modern computation in the mathematical sciences and to support the creation and application of software that is designed for doing mathematics.

Members of the CECM work in a variety of areas in the mathematical sciences, including algebraic geometry, number theory, coding theory, computational algebra, cryptography, algebraic combinatorics, graph theory, and scientific computing. What brings us together is our common interest in mathematical software packages such as Maple, SageMath, Magma, Matlab and Macaulay2 which we use for all kinds of applications including searches, exploration, and verification of results. Together the members of the CECM possess a knowledge of mathematical software packages unmatched nationally.

The word “Experimental” in the title of the Centre refers to a new way of building conjectures in mathematics and searching for mathematical objects using the power of computers. While numerical experimentation has been integral to mathematics and dates back to at least Gauss, the computer has created the possibility of conducting mathematics as a lab science, with the computer as the lab and measuring instrument.

The word “Constructive” in the title indicates that we want to find explicit examples (codes, polynomials, matrices, graphs) and not just prove their existence. Indeed the computer has revolutionized the way many mathematicians conduct their research. Naturally we write programs and develop software packages for doing mathematics.
Members of the CECM generally belong to four research groups in the department, three of which were founded by members of the Centre. The four research groups are the Computer Algebra Group, the Discrete Mathematics Group, the Arithmetic/Algebraic Geometry Group and the Number Theory Group. A focal point of each group is a weekly or biweekly seminar where research is presented by faculty, students and visitors. Each group maintains a web page with a record of the seminars and other activities. Links to the group web pages can be accessed from the main CECM webpage at www.cecm.sfu.ca.

Another key way the CECM supports members is by providing a physical lab space for faculty, students and visitors to work in. This CECM lab P8495 has desks for 20 people, each with a desktop computer; a small lounge which is where we often meet to work; a small office suitable for one postdoc or visitor; and a machine room which has a file server, web server, and four multi-core compute severs which run the mathematical software packages Maple, SageMath, Magma, Matlab and Macaulay2. We have been blessed with a great lab and good computing resources. A lot of collaborative research takes place on the whiteboard in the CECM lounge! The CECM lab is one of the best research spaces in the department. After two years of forced isolation due to a pandemic, the space is a prime location for students and faculty to experience informal in-person research interactions again.

The CECM also provides a focal point for collaborations with outside partners. Since 1995, the CECM has collaborated with Maplesoft, the developer of Maple. This collaboration involves research and development of mathematical software for use by CECM members and the mathematical community at large. Many of our students have contributed software to Maple through two NSERC CRD grants, MITACS research grants, and several MITACS internships.

**The Centre/Institute's membership and organization structure:**

Members:

Nils Bruin, Director · Professor

Luis Goddyn, Associate Director · Professor

John Hebron, SFU FAS CSS Development Manager

Imin Chen, Professor

Stephen Choi, Professor

Nathan Ilten, Associate Professor
Membership is available to SFU faculty and associate membership is available to non-faculty.

**Significant accomplishments:**
see attachment

**Notable media successes:**
-

**Events, workshops, public outreach events:**
-

**Supporting documents:**
significant_accomplishments_9hX1XfN.txt (See attachment below)

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**
Yes

**SFU account number:**
N875890

**Opening balance:**
$5,766.09

**Revenues:**
$0.00
Expenditures:
$273.04

Closing balance:
$5,493.05

Financial report:
N875890_mA9moLo.pdf (See attachment below)

Financial contributions from the university:
We acquired a new compute server: a Dell PowerEdge D650 Server. It has been installed and
serves as a major computational resource for the CECM members and students. This server
was funded through a gift from MapleSoft for $5000, through member’s personal grants,
and through a contribution from the Faculty of Science.

We have a second account S210240: opening balance $4350.39, closing balance $4350.39.

The gift by MapleSoft towards the compute server was processed through this account.

The funds in N875890 and S210240 did NOT come from the university.

List of major equipment provided by the university:
The faculty has paid for several desktop computers for the CECM lab in the last five years.

Most of our major computing equipment was purchased from NSERC grants and donations.
The 2021 addition was financed through a gift of $5000 from MapleSoft, contributions of
from member’s NSERC grants, and $9000 provided by the Faculty of Science.

University personnel:
John Hebron spends about one day per week looking after the CECM computer network.

John also looks after installations and updates for the mathematical software packages that
we use.

Space provided by the university:
P8495.

The CECM has a good sized lab P4895 with desks for 18 students/visitors, one tiny office
and a small lounge. There is also a very small machine room. Renovations began on the lab
in November 2019 (we moved out in October 2019). One reason for the renovations was to
accommodate 3 more students and enlarge the small office so that it could house a visitor or
PDF. Renovations were completed in July 2020, but due to COVID people are only now
starting to move in again, as everyone is starting to transition from remote-working setups.

Was the Centre/Institute leveraged to attract external funding (donations, grants,
contracts) which were only made possible by its existence?
Yes

External funding details:
MapleSoft gifted $5000 towards a new compute server

Confirm policy review:
Yes

Submitted by:
Nils Bruin, Director

Director’s comments:
This was a year of transition: directorship was just transferred from Michael Monagan to
Nils Bruin (me) and due to the pandemic our physical facilities were not really used. This is
changing now that graduate students do require space on campus again (which we provide).
Of course, the computer facilities we have been providing have been very useful throughout,
but I expect that in the coming year CECM will again have a more directly visible presence as
well.

Reviewer’s Section

Reviewed by:
Michael Silverman, Associate Dean, Research

Reviewer’s decision:
Approved

Reviewer’s comments:
The CECM performs a useful function in drawing faculty and students together around its
identified theme, and garnering funds to support its computational needs. Following on the
director’s comments, I can appreciate the challenges of leadership change and those
generally of the past few years, e.g., COVID. I look forward to the CECM ramping up their
activities in the coming year.

| Expenses | | | | | | | |
|----------|----------------|----------------|----------------|----------------|----------------|----------------|
| 5444     | Sals Post-Doc RA Cdn | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5844     | Invited Speakers Honoraria | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5911     | Welfare Benefits | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6005     | Office Classroom Equip under 5K | 0.00 | 0.00 | 0.00 | 0.00 | 101.04 | -101.04 |
| 6010     | Computer Hardware under 5K | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6012     | Computer Hardware over 5K | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6090     | Equipment - General under 5K | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6092     | Equipment - General over 5K | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6100     | Office Supplies | 0.00 | 0.00 | 0.00 | 0.00 | 13.00 | -13.00 |
| 6164     | Software License and Purchases | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6199     | Materials and Supplies - Other | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6512     | Postage Courier and Delivery | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6520     | Printing and Duplication Exp | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6660     | Telecommunication Charges | 0.00 | 0.00 | 0.00 | 134.00 | 0.00 | -134.00 |
| 6772     | Equipment and Furniture Rentl | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6999     | Internal Expense Transfer | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7000     | Employee Travel Expenses | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7044     | Membership Fees - Individuals | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7050     | Meals Expenses | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7414     | MECS Internal Charges | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7468     | Information Services Charges | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 25.00 |
| 7499     | Internal Charges - Other | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7500     | Internal Recoveries - General | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7520     | Dean's Research Transfers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7915     | Budget Balance Forward | 0.00 | 5,766.09 | 5,766.09 | 0.00 | 273.04 | 5,493.05 |

**Total:** 0.00 | 5,766.09 | 5,766.09 | 273.04 | 5,493.05 | 0.00 | 5,493.05 |
Significant accomplishments:

Publications:

Ayoola Jinadu and Michael Monagan. An Interpolation algorithm for computing Dixon Resultants. Submitted May 2022 to CASC 2022. We used gaby for computations in Maple+C and Magma.


Michael Monagan. Speeding up polynomial GCD, a crucial operation in Maple. Submitted November 2021 to Maple Transactions. Accepted April 6th 2022. Used gaby for computations in Maple+C and Magma.


Stephen Choi and Daniel Tarnu, The Multiplicative Order of the Fundamental Solution of \( x^2 - Dy^2 = 1 \) in \( \mathbb{Z}[\sqrt{D}]/\langle D \rangle \), submitted in 2022.


Jingzhou Na, Jonathan Jedwab, Shuxing Li, “A group-based structure for perfect sequence covering arrays”, submitted in 2022 to Designs Codes & Cryptography contains the result of searches written in C and run on multiple CECM machines over several weeks.

Jingzhou Na was a Master’s student at the time the research was carried out, and Shuxing Li was a postdoc.


Software contributions:


Nils Bruin, Alec Linden Disney-Hogg and Wuqian Gau, Rigorous numerical integration of algebraic functions, contributed to Sagemath computer algebra package: https://trac.sagemath.org/ticket/33610
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for High-Throughput Chemical Biology (C-HTCB)
Website: https://www.sfu.ca/htcb.html
Faculty: Science
Director: Roger Linnington (Director)
David Vocadlo (co-Director)
Director's term end: 2023-04-30
Renewal date: 2025-10-27

Details

Description of the Centre/Institute:
The Center for High-Throughput Chemical Biology is a Faculty of Science facility that provides cutting-edge high-throughput liquid handling robotics capability for projects at the intersection of chemistry and biology. It is primarily used for high-throughput screening applications.

The Centre/Institute's membership and organization structure:
The center is managed by a Director (Linnington) and co-Director (Vocadlo) under the oversight of a 3-person external advisory committee. It is ultimately under the direction of the Dean of Science. The Center employs two staff members; Dr. Sandra Keerthisinghe who is the facility manager, and Ms. Lisa Lin, (25% FTE) who is the administrative assistant.

Significant accomplishments:
2021/2022 has been a highly successful year for the HTCB. Major accomplishments include:

- Continued positive revenue stream, balanced books and creation of contingency fund for future repairs/ replacements of critical equipment

- Recent award of 7 year funding support for center (matches existing and ongoing FoS contribution) through MSI program as part of a larger consortium application through the Glyconet organization at the University of Alberta

- Direct training of 31 SFU HQP on liquid handling robotics, lab automation and high-
throughput screen design

- External projects with UBC, BCCRH, UoA and others

- Continued provision of fee-for-service work for regional biotechnology companies

- 28 research outputs directly connected to the center, including publications and conference presentations

- Bi-weekly HTCB management meetings held without interruption since 2019. We have now held over 100 management meetings, which contributes significantly to the smooth operation of the center.

- Held formal EAC meeting with all EAC members in April 2022. EAC comments were supportive of current management structure and progress of the center

- Supported successful grant applications by faculty in FoS at SFU

- Completing final logistical details for installation of a new ultra-fast high-content microscope (VALA) in the HTCB. Projected installation Sept 2022

- Updated HTCB website to new SFU template, and updated content

**Notable media successes:**
None

**Events, workshops, public outreach events:**
None

**Supporting documents:**
-

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No
Confirm policy review:
Yes

Submitted by:
Roger Linington, Director

Director's comments:
The HTCB is in a strong position in terms of both financial stability and integration with research activities at SFU as we transition from a new entity to an established center on campus. We have achieved financial independence without any assistance from the VPR or FoS outside of initial CFI allocations and ongoing salary support from FoS. This is due in part to the efforts of Vocadlo and Linington to attract industry business to the center, and in part due to the sound financial model that we put in place for the center, and that we continue to review and refine. We have expanded the center with the acquisition of new equipment (automated incubator, microscopes (2) and plate washer/loader) and have upgraded IT infrastructure and data backups to support the growing body of data generated using this equipment. The newly awarded MSI grant provides longitudinal financial support for the foreseeable future, ensuring that the HTCB has the capacity to maintain its strong position as a unique resource in Western Canada, and to expand into new research areas such as stem cell biology.

The major question surrounding the HTCB is that of leadership succession. To continue to maintain the strong upward trajectory we have developed we will need a dedicated cohort of researchers who prioritize big data approaches to biological questions, and who will integrate lab automation and high-throughput robotics into their research programs. This is an areas that is not replicated elsewhere in Canada, and one where SFU is beginning to play national leading role. To support this progress we need priority hires in this area to bring in researchers who can start to participate in the operational side of the HTCB management. Ultimately these new researchers will need to take over the leadership of the facility at some future point. The center is a complex facility to oversee, and it is not possible for a new hire to be expected to take on this role immediately. Therefore, any hire made now will not be in a position to lead the center pre-tenure, meaning that there is already a 5 year lead time for director replacement. This is an issue that needs attention now, as it is not good practice for any center to be run indefinitely by the same leadership team.

The new Life Sciences building offers a unique opportunity to prioritize Therapeutics and High-Throughput Biology as research themes for FoS, and to expand our growing reputation in these areas. In my opinion SFU should take advantage of this new capacity to create a dedicated interdisciplinary research focus on these topics, and support this effort with the faculty hires, staff positions, and CFI and CRC allocations required to make this effort successful.
Reviewer's Section

Reviewed by:
Michael Silverman, Associate Dean, Research

Reviewer's decision:
Approved

Reviewer's comments:
The C-HTCB is the premier technical centerpiece for the Faculty and its successes grow every year with greater external funding and international visibility. I laud Drs. Linington and Vocadlo for their vision, efforts, and highly collaborative nature. I agree with the comments above regarding succession planning and share their concerns regarding the Faculty and University support for new hires, which are all the more salient with the possibility of a new Life Sciences building and a pending $8M CFI to support stem cell biology and therapeutics. I will endeavor with the incoming Dean of Science and upper administration to lobby for support for the C-HTCB.
General Information

Name of the Centre/Institute: Evolutionary and Behavioural Ecology Research Group
Website: http://www.sfu.ca/biology/research/ecology-evolution/eberg.html
Faculty: Science
Director: Ronald Ydenberg
Director’s term end: -
Renewal date: 2025-10-27

Details

Description of the Centre/Institute:
The research group was formally established in 1989 to pursue basic research in behavioural ecology; to maintain and develop an internationally recognized student training centre in behavioural ecology and related areas of inquiry; and to provide a service to government, industry and others to tackle basic and applied problems in behavioural ecology through collaborative research. Members are drawn from the Departments of Biological Sciences, Psychology and the School of Resource Management.

The Centre/Institute’s membership and organization structure:
There are 15 faculty members and more than 90 graduate students at SFU associated with the group, as well as several post-doctoral fellows. A few faculty members from UBC and UVic and several adjunct faculty from Environment and Climate Change Canada complete the group.

Significant accomplishments:
1) The full members of eBERG brought in more than $2 million in grants and contracts

2) Collectively eBERG members had more than 100 papers published or in press between 1 April 2021 and 31 March 2022.

3) Fourteen graduate students completed their degrees during 2021-2022. The number was somewhat reduced this year owing to the pandemic. Members of eBERG collectively supervised more than 50 students.
4) Despite the pandemic, the eBERG group continued a full schedule of its long time weekly seminar series, Les Ecologistes, via Zoom. The online seminars were well attended, and even attracted viewers from across the continent.

**Notable media successes:**
Several eBERG members were awarded honours this year. Dr. Isabelle Cote was named the Healthy Campus Community Champion ([https://www.sfu.ca/healthycampuscommunity/champions/isabella-cote-awarded-as-a-healthy-campus-community-champion.html](https://www.sfu.ca/healthycampuscommunity/champions/isabella-cote-awarded-as-a-healthy-campus-community-champion.html)) for her exceptional leadership during the pandemic. Professor Jonathan Moore and MSc student Emily Lin, both eBERG members, were awarded SFU Excellence in Science Public Engagement and Outreach Awards ([https://www.sfu.ca/biology/news-events/kudos/2022-fos-outreach-awards.html](https://www.sfu.ca/biology/news-events/kudos/2022-fos-outreach-awards.html)). Dr. Tony Williams was presented with the American Ornithological Society’s Loye and Alden Miller Research Award for Lifetime achievement in ornithological research ([https://www.sfu.ca/biology/news-events/kudos/2021-Williams-OAS.html](https://www.sfu.ca/biology/news-events/kudos/2021-Williams-OAS.html)).

**Events, workshops, public outreach events:**
1) Service to the Public: Opportunities for public outreach were limited this year owing to the pandemic. However, several of our members gave webinars and online seminars to community groups. Our members served as advisors to groups such as Metro Vancouver Regional Parks, Mountains of Relief charitable foundation and the BC iNaturalist program.

2) Service to the scientific community: Many of our members act as editors for scientific journals (11). Dr. Isabelle Cote acted as local organizer for scientific meetings (Canadian Society for Ecology and Evolution) and Dr. John Reynolds chaired the COSEWIC (Committee on the Status of Endangered Wildlife in Canada). Dr. Felix Breden chaired the Nomenclature Subcommittee of Int’l Union of Immunological Societies (UIS).

**Supporting documents:**

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
No
Confirm policy review:  
Yes

Submitted by:  
Connie Smith, Research Technician

Director's comments:  
-

Reviewer's Section

Reviewed by:  
Michael Silverman, Associate Dean, Research

Reviewer's decision:  
Approved

Reviewer's comments:  
eBERG is highly productive and internationally renowned group of scientists, e.g., Dr. I. Cote, SFU Distinguished Professor; J. Moore, SFU Excellence in Science Public Engagement and Outreach Award winner. This Centre contributes to research at all levels from basic to applied science, community-based science, including work with First Nations, along with significant work in public outreach and education. I wholeheartedly support the efforts of eBERG.
General Information

Name of the Centre/Institute: Canadian Institute for Studies in Publishing
Website: https://publishing.sfu.ca/research/
Faculty: VP Research
Director: John Maxwell
Director's term end: 2021-04-01
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
The Canadian Institute for Studies in Publishing (CISP) was established (originally as a Centre) in 1987 to pursue the study of publishing and to serve the research and the information needs of the publishing industry. The CISP engages in basic research into the history, management, technology, and policy issues related to publishing. Projects have been initiated by the CISP and undertaken under contract to, or by means of grants from industry, government and granting agencies. From time to time, the CISP publishes monographs and reports on the theory and practice of publishing, and sponsors seminars, conferences and professional development courses. In recent years the CISP has focused on the digital humanities, scholarly communications, Indigenous publishing, and the creative economy in general.

The Centre/Institute’s membership and organization structure:
The CISP's membership (see attached list) is a collegial group of aligned researchers, at SFU (and drawn from FCAT, FASS, and SFU Library) as well as the University of Victoria. The Director of the CISP is typically the Director of the Publishing Program at SFU, though there is no strict requirement that this be the case.

Significant accomplishments:
1) CISP served as partner and host of the 2021/2022 SSHRC Partnership Grant-funded "Implementing New Knowledge Environments" (INKE) annual meetings, "Putting Open Social Scholarship into Practice" <https://inke.ca/putting-open-social-scholarship-into-practice/>. CISP Director John Maxwell was PI for the SSHRC Connection Grant that supported the conferences. CISP was also a participant in the annual INKE project meetings in January 2022.
2) CISP published a third issue (in October 2021) of our open-access scholarly journal, *Pop! Public. Open. Participatory*, at https://popjournal.ca/issue03

3) CISP is normally a fiscal sponsor and supporter of the Digital Humanities Summer Institute (DHSI) at the University of Victoria; CISP director John Maxwell presented in the 2022 event, contributing to the planning discourse around the newly launched Canadian Humanities and Social Sciences Commons <https://hsscommons.ca>

4) As in 2020-21, the SFU Publishing Workshops were curtailed by the pandemic, but a small handful -- as well as the Emerging Leaders conference with the Master of Publishing program -- ran online in February 2022.

5) We hosted on May 5th, 2022 the second annual *Greg Younging Conversation,* a public talk. This year's event featured University of Manitoba professor and artist, Warren Cariou.

**Notable media successes:**

- 

**Events, workshops, public outreach events:**
As listed above, SFU Publishing Workshops offered a small number of online professional development workshops in 2021-22

On May 5th, 2022 the second annual *Greg Younging Conversation,* a public talk, featuring UManitoba's Warren Cariou.

**Supporting documents:**
CISPreport2022_qWS5zi6.xlsx (See attachment below)

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**
No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
No

**Confirm policy review:**
Yes
Submitted by:
John Maxwell, Director

Director's comments:
S210110 - $10,000 of the total in this account is from a Simon & Schuster donation directed to the Greg Younging Endowment, which is in process with University Advancement.

S280083 - This is the old Publishing Workshops account, which carried a deficit for a number of years after the financial crash of 2008-2010; we are pleased to have zeroed this account this year.

S291360 - This account is entirely Rowly Lorimer's Journal Services program, which provides operational support for a handful of scholarly journals.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
The centre is very active, especially in organizing meetings and workshops.
# CISP 2021-22 Account Summaries

<table>
<thead>
<tr>
<th>Account</th>
<th>01/Apr/21 Expenditures</th>
<th>Revenues</th>
<th>Fiscal Closing 2022</th>
<th>Source/Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>S210110</td>
<td>$30,469.06</td>
<td>$1,910.52</td>
<td>$9,300.00</td>
<td>$37,858.54 CISP General</td>
</tr>
<tr>
<td>E434003</td>
<td>$45,846.80</td>
<td>$23,165.00</td>
<td>$33,269.04</td>
<td>$55,950.84 CISP Endowment Revenue</td>
</tr>
<tr>
<td>S210148</td>
<td>$26,881.51</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$26,881.51 CISP Press Academic</td>
</tr>
<tr>
<td>S280083</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00 Summer Workshops</td>
</tr>
<tr>
<td>S291329</td>
<td>$3,004.02</td>
<td>$205.23</td>
<td>$0.00</td>
<td>$2,798.79 Canadian Journal of Communication</td>
</tr>
<tr>
<td>E439301</td>
<td>$50,928.47</td>
<td>$0.00</td>
<td>$10,693.73</td>
<td>$61,622.20 Atkins/Douglas Endowment Revenue</td>
</tr>
<tr>
<td>S291366</td>
<td>$21,958.85</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$21,958.85 Visiting Scholars</td>
</tr>
</tbody>
</table>
General Information

Name of the Centre/Institute: Centre for Education Research and Policy
Website: http://www.sfu.ca/ceerp/
Faculty: VP Research
Director: Jane Friesen
Director's term end: 2021-04-01
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
The Centre for Education Research and Policy (CERP) coordinates the activities of a group of researchers who are interested in issues related to education policy in British Columbia. Our researchers are knowledgeable about the B.C. education system and experienced in working with the administrative databases held by the B.C. Ministry of Education. We use quantitative analysis to investigate the consequences of policies that affect assessment and accountability, school and program choice and funding levels. In addition to academic outcomes, we are interested in measuring the effects of these policies on ethnic and socioeconomic segregation and on children’s social and emotional development. CERP is committed to working in partnership with parents, educators, administrators and community organizations from across the province to generate high-quality evidence that can inform and enrich public debates about education locally, nationally and internationally.

The Centre/Institute’s membership and organization structure:
The Institute’s activities are overseen by a Director who is advised by a Steering Committee.

Significant accomplishments:
1) The Centre has hosted an online brown-bag research series involving researchers at the BC Ministry of Education, Statistics Canada and several universities, all of whom are working on projects using the Ministry’s administrative data. This cross-sectoral, multi-institutional forum has generated productive opportunities for knowledge and skill sharing with respect to the Ministry’s research priorities, data linkage at both the federal and provincial level, and research methodologies and results. We will continue this series in the fall.
2) Centre-affiliated researchers published a paper evaluating the relative academic effectiveness of B.C.’s private versus public schools. "Private schools and student achievement" is now available via the Economics of Education Review, a leading U.S. journal in the economics of education. (The short answer - private schools do better on average, but there is a LOT of variation).

3) Centre Director Jane Friesen was elected to the Board of the Association for Education Research and Policy, a prominent U.S. association that aims both to advance academic research on the economics of education and to foster collaboration and communication between policy-makers and academic researchers.

4) Centre researchers continue to work on several interesting projects in collaboration with the B.C. Ministry of Education. We will soon complete an evaluation of the effects of the COVID pandemic on the mental health of B.C.’s K-12 student population

Notable media successes:

Events, workshops, public outreach events:

Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Jane Friesen, Director

Director's comments:
COVID slowed us down but we are picking up the pace again and look forward to completely several ongoing project soon.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
This is an active centre that works with the BC Ministry of Education and StatCan, as well as important research outputs.
General Information

Name of the Centre/Institute: Centre for Forensic Research
Website: https://www.sfu.ca/research/centre-forensic-research
Faculty: VP Research
Director: Gail Anderson (co-Director)
         Hugo Cardoso (co-Director)
Director's term end: 2020-08-31
Renewal date: 2023-04-01

Details

Description of the Centre/Institute:
The Centre for Forensic Research brings together scientists from the Department of Archaeology, the School of Criminology and the Department of Biological Sciences to advance and achieve excellence and innovation in research, training, and service that supports medicolegal death investigations anywhere, improving the recovery and identification of the deceased, and determination of circumstances of death, including cause, manner, circumstances, and time of death. The core researchers specialize in entomology (Gail Anderson), bone chemistry and taphonomy (Lynne Bell), biological anthropology (Hugo Cardoso), DNA (Dongya Yang), stable isotopes (Michael Richards) and botany (Rolf Mathewes). The relatively narrow scope of the centre and the diversity in specializations together with ongoing collaborations both within and outside the Centre drives the forensic research in new and innovative ways. The core researchers also develop their research projects, train students and work on their cases in a unique facility in Canada, providing secure lab space for its faculty and students as well as an autopsy suite but also including RCMP protected Level C security for forensic exhibits meaning that exhibits within the CFR are maintained at or above the level of security required for presentation in court.

The Centre/Institute's membership and organization structure:
The Centre for Forensic Research is a SFU research institute and comes under the direct authority of the Vice-President Research. The Centre for Forensic Research is housed in Saywell Hall within the Department of Archaeology and the School of Criminology. It has two co-directors, appointed by the Vice-President Research under advisement from the Centre’s Steering Committee. This committee governs the centre and consists of: the co-Directors of the Centre for Forensic Research; four forensically-active SFU faculty members
drawn from Archaeology, Criminology and Science; the Chair of the Department of Archaeology; the Director of the School of Criminology; an Associate Dean from the Faculty of Environment; and an Associate Dean from the Faculty of Arts and Social Sciences. The centre has 6 named members, appointed by recommendation to the Vice-President Research from the Director(s), and 19 associate members approved by the Steering Committee from recommendation from the Director(s).

**Significant accomplishments:**

Anderson - Entomological Society of America, Recognition Award in Medical, Urban and Veterinary Entomology.

Anderson - Entomological Society of Canada Gold Medal Winner for outstanding achievement in Canadian entomology

Anderson - Past President, Entomological Society of Canada

Anderson - Expert Witness Testimony (Court of Queen’s Bench, Manitoba, (Alberta, Preliminary Court)

Anderson – published 1 paper in Insects.


Cardoso – HQP training (Two postdoc research fellows, four PhD students, and two MA students)

Matthewes – published 3 papers in Review of Palaeobotany and Palynology, and Zootaxa.


Yang - awarded a Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Grant

Yang and Cardoso - awarded a Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Development Grant

Yang – HQP training (Two postdoc research fellows, one Ph.D. student, and three MA students)
Notable media successes:
Anderson - Toronto Star
Anderson - National Geographic
Anderson - Art and Science of Controversy
Yang – The Scientist

Events, workshops, public outreach events:
Entire Centre – CFR 7th Annual Symposium – 73 formal registrations (42 people registered for the in-person event and 31 for the virtual event). Over the 3 months leading to the event, the website had over 330 views.

Anderson - Use of Insects in Criminal Investigations. Forensic Identification Course, Edmonton Police Services, Crime Scenes Investigation Unit. Virtual

Anderson Lab - Physical Anthropology and its applications in forensic medicolegal investigations. Introduction to Anthropology (ANTH100), University of Victoria.

Anderson - Miscarriages of Justice Righted by Forensic Entomology. University of Tennessee,


Anderson - Casework in Forensic Entomology. Elder College, Delta, BC. Virtual.

Anderson - Forensic Expert Speakers Event, University of British Columbia, Forensic Science Student Association. Virtual

Anderson - Entomology in Animal Abuse Cases. SPCA, BC. Virtual

Anderson - Careers in Criminology. Forensic Panel. Crimonology Careers Night, SFU. Virtual

Anderson - Miscarriages of Justice Righted by Forensic Entomology. Toronto Entomologists’ Association. Virtual

Supporting documents:
- 

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Hugo Cardoso, co-Director

Director's comments:
Both the Deans of FASS and FEnv should be notified. Thank you

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
-
General Information

Name of the Centre/Institute: Chronic Pain Research Institute
Website: https://painstudieslab.com/
Faculty: VP Research
Director: Diane Gromala (Director)
           Chris Shaw (Professor)
Director’s term end: 2024-12-31
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
Technology has wrought sweeping changes in healthcare and wellness, evident in new
terms and practices, and challenges to regulatory bodies such as Health Canada and the
F.D.A. Data from EHRs, health databases, and The Quantified Self (data from consumer's
wearable devices) is newly accessible by patients. New knowledge derived from new
technologies (AI, genetic data) promises to change fundamental approaches to healthcare,
as exemplified in Digital Twinning and Precision Medicine. Yet experts from health domains
and from technology domains lack traditions that might bring them together in sustainable
ways. Beyond Health Canada and F.D.A. certification, technologists arguably have been less
concerned about how consumers might be affected in unanticipated ways until the extreme
eexample of Theranos revealed what the media terms widespread indifference and
exceptionalism.

Most importantly, this institute serves as a haven where clinicians, pain experts, members of
regional health care authorities, members of pain-related non-profits, and policymakers –
along with health tech researchers and industry leaders – can meet, devoid of strongly-
aligned disciplinary or organizational pressures or perceptions. Over the past 5 years,
several of our workshops enabled a basic introduction to the challenges our interrelated
groups face in practical, sustained ways that exceed singular conferences or “show and tell”
demonstrations. Thus, the institute benefits its members as a bridge between a) healthcare
experts, researchers, workers, patients, caregivers, health authorities, and b) health tech
researchers and burgeoning industry. By doing so, the networks it fosters, the work its
members collaboratively produce, and the HQP it trains, all remain in a stronger position to
continue to grow in sustainable ways.

As an example focus of the institute, chronic pain is a complex phenomenon that affects at
At least 7 million Canadians, by conservative estimates, and has come to be recognized as a disease in its own right. Chronic pain costs society, with direct health care costs reaching more than $6 billion per year; productivity costs related to job loss and sick days at $37 billion per year (Nelson, Simmons, et al., 2017). Chronic pain was one of the most under-recognized, under-treated medical problems of the twentieth century (EFIC, 2012) until reports of the opioid crisis began to scapegoat patients.

Chronic pain must be controlled and managed by attending to the sufferer’s biological, psychological and social needs. Thus, expertise from a number of disciplines is needed to address these aspects. To this end, this Institute aims to continue to bring together researchers, practitioners, sufferers (“knowledge experts”), and caregivers in a dynamic environment that enables the exploration of multiple avenues of research, management and control of chronic pain.

These avenues focus on technology and media development that have had sweeping effects on healthcare (Topol, 2014). They address the psychological, social, and biological aspects of chronic pain, as well as research methods and practices from evidence-based medicine, and methods from the humanistic and artistic domains that address the cultural aspects. New technologies combined with in-depth analyses of clinical practice are promising ways that may help create capacity for our health care system which is currently overwhelmed by the sheer demand.

Half of the institute’s members hail from health technology (health tech) origins ranging from Mechatronics and BioEngineering to Human-Computer Interaction (HCI). HCI is a field that grew from a confluence of legacy disciplines (Computer Science, Industrial Design, Human Factors, Perception, Cognitive Science, and Social Sciences). What HCI researchers and practitioners share is a focus on “the human” in the Human-Computer Interaction equation. The institutes’ HCI experts bring a “user-centered” focus and “design thinking” methods to technologically-mediated health research, healthcare and wellness.

Given that health-related granting organizations are increasingly recommending – or requiring – that health researchers bring (or newly implement) a “patient-centred” method, perspective or practice to their work, the institute invented and deployed workshops over the last year to train them and clinicians about user/patient-centred methods. Other workshops for health researchers and clinicians introduce them to the uses, effects and potential problems with emerging technologies like VR, for example through VR Guidelines (2018). These workshops, in effect, reinforce the networks and bridges that the institute has built between the health and technology communities over the past five years and have reinvigorated its vision.

**The Centre/Institute’s membership and organization structure:**
The Institute will have two standing committees to guide the management and establish the
The direction of the Institute’s work: the Steering Committee and the Advisory Board.

The Steering Committee is comprised of members of SFU Faculty, in addition to key stakeholders in the research environments of the Institute. The Steering Committee will have at least five members, with a majority being continuing research faculty at SFU. The remaining members of the Steering committee will be drawn from stakeholder groups such as Fraser Health Authority, and/or NGOs such as PainBC. Steering Committee members are nominated by the Director with annual confirmation by the sitting Committee members. While it normally operates by consensus, when necessary it can make decisions by majority vote, including the appointment of new members of the Steering Committee, as well as the appointment and dismissal of the Director and the Deputy Director of the Institute.

The Steering Committee members

Diane Gromala,                Distinguished Professor & Canada Research Chair, School of Interactive Arts & Technology, SFU

Chris Shaw,                         Professor, School of Interactive Arts & Technology, SFU

Sylvain Moreno,                Associate Professor, School of Interactive Arts & Technology, SFU

Owen Williamson, MD,    Director, Chronic Pain Clinic, Jim Pattison Outpatient Care and Surgery Centre, Surrey Memorial Hospital

Pamela Squire MD,           Complex Pain Clinic, Vancouver

The work of the Institute is informed by an Advisory Board, consisting of individuals with a demonstrated commitment to the challenges of Chronic Pain and health technology. Invitations to join the Board are issued by the Director of the Institute; members serve for a three-year term, renewable by invitation. The Advisory Board meets at least once each year to review the Institute’s activities and plans and provide advice to the Director and Steering Committee. The Advisory Board will advise on the direction of the Institute and help broaden the interests and awareness of the Institute outside of SFU.

Advisory Board members

Kellogg Booth           Founding Scientific Director, GRAND NCE

Linda Li, PhD           Harold Robinson Chair/Arthritis Society Chair in Arthritic Diseases and Professor, Dept of Physical Therapy, UBC

Walter Greenleaf         Medical VR / AR Expert - Stanford Virtual Human Interaction Lab
The work of the Institute is supported by Affiliated Scholars and Affiliated Professionals, who may be individuals from the university and external communities, and may include faculty, staff, or students. Status as Affiliated Scholar is approved by the Steering Committee based on the recommendation of the Director.

Membership

The Institute will conduct its activities in accordance with University policies. Members of the Institute will normally be faculty, students, researchers, clinicians, and other stakeholders who make substantive ongoing contributions to one or more of the Institute’s research, education, service, or funding activities. Members are expected to regularly engage in events related to the Institute. The Steering Committee may establish various categories of membership in order to facilitate participation in and administration of its programs.

Industry

Michael Bidu, Interface Health

Alana Conner, Google

Bruce Forde, Cambian Systems

Daehan Kim, Essential Kinetics

Frederico Machuca, Bioware

Nick McKinnon, eTreadMD

Faculty

Frances AyalaSomayajula, MPH,

Lyn Bartram, SFU SIAT, VIVA Director

Sheelagh Carpendale, SFU, Computing Science

Parmit Chilana, SFU Computing Science

Faranak Farzan, SFU Mechatronics
Jeff Gold, USC Medical School

Ran Goldman, M.D., Chief of Pediatric Emergency, BC Children’s Hospital

Diane Gromala, SFU SIAT

Darryl Knight, Providence Health Research

Linda Li, PhD, UBC Medicine; Arthritis Centre of Canada

Sylvain Moreno, SFU SIAT

Mark Nazemi, Manager, Clinical Solutions & Innovation, Thrive Health

Michael Negraeff, M.D., UBC Faculty of Medicine & VGH

Carman Neustaeder, SFU SIAT, Dean of FCAT

Jerilynn Prior, UBC Medicine

Chris Shaw, SFU SIAT

Pamela Squire, M.D., UBC Medicine

Tarnia Taverner, Fraser Health

Xin Tong, Duke Kunshan University

Owen Williamson, M.D., Monash University, Faculty of Medicine & Surrey Memorial Hospital

JPOCS

Postdoctoral Fellows, Graduate students

Zahra Ofoghi, SFU Postdoctoral Fellow

Ashu Adikhari, SFU PhD Student

Towfik Ahmed, SFU PhD Student

Angela Chong, SFU PhD Student

Weina Jin, M.D., SFU PhD Student
Significant accomplishments:
1) Founded Easa Therapeutics. This health technology startup was founded by Institute members Diane Gromala, Chris Shaw and Howard Rose to sustainably deploy VR chronic pain therapies in pain clinics. Easa’s first title, InnerShine was developed to address chronic pain in a manner reminiscent of the Virtual Meditative Walk prototype developed in the Institute. Testing in the US began with UHG, the world’s largest health insurer until COVID suspended these inaugural widespread efforts.

2) Supercluster and MITACS-funded COVID Vaccination scheduling software with Cambian, WELL Health, IBM Canada, Tickit Health, Providence Healthcare, LifeLabs, and SFU. In this 8 million dollar project, our goal was to ensure efficient and effective testing using the pandemic, which required the integration and automation of complex assessment, scheduling, and planning tools. The project integrated several operational systems to enable seamless booking across autonomously-managed systems, forecasting demand, and supply chain problems. The institute’s component was to ensure that those deemed as vulnerable and at-risk were identified and could use the system to get the first vaccinations. Over 30 nonprofits representing over 1 million BC residents were involved. An outgrowth is the continual development of systems for tracking long COVID and chronic conditions.

Notable media successes:
SFU researchers study patient needs for COVID-19 vaccine distribution software

Drs. Diane Gromala and Chris Shaw lead team analysing individual patient needs
Events, workshops, public outreach events:

1) Providence Healthcare "Skunkworks". This recent collaboration between institute director Diane Gromala and the Providence Health Research Institute created a catalyst for innovation. While many challenges around chronic pain need to be solved, often researchers, clinicians, caregivers, and patients do not have the resources, expertise, or time to address them. On the other hand, many skilled individuals are eager to innovate but don’t know where to start. Our mission is to build bridges among clinical experts, health & tech researchers, and the healthtech industry. Here, Gromala helped connect innovators by mentoring the Institute’s organizers with real-world challenges in pain, from inefficiencies, barriers to access, and stigma. On site, Shaw, Greg Christie & PhD student Bhairavi Warke mentored & facilitated the mixed groups over 2 intensive days. Future skunkworks are planned.

2) With the Arthritis Research Centre of Canada and patient-partners, we created a "Citizen Science" project on pain for all citizens of BC. After 4 Participatory Design, Design Thinking and UX/UI (user experience/user interface) workshops, we worked with industry partner Tactica to develop, test, refine and launch a web portal that collects medical -- as well as subjective information -- of how BC citizens cope with many kinds of pain, esp. focussing on how pain impacts diverse areas of their lives, from the ability to sleep, maintain a job and physical activity, to their ability to maintain social interactions, stave off social isolation and social stigma -- in brief, to articulate how pain affects their quality of life. Given our web portal’s security, we allow a group tracking long covid to also use our technical structure.

3) Until recently, large health tech systems were "engineered" primarily as automated systems that healthcare workers needed to adapt to. The most familiar challenge of this approach is how often our physicians look at their computer screens over interacting with patients FTF. With the rapid growth of health tech, whose promise is to expand healthcare capacity (esp. for chronic conditions that were never meant to be a large part of our allopathic healthcare systems), and to democratize some aspects of healthcare -- for example, in wellness apps -- PATIENT-FACING interaction and "patient-centred" ease of use has become an urgent need, along with ‘smart on-fhir’ standards that can better enable adoption in medical records. Our most recent emphasis on women’s health health in areas of tracking symptoms assoc. with menopause and pregnancy in women in rural areas has resulted in an extensive network of experts and non-profits that began with the Supercluster COVID vaccination project. Currently, we are organizing a fifth participatory design workshop re: health tech tracking tools for managing manopause and combating ts stigma via VR, and fieldwork this summer among a growing network of midwives in rural...
Kenya. In the fall, we plan similar fieldwork in rural BC.

**Supporting documents:**
- 

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

**Confirm policy review:**
Yes

**Submitted by:**
Diane Gromala, Director

**Director's comments:**
Despite our Arthritis Society Olga Munari Ideator Award -- the inaugural award in health tech for arthritis -- COVID-19 is still significantly impacting our ability to deliver what we planned, from events, to conducting research and esp. knowledge translation/tech transfer in healthcare venues, from clinics to hospitals. Nevertheless, there are signs that this will open back up, and we are ready to continue our first-ever, widespread efforts to devise sustainable integration of well-studied (for 30 years) immersive VR in healthcare venues to combat chronic pain, but this time in Canada. This requires overcoming widespread attitudes in health domains, where VR is still thought to be “too expensive,” or “not developed enough,” despite considerable ($70 million) investment in VR by the NIH. Note that two members pioneered VR in Canada -- before the Americans.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
This Institute combines researchers from SFU with those from health authorities and industry. The use of VR in healthcare is an exciting new area of research.
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Digital Democracies Institute
Website: https://digitaldemocracies.org/
Faculty: VP Research
Director: Wendy Chun
Director's term end: -
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
The Digital Democracies Institute at Simon Fraser University (SFU), established on October 5, 2020, integrates research in the humanities, social sciences, network and data sciences to address questions of equality, justice, and democratic dialogue. The long-term goal is to combat the proliferation of online polarization, abusive language, and discriminatory algorithms by producing alternative data literacies and paradigms for connection: from critical, historical, and technical analyses of misinformation to the creation of responsible AI systems to help transform hostile social media exchanges into productive dialogues.

The Institute’s strength lies in its uniquely cross-disciplinary and cross-sector approach. A range of disciplines provides rich perspectives on democracy’s ideals and practices in the Internet age; however, despite the best efforts of specialists in various disciplines and sectors, the problems of misinformation, radicalization, echo chambers, and abusive language persist. A lack of communication across disciplinary and sectoral boundaries means that insights into these problems may be replicated and not shared; solutions that may depend on insights from another discipline may not be considered. In addition, the lack of a common vocabulary inhibits the development of shared theoretical frameworks and solutions.

The Institute benefits Canadians by developing new strategies and software prototypes to displace fake news, disrupt current systems of polarization, and combat abusive language online. The Institute also generates policy recommendations and solutions to foster more inclusive communities, create new opportunities for historically marginalized communities, and lessen the anxiety, stress, and other health-related factors that polarized communities and toxic communication networks produce.

The Institute added three research streams in 2021, in addition to the four we established
since our launch in 2020. Each stream features an innovative cross-disciplinary approach and international team. The added research streams include: Indigenous Epistemologies; Media, Infrastructure, Environment; and Imaginative Methods.

1) Indigenous Epistemologies. Led by Dr. Karrmen Crey, this stream explores Indigenous philosophies of technology, history, temporality, and relationships between human and nonhuman beings. This stream is part of a reciprocal research network grounded by experience and research by and with Indigenous researchers and communities.

2) Media, Infrastructure, Environment. Led by Dr. Svitlana Matviyenko, Media, Infrastructure, Environment explores the connections between imperialism, colonialism, Black and Indigenous resistance, and knowledge practices to reveal how social, cultural, political and economic processes are inevitably caught up with media technologies and ecologies.

3) Imaginative Methods. Led by Gillian Russell, the Imaginative Methods stream is about fundamentally reimagining how research can help us think and not know with others. Combining elements of critical design with new materialist epistemologies and practice-based research, the stream develops research practices to imagine with people to challenge assumptions and inspire alternative technological narratives.

These three new research streams build upon the streams established at the launch of the Institute in 2020:

1) Beyond Verification: Authenticity and the Spread of Mis/disinformation. This stream investigates the centrality of authenticity and trust to the spread of “fake news.” It also leverages emerging technologies to combat fake news and benefit Canadians by developing new strategies that focus on authenticity and user trust.

2) From Hate to Agonism: Fostering Democratic Exchange Online. This project responds to the question: how can AI be better deployed to foster democracy by integrating freedom of expression, commitments to human rights and multicultural participation in the protection against abuse?

3) Desegregating Network Neighborhoods. This project investigates the causes of echo chambers and displaces them by prototyping new paradigms of online connection that mirror the richness of human relations.

4) Discriminating Data. This project explores the centrality of race, gender and sexuality to data analytics and machine learning; it provides the theoretical bases for the others.

These streams continue to be supported through initial funding from the C150 Research Chairs, UK-Canada AI Initiative, SSHRC, JELF, Heritage Canada and SSRC Programs, totaling
$3.669 million. Additional funding was received from Heritage Canada and Google, which is described in more detail below. Chun's book, Discriminating Data, was supported by fellowships from the Guggenheim Foundation, the American Council of Learned Societies and the American Academy in Berlin, prior to Chun's arrival at SFU.

**The Centre/Institute's membership and organization structure:**
The Director of the Institute is Dr. Wendy Hui Kyong Chun, Canada 150 Research Chair in New Media and Professor of Communication, and the Associate Director is Dr. Svitlana Matviyenko, Assistant Professor of Communication. They were appointed for an initial period of five years from the date the Institute was approved. They are supported by the Steering Committee, consisting of: Caroline Colijn (Canada 150 Chair in Mathematics for Evolution and Professor of Mathematics), Fred Lesage (Assistant Professor, School of Communication), Maïté Taboada (Professor of Linguistics), and Stuart R. Poyntz (Director and Professor of School of Communication) is an ex-officio member.

The following 20 SFU Faculty across 5 faculties are members of the Institute: Daniel Ahadi, Ahmed Al-Rawi, Enda Brophy, Karrmen Crey, Milena Droumeva, Zoe Druick, Andrew Feenberg, Yuezhi Zhao, Sarah Ganter, Shane Gunster, Sun-Ha Hong, Adel Iskandar, Dara Kelly, Cait McKinney, Gillian Russell, Nilima Nigam, Mark Pickup, Fred Popowich, Katherine Reilly and Stuart R. Poyntz. We also have visiting scholar Alberto Toscano, Reader in Critical Theory and Co-Director of the Centre for Philosophy and Critical Thought at Goldsmiths, University of London. In addition, we have 24 external affiliated members, from disciplines spanning from Computer Science to Theatre and Performance Studies. They are: Clemens Apprich, Timon Beyes, Kalina Bontcheva, Liliana Bournegru, Giulio Dalla Riva, Melody Devries, Greg Elmer, Bonnie Honig, Ioana Jucan, Amy Kapczynksi, Kara Keeling, Laura Kurgan, Ganaele Langlois, Patrick Jagoda, Alexandra Juhasz, Tara McPherson, Lisa Nakamura, Zizi Papachrisi, Richard Rogers, Bo Ruberg, Niels ten Oever, Heidi Tworek, Tommaso Venturini, and Esther Weltevrede.

We are also associated with and supported by 22 organizations located around the world. These are the following academic institutions: Ahmanson Lab, University of Southern California; AI NOW Institute; The Center for Critical Internet Inquiry's Scholarly Council at UCLA; The Centre for Media, Technology and Democracy at the Max Bell School of Public Policy at McGill; Center for Spatial Research Columbia University; Centre for Digital Cultures, Leuphana University of Lüneburg; Department of Digital Humanities, King’s College London; Digital Methods Initiative, University of Amsterdam; Digital Studies Institute, University of Michigan; General Architecture for Text Engineering (GATE), Sheffield University; Geocinema, (Asia Bazdyrieva (UA), Solveig Qu Suess (CH/CN)); Infoscape Research Lab, Toronto Metropolitan University; Institute for Critical Indigenous Studies, UBC; McLuhan Centre for Culture and Technology, University of Toronto; Oxford Internet Institute, Oxford University; Reuters Institute for Journalism, Oxford University; and Science and Justice Research Center, University of California, Santa Cruz. We are also connected with the
following not-for-profit organizations: Goodly Labs; Public Data Lab; Social Science Research Council, and Private Companies: Client Computing Group, Intel Corporation; and Meson Press.

In 2021, the core members of the Institute who work on the designated research streams were: post-doctoral researchers Zeerak Talat, Gillian Russell, Jamie Lee Kirtz and Javier Ruiz Soler; graduate researchers Carina Albrecht, Anthony Burton, Kayla Hilstob, hannah holtzclaw, D.W Kamish, Jiaqi Wen, Emillie V de Keulenaar, Christine Tomlinson, Jasmine Proctor, and Prem Sylvester; undergraduate researchers Hedayat Tabesh, Pranav Sood, Arthur Liao, Michelle Chan, and Denise Toor. They were supported by staff members Mark Campbell, Amy Harris, Kayla Hilstob, and Matthew Canute.

**Significant accomplishments:**

1) In terms of Research Output and Knowledge Mobilization, we launched three new streams, detailed above. We also published 1 book, 10 peer-reviewed articles, 4 book chapters, and gave 47 talks. Our most significant publication is Wendy Hui Kyong Chun’s Discriminating Data: Correlation, Neighborhoods, and the New Politics of Recognition (MIT Press). This book focuses on how polarization is a goal—not an error—within big data and machine learning, and it discusses the implications of correlation algorithms on society. Wendy Chun virtually presented several talks and engaged in conversation on the work, including at the 12th Annual Attallah Lecture at Carleton University; the SFU President’s Lecture; the Westminster University Town Hall; McGill’s Centre for Media, Technology and Democracy with Sonja Solomun; Toronto Metropolitan University’s Infoscape Research Lab in conversation with Ganaele Langlois; the University of Connecticut’s Humanities Institute; in the SFU School of Communication Book and Speaker Series with Alex Barnett and in conversation with Mercedes Bunz; the 7th Edition of the Gray Area Festival; at the Stanford-Leuphana Winter Academy on Humanities and Media in conversation with Hito Steyerl; and at DISCO, which is a new network of researchers, artists, technologists, policymakers, and practitioners that challenges digital social and racial inequalities, in conversation with Lisa Nakamura.

In addition, members of our lab gave numerous talks around the world, including keynote addresses at: Federal Agency for Civic Education, Tutzing, Germany; University of Kassel, Germany; University of Potsdam, Germany; Kampnagel Theatre, Hamburg, Germany; Cambridge University, UK; National Humanities Center, North Carolina, USA; University of Utah, USA; and University of Alberta, Edmonton, Canada.

4) In terms of our Financial Stability and Industry Engagement KPIs, we received new grants to supplement the already existing ones listed above. We received a grant ($50,000) from Heritage Canada to support the technical development of our research tools and a short summer 2021 course called “Towards Responsible Machine Learning” which the DDI hosted with the Big Data Initiative. In partnership with two other institutions, we received funding from Heritage Canada Digital Citizen Initiative for the Canadian Disinformation Research Network. Our director also received a $187,500 USD contract from Google to pursue related work on data visceralization, which she used to fund a DDI PhD student. In addition, we were invited by the Mellon Foundation to submit a grant proposal of up to 5 million USD for the Data Fluencies Project, to support existing DDI research streams and to support new collaborations and projects.

5) In terms of reaching our International Research Engagement and Social Impact goals, the Mellon proposal will enable collaborations between SFU and international researchers (at USC, Canterbury, Kentucky, Emerson, and U Penn) and organizations (SSRC). The focus of this grant will also be on community-engaged co-created research through a free public night school in Vancouver, exhibitions, performances, and community-led data centers. We also worked with the Global Disinformation Index (GDI) to produce the Canadian GDI report. This report, co-authored with researchers at McGill and Laval, documented how news websites which distribute mis- and disinformation in Canada are funded.

In terms of Students, Trainees & Research Personnel, we support 4 postdocs; 10 graduate students and 5 undergrads. Supporting these students is crucial to the mission of the
Institute to train the next generation of researchers. We also hosted a week-long summer school in June 2021 “Towards Responsible Machine Learning” in partnership with SFU’s Big Data Initiative. Through collaborative hands-on labs guided by SFU experts, students examined best practices to critically evaluate and mitigate unwanted bias from sources such as data, algorithms or users. The school was attended by 16 students from Canada and the U.S.

6) Lastly, in terms of Policy Outreach, Chun worked with several entities to produce policy documents. As a Commissioner for Democratic Expression, she worked with the other commissioners on recommendations for regulating and countering threats to democratic expression online; as a member of the Expert Panel on AI for Science and Engineering for the Canadian Council of Academies, she helped create recommendations for how to develop AI in Canada for Science and Engineering projects; as a member of the Royal Society of Canada Working Group on Protecting Public Advice, she helped develop guidelines for Universities and institutions to protect public experts who are increasingly attacked online. These reports will all be made public in 2022.

Notable media successes:
1) Dr. Chun’s YouTube lectures have been viewed over 10,000 times. Recent videos available on YouTube include Chun’s President’s Faculty Lecture and the SFU School of Communication Book and Speaker Series lecture. The DDI website is regularly updated with Institute events, our publications and media engagements, and includes detailed information about our research and researchers. We posted 25 blog posts on our website that highlight guest presentations as part of our ongoing speaker series, and the work of the DDI.

2) Our projects have been covered by national and international high-profile media outlets. Notable coverage includes Breigha Adeyemo’s article “Could the Metaverse Amplify Harassment? Here’s How to Make the Next Iteration of the Internet More Inclusive,” in Popular Science. Viviane Fairbank’s article “Climate Change is a Fact—But to Prove It, Scientists are Bogged Down in a Battle About What Facts Really Are,” in the Globe and Mail, and Taylor Owen’s piece “To Govern Big Tech, Listen to Those Most Harmed by It,” in the National Post.

3) Dr. Chun was a guest on 3 podcasts, including “Seeing Truth with Wendy Chun,” with the University of Connecticut Humanities Institute. She participated in the Meeting Street Podcast, with Cogut Center for the Humanities, Brown University, with the episode titled “Uncovering the Humanities in Data Science.” She also took part in an episode of The Conversation Canada’s podcast Don’t Call Me Resilient, titled “Being Watched: How Surveillance Amplifies Racist Policing and Threatens the Right to Protest.”
Events, workshops, public outreach events:
The Digital Democracies Institute partnered with Media Democracy Days and SFU Public Square to host the annual Spry Memorial Lecture at SFU with panelists Desmond Cole and Tanya Talaga, and moderator Candis Callison titled “Changing the Spectrum: Race, media and building democracy in Canada.” The Institute also hosted a launch for Kate Crawford’s book Atlas of AI, moderated by Wendy Hui Kyong Chun and attended by 150+ members of the public and the academy. We also hosted the panel “Anti-Asian Sentiment Before Covid-19” with Grace Kyungwon Hong, Lisa Nakamura and Wendy Hui Kyong Chun, moderated by Kirsten McAllister, and respondents were Siyuan Yin, and Sun-ha Hong. Also, the DDI hosted the panel discussion on the findings of the Global Disinformation index report on online disinformation in Canada titled “Online Disinformation Risks: Issues for Canadian News Media and Advertisers.” The event was introduced by Amy Harris and was held in partnership with McGill’s Centre for Media, Technology and Democracy, Laval University’s centre d'études sur les medias, and the Global Disinformation Index.

Supporting documents:
-

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?  
Yes

SFU account number:  
S000259

Opening balance:  
$50,000.00

Revenues:  
$8,000.00

Expenditures:  
$10,556.60

Closing balance:  
$47,443.40

Financial report:  
-

Financial contributions from the university:
List of major equipment provided by the university:
n/a

University personnel:
n/a

Space provided by the university:
TASC 2 7460

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
No

Confirm policy review:
Yes

Submitted by:
Mark Campbell, Coordinator

Director's comments:
We are excited by how far the DDI has progressed in the first full year of its existence and by how it is expanding. In addition to advancing our four existing research streams and adding three more, we focused this year on integrating our streams into a proposed Data Fluencies project. We are grateful that the Mellon Foundation invited us to submit a proposal to them and has generously funded ($4.93 million USD) this project, which will start on July 1, 2022.

In this project we propose to explore, analyze, and counter the impacts of mis- and disinformation on cultural diversity by developing expansive and interdisciplinary data fluencies. Moving beyond literacy, data fluencies combine the interpretative traditions of the arts and humanities with critical work in the data sciences to express, imagine, and create innovative engagements with (and resistances to) our data-filled world. This will involve bringing together groups that have been working largely in parallel, non-intersecting tracks: social-justice-oriented research and pedagogy in the arts and humanities and similarly focused computational work; Indigenous media studies researchers and intersectional technology developers; arts-based data literacy efforts and data science curricular development. Working together and building on our previous work, we will:

create mixed qualitative-quantitative research to i) help diagnose how discriminatory and misleading information spreads and is authenticated on major social media platforms and ii) test methods and tools to counter these dynamics;
document how current automated content moderation systems discriminate against those they seek to protect and build experimental socio-technical systems to diagnose and respond to conflict;

build new data fluencies by expanding whose voices matter and how they do through community-led data centers, public night schools, exhibitions, performances, intersectional technology development workshops, and media projects to deter white nationalist radicalization;

mainstream these approaches through media production, courses, small research grants, and workshops.

This grant will fund 4 SFU-Mellon graduate fellows, an SFU-Mellon postdoctoral fellowship, SFU-Mellon faculty fellowships, and undergraduate researchers, as well as support for DDI administration and technical support. As mentioned previously, it will support the development of international collaborations, courses, and many community-engaged co-research projects.

We are absolutely thrilled and excited to take this project on, for technology is deeply infused into our daily lives, producing many well-documented and pressing ill effects. By enacting the techniques of data fluency across myriad settings, our team believes that the harms and risks of digital systems can be mitigated and that these very systems can be reimagined. We believe that these harmful consequences are not inevitable and that other outcomes are possible if we can work across disciplinary lines to imagine more just and creative futures. The impact of our proposed research is manifold and cuts across both individuals and society writ large to enrich our collective experience of data. First, we will cultivate the next generation of end-users, innovators, humanists, and critical thinkers so that they might create technologies that tell more diverse stories, increase equitable access, and allow for more just futures. Second, we will inspire new modes of civic engagement fit for the contemporary moment not only through college-level courses and graduate fellowships but also by working with and through contemporary media that are having outsized impacts on vernacular public knowledge, such as content moderation systems, and gaming and video platforms. It is critical that we enact the tools and techniques of data fluency across multiple sites to build civically engaged and diverse publics—where multivocality is both privileged and protected—an essential bedrock for a truly democratic future. The time for this work is now, and we are eager to undertake it.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

Reviewer's comments:
This is an exceptional Institute in both its scope and research productivity.
**General Information**

**Name of the Centre/Institute:** Indigenous Research Institute  
**Website:** [http://www.sfu.ca/aboriginalpeoples/indigenous-research-institute-.html](http://www.sfu.ca/aboriginalpeoples/indigenous-research-institute-.html)  
**Faculty:** VP Research  
**Director:** Vicki Kelly  
**Director's term end:** 2021-04-01  
**Renewal date:** 2026-04-01

**Details**

**Description of the Centre/Institute:**  
Statement of Purpose for the Indigenous Research Institute

The purpose of the Indigenous Research Institute is (1) to promote research in areas related to Indigenous peoples — in particular, the Aboriginal peoples of Canada — and in a larger context, those of the global community, and (2) to facilitate community-based projects with Indigenous partners. The Institute will promote research by bringing together the expertise of Indigenous individuals, groups, and organizations with that of the academic community, to engage in work that meets goals and objectives that is specified by and meaningful to both Indigenous and academic individuals and groups. A meaningful aspect of this process will be the facilitation of communication between Indigenous individuals/communities and the university. The Institute will also promote collaborative research projects within the university and will seek and support internal and external funding for the promotion and pursuit of such research.

**The Centre/Institute's membership and organization structure:**  
**Advisory Circle or Committee:**  
Vicki Kelly  
Ron Johnson  
Deanna Reder  
George Nicholas
Associated Member: Kelly Bannister University of Victoria

IRI Membership includes scholars and graduate students interested in understanding more about Indigenous Research, applying its processes and principles in their research by promoting its application within SFU, in partnership with other universities within BC, as well as Nationally and Internationally.

**Significant accomplishments:**
The recent Indigenous Ethics work began in Jan 2020 with building a solid financial and administrative team in the office of VPR. Once the financial base and a good understanding among the team was established, core personnel were hired and team-building continued with these individuals to plan and co-host the Ethics Dialogues. Through engaged conversation and collaboration, a high degree of good will, interest, and support was garnered within the VPR Office. This led to our being approached by Trevor Davies to deepen and extend the work around Indigenous Ethics. These conversations eventually led to the co-hosting by the IRI and the VPR Office of Six Ethical Foundations Conversations in which we focused on developing capacity and understanding for Indigenous Ethics and Indigenous Knowledge Systems. The original two Ethics Dialogues are now going to be held in the Fall of 2022. These Dialogues with the Indigenous Knowledge Holders will be complimented by Conversations with the VPR Office. The deep team-building, extensive engagement of the Ethical Foundations Conversations has laid the foundations for deep engagement with the Knowledge Holders. Despite delays due to Covid-19, there continues to be a notable developing of awareness, encouragement, good will and ongoing support expressed from VPR, ORE, REB, ADRs and engaged faculty who have asked to continue to meet in support of ongoing capacity development within the office.

**Notable media successes:**

Reconciling Ways of Knowing Forum:

This dialogue brought together Indigenous knowledge holders, scholars, practitioners and scientists, Danika Littlechild, Elder Dr. Dave Courchene Jr., Elder Ira Provost, Elder Elmer Ghostkeeper, Indigenous scholar Dr. Vicki Kelly, Dr. Kelly Bannister, Dr. Gleb Raygorodetsky and Karin Smith-Fargey.

[https://www.waysofknowingforum.ca/discussion2](https://www.waysofknowingforum.ca/discussion2)

Vicki Kelly and Kelly Bannister worked on the development of a Indigenous Ethics set of
Guidances for working with Indigenous Communities: Now being used by the Canadian Mountain Network and other Constitutions and organizations.

Dr. Vicki Kelly published:


Kelly Bannister published article on the Ethics of Consent and focuses on relational dimensions of consent as it has been articulated for research involving Indigenous peoples: https://www.taylorfrancis.com/chapters/oa-edi

Events, workshops, public outreach events:

At this time, this IRI recommends establishing an All Nations Circle of Elders/Knowledge Holders on Research and Indigenous Ethics who can co-imagine a process to awaken an understanding and active disposition for Indigenous knowledges and Indigenous ethics. Developing this new pathway would guide how future relations and research should occur. We are also seeking a commitment that SFU will follow the recommendations from the All Nations Circle of Elders/Knowledge Holders in our goal to strengthen Indigenous research and ethical foundations.

The IRI will extend and augment its current work with the VPR’s Office and also work with Graduate and Post-Doctoral Programs and other faculties to develop further interest and support for Indigenous Research, Indigenous Knowledges and Indigenous Ethics within SFU. Specifically it intends to support the development of research capacity and infrastructure for Indigenous Research. It also hopes to help develop an interdisciplinary course or courses for graduate students, faculty and scholars on Indigenous Research, Indigenous Knowledge Systems, and Indigenous Ethics.

Supporting documents:

-  

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?

No
Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Vicki Kelly, Director

Director's comments:
The recent Six Ethical Foundations Conversations were financially supported by the VPR's office Ie. catering, consultation fees for Kelly Bannister, and a RA who compiled the videos and audio files and took extensive notes.

The upcoming Indigenous Dialogues are supported by ASI Grant Funding from the ARC Report Process.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
-
General Information

Name of the Centre/Institute: Institute for Environmental Learning
Website: http://www.eco-learning.org
Faculty: VP Research
Director: David Zandvliet
Director's term end: 2020-04-01
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
The IEL was created by the SFU Senate to develop and support environmental learning and community engaged research in British Columbia communities, schools and post-secondary institutions. IEL is a BC based partnership among researchers, educators, and government stakeholders, facilitating education and action-oriented research around environmental learning and sustainability and was chartered by the United Nations as a Regional Centre for Expertise on Education for Sustainable Development representing BC and the North Cascades (UN BC RCE). The Institute is well positioned to play a leading role in the development of environmental learning curriculum and practice with the following objectives:

- Promote multi-sectoral collaboration, community based problem solving and a network of research into effective teaching practices;

- Develop and support research and programs on environmental learning in communities, schools and post-secondary institutions;

- Focus on an interdisciplinary approach to research with multi-institutional involvement and expertise;

- Coordinate research and development activities; and

- Increase private and public involvement in Environmental Learning and related research, fund distribution and policy development

The Centre/Institute's membership and organization structure:
The institute has both a steering committee (for governance) which makes decisions on the basis of consensus. The institute also seeks input more broadly through its advisory council. Members include representation from BC postsecondary institutions, K-12 schools and teacher organizations, the informal education sector (including museums and aquariums) as well as representation from municipal governments.

**Significant accomplishments:**
1) Three funded graduate fellowships with the VGBA at the Van Dusen Gardens (Vancouver)

2) Continuing research partnerships with OceanWise and Science World

3) Secured PICS Funding for the 3 year project: Infusing Climate Education into the BC Curriculum

4) Re-launch of the journal: International Journal of Informal Science and Environmental Learning

5) New teaching and research developments in partnership with the Howe Sound UNESCO Biosphere Reserve Initiative and the Mount Arrowsmith Biosphere Research Institute (Vancouver Island University)

**Notable media successes:**

**Events, workshops, public outreach events:**
We have begun to collaborate and host a yearly event with the Wild About Vancouver (WAV) event. This year's event takes place June 3rd (2022) in Stanley Park at 2nd Beach.

**Supporting documents:**
WAVcommunity_Promo_M4_QPPXAxk.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university? No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Confirm policy review: Yes

Submitted by: David Zandvliet, Director

Director's comments: The IEL is in a stable financial position and has secured a new grant with PICS during the coming three year funding window (2022-2025) -- the project features a significant new collaboration with the Ministry of Education and the Climate Action Secretariat, and features broad consultation with BCTF members, informal and Indigenous education stakeholders.

Please see Project N876803 for financial details related to contingency funds for the Institute. The institute receives no funding from the University.

Reviewer's Section

Reviewed by: Michael Richards, Associate Vice-President, Research

Reviewer's decision: Approved

Reviewer's comments: -
Wild About Vancouver (WAV pronounced “wave”) Outdoor Education Festival is a free public event offering practical ways to get children and adults outdoors more regularly. Time spent outdoors positively impacts well-being, physical, intellectual, and social development, as well as environmental ethics and practices. Join us!

SHAPE OF THE DAY

9:30 am – Opening with Squamish Hereditary Chief, Joe Campbell and civic leaders


2:00 pm – Musqueam Elder and Artist – Shane Pointe, athletes and public dignitaries speak
3:00 – 7:00 pm – Picnic in the Park - Grab a blanket, pack a picnic and celebrate being together in Vancouver

Volunteer your musical talents on the WAV website 😊  
info@wildaboutvancouver.com

TidalWAV 2022
Friday, June 3, 2022
Second Beach in Stanley Park

9:30 am – 2:15 pm
Learners of All Ages  
Outdoor Learning Books and Prizes

2:15 – 7 pm
Community Picnic in the Park
Music (volunteer to play on WAV website)
SWAG and Draw Prizes
Report Type: Annual Report
Reporting Year: 2022

**General Information**

**Name of the Centre/Institute:** Institute for Intersectionality Research and Policy  
**Website:** https://www.sfu.ca/  
**Faculty:** VP Research  
**Director:** Olena Hankivsky  
**Director’s term end:** -  
**Renewal date:** 2023-07-01

**Details**

**Description of the Centre/Institute:**  
The Institute for Intersectionality Research and Policy (IIRP) anchors a vibrant cross-disciplinary community of nationally and internationally recognized researchers, scholars, government representatives, activists, and practitioners who are advancing the theory and practical applications of intersectionality in research, policy and praxis. The IIRP was the first Institute of its kind internationally, and remains a leader in the area of equity, health and well-being scholarship in Canada and internationally.

**The Centre/Institute’s membership and organization structure:**  
The Institute is in a real period of renewal following the return of Dr. Hankivsky from leave at University of Melbourne. The focus in the next year will be on growing our membership base as well as interfacing with other emerging intersectionality entities/organizations internationally. Some of these entities include: The Intersectionality Training Institute and Intersectionality Research Institute in Philadelphia, US (George Washington U), the Centre for Intersectional Justice in Berlin, Germany (non-profit), the Center for Intersectional Gender Studies and Research in Utah, US (Utah State University), the Consortium on Race, Gender and Ethnicity in Maryland, US (U of Maryland), the Centre for Sexuality, Race and Gender Justice in Canterbury, UK (U of Kent), and the Center for Intersectionality and Social Policy Studies in New York (Columbia Law School).

The core membership/organization is currently:

Director - Dr. Olena Hankivsky, Professor, School of Public Policy, SFU

Current Research Associates/PhD trainees - Gemma Hunting, PhD candidate as of May 2022; Ashlee Cristoffersen, Postdoc as of Jan. 2023
Current Research Assistants/Graduate students - 2 students from the School of Public Policy  
(to assist in Lancet Commission research focused on intersectionality)

Centre Affiliates - approximately 75 scholars from across Canada and internationally.  
Affiliates also include members of the current CIHR Research Team (see funding  
information re this project below) including:

All authors of the original IBPA Framework (see below)

Pascale Allotey, PhD, Director at UNU Institute for Global Health

Lisa Bowleg, PhD, Professor of Applied Social Psychology, George Washington U, USA

Anuj Kapilashrami, PhD, Professor, School of Health & Social Care, U of Essex, UK

Aditi Iyer, PhD, Senior Research Scientist, Ramalingaswami Centre on Equity and Social  
Determinants of Health (RCESDH) India

Greta Bauer, PhD (Professor, Epidemiology & Biostatistics, U of Western, and new CIHR Sex  
and Gender Science Chair)

Marina Morrow, PhD (Professor and Chair, School of Health Policy and Management, York U)

Cole Etherington, PhD (Senior Research Associate, Clinical Epidemiology Program, Ottawa  
Hospital Research Institute)

Melissa Giesbrecht, PhD (Centre on Aging and Lifelong Health, U of Victoria, contributor to  
original IBPA)

Asha George, PhD (Professor, School of Public Health, U of the Western Cape)

Kristen Springer, PhD (Associate Professor of Sociology, Rutgers U)

Gita Sen, PhD (Director & Distinguished Professor, RCESDH, India)

Shirin Heidari, PhD (Founding President GENDRO, and Senior Consultant in Gender, Equity  
and Human Rights, WHO)

Claire Sommerville, PhD (Executive Director, Gender Centre, Graduate Institute of Geneva)

Sibille Merz, PhD (Postdoctoral Fellow, AdvanceGender, Medical U Brandenburg Theodor  
Fontane (MUBTF), Germany)
Philipp Jaehn, PhD (Coordinator, AdvanceGender, MUBTF)

Robyn Norton, PhD (Co-founder and Principal Director, George Institute for Global Health, and Chair of Global Health, Imperial College).

And, Knowledge Users from:

The Lancet Commission on Gender and Global Health (in which the NPA is a Commissioner)

World Health Organization (Mariam Otmani del Barrio & Garry Aslanyan)

Pan American Health Organization (Anna Coates)

National Collaborating Centre for Healthy Public Policy

National Collaborating Centre for Determinants of Health

Office of the Chief Public Health Officer of Canada

Public Health Agency Canada (Health Integration Team)

Women and Gender Equality Canada

Significant accomplishments:

1) In February 2022, Dr. Hankivsky (NPA) and an interdisciplinary/intersectoral team of Canadian and International researchers and policy actors/knowledge users were awarded 600,526 CAD in funding to support a 4.5 year Project entitled “Intersectionality-Based Policy Analysis Framework 2.0: An improved approach for explicating the “+” in SGBA+.” The proposed project includes the creation of a strengthened version of the Intersectionality Based Policy Analysis Framework (IBPA) (2012), which was developed by Dr. Hankivsky and a team of interdisciplinary graduate students at the IIRP, and has been increasingly taken up by researchers, policy actors and practitioners globally. The project will also develop a virtual community of practice, IBPA-related trainings, and multiple learning resources (e.g., policy briefs, massive open online course), required to accurately think about, share knowledge on, and apply intersectionality.

2) The CIHR funding awarded above will support a new PhD candidate (starting May 2022), Gemma Hunting, who is currently in the Individualized Interdisciplinary Studies Program (Supervisor, Dr. Hankivsky). She will be engaged with the project as a PhD trainee. It will also support an incoming (starting January 2023) Postdoc student, Dr. Ashlee Christoffersen who will be engaged with the project as a Postdoctoral trainee.
3) Supported by the new funding, a new website for the IIRP is currently being designed and developed for finalization in 2022.

Notable media successes:

Events, workshops, public outreach events:

Supporting documents:
Notice_of_Decision_IP0yEIY.pdf (See attachment below)

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
Yes

SFU account number:

Opening balance:

Revenues:

Expenditures:

Closing balance:

Financial report:

Financial contributions from the university:
Simon Fraser University’s Office of the Vice-President, Research and International has committed to providing 15,000 CAD in RA support to two SFU School of Public Policy students to assist in Lancet Commission research focused on intersectionality.
List of major equipment provided by the university:
- 

University personnel:
- 

Space provided by the university:
- 

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
CIHR Project Grant - Dr. Hankivsky (NPA), 600,526 CAD for 4.5 years. Title: "Intersectionality-Based Policy Analysis Framework 2.0: An improved approach for explicating the "+" in SGBA+.”

Confirm policy review:
Yes

Submitted by:
Olena Hankivsky, Director

Director's comments:
Through the international work of the IIRP's Director and Members, the IIRP has continued to grow and develop a network of scholars and affiliates working collaboratively across disciplines and sectors. The IIRP has increasingly developed its reputation as being at the forefront of progressive intersectional work in the area of health and social research and policy. This will continue to occur with the planned activities associated with the 4.5 year CIHR funding, which provide unique opportunities to anchor collaborative learning and research.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
### Notice of Decision / Avis de décision

**Applicants/Candidates:** Dr. Olena Hankivsky

**With/Avec:**
- Dr. P. Allotey
- Dr. A. Fridkin
- Prof. A. Kapilashrami

**Institution paid/** Simon Fraser University (Burnaby, B.C.)

**Title/Titre:** Intersectionality-Based Policy Analysis Framework 2.0: An improved approach for explicating the "+" in SGBA+

**Primary Inst./Inst. principal:**
- Population and Public Health / Santé publique et des populations

**Other Related Inst./Autres inst. connexes:**
- Gender and Health / Santé des femmes et des hommes

### Competition Outcome/Résultats du concours:

<table>
<thead>
<tr>
<th>Competitor/Concurrente</th>
<th>Number in competition/Nbre de demandes dans le concours</th>
<th>Number approved/Nbre de demandes approuvées</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
<td>417</td>
</tr>
</tbody>
</table>

### Decision on your application/Décision sur votre demande:

- **Approved / Approuvée**
- **Total Funding Amount:/ Montant total du financement:**
  - $600,526

### Term/Durée:

- **4 yrs/6 months:**
  - 4 years / 6 months

### Peer Review Committee Recommendation, for your information and use/Recommandation du comité d'examen par les pairs, pour fins d'information et d'utilisation:

<table>
<thead>
<tr>
<th>Committee/Comité:</th>
<th>Gender, Sex &amp; Health / Genre, sexe et santé</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number reviewed/</td>
<td>33</td>
</tr>
<tr>
<td>Nbre de demandes examinées:</td>
<td>33</td>
</tr>
<tr>
<td>Number approved in that committee/ Nbre de demandes approuvées dans ce comité:</td>
<td>6</td>
</tr>
<tr>
<td>Application rank within the committee/</td>
<td>5</td>
</tr>
<tr>
<td>Percent Rank Within the Committee/</td>
<td>87.5%</td>
</tr>
<tr>
<td>Rating/</td>
<td>4.32</td>
</tr>
</tbody>
</table>

---

This document is for information only. Official payment is stated on the CIHR Authorization for Funding. Document à titre d'information seulement. Le paiement officiel est indiqué sur l'autorisation de financement des IRSC.
General Information

Name of the Centre/Institute: Institute for Neuroscience and Neurotechnology
Website: https://www.sfu.ca/neuro-institute.html
Faculty: VP Research
Director: Randy McIntosh
Director's term end: 2026-12-17
Renewal date: 2026-11-17

Details

Description of the Centre/Institute:
The study of the brain is evolving to span academic disciplines from natural and social sciences to engineering and the arts. The integration of approaches is essential if we are to make meaningful advances in the understanding of our brains and the changes that come from damage and disease. The Institute for Neuroscience and Neurotechnology (INN) will serve as a hub for neuroscience research and innovation activities at SFU. This SFU hub will also connect with other neuroscience efforts locally, nationally, and internationally, and will foster connections to promote commercialization and clinical translation.

Mission:

1) Educate the world on how to strengthen brain resilience

2) Bring together and inspire SFU researchers to develop exceptional, interdisciplinary research programs, that are appealing to major funding agencies, and stimulate fundamental and translational neuroscience research for clinical and commercial uses.

3) Enhance neuroscience research at SFU by providing technical support, that complements and advances investigator's teams, for data acquisition and analysis, informatics, and computational modelling.

4) Train the next generation of neuroscience researchers with the skills and confidence to be leaders in their fields.

The Centre/Institute's membership and organization structure:
An Executive Committee consists of a director (Randy McIntosh), two Associate-directors
(Brianne Kent & Daniel Marigold), and the senior program leader (Kelly Shen).

An Advisory Committee consisting of SFU and external members who serve to advise the Executive Committee on strategic initiatives and evaluate progress on goals.

A Steering Committee consisting of SFU faculty members from a range of faculties and departments. The role of the Steering Committee is to represent the broader interests of neuroscience across SFU, working with the Executive Committee to validate strategic goals and objectives, evaluate barriers to progress, and propose solutions.

We have a formal application procedure for INN membership. The applications were opened on May 24, 2022. At present we have 13 members (3 members, 3 from the executive committee, and 7 steering committee). There are 6 pending membership applications. We will do a membership campaign early in the Fall.

Significant accomplishments:
1) Grants

We operationalized the INN mission to bring together neuroscience efforts across SFU by facilitating cross-disciplinary grant applications. These were complemented by grant applications that focused on supporting core INN operations.

INN facilitated:

NFRF Exploration grant (approved, March 2022). PI McIntosh, SFU co-PIs: Kent, Sixsmith, Wister

NFRF Transformation grant (LOI not approved). PI Mcintosh, SFU co-PIs: Kent, Marigold, Sixsmith, Wister, Cosco, Iarocci, Doesburg, Cooke, Farzan.

Simon’s Foundation Autism Research Initiative grant (full application submitted, decision expected August 2022), PI McIntosh, SFU co-PIs: Iarocci, Doesburg.

Chan Zuckerberg Initiative Patient-Partnered Rare Neurodegenerative Disease grant (full application submitted, decision expected October 2022), PI Julien, SFU Co-PIs: McIntosh

INN operations:

Chan Zuckerberg Initiative Essential Open Software grant (adjudicated LOI successful, full application submitted, decision expected Sept 2022), PI McIntosh,

Tanenbaum Open Science Institute Buy-In Project (full application submitted, decision
expected July 2022), PI Kent

Brain Canada - Canadian Open Neuroscience Platform: PI Evans (McGill), SFU co-PIs: McIntosh

2) Publications:

Data processing pipeline for INN informatics support: https://www.frontiersin.org/articles/10.3389/fninf.2022.883223/full

Empirical work from Dan Marigold’s lab on motor memory and re-learning in the face of threat: https://www.eneuro.org/content/9/3/ENEURO.0459-21.2022

3) Undergraduate / Co-op students assisted with INN communication: Eleina Lucas (RA, April-June 2022), Jaspreet Dodd (FHS Co-op, June-Dec 2022)

Hired new software engineer – Noah Frazier-Logue - through Research Computing to integrate data processing flow into SFU Research computing staff.

**Notable media successes:**

Randy McIntosh was interviewed for Conversations That Matter about the Virtual Brain and its establishment at SFU: https://www.youtube.com/watch?v=S2n5s89rXoA&t=812s

Dan Marigold’s paper was featured in an SFU communications brief and through the international Society for Neuroscience: https://twitter.com/SfNJournals/status/1535735123261399040.

**Events, workshops, public outreach events:**

Randy McIntosh participated in a national virtual symposium on “Game Changers” that was held for the Health Caucus and Member of Parliament in Ottawa, organized by Research Canada. McIntosh's presentation focused on the vision for neuroscience at SFU: https://rc-rc.ca/phrc-welcome-reception-game-changers/

The first phase of the INN website was completed and launched in March.

We gave the SFU community an opportunity to hear about INN and offer feedback on our plans in two virtual Town Halls held on March 16 & 18. We will continue these in the Fall.

We began our INN seminar series that are currently hybrid events, involving two national, and two international speakers (March 31, April 28, May 25, June 22). The seminars were
recorded and posted on the INN YouTube channel. The seminars will continue monthly starting in September.

We held a virtual meet & greet with prospective donors on March 16 to get the word out about the INN and begin engagement. Advancement and comms were extremely helpful in pulling this together.

INN led an initiative to combine efforts with UBC and form a regional alliance focused on developing and promoting neuroinformatics initiatives for scientists in Western Canada through the international INCF organization called WCNC (Western Canadian Neuroimaging Consortium). Paul Pavlidis is the representative for WCNC, as Randy McIntosh is the Deputy Chair of the INCF governing board.

Supporting documents:
-

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**
Yes

**SFU account number:**
Project N000950

**Opening balance:**
$680,000.00

**Revenues:**
$0.00

**Expenditures:**
$91,787.21

**Closing balance:**
$588,212.79

**Financial report:**
financial-summary_20220628_5cIuXi7.pdf (See attachment below)

**Financial contributions from the university:**
The financial summary reported above covers part of the last fiscal year to the present (Jan-June 2022).
Financial support was received in the form of the LEEF Chair Endowment ($600,000) and support for a 1.0 FTE computer programmer ($80,000 annually) from the VPRI.

**List of major equipment provided by the university:**
none

**University personnel:**
Two full-time personnel were hired in January 2022 to support the activities of the INN. Annual salary for the senior program manager / informatics team lead is $125,000 + benefits and for the computer programmer is $65,700 + benefits. A part-time undergraduate student research assistant was also hired on a 3-month contract totalling $2995 to support INN communication activities (i.e., social media, website, etc).

**Space provided by the university:**
none yet identified

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
No

**Confirm policy review:**
Yes

**Submitted by:**
Randy McIntosh, Director

**Director’s comments:**
Though we have only been operational for six months, I do feel the INN is running well. With the help of the advisory & steering committees, we have a draft strategic plan that we are converting to the annual and five-year operational plan. We have weekly INN exec meetings to work through tactics to support the operational goals.

The broader SFU engagement is well underway, and I expect to launch cross-campus initiatives in the Fall. This will also dovetail with parallel efforts involving Fraser and Providence Health.

There are two items of concern. The first is financial. While we have been very active in applying for external grants, internal sources of revenue have not been secured. I am hopeful that in working with the VPRI office, we can get a stable stream secured before the end of the first year. The second, and less pressing, issue is space. At present, there is no space identified for the INN. I am presently working with the Faculty of Science, but as of this writing, we have no firm plans. As with the finances, I am hopeful that we can identify
appropriate space(s) before the end of our first year.

**Reviewer's Section**

**Reviewed by:**  
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**  
Approved

**Reviewer's comments:**  
-
## INN Financial Report, Jan1-Jun29, 2022

### Opening Balance

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LEEF endowment</td>
<td>600000</td>
</tr>
<tr>
<td>VPRI Startup</td>
<td>80000</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>680000</strong></td>
</tr>
</tbody>
</table>

### Expenditures

<table>
<thead>
<tr>
<th></th>
<th>per pay period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>wages</td>
</tr>
<tr>
<td>salaries</td>
<td></td>
</tr>
<tr>
<td>Program Manager, Kelly Shen</td>
<td>52871.3</td>
</tr>
<tr>
<td>Computer Programmer, Noah Frazier-Logue</td>
<td>29118.51</td>
</tr>
<tr>
<td>Communications Assistant, Eleina Lucas</td>
<td>2995.2</td>
</tr>
</tbody>
</table>

| other                |       |
| email account creation | 25    |
| INCF membership      | 6556.42 |
| meeting room bookings | 220.78 |

| **total**            | **91787.21** |

### Balance on June 28, 2022

588212.79
General Information

Name of the Centre/Institute: Institute for Performance Studies (IPS)
Website: [http://www.sfu.ca/ips.html](http://www.sfu.ca/ips.html)
Faculty: VP Research
Director: Peter Dickinson
Director's term end: 2021-04-01
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
The INSTITUTE FOR PERFORMANCE STUDIES (IPS) is a multidisciplinary research institute that builds on more than a decade of consistent research inquiry at SFU in performance studies, an interdisciplinary field of academic inquiry that uses performance as a lens to examine a range of cultural expressions and social actions. Its mission is:

- to promote innovative research and develop new modes of scholarly analysis based on performance studies methodologies

- to contribute to the critical discourse on and of performance through the publication of a peer-reviewed, on-line and open source journal;

- to support advanced education and collaborative research at SFU and in British Columbia in the overlapping investigative fields of performance studies; literary and print culture studies; theatre, visual culture studies, and the performing arts; embodiment and new media technologies; ethnography and anthropology; gender and sexuality studies; arts education; communication; public policy; cultural history; urban studies and creative placemaking; and

- to support performance-based pedagogical and curricular innovations, university-community collaborations, and public outreach activities in these same areas.

The Centre/Institute's membership and organization structure:
Membership in the Institute for Performance Studies is by application to the Director and the Steering Committee, who may also recruit members to apply. There are five categories of membership:
- Faculty Members: SFU CFL actively teaching and conducting research in Performance Studies.

- Associate Members: Contract faculty at SFU and faculty from other postsecondary institutions in British Columbia teaching and researching in Performance Studies.

- Graduate and Postdoctoral Fellows: Doctoral and early career scholars conducting research in Performance Studies at SFU.

- Visiting Members: Scholars from outside British Columbia conducting Performance Studies research while on leave or secondment to SFU.

- Community Members: Artists, writers, curators, policy makers, cultural producers, and community workers engaged in performance practice, policy and research.

**Significant accomplishments:**

1) IPS published a new double issue of its online, open-access, peer-reviewed scholarly journal, Performance Matters:

   - Vol. 7 No. 1-2 (2021): “Performing (in) Place: Moving on/with the Land.” Issue editors: Jenn Cole and Melissa Poll. This special double issue features works that reflect on “walking” (or moving) practices that have been enacted in recognition of contributors’ relationships to the ancestral Indigenous lands and territories they occupy, arrive to, or originate from. [https://performancematters-thejournal.com/index.php/pm/issue/view/19](https://performancematters-thejournal.com/index.php/pm/issue/view/19).

2) Additionally, an article published in issue 6.1 of our Institute’s journal, Jade Power-Sotomayor’s “Corporeal Sounding: Listening to Bomba Dance, Listening to puertorriqueñxs,” was awarded the American Society for Theatre Research’s 2021 Sally Banes Publication Prize: [https://performancematters-thejournal.com/index.php/pm/announcement/view/13](https://performancematters-thejournal.com/index.php/pm/announcement/view/13).

3) IPS, partnering with the British Columbia Alliance for Arts and Culture, was a successful co-applicant for a $270,987 grant from Canadian Heritage’s Canada Cultural Investment Fund Program to pilot an Arts on Prescription (AoP) pilot project in response to the effects of COVID-19 on the BC cultural sector.

4) IPS Director Peter Dickinson received a $178,187 SSHRC Insight Grant for a 5-year study investigating “The Discourse of Dance in British Columbia.”

5) A selection of books published by IPS members during the reporting period includes:
• Dara Culhane and Denielle Elliott, eds, Réinventer l’ethnographie : pratiques imaginatives et méthodologies créatives (Presses de l’Université Laval, 2021)

• Leith Davis, Mediating Cultural Memory in Britain and Ireland: From the 1688 Revolution to the 1745 Jacobite Rising (Cambridge University Press, 2022)

• Deanna Reder, Autobiography as Indigenous Intellectual Tradition: Cree and Métis âcimisowina (Wilfrid Laurier University Press, 2022)

**Notable media successes:**

**Events, workshops, public outreach events:**
1) 1) In the Spring of 2022, IPS sponsored a workshop on arts and sustainability featuring a keynote address by The Only Animal Theatre Company’s Kendra Faconi.

2) 2) IPS is a sponsor and community partner of a SSHRC-funded 2022 gathering on Equity, Diversity and Inclusion in Canadian theatre being organized by the Greater Vancouver Professional Theatre Alliance and the Université du Québec à Montréal.

**Supporting documents:**
1) FAST_REPORT_IPS_qbT6jQ2.pdf (See attachment below)
2) Approval_-Letter_2022-03-11_sb2S9xQ.pdf (See attachment below)

**Financial Summary:**

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
- IPS has an external endowment that currently sits at just over $66,000. This funds a number of IPS initiatives, including the preparation of our journal. Plans are in place to add to this endowment in 2022. A copy of our Operating Fund Report is included in the Supporting Documents section.

- As noted above, IPS was a successful co-applicant on a Canadian Heritage Grant in the
amount of $270,987.

**Confirm policy review:**
Yes

**Submitted by:**
Peter Dickinson, Director

**Director's comments:**
As noted in my report from last year, and as per the IPS constitution, the IPS Steering Committee renewed the Director's term in the spring of 2021 for an additional three years, through April 1, 2024. Can you please update your records to this effect to reflect this on this annual report?

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
-
Mr. Sean Bickerton  
Chair of Board  
British Columbia Alliance for Arts and  
Culture Society  
100 - 938 Howe Street  
Vancouver, British Columbia  
V6Z 1N9

March 11, 2022

Title:  BC Cultural Sector COVID-19 Response: Arts on  
Prescription (AoP) - a Needs Assessment

Dear Mr. Bickerton:

It is my pleasure to inform you that your application for funding has been approved.

A contribution in the amount of $270,987 will be awarded to help your organization carry out its activities, under the Canada Cultural Investment Fund Program, Strategic Initiatives Component. This funding will be allocated over three government fiscal years 2022-2025 and will be subject to certain terms and conditions, the appropriation of funds by Parliament, and the budget levels of the Program.

One of our program representatives may be in contact with you in the near future to review the terms and conditions related to this funding. As you may already know, the Government of Canada is committed to promoting workplaces free from harassment, abuse and discrimination. I would like to seize this opportunity to remind you of your responsibility to provide a work environment where harassment, abuse and discrimination are not tolerated.

In closing, I would like to take this opportunity to wish you and the members of your organization the greatest success in your endeavours.

Sincerely,

The Honourable Pablo Rodriguez, P.C., M.P.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4440</td>
<td>Interest Income LT - General</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-3.337.58</td>
<td>0.00</td>
<td>3.337.58</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-3.337.58</td>
<td>0.00</td>
<td>3.337.58</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6010</td>
<td>Computer Hardware under 5k</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6522</td>
<td>Publishing Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6910</td>
<td>General Program Costs</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7915</td>
<td>Budget Balance Forward</td>
<td>0.00</td>
<td>2.2x1.08</td>
<td>2.2x1.08</td>
<td>0.00</td>
<td>0.00</td>
<td>2.2x1.08</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0.00</td>
<td>2.2x1.08</td>
<td>2.2x1.08</td>
<td>0.00</td>
<td>0.00</td>
<td>2.2x1.08</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>0.00</td>
<td>2.2x1.08</td>
<td>2.2x1.08</td>
<td>0.00</td>
<td>-3.337.58</td>
<td>0.00</td>
<td>5,628.66</td>
</tr>
</tbody>
</table>
General Information

Name of the Centre/Institute: Institute for the Reduction of Youth Violence
Website: http://www.sfu.ca/iryv
Faculty: VP Research
Director: Robert McMahon
Director’s term end: 2025-06-15
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
The Centre for the Reduction of Violence among Children and Youth was approved by the Board of Governors on September 20, 2007. Dr. Robert McMahon (Department of Psychology), the Director of the Centre, began his SFU appointment effective June 16, 2010. Under his leadership, the Centre was reclassified as an Institute in December 2012 to reflect its multidisciplinary and cross-faculty/university functions with the name changed to the Institute for the Reduction of Youth Violence (IRYV).

The objectives of the Institute are to establish, maintain, and support interdisciplinary research that is focused on (a) elucidating the origins, developmental pathways, and outcomes of children and youth with violence and other conduct problems; and (b) the development, evaluation, and dissemination of state-of-the-art preventive and treatment interventions for alleviating youth violence and other conduct problems throughout childhood and adolescence. A third objective of the Institute is the dissemination of knowledge about youth violence to multiple stakeholders, including researchers, practitioners, policy makers, and the community at large.

The Centre/Institute's membership and organization structure:
The Institute is directed by Dr. Robert McMahon, the LEEF BC Leadership Chair in Proactive Approaches to Reducing Risk for Violence among Children and Youth (SFU Department of Psychology). The Associate Director is Dr. Jodi Viljoen, Professor in the Department of Psychology. In addition, the Advisory Committee consists of Drs. Marlene Moretti, Ron Roesch, and Kevin Douglas, of the SFU Department of Psychology. During the reporting period, there were five graduate students and a University Research Associate under Dr. McMahon’s supervision involved in the Institute. There are also more than 65 Research Partners, representing a variety of institutions in Canada and internationally. See
Significant accomplishments:
1) Significant accomplishments (see attachments for details) this past year include:

1. ONGOING FUNDED RESEARCH PROJECTS. I continue to be actively involved as one of the
PIs on the Fast Track Project (NIDA, US$3.94 million, 2015-22). We are currently preparing
and submitting applications for continued funding for this 30+-year project. Analyses are
underway for a) a NIMH-funded project (“Parent training and emotion coaching for children
with limited prosocial emotions”) (PI; 2014-19); b) a CIHR operating grant (“Personalizing
psychosocial interventions for children with oppositional defiant disorder”) (Co-Applicant;
2015-19); and c) a NIMH-funded project (“Netting prevention intervention butterfly effects:
An integrative data analysis investigating the long-term and cross-over effects of
randomized, school-based prevention programs on adult mental health”) (Co-Investigator;
2020-22). In addition, data collection is underway for a SSHRC-funded project (“Validating a
developmental model of primary and secondary callous-unemotional traits”) (Co-Applicant;
2020-22) and for a project funded by the BCCHRI (“Parental mind-sets and mental health
treatment attitudes) (Co-PI; 2020-22).

2) RESEARCH PRODUCTIVITY. Institute personnel produced 24 peer-reviewed
publications; 3 book chapters; and 20 conference, workshop, and community presentations.
(See Attachment A.)

3) NEW FUNDING totaling CAD$295,675 was awarded during the reporting period.
(Additional ongoing funding is noted in Attachment B.)

4) TRAINEE (GRADUATE STUDENT) EXTERNAL RESEARCH TRAINING FUNDING
(ongoing and new) totaled more than CAD$458,000.

5) AWARDS. Dr. Viljoen was the recipient of the FASS Dean’s Medal for Academic
Excellence in 2021.

6) RESEARCH COLLABORATIONS. We have maintained affiliations with existing research
institutes at SFU (e.g., Mental Health, Law, & Policy; Behavioral Cognitive Neuroscience). We
also have continued to establish and expand existing research collaborations with SFU
colleagues and researchers at other universities throughout North America and
internationally.

Ongoing collaborations during the current reporting period with researchers at other
universities include UBC, University of Toronto, York University, University of Alberta,
University of California-Irvine, Duke University, University of Vermont, Arizona State
University, University of California-San Francisco, Johns Hopkins University, New York
University, University of Virginia, and Georgia State University. Additional international collaborators include University of Bremen, Germany; University of Klagenfurt, Austria; Oxford University, England; University of Oslo, Norway; Bangor University, Wales; University College-London, England; and Australian National University.

These complement ongoing, long-term collaborations with researchers in the U.S.: University of Washington, University of Colorado, Duke University, Pennsylvania State University, University of Alabama, Tufts University, Indiana University, and Auburn University. Organizational/agency collaborators include the BC Children's Hospital Research Institute (BCCHRI) and BC Mental Health and Substance Use Services Research Institute (BCMHSUSRI).

**Notable media successes:**

- 

**Events, workshops, public outreach events:**

As noted above, I continue to develop connections with the research and service communities in Metro Vancouver, BC, Canada, and internationally. I have established and extended connections with faculty at SFU and UBC, as well as at BCCHRI (where I have an appointment as a research scientist, and was co-leader of the Mental Health and Behaviour research group) and the BCMHSUSRI that have proven beneficial in advancing the activities of the IRYV.

**Supporting documents:**

1) ATTACHMENT_A-Publications_Presentations_6-8-22_FINAL_VWUUKvU.docx (See attachment below)
2) ATTACHMENT_B-Funding-6-8-22_FINAL_SYSp13R.docx (See attachment below)

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**

Yes

**SFU account number:**

X159081

**Opening balance:**

$46,964.30

**Revenues:**
$0.00

Expenditures:
$9,899.77

Closing balance:
$37,064.53

Financial report:
X159081-March312022_aW7Asjw.pdf (See attachment below)

Financial contributions from the university:
FASS has previously provided $376,581.52 funding for the renovation of the Institute, including relevant computing equipment. A portion of those funds was returned to the Faculty given that CFI and BCKDF funding were obtained.

List of major equipment provided by the university:
FASS has previously provided $376,581.52 funding for the renovation of the Institute, including relevant computing equipment. A portion of those funds was returned to the Faculty given that CFI and BCKDF funding were obtained.

University personnel:
Institute funds were used to support the efforts of a University Research Associate. (It should be noted that the University Research Associate was paid partly from NIH grant funds awarded to me, as well as funds awarded to Dr. M. Moretti. This allowed me to utilize a significant portion of the funds allocated for her salary for other uses.)

Space provided by the university:
Approximately 2,000 sf of space has been allocated for the Institute in RCB 7220. Renovations began in May 2012 and were completed in early 2013. I applied for and received awards from both the CFI-LOF (Leaders Opportunity Fund) and the BC Knowledge Development Fund (BCKDF) for $250,000 each to support these renovations. Those funds have now been expended.

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
Ongoing research grant funding from annual renewal of subcontracts from Duke University and Johns Hopkins University, new funding from SSHRC to Dr. Natalie Goulter for an Insight Development Grant, as well as an operating grant from CFI for maintenance of CFI-purchased equipment:
R. McMahon, Principal Investigator (MPI with K. Dodge, Duke University; M. Crowley, Pennsylvania State University)

Optimizing prevention of costly adult outcomes

National Institute on Drug Abuse (NIDA)

Drug Abuse Prevention Intervention Research

2015-2022

Total Funding – US$3,942,780

R. McMahon, Co-Investigator (R. Musci & H. Wilcox, MPIs, Johns Hopkins University)

Netting prevention intervention butterfly effects: An integrative data analysis investigating the long-term and cross-over effects of randomized, school-based prevention programs on adult mental health

National Institute of Mental Health (NIMH)

RFA-MH-20-110, “Secondary Data Analysis to Examine Long-Term and/or Potential Cross-Over Effects of Prevention Interventions: What are the Benefits for Preventing Mental Health Disorders?” (R01)

2020-2022

Total funding – US$2,213,602

N. Goulter, Principal Applicant (R. McMahon, S. Craig, Y. Zheng, M. Moretti, Co-Applicants)

Externalizing and internalizing networks across childhood and into adolescence.

Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Development Grant

2021-2023

Total Funding – CAD$68,647

R. McMahon, Principal Investigator
Institute for the Reduction of Youth Violence

Canada Foundation for Innovation (New Opportunities Fund)

2014-2021

Total Funding – CAD$75,000

**Confirm policy review:**
Yes

**Submitted by:**
Robert McMahon, Director

**Director's comments:**
My focus for the next year continues to be conducting research related to the goals of the Institute, and expanding the visibility and reach of the Institute by continuing to apply for external funding to support relevant research activities.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
The research productivity of this Institute is particularly impressive.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4104</td>
<td>Indv - Gift</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2910</td>
<td>Deferred Contribution</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.00</strong></td>
</tr>
<tr>
<td>0000</td>
<td>Object Rollup</td>
<td>0.00</td>
<td>46,964.30</td>
<td>46,964.30</td>
<td>0.00</td>
<td>0.00</td>
<td>46,964.30</td>
<td>0.00</td>
</tr>
<tr>
<td>5132</td>
<td>Tenure Trac</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5164</td>
<td>University Research Associate</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>551.02</td>
<td>7,163.26</td>
<td>0.00</td>
<td>-7,163.26</td>
</tr>
<tr>
<td>5372</td>
<td>Hourly Staff - Student</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5430</td>
<td>Salts Non-Students RA</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5436</td>
<td>Salts Masters RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5440</td>
<td>Salts Doctorate RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5444</td>
<td>Salts Post-Doc RA Cdn</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5446</td>
<td>Salts Post-Doc RA Foreign</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5460</td>
<td>Salts Non-Students Hourly</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5842</td>
<td>Speaker and Consult Fee</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>5911</td>
<td>Welfare Benefits</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>121.76</td>
<td>1,466.76</td>
<td>0.00</td>
<td>-1,466.76</td>
</tr>
<tr>
<td>5950</td>
<td>Prof Development - Contractual</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6010</td>
<td>Computer Hardware under 5k</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6090</td>
<td>Equipment - General under 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6092</td>
<td>Equipment - General over 5K</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6100</td>
<td>Office Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6116</td>
<td>Books and Publications</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6120</td>
<td>Lab Equipment and Supplies</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6164</td>
<td>Software License and Purchases</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6199</td>
<td>Materials and Supplies - Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------</td>
<td>----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>------------------</td>
</tr>
<tr>
<td>6512</td>
<td>Postage Courier and Delivery</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6514</td>
<td>Customs and Brokerage</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6516</td>
<td>Service Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6520</td>
<td>Printing and Duplication Exp</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6660</td>
<td>Telecommunication Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>191.50</td>
<td>1,244.75</td>
<td>0.00</td>
<td>-1,244.75</td>
</tr>
<tr>
<td>6662</td>
<td>Long Distance Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>6664</td>
<td>Cell Phone Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7000</td>
<td>Employee Travel Expenses</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7040</td>
<td>Conference Registration</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7044</td>
<td>Membership Fees - Individuals</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7054</td>
<td>Relocation and Moving Costs</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>7468</td>
<td>Information Services Charges</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>25.00</td>
<td>0.00</td>
<td>0.00</td>
<td>-25.00</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>0.00</td>
<td>46,964.30</td>
<td>46,964.30</td>
<td>864.28</td>
<td>9,899.77</td>
<td>0.00</td>
<td>37,064.53</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.00</td>
<td>46,964.30</td>
<td>46,964.30</td>
<td>864.28</td>
<td>9,899.77</td>
<td>0.00</td>
<td>37,064.53</td>
</tr>
</tbody>
</table>
Institute for the Reduction of Youth Violence

ATTACHMENT A: PUBLICATIONS/PRESENTATIONS (Apr 1, 2021 – Mar 31, 2022)\(^a\)

\(^a\)With respect to individual personnel, this list covers only the period in which personnel have been affiliated with the Institute. Drs. McMahon’s and Viljoen’s names are bolded, and names of HQP (University Research Associates, postdoctoral fellows, graduate students) are underlined.


*Members of the Adolescent Health Lab University Student Research Award Group (in alphabetical order): Balanji, S., Craig, S. G., Davis, B. A, Goulter, N., James, T., McIntyre, C. L., Moretti, M. M., Smith, E., & Thornton, E. M.

Publications

Peer-Reviewed Publications (N=24)


Goulter, N., Craig, S. G., & McMahon, R. J. (2021). Primary and secondary callous-unemotional traits in adolescence are associated with distinct maladaptive and adaptive outcomes in adulthood. *Development and Psychopathology*. Advance online publication. [https://doi.org/10.1017/S0954579421000481](https://doi.org/10.1017/S0954579421000481)


**Book Chapters (N=3)**


**Presentations (N=20)**

McMahon, R. J. (2021, April). *Preventing serious conduct problems and other negative outcomes in high-risk youth: The Fast Track project*. Invited address presented at the Center for Children and Families, Florida International University, Miami, FL.


Dawson, A. (2021, April). *Grad School 101*. Paper presented to psychology undergraduates, Department of Psychology, Simon Fraser University, Burnaby, BC.


McIntyre, C. L., Goulter, N., & Moretti, M. M. (2022, March) Does maltreatment and parent-child attachment predict teen dating violence and risky sexual behaviour? Poster presented at the meeting of the Simon Fraser University Undergraduate Research Symposium, Burnaby, BC.


Institute for the Reduction of Youth Violence

ATTACHMENT B: FUNDING (Apr 1, 2021 – Mar 31, 2022)

TOTAL FUNDING IN EFFECT FROM April 1, 2021 – March 31, 2022 (New and Existing Awards)
(N=11; CAD$1,471,864 plus US$6,156,382)

EXTERNAL FUNDING
Newly Awarded during Reporting Period (N=2; CAD$295,675)

2021 – 2026
J. Viljoen, Sole Investigator, with Collaborator
*Implementation outcomes for violence and reoffending risk assessment instruments*
Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Grant
Total Funding – CAD$227,028

2021 – 2023
N. Goulter, Principal Applicant (R. McMahon, S. Craig, Y. Zheng, M. Moretti, Co-Applicants)
*Externalizing and internalizing networks across childhood and into adolescence.*
Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Development Grant
Total Funding – CAD$68,647

Awarded Prior to April 2021, But in Effect during Reporting Period (N=9; CAD$1,176,189 plus US$6,156,382)

2020 - 2025
R. McMahon, Principal Investigator
*IGAP Salary Award*
BC Children’s Hospital Research Institute (BCCHRI)
Total Funding – CAD$200,000

2020 – 2025
R. McMahon, Principal Investigator
*LEEF B.C. Leadership Chair in Proactive Approaches to Reducing Risk for Violence among Children and Youth*
Leading Edge Endowment Fund (LEEF)
B.C. Leadership Chairs
Total Funding – CAD$296,849
2020 – 2022

**S. Craig**, Principal Applicant (*R. McMahon, N. Goulter, M. Moretti, Co-Applicants*)

*Validating a developmental model of primary and secondary callous-unemotional traits.*
Social Sciences and Humanities Research Council of Canada (SSHRC) Insight Development Grant
Total Funding = CAD$66,340

---

2020 – 2022

**R. McMahon**, Co-Investigator (R. Musci & H. Wilcox, MPIs, Johns Hopkins University)

*Netting prevention intervention butterfly effects: An integrative data analysis investigating the long-term and cross-over effects of randomized, school-based prevention programs on adult mental health*

National Institute of Mental Health (NIMH)
RFA-MH-20-110, “Secondary Data Analysis to Examine Long-Term and/or Potential Cross-Over Effects of Prevention Interventions: What are the Benefits for Preventing Mental Health Disorders?” (R01)
Total funding – US$2,213,602

---

2020 - 2022

**R. McMahon**, Co-Principal Investigator (with J. Mah, Co-PI, BCCHRI)

*Parental mind-sets and mental health treatment attitudes*

BC Children’s Hospital Research Institute (BCCHRI)
Brain, Behaviour, & Development Catalyst Grant
Total Funding - CAD$20,000

---

2016 – 2021

**R. McMahon**, Co-Leader (with E. Stewart, BCCHRI)

*Mental Health & Behaviour group*

Brain, Behaviour, & Development, BC Children’s Hospital Research Institute
Total Funding – CAD$18,000

---

2015 - 2022

**R. McMahon**, Principal Investigator (MPI with K. Dodge, Duke University; M. Crowley, Pennsylvania State University)

*Optimizing prevention of costly adult outcomes*

National Institute on Drug Abuse (NIDA)
Drug Abuse Prevention Intervention Research
Total Funding – US$3,942,780

---

2014 - 2021

**R. McMahon**, Principal Investigator

*Institute for the Reduction of Youth Violence*

Canada Foundation for Innovation (New Opportunities Fund)
Total Funding – CAD$75,000
2010 -

R. McMahon, Principal Investigator

Institute for the Reduction of Youth Violence

BC Ministry of Children & Family Development (MCFD)

Total Funding – CAD$500,000
General Information

Name of the Centre/Institute: Institute for Transpacific Cultural Research (ITCR)
Website: http://www.sfu.ca/itcr/about.html
Faculty: VP Research
Director: Helen Leung
Director’s term end: 2021-12-31
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The ITCR is a multidisciplinary research unit which promotes cultural research across a transpacific network of scholars. It aims to develop SFU as a research hub for local and international scholars, graduate students, cultural workers, and cultural studies and program administrators in the Asia-Pacific region. Its goal is to leverage SFU’s positioning in a transpacific gateway city to foster new dialogues, exchanges, and collaborations in cultural research. Institute members span interdisciplinary fields including communication and media studies; literary, language, and translation studies; public policy; urban studies; cultural anthropology; legal studies; diasporic studies; history; comparative Indigenous studies; Asia-Pacific studies; gender and sexuality studies; critical race and ethnic studies and many more.

The Centre/Institute’s membership and organization structure:
The Director is nominated by the Steering Committee and together they oversee the Institute’s member recruitment, finances, organization and promotion of Institute projects and activities.

The Advisory Board consists of 8-10 representatives which include SFU faculty and members from other universities and/or local communities whose expertise, research interests, and international experience are relevant to the Institute’s mission. The Advisory Board advises the Steering committee on its initiatives, help to facilitate networks and connections with diverse communities, and provide feedback on projects and events.

Institute Membership is by application to the Director and the Steering Committee, who may also recruit members to apply. There are four categories of membership:
1. Faculty members (SFU continuing faculty members)

2. Associate members (faculty members from other Canadian and international postsecondary institutions)

3. Doctoral and postdoctoral members (PhD students and postdoctoral fellows from SFU or other post-secondary institutions)

4. Community members (such as artists, writers, filmmakers, policy makers, industry representatives, community organizers with shared interests).

The Institute occasionally also hosts visiting scholars for 1- or 2- semester terms.

**Significant accomplishments:**
Due to the pandemic, the Institute's activities have been interrupted and have only begun to regroup in Spring, 2022. The executive and steering committees have kept in touch to brainstorm upcoming research and outreach activities. We were able to continue with publishing the podcast and organised 2 public events in Spring, 2022. Our plan to host the next Crossroads conference for the Association of Cultural Studies is still on hold, pending public health conditions for the viability of international conferences. We have kept in touch with the Board of the Association of Cultural Studies to monitor developments.

**Notable media successes:**
-

**Events, workshops, public outreach events:**
"One Tree Three Lives": Film Screening & Conversation with Filmmaker Angie Chen


"Female Bodies in China: Literati Fantasies, Iron Girls & Olympics Hoopla": A Lecture by Eva Man, Professor and Director of Film Academy, Hong Kong Baptist University, Tuesday, May 17, 2022. Attendance: around 12.

Transpacific Stories Podcast, ongoing

**Supporting documents:**
-
Financial Summary:

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
No

Confirm policy review:  
Yes

Submitted by:  
Helen Leung, Director

Director’s comments:  
Due to the pandemic, the Institute has not been able to organise the type of international exchanges and activities that it was set up to do. We have used this time to reflect on how best to adapt and the kind of virtual activities that would best suit our goals of attracting international research activities to Vancouver and of building and maintaining international research networks. As public health conditions have improved, we have been able to begin some local outreach activities. In the coming year, we plan to program more virtual activities and find innovative ways to accomplish our goals despite the decrease in the viability of international travels.

Reviewer's Section

Reviewed by:  
Michael Richards, Associate Vice-President, Research

Reviewer's decision:  
Approved

Reviewer's comments:  
-
General Information

Name of the Centre/Institute: International Centre for Criminal Law Reform & Criminal Justice Policy
Website: http://www.icclrg.org
Faculty: VP Research
Director: Peter German
Director's term end: -
Renewal date: 2025-11-01

Details

Description of the Centre/Institute:
The International Centre for Criminal Law Reform and Criminal Justice Policy (ICCLR) is an international research institute based in Vancouver, Canada. Founded in 1991, ICCLR is a joint initiative of the Government of Canada, the University of British Columbia, Simon Fraser University, the International Society for the Reform of Criminal Law, and the Province of British Columbia and is one of eighteen institutes comprising the United Nations Crime Prevention and Criminal Justice Programme Network of Institutes. Through research, technical assistance and capacity building project work, ICCLR assists the Canadian government and the United Nations with its international commitments, interests and priorities in criminal law reform and criminal justice policy. ICCLR promotes the rule of law, democracy, human rights, and good governance in criminal law and the administration of criminal justice — domestically, regionally and globally.

The Centre/Institute's membership and organization structure:
ICCLR's 11-member board includes representatives from: the Department of Justice Canada, Global Affairs Canada, the Department of Public Safety Canada, the Ministry of the Attorney General of BC, the International Society for the Reform of Criminal Law, the University of British Columbia, Simon Fraser University, and the United Nations Office on Drugs and Crime. ICCLR has 2 full-time staff and 2 part-time staff as well as a roster of 14 associates who are hired on a per-project basis.

Significant accomplishments:
1) Autism Training in the Correctional System
This training course developed by ICCLR offers autism-focused training in the field of corrections. Modules specifically address the aims of increased understanding about autism, considerations for the correctional system, including support for autistic individuals within the correctional system, and means to promote individual well-being. The Correctional Service of Canada has agreed to include the course in their e-learning platform. The National Office for Child Safety (Australia) and UK experts/practitioners have taken interest in the project and more efforts will be made to share the course widely. The training course was developed for AIDE Canada and can be accessed here: https://aidecanada.ca/learn/behavioral-supports/autism-training-in-the-correctional-system

2) Know Your Gladue Rights

Know Your Gladue Rights, funded by the Law Foundation of British Columbia, is a multi-year initiative that aims to better understand how technology can be used to increase access to Gladue reports for Indigenous peoples living in remote communities in British Columbia, particularly for women, non-binary genders and youth. More specifically, this project aims to review: (1) the current state of Gladue report writing available to Indigenous people living in remote areas of British Columbia; (2) the barriers to accessing Gladue reports Indigenous peoples living in remote communities in BC experience, including gender-related barriers; and (3) the use of technology to enhance and/or increase the use of Gladue services, particularly in remote areas. The project team worked closely with the BC First Nations Justice Council and relevant stakeholders to develop a community-based educational campaign tool in support of the recent transition in the management of BC’s Gladue Report services to the BC First Nations Justice Council (BCFNJC), as of April 1, 2021. Through a strengths and resilience-based approach, the project is designed and implemented in a manner to give Indigenous communities agency and the important information they need in accessing Gladue services. The campaign tool can be viewed here: https://icclr.org/2022/04/19/know-your-gladue-rights/

3) Training Curriculum on Restorative Justice Programmes in Thailand

In partnership with the Thailand Institute of Justice (TIJ), ICCLR is developing a culturally responsive training curriculum on restorative justice programmes in Thailand. The initiative will produce two separate outputs – a training curriculum with a variety of modules aimed at criminal justice practitioners and facilitators and a user manual to provide TIJ with technical guidance in successfully implementing the training curriculum at the ground level. Outcomes of this training curriculum should encourage and strengthen restorative justice interventions in Thailand, bridge the gap between different departments in the provision of restorative justice, and equip relevant practitioners with the knowledge and skills necessary in implementing restorative justice programmes. Most importantly, it would further provide a standardized training method for restorative justice in Thailand while aiming to be replicable and streamlined. This project draws from two past initiatives led by ICCLR


In 2022, ICCLR published a new legislative guide Supply Chains Transparency and Due Diligence Legislation to Prevent Child and Forced Labour: A Guide for Policy Makers and Legislators. The Guide was developed to assist policy makers and legislators, in Canada and elsewhere, in making policy choices and designing legislation that will achieve an optimum impact on the elimination of child and forced labour. The Guide presents and discusses a range of legislative options and examples that policy makers and legislators may wish to consider in the development of supply chains transparency and due diligence legislation. The goal being to establish a statutory duty of care requiring businesses to take reasonable steps to avoid the use of forced labour, child labour, and human trafficking in their operations abroad, and to report publicly on these due diligence steps and their impact. The Guide fits within the broader international anti-slavery policy developments of the last decade or so, including the United Nations Guiding Principles on Business and Human Rights, the global standard for corporate human rights obligations. To read the Guide, visit here: https://icclr.org/wp-content/uploads/2022/02/Supply-Chain-Transparency-and-Due-Diligence-Legislative-Guide-final.pdf?x42592&x28096

5) Vancouver Anti-Corruption Institute

On International Anti-Corruption Day, December 9, 2021, the Vancouver Anti-Corruption Institute (VACI) was launched. The Institute, housed within ICCLR, is focused on education, research, training, and helping international organizations, governments and communities develop strategies to counter corruption in all its forms. Through our work, we hope to make a difference by supporting domestic and international efforts to strengthen public institutions and rid countries of corruption. The Institute is the first of its kind in Canada and will focus its work on Asia and the Americas. We are fortunate to assemble an Advisory Committee of nationally and internationally recognized experts, representing various professional disciplines, and varied experiences, at home and abroad. This includes individuals with experience in politics, law, foreign affairs, international development, and private industry including Dr. Peter German (President, ICCLR and Chair, VACI Advisory Committee), Professor Neil Boyd (Chair, ICCLR), Jessie O’Neil (Global Business Integrity Lead, Barrick Gold Corporation), Alexandra Wrage (CEO, Trace International), Rt. Hon. Kim Campbell (former Prime Minister of Canada), Hon. Thomas Cromwell, C.C. (former Justice of the Supreme Court of Canada), Amy Sommers (lawyer, author and China expert) and Kevin Vickers (former Ambassador of Canada to Ireland). To learn more about VACI, visit here: https://icclr.org/vaci/
6) UNTOC Review Consultation

In November 2021, Canada embarked on a multi-year process to review its implementation and application of the United Nations Convention against Transnational Organized Crime (Untoc) and its Protocols on human trafficking and migrant smuggling. The UNTOC Review Mechanism, managed by the Conference of the Parties (COP), aims to assess States parties’ performance on meeting their obligations under the international instruments, gather information on good practices and implementation challenges, and help States parties to identify specific needs for technical assistance. ICCLR conducted a national consultation to collect inputs on how Canada has implemented and applied the criminalization and jurisdiction provisions of the Convention and its Protocols on human trafficking and migrant smuggling. The final report published by ICCLR contains Canadian civil society’s responses to the relevant self-assessment questions for Cluster I of the UNTOC Review Mechanism to support the Government of Canada in completing and submitting its questionnaire to the COP in May 2022. It also captures civil society’s views on whether and to what extent Canada is preventing and countering transnational organized crime, including firearms trafficking. To read the report, visit here: https://icclr.org/wp-content/uploads/2022/03/ICCLR-2022-UNTOC-Review-Consultation-Report.pdf?x649628x52469

7) Promoting Family-focused Defense Strategies and Community-based Alternatives

Funded by the Vancouver Foundation, this three-year initiative aims to mitigate the negative impact on the child from parental incarceration with a focus on the development and implementation of positive family-focused outcomes and community-based alternatives for justice-involved parents and legal guardians. This system-change project will instigate and support a systemic and cultural change in the way that the best interests of the child is considered by defence counsel, prosecutors and the criminal courts, when making decisions about parents so as to mitigate the negative impact of these decisions on the child. The project also recognizes that many stakeholders, inside and outside of the justice system, have a responsibility to mitigate the negative impact on children of parents facing criminal sanctions. As well, the project will support the Elizabeth Fry Society of Greater Vancouver’s demonstration projects in Victoria and Surrey. Work to develop the toolkit is currently underway by the project team.

Notable media successes:
1) In November 2021, ICCLR held a Canada-focused seminar, “A Canadian Perspective on Combatting Hate Crime under the Rule of Law,” and a BC-focused seminar, “The Ripple Effect of Hate Crimes: Addressing the Needs of Victims and Victimized Communities in BC.” Both panel discussions considered advancements in the enforcement and prosecution of hate crimes and best practices to encourage active collaboration with victims’ advocates and civil society organizations representing the interests of those victimized by hate crimes. The
dialogue engaged representatives from law enforcement, prosecution, academia, civil society organizations, the Multiculturalism and Anti-Racism Division of the BC Ministry of Attorney General, the Department of Justice, and the City Council of Richmond. These seminars were held in honour of the Department of Justice’s Victims and Survivors of Crime Week and resources were widely shared to 300+ attendees. The recordings of both seminars and speaker biographies can be viewed here: https://icclr.org/2021/11/12/addressing-hate-crime-webinar-series-in-honour-of-canadas-victims-and-survivors-of-crime-week/

2) ICCLR continues to expand its profile, share its initiatives and activities with a global audience, and broaden its network to reach international experts, academics, journalists, international research institutes, and students among many other professionals and organizations. ICCLR continued to see strong engagement with its various accounts which serve to highlight research, technical assistance and capacity-building projects ICCLR continues to be engaged in throughout the year. ICCLR now boasts over 2,800 followers across these social media channels, and continues to grow its following.

Twitter: https://twitter.com/theicclr

LinkedIn: https://www.linkedin.com/company/international-centre-for-criminal-law-reform-and-criminal-justice-policy/

Facebook: https://www.facebook.com/theicclr/

YouTube: https://www.youtube.com/channel/UCjgWfZHqsMAIaPHVU8pWAgl

3) ICCLR associates and researchers regularly publish blogs and think pieces on pertinent issues for public consumption:


• Culturally Sensitive Restorative Justice Programmes in Thailand: https://icclr.org/2021/10/14/culturally-sensitive-restorative-justice-programmes-in-thailand/

• Towards Self-Determined Justice for Indigenous People in Canada: https://icclr.org/2021/10/14/towards-self-determined-justice-for-indigenous-people-in-canada/

• Un-disruptable Drug Markets: https://icclr.org/2021/11/24/un-disruptable-drug-
markets/

• Simple Possession of Illicit Drugs: Policy Alternatives: https://icclr.org/2021/12/22/simple-possession-of-illicit-drugs-policy-alternatives/


• Canada’s Position at the UN Cybercrime Treaty Negotiations: https://icclr.org/2022/03/02/canadas-position-at-the-un-cybercrime-treaty-negotiations/

4) Justice Innovation is a podcast series presented by ICCLR where we explore insights and innovations in human rights and criminal justice. This short series of podcasts is designed to promote the efforts of black, Indigenous and people of color (BIPOC)-led and/or LGBTQIA2S+ organizations and/or individuals seeking to cultivate the Rule of Law and advance justice for youth in their communities. The initiative will support our efforts to encourage dialogue with a growing cadre of contemporary criminal justice innovators. ICCLR conducted the following interviews below:

• An interview with Debbie Scarborough, Provincial Manager of Women and Children at the BC First Nations Justice Council, where we discuss what it means to hold space for the voices of Indigenous youth, how Gladue services and reports can best support justice-involved Indigenous youth and what can be done to build resiliency among Indigenous youth.

• An interview with Sam Ens, Provincial Manager of Diversion and Early Intervention at the BC First Nations Justice Council and former Executive Director of Camp Trapping, where we discuss the history and the philosophy of Camp Trapping an Aboriginal therapeutic program based in Prince George BC for male young offenders. This program is based on the Medicine Wheel and supports healing while addressing the areas of spiritual, emotional, mental and physical well-being with a holistic approach to cultural service provision.

Listen here: https://icclr.org/podcasts

Events, workshops, public outreach events:
1) Lessons Learned: Impact of the Migrant Smuggling Protocol Twenty Years Later
As a United Nations Crime Prevention and Criminal Justice Programme Network Institute, ICCLR was pleased to host the PNI Workshop at the 30th Session of the Commission on Crime Prevention and Criminal Justice in Vienna, Austria. The PNI Workshop, “Lessons Learned: Impact of the Migrant Smuggling Protocol Twenty Years Later,” focused on examining the 20+ years of progress and challenges addressed by the Migrant Smuggling Protocol and the pathways it encourages moving forward. This dialogue convened panelists from different jurisdictions to highlight the most current information on migrant smuggling and its various contours. It also provided an opportunity to exchange good practices and innovative approaches for improving the response of the international community with respect to migrant smuggling.

2) The Anti-Corruption Law Program

The Anti-Corruption Law Program (ACLP) is a joint program under a collaborative working partnership of the Vancouver Anti-Corruption Institute (VACI), the Peter A. Allard School of Law, and Transparency International Canada. ACLP is an ongoing series of public education events – including keynote public lectures, seminars, partial-day and full-day invited conferences, and colloquium format sessions – that are open to lawyers, business-people, law enforcement officials, government representatives and bureaucrats, students, and academics alike. These public education events are designed to provide a fertile setting for learning and informed discussion among participant panelists and registrants regarding how the role the law may play in the global fight against corrupt business practices. In 2021/22, experts in the field of anti-corruption convened for seven seminar discussions which can be accessed below:


• Roundtable Discussion on Whistleblowing – Protections, Abuses, and Reporting Systems: https://icclr.org/2021/05/20/anti-corruption-law-program-seminar-roundtable-discussion-on-whistleblowing-protections-abuses-and-reporting-systems/

3) Continued from above:


4) Webinar Series: International Wrongful Conviction Review Models

ICCLR, in collaboration with Innocence Canada, UBC Innocence Project and Courthouse Libraries BC, organized two webinars in September 2021 exploring international wrongful conviction review models. The first webinar was on “Criminal Case Review Commissions: Independent Commissions and Post-Conviction Review” where representatives of criminal case review commissions in England, Scotland and New Zealand discussed why their commissions were established, how they operate and the challenges they encounter. The second webinar was on “Conviction Integrity Units (CIUs): The Evolving Role of US Prosecutors in Uncovering Wrongful Convictions” where the panelists explored the roles, responsibilities, opportunities and challenges that CIUs face in the evolution of combatting wrongful convictions. The webinar recordings can be viewed here: https://icclr.org/2021/09/08/criminal-case-review-commissions-independent-commissions-and-post-conviction-review/

5) List of other events, meetings and conferences ICCLR attended/presented at:


- Expert group meeting on corruption and international investments, May 18-19, 2021


• Reconvened thirtieth session of the CCPCJ, December 8-10, 2021.


6) Continued from above:


• Regional follow-up consultation on stakeholder engagement for UNTOC in Panama City, Panama, March 28-29 2022.


Supporting documents:

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
Yes

External funding details:  
ICCLR received core funding from the federal Department of Justice. It is a charitable society and can receive donations. It also pursues grants and contracts in furtherance of its mandate.
Confirm policy review:
Yes

Submitted by:
Peter German, Acting Executive Director

Director's comments:
The Board and staff at ICCLR value their long-standing relationship with Simon Fraser University and acknowledge the ongoing contribution of its representatives on the ICCLR Board, Professors Neil Boyd (our Chair) and David MacAlister. We are particularly grateful to the Vice-President (Academic and Provost), who recently extended Professor Boyd's term on the ICCLR Board.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
-
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Pacific Institute for the Mathematical Sciences (PIMS)
Website: http://www.pims.math.ca/
Faculty: VP Research
Director: Weiran Sun
Director’s term end: 2023-08-31
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The Pacific Institute for the Mathematical Sciences (PIMS) is dedicated to promoting all aspects of the mathematical sciences by stimulating, coordinating and facilitating the activities of mathematical and computational scientists. This is achieved by

- promoting research in mathematical sciences areas
- initiating and promoting mathematics education at all levels: K-12 and university
- promoting equity, diversity, and inclusion in the scientific community
- initiating collaborations and strengthening ties between mathematical scientists in the academic community and those in the industrial, business and government sectors
- training of highly qualified personnel for academic and industrial employment
- developing new technologies to support research, communication and training in the mathematical sciences.

Through the strength and vitality of its programs, PIMS is able to serve the mathematical sciences community as a catalyst in many areas of significance: communication and dissemination of mathematical ideas through public outreach, mathematical education and training at all school levels; and creation of strong mathematical partnerships and links. PIMS involves scientists in several faculties at Simon Fraser University faculties including the Faculties of Science, Applied Sciences, and Education. The PIMS community includes specialists in mathematics, statistics, computer science, mathematical physics, biology, chemistry, economics, operations research, management, engineering, and other fields.
involving mathematical methods. In addition, PIMS involves teachers in the mathematical sciences at all levels. PIMS-SFU is the Simon Fraser University representative of PIMS and shares the goals and ideals of PIMS generally while also meeting the specific needs of the mathematical sciences community at this University.

**The Centre/Institute's membership and organization structure:**
PIMS has a unique network structure: it has ten member universities in Alberta, British Columbia, Saskatchewan and Washington State and three affiliate sites. The ten-member universities are: University of Alberta, University of British Columbia, University of Calgary, University of Lethbridge, University of Manitoba, University of Regina, University of Saskatchewan, Simon Fraser University, University of Victoria, and University of Washington. The three affiliate sites are Portland State University, University of Northern BC and Athabasca University.

In 2021-2022, PIMS-SFU has undergone a site admin change. A new site administrator was hired and the local office was moved to the Big Data Hub. The PIMS-SFU site administrator is now overseen by the Math Department Manager.

Starting this year (2022), PIMS will implement a new leadership structure. Previously, PIMS was headed by a Director, a Deputy Director and the Board. Now PIMS will have a Director, a Director for International Relations, a Director for Industrial Relations and the Board. Leadership at each member university remains the same: each site has a PIMS office, a PIMS site director, an education coordinator, and a site administrator. Events are organized at each site and PIMS-affiliated researchers are distributed throughout the network. PIMS also has network-wide events and collaborative groups across the network.

At SFU, all members of the Department of Mathematics, Department of Statistics and Actuarial Sciences are members of PIMS. PIMS provides support to the mathematical sciences community at SFU in the broad sense, that is, any research area that uses math as a tool can apply for PIMS support for their activities.

**Significant accomplishments:**
1) PIMS Postdoctoral Fellows at SFU and Local Seminars:

* PIMS Postdoctoral Fellows: Jane MacDonald (Mathematics), Eric Jones (Physics), Shuxing Li (Mathematics), Hansol Park (Mathematics)

* PIMS-SFU Discrete Mathematics Seminar Series

* PIMS-SFU Seminar Series in Applied & Computational Mathematics
2) PIMS Collaborative Research Groups (CRG): A CRG typically consists of researchers with overlapping research interests and with a common desire to collaboratively develop some aspects of their research programs.

* Pacific Interdisciplinary hub on Optimal Transport: 2021 - 2024
  (https://www.pims.math.ca/collaborative-research-groups/pihot)

* PIMS-IFDS-NSF Summer School on Optimal Transport
  (https://www.pims.math.ca/scientific-event/220619-pinssot)

* L-Functions in Analytic Number Theory: 2022 - 2025
  (https://www.pims.math.ca/collaborative-research-groups/lfunctions)

* Movement and Symmetry in Graphs: 2021 - 2024
  (https://www.pims.math.ca/collaborative-research-groups/graphs)

* Novel Techniques in Low Dimension: Floer Homology, representation theory and algebraic topology 2020-2023
  (https://www.pims.math.ca/scientific/collaborative-research-groups/novel-techniques-low-dimension-floer-homology-representation)

* Séminaire de Mathématiques Supérieures 2022: Floer Homotopy Theory
  (https://www.pims.math.ca/scientific-event/220711-sdms2fht)

* Quantum Topology and its Applications 2020-2023

3) PIMS Network-wide Colloquium: starting in 2021, PIMS has inaugurated a high-level network-wide colloquium series. Distinguished speakers will give talks across the full PIMS network with one talk per month during the academic term.


* Assaf Naor (Princeton University, Sep 2021)

* Maryanthe Malliaris (University of Chicago, Oct 2021)

* Rafe Mazzeo (Stanford University, Nov 2021)
The invitation for a list of six speakers from 2022-2023 has recently been sent out.

4) PIMS Network-wide Graduate Courses: the PIMS Network-wide graduate courses utilize the PIMS network to deliver a rich variety of graduate-level courses in the mathematical sciences at PIMS member universities. Students at Canadian PIMS member universities may apply for graduate credit via the Western Deans’ Agreement (WDA).

Courses offered in 2021-2022:

* Optimal Transport + Machine Learning (OT + ML)
* Differential Equations in Algebraic Geometry
* Explorations in Information Security and Privacy
* Extremal Combinatorics
* High Dimensional Geometric Analysis
* Introduction to Algebraic Topology
* Introduction to Mathematical Biology
* Perturbation Methods for Partial Differential Equations and Applications
* Theory of Probability and Applications
* Parallel Programming for Scientific Computing
* Mathematical Modeling of Complex Fluids
* Optimal Transport + X

Courses to be offered in Fall 2022:

* Analytic Number Theory I
**OT+Bio - Single Cell Analysis**

**Statistical Machine Learning for Data Science**

**Optimal Public Transport**

**Mathematical Models in Cell Biology**

5) PIMS Math^Industry Workshop (M2PI): M2PI is a professional development school positioned to benefit the Canadian economy and industry, while linking highly trained personnel to industry jobs. ([https://www.pims.math.ca/industrial/mathindustry](https://www.pims.math.ca/industrial/mathindustry))

This year (2022), the M2PI workshop will take place from July 11-29, 2022. There are 50 accepted students/ 9 industry partners for this workshop.

6) PIMS supported conferences and workshops:

* Canadian Statistics Student Conference (May 2022, [https://www.pims.math.ca/scientific-event/220528-cssc](https://www.pims.math.ca/scientific-event/220528-cssc))

* SIAM PNWS Biennial Meeting (May 2022, [https://www.pims.math.ca/scientific-event/220520-spbm](https://www.pims.math.ca/scientific-event/220520-spbm))

* The 2022 Canadian Undergraduate Mathematics Conference (July 2022, [https://www.pims.math.ca/scientific-event/220713-tcumc](https://www.pims.math.ca/scientific-event/220713-tcumc))

* The Canadian Conference on Computational Geometry (Aug 2022, [https://www.pims.math.ca/scientific-event/220825-tcccg](https://www.pims.math.ca/scientific-event/220825-tcccg))

* Pacific Rim Mathematical Association Congress (PRIMA) (Dec 2022, [https://prima2021.primamath.org](https://prima2021.primamath.org))


7) Emergent Research: The PIMS Postdoctoral Fellow Seminar ([https://www.pims.math.ca/scientific/PIMSPDF](https://www.pims.math.ca/scientific/PIMSPDF))

Speakers for 2022:

* Puttipong Pongtanapaisan (Jan 2022, Saskatchewan)

* Venkata Pantangi (Jan 2022, Lethbridge/Regina)
Notable media successes:

- 

Events, workshops, public outreach events:
* 2022 Celebration of Women in Mathematics (May 2022, [https://www.pims.math.ca/scientific-event/220512-cwm](https://www.pims.math.ca/scientific-event/220512-cwm))

* Changing The Culture 2022 (May 2022, [https://www.pims.math.ca/educational/changing-culture](https://www.pims.math.ca/educational/changing-culture))

Supporting documents:

- 

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No
Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Weiran Sun, Director

Director's comments:
-

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
-
General Information

**Name of the Centre/Institute:** Vancouver Institute for Visual Analytics (VIVA)
**Website:** [http://viva.sfu.ca/](http://viva.sfu.ca/)
**Faculty:** VP Research
**Director:** Lyn Bartram
**Director’s term end:** 2021-08-31
**Renewal date:** 2025-11-01

Details

**Description of the Centre/Institute:**
VIVA brings together researchers and practitioners in the methods of visual analytics, the science of cognitive analytics enabled by interactive data visualization interfaces. It is an interdisciplinary field, combining computation, mathematics, psychology, perception, organizational development and social science, applied to problems in data analytics that are incompletely served by machine based techniques. It is essentially the discipline of human-in-the-loop analytics. VIVA members participate in collaborative research. The Institute also provides services in training and in research consulting, helping researchers SFU-wide use visual analytics to better understand their data.

**The Centre/Institute’s membership and organization structure:**
VIVA has a Director (Lyn Bartram), an Associate Director (Wolfgang Stuerzlinger) and an advisory committee of SFU Faculty members from across the University. The advisory committee usually includes representatives from industry and organizations outside the university, but CoVid has restricted participation in the past 18 months.

Computing Science (FAS): Dr Fred Popowich, Dr. Sheelagh Carpendale

Geography (Environment): Dr. Nicholas Hedley

REM (Environment): Dr. Pascal Haegeli

SIAT (FCAT): Dr. Lyn Bartram, Dr, Wolfgang Stuerzling, Dr. Brian Fisher

Business: Dr. Sarah Lubik
Mathematics (Science): Dr. Sandy Rutherford

City Program (Graduate Studies): Andy Yan (Director)

Significant accomplishments:
1) Several external courses were initially developed but were delayed (Coastal Health and the Vancouver FireFighters Union executive are being rescheduled).

- We developed a visual analytics course section for the Big DAta Fellowships program that has been delivered several times.

2. Graduate student Lakshmi Kenday Sivaram carried out a commissioned study with the Vancouver Firefighters Union on the impact of shift rotation schedules on mental and social wellbeing.

3. VIVA researchers explored and developed visual analytics methods for Avalanche Canada in snowpack prediction and avalanche risk prediction in collaboration with Dr. Pascal Haegeli in REM. Several publications resulted from this work:


6. In addition to numerous papers on visualization design Dr. Sheelagh Carpendale published several analytics papers on VA in use:


Notable media successes:
-

Events, workshops, public outreach events:
-

Supporting documents:
-

Financial Summary:

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Lyn Bartram, Director

Director's comments:
The pandemic continued to seriously restrict VIVA outreach this year.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved

Reviewer's comments:
-
Report Type: Annual Report

Reporting Year: 2022

General Information

Name of the Centre/Institute: Western Canadian Universities Marine Sciences Society (Bamfield)
Website: http://www.bamfieldmsc.com
Faculty: VP Research
Director: Sean Rogers
Director’s term end: 2021-06-01
Renewal date: 2026-04-01

Details

Description of the Centre/Institute:
The Bamfield Marine Sciences Centre (BMSC) is a globally leading research and teaching station located on the outer west coast of Vancouver Island, British Columbia. The BMSC enables life-changing exploration and discovery in the coastal and marine sciences with over 180 acres of coastal waterfront property, including a large acreage of old growth rainforest. Situated within the traditional territory of Huu-ay-aht First Nations and adjacent to 13 other coastal First Nations whose territories overlap with Pacific Rim National Park Reserve in Barkley Sound, the BMSC is recognized as a national jewel and premier research and training facility supporting Canadian and International scientists. Over 100 researchers (6000 user days annually) contribute to BMSC-affiliated scientists publishing over 44 papers in 2019 (with ~4 led by undergraduates) and over 2185 total scientific publications since 1972. BMSC Education programs include over 30 university accredited field courses offered for to over 225 students annually, in addition to secondary school field trips (up to 4,000 students annually) supported by NSERC. These BMSC programs continue to give students and researchers an unmatched opportunity to make genuine discoveries in ocean science and Canadian biodiversity in this breathtaking region.

The Centre/Institute’s membership and organization structure:
Building on 48 years of investment at the BMSC: The Western Canadian Universities Marine Sciences Society (WCUMSS) is a non-profit organization with the five western Canadian research universities (Simon Fraser University, University of Alberta, University of Calgary, University of British Columbia, University of Victoria) as equal members. As the governing society for BMSC, WCUMSS has operated the BMSC since 1972 as a shared campus to provide education and research opportunities to students and faculty. Its constitution specifies the membership and responsibilities of the Management Council (Board of
Governors) and its officers. Two members (one voting) per partner university are appointed to Management Council by the partner university Board of Governors (currently Dr. Paul Kench - voting and Dr. Elizabeth Elle - non voting for SFU). Management Council selects the President (since 2013 Dr. Jon Driver, VPA and Provost Pro Tem, SFU), the Treasurer (currently Martin Pochurko, VPF, SFU), and appoints the Director of BMSC (my appointment is 0.5FTE to Bamfield from the University of Calgary). The Director oversees approximately 30 full-time staff in research, education, operations and finance. BMSC’s senior staff includes a Deputy Director who is responsible for the day-to-day operations of the centre. BMSC has a full-time Controller reporting to the Director to maintain financial records. Financial holdings and transactions are administered by Accounting Services at the University of Victoria through a contract with the BMSC. Independent auditors annually audit the financial records and practices of the BMSC. The Finance Committee meets quarterly to review the financial position, provide direction to management, review risks to operations, and approve the budget and audited financial statements.

BMSC infrastructure includes foreshore support, including 10 vessels for coastal and offshore operations, scientific diving support, and indoor/outdoor aquatic housing to accommodate a wide range of organisms including 800 m2 of aquarium space, including a 140,000L tank for larger marine specimens; a unique seawater delivery system (3,000L high quality seawater / minute), and 120,000L of dechlorinated fresh water. Additional specialized equipment includes microscopy equipment, a large flume (12 m x 2 m x 1 m), 2D particle imaging velocimetry system, atomic absorption spectrometer, certification for isotope/laser research, extensive general purpose wet- and dry laboratories, and animal care.

On-site accommodation includes a large undergraduate lodge and eight cabins, food services, full-time maintenance and support staff, fully equipped teaching laboratories, public outreach spaces, a small conference center (Rix Centre for Ocean Discoveries) and limited computing facilities.

WCUMSS continues to make strategic investments in the BMSC. The annual membership fees to the society are ~$324,000 per member institution, comprising approximately 40% of the total BMSC operating budget. Additional revenue stems from BMSC Education programs (e.g., tuition and user fees) that include over 30 university accredited field courses offered at the BMSC, in addition to revenue generated from K-12 field trips (up to 4,000 students annually) and limited restricted funds (e.g., NSERC Promoscience) in association with the award-winning BMSC field trip program. BMSC continues to demonstrate careful and responsible fiscal management to support these programs and the sustainability of the BMSC in this remote region.

**Significant accomplishments:**
1) BMSC received funding from NSERC Promoscience Grant ($100K) and two NSERC RTI
grants ($47K and $89K, ranked #1 and #4 nationally), MITACS funding for two Postdocs, Pacific Salmon Foundation Funding, and the DFO Ocean Management Program ($500K)

2) Secured envelopes at five member institutions for the 2023 CFI Innovations Fund Competition. Proposal to be submitted in July

3) BMSC was one of 16 facilities selected to compete nationally for the CFI Major Science Initiative. While ultimately unsuccessful, the Expert Panel recommended funding and the facility had been ineligible to compete in 2017

4) Received Science Horizons Funding for new Marine Education Intern program developed at the BMSC.

5) Grand opening of a modern wastewater treatment plant at the BMSC, a $9M utility owned by the Huu-ay-aht First Nations with $1M funding to connect the BMSC provided by the five member universities.

**Notable media successes:**
The opening of the wastewater treatment plant with Huu-ay-aht First Nations captured national attention

**Events, workshops, public outreach events:**
-

**Supporting documents:**
1) BMSC_-_Expert_Cttee_report2_OHnVKIS.pdf (See attachment below)
2) BMSC_-_MAC_report2_t085Lef.pdf (See attachment below)
3) Full_Application_-_Submitted_to_CFI_-_Feb_8_2022_GRAFaMK.pdf (See attachment below)

**Financial Summary:**

**Does your Centre/Institute receive direct financial support from the university?**
Yes

**SFU account number:**
-

**Opening balance:**
-
Revenues:
-

Expenditures:
-

Closing balance:
-

Financial report:
-

Financial contributions from the university:
BMSC receives a member assessment from the VP Finance annually as part of the agreement for the Western Canadian Universities Marine Sciences Society ($323500). Our annual audit is currently underway, the financial report will be reviewed for approval at our AGM on October 1.

List of major equipment provided by the university:
-

University personnel:
-

Space provided by the university:
-

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Sean Rogers, Director

Director’s comments:
The BMSC is the go-to facility for marine sciences nationally and internationally. We are experiencing record high research demand, 20% more this last fiscal than in 2019, and we remained operational throughout the pandemic in support of critical partnerships with industry, First Nations and long term research programs, including over 100 international
users from over 13 different countries in the last three years that continue to rely on the BMSC for their research

The CFI MSI feedback provides excellent direction for the facility to consider as the BMSC continues on the path of being recognized and supported as a national facility to support ocean access for climate change solutions in the emerging blue economy.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved

**Reviewer's comments:**
-
EXPERT COMMITTEE REPORT

Project number: 42631
Administrative institution: University of Calgary
Collaborating institutions: Simon Fraser University, The University of British Columbia, University of Alberta, University of Victoria
Facility name: Bamfield Marine Sciences Centre
Project leader: Sean Rogers
Meeting date: April 6, 13, 20, 2022

EXPERT COMMITTEE RECOMMENDATION

Funding recommendation: Conditional Funding
Recommended amount: $6,063,844

ASSESSMENT CRITERIA

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific excellence</td>
<td>SW</td>
</tr>
<tr>
<td>International competitiveness</td>
<td>SA</td>
</tr>
<tr>
<td>Operations and user access</td>
<td>SA</td>
</tr>
<tr>
<td>Excellence in governance</td>
<td>SA</td>
</tr>
<tr>
<td>Excellence in management</td>
<td>SA</td>
</tr>
<tr>
<td>Need for CFI funding</td>
<td>EX</td>
</tr>
</tbody>
</table>

SUMMARY OF RECOMMENDATION

Bamfield Marine Sciences Centre (BMSC) is located on the idyllic outer west coast of Vancouver Island, within the traditional territory of the Huu-ay-aht First Nations, in a remote community of roughly 250 people. The BMSC offers unparalleled access to a wide array of environments – including unique coastal, marine, and rainforest habitats and exceptional species diversity. With 3000 sq. m. of laboratory space, including the Shellfish Aquaculture Laboratory, the Seaweed Growing Laboratory, and radionuclide laboratories, and a broad range of equipment including marine vessels, a 12-metre marine flume, a 24/7 seawater delivery system, and seawater research tanks, the BMSC is a marine centre of excellence for both researchers and educational visitors.

Based on the overall assessment of the facility, the committee supports its funding. However, the funding is recommended to be conditional upon the facility bringing external representation into the governance structure (see need for funding for more details). This level of funding, and the change to governance, will be critical to allow the facility to continue growing and to attain fully global leadership. Other recommendations include: expanding on outreach and external communications of the relevance and impact of research conducted at the BMSC, focusing research to include actionable, climate-change mitigation options as this would have more direct environmental importance to Canadians, and devising a plan for the BMSC to invest in specialized, shared infrastructure equipment to attract high-calibre researchers (examples include high-end computing, core molecular (e-DNA), and other analytical equipment).
SCIENTIFIC EXCELLENCE

Standard: The facility is used by researchers of the highest calibre and enables innovative and leading-edge research that leads to social, health, economic or environmental benefits to Canadians. The research directions proposed in the facility’s strategic plan are forward-looking and reflect the state-of-the-art in the supported fields.

Bamfield Marine Sciences Centre (BMSC) is a year-round biological field station and research facility providing laboratories, ocean access, equipment, and technical support to researchers, students, and partners across multiple discipline and sectors. The facility is the product of an ongoing partnership between five prominent Western Canadian universities. For over 50 years, Bamfield Marine Sciences Centre has supported leading marine sciences research in Canada, with over 140 papers published since 2019. The facility has contributed significantly in the fields of fish respiration and comparative biochemistry and physiology.

Bamfield Marine Sciences Centre is located on Vancouver Island, British Columbia (BC), within the traditional territory of the Huu-ay-aht First Nations (Population 100) in the remote community of Bamfield (Population 150). With access to pristine and unique habitats on the west coast of Canada, the location of the BMSC is one of its greatest advantages. The committee suggested that stronger promotion of the BMSC as a place-based marine research site, as described in the strategic research plan, will help to build the BMSC’s presence and reputation outside of Canada, therefore attracting more international researchers.

The facility is led and used by high calibre researchers, including Dr. Sean Rogers, who has directed the BMSC since 2017 and is Professor of Biological Science at the University of Calgary. Dr. Rogers has made significant contributions in the fields of ecological genomics, global change in fishes, and the application of molecular tools for biodiversity monitoring. The research team at the BMSC comprises a range of researchers from the five partner universities, as well as other national partners, including, for example, Dr. Amanda Bates, Professor of Biology at the University of Victoria, a Pew Marine Fellow, and a 2021 Impact Chair in Ocean Ecosystem Change and Conservation. Dr. Bates is currently conducting surveys of rocky reef ecosystems for the Marine Biodiversity Observation Network and has trained the BMSC dive team to use these research methods to analyze other coastal ecosystems. Another BMSC researcher, Dr. Chris Wood, Lifetime Distinguished University Professor, Emeritus Professor of Biology at McMaster University, and Adjunct Professor at the University of British Columbia, is a highly cited fish and invertebrate physiologist expert in the responses of marine animals to natural and anthropogenic stressors. Twenty-three of his BMSC trainees have become university professors.

In terms of infrastructure, the BMSC has 12 research vessels, a 24/7 flow-through seawater system, a large seawater research tank (140,000L), and a long marine flume (12 metres). The BMSC also has specialized laboratory facilities including the Shellfish Aquaculture Laboratory, the Seaweed Growing Laboratory, and radionuclide laboratories. Specialized equipment on-site includes a confocal fluorescence microscope and environmental sensors. The committee commended the BMSC on maintaining their on-site library, with its primary focus on marine biology, oceanography, fisheries, and other aquatic sciences, as well as the history, biodiversity and archaeology of the Barkley Sound region. This library is impressive and particularly valuable for such a remote community, and should continue to be supported.

The committee strongly recommends the facility to invest more heavily in their communications and outreach efforts, specifically linked to their research. For example, the facility could hire a scientific outreach coordinator. The remoteness and isolation of the BMSC make it incumbent upon principal investigators and the facility to transfer the knowledge to the user community. Hiring an individual specifically tasked with knowledge transfer and research communication will help to attract additional high calibre researchers and funding through research grants and donations.

The thematic areas of the proposed research projects are consistent with the overall aim to address climate change impacts and mitigation; however, the proposed research projects left the committee
questioning how they would lead to environmental benefits to Canadians. Most proposed projects rely upon monitoring and data collection as research methods, without explanation of the utility of the data and knowledge collected. Clearer links to actionable strategies should have been included. In particular, concerns were raised at the “climate mitigation” projects that lack current climate mitigation techniques, such as ocean carbon dioxide removal research (i.e. “carbon capture”).

The climate change-oriented strategic research direction is noble, but constrains the facility within a topic in which they have not yet demonstrated their ability to enable state-of-the-art research. It is unclear whether the facility has the equipment available to complete the proposed research and, if not, how the facility plans to acquire it. The strategic research direction should be more focused on research outcomes and the plan for knowledge and technology transfer. An increased international presence, a detailed explanation of the data partnership with Ocean Networks Canada, clearer climate mitigation efforts, and a more ambitious plan to attract world-class researchers and specialized equipment to enable cutting edge research would have strengthened performance on this criterion.

In sum, while the expert committee congratulated the BMSC on their growth from a small field station 50 years ago to the scientific and educational marine sciences hub that it is today, the facility is missing a clear vision to build and exploit the full science potential of its capabilities over the coming years.

INTERNATIONAL COMPETITIVENESS

Standard: The facility’s highly specialized equipment, services, resources, and scientific and technical personnel are internationally competitive and a high priority for the user community. The loss of these capabilities would be a setback to Canada.

The BMSC has a wide array of scientific and technical personnel that give confidence to their ability to operate this multi-platform interdisciplinary research station, and to grow the user base through a responsive approach to in-person and online research collaboration and outreach. The research team comprises a broad range of expertise (especially in organismal studies) including biodiversity, ecophysiology, evolution, ecology, conservation, fisheries, microbiology, and genomics.

Though located in a highly remote location, the facility attracts top researchers. Without the availability of such facilities, research in such remote locations is extremely challenging, highly selective, and often more primitive than would otherwise be possible. The throughput of on-site visits, including marine vessel and diving trips, per year at the BMSC is high, which is underpinned by their excellent facilities, including their remarkable number of research vessels (12), marine flume, test tanks and seawater delivery systems, and labs for seaweed and shellfish cultivation studies. This infrastructure, combined with the biodiverse local marine environment, makes the BMSC a highly desirable research facility.

The BMSC has strong collaborations outside of academia, especially with First Nations and industry partners. Their commitment to building and assisting start-ups is particularly notable. Currently, however, all of the BMSC partnerships are with Canadian organizations. The committee recommends wholeheartedly for the BMSC to focus on building its international presence through partnerships with organizations outside of Canada. Additionally, collaborations with other academic marine institutes within Canada can be more strongly developed. It was suggested that a postdoc exchange program could help to facilitate academic collaborations within and outside of Canada.

Environmental DNA research was mentioned, yet that is a large area of research with significant infrastructure needs that were not clearly explained in the proposal. The committee questioned how the facility would continue to attract researchers in the future, beyond the lure of its prime location. To remain competitive going forward, it will be important for the BMSC to invest in specialized equipment to attract high-calibre researchers. Super-computing, molecular, and other analytical equipment not specified in the proposal would be necessary for a truly robust scientific laboratory. The committee also encouraged the BMSC to acquire purposely identified shared infrastructure for the facility, beyond what researchers leave behind after their projects are complete. For example, even if the BMSC does not establish an environmental DNA research lab at the BMSC itself, certain pieces of equipment, including filtration rigs,
chemical storage, and freezers, would enable researchers to prepare and store materials for offsite downstream molecular analyses.

With its unique location, specialized equipment, and highly qualified technical personnel, Bamfield Marine Sciences Centre contributes to Canada’s international standing in marine science leadership. Continued investment in infrastructure and an increased weight on building academic collaborations within and outside of Canada will help bring the facility to the next level.

**OPERATIONS AND USER ACCESS**

**Standard:** The facility is effectively and efficiently operated and has established mechanisms to ensure optimal use by the user community. Access to limited resources is granted following an appropriate selection process.

The Bamfield Marine Sciences Centre is located in a rural community with a very small local population (~250). The facility is located a six-hour drive from Vancouver, BC, or a four-hour drive from Victoria, BC. Such a rural location presents several challenges unique to the facility, including the necessity for food and housing services, and the need to recruit nearly all staff from outside of the local community. The location also lacks health and educational services (beyond primary school). The BMSC is cognizant of the challenges that it faces in this regard and has taken steps to improve accessibility, including lobbying the provincial government for improved road access, which resulted in a commitment to improve road conditions by 2022, and the construction of a wastewater treatment plant in collaboration with the Huu-ay-aht First Nations. The BMSC has also made commitments (including some bursary support funds) to aid underserved communities to access the educational and scientific programming at the facility. The committee strongly endorses the plan to increase accessibility to the site for those with physical disabilities.

Technical staff are present year round to ensure that all facilities/equipment are maintained in top condition. There is a well-tuned system in place to oversee the operations, the research vessels, the diving program, and animal care facilities. The committee particularly commended the ability and willingness of the staff to assist with studies while investigators are not on-site. This is a key component of any outstanding facility and requires considerable financial support. It results in an increased pool of users, since not all users need to come on-site.

The committee encouraged the facility to increase employment of local residents in particular Huu-ay-aht First Nations members at the facility.

Users of the BMSC have a high level of diversity from an institutional perspective. This is facilitated by co-ownership by the five Western Canadian universities, which results in a strong pool of researchers from some of Canada’s best universities. Although the bulk of the BMSC users are coming from Western Canada, 27% come from other regions of the country. It remains unclear, however, how many of these outside users are on-site, remote, data, or educational users.

Over the past few years, the facility has encouraged more open access to users from outside the five founding universities. The committee hopes to see an increase in the number of on-site users from across Canada and internationally continue over the coming years.

Pre-pandemic, the BMSC hosted approximately 1000 on-site users per annum. While the facility has yet to return to these levels, it has used this opportunity to build its remote user base. Over the course of one year, the BMSC grew from 0 to over 2000 remote and data users per annum. While impressive, the committee found it unclear what constituted a remote user. Does the BMSC define a remote user as someone who visits the data section of the BMSC or Ocean Networks Canada website (or spends a predetermined amount of time on the site), participates in an educational course, or collaborates in a project remotely? The proposal states that those who participate in the BMSC-Ocean Networks Canada-HFN-Government of Canada online training program on climate action and awareness targeted at citizen scientists are considered remote users.
The committee recommends that the facility clarify its definition of remote and data users and invests in improving its method of calculating and measuring data users.

The committee found it unclear how many of the users coming on-site were principal investigators or researchers as compared to educational visitors. The large number of undergraduate students coming on-site is impressive, but it is clear that they are not all involved in research (600+ per year). It was also unclear how long researchers typically stay on-site.

The BMSC is approaching full capacity in terms of its usage year round. The committee suggests that developing a clear selection process will be important as access to the facility becomes limited. Ensuring the facility is available to users across Canada, determining who will assess the scientific merit of the proposed research projects (and who will approve the recommended portfolio), and developing a cost-covering industry fee structure will be key considerations.

The BMSC is an effectively operated marine research centre that works in concert with the local community and Huu-ay-aht First Nations to ensure open access to researchers across Canada. As the facility reaches year-round capacity, it will be important to determine a clear merit-based selection process for proposed research projects.

**EXCELLENCE IN GOVERNANCE**

**Standard:** The facility adopts best practices in governance, including long-term strategic planning, as appropriate to its size and complexity. The facility defines its needs over the life of the facility in consultation with the user community.

The BMSC was established in 1972 at the request of the National Research Council Canada. The facility was founded by five university members including Simon Fraser University, University of Alberta, University of British Columbia, University of Calgary, and University of Victoria. Collectively, these universities founded the non-profit Western Canadian Universities Marine Sciences Society (WCUMSS), which has maintained responsibility for oversight and governance of the facility, while the founding universities remain equal co-owners. There is a high-level of buy-in and accountability at a sufficiently senior level in each sponsoring institution to give high overall confidence in how the BMSC is governed.

The BMSC Management Council comprises ten member representatives, two from each of the founding universities. These include six deans, two department chairs, one department head, and one associate VP of teaching and learning. Half of these individuals make up the finance committee and the other half make up the academic committee. These members each bring significant leadership expertise to the council. The Management Council reports to the WCUMSS, which has five member representatives (who also sit on the Management Council). Both the Management Council and WCUMSS comprise the President (Dr. Jon Driver), Treasurer (Dr. Ray McNichol), and Secretary (BMSC Director, Dr. Sean Rogers). Dr. Rogers is an ex-officio, non-voting member of the Management Council and WCUMSS.

A scientific advisory committee is comprised of researchers currently appointed as members from Alberta, British Columbia, Manitoba, Ontario, and California. The committee appreciates the efforts made since 2017 to recruit new members from outside the five founding universities. As the next step, new members should be recruited from outside of North America to enhance the geographic and experiential breadth of members. To enhance the utility and independence of this committee, it is recommended to have the committee report to the Management Council, rather than the Director. This is particularly important as the facility reaches capacity and will have to make scientific decisions about which research projects should be approved and granted facility access.

The BMSC Strategic Plan was developed through consultation with the BMSC staff, users, and the Management Council, and with the help of a strategic planning consultant and facilitator. The Institutional Strategic Plan was approved by the Management Council in 2019, while in 2022, the Strategic Research Plan was developed by the Director and President in collaboration with users and the Scientific Advisory Committee. The BSMC Strategic Plan is strongly aligned with the proposed research themes; however, the committee felt that it could have outlined a more aspirational long-term (20 years) vision.
The Strategic Research plan highlights the four challenges that will guide the BMSC:

- Accelerating climate change
- Biodiversity and conservation
- Environmental resource management and sustainable economic development
- Building scientific literacy

The committee strongly advocates for the evolution of the governance structure. Now that the facility has reached its present level, it is of utmost importance to have outsider perspective, so that the facility is not only accountable to itself and the five founding universities, but also to its stakeholders. It is acknowledged that the unique five-university partnership leads to a need for a unique governance structure. Maintaining equal representation of the five universities is recognized as a necessity, but opening external membership will help to bring the legal and financial expertise and stakeholder representation needed. Currently, the management council and WCUMSS are comprised solely of research-active scientists holding academic administrative appointments as deans or department heads in the founding universities. It is recommended to use a skills matrix to ensure that a wide range of stakeholders and expertise are represented on the council. The committee also notes that opening the governance to external members will help the facility to network and build relationships with potential donors.

Incorporating stakeholders into the governance structure will help the BMSC both to improve stakeholder relations and increase the skill set of the management council. The BMSC staff are stakeholders, thus having “boots on the ground” representation on the council is important. The committee also highlighted the need to include Huu-ay-aht First Nations representation within the governance structure – not symbolically – but as a voting member. The BMSC has a strong history of working in respectful collaboration with this community and this is an important step to formalize this working partnership. The Expert Committee also expressed concerns around the fact that the WCUMSS oversight layer is composed of the same people as the Management Council. This introduces conflicts of interest and should be reevaluated.

EXCELLENCE IN MANAGEMENT

The committee recognizes the success of the governance structure in developing strong strategic plans and facilitating the co-operation of the five founding universities over 50 years. Stronger representation of stakeholders (industry partners, community members, including Huu-ay-aht First Nations, and users) within the governance structure will help it to evolve into the future.

The Bamfield Marine Sciences Centre management structure has split the role of Director into two – a Managing Director and a Director. The Managing Director, Lee Weber, lives on site and is responsible for the daily operations and management of the facility. The Director, Dr. Sean Rogers, lives offsite, in Calgary, and is responsible for the strategic oversight and performance. The Director has four direct reports, the Managing Director, Head of Research, Head of Education, and Business Manager. The Managing Director has one direct report, the Operations Manager.

The BMSC has benefitted significantly from the shared ownership of the five founding universities. This collaboration has allowed each university to bring their own expertise and knowledge, thus providing Bamfield with a large group of expert advisers in the form of WCUMSS and the Management Council. The BMSC has addressed the full scope of management needs, ranging from issues of gender balance, EDI, and respect and inclusion of the Huu-ay-aht First Nations, to risk management, including health and safety (including dive safety), animal care, cybersecurity, and more. The BMSC has also instituted personnel training programs for sexualized violence, misconduct, and unconscious bias, and has implemented equity, diversity, and inclusion policies for recruiting new staff.
The committee suggests that for Bamfield to reach the next level of growth, the Director, Dr. Rogers, should be relieved of his teaching duties and become a full-time director. The level of commitment required for fundraising, oversight, and setting the strategic direction is not compatible with a part-time role.

In terms of data management, the BMSC supports an open-access biodiversity database and collects limited oceanographic data (temperature, tides). It is collaborating with Ocean Networks Canada to provide access to the BMSC data. The link between Ocean Networks Canada and the BMSC and the types of data to be made available could have been more clearly articulated. Ocean Networks Canada is a world leader in marine data management and systems, so this partnership was highly supported. The committee recommends that the facility invest in improving its method of calculating and measuring data users. The committee also noted it may be beneficial for an Ocean Networks Canada representative to sit on the Management Council so that the BMSC can better integrate data management into its strategy and oversight.

The BMSC senior management team has the full range of core competencies needed to successfully manage this facility. The team has demonstrated its efficacy in adopting best management practices.

**NEED FOR CFI FUNDING**

**Standard:** The requested funding is necessary to allow the facility to fully exploit its scientific and technical capabilities and to operate at an optimal level to address the needs of the user community.

The Bamfield Marine Sciences Centre current $2.2M annual operating budget covers salaries (64%), insurance (14%), utilities (12%), and maintenance (10%) of 70 hectares of coastal waterfront, 30,000 sq. ft. of research laboratories, accommodations, and a foreshore valued at $29M. Over the next six years, the BMSC proposes a total budget of $15,219,844, including a CFI funding request of $6,063,844, to support scientific, technical, managerial, and administrative resources to enhance research outcomes that address climate change. This budget is highly efficient and has the potential to produce great value for the CFI investment.

The budget, in part, will support 10 FTE administrative staff, including the BMSC Head of Research, Managing Director, Operations Manager, Business Manager, Foreshore Supervisor, and Maintenance Manager. The BMSC has also budgeted for the Administrative Clerk, Accounting Assistant, Systems Administrator, and IT Assistant. The budget will also support 16 FTE scientific and technical support personnel, including the Animal Care Coordinator, Second Skipper, Dive and Safety Officer, Dive Assistant, Research Assistant, two Instrument Technicians, and research staff including a research technician, animal care assistant, and summer librarian to facilitate biodiversity data and research. Full-time operational support staff include the aforementioned Maintenance Manager plus staff, including the Housekeeping Supervisor and seasonal housekeeping staff. The budget also includes funds for the electrician contracted as the Field Safety Representative for the BMSC’s high-voltage certification and compliance.

Funds are additionally budgeted for extended warranties/service contracts, replacement parts and minor upgrades, services and utilities, supplies and consumables, communications and outreach activities, administrative costs (including comprehensive insurance and legal fees), training and professional development, and contingency.

Over the past 20 years, the BSMC has faced increasing operating costs for safety and vessel requirements, marine insurance, specialized technical and scientific equipment and infrastructure, and technician salaries. To cope with these increasing costs, the BMSC has deferred maintenance expenses to meet increasing user demand and conform to building codes, to improve animal care services, to
ensure better health and safety management, and to build better information technology infrastructure to meet researcher expectations. With CFI funding, the BMSC will be able to redistribute the institutional contributions from the five collaborating institutions to pay for the deferred expenses.

The five member universities contribute annual membership fees to WCUMSS, which support the operations of the BMSC. While their contributions to the operations and maintenance budget included in this proposal decrease significantly, the chair of the Management Council assured the committee during the face-to-face session that these membership fees will continue to be collected, ensuring funding sustainability. The committee stressed that it is of great importance that the facility continues to receive the same level of financial support from the partner universities to ensure that the funding will lead to growth rather than maintain the status quo. The facility did not provide suitable projections of industry revenues, citing difficulty in calculating the projections. It is expected that increasing user fees will also contribute to facility growth.

During the funding cut presentation in the face-to-face session, the BMSC stated that they would not consider across-the-board salary reductions, reducing fixed costs to operations, or shutting down an entire department. A 15% cut to the CFI contribution would necessitate cutting 1 FTE Instrument Technician (leaving 1 remaining) and 1 FTE from Maintenance and Facilities (leaving 4 remaining). The outreach and communications budget would be reduced from $125K to $100K. A 30% cut to the CFI contribution would result in the removal of the Business Manager, both Instrument Technicians, 1 FTE from IT/systems (leaving 1 remaining), and 2 FTE from Maintenance and Facilities (leaving 3 remaining).

The impacts of either funding cut would be relatively severe if that funding was not replaced by institutional commitments. The committee noted that either a 15% or a 30% cut to funding would be undesirable as it would set the facility back by several years. The BMSC would have limited capacity to train in instrument usage, build international partnerships, or respond to ecological hazards. The wait time for instrument servicing, IT service, and maintenance would each increase. Two instrumentation technicians for such a large range of equipment is already limited. Reducing the technicians to one or zero FTE would be devastating and require shipping the instruments to be serviced externally. To manage this, the facility would likely have to cut either their oceanographic equipment or confocal equipment. The committee advised that in the case of a 30% funding cut, it would likely be wiser to shut down a department and maintain excellence in other business units, rather than making small cuts across the board.

This facility provides an outstanding and growing centre of excellence; however, in spite of a few international researchers, it still appears to be mainly a Canadian facility. It is likely that enhanced funding will catapult the facility to the next level, i.e. to expand their ongoing activities without sole reliance on the member institutions and make a concerted effort to expand the international collaborations. With this funding, the BMSC will help to lead Canada to assume a larger role in international marine science leadership.

**Conditional funding comment**

Upon finalization, the BMSC would need to present its plan for bringing internal (i.e. on-site staff) and external (i.e. Huu-ay-aht First Nations, industry) stakeholders into the governance structure. The CFI funding is contingent upon external stakeholder representation being included in the management council by the midterm evaluation.
The committee commended the facility on their remarkably small and efficient budget. As long as it is accompanied by continued institutional contributions, the CFI investment will allow the BMSC to grow to the next level of scientific excellence.

**MEMBERSHIP**

**Chair**

Robert Cowen  
Director, Hatfield Marine Science Station  
Oregon State University  
United States

Claudia Fall  
Senior Programs Officer

**CFI**

Sarah Coogan  
Programs Officer

**Members**

Bernadette Holthuis  
Operations Manager, Friday Harbor Laboratories  
University of Washington  
United States

Glenn Nolan  
Section Manager, Oceanographic and Climate Services  
Marine Institute  
Ireland

Nichole Price  
Senior Research Scientist, CSS  
Director, & Benthic Marine Ecologist  
Bigelow Laboratory for Ocean Sciences  
United States

Willie Wilson  
Director  
Marine Biological Association  
United Kingdom

Sandra Shumway  
Research Professor of Marine Science  
University of Connecticut  
United States
MULTIDISCIPLINARY ASSESSMENT COMMITTEE REPORT

Project number: 42631
Administrative institution: University of Calgary
Facility name: Bamfield Marine Sciences Centre
Project leader: Rogers, Sean

RECOMMENDATION & ASSESSMENT

Funding recommendation: No Funding
Recommended amount: $0

Enable pan-Canadian research communities to undertake world-class research and technology development that lead to social, health, economic or environmental benefits for Canadians

Enable facilities to operate at an optimal level to ensure the best use of their specialized equipment, services, resources, and technical and scientific personnel

Promote responsible stewardship through the adoption of best practices in governance and management

The MAC acknowledged the timeliness of the climate-oriented research being supported by the Bamfield Marine Sciences Centre (BMSC).

The MAC concurred with the expert committee comments that the facility is missing a clear vision to build and exploit the full potential of its capabilities over the coming years. The facility is one of many field stations in Canada and there was not adequate evidence to demonstrate a level of uniqueness representative of a national facility.

The BMSC is not sufficiently pan-Canadian nor international. The MAC recommends for the BMSC to expand the geographic distribution of its user base nationally and internationally. Furthermore, usage of the facility by scientific users versus educational visitors should be clarified.

The MAC strongly suggests that the BMSC take action on the expert committee’s suggestions about governance. The BMSC must strengthen their governance structure to be reflective of the national scope of the facility, involving the Huu-ay-aht First Nations community more strongly within the organization and bringing external advisors onto the Managing Council.

In light of the different issues identified above, the MAC did not recommend funding.
Project title | Bamfield Marine Sciences Centre
---|---
Applicant institution | University of Calgary
Collaborating institutions | Simon Fraser University, The University of British Columbia, University of Alberta, University of Victoria

**Project leader**

Name | Rogers, Sean
Title/position | Professor/BMSC Director

**Project funding**

Total project cost | $15,219,844
Amount requested from the CFI | $6,063,844
Percentage of the total project cost requested from the CFI (maximum 40%): | 39.8%

**Keywords**

Research or technology development | Ocean Sciences, Marine Sciences, Coastal Sciences, Biodiversity, Oceanography, Ecosystem, Climate Change, Fisheries, Sustainable Resource Development
Specific infrastructure | Support year round access to ocean environments and laboratories at the BMSC
Canadian Research and Development Classification

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Experimental development</th>
</tr>
</thead>
</table>

Fields of research

<table>
<thead>
<tr>
<th>Primary</th>
<th>Ecological impacts of climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>Biodiversity</td>
</tr>
<tr>
<td>Tertiary</td>
<td>Ecosystem function</td>
</tr>
</tbody>
</table>

Socio-economic objectives

<table>
<thead>
<tr>
<th>Primary</th>
<th>Environmentally sustainable human activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>Exploration and exploitation of the earth, n.e.c. - Ocean exploration, environmental management and sustainable resource development</td>
</tr>
<tr>
<td>Group</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
</tr>
</tbody>
</table>

Research builds communities
La recherche au service des collectivités

Submitted on 2022-02-08
Plain language summary

With the world's longest coastline, Canada has a responsibility to be a world leader in evidence-based, sustainable, ocean, marine and coastal resource management. In the 50 years since it was founded by five Canadian universities, the Bamfield Marine Sciences Centre (BMSC) has emerged as a premier marine sciences centre on Canada's Pacific coast and a leading national and international research facility. The BMSC annually supports hundreds of Canadian and international researchers, including graduate and undergraduate students, and thousands of K-12 students and their science teachers. Year-round access to marine ecosystems is provided by a fleet of vessels supported by trained crews, divers, scientific support staff, and specialized equipment. Its shore-based laboratory facilities are amongst the best in Canada. These facilities are available to community partners, including the Huu-ay-aht First Nations, and companies, governments and non-government organizations focused on research, environmental management and resource development. CFI MSI funding will allow the BMSC to expand fundamental and applied research and training activities, increase productive partnerships in areas critical to Canada's climate plan, and mitigate the ecological impacts of climate change: on Canada's coastal and ocean ecosystems (Theme 1); on Canada's coastal and ocean biodiversity and conservation (Theme 2); and via sustainable resource management and economic development (Theme 3).
Bamfield Marine Sciences Centre (BMSC): Oceans play a key role in sustaining planetary life and health while also shaping climate and weather. With the longest coastline in the world, Canada is committed to developing and implementing evidence-based knowledge, technologies, and policies in oceanic and coastal environmental health, biodiversity conservation, and sustainable resource management and economic development. Its 240,000 km of coastline is central to Canada’s focus on sustainable regulation of global climate impacts, absorption of human-induced heat from carbon emissions, and protection of coastal ecosystems. The BMSC is located on the west coast of Vancouver Island, British Columbia (BC), within the traditional territory of the Huu-ay-aht First Nations (Population 100) in the remote community of Bamfield (Population 150), on Barkley Sound. At the request of Canada’s National Research Council (NRC), the BMSC was created in 1970 by five universities (Simon Fraser University (SFU), University of Alberta (UofA), University of British Columbia (UBC), University of Calgary (UofC), and University of Victoria (UVic)), which collectively founded the non-profit Western Canadian Universities Marine Sciences Society (WCUMSS). Since then, the BMSC has remained co-owned equally by these universities and operated by the WCUMSS, functioning year-round to provide ocean, marine and coastal sciences (OMCS) researchers with access to natural, biodiverse habitats, and supported by innovative laboratories, equipment and expertise to enable world-leading OMCS research and training programs.

BMSC Goals: A 2020 United Nations report estimated that ocean ecosystems hold the key to reducing up to 20% of Canada’s emissions to achieve international targets. Yet despite having the world’s longest coastline, Canada has not included ocean and coastline management in its climate change mitigation portfolio of solutions. CFI MSI investment in the BMSC will enable the multidisciplinary and transdisciplinary OMCS research and experimental development required to create the knowledge- and evidence-based solutions required for this to be rectified, integrating new knowledge, approaches and technologies in Canadian ocean and coastline management into an arsenal of solutions in Canada’s climate change mitigation portfolio, and enabling national net-zero emissions to be achieved by 2050 while sustaining one of humanity’s most precious common resources. These goals will be achieved by expanding BMSC’s fundamental and applied research and training activities to mitigate the ecological impacts of climate change: on Canada’s coastal and ocean ecosystems (Theme 1); on Canada’s coastal and ocean species biodiversity and conservation (Theme 2); and via sustainable resource management and economic development (Theme 3).

BMSC Infrastructure and Expertise: No other Canadian OMCS facility provides researchers with year-round access to the ocean environment, facilitated by highly-trained scientific, technical, research and diving support teams, and specialized field and laboratory equipment and services, including: (i) marine vessels and dive tenders which make over 1000 trips annually to deploy and service marine instruments and ethically capture and transport research animals; (ii) the only 24/7, flow-through, seawater system, aquatic wet lab research complex in Western Canada (CFI-funded); (iii) the second largest seawater research tank in Canada (140,000L) and Canada’s second longest marine flume (CFI-funded); (iv) specialized laboratory facilities including the Shellfish Aquaculture Laboratory, the Seaweed Growing Laboratory, and radionucleotide laboratories; (v) specialized equipment including a confocal fluorescence microscope and environmental sensors for real-time marine biological, chemical and physical measurements; (vi) specialized research support services, including marine animal care, the Devonian Library, and the BMSC Biodiversity Database; (vii) training programs providing students with scientific, technical and professional
skills required for leadership roles in climate change mitigation and sustainable resource development; and (viii) research support staff, including a foreshore supervisor, dive and safety officer, and a nationally certified animal care committee.

**BMSC Research Program.** The BMSC research program, which integrates oceanography, ecology, engineering, genomics, physiology, and bioinformatics, focuses on three major cross-disciplinary themes. Theme 1, Mitigating Ecological Impacts of Climate Change on Coastal and Ocean Ecosystems, will address how humanity can steward and sustain a healthy ocean environment in the context of climate change. Theme 2, Mitigating Ecological Impacts of Climate Change on Coastal and Ocean Species’ Biodiversity and Conservation, will focus on the biology, health and protection of marine biodiversity, including organisms central to aquaculture, seaweed aquaculture, shellfish aquaculture and fisheries. Theme 3, Mitigating Ecological Impacts of Climate Change Via Technology Development, Environmental Resource Management and Sustainable Economic Development, will support partnerships that enable translation of Themes 1 and 2 outcomes into new approaches, tools and products that will catalyze the development of Canada's biotechnology sector, support the emergence of Canada’s sustainable national ocean economy (the blue economy), and transform federal-, provincial- and community-level government decision-making regarding sustainable development of Canada’s coastal ecosystems using an integrated ocean management approach. CFI investment will also support expansion of the BMSC training program, enabling over 4800 undergraduate, graduate and postdoctoral students to be trained over the six years of CFI funding.

**BMSC Partnerships:** For over fifty years, the BMSC has partnered with organizations involved in sustainable resource management, environmental research, and technology development, the majority of which employ BMSC trainees upon graduation. Current partners include: **Companies:** Cascadia Seaweed Corp. (BC), Nova Harvest (BC), Canadian Kelp Resources (BC), Open Ocean Robotics (BC), Ecofish Research Ltd. (BC), Nuu-chah-nulth Seafood (BC); **First Nations:** Huu-ay-aht First Nations (HFN; BC), Namgis FN (BC), Tseshahat FN (BC), Kwikwasut’inuxw Haxwa’mis FN (BC), Mamalilikulla FN (BC), Ditidaht First Nations (BC); **Federal Government Agencies:** Department of Fisheries and Oceans (DFO), Parks Canada, Environment and Climate Change Canada, Natural Resources Canada, Canadian Coast Guard, Canadian Hydrographic Service; **Non-Profit Partners:** Canadian Museum of Nature (QC), Royal BC Museum (BC), the Kelp Rescue Initiative (BC), Oceanwise (BC), Hakai Institute/Tula Foundation (BC); **Academic Research Groups:** Ocean Networks Canada (BC, NU, NS, NF), Canadian Centre for DNA Barcoding (ON), and the Ocean Supercluster (NS).

**Need for CFI MSI Operations and Maintenance Funding:** The BMSC has transitioned from its original role as a seasonal biological field station to a year-round, international facility providing laboratories, ocean access, equipment and technical support to researchers, students and partners across multiple discipline and sectors. Expansion on national and international priorities and partnerships, ongoing investment in maintenance, upgrades and accessibility, and its operational base cannot be sustained solely by the five founding universities. MSI funding will empower the BMSC to grow its scientific, technical, managerial and administrative resources to enhance research outcomes that address climate change and initiate a sustainable blue economy. At the same time, the strong, collaborative foundation of five founding universities ensures that specialized experiential training in coastal environments continues to foster the next generation of professionals upon whose scientific leadership Canada will rely in the future.
## Management team

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogers, Sean</td>
<td>University of Calgary</td>
<td>Biological Sciences</td>
</tr>
<tr>
<td>Driver, Jonathan</td>
<td>Simon Fraser University</td>
<td>Archaeology</td>
</tr>
<tr>
<td>Eastham, Tao</td>
<td>University of Victoria</td>
<td>Western Canadian Universities Marine Sciences Society</td>
</tr>
<tr>
<td>Kalcounis-Ruepell, Matina</td>
<td>University of Alberta</td>
<td>College of Natural and Applied Sciences</td>
</tr>
</tbody>
</table>
CRITERION 1. SCIENTIFIC EXCELLENCE

1.1 Bamfield Marine Sciences Centre (BMSC) Research Program (2023/4-2028/9): The BMSC’s multidisciplinary strategic research program is globally innovative, being one of the world’s first research programs to take a fully integrated ecosystem approach to developing and implementing coastal climate change solutions (O’Connor et al., PRSB 2021) that address grand biodiversity and climate challenges. Research outcomes will improve Canada’s ability to forecast seasonal weather within coastal ecosystems and support coastal community resilience by predicting the impact of climate change on the environment. The BMSC’s methodology integrates innovative and emerging approaches in ecology, evolution, oceanography, genomics, biodiversity, zoology, comparative physiology, toxicology, engineering, data analytics, bioinformatics, conservation and climate adaptation over three Themes to: (a) increase understanding of the coastal and ocean impacts of climate change, the key variables across ecosystems, and the underlying mechanisms of ecosystem integrity, (b) create the evidence, approaches and technologies that will allow Canada to include ocean and coastline management in its climate change mitigation portfolio; and (c) enable national climate change solutions that contribute to Canada achieving net-zero emissions by 2050. Innovative experimental development and observation systems will improve our understanding of how biodiversity, human activities and ecosystem functions change and evolve at various levels of spatial and temporal resolution. The program is highly aligned with partner Huu-ay-aht First Nations’ (HFN) principle of Hişuk ma čāwak, Everything is One, the concept of interconnected, interdependent and reciprocal relationships between people, land and the wider world, in a physical, cultural and social sense.

**Theme 1: Mitigating Ecological Impacts of Climate Change on Coastal and Ocean Ecosystems.** This Theme will focus on discovery and innovation of opportunities to sustain a healthy ocean environment in support of coastal culture and economies in the context of climate change. Projects will measure seasonal ocean weather and examine the impacts of environmental extremes and stressors associated with accelerated climate change across ecosystems. Research on ecosystem feedbacks will underpin coordinated observation of biodiversity change, ecosystem functions, impacts of human actions, and more effective use of emerging technologies such as genomics and modelling in biodiversity science and policy. An inclusive and integrated community of biodiversity observers at the BMSC will provide a more comprehensive understanding of change and equitable solutions, while observation programs will inform complex models to understand ocean weather over seasonal time-scales, how they impact ecosystem productivity and integrity, and how ocean weather affects the ecology and evolution of community structure, ecosystem function, and species interactions within critical coastal ecosystems. Outcomes will also be relevant to coastal and non-coastal communities across Canada as weather events in the Pacific Ocean, such as El Niño, impact the whole country.

**Project 1.1 Understanding the Role of Feedbacks on the Resilience of Coastal Ecosystems (O’Connor, Else, Green, Tortell; Partners: HFN, Parks Canada, Friends of Ecological Reserves).** Coastal ecosystems represent a complex web of plants, animals and microbiota. Over periods of weeks to years, ecological resilience is the capacity of an ecosystem to regain its fundamental structure, processes, and functioning (or remain largely unchanged) despite climate stresses, human disturbances, or invasive species. Feedbacks are an essential feature of resilient socio-economic systems, yet an operational knowledge of feedbacks between biodiversity, ecosystem services and human wellbeing remains underdeveloped (e.g., O’Connor et al. Frontiers
in Ecology and Evolution 2020). **Goal:** To understand the nature of feedbacks within and across ecosystems and how these impact biodiversity change in relation to human activities and ecosystem functioning to determine future ecosystem trajectories. Major feedbacks in coastal ecosystems will be characterized to better inform policy platforms and actions taken in compliance, such as biodiversity monitoring. **Methods:** Current and projected biodiversity, ecosystem functioning, and human activities will be measured for key coastal ecosystems by enhancing and expanding existing observatories, which requires highly skilled and CAUS-certified divers to employ internationally recognized survey standards (e.g., Marine Biodiversity Observation Network (MBON)). Most biodiversity observations assembled for biodiversity change assessments (e.g. BioTIME, PREDICTS, GEO BON) do not systematically include accompanying measures of ecosystem processes and human activities, especially within First Nations territories. Observatory design and data collection will be guided by statistical approaches allowing detection and attribution of joint changes in biodiversity, ecosystem functioning and human wellbeing. **Outcomes** include an actionable understanding of the feedbacks between human activity, biodiversity trends, ecosystem functions and the ecosystem impact of future policy scenarios.

**Project 1.2 Understanding the Influence of Seasonal Ocean Weather on Coastal Ecosystem Dynamics (Bates, Tortell, Else; Partners: HFN, Canadian Pacific Robotic Ocean Observing Facility (C-PROOF), Nova Harvest, Department of Fisheries and Oceans (DFO), MBON, Ocean Networks Canada (ONC)).** Understanding marine ecosystem dynamics requires separating temporal and spatial components of ocean variability. Shore-based coastal laboratories support a wide suite of measurements required to gain insights into coastal variability and ecosystem response to disturbances across a range of time scales. **Goal:** To develop oceanographic instrumentation and methods to measure ecologically and climate-relevant ocean phenomena, and enable process studies in the BMSC’s physically dynamic, highly productive and commercially important ecosystems. **Methods:** The BMSC recently installed automated oceanographic sensors in the Pacific Ecosystem Autonomous Research Laboratory (PEARL) to accurately measure temporal seasonal dynamics of biogeochemical processes and to quantify key parameters impacted by climate change, including physical mixing processes, primary productivity, ocean deoxygenation and acidification, and the cycling of climate-active trace gases such as methane and nitrous oxide. Instruments are connected to a shore-based laboratory at the BMSC, where the team will explore biodiversity and resilience to seasonal weather and climate variability. **Outcomes** include developing improved numerical models and forecasting tools to inform more robust, science-based management of marine resources.

**Project 1.3 Understanding the Impact of Multiple Climate Stressors on Coastal Ecosystem Change (Bates, Blewett, O’Connor, Green, Côté, Leys, Tortell; Partners: HFN, Kelp Rescue Initiative, Reef Life Survey, MBON).** Ecological and evolutionary processes shape ecosystem response to environmental change, but connecting these processes to the management of coastal ecosystems remains challenging in the face of multiple temporal and spatial environmental stressors. Understanding this response is fundamental to predicting the consequences of environmental change on biodiversity within an ecosystem. **Goal:** To quantify the response of ecosystems across gradients of climate disturbance. **Methods:** Moored buoys, installed and maintained over critical ecosystems, will be equipped with instruments that measure environmental stressors in these habitats, with data collected year-round. Data collection over replicate, complex ecosystems will enable world-first, highly robust quantitative estimates of seasonal environmental stressors to test hypotheses about species-tolerant environmental conditions, species-resilience to
changes in conditions, and resilience thresholds of marine organisms to multiple stressors. **Outcomes** include improved understanding of stress responses which will enhance models for local ecosystem management.

**Project 1.4 Understanding the Short- and Long-term Impacts of Marine Heat Waves on Coastal Ecosystems (Baum, Bates, Côté, O’Connor, Neufeld; Partners: HFN, DFO, Kelp Rescue Initiative, ONC, MBON).** The frequency and intensity of heat waves is increasing with climate change. Over the last six years, the BMSC has documented impacts of two unprecedented heatwaves on rocky reef, kelp and eelgrass ecosystems, species composition and species richness within ecosystems. However, the short- and long-term consequences of these events on ecosystems’ current and projected health remains unknown. **Goal:** To understand the impacts of heatwaves along Canada’s coastline. **Methods:** Surveys, particularly of reef and kelp ecosystems, conducted before the 2021 heat wave will inform research monitoring of interannual temperature variations and the presence and abundance of species in heat-resilient ecosystems (e.g., healthy versus extirpated shellfish, eelgrass, kelp and reef ecosystems) and interannual variation in water temperature. The BMSC will install and maintain temperature loggers and other data loggers (wave action, salinity) to identify how heat waves influence biodiversity and what parameters influence climate “refugia” for some ecosystems. **Outcomes** include understanding how ecosystems respond to and recover from heat events.

**Theme 2: Mitigating Ecological Impacts of Climate Change on Coastal and Ocean Species’ Biodiversity and Conservation.** Biodiversity reflects habitat quality, habitat diversity and the capacity of organisms, energy and nutrients to move among habitats. Marine biodiversity results from ongoing, dynamic ecological and evolutionary processes that occur at different scales, from competition or predation among individual organisms to the landscape and regional processes of dispersal across ecosystems. Marine foundation species often underpin the ocean’s vast biodiversity, which is associated with food and nutrition provision, and carbon storage. This highlights the significance of reliable, integrated information in support of effective biodiversity assessments.

**Project 2.1 Elucidating the Biodiversity Seascape of the Pacific Northwest (Reynolds, Côté, Bates, Costa, Linnington, Neufeld, O’Connor, Baum, Rogers; Partners: HFN, DFO, Canadian Museum of Nature, iNaturalist, eBird, Royal BC Museum, Biodiversity Institute of Ontario, Hakai Institute, Reef Life Survey).** Species distributions and abundances are undergoing rapid changes worldwide. Climate change consequences on marine species, from microbial to invertebrate, plant, animal and “keystone species”, scales up to impact marine biodiversity in coastal ecosystems. Biodiversity observations produced by multiple sources and using multiple methods is critical to understanding ecological processes across multiple habitats. Although this capacity is currently lacking for all of Canada’s coastal ecosystems, the BMSC has supported biodiversity assessments for over 50 years, including major surveys in 1971 and 1982 of biota from more than 200 biologists recording more than 1600 species, accounting for nearly half the invertebrates known in BC and Washington State. Additional data have been recorded (microbial, algae, plants, invertebrates and vertebrates) in the BMSC biodiversity database, curated in the BMSC Zoology museum, uploaded to online repositories (e.g., ebird, iNaturalist) and used internationally by the MBON and Reef Life Survey. Over the last five years the BMSC has begun to elucidate patterns of decline, movement of invasives, and shifts in the distribution of species across ecosystems. **Goal:** To use sustainable, standardized methods to comprehensively survey and
monitor coastal marine biodiversity in the Pacific Northwest by mapping the biodiversity in Barkley Sound. **Methods:** Modernized methods (e.g., essential biodiversity variables/model-based integration, DNA metabarcoding, environmental DNA) will be used to systematically characterize biodiversity in Barkley Sound and create physical and biological maps of habitat and environmental stressors on foundation species critical to reef, kelp and seagrass ecosystems, aquaculture and fisheries industries. Habitats and environmental conditions will be identified to correlate the presence, abundance and diversity of biogenic habitats/foundation species with direct links to physical and oceanographic characteristics. **Outcomes** include creating a Canadian west coast biodiversity seascape to enrich analysis and reporting of biodiversity changes globally, strengthen the data required to conserve coastal biodiversity, and inform decision-making regarding ecosystem functioning, resource management and species protection. The data will become part of international surveys recording global impacts of climate change on coastal and ocean species’ biodiversity and conservation.

**Project 2.2 Understanding the Causes and Drivers of Biodiversity Change in Coastal Ecosystems.** (Côté, O'Connor, Green, Rogers, Baum; Partners: MBON). Relative species abundance is a snapshot of the variety and total number of organisms and species in a defined area. As comparing biodiversity across space and time is inherently challenging and vulnerable to biases in the scale and intensity of monitoring, the BMSC’s low human population density and remoteness provide a unique opportunity to examine changes in community structure and diversity in one of Canada’s most biodiverse regions, providing a clearer imprint of the effects of climate change. Comparing coastal organism changes relative to other coastal organisms is a challenge due to limited numbers of sampling sites and coastal biodiversity temporal datasets. **Goal:** To develop a coordinated set of comparative time-series for biodiversity to identify potential drivers of change. **Methods:** Area-based, stratified, random sampling facilitates comparison of diversity metrics across space, time, and conditions of interest, such as human impact intensity. This method requires extensive foreshore, scuba- and shore-based facilities to conduct consistent temporal sampling at replicate observation stations. **Outcomes** include biodiversity monitoring that can detect biodiversity trends, evaluate ecosystems’ integrity and response to disturbances, and assess actions taken to conserve or recover biodiversity, providing essential context for interpreting results, guiding future monitoring, and supporting local, regional, national and international efforts to conserve and restore biodiversity.

**Project 2.3 Predicting the Occurrence and Impact of Coastal Invasive Species** (Côté, Green, Blewett, Baum, Neufeld; Partners: HFN, Parks Canada, DFO). Climate change is altering the distribution of species in coastal ecosystems and increasing the probability of invasive species. Predicting shifts of invasive species distributions and understanding their impacts will help managers forecast and manage consequences. **Goal:** To determine factors contributing to coastal invasive species and to understand their interactions with coastal ecosystems. **Methods:** By developing and applying field-intensive quantitative frameworks, the relative vulnerability of coastal species will be classified via morphological and behavioural traits known to influence susceptibility to predation (e.g., body shape, water column position and aggregation behaviour), habitat overlap with invasive species (e.g., green crab), and degree of geographic range determining the nature and strength of interactions between invasive species and other environmental factors. **Outcomes** include determining the magnitude and mechanisms of ecological change driven by invasive species in marine communities, including predictions of ecosystem structures and
functions under future climate scenarios accounting for biotic interactions and influences, how species will spread in the Pacific Northwest, and how this impacts local ecosystems.

**Project 2.4 Adapt or Perish: Determination of Adaptive Trait Variation to Forecast Population Persistence of Coastal Species Under Changing Environments (Rogers, Jamniczky, Salomon, Leys, O’Connor, Blewett, Goss; Partners: HFN, DFO).** All species exhibit variations in behaviour, morphology, and physiology. Many are particularly vulnerable to climate change because of their sensitivity to environmental temperature. Although evolutionary changes in natural populations in response to temperature have been recorded, the role of temperature-associated adaptation remains unknown. Rapid environmental changes predicted by climate models will impact the global distribution and abundance of species, highlighting the urgency to understand and predict how populations will persist, adapt or perish under changing conditions. **Goal:** To understand genetic diversity among populations, and how different variants enable organisms to persist in their environment and adapt to environmental change. **Methods:** Identifying the proximate (ecological, genetic mechanisms) and ultimate (strength/agent of selection) causes of evolutionary change to explain how genes interact with the environment requires field and lab experiments integrating genomics in natural fish populations. Temperature, a predominant environmental factor affecting the distribution and abundance of organisms, influences physiology, behaviour, and plasticity (the capacity for an individual genotype to express different phenotypes). Integrative analyses of this influence within natural populations of marine organisms (e.g., invertebrates, seaweeds, fishes) will make used of the BMSC’s ability to ethically rear animals in marine facilities and manipulate environmental variations. **Outcomes** include understanding evolution’s role in developing adaptive traits well suited to changing environments. Knowing adaptive trait variations associated with environmental stressors for key species inhabiting coastal ecosystems will help elucidate the probability and pace of future evolution in response to environmental change in these habitats.

**Project 2.5 Determining the Impact of Climate Change Stressors on the Health of Marine Species (Blewett, Goss, Wood, Leys, Jamniczky, Rogers; Partners: HFN, DFO, ONC, Parks Canada).** Understanding how climate change affects organisms is urgent due to the predicted high rate of environmental change in conjunction with other anthropogenic stressors. Integrative and comparative physiology provides powerful methods for studying animal responses to chronic and acute stressors. **Goal:** To elucidate physiological mechanisms in coastal marine species that can only be maintained at the BMSC. **Methods:** The research requires the ethical capture, transport and specialized husbandry of marine organisms such as sharks, salmon, hagfish, crabs, mussels, sea urchins and sponges, using BMSC vessels and aquatic facilities, including the largest aquatic tank on the west coast (and second largest in Canada), and access to the BMSC Eco-Physiology Lab’s suite of specialized molecular physiology tools to enable whole animal experimentation, cell physiology and molecular biology approaches. **Outcomes** include improved understanding of short- and long-term impacts of climate change on species that are either important in maintaining local ecosystems or have commercial importance.

**Theme 3: Mitigating Ecological Impacts of Climate Change Via Technology Development, Environmental Resource Management and Sustainable Economic Development.** Sustainable resource management in coastal ecosystems requires understanding and protecting ecological processes that allow biodiversity to adapt in a changing world (O’Connor et al. 2021). Theme 3 research will use Themes 1 and 2 outcomes to: (i) develop innovative, evidence-based policies by
Indigenous, federal, provincial and community-level governments to maximize ocean health, resilience and sustainable development of Canada’s coastal ecosystems via an integrated ocean management approach; (ii) understand how the evolution of climate-associated adaptive trait variation alters the projected distribution of species and impacts across ecosystems; (iii) research what conditions, traits, genetic variations and species interactions enhance potential nature-based solutions for sediment carbon capture across ecosystems; and (iv) build a national blue economy dependent on sustainable natural resources and ecosystem integrity.

Project 3.1: Determining the Present and Future Needs of Human Use of Coastal Ecosystems (Salomon, O’Connor, Baum, McKechnie, Rogers; Partners: HFN, Tseshah FN, Nuu-chah-nulth Seafood, Parks Canada, Nova Harvest, Cascadia Seaweed Corp.). Evidence suggests that management and conservation interventions linking ecological and social processes outperform those that do not. In marine systems, current management approaches have demonstrably failed to halt or reverse species declines, in part due to the inadequate recognition of reciprocal links between social and ecological processes. These links are predicted to increase as a result of climate change, human migration to coastal areas, predator recovery, and kelp and seagrass ecosystems productivity. Understanding how temperature and precipitation events, predator recovery and local harvests impact kelp and seagrass productivity will help coastal resource managers and decision-makers plan and adapt to climate change. **Goal:** To strengthen integrated and sustainable resource management planning for coastal ecosystems in First Nations territories. **Methods:** In June 2021, the HFN invited the BMSC to contribute to their Hišuk ma c̕awak Integrated Resource Management Planning process, anticipated to start in 2022, with scientific advice and knowledge, training, and research to support HFN’s strategic goals. **Outcomes** include increased co-production and co-management with First Nations members to support food security, sustainable resource and environmental management and development, and enhancement of culturally important species, including shellfish, seagrasses and fisheries. FN partners will be able to make evidence-based decisions regarding threatened cultural resources, such as salmon, sea otters, and northern abalone.

Project 3.2. SeaSense Maritime Protection Using Zero-Emission Unmanned Surface Vessels (USVs) (Else, Neufeld, Costa, Rogers; Partners: Open Ocean Robotics, Canadian Coast Guard, Sustainable Development and Technology Canada). Although autonomous vessels can seek out habitats and measure environmental changes, there is limited empirical ecological data from these habitats and ecosystems informing the vessels’ artificial intelligence software and instruments. **Goal:** To develop translational and innovative algorithms to inform USV maritime protection. **Methods:** Open Ocean Robotics (Victoria, BC) is an ocean technology company that manufactures unmanned autonomous boats for oceanic data collection. Its Project SeaSense, supported by Sustainable Development and Technology Canada, will test the development and application of artificial intelligence and advanced sensors in coastal ecosystems, with logistical, operational and research support for water trials of the resulting technologies, conducted by the BMSC. Data will be collected on the same ecosystems as Theme 1 projects, with BMSC researchers analyzing collected data to provide feedback on the user portal and operational control of USVs. **Outcomes** include highly innovative tools for coastal ecosystem data collection to inform climate solutions for coastal ecosystems. Successful proof-of-concept will enable Open Oceans Robotics to expand its technological capacity to collect ecological data and build the potential of robotics companies as key industry partners for conservation and sustainable development.
Project 3.3 Restoration of Foundational Kelp Ecosystems (Neufeld, Baum, Rogers, Salomon; Partners: Kelp Rescue Initiative, HFN, DFO, Canadian Kelp Resources, Pacific Salmon Foundation, Ocean Wise, Parks Canada, Green Gravel Action Group, Mitacs, Broughton Aquaculture Transition Initiative, Canadian Museum of Nature, Ecofish Research Ltd., Namgis FN, Kwikwasut’inuxw Haxwa’mis FN, Mamalilikula FN). The Northeast Pacific Ocean—home to over 30 kelp species that vary in thermal tolerance, morphology, and ecological niche—is considered kelp’s evolutionary centre of origin. Kelp forests contribute to carbon drawdown and provide foundational habitats for ecologically and commercially important marine organisms. However, their health is threatened by rising temperatures and other stressors, with some sites already declining 95% in size. **Goal:** To restore giant and bull (*Macrocystis* and *Nereocystis*) kelp populations in Pacific coastal waters by developing stress-resistant seedlings and scalable solutions in ecologically important refuges. **Methods:** Replicate gametophyte cultures will be established along broad temperature gradients and tested for heat-tolerant genotypes, characterizing genomes and preserving sporophyte samples. High-quality genomes will be assembled and mapped to support fin-scale population genomics. **Outcomes** include scalable restoration approaches and stress-tolerant kelp lines to restore ecosystems with resilient lineages. Supporting First Nations partners’ Indigenous Monitoring Implementation Plan will aid wild salmon recovery in the Broughton Archipelago.

Project 3.4 Developing Pacific Salmon Enhancement Practices in First Nations Hatcheries (Rogers, Goss, Reynolds; Partners: Ditidaht First Nations (DFN), DFN Nitinat River Hatchery, HFN, HFN Sugsaw River Hatchery, DFO, BC Sportfishing Association). While salmon hatchery programs annually release millions of fish, it remains unclear how many of the released salmon survive and whether they help increase the wild population. The genomic factors that influence their odds of salmon population survival are not understood. **Goal:** To develop new salmon rearing techniques that use enrichment to increase salmon survival and returns. **Methods:** The approach capitalizes on the BMSC’s ability to raise Pacific salmon species under distinct rearing environments in partnership with Canada’s largest hatchery (DFN’s Nitinat River Hatchery) and HFN’s Sugsaw River Hatchery. The experimental design includes sampling migrating and returning salmon cohorts, and determining the physiology of adaptive gene products that predict growth, disease, survival and how rearing practices influence domestication and survival. Emerging BMSC conservation physiology methods will be employed to examine the consequences of selective harvest, using bio-logger tagging methods to track salmon locations and health. **Outcomes** include understanding hatchery rearing, catch and release on salmon survival, and developing monitoring approaches using genomic biomarkers associated with adaptive and population-specific genetic variation in Pacific Coho salmon stocks for identifying strains, varieties and populations resilient to environmental stressors.

Project 3.5: Predicting the Distributions of Coastal Species Under Climate Change Using Evolutionary and Ecological Models (Rogers, Neufeld, Baum; Partners: DFO, Open Ocean Robotics). Unprecedented rates of environmental change risk irreversible biodiversity and ecosystem loss in aquatic systems where populations are largely dependent on resiliency in thermal physiology. Adaptation can permit species to persist at temperatures that would have previously led to extirpation, but models that attempt to predict species distributions under climate change do not account for evolution. **Goal:** To develop species distribution models informed by adaptive evolution to climate change at temperature-associated traits. **Methods:** Accurately predicting species distribution patterns under climate change requires temperature-associated adaptive trait
evolution data. To generate these data, multifaceted approaches to understanding the real-world impacts of contemporary climate change on marine organisms are required. Projects 2.4 and 2.5 will assess the thermal niches for species of interest, with resulting genetically-based traits used to construct mechanistic species distribution models under current and Intergovernmental Panel on Climate Change (IPCC)-projected end-of-century climate change scenarios. Outcomes include a modelling application that will be the world’s first to allow integrating scalable, empirical data on genetically-based traits and estimates of the evolutionary rate of those traits under multiple climate change scenarios. This will inform more realistic projected coastal species’ distributions that can be refined with information on their ecology and evolution.

**Project 3.6 Developing Robust Ecological Coastal Hazard Detection and Response Systems**

(Tortell, Else, Rogers; Partners: Millennium Institute of Oceanography (Chile), Canadian Hydrographic Service, Hakai Institute, ONC). Early, authoritative warnings of weather, water, ocean and climate hazards are effective in reducing loss of life and damage to property. As hydrometeorological hazards increasingly expose vulnerable populations and their assets, there is a need for more real-time data on ecological hazards, and increased coordination and accessibility of these warnings systems across multiple countries. Goal: To develop a Canadian framework for substantially increasing and enhancing authoritative warnings and information related to extreme and/or potentially high-impact ocean weather and climate events regionally, nationally and globally. Methods: The BMSC will leverage, strengthen and help sustain seasonal ocean weather systems across replicate ecosystems, and track biological responses to multiple interacting environmental stressors. Various extreme ocean events, including heatwaves, low-oxygen events, acidification, invasive and toxic species, and rapid shifts in primary production will be monitored and assessed for their potential ecological and human impacts. Existing national and international partnerships, including the Chilean Millennium Institute of Oceanography, will allow extrapolation of local observations to broad regional patterns in other coastal observatories along the eastern Pacific Rim, which will support development of more robust risk assessment profiles. The BMSC’s highly skilled personnel will integrate ecological measurements and process studies with advanced ocean observing systems, data analytics and visualization tools for the collection, analysis and communication of ocean data. Outcomes include real-time, automated ocean hazard detection systems that will significantly increase the efficiency and consistency of warnings, supporting proactive mitigation to minimize impacts.

**1.2 BMSC Technology Transfer Plan:** BMSC expertise and specialized infrastructure, such as fresh seawater and aquatic facilities, internet access in a remote location, laboratory equipment, and boat and dive services, enable Canada’s biotechnology sector start-up, small- and medium-sized enterprises to demonstrate proof-of-concept, and access specialized biotechnology development, testing, and commercialization expertise and facilities otherwise unaffordable to them. The BMSC helps move these companies’ technologies from laboratory-tested prototypes to open ocean testing, smoothing the path to full commercialization. Companies are supported with rapid development, testing and upscaling new biotechnologies, processes and approaches, and commercializing the resulting intellectual property. These new biotechnologies include marine organisms and processes central to Canada’s seaweed aquaculture, shellfish aquaculture, fisheries industries, and ocean remote-sensing technologies. The BMSC is implementing a long-range infrastructure development plan, allowing more companies to co-locate in Bamfield to accelerate technology development. The first stage of this plan includes modernized power and wastewater treatment systems. The next priority is to construct more laboratory and office space to be rented...
by companies. Currently, over 20 small businesses in the environmental technology, environmental consulting, transportation, ecotourism, and hospitality sectors rely on the BMSC and its 4,200 annual users.

Table 1: BMSC Technology Transfer Activities 2019-21

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of technical reports</td>
<td>21</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Number of technology advances</td>
<td>7</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Number of new company partnerships</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Number of spin-offs</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>53</strong></td>
<td><strong>24</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

With the BMSC acting as the western node of Canada’s Ocean Supercluster’s start-up project, ocean technology inventors and entrepreneurs are provided with blue economy accelerator and incubator support, from ideation through commercialization. Many BMSC trainees find work upon graduation with BMSC partners in the private sector, government, and academia, while the research team contributes expertise as scientific advisors, expanding the BMSC’s technology transfer network and creating opportunities for future research projects, technology development projects, and partnerships. Trainees are also encouraged to seek positions or research collaborations at co-located enterprises. Despite COVID-19, there have been 33 technology transfer reports from BMSC trainee researchers in partnership with over 11 groups in the last three years. Spin-offs include Canadian Pacifico Seaweeds (2019-20, the CEO was trained with CKR before starting their own business); West Coast Kelp (started by BMSC alumnus, Eco-Canada Science Horizons Intern, and former Cascadia Seaweed employee Tom Campbell, with the goal develop “green gravel” for kelp farming and restoration); Mericulture LP (2021-22, a joint venture between Nova Harvest and Huu-ay-aht Group of Businesses). BMSC researchers also participate in technology transfer activities by co-presenting and demonstrating technologies in collaboration with partner companies.

1.3 BMSC Knowledge Transfer (KT) Plan: The BMSC’s KT activities enable proactive translation of scientific outcomes to industry, government and academia. The BMSC is a leader in science communication with the general public, especially K-12 students, with a strong social media presence on Meta (formerly Facebook) (BamfieldMarineSciencesCentre), Twitter (@BamfieldMSC), YouTube (https://www.youtube.com/user/BMSCLive), Instagram (@bamfieldmsc), and the BMSC website (http://www.bamfieldmsc.com). These methodologies enable enhanced inclusion and accessible communication directly with classrooms and students unable to travel to the BMSC in person. In 2021, the BMSC partnered with ONC and the HFN to lead an Environment and Climate Change Canada initiative providing open-access national science webinars and podcasts on climate action and awareness designed to connect, inform and empower citizen scientists. Nationally and internationally, governments, non-government organizations, and academia use the BMSC’s globally accessible data to inform species and habitat models, generating ecological and environmental predictions across ecosystems of concern worldwide, through a global network of coastal and ocean observatories. Since 2019, BMSC team members have published over 140 peer-reviewed papers, many co-authored by trainees, including up to five undergraduate-led publications annually. All student research reports since 1972 are available in
the BMSC’s Devonian Library. The BMSC maintains relationships with global science communities through the National Marine Educators Association, the Canadian Network of Ocean Education, the Board of the Canadian Ocean Literacy Coalition, Science Odyssey and Science Literacy Week. A memorandum of understanding has been established with the education team at ONC to access data from cabled underwater observatories. Partnering with the Royal BC Museum and the Canadian Centre for DNA Barcoding enables students to access genetics activities. First Nations, municipal, provincial, and federal governments use BMSC research outcomes to inform the creation of innovative, evidence-based policies that maximize ocean health, resilience and sustainable development of BC’s coastal habitats.

1.4 BMSC Training: Generations of undergraduate and graduate students, professionals and K-12 students from across Canada (2020/21: 52% female, 3% Indigenous) have taken BMSC field trips, totalling more than 60,000 trainees since 1970.

Table 2: Number of Individuals Trained or Who Used BMSC Data 2019-21

<table>
<thead>
<tr>
<th>Type of trainees</th>
<th>2019–20</th>
<th>2020–21</th>
<th>2021–22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of undergraduate students</td>
<td>665</td>
<td>314</td>
<td>148</td>
</tr>
<tr>
<td>Number of Master’s students</td>
<td>62</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Number of PhD students</td>
<td>31</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Number of postdoctoral fellows</td>
<td>9</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Number of technical and professional personnel</td>
<td>64</td>
<td>102</td>
<td>225</td>
</tr>
<tr>
<td>excluding BMSC staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>35</td>
<td>14</td>
<td>306</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>866</strong></td>
<td><strong>465</strong></td>
<td><strong>755</strong></td>
</tr>
</tbody>
</table>

Over the next six years, the BMSC will train an additional 4,800 highly qualified personnel at the undergraduate, graduate and postdoctoral levels, including 150 First Nations students. The nationally recognized BMSC training program provides post-secondary students and professionals with OMCS scientific and technology skills, ocean and coastal field research skills, and in social sciences and environmental law via intensive summer field courses, a fall program semester, over 30 accredited undergraduate field courses, and graduate and postdoctoral research. Interdisciplinary cohorts of students and postdoctoral fellows will be trained across the ocean 'data life cycle' from the deployment and testing of sensors at the BMSC, to data analysis and assimilation, numerical modelling and forecasting, and engagement with decision-makers and other stakeholders. Students will also gain skills in understanding climate change, biodiversity and environmental sustainability, conservation, ecosystem management, coastal species, sustainable aquatic resource development, quantitative assessment of environmental change risk to habitats and species, fieldwork, sampling, animal care, research coordination, dive and safety, foreshore oversight, research project management, research project administration, use and maintenance of highly specialized scientific equipment, and information technology. Collectively, these skills are critical to understanding what factors sustain healthy ecosystems. Students will apply data to forecast impacts of environmental change on biodiversity by calibrating forecasts of organisms’ distribution and abundance in systems of value to industry, academia and governments; e.g., of 2019 trainees, 20 went on to careers with partners in the seaweed farming industry to produce plant-based nutrition. Past BMSC graduates include the current DFO Head of Marine Spatial Ecology and Analysis (Miriam O), CEO of Vivid Genomics (Julie Collens), President and CEO of Biologica
Environmental Services (Tara Macdonald), the University of Toronto’s Canada Research Chair in Marine Epidemiology (Martin Krkosek), and President Emeritus of the University of Victoria and the University of Alberta (David Turpin). A national partnership with the NSERC-funded Pacific Rim Ocean Data Mobilization and Technology CREATE training program (Lead: Tortell) will train students from oceanography, geophysics, computer science, and statistics to develop new ocean observing technologies, data science and visualization tools. International partnerships with Orpheus (Australia) and the Millennium Institute of Oceanography (Chile) provide an immersive cross-cultural training experience and access to comparative ocean study sites across the eastern Pacific Rim, building new international research collaborations and bi-lateral exchanges of trainees. The BMSC also provides specialized training workshops for DFO divers and for ecotourism industry wilderness guides. A BMSC priority is to encourage new generations of scientists. STEM (Science, Technology, Engineering, Math) public education field trips have enabled approximately 3,000 K-12 students annually to be trained at the BMSC and have been supported by the NSERC PromoScience program. Supporting these activities is the BMSC’s membership in the Canadian Network of Ocean Education and its recent appointment to the Board of the Canadian Ocean Literacy Coalition. Students trained by the BMSC gain the skills that enable them to find jobs in environmental consulting, biodiversity modelling, ecology and in academic marine science programs. The BMSC also trains the next generation of K-12 teachers in a Place-Based Learning course established in partnership with UBC. For over 20 years to March 2020, when it was curtailed by COVID-19, the BMSC K-12 field trip program, designed and refined through consultations with teachers, has provided up to 100,000 hours of student learning annually, and mentoring via coastal field trips for 2,974 primary and secondary students from 115 school groups annually. Several hundred teachers and educators share ideas, best practices and opportunities for the evolution of the program, which includes outreach visits to First Nations communities supported by two HFN “Knowledge Connector” BMSC staff positions with the shared goal of unravelling ‘western science’ approaches to consider other forms of knowledge emphasizing the importance of stewardship, biodiversity and respect for nature. Field trips Program partners include Connected North, representing 142 Indigenous schools across Canada, many in the North. The BMSC, the largest employer in Bamfield, provides over 30 full-time jobs and several seasonal positions in the community, and provides OMCS training to staff that is relevant to their jobs.

1.5 Alignment with BMSC Strategic Research Plan. The proposed research program and Themes align with the BMSC Strategic Research Plan (SRP) priorities, including fundamental and applied research that seeks to address pressing national issues, such as climate change, biodiversity, and strengthening the blue economy to improve the quality of environmental health for the benefit of all Canadians. The BMSC SRP aligns with the priorities of all five founding partner universities’ SRPs, as well as with their academic plans and Indigenous strategy plans which focus on transdisciplinary approaches and partnerships to build and strengthen respectful relationships with Indigenous communities. The BMSC SRP further aligns with the Government of Canada’s 2022 Science, Technology and Innovation priority area of a Clean and Resource Rich with guidelines that have the ocean science and technologies as a key area in the areas of climate change research, conservation ecology, and water (ocean science and technologies, and the blue economy).

1.6 BMSC Track Record of Transformative Scientific Leadership and Impact. The BMSC has supported world-class, award-winning research for 50 years, with over 140 papers supporting the BMSC SRP published during the last six years alone. BMSC research has been fundamental to
developing the fields of fish respiration and comparative biochemistry and physiology. Among the principal investigators who base their research programs at the Centre are four Fellows of the Royal Society of Canada, nine Canada Research Chairs, two (current) Steacie Fellows, two Sloan Fellows, two Fellows of the Institute of Advanced Research, five recipients of NSERC accelerator grants, one Alberta Innovation Scholar, and one Marsh Award winner. Over 11 researchers hold editor roles at major international journals. The BMSC attracts internationally-recognized scholars looking to develop long-term research programs at the Centre, including a Howard Hughes Medical Institute Early Career Scholar from Connecticut, the Head of Evolutionary Ecology from the University of Bern, Switzerland, a Professor of Biomechanics at the University of California, Riverside. Neufeld is part of an NSF-funded Pacific Rim biodiversity project. Table 3 details publications and knowledge transfer activities since 1999.

Table 3. Advancement of Research and Knowledge Transfer

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of scientific contributions including peer-reviewed publications</td>
<td>31</td>
<td>35</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>Number of conference proceedings</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Number of presentations</td>
<td>26</td>
<td>19</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td>Number of posters</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Number of books/chapters</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>32</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td><strong>85</strong></td>
<td><strong>87</strong></td>
<td><strong>72</strong></td>
<td><strong>94</strong></td>
</tr>
</tbody>
</table>

*as of 22-Dec-2021. ** estimated to be complete by 31-Mar-2022

Recent BMSC discoveries mitigating the ecological impacts of climate change on coastal and ocean ecosystems (Theme 1) include research demonstrating the impacts associated with seasonal ocean weather (Gaylord et al. 2019), species extinction (Bullen et al. 2021), species abundance (Slade et al. 2021), and invasive species (Howard et al. 2019) on coastal ecosystems. These results transformed thinking about the consequences of climate change in coastal ecosystems (Stark et al. 2020) through the consideration of both historical processes elucidated by zooarchaeological studies in ancient First Nations sites, and the incorporation of quantitatively robust experimental and genetic approaches enabled by the facility (Starko et al. 2019, 2020). Contributions to understanding the ecological and evolutionary impacts of climate change on coastal and ocean biodiversity (Theme 2) revealed physiological and evolutionary changes in coastal biodiversity associated with climate change, and how environmental stressors influence adaptive responses, including temperature extremes (Iwabuchi et al. 2020), nutrients (Glover et al. 2019), pollutants and microplastics (e.g., Blewett et al. 2021). These discoveries highlighted the need for an integrated and transdisciplinary approach to address these challenges and predict future responses to stressors (e.g., Higham et al. 2021). In the area of mitigating ecological impacts of climate change via technology development, environmental resource management and sustainable economic development (Theme 3), contributions include frameworks for applying environmental DNA to detect species in marine environments (Harrison et al. PRSB 2019, already cited over 95 times), zooarchaeological and stable isotope modelling for the characterization of historical biodiversity (Hillis et al. 2020), and a novel approach to test development of alternative wave energies in coastal ecosystems (Scherl et al. 2020). In a discovery that will change the way species distributions are projected under climate change scenarios, Wuitchik et al. 2021 described a
multifaceted approach to real-world impacts of contemporary climate change on marine organisms within a single study, spanning physiological and genetic experiments conducted at the BMSC that allowed experimental development of geographic range predictions for marine species under IPCC-projected end-of-century scenarios. These represent global-first species distribution models to integrate empirical data on genetically based traits and estimates of the evolutionary rate of those traits under multiple climate change scenarios. This study has already led to new collaborative efforts at the BMSC (e.g., Projects 3.5 and 3.6) to establish evolutionary-informed projections for critical species under climate change.

1.7 Benefits to Canada. Economic Benefits: Canada is committed to enabling a national blue economy that will be key to global, post-COVID-19 economic recovery ($31 billion and 300,000 jobs in Canada; $3.6 trillion and 150 million jobs globally (UN)). Canada has also committed to managing 100% of the oceans in its jurisdiction by 2025 (K. MacDonald 2020). Other coastal nations have prioritized three sustainable objectives: biodiversity protection, food provision, and net carbon neutrality (e.g., Sala et al., Nature 2021). The BMSC has a strong track record partnering with and nurturing the growth of ocean biotechnology start-up companies and small businesses, providing expertise, innovation capacity and resources. Expanding space at Bamfield to house these companies is important to the BMSC for increasing economic impacts, supporting Canada’s emerging ocean biotechnology sector, and providing job opportunities for trainees.

Environmental Benefits: MSI funding will transform the BMSC into a world-leading OMCS research and technology development hub critical to Canada’s leadership role in ocean-related, nature- and technology-based solutions to the impacts of climate change, alongside First Nations communities. Integrating new data generated by the proposed research program with the BMSC’s fifty-year database on biodiversity will create a world-leading library on the integrity of coastal ecosystems for understanding how to mitigate marine contaminants and pollution, protecting and restoring ecosystems and biodiversity, identifying novel factors influencing ecosystem resilience in the face of climate change, and developing more sustainable and responsible environmental management of coastal ecosystems and biodiversity. This unique library will enable Canadian researchers to generate world-leading, empirical, OMCS biodiversity projections under multiple climate change scenarios to unlock natural ocean-based solutions to climate change, as well as technological solutions. The BMSC training program creates Canada’s future ocean-literate leaders in OMCS, in government, academic and private sectors, for responsible decision-making in ocean resource management and addressing global OMCS issues identified by national (e.g., Ocean Research in Canada Alliance) and international groups (UNESCO and the Decade of Ocean Science for Sustainable Development, 2021-2030, https://en.unesco.org/ocean-decade). The BMSC’s approach will accomplish this alongside First Nations partners and in alignment with the UN Sustainable Development Goals (SDGs) including SDG 4 (Quality Education), 6 (Clean Water and Sanitation), 9 (Industry, Innovation and Infrastructure), 14 (Life below Water) and 17 (Partnerships). Social Benefits: Research outcomes will increase community resilience to ecological ocean hazards by raising awareness on climate impacts via evidence of the impact of seasonal weather on ecology and enhancing multi-hazard early warning systems. Calls to strengthen Indigenous governance, promote adaptation strategies, implement co-management of fisheries, and create platforms for education and learning for climate change action and awareness (Whitney et al. 2020) will be answered with the proposed research. The BMSC is recognized as a convening place where First Nations can meet with researchers, where marine researchers can meet with terrestrial researchers, where engineers can meet with ocean scientists, where scientific literacy can be disseminated to generations of students and educators, and where the public, private
and not-for-profit sectors can explore partnerships. Co-management with First Nations increases food security, enhances culturally important species, trains youth in traditional economic and environmental management practices, and enhances culturally important species and ecosystems threatened by coastal erosion, industrial and residential development, and recreational use. HFN elected Chief Councillor Robert J. Dennis Sr. stated that “these partnerships continue to assist our citizens, who are passionate about fisheries and wildlife, to become involved with research and to gain valuable education which can be passed down through the generations”. User Benefits: MSI funding will fundamentally transform the BMSC’s ability to support the continual access required by researchers. For decades, oceanographers, ecologists, and physiologists have worked largely in isolation. CFI and associated investments in 2004 led to the construction of an ecophysiology laboratory and large flume that allowed multidisciplinary research on how the environment interacts with the physiology of organisms. MSI investment represents a timely opportunity to build on this transdisciplinary foundation by expanding the specialized operational resources needed to access complex ocean environments and address critical questions on climate change and ocean health.

CRITERION 2. INTERNATIONAL COMPETITIVENESS

The BMSC integrates world-leading and emerging researchers with highly specialized facilities, equipment, support services, and training, allowing access to a unique living laboratory on Canada’s west coast. If the BMSC ceased operations, Canada would not only lose its most comprehensive and widely accessible OMCS research facility, but also its largest. Providing access to a wide range of users from universities, government agencies and industry, the BMSC is central to Canada’s growing international role in marine science leadership.

2.1 BMSC Research Team: The BMSC team is diverse, reflecting the complex nature of coastal ecosystem studies, and includes oceanographers (with expertise on measuring coastal environmental, chemical and biological variation), ecologists (with expertise in marine biodiversity, community ecology, ecosystem services and conservation) and evolutionary biologists (with expertise in genomics, molecular ecology, comparative physiology, and bioinformatics) contributing directly to the SRP. All team members have established programs, with several actively engaged in collaborative research (grants and co-supervising students) and partnerships (ONC, Open Ocean Robotics, Kelp RESCUE Initiative). The team integrates early- and mid-career researchers with world-leading experts in biological sciences, including two Steacie Fellows who have collectively published multiple papers in high-impact journals, and are members of national committees. With the core team comprised of seven female and three male scientists, all co-applicants receive gender-based analysis plus (GBA+) training as a precursor to inclusion in the research program. Drs. Bates, Baum and Côté recently co-authored a high-profile study in the peer-reviewed open-access journal *PLOS Biology*, advocating the advancement of science through principles of justice, equity, diversity and inclusion – particularly in the marine sciences (Davies *et al.* 2021). The proposed research program represents an opportunity and commitment to employ these guidelines at the outset of projects as the program develops and additional collaborations and partnerships are formed with other users, working together to develop a strong EDI philosophy, ensuring projects are gender-, cultural-, and ability-inclusive and the experience of students and partners is tracked to maintain a high GBA+ standard.
Sean Rogers (Projects 2.1, 2.2, 2.4, 2.5, 3.1-3.6), BMSC Director, Professor of Biological Sciences, Faculty of Science, UofC, is internationally recognized for his contributions in ecological genomics, global change in fishes, and the application of molecular tools for biodiversity monitoring. Rogers is an Associate Editor of two leading international journals in the field, Proceedings of the Royal Society of London: Biological Sciences (ISI 5.3) and Molecular Ecology (ISI 6.2). He fosters partnerships that contribute to the BMSC’s strategic research priorities and vision of enabling life-changing exploration and discovery in coastal and marine environments. Rogers also partners with the HFN, including membership on working groups, to develop strategies for sustainable coastal resource development and environmental management. Rogers has over 25 years’ experience integrating molecular ecology approaches in aquatic environments.

Amanda Bates (Projects 1.2, 1.3, 1.4, 2.1; h-index:40), Department of Biology, Faculty of Science, UVic, is a Pew Marine Fellow and 2021 Impact Chair in Ocean Ecosystem Change and Conservation, and former Canada Research Chair in Marine Environmental Physiology (Memorial University). She is expert in how the resilience and functioning of natural systems is changing in response to anthropogenic and natural drivers. She is currently conducting MBON surveys of rocky reef ecosystems and has trained the BMSC’s Dive team to apply these research methods to additional coastal ecosystems.

Julia Baum (Projects 1.4, 2.1-2.3, 3.1, 3.3, 3.5), Department of Biology, Faculty of Science, UVic, Steacie Fellow, Pew Marine Fellow, and UVic President’s Chair, is an internationally recognized leader in marine ecology and conservation, and in connecting science to both the public and to policy-makers. Her research centres on understanding how global climate change and local anthropogenic disturbances, such as fishing, alter the diversity, function and resilience of coastal ecosystems, and understanding how marine heatwaves and other climate changes are altering kelp and other foundational coastal species.

Tamzin Blewett (1.3, 2.3-2.5), Assistant Professor, Biological Sciences, Faculty of Science, UofA, is an early-career researcher whose comparative physiological approaches are designed to understand and solve environmental issues impacting the sustainability of aquatic ecosystems. Blewett’s expertise elucidates the mechanisms linking the environment with organismal function, leading to discovery of how the physiology of marine aquatic invertebrates and fish can alter the sensitivity of animals to stressing factors in their natural habitats.

Maycira Costa (Project 2.1, 3.2), Professor, Department of Geography, UVic, contributes extensive expertise integrating remote-sensed imagery for understanding and monitoring biophysical processes in ocean waters. Isabelle Côté (Projects 1.3, 1.4, 2.1-2.3), Department of Biology, Faculty of Science, SFU, is an internationally renowned marine ecology and conservation biologist who brings expertise on marine invasions, marine protected areas, fish behaviour, and climate change. Her BMSC research has contributed to a novel conceptual framework that overturns the commonly held expectation that managing local stressors increases ecosystem resilience to climate change.

Brent Else (Projects 1.1, 1.2, 3.2, 3.6), Associate Professor of Chemical Oceanography and Associate Director, Arctic Institute of North America, Department of Geography, UofC, is an expert in ocean acidification and carbon cycling, focussed on increasing Indigenous community data access. His research examines the application of chemical oceanography to predict current and future habitat suitability for natural resource development, including shellfish farms. He has significant experience in the design, deployment, and use of oceanographic sensors.

Stephanie Green (Project 1.1, 1.3, 2.2, 2.3), Assistant Professor, Department of Biological Sciences, UofA, Canada Research Chair of
Aquatic Global Change Ecology and Conservation and Early Career Researcher, 2021 Leopold Earth Leadership Cohort) is an early-career researcher investigating the causes and consequences of biodiversity change in marine and freshwater systems to develop science-based tools for conserving natural resources under global change. **Heather Jamniczky (Projects 2.4, 2.5)**, Associated Professor and Academic Lead in Teaching & Learning Research at the Taylor Institute, UofC, is a 2020 3M National Teaching Fellow with expertise in zoology and 3D computed tomography to establish links between environmental stressors and development, historical archaeology and determining how marine life changes. She is a pioneer of learner-centric approaches to teaching that have resulted in numerous prestigious awards. **Sally Leys (Projects 1.3, 2.4, 2.5)**, Professor, Biological Sciences, Faculty of Science, UofA, is a world-leading evolutionary biologist with expertise in the ecophysiology and life history of marine invertebrates. Her research has provided evidence that seasonal and annual changes in responsiveness predict how animals will adapt to environmental changes over time, with implication towards understanding changes in climate over time. **Roger Linington (Project 2.1)**, Professor and Tier I CRC, Department of Chemistry, SFU, brings marine microbiology biodiversity and scuba expertise to understanding the chemical landscape of the natural world and developing new metabolomics tools for untargeted chemical characterization of microbial libraries and identification of medicinally important natural products for treating human disease. **Iain McKechnie (Project 3.1)**, Assistant Professor, Department of Anthropology, UVic, brings expertise in coastal archaeological and ecological methods to evaluate preindustrial Indigenous use of resources, connecting human predation with the long-term structure and dynamics of coastal species, in co-production with Nuu-chah-nulth First Nations in Barkley Sound. **Chris Neufeld (Projects 1.4, 2.1, 2.3, 3.2, 3.3, 3.5)**, Adjunct Professor, UBC Okanagan, is a renowned expert in marine ecology, the former BMSC Education Manager and current project lead of the Kelp Rescue Initiative. **Mary O’Connor (Projects 1.1, 1.3, 1.4, 2.1, 2.2, 2.4, 3.1)**, Biodiversity Research Centre, Faculty of Science, UBC, is a Steacie Fellow studying the adaptive capacity of biodiversity and ecosystem function in changing environments to predict and explain how organisms, communities and ecosystems persist in changing environments. She is an expert in biodiversity monitoring, synthesis, and process-oriented mesocosm experimental designs. **John Reynolds (Project 2.1, 3.4)**, Professor and Tom Buell BC Leadership Chair in Aquatic Conservation, Department of Biology, SFU, brings a unique combination of expertise in ecology and conservation with an emphasis on fish and fisheries. As the national Chair of the Committee on the Status of Endangered Wildlife in Canada, Reynolds ensures biodiversity monitoring is scientifically robust and will translate to effective communication about conservation and policy. **Anne Salomon (Projects 2.4, 3.1, 3.3)**, Professor, School of Resource and Environmental Management, SFU, focuses on understanding the role of human disturbance in the productivity, biodiversity and resilience of coastal marine ecosystems to inform ecosystem approaches to marine conservation. Her active engagement with Indigenous communities facilitates co-developing roles and fostering ways for coastal communities and partners to work collaboratively to navigate trade-offs between coastal conservation and resource use. **Philippe Tortell (Projects 1.1-1.3, 3.6)**, Professor of Oceanography and Head of the Department of Earth, Ocean and Atmospheric Sciences, UBC, is the lead of the recently-funded NSERC CREATE program, PRODIGY. He is expert in developing and deploying automated ocean sensors to quantify ocean productivity and biogeochemical cycles of climate-active gases. **Chris Wood (Projects 2.5)**, Professor Emeritus, McMaster University, and Adjunct Professor, Department of Zoology, UBC, is a highly cited fish and invertebrate physiologist expert in the responses of marine animals to natural and anthropogenic stressors. 23 of his BMSC trainees have become university professors.
2.2 BMSC Collaborations and Partnerships. First Nations: Sustainable Canadian research initiatives such as the BMSC recognize that scientists must co-develop knowledge with Indigenous Peoples. Traditional knowledge directly informs BMSC activities and the SRP as First Nations are involved at all levels in planning the research, training, and communications. The self-governing HFN, 50% of Bamfield’s population, have been key BMSC partners over decades of working together on research, education and community infrastructure. Several BMSC employees are HFN citizens. The BMSC is currently partnered with the HFN on biotechnology research and waste management, and has developed memoranda of understanding on shared goals in environmental stewardship, and place-based training offered in traditional territories. Rogers is a member of the HFN Committee on Integrated Resource and Environmental Management and regularly contributes to their Watershed Renewal Technical Working Group. The BMSC also supports the HFN Group of Businesses on biotechnology research and development; three companies supported by the BMSC recently received funding from DFO’s Salmon Restoration and Innovation Fund to support shellfish, seaweed and salmon research at the BMSC. Salomon and Rogers are now in discussions with the HFN and other local First Nations to expand partnerships related to climate solutions goals of the proposed research program. Users applying to the BMSC require approved HFN permits to conduct research in their traditional territories. In addition, for ongoing research programs in HFN territories, the BMSC facilitates discussions with the HFN’s Ha’wiih Council (Hereditary Chiefs). This approach, developed with the HFN government, has been strengthened under the guidance of the HFN leadership and the Indigenous engagement advisors at the BMSC member universities in the spirit of reconciliation. First Nations partners also include the DFN (Project 3.4) which runs the DFN Nitinat River Hatchery, Canada’s largest fish hatchery; and the Namgis First Nation, Kwikwasut’inuxw Haxwa’mis First Nation, and Mamalilikulla First Nation (Project 3.3); and the Tseshalt First Nation (Project 3.1). Technology development and testing support is provided to industry partners including biotechnology SMEs: Cascadia Seaweed Corp. (BC), Nova Harvest (BC) and Nuu-chah-nulth Seafood (Project 3.1), Canadian Kelp Resources (BC; Project 3.3) and ocean technology SME Open Ocean Robotics (BC; Projects 3.2, 3.5). Ongoing collaborative research and logistic support is provided to research projects conducted by academic partners such as the ONC (BC, NU, NS, NF), the Hakai Institute (BC), Canadian Centre for DNA Barcoding (ON), and the Ocean Graduate Excellence Network (NS). The BMSC is a west coast partner of the Ocean Supercluster (NS), a member of the Oceans Research in Canada Alliance (ON). Federal government partners include the DFO, Parks Canada, Environment and Climate Change Canada, Natural Resources Canada, Canadian Coast Guard; with Royal Canadian Mounted Police West Coast Marine Services (BC) as a community partner. The BMSC supports research and training projects led by non-profit partners, including the Canadian Museum of Nature (QC), the Canadian Ocean Literacy Coalition (QC), the Sportfishing Institute of British Columbia, the Huntsman Marine Sciences Centre (NB), Oceanwise (BC), and Tula Foundation (BC).

2.3 BMSC Highly Specialized Facilities and Equipment: The BMSC consists of: approximately 70ha of land; multiple buildings for research, training and housing of researchers; research equipment; stand-alone utilities for water, wastewater, seawater, and power generation; roads and docks. No other Canadian OMCS facility provides researchers with equivalent specialized field and laboratory equipment and facilities, research support services and staff. Research Vessels: the most extensive and accessible fleet of 12 specialized vessels and dive tenders in Canada enables researcher access to offshore Pacific Ocean and coastal habitats. BMSC vessels make over 1000 trips annually in the deployment and servicing of marine instruments (e.g., remotely operated
vehicles) and the ethical capture and transport of animals. The Centre holds scientific leases over critical west coast habitats where long-term deployment of scientific instruments is required. **Seawater Delivery System:** The BMSC has the only 24/7 flow-through, unfiltered seawater system in Canada (funded by CFI) that delivers 3000L seawater per minute from 30m below sea level to over 1000m$^2$ of wet lab space bookable by any qualified researcher. The quality of the seawater is considered globally outstanding; for example, it is the only facility in the world where endemic, rare glass sponges can be maintained in natural physiological conditions, and it is not uncommon for fishes to breed naturally while being held at the facility. Extensive aquatic labs include the second largest seawater research tank in Canada (140,000L) for research on fishes, and the second longest marine flume (12 metres) in Canada (CFI-IF funded in 1999) equipped with a Particle Imaging Velocimeter to research flow regimes, biomechanics of seaweed and fishes, coastal geomorphology, and alternative energy sources (e.g., tidal turbines). **The Shellfish Aquaculture Laboratory** is a highly specialized lab for algae and shellfish seed culture supporting Canadian aquaculture start-up R&D activities (e.g., Nova Harvest, HFN Group of Businesses). **The Seaweed Growing Laboratory:** Barkley Sound is a globally recognized source of seaweed biodiversity and productivity and the evolutionary origin of kelp, yet seaweed-based industries are in their infancy in Canada. Although seaweed culture is well established in Asia, the BMSC is one of the only laboratories in Canada able to support kelp mariculture for farming and restoration, and currently supports R&D operations of two Canadian companies (Canadian Kelp Resources and Cascadia Seaweed Corp.) and one spin-off starting in 2022 (West Coast Kelp). **Specialized Instrument Systems** include confocal fluorescence microscope and radionucleotide labs, enabling sensitive marine experiments. **Environmental Sensors:** includes the PEARL, an oceanographic instrument system installed in 2021 for real-time marine biological, chemical and physical measurements (in partnership with UBC and the CFI-IF C-PROOF project). The BMSC also services ONC’s CFI-funded Folger Passage cabled observatory providing accessible real-time ocean data. In 2021, the BMSC renewed 10yr agreements supporting earthquake and tsunami detection research in partnership with ONC and Natural Resources Canada. **Stable research power supply:** The BMSC upgraded its main transformer, distribution and backup electric generator system (to 25 kV) as part of a $3M 2018 investment from the federal Post-Secondary Strategic Infrastructure Fund (SIF) to enable automated back-up power and ensure stable scientific operations in this remote region.

2.4 BMSC Highly Specialized Research Support Staff. Permanent and seasonal staff directly and indirectly support the Centre’s research and researchers: **Foreshore Supervisor** with Transport Canada certifications to operate up to 60 tonne marine vessels, who also trains the user community and trainees in the safe operation of vessels; **Dive and Safety Officer**, who oversees the ScubaCAUS program and is responsible for over 400 dives made annually at the facility, has trained and certified 13 CAUS scientific divers over the last reporting period and is responsible for the facility’s general safety and emergency preparedness planning; **Animal Care Coordinator (ACC)** reports to the Director (as required by the Canadian Council for Animal Care (CCAC)) and is both the lead Animal Care technician at the facility and the primary coordinator of the CCAC Animal Care Committee, providing specialized knowledge and training in ethical handling of marine organisms.

2.5 BMSC Highly Specialized Research Services. The BMSC is in a remote location, accessible by float plane, boat and a 70km gravel logging road. Therefore, the BMSC must be able to provide a wide range of specialized services, year round, to researchers who cannot be physically located at the facility full time. **Research Support Services:** BMSC’s staff have continued to hold animals
at the Centre and collect and ship research organisms throughout the COVID-19 pandemic. The BMSC is partnered with First Nations, government (DFO) and non-governmental organizations (e.g., OceanWise) to support animal breeding and conservation programs. The BMSC is a west coast partner of the Ocean Supercluster start-up challenge, a member of the Ocean Research Canadian Alliance, and currently supporting R&D programs for the HFN Group of Businesses, Canadian Kelp Resources, Nova Harvest, Cascadia Seaweed Corp. and Open Ocean Robotics. The facility also supports philanthropic investments in sustainability and stewardship research, recently launching a three-year, donor-funded project to support translational research in kelp restoration in Canada. Marine Animal Care Services: The Centre holds “Good Animal Practice” certification from the CCAC. As care specialists, the BMSC enables marine animal research that cannot be conducted at many research universities across Canada, which lack this certification. Scientific Scuba Diving: The facility, a member of the CAUS’s “Standard of Practice for Scientific Diving”, is one of the only organizations in Canada able to regularly train CAUS divers with accredited sub-tidal ecology diving courses. Devonian Library: An active member of the International Association of Aquatic and Marine Science Library and Information Centres, the BMSC maintains updated online research database collections focused on marine biology, oceanography, fisheries, and aquatic sciences. BMSC Biodiversity Database and Collections: The BMSC supports an open-access biodiversity database, with records dating back to the Centre’s inception in 1970, housing unique scientific reports and collections. For example, the BMSC invertebrate record, the most comprehensive in the Pacific Northwest, includes half of all invertebrates known in BC and Washington State (1614 species). Since 2018, the BMSC’s DNA barcoding database, in partnership with the Canadian Centre for DNA Barcoding, includes over 1500 species collected by trainees and citizen scientists, with voucher samples stored at the Royal BC Museum and hosted on the Biodiversity of Life Database public data portal. Despite recent pandemic interruptions, undergraduate trainees have recorded over 16,000 observations in the online iNaturalist repository over the last three years, with a large bioblitz led by Reynolds planned for 2022. The BMSC Herbarium curates botanical samples, and the BMSC Zoological Museum includes fish, invertebrates, mollusc shells and marine mammal teeth. All of these resources are open access. Marine Training Programs: The BMSC is nationally recognized as a premier educational training environment for field research in OMCS, delivering over 30 different accredited undergraduate field courses annually. Hands-on field research opportunities and bursary research support opportunities result in 3-5 undergraduate-led, peer-reviewed research projects published annually. All student research reports since 1972 are available in the Devonian Library. STEM public education field trips to the BMSC, for over 3000 youth annually, have been supported by NSERC PromoScience. The BMSC provides specialized training workshops for DFO divers and wilderness guides working in the growing ecotourism industry. The BMSC is an active member of the Canadian Network of Ocean Education and was recently appointed to the Board of the Canadian Ocean Literacy Coalition. Marine science programs and industries around the country regularly recruit BMSC trainees. Science Communication: In 2021, the BMSC partnered with ONC and the HFN on open-access national webinars on climate action and awareness.

2.6 BMSC International Competitiveness: Developed countries with coastlines tend to support multiple field stations to protect their ocean assets and provide innovative research and education opportunities. The BMSC collaborates with many of these facilities. The closest Pacific counterpart to the BMSC is Friday Harbor Laboratories (FHL), a 100-year old facility with 10 laboratories and over 1500 acres of biological preserves in the San Juan Islands, but lacking the biodiversity and many of the intact ecosystems found in Bamfield. Prior to COVID-19, the BMSC and FHL had
planned a retreat to strategize management and governance. James Cook University in Australia operates the remote 2.7 hectare Orpheus Island Research Station (OIRS) located at Pioneer Bay near the Great Barrier Reef. Prior to the pandemic, the BMSC was in discussions with OIRS on data sharing and international student exchange programs. Chile’s Millennium Institute of Oceanography in Concepcion (MIOC) is of comparable size with capacity and has a partnership with Tortell (UBC) to train students through the PRODIGY CREATE supported by the BMSC. In addition, MIOC and BMSC are currently coordinating methods for Project 3.6 (Ecological Hazard Detection). In the Atlantic, the Woods Hole Oceanographic Institution, founded in 1930 with now over 1,000 scientific and technical staff, encapsulates the essential need for ocean access and the significant role for marine stations as critical collaborative hubs. The BMSC team also shares research and education goals and interacts with Duke University’s Marine Biology Lab in North Carolina. In the European Union, over 63 marine stations form the European Network of Marine Stations, located along the shores of the Atlantic Ocean, the North, Irish, Baltic, Adriatic, Black and Mediterranean Seas. Without similar investments, Canada risks losing competitive researcher access to ocean environments. The BMSC maintains communication through data sharing of biodiversity with all these institutes, and is the only Western Canadian node of the Pole-to-Pole MBON network of cooperating partners seeking to address common problems related to sustaining ecosystem services through conservation ecology and biodiversity reporting.

2.7 National Uniqueness: BMSC research fills key gaps in understanding coastal ecosystems, biodiversity and sustainable resource development and environmental management in response to seasonal ocean weather, and developing numerical models that can inform existing ocean sentinels and exploratory expeditions to characterize critical habitats and climate refugia along Canada’s coasts. No other dedicated facility tracking the ecological consequences of climate change on and within critical marine ecosystems exists along Canada’s coastline. Existing Canadian community-based observatories (e.g., ONC) monitor long-term data but are not suited to enable seasonal studies. Currently, the only other Canadian facilities that provide researchers with public access to field-based OMCS facilities are the Canadian High Arctic Research Station (no ocean-going capability; no salt water laboratories; limited field equipment; no capacity to support start-ups; no trainee programs); Huntsman Marine Sciences Centre (private not-for-profit that only provides contract research services and therefore inaccessible and cost-prohibitive to most researchers); and Bonnie Bay Marine Station (smaller scale with research facilities in an early growth phase). On the Pacific Coast, the Hakai Institute (part of the Tula Foundation) operates a smaller, private coastal research station. Despite having the world’s longest coastline, Canada has very few stationary sensor arrays with the capacity to track seasonal consequences of climate change, and an insufficient number are within critical marine ecosystems that can quantitatively assess rapid biodiversity change. Significant investments have been made to create community observatories over a wide network (e.g., ONC, C-PROOF), but these sensors are designed to monitor long-term data and not suited to enable and continuously support research programs on a seasonal scale. Two Canadian initiatives focus on inland fresh-water lake ecosystems: (i) the International Institute for Sustainable Development’s Experimental Lakes Area (ON) includes replicate small lake habitats critical for demonstrating the impacts of climate change; (ii) the new Real-Time Aquatic Ecosystem Observation Network provides real-time understanding of the mechanisms and processes influencing large lake ecosystems. The BMSC focuses on marine coastal ecosystems and is unique in this regard, with the impact of BMSC science elevating the research and goals of other CFI oceanographic initiatives, including strong partnerships between the BMSC and the Ocean
Networks Canada and the ability to support other CFI-funded initiatives such as the Ocean Tracking Network and Neptune.

2.8 User Community Collaboration. The BMSC receives user feedback, on demand, for existing and new services, expertise and facilities through its Scientific Advisory Committee which comprises Canadian and international users. Over 10% of the BMSC user community run research programs that require a year-round, on-site, technical and managerial staff presence with researchers themselves often remaining at the BMSC for extended periods, for up to eight months. A benefit of this is that the BMSC team receives continuous feedback from users on how their needs are changing, including comparisons to best practices and capabilities of Canadian and international facilities from experts who have direct experience of the BMSC and other centres, including international researchers and researchers from non-OMCS disciplines such as coastal archaeology, temperate rainforest ecology and place-based learning. BMSC user collaboration strategies include supporting and prioritizing researcher engagement with national and international initiatives and partnerships while building additional mechanisms for users to be involved in BMSC’s planning and strategy activities, including building user engagement with internal strategic taskforces on business operations, information technology, safety and risk management, and advancement/alumni engagement.

CRITERION 3. NEED FOR CFI FUNDING

Need for CFI Operational Funding: The BMSC remained fully operational during the pandemic to maintain critical research. By January 2022, research demand had already surpassed pre-pandemic levels by 23%, including a significant increase in international demand from the USA, Europe, South America, and the Pacific Rim. The BMSC’s current $2.2M annual operating budget covers salaries (64%), insurance (14%), utilities (12%), and maintenance (10%) of 70 hectares of coastal waterfront, 30,000 sq. ft. of research laboratories, accommodations, and a foreshore valued at $29M. Estimated total operations and maintenance costs for April 2023 to March 2029 are $15.2M ($6.06M requested from CFI). With base operations continuing to be funded by the five founding universities, MSI funding would allow the BMSC to expand its user community and provide equipment, laboratories and support staff needed to operationalize ambitious research plans and strategic priorities, and foster collaborative research, as well as recruit trainees and research leaders who may be disadvantaged in ways that BMSC EDI plans can overcome. Expanding user capacity requires a significant increase in operating funding beyond existing contributions from the five universities and user fees. Over the past 20 years, operating costs have increased significantly for safety and vessel requirements, marine insurance, specialized technical and scientific equipment and infrastructure, and research staff supporting researchers from across Canada and internationally. This has resulted in deferred maintenance expenses to meet increasing user demand and conform to building codes, to improve animal care services, to ensure better health and safety management, and to build better information technology infrastructure to meet researcher expectations. The BMSC’s pandemic protocols have maintained critical operations while meeting COVID-19 safety requirements, which incurred additional costs, as complete closure of the BMSC would have resulted in significant amounts of lost data and research opportunities.

Evolution of the BMSC Financial Model: In 1968, the National Research Council (NRC) asked five western Canadian universities (SFU, UofA, UBC, UofC, and UVic) to propose the best
location for a marine biology station on Canada’s west coast. In 1969, the NRC purchased the
former cable station property at Bamfield and in 1970, a formal governance and management
structure was created for what is now known as the BMSC, and a constitution ratified to create the
WCUMSS to manage the facility. Ownership of the land and buildings was transferred from the
NRC to the WCUMSS, with BMSC operational costs to be covered by the five universities. The
next year, the former cable station site began to be converted into a collaborative, academic-led,
seasonal research and student training biology station. Operations began in 1972, with annual fees
covering running costs. This financial model persisted for almost 30 years. In the 2000s, the BMSC
evolved from a field research station into a more comprehensive, multidisciplinary, scientific
research facility via the expansion of laboratory and training infrastructure, and construction of a
dormitory building and a CFI-funded 12 metre-long flume. Access was expanded to support
researchers and students beyond the five member institutions, and to K-12 students. To finance this
expansion, the WCUMSS sought external funding from donors and federal granting programs,
secured a mortgage and generated income from industry partners with operating costs remaining
the responsibility of the five founding member universities. In 2017, the WCUMSS approved a
significant change in organizational structure with the appointment of a new Director (Rogers).
Formerly, the Director had lived on site and managed all aspects of BMSC daily operations, with
12 staff reporting directly. The new structure reduced the number of staff directly reporting to the
Director, did not require the Director’s year-round presence at the BMSC, and developed a
Strategic Plan to expand research collaborations and partnerships, create a national and
international user base, reduce barriers to access by researchers from equity-deserving groups
(including in partnership with First Nations communities), encourage users from the private sector,
and diversify funding sources for major capital upgrades to expand capacity for innovation. For
example, in 2020, the BMSC invested $1M and partnered with the HFN to construct an $8M,
nationally unique, community wastewater treatment system at the BMSC, to be owned by the HFN
and opened in 2022, as a catalyst for economic growth and environmental protection.

BMSC Annual Budgeting Process: The BMSC annual operating budget is developed by the
Director and senior management, with input from the WCUMSS Finance Committee, before
review by the WCUMSS Management Council for approval at its Annual General Meeting, as
required by the BC Societies Act, along with independently audited financial statements. Detailed
historical records of BMSC budgets and actual expenditures support this process. Since the
beginning of the COVID-19 pandemic, the BMSC experienced a significant downturn in its
revenues from accommodation and food services for researchers and students, which was offset by
a reduction in expenses, such as food purchases and the hiring of seasonal kitchen and
housekeeping staff. Revenues from online educational programs and federal pandemic-related
wage subsidy programs enabled BMSC’s full-time staff to remain employed and support research
and industry partner activities that have grown throughout the pandemic.

Funding Sustainability: The five member universities will continue to contribute annual
membership fees as per WCUMSS by-laws. Revenues will increase with expansion of: (a) user
fees for academic and private sector partner research and training activities; (b) federal funding for
research infrastructure (e.g., Post-Secondary SIF, matched by members); (c) private donors (e.g.,
Kelp Rescue Initiative); (d) hosting fee-paying, start-up, blue economy, ocean biotechnology
companies (e.g., Cascadia Seaweed Corp.); and (e) partnering with other organizations to cost-
share acquisition and maintenance of research equipment (e.g., the new wastewater treatment plant
partnership with the HFN). New sources of long-term funding include development of carefully
selected and mission-appropriate residential and commercial property at the BMSC site to expand space for accommodating researchers and encouraging sustainable ecotourism to increase scientific literacy in the general public, promote BMSC STEM education, expand training and research activities, and support technology start-up and ecotourism partner companies. In addition to continued funding, the five partner universities also provide significant in-kind support and expertise.

**Budget Justification.** Administrative support ($4,960,831, 10 FTEs): The budget includes O&M support requested for the following administrative personnel: BMSC Head of Research (1 FTE), Managing Director (1 FTE), Operations Manager (1 FTE), Business Manager (1 FTE), Foreshore Supervisor (1 FTE) and Maintenance Manager (1 FTE). The BMSC is also requesting funds for the Administrative Clerk and Accounting Assistant (2 FTE) to support the Business Manager, and funds for the Systems Administrator to oversee IT, including seasonal support from an Assistant (2 FTE). **Scientific and technical support personnel** ($4,722,764, 16 FTEs): Funds are being requested for the AC Coordinator (1 FTE), Second Skipper (1 FTE), Dive and Safety Officer (1 FTE), Dive Assistant (1 FTE), Research Assistant (1 FTE), Instrument Technicians (2 FTE), and research staff including a research technician, an animal care assistant, and a summer librarian to facilitate biodiversity data and research (1 FTE). Full-time operational support staff include the aforementioned Maintenance Manager plus staff (5 FTE), Housekeeping Supervisor (1 FTE), and seasonal housekeeping staff (~2FTE). The budget also includes funds for the electrician contracted as the Field Safety Representative for the BMSC’s high-voltage certification and compliance (1FTE). **Extended warranties/service contracts** ($193,028): Funds are budgeted for BMSC warranties, service contracts and licenses ensuring safe, compliant and reliable operations. **Replacement parts and minor upgrades** ($514,743): These costs are based on actual and projected replacement parts and items needing repair, and minor upgrades to maintain the operational capacity of the facility, including technology and service development activities, diving, foreshore, and animal care. **Services** ($1,692,217): These costs include services directly supporting the facility, including electricity, cleaning, telephone, internet and internet security, and permits. **Supplies and consumables** ($746,376): These costs include animal care supplies (cleaning, food, medication), bulk gasoline (for maintenance vehicles, boats and backup power), electronic shop supplies, and safety equipment. **Communications and outreach activities** ($131,775): These costs are budgeted to cover strategic planning costs, communication products along with website development expansion to include facility research bookings. **Administrative costs** ($1,744,464): These costs include the BMSC’s comprehensive insurance coverage and associated legal fees (Society business and audit, human resources, permit reviews, MOU reviews with partners, etc.). **Training and professional development** ($83,646): These costs are budgeted for facility, infrastructure use, occupational health and safety, and other training (including wastewater training, group personnel training, emergency health and safety staff training, and training-related travel). **Contingency** ($430,000): These costs accounts for unexpected costs that may arise during facility operations, and insurance cost increases associated with climate change.

**CRITERION 4. OPERATIONS AND USER ACCESS**

**Technical Staff Expertise:** BMSC technical staff: (i) operate and maintain coastal and offshore vessels making over 1,000 trips annually; (ii) calibrate, deploy and recover sensitive oceanographic and biodiversity instruments; (iii) monitor and collect biodiversity data via hundreds of scientific dives; (iv) ethically collect, handle, care, breed and ship thousands of invertebrate and vertebrate
animals; (v) maintain highly specialized seawater delivery systems and associated aquatic facilities; and (vi) maintain updated online research database collections.

**User Profile:** The BMSC user community (see Table 4) comprises pan-Canadian and international, on-site and remote users who conduct long-term, multidisciplinary research requiring access to coastal ecosystems. Since 2019, the BMSC has supported over 31,000 user days (23,000 on-site and 8,000 remote) and hosting Canadian, American, and international users (96% Canadian from nine provinces and one territory: 69% Western Canada, 16% Prairies, 11% Eastern and Northern Canada; 3% American, 1% overseas), many holding US National Science Foundation grants). 60% work on-site, with 80% from academia, 9% public users, 9% private users, including aquaculture SMEs and SME biotechnology consulting companies, and 2% non-profits. In response to COVID-19, the BMSC experienced an 83% loss in on-site users but remote users increased 22-fold as the BMSC expanded its provision of remote research services and training to users unable to travel. Over 10% of the BMSC’s user community now require year-round operational support. The BMSC’s remote Canadian users in 2021/22 represent a 35-fold increase over pre-pandemic levels due to the success of the BMSC-ONC-HFN-Government of Canada online training program on climate action and awareness targeted at citizen scientists.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>By type of user</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of on-site users</td>
<td>933</td>
<td>159</td>
<td>281</td>
</tr>
<tr>
<td>Number of remote users</td>
<td>16</td>
<td>355</td>
<td>560</td>
</tr>
<tr>
<td>Number of data users</td>
<td>0</td>
<td>0</td>
<td>2134</td>
</tr>
<tr>
<td><strong>By geography</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>British Columbia (BC)</td>
<td>716</td>
<td>335</td>
<td>533</td>
</tr>
<tr>
<td>Alberta (AB)</td>
<td>147</td>
<td>81</td>
<td>109</td>
</tr>
<tr>
<td>Saskatchewan (SK)</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Manitoba (MB)</td>
<td>5</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Ontario (ON)</td>
<td>39</td>
<td>69</td>
<td>95</td>
</tr>
<tr>
<td>Quebec (QC)</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>New Brunswick(NB)</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Nova Scotia (NS)</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Prince Edward Island (PE)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Newfoundland and Labrador (NL)</td>
<td>2</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Yukon (YT)</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Northwest Territories (NT)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nunavut (NU)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Canada</strong></td>
<td>918</td>
<td>492</td>
<td>790</td>
</tr>
<tr>
<td>United States (US)</td>
<td>22</td>
<td>18</td>
<td>35</td>
</tr>
<tr>
<td>Outside Canada and US</td>
<td>9</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Unknown</td>
<td>0</td>
<td>0</td>
<td>2136</td>
</tr>
<tr>
<td><strong>By sector</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University, College, Research Hospital</td>
<td>877</td>
<td>404</td>
<td>398</td>
</tr>
<tr>
<td>Other Public</td>
<td>25</td>
<td>59</td>
<td>321</td>
</tr>
<tr>
<td>Private</td>
<td>40</td>
<td>44</td>
<td>77</td>
</tr>
</tbody>
</table>
**Non-profit** | 7 | 7 | 45  
**Unknown**   | 0 | 0 | 2134  
**Yearly sum of users** | 949 | 514 | 2975

**User Access:** Access to the BMSC can be booked by any researcher via an online application process, with reduced user fees offered for member university users extended to all co-applicants. Non-member or corporate researchers pay proportionally more for research services to ensure a sustainable financial base to cover operations, management, and administrative costs, such as insurance. Since 2017, users can request access to the BMSC through a publicly available user-access policy ([https://www.bamfieldmsc.com/research-overview/how-to-apply-res](https://www.bamfieldmsc.com/research-overview/how-to-apply-res)) and fee schedule ([https://www.bamfieldmsc.com/research-overview/research-service-fees](https://www.bamfieldmsc.com/research-overview/research-service-fees)). Access to resources and support is dependent on a review and approval of applications and compliance with the research user agreement. This includes evidence provided of scientific merit via externally reviewed agencies (e.g., NSERC) or a BMSC independent merit review, as well as a permit granted from the HFN and subsequent meeting with the HFN Councils to explore shared goals within the planned research. BMSC data are available to researchers at no cost ([https://www.bamfieldmsc.com/resources/researchers](https://www.bamfieldmsc.com/resources/researchers)).

**Barriers to Access:** A key BMSC priority is to enable users to overcome barriers to access, which include the limited nature of local or on-site housing, healthcare, internet, childcare, and K-12 education. The BMSC has established significant bursary funds to foster inclusion and to assist Indigenous groups. Recently, exclusively Indigenous schools and groups comprised about 3% of field trip visits. BMSC engagement with HFN Knowledge Holders promotes meaningful discussions about truth and reconciliation in the natural sciences. There are significant scholarship and bursary programs supported by endowments at the BMSC to alleviate cost barriers to students: the Dick and Leona Peter Award is a bursary supporting undergraduate and graduate research, the River Sidley Scholarship supports full tuition for the BMSC Fall program, and the WCUMSS Endowment is developing a scholarship for BIPOC students. The BMSC campus currently presents significant problems for users with physical disabilities. Most pedestrian routes are rough gravel paths with elevation changes, and many buildings and the foreshore can only be accessed via steps or steep ramps. Increased operational funding will allow access barriers to be removed for individuals with physical disabilities. For over 10 years, the BMSC has pioneered virtual ocean trips via its “Live Dive” program that allows users who are physically unable to access underwater environments to work via video link with a diver. The facility has also hosted field trips for visually impaired students. Improved operational funding will increase the scope of this program and upgrade the communication technology to adapt it for researchers and trainees with physical limitations.

**BMSC Use Optimization:** The BMSC has an excellent track record of optimal use, operations and maintenance of its research infrastructure, including CFI-funded equipment that has been active for decades. Dedicated staff ensure continuous and maximal use and sustainability for researchers throughout the year, even throughout the COVID-19 pandemic. To ensure operational continuity, in 2018 the BMSC installed a larger, more stable research power supply with automated back-up power by upgrading its main transformer, its distribution and backup electric generator system (to 25 kV), funded with $3M from the federal Post-Secondary SIF. The facility is working with the province and local internet service provider to assist with the ConnectedCoast.ca initiative.
to install fibreoptic cable around Vancouver Island, with a planned 2022 community node to be located on the BMSC property.

**CRITERION 5. EXCELLENCE IN GOVERNANCE**

**BMSC Governance:** The BMSC was created in 1970, at the request of the NRC, by a partnership of five founding university members (UofC, UofA, SFU, UBC, and UVic) which also founded the non-profit WCUMSS. Constituted under the Societies Act of BC, the WCUMSS enables OMCS training and place-based research on Canada’s coastlines by providing access to natural and biodiverse ocean and coastal environments and ecosystems for both fundamental and applied research. The WCUMSS is a non-profit educational organization, holding and operating BMSC properties and facilities. Since its inception, the BMSC has remained equally co-owned by the five founding universities, and operated by the WCUMSS.

**BMSC Management Council:** The governance, management, and administration of the BMSC, as well as the business and affairs of the WCUMSS, are overseen by the BMSC Management Council (Figure 1), comprising members with significant leadership, governance and management experience at western Canada’s five largest universities. The Management Council sets key performance indicators to monitor progress on specific items within the BMSC Strategic Plan (2019-2023) and Strategic Research Plan (2022-2025). The Strategic Research Plan will be reviewed in 2025, with a decision by Management Council to continue with the Plan, modify it, or to begin discussions for a new Plan. The Council consists of two voting councilors from each member university and the officers of the WCUMSS, including the President, Secretary and Treasurer. Management Council responsibilities include: appointment of the BMSC Director; oversight of operations; recommending an annual budget to the WCUMSS; strategic planning; safety and risk management; quality and accountability; human resources; policies and procedures. The Management Council has two standing committees: the Academic Committee, which usually meets once a year; and the Finance Committee, which meets approximately every three months to approve a wide range of financial matters and assist in the development of the annual operating and capital budgets. The President and Treasurer (voting positions) have experience in university governance and finances, while the Secretary position (non-voting) is the BMSC Director. Councilors are research-active scientists, most holding academic administrative appointments as deans or department heads. The WCUMSS meets annually to appoint officers, auditors and
solicitors, to approve budgets and audited financial statements, and to set membership fees. In addition, the BMSC Director has a Scientific Advisory Committee, formed by researchers currently appointed as members from AB, NL (now starting a new position in BC), MB, ON and California. The WCUMSS Finance Committee reviews the financial position, provides direction to management, reviews risks to operations, and approves the budget and audited financial statements. The Societies Act of British Columbia requires societies to follow a wide range of best practices in governance, overseen by the Registrar of Companies in BC, to ensure transparency, sound fiscal management, and attention to mission. BMSC governance practices also conform closely to governance of much larger institutions. For example, the reporting relationship of the Director to WCUMSS is similar to that between a university president and board of governors; WCUMSS retains legal counsel when conducting negotiations with partners; Management Council evaluates proposals through a risk management lens.

**BMSC Accountability:** Under the Societies Act of BC, the WCUMSS is required to maintain high standards of accountability through controls defined by legislation and monitored through formal reporting processes. Fundamental to these processes are the WCUMSS constitution and by-laws (whose overarching structure and content are also defined through legislation) that establish the purpose of the Society and how it is managed. Widely accepted principles of accountability, such as financial oversight, equitable representation of members, transparency, record keeping, and management of conflict of interest, are ensured through legislation and by-laws (see Management Plan attachment). The BMSC is accountable to the WCUMSS and the Management Council, operationalized through Committees and regular Management Council meetings. Each of the five founding universities appoints two directors to the Management Council, five of whom are Deans of Science, who act as liaisons between the WCUMSS and the individual member universities. The Director of the BMSC provides regular detailed reports to the Management Council and its Committees. The Director’s performance is assessed by the President in a process linked to performance review at the Director’s home university, currently UofC. With successful MSI funding, the BMSC will account annually (or more frequently if required) to UofC regarding funding expenditures, following oversight and accounting procedures developed by UofC. The BMSC already has experience in such processes; e.g., recent funding from the federal government’s Post-Secondary SIF was managed through UVic, with all projects completed successfully, on time and on budget.

**Defining BMSC Strategic Direction:** The BMSC Strategic Plan was developed through consultation with BMSC’s staff, users and the Management Council, and with the help of a strategic planning consultant and facilitator. Regular feedback from user groups, industry and community partners have contributed to the Plan’s evolution. The Institutional Strategic Plan was approved by Management Council in September 2019, and the 2022 Strategic Research Plan was developed by the Director and President in collaboration with users and the Scientific Advisory Committee. The entire strategic planning process was led by WCUMSS leadership members who all have extensive experience in research governance and management, as well as an external consultant (Robin Dyke). Jonathan Driver, Ph.D., President of the WCUMSS and Professor at SFU, brings 8 years’ experience as Dean of Graduate Studies and 9 years’ experience as SFU’s Vice-President Academic and Provost. He is an expert in strategic planning, quality control and accountability. Matina Kalcounis-Rueppell, Ph.D. is a Professor at the University of Alberta and has served on the Boards of multiple public science centers. As the Interim Dean of the College of Natural and Applied Sciences, and as a voting member of the WCUMSS Finance Committee,
BMSC Management

The BMSC Director is appointed by the WCUMSS Management Council, following an open search. The Director oversees all BMSC activities, and also works with the Management Council to ensure the BMSC's strategic direction aligns with the WCUMSS's goals.

**CRITERION 6. EXCELLENCE IN MANAGEMENT**

BMSC Management:
The BMSC Director is appointed by the WCUMSS Management Council, following an open search. The Director oversees all BMSC activities, and also works with the Management Council on strategic planning, fundraising, and major capital projects (Figure 2).

Long-term BMSC Vision: Over the next 20 years, the BMSC will expand its research and education programs to become a leading center for ocean and coastal management. The BMSC will focus on developing innovative solutions to address climate change and ocean conservation challenges.

BMSC: A world-class facility for ocean and coastal management research, education, and outreach. The BMSC is dedicated to advancing our understanding of ocean systems and developing sustainable solutions.

**Figure 2: BMSC Organizational Structure**

- **Academic Director**
- **Head of Education**
- **Head of Research**
- **Business Manager**
- **HR Consultant**
- **IT Assistant**
- **Systems Administrator**
- **Accounting Assistant**
- **Staff**
- **Assistant Managers**
- **Assistant Coordinators**

The BMSC's organizational structure is designed to support its strategic vision and goals, with a focus on collaboration, sustainability, and excellence in management.
Director formally reports to the President, who conducts performance evaluations in conjunction with the Director’s home university processes. The Director’s five-year term can be renewed, conditional upon a satisfactory review and evaluation. Reporting to the Director are the Managing Director, Head of Research, Head of Education and the Business Manager with responsibilities for overall management, facilities and safety, research, education and finance. The current BMSC Director (Rogers), a professor in an OMCS field seconded on a part-time basis from UofC, manages the BMSC facilities, research and training programs, and oversees permanent and seasonal staff that support researchers. The Director provides annual reports to the Management Council on all BMSC operations, including performance in relation to the Strategic Plan and the Strategic Research Plan. Internally, the BMSC Scientific Advisory Committee meets monthly to provide advice to the Director, support funding applications and help develop user-access policies. The Animal Care Committee is responsible directly to the Director as recommended by the Canadian Council for Animal Care. The Director conducts annual staff reviews and regular all-staff meetings. The Managing Director conducts weekly department head meetings. The Head of Research oversees Research and Instrument Technicians for user access, operation, and servicing of research equipment. Indigenous Lands and Resource Advisors oversee engagement with the HFN, Ma-Nulth Treaty (Huu-ay-aht, Kyuquot, Toquaht, Uchucklesaht and Yuułuʔiłʔath) and other Nuu-chah-nulth Coastal First Nations to explore and build on synergies of shared climate change goals. BMSC’s researchers must obtain approved permits from the HFN to research in their territory, and new researchers supported by the BMSC must meet with the HFN Councils, if requested, to discuss emerging research programs and whether shared goals exist with the research.

**Staff Management:** The Managing Director oversees the Operations Manager and daily operations at the facility. Operational staff include the Foreshore Supervisor, Dive and Safety Officer, Maintenance, Kitchen and Housekeeping. Since 2018, the BMSC has contracted an Human Resources consultant to advise on management planning and organizational restructuring, develop job descriptions, make major revisions to the working conditions handbook for professional staff, and assist with collective bargaining, administration of HR services, and succession planning. The senior managers attend Management Council and relevant committee meetings as resource people. **Financial Management:** The BMSC Business Manager (currently a shared portfolio with the Managing Director) and the WCUMSS Treasurer maintain financial records and oversee financial reporting. **Cybersecurity and Data Management:** In 2019, a BMSC systems taskforce recommended cyber security and data management improvements, which have all been actioned. These included developing BMSC policies and systems to reduce data exposure risks and comply with Freedom of Information and Protection of Privacy Act requirements. Technical procedures were updated to ensure that files containing private information could only be accessed by on-site users or those using a secure Virtual Private Network. Critical files and data are now stored on LAN servers, with only non-confidential information being accessed by public internet. A new email server was implemented in 2021, with real-time updates to anti-spam and anti-virus services from the vendor, as well as vendor-supplied audits and notifications of potential risks. All BMSC servers were then migrated to an updated server system and backed up to Microsoft Office. The central backup server is located in separate buildings and all servers, desktops and laptops are backed up and archived according to a predetermined schedule. To improve internet reliability, the BMSC is currently working with ConnectedCoast.ca to install underwater fibre optic cable by 2022, funded by the Government of Canada’s Connect to Innovate program, Indigenous Services Canada, and the Government of BC. **Risk Management:** Procedures to ensure occupational health and safety are overseen by the BMSC Dive and Safety Officer, who reports to the Operations Manager and thence to the Managing Director and the
Director. The BMSC developed a sexualized violence and misconduct policy in 2018 that includes education and training programs to prevent SVM in the BMSC community. Risk mitigation is overseen by the Director and supported by the Managing Director/Business Manager (Lee Weber). In August 2019, one contractor-completed Property Risk Evaluation Report resulted in an action plan and a risk management review completed in August 2021. The BMSC advises organizations on improving field research safety protocols (the BMSC has had no claims in the last 22 years of operations, quoted by Marsh Insurance providers).

Performance Measurement: Annual reporting to the Management Council focuses on key performance indicators (KPIs) that measure the broad goals defined in the WCUMSS constitution, and the more specific goals in the BMSC Strategic Plan and Strategic Research Plan. KPIs include: user days in K-12 programs; user days in non-credit programs; number of undergraduate courses, enrollments and user days; number of undergraduate projects that are published; researcher user days, including graduate student user days; revenues from user fees; graduate student theses; number of publications by users; number of industry partnerships and amounts of revenue; number of community partnerships; Director’s participation in local community organizations; and the BMSC’s partnerships.

Equity, Diversity and Inclusion (EDI): The BMSC has implemented strong EDI policies for recruiting new staff, GBA+ training for staff, and unconscious bias training for staff and all users. The Management Council’s member representatives, equally split between men and women, remain committed to working closely with the member universities (e.g., https://www.ualberta.ca/equity-diversity-inclusivity/about/strategic-plan-for-edi/index.html) in the development of EDI principles in the composition of the facility’s board of directors and its related committees. The Management Council’s composition changes regularly as individuals move in and out of administrative roles at their home universities, where selection is subject to each university’s EDI policies and practices, which require that EDI considerations are incorporated into selection processes for academic administrators. The facility has benefited from EDI workshops offered by UofC’s Taylor Institute for Teaching and Learning and is committed to proactively ensuring that the BMSC takes steps to include equity-deserving groups, including the development of new research awards and WCUMSS scholarships for these groups. Committed to creating an inclusive research and training space for all users, the BMSC has identified specific practices to address and ensure inclusion at the facility, with opportunities to reduce barriers, such as inclusive messaging and creating more opportunity structures in user applications. A key barrier to meeting EDI goals for staffing is the remoteness of the BMSC’s location. Encouraging local First Nations to seek employment at the BMSC, especially in positions of greater responsibility, includes staff participation in a teaching and learning circle on the impacts of residential schools on Indigenous communities, with the BMSC partnering with the HFN. When the new HFN/BMSC wastewater treatment plant, located on BMSC property, opens in April 2022, the HFN will begin a program of sustainable economic and housing development to attract more highly qualified community members back to their traditional territory, and thereby providing greater BMSC opportunities to hire Indigenous staff. Beyond researcher and student gender equity, another goal is to attract other equity-deserving groups to the BMSC as staff and undergraduates who will continue into graduate programs and faculty positions, including those who would be physically challenged and require increased accessibility at the facility and associated field research activities. In partnership with the HFN, the BMSC successfully lobbied the provincial government to upgrade road access, resulting in a commitment to improve road conditions by 2022 which will facilitate recruitment of staff, further expanding the BMSC’s pool of applicants to include more individuals from equity-deserving groups.
This table provides a summary of total contributions and eligible costs for the project.

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total eligible costs</td>
<td>$15,219,844</td>
</tr>
<tr>
<td>Contributions from eligible partners</td>
<td>$9,156,000</td>
</tr>
<tr>
<td>Infrastructure operating fund (IOF)</td>
<td>$0</td>
</tr>
<tr>
<td>Amount requested from the CFI</td>
<td>$6,063,844</td>
</tr>
<tr>
<td>Percentage of the total eligible cost requested from the CFI (may not exceed 40%)</td>
<td>39.84%</td>
</tr>
</tbody>
</table>
Summary of eligible costs

This table provides a summary of the total eligible costs, by expenditure type, for each of the six years of the funding cycle (April 1, 2023 to March 31, 2029). Individual items are listed in the “Detailed budget” section.

<table>
<thead>
<tr>
<th>Expenditure type</th>
<th>2023-24</th>
<th>2024-25</th>
<th>2025-26</th>
<th>2026-27</th>
<th>2027-28</th>
<th>2028-29</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative personnel</td>
<td>786,420</td>
<td>802,148</td>
<td>818,191</td>
<td>834,555</td>
<td>851,246</td>
<td>868,271</td>
<td>4,960,831</td>
</tr>
<tr>
<td>Scientific and technical support personnel</td>
<td>748,680</td>
<td>763,654</td>
<td>778,927</td>
<td>794,505</td>
<td>810,395</td>
<td>826,603</td>
<td>4,722,764</td>
</tr>
<tr>
<td>Extended warranties / Service contracts (MSI)</td>
<td>30,600</td>
<td>31,212</td>
<td>31,836</td>
<td>32,473</td>
<td>33,122</td>
<td>33,785</td>
<td>193,028</td>
</tr>
<tr>
<td>Replacement parts and minor upgrades</td>
<td>81,600</td>
<td>83,232</td>
<td>84,897</td>
<td>86,595</td>
<td>88,326</td>
<td>90,093</td>
<td>514,743</td>
</tr>
<tr>
<td>Services (e.g. custodial, security, utilities)</td>
<td>268,260</td>
<td>273,625</td>
<td>279,098</td>
<td>284,680</td>
<td>290,373</td>
<td>296,181</td>
<td>1,692,217</td>
</tr>
<tr>
<td>Supplies and consumables</td>
<td>118,320</td>
<td>120,686</td>
<td>123,100</td>
<td>125,562</td>
<td>128,073</td>
<td>130,635</td>
<td>746,376</td>
</tr>
<tr>
<td>Communications and outreach activities</td>
<td>21,420</td>
<td>21,848</td>
<td>22,285</td>
<td>21,638</td>
<td>22,071</td>
<td>22,513</td>
<td>131,775</td>
</tr>
<tr>
<td>Administrative costs (excluding personnel)</td>
<td>283,560</td>
<td>289,231</td>
<td>295,016</td>
<td>286,452</td>
<td>292,181</td>
<td>298,024</td>
<td>1,744,464</td>
</tr>
<tr>
<td>Training and professional development</td>
<td>13,260</td>
<td>13,525</td>
<td>13,796</td>
<td>14,072</td>
<td>14,353</td>
<td>14,640</td>
<td>83,646</td>
</tr>
<tr>
<td>Contingency (up to 10 percent of annual costs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>430,000</td>
<td>430,000</td>
</tr>
<tr>
<td>Other operating and maintenance costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total eligible costs</strong></td>
<td><strong>$2,352,120</strong></td>
<td><strong>$2,399,161</strong></td>
<td><strong>$2,447,146</strong></td>
<td><strong>$2,480,532</strong></td>
<td><strong>$2,530,140</strong></td>
<td><strong>$3,010,745</strong></td>
<td><strong>$15,219,844</strong></td>
</tr>
</tbody>
</table>
These tables provide a summary of the total contributions for each partner type. Individual contributions are listed in the “Contributions from eligible partners” section.

<table>
<thead>
<tr>
<th>Partner Type</th>
<th>2023-24</th>
<th>2024-25</th>
<th>2025-26</th>
<th>2026-27</th>
<th>2027-28</th>
<th>2028-29</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions, trust funds or foundations</td>
<td>745,000</td>
<td>775,000</td>
<td>800,000</td>
<td>830,000</td>
<td>860,000</td>
<td>1,145,000</td>
<td>5,155,000</td>
</tr>
<tr>
<td>Federal government (departments or agencies)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Provincial governments (departments or agencies)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other governmental sources (municipal or foreign)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Corporations/firms</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Voluntary organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>668,000</td>
<td>666,000</td>
<td>669,000</td>
<td>667,000</td>
<td>667,000</td>
<td>664,000</td>
<td>4,001,000</td>
</tr>
<tr>
<td><strong>Total contributions from eligible partners</strong></td>
<td>$1,413,000</td>
<td>$1,441,000</td>
<td>$1,469,000</td>
<td>$1,497,000</td>
<td>$1,527,000</td>
<td>$1,809,000</td>
<td>$9,156,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CFI contributions</th>
<th>2023-24</th>
<th>2024-25</th>
<th>2025-26</th>
<th>2026-27</th>
<th>2027-28</th>
<th>2028-29</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure Operating Fund (IOF)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Amount requested from the CFI</td>
<td>939,120</td>
<td>958,161</td>
<td>978,146</td>
<td>983,532</td>
<td>1,003,140</td>
<td>1,201,745</td>
<td>6,063,844</td>
</tr>
<tr>
<td><strong>Total CFI contribution</strong></td>
<td>$939,120</td>
<td>$958,161</td>
<td>$978,146</td>
<td>$983,532</td>
<td>$1,003,140</td>
<td>$1,201,745</td>
<td>$6,063,844</td>
</tr>
<tr>
<td>CFI Contribution (%)</td>
<td>39.93%</td>
<td>39.94%</td>
<td>39.97%</td>
<td>39.65%</td>
<td>39.65%</td>
<td>39.92%</td>
<td></td>
</tr>
<tr>
<td>Cumulative CFI Contribution (%)</td>
<td>39.93%</td>
<td>39.93%</td>
<td>39.95%</td>
<td>39.87%</td>
<td>39.82%</td>
<td>39.84%</td>
<td></td>
</tr>
<tr>
<td><strong>Total funding</strong></td>
<td>$2,352,120</td>
<td>$2,399,161</td>
<td>$2,447,146</td>
<td>$2,480,532</td>
<td>$2,530,140</td>
<td>$3,010,745</td>
<td>$15,219,844</td>
</tr>
</tbody>
</table>
## Summary of historic expenditures

This table provides a summary of the actual and forecasted costs, by expenditure type, for the four fiscal years (2019–20 to 2022–23) preceding the start of the requested funding.

<table>
<thead>
<tr>
<th>Expenditure type</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative personnel</td>
<td>756,000</td>
<td>668,000</td>
<td>692,000</td>
<td>771,000</td>
<td>2,887,000</td>
</tr>
<tr>
<td>Scientific and technical support personnel</td>
<td>720,000</td>
<td>680,000</td>
<td>689,000</td>
<td>734,000</td>
<td>2,823,000</td>
</tr>
<tr>
<td>Extended warranties / Service contracts (MSI)</td>
<td>31,000</td>
<td>34,000</td>
<td>24,000</td>
<td>30,000</td>
<td>119,000</td>
</tr>
<tr>
<td>Replacement parts and minor upgrades</td>
<td>78,000</td>
<td>61,000</td>
<td>99,000</td>
<td>80,000</td>
<td>318,000</td>
</tr>
<tr>
<td>Services (e.g. custodial, security, utilities)</td>
<td>313,000</td>
<td>210,000</td>
<td>266,000</td>
<td>263,000</td>
<td>1,052,000</td>
</tr>
<tr>
<td>Supplies and consumables</td>
<td>173,000</td>
<td>70,000</td>
<td>106,000</td>
<td>116,000</td>
<td>465,000</td>
</tr>
<tr>
<td>Communications and outreach activities</td>
<td>30,000</td>
<td>18,000</td>
<td>15,000</td>
<td>21,000</td>
<td>84,000</td>
</tr>
<tr>
<td>Administrative costs (excluding personnel)</td>
<td>224,000</td>
<td>299,000</td>
<td>311,000</td>
<td>278,000</td>
<td>1,112,000</td>
</tr>
<tr>
<td>Training and professional development</td>
<td>13,000</td>
<td>4,000</td>
<td>4,000</td>
<td>13,000</td>
<td>34,000</td>
</tr>
<tr>
<td>Contingency (up to 10 percent of annual costs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>231,000</td>
<td>231,000</td>
</tr>
<tr>
<td>Other operating and maintenance costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total eligible costs</strong></td>
<td>$2,338,000</td>
<td>$2,044,000</td>
<td>$2,206,000</td>
<td>$2,537,000</td>
<td>$9,125,000</td>
</tr>
</tbody>
</table>

Overview of infrastructure funding project
Proposal
# Summary of historic contributions and CFI funding

These tables provide a summary of the actual and expected contributions, by partner type, for the four fiscal years (2019–20 to 2022–23) preceding the start of the requested funding.

<table>
<thead>
<tr>
<th>Partner Type</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions, trust funds or foundations</td>
<td>1,615,000</td>
<td>1,615,000</td>
<td>1,615,000</td>
<td>1,615,000</td>
<td>6,460,000</td>
</tr>
<tr>
<td>Federal government (departments or agencies)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Provincial governments (departments or agencies)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other governmental sources (municipal or foreign)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Corporations/firms</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Voluntary organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>724,000</td>
<td>429,000</td>
<td>591,000</td>
<td>921,000</td>
<td>2,665,000</td>
</tr>
<tr>
<td><strong>Total contributions from eligible partners</strong></td>
<td><strong>$2,339,000</strong></td>
<td><strong>$2,044,000</strong></td>
<td><strong>$2,206,000</strong></td>
<td><strong>$2,536,000</strong></td>
<td><strong>$9,125,000</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CFI contributions</th>
<th>2019-20</th>
<th>2020-21</th>
<th>2021-22</th>
<th>2022-23</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure operating Fund (IOF)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Major Science Initiatives Fund</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total CFI contribution</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
</tr>
<tr>
<td>CFI Contribution (%)</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>Total funding</strong></td>
<td><strong>$2,339,000</strong></td>
<td><strong>$2,044,000</strong></td>
<td><strong>$2,206,000</strong></td>
<td><strong>$2,536,000</strong></td>
<td><strong>$9,125,000</strong></td>
</tr>
</tbody>
</table>
The following tables provide a detailed breakdown of the project's eligible expenses. The first table provides a summary of the project's total costs over the six years of the funding cycle (April 1, 2023 to March 31, 2029), by reported expense. The sum of the number of items associated with the expenditure is provided where appropriate. Dashes are inserted for expenditure types that cannot be easily counted or refer to full-time equivalents (FTE).

The subsequent tables provide the annual breakdown of expenses. For the tables displaying annual expenditures, both the number of items and the FTEs are provided where appropriate. Dashes are inserted for expenditure types that are not easily counted.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>-</td>
<td>4,960,831</td>
<td>-</td>
<td>4,960,831</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>-</td>
<td>4,722,764</td>
<td>-</td>
<td>4,722,764</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>6</td>
<td>193,028</td>
<td>-</td>
<td>193,028</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>6</td>
<td>514,743</td>
<td>-</td>
<td>514,743</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>1,692,217</td>
<td>-</td>
<td>1,692,217</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>6</td>
<td>746,376</td>
<td>-</td>
<td>746,376</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>6</td>
<td>131,775</td>
<td>-</td>
<td>131,775</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>6</td>
<td>1,744,464</td>
<td>-</td>
<td>1,744,464</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>6</td>
<td>83,646</td>
<td>-</td>
<td>83,646</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td>430,000</td>
<td>-</td>
<td>430,000</td>
</tr>
</tbody>
</table>

* Full time equivalent

Total eligible costs $15,219,844 $0 $15,219,844
<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>786,420</td>
<td></td>
<td>786,420</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>748,680</td>
<td></td>
<td>748,680</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>30,600</td>
<td></td>
<td>30,600</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>81,600</td>
<td></td>
<td>81,600</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>268,260</td>
<td></td>
<td>268,260</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>118,320</td>
<td></td>
<td>118,320</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>21,420</td>
<td></td>
<td>21,420</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>283,560</td>
<td></td>
<td>283,560</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>13,260</td>
<td></td>
<td>13,260</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Total eligible costs $2,352,120 $0 $2,352,120
<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>802,148</td>
<td></td>
<td>802,148</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>763,654</td>
<td></td>
<td>763,654</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>31,212</td>
<td></td>
<td>31,212</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>83,232</td>
<td></td>
<td>83,232</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>273,625</td>
<td></td>
<td>273,625</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>120,686</td>
<td></td>
<td>120,686</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>21,848</td>
<td></td>
<td>21,848</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>289,231</td>
<td></td>
<td>289,231</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>13,525</td>
<td></td>
<td>13,525</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Total eligible costs</strong></td>
<td></td>
<td><strong>$2,399,161</strong></td>
<td><strong>$0</strong></td>
<td><strong>$2,399,161</strong></td>
</tr>
<tr>
<td>Item #</td>
<td>Item description</td>
<td>Number of items / FTE*</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------</td>
<td>------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>818,191</td>
<td></td>
<td>818,191</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>778,927</td>
<td></td>
<td>778,927</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>31,836</td>
<td></td>
<td>31,836</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>84,897</td>
<td></td>
<td>84,897</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>279,098</td>
<td></td>
<td>279,098</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>123,100</td>
<td></td>
<td>123,100</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>22,285</td>
<td></td>
<td>22,285</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>295,016</td>
<td></td>
<td>295,016</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>13,796</td>
<td></td>
<td>13,796</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Total eligible costs: $2,447,146  $0  $2,447,146
Canada Foundation for Innovation

**Project number 42631**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>834,555</td>
<td></td>
<td>834,555</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>794,505</td>
<td></td>
<td>794,505</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>32,473</td>
<td></td>
<td>32,473</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>86,595</td>
<td></td>
<td>86,595</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>284,680</td>
<td></td>
<td>284,680</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>125,562</td>
<td></td>
<td>125,562</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>21,638</td>
<td></td>
<td>21,638</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>286,452</td>
<td></td>
<td>286,452</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>14,072</td>
<td></td>
<td>14,072</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td></td>
<td>$0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Total eligible costs | $2,480,532 | $0 | $2,480,532 |

*FTE* refers to Full-Time Equivalent.
<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>851,246</td>
<td></td>
<td>851,246</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>810,395</td>
<td></td>
<td>810,395</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>33,122</td>
<td></td>
<td>33,122</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>88,326</td>
<td></td>
<td>88,326</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>290,373</td>
<td></td>
<td>290,373</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>128,073</td>
<td></td>
<td>128,073</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>22,071</td>
<td></td>
<td>22,071</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>292,181</td>
<td></td>
<td>292,181</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>14,353</td>
<td></td>
<td>14,353</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Total eligible costs: $2,530,140

*FTE: Full Time Equivalent
<table>
<thead>
<tr>
<th>Item #</th>
<th>Item description</th>
<th>Number of items / FTE*</th>
<th>Cash</th>
<th>In-kind</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Administrative Personnel</td>
<td>10.00</td>
<td>868,271</td>
<td></td>
<td>868,271</td>
</tr>
<tr>
<td>2</td>
<td>Scientific and technical support personnel</td>
<td>16.00</td>
<td>826,603</td>
<td></td>
<td>826,603</td>
</tr>
<tr>
<td>3</td>
<td>Extended warranties/ Service Contracts</td>
<td>1</td>
<td>33,785</td>
<td></td>
<td>33,785</td>
</tr>
<tr>
<td>4</td>
<td>Replacement Parts</td>
<td>1</td>
<td>90,093</td>
<td></td>
<td>90,093</td>
</tr>
<tr>
<td>5</td>
<td>Services</td>
<td>-</td>
<td>296,181</td>
<td></td>
<td>296,181</td>
</tr>
<tr>
<td>6</td>
<td>Supplies</td>
<td>1</td>
<td>130,635</td>
<td></td>
<td>130,635</td>
</tr>
<tr>
<td>7</td>
<td>Communications</td>
<td>1</td>
<td>22,513</td>
<td></td>
<td>22,513</td>
</tr>
<tr>
<td>8</td>
<td>Administrative Costs</td>
<td>1</td>
<td>298,024</td>
<td></td>
<td>298,024</td>
</tr>
<tr>
<td>9</td>
<td>Professional Development</td>
<td>1</td>
<td>14,640</td>
<td></td>
<td>14,640</td>
</tr>
<tr>
<td>10</td>
<td>Contingency</td>
<td>-</td>
<td>430,000</td>
<td></td>
<td>430,000</td>
</tr>
</tbody>
</table>

Total eligible costs $3,010,745 $0 $3,010,745
## Contributions from eligible partners

The following tables provide a detailed breakdown of the project's contributions from eligible partners. They do not include the amount requested from the CFI.

The first table provides a summary, by partner, of the total cash and in-kind contributions to the project over the six years of the funding cycle (April 1, 2023 to March 31, 2029). The subsequent tables provide the annual breakdown of partner contributions and indicate whether the contribution has been secured or is expected.

If partner contributions are expected but have not yet been confirmed, the plans for securing these funds are provided.

### Summary

<table>
<thead>
<tr>
<th>Partner name</th>
<th>Partner type</th>
<th>Cash $</th>
<th>In-kind $</th>
<th>Total $</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>1,367,000</td>
<td></td>
<td>1,367,000</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>2,634,000</td>
<td></td>
<td>2,634,000</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>1,031,000</td>
<td></td>
<td>1,031,000</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>1,031,000</td>
<td></td>
<td>1,031,000</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>1,031,000</td>
<td></td>
<td>1,031,000</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>1,031,000</td>
<td></td>
<td>1,031,000</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>1,031,000</td>
<td></td>
<td>1,031,000</td>
</tr>
</tbody>
</table>

Total contributions from eligible partners $9,156,000 $0 $9,156,000

Some of the contributions are dependent on usage of the facility (Food and Housing Services; User Fees) which has been impacted by COVID-19 and in-person access to the facility. While every effort has been made to accurately forecast these revenues based on years of data these contributions will not be secured until the revenue is fully realized through the in-person use of the facility and payment of associated fees.
<table>
<thead>
<tr>
<th>Partner name</th>
<th>Partner type</th>
<th>Cash</th>
<th>In-kind</th>
<th>Total</th>
<th>Secured or expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td></td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>149,000</td>
<td></td>
<td>149,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>149,000</td>
<td></td>
<td>149,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>149,000</td>
<td></td>
<td>149,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>149,000</td>
<td></td>
<td>149,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>149,000</td>
<td></td>
<td>149,000</td>
<td>Secured</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,413,000</strong></td>
<td><strong>$0</strong></td>
<td><strong>$1,413,000</strong></td>
<td></td>
</tr>
<tr>
<td>Partner name</td>
<td>Partner type</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
<td>Secured or expected</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------</td>
<td>-----------</td>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>227,000</td>
<td></td>
<td>227,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td></td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>155,000</td>
<td></td>
<td>155,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>155,000</td>
<td></td>
<td>155,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>155,000</td>
<td></td>
<td>155,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>155,000</td>
<td></td>
<td>155,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>155,000</td>
<td></td>
<td>155,000</td>
<td>Secured</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,441,000</strong></td>
<td><strong>$0</strong></td>
<td><strong>$1,441,000</strong></td>
<td></td>
</tr>
<tr>
<td>Partner name</td>
<td>Partner type</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
<td>Secured or expected</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------</td>
<td>--------</td>
<td>-----------</td>
<td>-------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>230,000</td>
<td></td>
<td>230,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td></td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>160,000</td>
<td></td>
<td>160,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>160,000</td>
<td></td>
<td>160,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>160,000</td>
<td></td>
<td>160,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>160,000</td>
<td></td>
<td>160,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>160,000</td>
<td></td>
<td>160,000</td>
<td>Secured</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>$1,469,000</td>
<td>$0</td>
<td>$1,469,000</td>
<td></td>
</tr>
<tr>
<td>Partner name</td>
<td>Partner type</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
<td>Secured or expected</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------</td>
<td>---------</td>
<td>-----------</td>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>228,000</td>
<td></td>
<td>228,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td></td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>166,000</td>
<td></td>
<td>166,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>166,000</td>
<td></td>
<td>166,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>166,000</td>
<td></td>
<td>166,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>166,000</td>
<td></td>
<td>166,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>166,000</td>
<td></td>
<td>166,000</td>
<td>Secured</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,497,000</strong></td>
<td><strong>$0</strong></td>
<td><strong>$1,497,000</strong></td>
<td></td>
</tr>
<tr>
<td>Partner name</td>
<td>Partner type</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
<td>Secured or expected</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
<td>-----------</td>
<td>-----------</td>
<td>---------------------</td>
</tr>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>228,000</td>
<td>0</td>
<td>228,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td>0</td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>172,000</td>
<td>0</td>
<td>172,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>172,000</td>
<td>0</td>
<td>172,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>172,000</td>
<td>0</td>
<td>172,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>172,000</td>
<td>0</td>
<td>172,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>172,000</td>
<td>0</td>
<td>172,000</td>
<td>Secured</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$1,527,000</td>
<td>$0</td>
<td>$1,527,000</td>
<td></td>
</tr>
<tr>
<td>Partner name</td>
<td>Partner type</td>
<td>Cash $</td>
<td>In-kind $</td>
<td>Total $</td>
<td>Secured or expected</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------------------------</td>
<td>--------</td>
<td>-----------</td>
<td>---------</td>
<td>---------------------</td>
</tr>
<tr>
<td>BMSC Food and Housing Services</td>
<td>Other</td>
<td>225,000</td>
<td></td>
<td>225,000</td>
<td>Expected</td>
</tr>
<tr>
<td>BMSC User Fees</td>
<td>Other</td>
<td>439,000</td>
<td></td>
<td>439,000</td>
<td>Expected</td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td>Institutions, trust funds or foundations</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Alberta</td>
<td>Institutions, trust funds or foundations</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Institutions, trust funds or foundations</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Institutions, trust funds or foundations</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Secured</td>
</tr>
<tr>
<td>University of Victoria</td>
<td>Institutions, trust funds or foundations</td>
<td>229,000</td>
<td></td>
<td>229,000</td>
<td>Secured</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,809,000</strong></td>
<td><strong>$0</strong></td>
<td><strong>$1,809,000</strong></td>
<td></td>
</tr>
</tbody>
</table>
# Suggested reviewers

The decision whether or not to use the suggestions remains with the CFI.

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution/Organization</th>
<th>Country</th>
<th>Email</th>
<th>Telephone</th>
<th>Fax</th>
<th>Online CV or biography</th>
<th>Area(s) of expertise (keywords)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dethier, Megan</td>
<td>University of Washington</td>
<td>United States of America (the)</td>
<td><a href="mailto:mdethier@uw.edu">mdethier@uw.edu</a></td>
<td>1-206-5431484</td>
<td></td>
<td></td>
<td>governance, financial monitoring, management, biodiversity, ecology</td>
</tr>
<tr>
<td>Snelgrove, Paul</td>
<td>Memorial University of Newfoundland</td>
<td>Canada</td>
<td><a href="mailto:psnelgrove@mun.ca">psnelgrove@mun.ca</a></td>
<td>1-709-864-3440</td>
<td></td>
<td></td>
<td>Marine sciences, ecosystem ecology, ocean science networks, governance</td>
</tr>
<tr>
<td>Maranger, Roxane</td>
<td>Université de Montréal</td>
<td>Canada</td>
<td><a href="mailto:r.maranger@umontreal.ca">r.maranger@umontreal.ca</a></td>
<td>450-563-3111</td>
<td></td>
<td></td>
<td>Management, financial monitoring, strategic planning, aquatic ecosystem ecology, biogeochemistry</td>
</tr>
<tr>
<td>Mercier, Annie</td>
<td>Memorial University of Newfoundland</td>
<td>Canada</td>
<td><a href="mailto:amercier@mun.ca">amercier@mun.ca</a></td>
<td>1-709</td>
<td></td>
<td></td>
<td>marine sciences, marine ecology, evolution, management</td>
</tr>
</tbody>
</table>

Research builds communities
La recherche au service des collectivités
<table>
<thead>
<tr>
<th>Name</th>
<th>Solan, Martin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution/Organization</td>
<td>University of Southampton</td>
</tr>
<tr>
<td>Country</td>
<td>United Kingdom of Great Britain and Northern Ireland (the)</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:m.solan@soton.ac.uk">m.solan@soton.ac.uk</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>4423-8059-5000</td>
</tr>
<tr>
<td>Fax</td>
<td></td>
</tr>
<tr>
<td>Area(s) of expertise (keywords)</td>
<td>oceanography, biodiversity, management, governance, financial monitoring</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Costello, Mark John</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution/Organization</td>
<td>Nord University</td>
</tr>
<tr>
<td>Country</td>
<td>Norway</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:mark.j.costello@nord.no">mark.j.costello@nord.no</a></td>
</tr>
<tr>
<td>Telephone</td>
<td>64-9-923682</td>
</tr>
<tr>
<td>Fax</td>
<td></td>
</tr>
<tr>
<td>Area(s) of expertise (keywords)</td>
<td>marine ecology, ocean sciences, management, governance, financial monitoring</td>
</tr>
</tbody>
</table>
Selected 2019-2021 Publications Enabled by the Bamfield Marine Sciences Centre
IF = Impact Factor, Citations based on Google Scholar (January 6th, 2021)

**Theme 1: Mitigating ecological impacts of climate change on coastal and ocean ecosystems**


**Theme 2: Mitigating ecological impacts of climate change on coastal and ocean biodiversity**


**Theme 3: Mitigating ecological impacts of climate change via resource and environmental management supporting sustainable economic development.**


## Identification

<table>
<thead>
<tr>
<th>Family Name</th>
<th>Rogers</th>
</tr>
</thead>
<tbody>
<tr>
<td>First name and initials</td>
<td>Sean M</td>
</tr>
<tr>
<td>Institution</td>
<td>University of Calgary</td>
</tr>
<tr>
<td>Position</td>
<td>Professor and Director of the BMSC</td>
</tr>
<tr>
<td>Department/Division</td>
<td>Biological Sciences</td>
</tr>
</tbody>
</table>

## Academic background

<table>
<thead>
<tr>
<th>Degree type</th>
<th>Year received or expected</th>
<th>Discipline/Field/Speciality</th>
<th>Institution and country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postdoctorate</td>
<td>2008</td>
<td>Ecology and Evolution</td>
<td>University of British Columbia, Canada</td>
</tr>
<tr>
<td>Doctorate</td>
<td>2005</td>
<td>Molecular Ecology</td>
<td>Université Laval, Canada</td>
</tr>
<tr>
<td>Master's</td>
<td>2000</td>
<td>Biology</td>
<td>University of New Brunswick, Canada</td>
</tr>
</tbody>
</table>

## Work experience

<table>
<thead>
<tr>
<th>Position/Organization</th>
<th>Department/Division</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor of Biological Sciences, The University of Calgary</td>
<td>Biological Sciences</td>
<td>2020</td>
</tr>
<tr>
<td>Associate Professor, The University of Calgary</td>
<td>Biological Sciences</td>
<td>2015</td>
</tr>
<tr>
<td>Assistant Professor, The University of Calgary</td>
<td>Biological Sciences</td>
<td>2009</td>
</tr>
<tr>
<td>Director, Bamfield Marine Sciences Centre</td>
<td>BMSC</td>
<td>2018-2023</td>
</tr>
<tr>
<td>Acting Director, Bamfield Marine Sciences Centre</td>
<td>BMSC</td>
<td>2017-2018</td>
</tr>
<tr>
<td>Director Pro Tem, Bamfield Marine Sciences Centre</td>
<td>BMSC</td>
<td>2016-2016</td>
</tr>
</tbody>
</table>
List of published contributions

This section provides a list of the most significant published contributions (e.g. submitted and/or published articles, patents, technical reports).

Wuitchik, S.J.S., Mogensen, R.D.H. Barrett*, and S.M. Rogers*. Evolution of thermal physiology alters predicted species distributions under climate change * co-senior authors. Molecular Ecology. Accepted https://www.biorxiv.org/content/10.1101/2021.02.25.432865v1
## Research or technology development funding

This table lists support held over the past five years as an applicant or co-applicant for grants and contracts from all sources, including industry and academic/research institutions. Maximum of ten entries.

<table>
<thead>
<tr>
<th>Title of proposal</th>
<th>Name of Principal Applicant / Principal investigator</th>
<th>Funding source Program name</th>
<th>Average amount per year</th>
<th>Start date</th>
<th>End date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWARDED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ecological genomics of population persistence and adaptation to environmental change in fishes</td>
<td>Sean Rogers</td>
<td>Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery</td>
<td>$81,250</td>
<td>2020</td>
<td>2024</td>
</tr>
<tr>
<td>Creating community-based climate action on the west coast with the Bamfield Marine Sciences Centre, Huu-ay-aht First Nations and Ocean Networks Canada</td>
<td>Sean Rogers</td>
<td>Government of Canada ECCC Climate Action</td>
<td>$160,000</td>
<td>2021</td>
<td>2022</td>
</tr>
<tr>
<td>Bamfield Marine Sciences Centre Field Trip Program</td>
<td>Sean Rogers</td>
<td>Natural Sciences and Engineering Research Council of Canada (NSERC) Promoscience</td>
<td>$127,000</td>
<td>2019</td>
<td>2022</td>
</tr>
<tr>
<td>Environmental and genomic consequences of alternative hatchery rearing practices on Pacific Coho Salmon survival and enhancement</td>
<td>Sean Rogers</td>
<td>Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Partnership Grants</td>
<td>$250,540</td>
<td>2019</td>
<td>2021</td>
</tr>
<tr>
<td>Pan-Pacific i@home: leading undergraduate students in a collaborative, international DNA barcoding exercise</td>
<td>Sean Rogers</td>
<td>Alberta Advanced Education and Technology i@Home</td>
<td>$3,250</td>
<td>2018</td>
<td>2020</td>
</tr>
<tr>
<td>The genetics of adaptation to environmental change in fishes</td>
<td>Sean Rogers</td>
<td>Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants</td>
<td>$35,000</td>
<td>2014</td>
<td>2020</td>
</tr>
<tr>
<td>From genes to ecosystems: an eco-evolutionary assessment of alternative harvesting approaches and consequences for fisheries productivity</td>
<td>Dylan Fraser</td>
<td>Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Partnership Grants</td>
<td>$249,743</td>
<td>2017</td>
<td>2019</td>
</tr>
<tr>
<td>Renovations to research space and upgrades to mitigate environmental impacts at the Bamfield Marine Sciences Centre</td>
<td>Sean Rogers</td>
<td>Government of Canada SIF</td>
<td>$1,000,000</td>
<td>2016</td>
<td>2019</td>
</tr>
<tr>
<td>Atlas of genomic variation for climate change in Chinook Salmon</td>
<td>Dolph Schluter</td>
<td>Genome British Columbia Genome BC</td>
<td>$245,000</td>
<td>2017</td>
<td>2018</td>
</tr>
</tbody>
</table>
Identification

Family Name | Driver
---|---
First name and initials | Jonathan C.
Institution | Simon Fraser University
Position | Professor
Department/Division | Archaeology

Academic background

<table>
<thead>
<tr>
<th>Degree type</th>
<th>Year received or expected</th>
<th>Discipline/Field/Speciality</th>
<th>Institution and country</th>
</tr>
</thead>
</table>

Work experience

<table>
<thead>
<tr>
<th>Position/Organization</th>
<th>Department/Division</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor, Simon Fraser University</td>
<td>Archaeology</td>
<td>1997</td>
</tr>
<tr>
<td>Vice-President Academic and Provost, Simon Fraser University</td>
<td>Office of the Vice-President Academic and Provost</td>
<td>2008-2016</td>
</tr>
<tr>
<td>Vice-President Academic and Provost, Simon Fraser University</td>
<td>Office of the Vice-President Academic and Provost</td>
<td>2019-2020</td>
</tr>
<tr>
<td>Dean, Simon Fraser University</td>
<td>Graduate Studies</td>
<td>2000-2008</td>
</tr>
<tr>
<td>Associate professor, Simon Fraser University</td>
<td>Archaeology</td>
<td>1989-1997</td>
</tr>
<tr>
<td>Assistant professor, Simon Fraser University</td>
<td>Archaeology</td>
<td>1982-1989</td>
</tr>
</tbody>
</table>
## Research or technology development funding

This table lists support held over the past five years as an applicant or co-applicant for grants and contracts from all sources, including industry and academic/research institutions. Maximum of ten entries.

<table>
<thead>
<tr>
<th>Title of proposal</th>
<th>Name of Principal Applicant / Principal investigator</th>
<th>Funding source</th>
<th>Program name</th>
<th>Average amount per year</th>
<th>Support Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWARDED</td>
<td>People and animals in the Peace River region</td>
<td>SSHRC</td>
<td>Insight Grant</td>
<td>$84,000</td>
<td>2019 - 2023</td>
</tr>
</tbody>
</table>
**Identification**

<table>
<thead>
<tr>
<th>Family Name</th>
<th>Eastham</th>
</tr>
</thead>
<tbody>
<tr>
<td>First name and initials</td>
<td>Tao M</td>
</tr>
<tr>
<td>Institution</td>
<td>University of Victoria</td>
</tr>
<tr>
<td>Position</td>
<td>Head of Research Services</td>
</tr>
<tr>
<td>Department/Division</td>
<td>Western Canadian Universities Marine Sciences Society</td>
</tr>
</tbody>
</table>

**Academic background**

<table>
<thead>
<tr>
<th>Degree type</th>
<th>Year received or expected</th>
<th>Discipline/Field/Speciality</th>
<th>Institution and country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's</td>
<td>2015</td>
<td>Resource Management &amp; Environmental Toxicology</td>
<td>Simon Fraser University, Canada</td>
</tr>
<tr>
<td>Bachelor's</td>
<td>2008</td>
<td>Biology (with distinction)</td>
<td>University of Victoria, Canada</td>
</tr>
</tbody>
</table>

**Work experience**

<table>
<thead>
<tr>
<th>Position/Organization</th>
<th>Department/Division</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of Research Services, Bamfield Marine Sciences Centre</td>
<td>Research Services</td>
<td>Start date: 2019</td>
</tr>
<tr>
<td>Special Programs Coordinator, Bamfield Marine Sciences Centre</td>
<td>Research Services</td>
<td>Start date: 2016</td>
</tr>
<tr>
<td>Sessional Instructor, Bamfield Marine Sciences Centre</td>
<td>University Programs</td>
<td>Start date: 2015</td>
</tr>
<tr>
<td>Teaching Assistant, Bamfield Marine Sciences Centre</td>
<td>University Programs</td>
<td>Start date: 2015</td>
</tr>
</tbody>
</table>
List of published contributions

This section provides a list of the most significant published contributions (e.g. submitted and/or published articles, patents, technical reports).


Research or technology development funding

This table lists support held over the past five years as an applicant or co-applicant for grants and contracts from all sources, including industry and academic/research institutions. Maximum of ten entries.

<table>
<thead>
<tr>
<th>Title of proposal</th>
<th>Name of Principal Applicant / Principal investigator</th>
<th>Funding source Program name</th>
<th>Average amount per year</th>
<th>Support Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Start date</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>End date</td>
</tr>
</tbody>
</table>
Identification

Family Name: Kalounis-Rueppell
First name and initials: Matina
Institution: University of Alberta
Position: Interim Dean
Department/Division: College of Natural and Applied Sciences

Academic background

<table>
<thead>
<tr>
<th>Degree type</th>
<th>Year received or expected</th>
<th>Discipline/Field/Speciality</th>
<th>Institution and country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctorate</td>
<td>2001</td>
<td>Zoology</td>
<td>University of Western Ontario, Canada</td>
</tr>
<tr>
<td>Master's</td>
<td>1996</td>
<td>Biology</td>
<td>The University of Regina, Canada</td>
</tr>
<tr>
<td>Bachelor's, Honours</td>
<td>1993</td>
<td>Biology</td>
<td>The University of Regina, Canada</td>
</tr>
</tbody>
</table>

Work experience

<table>
<thead>
<tr>
<th>Position/Organization</th>
<th>Department/Division</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interim Dean, University of Alberta</td>
<td>College of Natural and Applied Sciences</td>
<td>2021-2023</td>
</tr>
<tr>
<td>Dean, University of Alberta</td>
<td>Faculty of Science</td>
<td>2019-2021</td>
</tr>
<tr>
<td>Head of Biology, University of North Carolina at Greensboro</td>
<td>Biology</td>
<td>2016-2019</td>
</tr>
<tr>
<td>Professor, University of North Carolina at Greensboro</td>
<td>Biology</td>
<td>2014-2019</td>
</tr>
<tr>
<td>Associate Professor, University of North Carolina at Greensboro</td>
<td>Biology</td>
<td>2009-2014</td>
</tr>
<tr>
<td>Assistant Professor, University of North Carolina at Greensboro</td>
<td>Biology</td>
<td>2003-2009</td>
</tr>
<tr>
<td>Assistant Professor, California State Univ. - Sacramento</td>
<td>Biology</td>
<td>2002-2003</td>
</tr>
</tbody>
</table>
Canada Foundation for Innovation

Matina Kalcounis-Rueppell

List of published contributions

This section provides a list of the most significant published contributions (e.g. submitted and/or published articles, patents, technical reports).

Timonin, MA, Kalcounis-Rueppell, M, and CA Marler. 2018. Testosterone pulses at the nest site modify ultrasonic vocalization types in a monogamous and territorial mouse. Ethology 124:804-815
Petric R and Kalcounis-Rueppell M. 2013. Female and male adult brush mice (Peromyscus boylii) use ultrasonic vocalizations in the wild. Behaviour 150: 1747-1766

Curriculum vitae
Research or technology development funding

This table lists support held over the past five years as an applicant or co-applicant for grants and contracts from all sources, including industry and academic/research institutions. Maximum of ten entries.

<table>
<thead>
<tr>
<th>Title of proposal</th>
<th>Name of Principal Applicant / Principal investigator</th>
<th>Funding source</th>
<th>Average amount per year</th>
<th>Support Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWARDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioacoustics of Bats and Mice.</td>
<td>Matina Kalcounis-Rueppell</td>
<td>Natural Sciences and Engineering</td>
<td>$28,000</td>
<td>2021-2026</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research Council of Canada (NSERC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Discovery Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combining NABat and NCBAMP for statewide long-term bat acoustic monitoring in North Carolina</td>
<td>Matina Kalcounis-Rueppell</td>
<td>North Carolina Wildlife Resources</td>
<td>$83,247</td>
<td>2017-2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cooperative Agreement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coarse woody debris effects on small mammals.</td>
<td>Matina Kalcounis-Rueppell</td>
<td>United States Department of</td>
<td>$20,000</td>
<td>2015-2018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agriculture Forest Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>State Wildlife Grants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The influence of switchgrass on rodent communities, populations, and behaviours in managed pine plantations in Mississippi.</td>
<td>Matina Kalcounis-Rueppell</td>
<td>National Council for Air and Stream</td>
<td>$86,674</td>
<td>2011-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improvement Research Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survey of threatened bats in the NC Coastal Plain with emphasis on WNS positive species</td>
<td>Matina Kalcounis-Rueppell</td>
<td>North Carolina Wildlife Resources</td>
<td>$9,250</td>
<td>2011-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research Grant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bamfield Marine Sciences Centre (BMSC) Strategic Research Plan 2022 to 2026

Preamble

BMSC is a multi-purpose facility with a wide diversity of users, in education, research, and community and industrial partnerships, as reflected in BMSC’s Strategic Plan. BMSC annually hosts thousands of K-12 students and their science teachers; hundreds of undergraduate students, instructors and teaching assistants; hundreds of graduate students and professors from Canada and beyond; companies developing sustainable coastal industries; and local partners in sustainable economic and social development such as the Huu-ay-aht First Nations.

Given this diversity of users and partners, it is important to state that this Strategic Research Plan is not intended to downplay the importance of non-research activities at BMSC, nor is it intended to preclude a researcher in any field of inquiry from conducting research at BMSC. Instead, this Plan defines priority areas as (i) research opportunities and (ii) research challenges that will guide BMSC as it maintains, upgrades and innovates research infrastructure, equipment, and facilities to meet the goals of its central mandate defined in the 2018-2023 overarching institutional strategic plan. These opportunities and challenges reflect both BMSC’s physical location and priorities in oceanic and coastal research identified by scientists, entrepreneurs, policy makers and governments.

Values in research

Our values define important characteristics of all research conducted at BMSC.

We value:

• Fundamental, curiosity-driven research that creates a scientific foundation for the application of knowledge
• The mobilization of research to benefit the environment, community health, economic development, and education
• Different ways of conducting research and creating knowledge, including Indigenous knowledge and methods
• Respectful and ethical stewardship of the natural environment during research activities, including ethical treatment of animals in our care
• Partnerships and collaborations that allow diverse methods and perspectives to strengthen research outcomes
• Active participation in research as an effective component of education for a wide range of learners

**Opportunity 1: place-based research**

BMSC provides direct and indirect access to ocean and coastal environments for researchers in fundamental and applied science.

BMSC was founded to encourage place-based research on Canada’s 240,000 km coastline, and numerous research projects have been based at BMSC to access ocean and coastal environments. We will maintain longstanding methods of access and we will take advantage of new technologies to enhance access.

BMSC provides two direct means of access to the ocean environment: (a) a boat fleet with a highly trained Foreshore supervisor, skippers and crew; (b) SCUBA operations and SCUBA training certified by the Canadian Association of Underwater Science (CAUS) and safety. BMSC also provides indirect access, through BMSC staff collecting samples and data from local and offshore environments, for researchers using laboratories at BMSC and for researchers that lack ocean access.

BMSC is a hub for new forms of access to the environment. We have the capacity to support remote submersibles; to establish, service and monitor remote sensing equipment; and to gather, store and disseminate data in electronic formats. These activities require year-round on-site support and equipment from BMSC staff that already operate throughout the year and have the capacity to expand operations in these areas.

**Opportunity 2: “research-ready” infrastructure and staff**

BMSC’s infrastructure and trained staff, expanded and upgraded when needed, ensure that new directions in research and “just-in-time” research will be supported quickly and efficiently.

BMSC was established in the 1970’s through a special grant from the National Research Council, and for almost 50 years its five member universities, donors, research partners, community partners, and governments have collaborated to establish the fundamental infrastructure required to operate a year-round field and laboratory facility. Examples of past investments that continue to support research include: purchase of ocean-going vessels; development of high capacity 24/7 seawater supply to laboratories; upgrades for animal care husbandry, upgrades to internet capacity; installation and upgrades to flume; assured emergency power supply; large onshore habitats; housing for researchers. Confirmed future investments include improved road access to BMSC (Government of British Columbia) and environmental upgrades to wastewater treatment (Huu-ay-aht First Nations and member universities).

With these investments in place, BMSC can be agile in supporting and facilitating new research opportunities in a remote coastal region relatively unimpacted by anthropogenic influences. For example, start-up companies focusing on sustainable aquaculture have access to BMSC seawater and guaranteed power supply; donor-sponsored applied research on kelp reforestation was operational less than six months after the donor contacted BMSC; BMSC supported an urgent request from Ocean Networks Canada and the Department of Fisheries and Oceans to provide
water temperature data during the summer 2021 ‘heat dome’ event. In all of these examples, the fact that BMSC had the infrastructure and professional staff in place was essential to the success of the research.

**Challenge 1: accelerating climate change**

BMSC will support research objectives on coastal climate change and its effects, and solutions for managing changing ocean environments.

Oceans play a key role in structuring climate and weather, in both the long and short term. Oceans and the life they support are themselves susceptible to the effects of climate change. Major sectors of Canada’s economy (such as agriculture, forestry and fishing) are directly impacted by climate change, and climate change also affects all areas of Canada, as demonstrated by accelerating incidence of heat waves, ice melt, extreme storms, the polar vortex, and wildfires. Recent international reports (notably the August 2021 IPCC Working Group I report, Climate Change 2021: the Physical Science Basis) make it clear that the rate of climate change is accelerating. Canada’s future security and well-being depend on our ability to manage the effects of climate change, and research into the oceans that surround us will provide important insights into the likely effects of climate change, and ways in which to ameliorate those impacts.

Areas in which BMSC can already provide research support include: direct access to marine environments to monitor change on individual species and ecosystems; access to historical data on species distribution and other environmental data (e.g. salinity; temperature); placement and support of remote sensing equipment and associated data gathering and archiving; monitoring ecocoms (natural habitats) and building and monitoring mesocosms (shore-based semi-natural equivalents of ecocoms, with controlled environments that allow for experimentation).

BMSC has already formed partnerships with major national and international organizations in order to become part of larger networks that are monitoring climate change and experimenting with climate solutions. Current partners include Ocean Networks Canada, Ocean Research Canadian Alliance, Oceans Supercluster, Kelp RESCUE, Hakai, Reef Life Survey, Marine Biodiversity Observation Network – Pole to Pole). We will increase our presence as members of other networks, such as Canadian Healthy Oceans Network, Canadian Integrated Ocean Observing System (CIOOS) Pacific, and the International Union for the Conservation of Nature. MarineGeo Marine Global Earth Observatory, Zostera (seagrass) experimental network (ZEN), Kelp Ecosystem Ecology Network (KEEN), and Canadian Ocean Literacy Coalition (COLC).

**Challenge 2: biodiversity and conservation**

BMSC will partner with community and networks in research activities that contribute to an understanding of marine biodiversity and its conservation.

The ocean drives global systems that make the Earth habitable for humankind, providing food and water, up to half of the world’s oxygen, and combatting (buffering?) climate change. Oceans are home to an incredible biological and chemical diversity that remains largely unexplored.
Continuous deterioration of coastal waters due to pollution and ocean acidification is having an adverse effects on biodiversity, leading to the UN Sustainable development Goal 14: Conserve and sustainably use the oceans and marine biodiversity.

Solutions for healthy coasts and oceans require an understanding of ocean biodiversity, the consequences of cumulative effects of a changing climate on that diversity from the perspective of a range of possible environmental stressors (e.g., pollution, warming, acidification, microplastics), and how species and ecosystems may be resilient or adapt to these stressors.

BMSC supports approaches that contribute to an understanding of the mechanisms of biodiversity change as well as the development of solutions to manage natural systems across scales of life. We support the mapping of biodiversity (past, present and projected future abundance and distribution) alongside environmental parameters in coastal ecosystems that inform regional, national and international biodiversity monitoring networks.

We support research that informs management of marine protected areas and we work with community to inform the benefits of biodiversity conservation.

Challenge 3: Environmental resource management and sustainable economic development

BMSC will provide basic infrastructure to allow rapid testing and upscaling of new ventures in the "blue economy", and will offer bridging opportunities for start-ups and SMEs.

Coping with climate change and building more sustainable local economies must involve the private sector, and BMSC will play a role in supporting the “blue economy” goals for Canada. High tech companies have demonstrated the value of locating in regions with strong university departments of computing science and engineering. In a similar way, companies seeking to develop innovative and sustainable businesses in and around ocean environments, benefit from partnerships with BMSC. Fundamental to these partnerships is BMSC’s ability to provide access to capital-intensive infrastructure, such as 24/7 sea water supplies, guaranteed power in a remote location, or a state-of-the art high through-put flume. Developing such infrastructure in the private sector would be especially difficult for small start-up companies.

Equally important is the presence at BMSC of seasoned university researchers and their students, who are eager to apply their education to environmentally-friendly industry.

It is well documented that Canada has a problem in moving start-ups and SMEs to profitability, and the subsequent creation of wealth, capital investment, and jobs. It makes sense for entrepreneurs in the blue economy to locate new ventures in places such as BMSC where there is already relevant infrastructure and a pool of highly-qualified people. For those enterprises that can successfully demonstrate proof of concept, BMSC’s 75 hectare land base provides room for expansion of industry, with continuing access to the infrastructure that they require to move into profitability and ultimately the ability to build their own infrastructure at new sites.

Challenge 4: building scientific literacy

BMSC will promote research into effective science education.
There have been numerous examples over the past decades of the problems associated with scientific illiteracy, such as denial of the evidence for climate change or widespread misinformation about COVID-19. The many challenges that our society will face over the next decades will require policies and solutions based on evidence collected and analyzed through scientific methods. Furthermore, a scientifically literate general population is more likely to support government action based on these methods. BMSC hosts thousands of K-12 students and hundreds of undergraduates annually in educational programs, as well as numerous graduate students and post-doctoral researchers who develop their research skills at BMSC. We are also an active Board Member appointed to the Canadian Ocean Literacy Coalition. This gives us the opportunity to support national research initiatives on science education.

We know anecdotally that the BMSC experience is often described as “life changing” by our alumni. We need to know, and pass on to others, what makes the BMSC educational experience effective and enriching. We also want to ensure that BMSC plays a role in encouraging a new generation of scientists. We will therefore encourage research on scientific education in two related areas. First, virtually all educational programs at BMSC incorporate experiential learning, and undergraduate programs frequently require that original research projects be conducted and reported by students. We will support research that examines the effectiveness of BMSC experiential programs on students’ understanding of science in general, as well as more specific understanding of topics such as climate change, biodiversity and sustainability. Second, we will support research that looks at the role BMSC plays in developing individuals who become scientific researchers, focusing on undergraduates, graduate students and post-docs who conduct fieldwork and laboratory work at BMSC.

**Accountability and review**

The Director of BMSC provides annual reports to Management Council on all BMSC operations. In future, the annual report will include specific reference to the Strategic Research Plan. Management Council may also set key performance indicators to monitor progress on specific items within the Plan.

The strategic research plan will be reviewed in 2025, with a decision by Management Council to continue with the Plan, to modify, or to begin discussions for a new plan.
Bamfield Marine Sciences Centre Management Plan

Created by:
Dr. Sean Rogers, Director
Dr. Jon Driver, President
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>3</td>
</tr>
<tr>
<td>BMSC Organizational Structure and Goals</td>
<td>4</td>
</tr>
<tr>
<td>WCUMSS Society Governance and oversight</td>
<td>4</td>
</tr>
<tr>
<td>Governance Structure</td>
<td>5</td>
</tr>
<tr>
<td>Annual cycle</td>
<td>6</td>
</tr>
<tr>
<td>Organization of Annual meetings</td>
<td>7</td>
</tr>
<tr>
<td>BMSC Management</td>
<td>8</td>
</tr>
<tr>
<td>Organizational Chart – Senior Management Team</td>
<td>8</td>
</tr>
<tr>
<td>Director</td>
<td>9</td>
</tr>
<tr>
<td>Managing Director</td>
<td>10</td>
</tr>
<tr>
<td>Head of Research Services</td>
<td>10</td>
</tr>
<tr>
<td>Head of Education</td>
<td>11</td>
</tr>
<tr>
<td>Operations Manager</td>
<td>12</td>
</tr>
<tr>
<td>Business Manager</td>
<td>12</td>
</tr>
<tr>
<td>Succession Planning</td>
<td>13</td>
</tr>
<tr>
<td>Financial Management</td>
<td>14</td>
</tr>
<tr>
<td>Risk Assessment and Management</td>
<td>14</td>
</tr>
<tr>
<td>Equity, Diversity and Inclusion</td>
<td>15</td>
</tr>
<tr>
<td>Decommissioning Plan</td>
<td>16</td>
</tr>
<tr>
<td>Appendix 1. BMSC Map</td>
<td>17</td>
</tr>
<tr>
<td>Appendix 2. WCUMSS Constitution and By-Laws</td>
<td>18</td>
</tr>
</tbody>
</table>
Executive Summary

BMSC is owned and managed by a not-for-profit organization, the Western Canadian Universities Marine Sciences Society (WCUMSS), whose members are the University of Alberta, University of British Columbia, University of Calgary, Simon Fraser University and University of Victoria. BMSC was established in 1970 at the request of the National Research Council to create a national facility capable of supporting diverse coastal and marine research in this challenging environment. WCUMSS values activities that enhance student and researcher success and understands that the support they receive from staff is the underpinning of this success.

Our vision, based on the BMSC 2018-2023 institutional strategic plan is, “life changing exploration and discovery in coastal and marine environments”. Our values include Partnerships built on respectful communication and cooperation that engender mutual respect and benefit; Scholarship Grounded in Experience where the BMSC offers unparalleled access and support for scholars to discover and gather evidence-based knowledge; and as a sentinel of the environment a profound respect for Stewardship as it relates to the sustainability of our environment. Building on 50 years of success in ocean, coastal and marine research and education, our Mission is to: 1- Develop and provide the research capacity and services that enable innovative approaches to ocean exploration and discovery, and 2-Enhance our field-based education programs with a research experience. We will accomplish these goals and build momentum towards our vision by establishing a sustainable financial base and utilizing the strengths of our unique Bamfield/BMSC culture.

Our primary goals of supporting research and providing exceptional learning activities are successful because of the tremendous support our researchers, instructors, students and clients receive from the staff. As we develop a management plan that charts a course for the future of the BMSC, our staff and stakeholders have consistently told us that they value strong partnerships. Partnerships truly embody what it means to work at the BMSC. We rely on one another to provide the best service to hundreds of researchers, students and clients that come to the BMSC annually. The roles and responsibilities of our diverse team are complex and highly specialized, with each team member playing an important part in fostering scholarly partnerships while maintaining facilities in this remote community and environment (Appendix 1)

BMSC’s Management Plan operationalizes our strategic plan. It outlines the strategic priorities, tasks and resources that define the four pillars of the BMSC; Research, Education, Operations and Finance. It sets the over-arching priorities for the fiscal year and provides specific guidance to each team, measured by critical performance indicators from our strategic plan in these areas. Following review and WCUMSS Finance Committee approval, the budget is provided to staff, who use it to plan and execute activities in that fiscal year. Annual staff performance plans and goal setting is based on the Strategic Plan and outlined in the Staff Working Conditions Handbook to help prioritize workloads and improve the transparency of the finances for partners and staff. Professional staff at BMSC, and administrative support staff have terms and conditions of employment set out in the Working Conditions Handbook. The terms and conditions of the handbook are recommended by the Director to Management Council after consultation with the appropriate staff. Senior Managers have individual contracts of employment. Education staff also operate under contract. Staff working in maintenance, housekeeping, and the kitchen are employed under the terms of a Collective Agreement negotiated with CUPE.
BMSC Organizational Structure and Goals

WCUMSS Society Governance and oversight

The Western Canadian Universities Marine Sciences Society currently consists of five voting members (UBC, UVIC, SFU, U of A, U of C) who have been the only voting members of the Society since its formation [bylaw 2(a)(i)]. Although associate members are permitted [bylaw 2(a)(ii)], there are currently no associate members. According to the constitution the primary goals of the Society are:

1. to support research and education in marine sciences and related topics, and
2. operate the property and facilities of the Society (i.e., the Bamfield Marine Sciences Centre, BMSC). Because the members of WCUMSS are institutions, each university selects an individual who votes on behalf of the member at the Annual General Meeting.

WCUMSS has a constitution and a set of by-laws to regulate the work of the Society (Appendix 1). Due to a change in provincial legislation in BC, WCUMSS was required to revise the constitution and bylaws by November 2018. The new constitution and bylaws were approved at the Annual General Meeting of WCUMSS in June 2018.

The oversight of the work of the Society and its assets is the responsibility of Management Council [bylaw 4(a)]. Management Council consists of ten to twelve directors [bylaw 4(b)]. Its quorum is seven.

Ten directors are selected by the five member institutions (2 per institution). Five of the directors are also the voting representatives of the university members of WCUMSS (see above). There is no particular requirement as to the status of directors at their home institutions, but the voting representatives of the member universities have often been deans of science, and the other directors have often been department chairs or senior researchers with interests in biology or ecology. The method of selection is left to the home institution, but appointments have been typically made by the member universities’ Board of Governors.

The ten member-selected directors of Management Council may also collectively choose up to two additional directors through unanimous vote [bylaw 4(b)(iii)]. In the recent past these two directors have been individuals selected to serve as President and Treasurer. All 12 directors have voting rights on Management Council.

It is the responsibility of Management Council to select a President, Vice-President, Treasurer and Secretary [bylaw 5(a)]. The Secretary is typically the Director of the Bamfield Marine Sciences Centre, with a non-voting role on Management Council. The President, Vice-President and Treasurer are directors sitting on Management Council (see above).

It has been recent practice to select a President and Treasurer who have experience as senior university administrators but this is not a requirement of the bylaws.

WCUMSS owns land, buildings and other assets at the BMSC. Management Council employs a Director of BMSC to oversee the work of the Society at BMSC. The staff of BMSC report to the Director. The Director reports to Management Council.
BMSC operations are funded partially through an annual contribution from each institution. Additional funding comes through grants, facility rental fees, charges for room and board, public education programs, donations and endowments etc. It should be noted that students from member universities who take undergraduate courses at BMSC pay tuition to their home university. (Students from non-member universities register as visiting students at UVIC and pay tuition there).

The University of Victoria is contracted to manage certain aspects of financial operations on behalf of WCUMSS.

See Appendix 1 for a list of rights and responsibilities for WCUMSS and Management Council.

**Governance Structure**

Strategic and tactical direction for the Center is the responsibility of the Director, as well as leadership and direction to onsite operational managers who are responsible for day to day operations. In carrying out his/her responsibilities, the Director works within the parameters set by the Society and Management Council. The Director reports formally at least once a year to the Society through the Annual General Meeting of the Society and at Management Council and its committee meetings. At other times of year the Director of BMSC may consult the President or the Treasurer directly for advice on a range of issues. Normally the Director establishes a schedule of phone meetings to keep President and Treasurer informed of day-to-day operational issues and progress on strategic initiatives. Requests for urgent decisions can be taken to the Executive Committee of Management Council.

As a registered Society, WCUMSS is required to hold an Annual General Meeting at least once a year. The AGM normally covers a restricted range of topics outlined in the by-laws.

Much of the business of the society is overseen by two standing committees: finance and academic/research. These committees make recommendations to Management Council, where most of the operational aspects of the Society are managed.

From time to time Management Council may strike an advisory committee to assist it with important strategic issues. Normally such committees will be given membership and terms of reference by Management Council.

A summary of the current committee structure and voting rights is provided in Table 1. It is assumed that terms of office for directors and officers commence at the AGM in June. Note that Management Council committee structure is not determined in the bylaws – Management Council can determine what structures and procedures best suit its needs.

**Table 1. Summary of positions and committee memberships**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Member-nominated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Like most organizations, there is a regular annual cycle of meetings, and directors and officers should be prepared to set aside time for these. It is the responsibility of the BMSC Director and staff to provide as much advanced notice of dates as possible.
Organization of Annual meetings

Due to the difficulty of bringing busy individuals together from across western Canada, most of the committee work is done over a two-day period (typically has been June, but recently been moved to September) when as many directors and officers as possible travel to Bamfield. At other times of the year committee meetings or Management Council meetings may be held via videoconferencing or e-mail if important or time-sensitive business has to be conducted. (Typically this is only necessary for the finance committee). The annual meeting also gives directors an opportunity to visit BMSC, and meet the staff, researchers and students.

The main business of the Society was conducted for many years through four processes at the annual meeting in Bamfield (but see the box below for recent practice).

1. The Academic/Research Committee receives reports on research and education, and makes recommendations to Management Council on any issues that require approval, including adjudication of Postdoctoral and student awards. The Academic Committee is also consulted on any strategic issues concerning the academic activities at BMSC.

2. The Finance Committee examines reports on revenue and expenses for the past year, reviews the budget for the next year, and recommends the budget to Management Council. The Finance Committee also recommends the annual membership assessment to Management Council. In addition, the Committee reviews the report of the auditor and the audited financial statements, and recommends approval to Management Council. The Committee is also consulted on any strategic issues concerning financial matters.

3. Management Council receives reports from the Academic/Research and Finance Committees, as well as from the Director and other BMSC staff, and also from any advisory committees. Management Council is responsible for discussing and approving any motions recommended by those committees. Management Council takes certain recommendations forward to WCUMSS AGM.

4. The last part of the annual meeting is the AGM of WCUMSS. This is normally a short meeting that approves recommendations from Management Council that have already been discussed thoroughly, such as the budget, financial statements, auditors report etc. The officers for the following year are also formally selected at the AGM.

Note that in 2018 we experimented successfully with a streamlined version of the first 3 processes. The business of the academic/research and finance committees were conducted as part of the Management Council meeting, with senior BMSC staff in attendance throughout as resource people. That enabled all members of Management Council to hear the business of the two committees, and reduced duplication. When formal committee votes were required, voting was restricted to members of the relevant committee. When Management Council votes were required, all directors voted.

Under the bylaws of WCUMSS, the Voting Members can:
- Vote at general meeting of WCUMSS
- Vote on annual assessments (i.e. member fees)
- Convene special general meetings
- Hold an AGM
• Approve budget, borrowing and land purchases
• Alter the bylaws and constitution
• Appoint an auditor
• Resign as a voting member
• Wind up the affairs of the Society

Under the bylaws of WCUMSS, Management Council can:
• Manage, administer and control the property, business and affairs of WCUMSS
• Appoint employees and determine their duties and compensation
• Manage funds
• Recommend a budget, borrowing, and land purchases to WCUMSS
• Appoint officers
• Keep records
• Adopt a seal (this does not mean a marine carnivore)

BMSC Management

Organizational Chart – Senior Management Team

At the June 2017 Management Council Meeting a significant change in the organization’s structure was approved. These changes reconfigured the Director position so that it could be located offsite, while maintaining a strong presence at the BMSC site. At the same time, through reconfiguration of existing positions, the positions of Managing Director and Operations Manager were created. Both of these positions are full time permanent, onsite positions. These positions have senior level responsibilities for the daily operation and administration of the BMSC. At the same time University and Field Trip Program Coordinators, who previously reported separately to the Director now report to the Head of Education. The result of these changes was to remove the number of direct reports to the Director. This allowed the Director to be able to focus on strategic development and initiatives for BMSC, while providing high level guidance to daily operations. It also enabled the recruitment of a Director who could maintain a significant research/and or teaching portfolio. The Director’s research and/or teaching work is done onsite at BMSC which we believe gives the Director a unique and informed perspective of BMSC’s operations. As we discuss in more detail in the Succession Planning section, this also assisted us in deepening the recruiting pool for the Director position.
The current Organization Chart as set out February 2022 reflects these changes.

The key responsibilities for each member of the Senior Management Team follow, and are derived from current job descriptions, that have been edited for brevity.

**Director**

The Director reports to the President of WCUMSS and is hired for a set term that is usually five years. The term is subject to renewal based on performance. The primary responsibilities of the Director are to:

- develop and achieve strategic and operational plans for the educational programs, research activities, physical facilities, safety, risk management, human resources, and financial and environmental sustainability.
- provide management and administration of BMSC through four direct reports the Managing Director; Head of Research, Head of Education; and the Business Manager
- provide leadership and support to onsite managers, working with them to establish clear goals and objectives for their operational units while holding them accountable for results.
- foster and maintain productive relationships with local partners, including the Bamfield community, local First Nations and the regional district.
- apply for funding from diverse sources to support research infrastructure, educational programs, and students.
- oversee the operation of the Animal Care unit ensuring its compliance with all federal regulations and governance requirements.
- promote BMSC as an educational and research institution, locally, nationally, and internationally.
• ensure Management Council, is fully and appropriately informed of the initiatives, activities and challenges of the Center, while serving as non-voting secretary for Management Council and its various committees.
• maintain a significant onsite research and/or teaching programme.

Managing Director

The Managing Director is a permanent, full-time position reporting to the Director. This position is the senior staff member permanently located on campus. The primary responsibilities of the Managing Director are to:

• provide direction and leadership to the Operations Manager for the day-to-day provision, operation and maintenance of the BMSC’s facilities, building systems and infrastructure, marine operations, housing, food services and administrative support in the areas of finance, audit, human resources, and health and safety.
• provide leadership and strategic direction for both minor and major capital initiatives.
• develop a rolling multiyear, capital improvement and infrastructure plan and budget.
• initiate, negotiate, implement and manage contracts in accordance with approved budgets.
• provides direction and leadership to ensure a healthy and safe workplace.
• provide direction and leadership to administrative support functions including finance, budget, risk management, payroll, administrative support, human resources, and housing.
• promote, facilitate and participate in initiatives to enhance community engagement and partnerships for the BMSC.
• play a senior role in contributing the development of the BMSC’s strategic plan.
• ensure operational activities are aligned with the Board’s long-term goals, strategic plans.
• act as a point of contact for key stakeholders.
• adapt role and operations to reflect ongoing development of new priorities and work patterns.
• act as a liaison to external agencies and partners on matters relating to the BMSC’s operation and day-to-day activities.
• develop, recommend and administer guidelines, policies and procedures at the institutional level for the day-to-day management of facilities, finance, budget, human resources, risk management and housing.
• hire, develop, engage, and motivate staff in the units that report to the position.
• work closely with the operations manager to address union grievances and is the senior administrator for union negotiations.
• work closely with the Director to ensure consistent management practices.
• Collaborates and coordinates activities and initiatives with other senior staff, who report to the Director.

*(Since April 2020, in recognition of the strengths of the current Managing Director, the incumbent is performing the Business Manager function in addition to Managing Director responsibilities).*

Head of Research Services
The Head of Research Services is a permanent, full time, onsite, position reporting to the Director. The primary responsibilities of the Head of Research Services are to:

- oversee research facilities and provide support for researchers and users to fully access services at the BMSC in support of their research programs.
- provide researchers and users logistical support for planning projects, setting up experiments, and orientation of research services
- encourage and support collaborative formation of new research teams or groups around identified funding opportunities.
- assist in design and implementation strategies to increase participation and success rates for identified opportunities.
- provide expert advice to faculty members and non-academic partners to aid in submission of research funding applications.
- hire, develop, engage, and motivate Research Unit staff
- supervise term research assistants and interns (e.g., Eco-Canada and Canada Summer Jobs)
- in consultation with the Director and senior leadership team, advocate for BMSC with funding bodies, sponsors, governments, organizations, the Bamfield Community and other universities to enhance the research enterprise at BMSC.
- inform users of new data/tools/specimen collections as they become available
- assist and liaise closely with the animal care department.
- assist the BMSC in the maintenance of operational scientific permit compliance.
- assist in the maintenance of research spaces, including overseeing the maintenance and repair of research equipment.
- provide support towards creating a positive research experience for all at the BMSC.
- work with the Head of Education in the enhancement of our field-based education programs with a research experience.

Head of Education

The Head of Education is a permanent, onsite, full-time position, that reports to the Director. The primary responsibilities of the Head of Education are to:

- manage the design and delivery of all educational programming at BMSC
- provide direct oversight and management of Education programs including University Programs, the Field Trips Program, and the Library.
- oversee contact between BMSC and relevant faculties/departments at the member universities; maintains and develop and expand these contacts.
- contribute to the development of BMSC’s strategic plan.
- participate in committees to provide strategic and operational advice and identify opportunities for linkages between Education, Research, Finance and Operations.
- develop, recommend and administer guidelines, policies and procedures for all Education Unit programs.
- hire, develop, engages, and motivates Education Unit staff with support of the programme coordinators.
- develop and manages relevant Education Unit budgets.
• oversee renewal of relevant permits and applications.
• seek out and assists in the application for funding/grants that will benefit our programs (e.g., equipment and teaching grants, NSERC Promoscience).
• work closely with the Managing Director and Leadership Team to ensure consistent management practices.
• collaborate and coordinate programs and initiatives with the other senior managers.
• work with the Head of Research in the enhancement of our field-based education programs with a research experience.

Operations Manager

The Operations Manager is a permanent, full time, onsite, position that reports to the Managing Director. The primary responsibilities of the Operations Manager are to:

• oversee and manage the work of Facilities and Maintenance; Housekeeping; Food Services; Foreshore Operations; Diving and Safety.
• be responsible for the day-to-day maintenance of the BMSC’s operational units, building systems and facility infrastructure.
• be responsible for assessing and identifying capital requirements.
• supervise and monitor the work of own staff and outside contractors in maintenance and capital improvement projects.
• develop an annual budget and staff plan for each unit reporting to his/her position.
• monitor the annual budget for reporting units and capital projects and address any variances.
• work closely with the BMSC Diving and Safety Officer to create a safe work environment by ensuring compliance with safety legislation and having procedures in place to ensure staff, faculty and students are receiving appropriate safety information and training.
• hire, develop, engage, and motivates staff in the units that report to the position.
• ensure compliance with the collective agreement for union members. Follows appropriate disciplinary steps when necessary.
• contributes to the development of BMSC’s strategic plan.
• develop collaborative work relationships with other members of the management group and coordinates the work of her or his units in a manner that supports the work of other areas (Education, Research, Finance and Administration).
• develop, recommend and administer guidelines, policies & procedures for the day-to-day management of operational functions.
• ensure that work within the Operations manager scope of responsibility is coordinated and supportive of the work of other units (Education, Research, Finance and Administration).
• represent the Managing Director with external agencies and community groups.
• develops effective working relationships with outside agencies and contractors.

Business Manager

The Business Manager is a full time permanent, onsite, position that reports to the Director. The primary responsibilities of the Business Manager are to:
• maintain the accounting systems and prepare budgets and financial statements for departments and organization in accordance with Generally Accepted Accounting Principles.
• monitor operating results and analyze budget variances to provide financial and business advice.
• analyze existing and proposed programs by providing cost estimates and revenues
• develop and maintain cost findings, reporting and internal control procedures.
• examine financial accounts and records and prepare commodity tax returns from accounting records.
• prepare compliance reporting such as registered charity returns.
• administer purchasing, accounts receivables, accounts payables, employee benefit programs, and payroll functions.
• prepare reconciliations and reporting for annual external audit.
• liaise with the University of Victoria accounting, purchasing, human resources, bookstore, science stores and facilities management departments.
• hires, develops, motivates and engages administrative office staff.

Succession Planning

Management Council
Succession planning on Management Council is managed largely by the member universities. Member universities usually appoint Deans of Science or other individuals with significant management experience to Management Council. Continuity is usually assured by the length of time that deans and other academic administrators typically remain in office. There is regular turnover in decanal appointments, and this leads to regular renewal of individuals on Management Council.

Director
Succession planning for the Director is undertaken primarily by the President, with the support of Management Council. Because of the need for cooperation between WCUMSS and the Director’s home university, candidates must be nominated for this position by the Dean of their Faculty. The researchers who use BMSC for long-term research projects provide a pool of candidates. Since removing the requirement that the Director reside full-time at BMSC, Management Council has undertaken one search for a new director, that resulted in the appointment of Dr. Rogers. Multiple qualified candidates applied for the position, and it seems likely that the new job structure for the Director now makes this a more attractive position for a wider range of candidates who would have not been able to relocate their families to Bamfield on a long-term basis.

Senior Staff
Succession planning for senior staff is probably the greatest challenge. Bamfield is a very small community, and for many positions there is not a pool of qualified candidates in the immediate area. While relocating to Bamfield is an attractor for a sub-set of qualified people, the remote location and lack of services (especially health and education) and housing reduce the number of potential applicants for senior positions, particularly those with families. The remote location also seems to be a deterrent for recruiting people who would provide more diversity amongst staff.

Despite these challenges, BMSC has successfully managed succession planning by encouraging existing staff to take relevant training that would prepare them for promotion. This has worked very well and
several key positions have now been filled by people promoted from within. We have also made onsite housing available for senior managers and this has been a great asset in our recruiting endeavours.

Research and Education Staff
For certain positions in research and education BMSC can attract applicants from former students who have already experienced the lifestyle of living in a small remote community, and who appreciate the opportunity to develop new skills. Several of our staff in these areas first came to BMSC as students.

Maintenance, Housekeeping, and Food Services Staff
It is possible to recruit some staff from the local community, but the pool is small. Housing has been a major impediment in attracting staff, many of whom work only part of the year at BMSC. We have responded to this by providing onsite housing options for staff.

Financial Management

The day-to-day financial management (operating and capital) is handled by the Business Manager. The financial activities associated with the operating budget (e.g. payroll; benefits; invoicing; payments for goods and services) are handled by UVic on behalf of BMSC, and grants to BMSC are normally managed through Research Services at a member institution. The Business Manager works closely with counterparts at the relevant institutions.

BMSC also manages mortgages and loans and conducts independent negotiations with banks to establish credit arrangements. BMSC manages its own insurance and legal advice.

Union negotiations and negotiations with non-unionized employees are managed by the Director, with advice from HR consultants who have a strong background in university HR.

All financial activity is overseen by the Treasurer, who often works with the Business Manager, and the Finance Committee. In addition to oversight and advice from member universities when relevant, BMSC finances undergo annual independent audits (currently Grant Thornton Ltd.)

Risk Assessment and Management

Internally, the BMSC has two committees addressing Risk Management. The Joint Health and Safety Committee (JHSC) meets monthly according to the Occupational Health and Safety provisions of the workers compensation act of British Columbia and is co-chaired by the Operations Manager and the Dive Safety Officer and includes worker representation from union and professional staff.

The BMSC also has a Risk Management Taskforce with the strategic priority of evaluating risks, gaps in policies and recommending mitigation measures to the Director. Externally, the Managing Director meets with the Directors of Risk Management at the member universities annually to discuss these strategic priorities. The BMSC also contracts Marsh Risk Consulting to conduct a regular property risk evaluation (most recently 2019)
The BMSC undergoes a regular environmental compliance audit by the UBC’s Risk Management Services as mandated by UBC’s Environmental Protection Compliance.

**Equity, Diversity and Inclusion**

The BMSC is committed to achieving equitable, diverse, inclusive and accessible employment practices and workplaces. The BMSC is committed to measuring where we are now, how we are doing compared to the diverse make-up of our wider community, and to continually evaluate progress. We are committed to an equitable, diverse, and inclusive campus that is accessible to all and free from harassment, bullying, and discrimination. The BMSC recognizes that diverse staff and clients benefit and enrich our workplace and the broader community. We strive to remove barriers that have been, and continue to be, encountered by equity seeking groups, including women, Indigenous peoples, visible/racialized minorities, persons with disabilities, and LGBTQ2S+. We strive to recruit individuals who will further enhance our diversity and will support their professional success while they are here.

Given that our campus is situated on the traditional territory of Huu-ay-aht First Nations (a Nuu-chah-nulth Nation and member of the Maa-nulth Treaty Society), we are committed to bringing equity to and decolonizing our scientific research and educational programs.

BMSC recognizes that as a research facility in a remote location it has limited opportunities to diversify its large numbers of users – whether middle school students or senior researchers. On the other hand, BMSC can implement policies and practices to ensure that the facility is welcoming to all who choose to attend, such that its reputation as a safe and friendly place for all is enhanced. BMSC has more control over hiring and retaining its own employees and, even though the local and regional population does not reflect the diversity of Canada as a whole, BMSC can make an effort to attract and retain a wider range of candidates.

Prioritized EDI activities over the next six years will include:

- Ensuring that all BMSC staff receive training that ensures a safe and welcoming environment for all users
- Publish BMSC policies about on-campus behaviour on the website, make them clear to all users of BMSC, and provide ways for users or staff to report violations of policies so that appropriate action can be taken
- Working with relevant offices at member institutions, ensure that no student or researcher who wishes to come to BMSC is denied the opportunity
- Set clear priorities to upgrade physical facilities and equipment, to ensure that users with physical and mental challenges can participate in BMSC-sponsored activities; publicize this during recruitment activities
- Designate a senior staff member at BMSC with responsibility for monitoring progress on EDI initiatives
- In all of the above actions, pay special attention to ensuring equity and access for members of underrepresented groups in the local and regional community
- Set key performance indicators to monitor progress
Decommissioning Plan

The affairs of the Society may be dissolved by special resolution of the Voting Members (By-Law 14). Upon dissolution of the Society after satisfaction of all debts and liabilities, any property or funds of the Society whatsoever remaining shall be distributed among the Voting Members in such manner and in such amounts as the Voting Members may by special resolution agree.
Appendix 2. WCUMSS Constitution and By-Laws

CONSTITUTION

1. The name of the Society is “Western Canadian Universities Marine Sciences Society”.

2. The objects of the Society are:

(a) to foster instruction and research in Marine Biology and such other related fields as may from time to time be approved by the members.

(b) to hold and operate properties and facilities of the Society.

(c) to operate as a non-profit educational organization.

BY-LAWS

1. INTERPRETATION

(a) In these By-Laws, unless the context otherwise requires:

(i) “Accounting Records” means the records described in paragraph 20(2)(c) of the Societies Act;

(ii) “Associate Member” means a member of the Society described in paragraph 2(a)(ii) of these By-Laws;

(iii) “Board Records” means the records described in paragraph 20(2)(a) and (b) of the Societies Act, but does not include the records described in paragraph 24(2)(a) of the Societies Act;

(iv) “Council” and “Management Council” means the council described in subsection 4(a) of these By-Laws;

(v) “Councillor” means a member of the Council, and any reference in these By-Laws to a Councillor is a reference to a “director” as that term is defined in the Act;
(vi) “Society” means the Western Canadian Universities Marine Sciences Society;

(vii) “Societies Act” and “Act” means the Societies Act (British Columbia) or any successor legislation from time to time in force, and any regulations made under the Act, as amended from time to time;

(viii) “Special resolution” means a resolution passed at a general meeting by at least ¾ of the votes cast by the Voting Members, whether cast in person or by any other means permitted in these By-Laws, or a resolution consented to in writing by all of the Voting Members; and

(ix) “Voting Member” means a member of the Society described in paragraph 2(a)(i) of these By-Laws.

(b) Any reference in these By-Laws to an annual general meeting of members will refer equally to resolutions executed by all of the Voting Members in lieu of holding an annual general meeting.

(c) Any reference in these By-Laws to an officer is a reference to a “senior manager” as that term is defined in the Act.

(d) Unless modified herein, the definitions in the Act apply to these By-Laws.

(e) Words importing the singular include the plural and vice versa, and words importing a female person include a male person and a corporation and vice versa.

2. MEMBERSHIP

(a) The Society shall have two classes of members:

(i) Voting Members, who will have the right to vote at meetings of the Society; and

(ii) Associate Members, who will not have the right to vote at meetings of the Society;
(b) The Voting Members shall be those universities who were the original subscribers to the Constitution and By-Laws of the Society and shall include such other universities, colleges or charitable organizations (hereinafter referred to as “Voting Members”, “Voting Member” and “Voting Membership” as the context requires) who are by the unanimous vote of the Voting Members granted Voting Membership from time to time and, in any case, have not ceased to be Voting Members, provided however that only “qualified donees”, as that term is defined in the Income Tax Act (Canada), may be Voting Members of the Society.

(c) The Associate Members shall be such persons as have applied to and been accepted by the Council as Associate Members and have not ceased to be Associate Members.

(d) Annual assessments shall be levied for each member. The amount of such assessments and the mode and time of payment may be different for Voting Members and Associate Members, and the terms of the assessments shall be unanimously recommended by the Management Council and approved unanimously by the Voting Members.

(e) Members may resign by submitting resignations in writing to the Secretary of the Society and such resignations shall be deemed to take effect 6 months after their submission. No resigning member shall be entitled to compensation for funds and property which the member has contributed to the Society at any time prior to its resignation and such funds and property shall remain the funds and property of the Society.

(f) Every member is in good standing except a member who has failed to pay its annual membership fee, if any, or any other subscription or debt due and owing to the Society, and the member is not in good standing so long as the debt remains unpaid.

(g) A person will cease to be a Voting Member of the Society and will become an Associate member, on ceasing to be qualified to be a Voting Member under subsection 2(b) of these By-Laws;

(h) A person will cease to be a member of the Society:

(i) On delivering a resignation in accordance with subsection 2(e) of these By-Laws;
(ii) On death or dissolution, as applicable;

(iii) On being expelled; or

(iv) On having been a member not in good standing for 12 months;

3. MEETINGS

(a) The Annual General Meeting shall be held not later than the 30th day of June in each year.

(b) Each Voting Member in good standing shall have one vote at a general meeting and shall be represented by a person nominated in writing by the Voting Member who shall vote on behalf of the Voting Member.

(c) Members may attend general meetings in person or remotely by telephone, videoconference or any other live communications medium, and Voting Members attending remotely may vote remotely.

(d) Special general meetings of the Society may be convened at the discretion of the Management Council. In addition, any one or more Voting Members may at any time by notice in writing specifying the purpose of the meeting require the Management Council to convene a special general meeting and the Council shall thereupon call a special general meeting of the Society.

(e) At least fourteen days notice of all general meetings of the Society shall be given to all members by the Management Council, which notice must include the text of any special resolution to be submitted to the meeting.

(f) At any general meeting four Voting members represented as aforesaid, whether in person or remotely, shall constitute a quorum for the transaction of business except as otherwise provided herein.

(g) Any abstaining vote shall be regarded as a vote against the question.
4. MANAGEMENT COUNCIL

(a) The management, administration and control of the property, business and affairs of the Society are vested in the Management Council (hereinafter sometimes referred to as “The Council”).

(b) The Management Council shall consist of:

(i) Two nominees from each Voting Member, one of whom may be the representative appointed pursuant to Article 3, paragraph (b) aforesaid; and

(ii) From time to time at the discretion and unanimous vote of the Council, two further Councillors;

(c) No person receiving remuneration from the Society may be a Councillor.

(d) A Councillor shall hold office for two years and until their successor is appointed or elected. Notwithstanding the aforesaid, of the first Councillors who are nominees from each Voting Member, one nominee of each Voting Member shall hold office for one year. Councillors are eligible for re-appointment or re-election.

(e) In case of a vacancy in the Council in respect of an appointed Councillor, the Voting Member concerned may appoint another person to fill the vacancy; and where a vacancy exists in respect of an elected Councillor, the Council may elect another person to fill the vacancy. The person so appointed or elected shall hold office only for the remainder of the term for which the predecessor was appointed or elected.

(f) The Management Council shall meet as often as is necessary to transact the business of the Council and in any event not less than annually.

(g) Seven appointed Councillors constitute a quorum for the transaction of business.

(h) Councillors may attend and vote at meetings of the Management Council in person or remotely by telephone, videoconference or any other live communications medium, and a Councillor may send a proxy to attend and vote on behalf of the Councillor at a meeting
of the Management Council in person or remotely by telephone, videoconference or any other live communications medium.

(i) Without limiting the general powers conferred upon or vested in the Management Council by Article 4, paragraph (a) herein, the Council has power:

(i) To appoint from time to time to the extent positions are specifically provided for within the approved budget, and subject to the policies of the Society, such officers, academic staff, and employees as the Council may deem necessary for the purposes of the Society and fix their salaries or remunerations and to define their duties and their term of office or employment, which unless otherwise provided shall be during the pleasure of the Council.

(ii) At least annually to recommend for the approval of the Society, budgets which reflect all anticipated revenues, expenditures, receipts, and disbursement, and which include detailed schedules of positions and salaries for officers, academic staff, and other employees;

(iii) Subject to policies established from time to time by the Society, to receive and to administer all funds, debts, fees, endowments, and other assets of the Society;

(iv) Within the policies of the Society to do and perform all other matters and things which may be necessary for the well ordering and advancement of the Society.

5. OFFICERS

(a) There shall be a President, a Vice-President, a Secretary and a Treasurer or in lieu of a Secretary and a Treasurer, a Secretary-Treasurer, and such other officers as the Management Council may determine from time to time. The President, Vice-President and Treasurer shall be elected by the Management Council from among their number at the first meeting of the Council after the annual appointment of such Management Council and shall hold office until their successors are elected. The other officers of the Society, including but not limited to the Secretary, need not be members of the Management Council and the employment of such officers shall be settled from time to
time by the Council. Officers who are Councillors may not receive remuneration from the Society.

(b) The President shall preside at all meetings of the members of the society and of the Management Council. At meetings of the Management Council the President shall have the same right of voting as the other members of the Council and in case of an equality of votes for and against the motion, the question is resolved in the negative.

(c) The Vice-President shall assume the duties of the President in the absence of the latter.

(d) The duties of all other officers shall be such as the terms of their position call for or the Management Council requires of them.

6. **BORROWING POWERS AND EXPENDITURES**

(a) The Management Council shall not incur any liability beyond the amount received from the annual assessments of the members except by the unanimous approval in writing of the Voting Members.

(b) The Management Council may by resolution authorize the borrowing from any person, bank or corporation of any sum of money that may be required to meet the expenditures of the Society until the revenue from the approved budget is available, but subject to the prior and unanimous written approval of the Voting Members.

(c) The Management Council shall not incur any liability or make any expenditure for the purchase of land except by the prior and unanimous written approval of the Voting Members.

7. **AUDIT OF ACCOUNTS**

The accounts of the Society shall be audited once a year by the auditor or auditors who shall be appointed by the Voting Members from time to time to hold office for such period as the Council may determine. Each member shall receive a copy of the auditor’s report as soon as is practicable after its delivery to the Society.

8. **CUSTODY AND USE OF THE SEAL OF THE SOCIETY**

(a) The Management Council may adopt a seal which shall be the common seal of the Society.
(b) The seal shall not be affixed to any instrument except by authority of a resolution of the Management Council and then only by and in the presence of such officers or Councillors as may by the Management Council be authorized to affix the seal of the Society from time to time.

9. ALTERATION OF BY-LAWS

The By-Laws of the Society shall not be altered or added to except by a special resolution of the Society at a general or special meeting of the members. Notwithstanding the aforesaid, those By-Laws calling for a unanimous vote of the Voting Members shall not be altered except by the unanimous vote of the Voting Members.

10. RESOLUTIONS

A resolution in writing signed by all of the Voting Members or Councillors shall be as valid and effectual as if it has been passed at a meeting of the Voting Members or Councillors, as the case may be, duly called and constituted.

11. RECORDS

(a) The Management Council shall see that all necessary records of the Society required by the By-Laws of the Society or by any applicable statute or law are regularly and properly kept.

(b) The Secretary or some other officer specially charged by the Management Council with that duty shall maintain and have charge of the Minute Books of the Society and shall record or cause to be recorded therein Minutes of proceedings of all meetings of members and Councillors.

12. INSPECTION OF RECORDS

(a) The records of the Society shall, at all reasonable times at the offices of the Society, be open to the inspection of Voting Members.

(b) Members who are neither Councillors nor Voting Members will not have access to Accounting Records or Board Records of the Society.

(c) No person who is not a member of the Society will have access to any records of the Society except as required by the Act.
13. **OPERATIONS**

The operations of the Society are to be chiefly carried out on the west coast of Vancouver Island, in the Province of British Columbia. This By-Law 13 may only be altered by unanimous vote of the Voting Members.

14. **WINDING UP**

(a) The affairs of the Society may be dissolved by special resolution of the Voting Members. Upon dissolution of the Society after satisfaction of all debts and liabilities, any property or funds of the Society whatsoever remaining shall be distributed among the Voting Members in such manner and in such amounts as the Voting Members may by special resolution agree.

(b) In the event that no agreement of Voting Members by special resolution is obtained then such remaining property or funds of the Society shall be distributed among the Voting Members in such manner and in such amounts as shall be determined by an arbitrator appointed under the “Arbitration Act” of British Columbia whose decision shall be final and binding on all members.
The BMSC is committed to enabling data management practices that support users to securely collect, curate and access scientific data collected at the BMSC. The BMSC is principled in scientific integrity, transparency, and reproducibility and thus works towards inclusive open data policies guided by our member institutions. The BMSC is currently not a central repository for data collected by its users, and researchers are expected to adhere to their own institutional data requirements, and access their own institution’s and international repositories they use. Researchers are also responsible for ensuring access to the data they collect at the BMSC, as required by specific funding agencies.

In 2019, a systems taskforce was initiated at the BMSC that made recommendations to the Director for improvements to cyber security and data management, with the first priority identified as appropriate infrastructure and systems to accommodate secure data management. In April 2021, the BMSC servers were migrated to an updated server system and backup. The organization has also initiated migration from intraweb groupware to Microsoft Office. The facility is currently working with a new Provincial funded initiative, ConnectedCoast.ca, that will bring underwater fibreoptic cable to a node established at the BSMC by 2023, dramatically improving internet reliability for the organization.

The facility has a management structure and practices appropriate to its size and complexity to address the following areas:

**Cybersecurity:**
- BMSC has systems in place to reduce data exposure risks and has contracted Solace to conduct a security audit of the systems at the BMSC.
- The BMSC carries an active Cyber Security Insurance policy for $1M with CFC.

**Policies:**
- BMSC Staff are informed of FIPPA requirements.
- Staff are discouraged from accessing BMSC resources using personal devices. (Plans to block access from personal devices except for email access via secure portal)
- Staff are encouraged to report any and all anomalies in communications received on electronic devices.
- Staff are discouraged from directly responding to unusual messages that may appear to be from valid source. If in doubt, respond via alternate channel, i.e., make voice call or send new email using known address from contact list to confirm origin.
Procedures/technical:

- Files containing private information are not normally accessible from public side of Internet connection. Users must be on-site or use secure VPN. (VPN is currently restricted to key personnel - not available to all.)
- A new email server was implemented in 2021, with real-time updates to anti-SPAM and anti-virus services from vendor, as well as vendor supplied audits and notifications of potential risks
- Pending: Implementation of complex passwords and timed password expiry.
- Pending: Disk encryption for laptops and portable devices. Backup keys for this recorded and kept in safe on-site.

Data management:

Current Best Practices include:

- Critical files and data are stored on LAN servers, with only partial access to non-confidential information from Public Internet.
- The central backup server is located in separate building. All servers and essential desktops or laptops are on a backup and archive schedule.

Current Commitments to Open Data Sharing include:

- The BMSC currently collects limited oceanographic data (temperature, tides, etc.) that is publicly available on the website: https://bamfieldmsc.com/resources/researchers. The BMSC has signed an MOU with Ocean Networks Canada to collaborate on data sharing and access, including ONC technical workshops to train staff and users in ONC’s Ocean 2.0 Data Access.
- Research data collected by BMSC activities (DNA barcoding, species observations) is curated on the BMSC Biodiversity Database (https://bamfieldmsc.com/resource/biodiversity) and uploaded to international repositories for open access by the public.
- Student Reports are available in the Devonian Library

Current Strategic Priorities:

- The BMSC is working with UofC’s research services data management specialist (Jennifer Abel) to evaluate gaps and prioritize data management for the BMSC research team, including:
  - Implementing data management practices from the Portage Data Management Plan Template into the BMSC research user agreement
  - Evaluating BMSC’s data management procedures, including data collection, documentation and metadata, storage and backup, preservation/access, sharing and data reuse, responsibilities and resources, and ethics/legal compliance.
  - Informing and educating users about existing data management tools and best practices, including those at BMSC member universities:
DMP Assistant (hosted by the University of Alberta): 
https://assistant.portagenetwork.ca/?locale=en

File Formats: https://researchdata.library.ubc.ca/plan/format-your-data/

Conventions and Procedures: 
http://researchdata.library.ubc.ca/plan/organize-your-data/

Documentation and Metadata – data are rarely self-explanatory:
https://dcc.ac.uk/guidance/standards/metadata

Storage and the 3-2-1 Backup Rule: http://dataabinitio.com/?p=501

Preservation and Anonymization: e.g.,
https://researchdata.library.ubc.ca/deposit/anonymize-and-de-identify/

End User License Requirements: e.g., 
https://creativecommons.org/choose/

Data Sharing Plan: e.g., https://www.dcc.ac.uk/guidance/how-guides/cite-datasets

Ethics/Legal Requirements: Researchers and their teams need to be aware of the policies and processes, both ethical and legal, to which their research data management must comply. Protection of respondent privacy is of paramount importance and informs many data management practices. In their data management plan, researchers must state how they will prepare, store, share, and archive the data in a way that ensures participant information is protected, throughout the research lifecycle, from disclosure, harmful use, or inappropriate linkages with other personal data. It's recognized that there may be cases where certain data and metadata cannot be made public for various policy or legal reasons, however, the default position should be that all research data and metadata are public [Reused from: DCC. (2013). Checklist for a Data Management Plan. v.4.0. Edinburgh: Digital Curation Centre]
MEMORANDUM

ATTENTION: Senate
FROM: Jeff Derksen, Dean of Graduate and Post-Doctoral Studies and Associate-Provost, and Acting Chair, SCUP on behalf of Wade Parkhouse, Provost and Vice-President Academic
RE: SCUP 22-26 Centres and Institutes Renewal Applications

At its meeting on November 16, 2022, SCUP did the following:

A. Reviewed and approved the renewal of the following Research Centres and Institutes for a five-year term:

1. Centre d’études francophones Québec-Pacifique
2. David Lam Centre for International Communication
3. Institute of Governance Studies
4. Centre for Corporate Governance and Sustainability
5. Centre for Research on Early Child Health and Education
6. Centre for Natural Hazards Research
7. Centre for Wildlife Ecology
8. International Cybercrime Research Centre (ICRC)
9. Science and Technology for Aging Research Institute (STAR)
10. The Institute on Violence, Terrorism, and Security

B. Reviewed and approved the renewal of the following Research Centres for a two-year term:

1. Centre for Collaborative Action on Indigenous Health Governance
2. Centre for Operations Research and Decision Sciences

C. Reviewed and approved the renewal of the following Research Centre for a three-year term:

1. Centre for Studies in Print and Media Cultures
D. Reviewed and approved the termination of the David Wheeler Institute for Research in Mathematics Education.

E. Reviewed and approved the dissolution of the Centre for Global Political Economy.

F. Reviewed and approved the dissolution of the Behavioural and Cognitive Neuroscience Institute.

G. Reviewed and approved the extension of the renewal date of the following Research Institute until February 28, 2023:

   1. Institute for Black and African Diaspora Research and Engagement (formally known as the Institute for Diaspora Research and Engagement)

C: M. Richards
Memorandum

From: Michael Richards, Associate Vice-President, Research  
Date: Nov 02, 2022

Re: Centres and Institutes – Renewal Applications 2021/2022

To: Wade Parkhouse, Chair, Ex-Officio, Senate Committee on University Planning (SCUP)

As per Policy R40.01, Research Centres and Institutes will be renewed upon application via the Dean and the Vice President, Research and International, to SCUP, based on accomplishments, impact and alignment with priorities. Enclosed please find documents submitted by the following Centres and Institutes:

Centres:
1. Centre d’études francophones Québec-Pacifique
2. David Lam Centre for International Communication
3. Institute of Governance Studies
4. Centre for Corporate Governance and Sustainability
5. Centre for Research on Early Child Health and Education (CRECHE)
6. Centre for Collaborative Action on Indigenous Health Governance
7. Centre for Natural Hazards Research
8. Centre for Wildlife Ecology

Institutes
1. Centre for Operations Research and Decision Sciences
2. Centre for Studies in Print and Media Cultures
3. International Cybercrime Research Centre (ICRC)
4. Science and Technology for Aging Research Institute (STAR)
5. The Institute on Violence, Terrorism, and Security

Motion 1: That SCUP approve the renewal of the seven Centres numbered #1-5, 7-8 above, and the three Institutes numbered #3-5 above, each for a five-year term.

Motion 2: That SCUP approve the renewal of Centre for Collaborative Action on Indigenous Health Governance for a 2-year term.

Motion 3: That SCUP approve the renewal of Centre for Operations Research and Decision Sciences for a 2-year term.
Motion 4: That SCUP approve the renewal of Centre for Studies in Print and Media Cultures for a 3-year term.

The following Centre has requested discontinuation. Termination is recommended.

David Wheeler Institute for Research in Mathematics Education

Motion 5: That SCUP approve the termination of the David Wheeler Institute for Research in Mathematics Education.

The following Centre did not request for renewal. As per Policy R40.01, dissolution is recommended.

Centre for Global Political Economy

Motion 6: That SCUP approve the dissolution of Centre for Global Political Economy.

The following Institute has requested discontinuation. Dissolution is recommended.

Behavioural and Cognitive Neuroscience Institute (BCNI)

Motion 7: That SCUP approve the dissolution of the Behavioural and Cognitive Neuroscience Institute (BCNI).

The following Institute has requested extension. Extension is recommended.

Institute for Black and African Diaspora Research and Engagement

Motion 8: That SCUP approve the extension of the Institute for Black and African Diaspora Research and Engagement until February 2023.

Attachments: Submissions status summary
Renewal Applications
Memo to terminate the David Wheeler Institute for Research in Mathematics Education
Memo to dissolve the Centre for Global Political Economy
Memo to dissolve the Behavioural and Cognitive Neuroscience Institute (BCNI)
Memo to extend the renewal of the Institute for Black and African Diaspora Research and Engagement
Faculty of Arts and Social Sciences:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre d’études francophones Québec-Pacifique</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Christian Guilbault (Director)</td>
</tr>
<tr>
<td>Centre for Global Political Economy</td>
<td>Not Submitted</td>
<td>-</td>
<td>Geoff Mann (Director)</td>
</tr>
<tr>
<td>David Lam Centre for International Communication</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Michael Hathaway (Co-director) Shuyu Kong (Co-Director)</td>
</tr>
<tr>
<td>Institute of Governance Studies</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Patrick Smith (Director) Aude-Claire Fourot (Acting Director)</td>
</tr>
</tbody>
</table>

Beedie School of Business:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Corporate Governance and Sustainability</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Stephanie Bertels (Director)</td>
</tr>
</tbody>
</table>

Faculty of Education:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Research on Early Child Health and Education (CRECHE)</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Maureen Hoskyn (Director)</td>
</tr>
</tbody>
</table>

Faculty of Health Sciences:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Collaborative Action</td>
<td>Reviewed (Approved)</td>
<td>2</td>
<td>Jeff Reading (Director)</td>
</tr>
</tbody>
</table>
### Faculty of Science:

<table>
<thead>
<tr>
<th>CENTRE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centre for Natural Hazards Research</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Brent Ward (co-Director) Glyn Williams-Jones (co-Director)</td>
</tr>
<tr>
<td>Centre for Wildlife Ecology</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Ronald Ydenberg (Director)</td>
</tr>
</tbody>
</table>

### Institutes:

<table>
<thead>
<tr>
<th>INSTITUTE</th>
<th>STATUS</th>
<th>RENEWAL YEARS</th>
<th>DIRECTOR(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioural and Cognitive Neuroscience Institute</td>
<td>Reviewed (Declined)</td>
<td>-</td>
<td>Urs Ribary (Director)</td>
</tr>
<tr>
<td>Centre for Operations Research and Decision Sciences</td>
<td>Reviewed (Approved)</td>
<td>2</td>
<td>Alexander (Sandy) Rutherford (Acting Director) Tamon Stephen (Director)</td>
</tr>
<tr>
<td>Centre for Studies in Print and Media Cultures</td>
<td>Reviewed (Approved)</td>
<td>3</td>
<td>Rebecca Dowson (Director)</td>
</tr>
<tr>
<td>Institute for Black and African Diaspora Research and Engagement</td>
<td>Not Submitted</td>
<td>-</td>
<td>June Francis (Director)</td>
</tr>
<tr>
<td>International Cybercrime Research Centre (ICRC)</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Richard Frank (Director)</td>
</tr>
<tr>
<td>Science and Technology for Aging Research Institute (STAR)</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Andrew Sixsmith (Director)</td>
</tr>
<tr>
<td>The Institute on Violence, Terrorism,</td>
<td>Reviewed (Approved)</td>
<td>5</td>
<td>Raymond Corrado (Director)</td>
</tr>
<tr>
<td>and Security</td>
<td></td>
<td>Garth Davies (Associate Director)</td>
<td></td>
</tr>
</tbody>
</table>
Report Type: Renewal Application
Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre d’études francophones Québec-Pacifique
Website: https://www.sfu.ca/french/fr/research/centre-d-etudes-francophones-quebec-pacifique.html
Faculty: Arts and Social Sciences
Director: Christian Guilbault
Director's term end: 2021-04-01
Renewal date: 2027-11-01

Details

Description of the Centre/Institute:

The Centre/Institute's membership and organization structure:

Rationale for the renewal of the Centre/Institute:

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?

How has the Centre/Institute accomplished its goals?

Changes planned upon renewal (e.g. membership, organization structure, etc.):
The Centre has largely been idle for the last few years without a Director (despite having the Chair acting as the de facto Director of the Centre). The main reason is that its very mandate was defined according to a single faculty member's research areas who has left a few years ago. The membership and, more importantly, the entire organization structure was also very closely tied to his research area and regular research network.

Because the Department of French offers a comprehensive, yet quite diversified curriculum,
all faculty members have very different areas of specialization and none of them closely matching the previous Director's area. The Centre has not been able to properly function due to this divergence between its research mandate and the areas of specialization of any of the current faculty member.

The Department of French has undergone and external review in the spring of 2022. The Action Plan currently being drafted by all faculty members in the department will include items pertaining to the revitalization of the Centre. The first one of these items will be to redefine its mandate to better match the researchers’ current research and include elements of Equity, Diversity and Inclusion. It is the intention to embark on this exercise as soon as the fall of 2023 in order to get the Centre up and running as soon as possible. Faculty members in the department agree that it is important to keep this Centre and make it a hub for research about the Francophone populations on the Pacific Coast.

My recommendation is to apply for a 2 year renewal so that the new Mandate can be defined which, in turn, will give a new direction and structure to properly function.

Significant accomplishments:

Notable media successes:

Events, workshops, public outreach events:

The Centre/Institute's multi-year goals for the next renewal term:

Supporting documents:

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Confirm policy review: Yes

Submitted by: Christian Guilbault, Director

Director's comments: Dear

Reviewer's Section

Reviewed by: Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision: Approved for 5 years

Reviewer's comments: This application for a two-year renewal opens the door for a much-needed revisioning of the Centre. Quite rightly, the current Director sets no precise goals for this two year period, apart from the most critical one – to develop an Action Plan for the department that will include the revitalization of the Centre. The intent of this process is to develop a Centre that more closely aligns with the French department’s research interests, that works towards greater equity, diversity and inclusion and that will become a hub for research on Francophone populations of the Pacific Coast.
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: David Lam Centre for International Communication
Website: http://sfu.ca/davidlamcentre.html
Faculty: Arts and Social Sciences
Director: Shuyu Kong (Co-Director)
Michael Hathaway (Co-director)
Director’s term end: 2021-08-31
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
David See-chai Lam Centre for International Communication (DLC) is an interdisciplinary centre under the Faculty of Arts and Social Sciences. It began operation in 1989, and integrates university, government, professional and business resources for research, education, training and development and community outreach activities. The mandate is to promote research and organize related activities with a focus on the interface between Canada and the Asia-Pacific region. These activities extend across a broad spectrum of social, cultural and economic issues from both contemporary and historical perspectives. The Centre supports and facilitates research collaboration, networking and building the community of Asia-related scholars across campus and internationally. The Centre furthers the involvement of students in educating and researching the Asia-Pacific region. Lastly the Centre mobilizes and transfers knowledge from the academic research community to the Canadian public.

The Centre/Institute’s membership and organization structure:
Personnel of the Centre includes the two co-directors, one full-time administrative support staff and one part-time communicator. The Centre is governed by a Steering Committee comprised of 6-10 faculty members. Forty-seven Asia-related researchers at SFU are DLC Members. These members are eligible for funding up to $7,000 for research projects.

Since the last 5-year renewal application in 2017, the Centre has hosted 10 visiting scholars and research fellows who stayed at SFU to collaborate with researchers of SFU and organize events for the SFU community as well as the community-at-large.
Rationale for the renewal of the Centre/Institute:
David Lam Centre is financially independent from the University. We are self-sustained through an endowment established in 1989. From our endowment interest revenue, we have been able to support not only our staffing and office expenses but also external organizations that share our same mission as well as SFU researchers’ projects and activities. Through the organization of over 100 events in the past five years, we have contributed financially to SFU Meeting & Events (MECS) in the form of venue rentals and catering charges. Perhaps more valuable to both MECS and SFU, our activities enrich the vibrant outreach of SFU’s downtown campus by hosting events at Harbour Centre, Goldcorp Centre for the Arts, the Segal Building and a variety of urban venues.

David Lam Centre strives to play the pivotal role in Asia-related research activities at SFU. Our goals in the coming years are: 1) to fund Asia-related research; 2) to contribute to the process undoing of anti-Asian racism through community events and 2) to promote the histories and cultures of Asian indigenous peoples to the SFU community as well as the public.

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
Over a third of our annual operating budget is allocated to provide seed funding for research projects conducted by faculty members across SFU. We funded 33 major projects (over $2,000) and about 20 small projects (up to $2,000) in the last five years.

How has the Centre/Institute accomplished its goals?
Through our research grants, we bring Asia-related researchers from different departments together to engage in dialogues and collaborate on projects.

We co-organize with other units at SFU to bring events, not limited to the academic world but as well as the public.

We sponsor cultural programs and events including annual festivals organized by community groups to promote greater awareness and understanding between different ethnic groups in our society.

We host researchers from Canada and beyond as visiting scholars to share knowledge and ideas in classes and public events in addition to exploring research ideas with SFU academicians.

Changes planned upon renewal (e.g. membership, organization structure, etc.):
We will continue to maintain a rotation of steering committee members, expand and improve our funding programs.

Significant accomplishments:
1) In partnership with the School for International Studies, we launched a social colloquium series to invite participants to think about China, particularly Greater China, not as a self-contained entity, but as part of the global world system, not in terms of exceptions, but in terms of intersections.

2) While the pandemic increased the incidents anti-Asian racism, the David Lam Centre has already been actively involved in supporting a range of programs and speakers addressing these issues in Canada and the world. From 2017, we co-sponsored 49 such events. The most significant ones include “Together: Explore the Past and the Present, and Visualize the Future” film screening and panel that tells the story of shared struggles among Indigenous peoples and migrants of Chinese and African descents in the past and today, in the city of Vancouver; an online workshop “Anti-Asian Racism During COVID and the Model Minority Myth Workshop” organized by the Vancouver Asian Film Festival, “Invisible Indigenous descendants in Hokkaido” co-organized with the Center for Ainu and Indigenous Studies at Hokkaido University, and an event co-organized with Labour Studies of SFU and the Asian Canadian Labour Alliance entitled “Anti-Asian Racism in British Columbia and the Community Organizers Who Stand Against It”.

3) David Lam Centre hosted our Distinguished Visiting Professor, Mr. Kingsley Ng of Hong Kong Baptist University in 2019-2020. Mr. Ng presented one lecture and one workshop on urban media art. With the help of SFU International, a faculty exchange resulted. Hong Kong Baptist University hosted Professor Stuart Poyntz of the School of Communication in return in 2020-21.

4) In 2018, we co-organized with the Consulate General of the Republic of Korea, we presented the MIKTA workshop Middle Powers’ Role in the Era of the Confrontations Among Major Powers with scholars specializing in Mexico, Indonesia, Republic of Korea, Turkey, and Australia.

5) Our co-director, Shuyu Kong, organized in cooperation with Vancouver Public Library, a speaker series on Chinese Canadian Writing consisting of four virtual talks took place between March and June 2021, as well as four related reading events took place between March and June 2022.

6) Co-director Michael Hathaway received the Guggenheim Fellowship in March 2022 on the basis of prior achievements and exceptional promise in his academic realm.

7) David Lam Center, with the support of MECS, hosted a two day international workshop on “Global Art Exchange and Modernism in Socialist China (1949-1979),” with twelve scholars from Australia, China, United States and Germany presenting papers virtually. A large number of attendees (144 for Oct. 30 and 125 for Oct. 31, 2020) around the world joined this online event and actively engaged in Q &A session. The conference volume will be published by the academic publisher, Brill.
**Notable media successes:**

1) Michael Hathaway, along with the other awardees of the 2022-23 Guggenheim Fellowship, was listed in a full-page ad in the New York Times in April 2022.


**Events, workshops, public outreach events:**

From April 2017 to March 2022, David Lam Centre presented 125 events. Even during the pandemic which considerably slowed down the number of events, we were still able to support 28 events. A list of events with detailed descriptions was submitted annually with our centre report. Please see attached document for the entire list including events we supported in 2021-22.

In April 2022, we began a new speaker series on Asian labour and activism. This series will help the public understand past and current challenges faced by the Asian working people, many of them are new immigrants.

**The Centre/Institute's multi-year goals for the next renewal term:**

Our goal is to continue to grow the David Lam Centre by exploring new initiatives in assisting Asia-related scholars and graduate students at SFU to thrive in their research area, while maintaining our current successful community activities. We will continue to forge new alliances and coordinate efforts to expand Asia-related research and Asia-related events in Vancouver. We aim to become a clearing house and incubator for this research and outreach with the local community.

On the international level, the Centre will attempt to build connections with international organizations and foundations to expand research activities and graduate students’ career opportunities. We aim to use the DLC to create exchange opportunities overseas for both faculty members and graduate students at SFU.

**KPI:**

Our endowment budgets are financially sound. We plan to use the interest income in a
responsible and accountable manner to expand our programs and outreach efforts by including a wider array of scholars and community members in the broader Asian community.
• to build upon our current strengths in community engagement, nurture existing relationships with local community groups as well as expand our connections
• to involve more SFU researchers in initiatives with other academic institutions overseas
• to expand our current visiting scholar initiative and create a fiscally sustainable visiting scholar exchange program
• to continue funding faculty to organize speaker series on Asia-Pacific related research at SFU
• to refine our funding policy to support more research activities by Asia-related faculty members and graduate students
• to serve as a resource hub of information on SFU and external grants, fellowships, travel funds for faculty members and graduate students
• to continue our support for the annual Pacific Regional Forum to bring in lectures on contemporary business topics of Asia by prominent business leaders and scholars

We believe we can contribute to SFU through our grants and other intangible support to researchers and students. Our sponsorships to community groups help them promote reconciliation, awareness and kindness for the greater good.

Supporting documents:
1) Outreach_Activities_from_2017-2022_SQ2xRVe.pdf (See attachment below)
2) 2021-22_Annual_Report_-_Outline_of_DLC_Activities_OH2TvjQ.docx (See attachment below)

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Michael Hathaway, Co-director

Director's comments:
I am pleased to submit this renewal. Thank you.

Reviewer's Section

Reviewed by:
Mary-Ellen Kelm, Associate Dean, Research & International

Reviewer's decision:
Approved for 5 years

Reviewer's comments:
Up for renewal this year. The David Lam Centre is self-supporting through its endowments and offers important research opportunities to Asia-related scholars, including graduate students, from within SFU and internationally. It has a regional presence as a host of speakers series and events that focus attention on anti-Asian racism. The research focus of one of its Directors, Michael Hathaway, on Indigenous Asians is also in line with FASS's support of and desire to implement the recommendations of the ARC report. The goals for the next five year plan are in line with the Centre's previous successes and entirely achievable within the current state of its finances and remit within the University. The Faculty looks forward to a greater international presence for the Centre as the restrictions of the pandemic continue to lift.
Outline of DLC Activities in 2021-22

FINANCES
Three endowment funds ($4.3M)
Annual Budget (approx. $225K)
- DLC Members' Research Initiatives and Events: $80K
- DLC Administration (including co-directors' course buyouts): $85K
- Scholarship and RA Support: $20K
- SFU/Community Programs and Events: $30K
- Speakers Series to Schools/Departments: $10K

ACTIVITIES
- Co-directorships of Dr. Shuyu Kong (Humanities) and Dr. Michael Hathaway (Anthropology) renewed for a 2-year term from September 2021 to August 2023
- Held three Steering Committee virtual meetings in Spring 2021, Fall 2021, and Spring 2022
- Sponsored fourteen SFU researchers' virtual events as well as community arts and cultural events between April 2021 and March 2022
- A speaker series of the theme on Asian labour and activism organized by Dr. Anushay Malik (IS/GA) and co-sponsored by DLC and LBST is scheduled between April and July 2022

Improvement of SFU at large
- Provided five awards for a total of $6,715 to graduate students to conduct research and present papers at conferences
- Funded six Asia-related research projects (> $2K) between April 2021 and March 2022
- Provided RAship funding and training opportunities at DLC for one student
Promotion and Outreach

1. DLC Website
   - Website migrated to SFU's new template with improvements of navigation and content expansion in progress

2. Increased awareness of SFU David Lam Centre
   - Eight SFU faculty became DLC Members in 2021-22 to bring the total to 47

3. Increased student’s awareness as demonstrated by the number of applications for the Paul Tai Yip Ng Memorial Award
   - 2021: 4 applicants from 3 departments in Faculty of Arts and Sciences
   - 2020: 7 applicants from 7 departments in 4 faculties
   - 2019: 6 applicants from 4 departments in 2 faculties

4. Visiting Scholars
   - One new visiting scholar (Vivian Lee from Hong Kong) came to the DLC in January 2021; the Centre is expecting two new visiting scholars in the summer and winter of 2022
   - Current research fellows: Scott Harrison, Asia Pacific Foundation; and Zheng Shengtian, artist and curator
Current Community Partners

1) Asia-Pacific Foundation (APF)
   - Connected APF with SFU FASS researchers conducting research on indigenous people
2) Centre for Asia-Pacific Initiatives (CAPI) of the University of Victoria
3) Taiwan Economic & Cultural Office (TECO)
   - Ongoing communication between DLC Director and TECO
4) DOXA
   - Sponsored 2021 DOXA Film Festival (online)
   - Sponsoring 2022 DOXA Film Festival (hybrid)
5) Indian Summer Festival (2020)
   - Provided sponsorship for 2021 Indian Summer Festival (hybrid)
   - Sponsoring 2022 Indian Summer Festival (hybrid)
6) Powell Street Festival Society
   - Sponsored the Paeuru Gai Dialogues (9 monthly virtual seminars)
   - Sponsoring 2022 Powell Street Festival
7) Hokkaido University (HokkaidoU)
8) SFU International (SFUi)
   - Continual collaboration between SFUi and the DLC
9) Centre A Art Gallery
   - Sponsored an exhibition entitled "A Living Room" in February 2022
10) Vancouver Public Library
11) UBC
12) Vancouver Asian Heritage Month Society
   - Sponsored explorAsian Heritage Month in 2021
   - Sponsoring 2022 explorAsian Heritage Month (May 2022)
13) Vancouver Asian Film Festival (VAFF)
   - Sponsored “Anti-Asian Racism During COVID and the Model Minority Myth Workshop”
14) DTES Heart of the City Festival
15) Sound of Dragon Society and Orchid Ensemble
Past Events Sponsored/Organized by the DLC

April 1, 2021 – March 31, 2022: **14 virtual and in-person events**

Highlights:

1) Vancouver Public Library (VPL) “Chinese Canadian Writing” speaker series, sponsored and organized by co-director Shuyu continued from March 2021. Monthly lectures hosted by VPL in April, May and June were each attended by 60-80 people from Canada, China, the States and Australia.

2) A second lecture, after the March 2021 event, on Ainu traditions and culture took place on National Indigenous Peoples Day was attended by 80 attendees around the world. DLC co-organized this online event with the Asia Pacific Foundation of Canada.

3) In November, David Lam Centre held its first hybrid event in partnership with the School for International Studies and Department of History. The event “China Unbound & In the Camps: Inside Beijing’s High-Tech Global Policing” was attended by 30+ people physically and joined by 50 virtually.

4) An expert panel discussed topics surrounding challenges faced by immigrant families and the stigma of mental illness portrayed in the film “The World is Bright”. The panelists also covered the importance of cultural competence in mental health care. “The World is Bright” was made virtually available to the SFU community by the DLC.

5) Two events on the histories and economy of Uyghurs are being planned for August 2022.
## List of Past Events Sponsored/Organized by the DLC in 2021-22

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 23, 2021</td>
<td>Chinese Canadian Writing Speaker Series #2: Writing a Chinese Story as World Literature</td>
<td>Ling Zhang, Writer and Xueqing Xu, Associate Professor, York University</td>
<td>Ling Zhang and Xueqing Xu discussed the challenges and advantages of writing in Canada, and the cultural identity of being a Chinese writer in Canada.</td>
</tr>
<tr>
<td>April 24, 2021</td>
<td>The Paueru Gai Dialogues #4: Old Roots and New Relationships on Indigenous Lands</td>
<td>Powell Street Festival Society</td>
<td>How can Japanese Canadians request the return of lost property in the Powell Street neighbourhood without perpetuating colonial practices? Guest host Jeff Masuda and panelists Doris Chow, Justin Sekiguchi, and Chris Livingstone shifted the white-centered colonial lens on housing, racial discrimination, and dispossession to an exploration of what it means to live and work on behalf of the multiracial and diverse community that dwells today on the unceded and occupied Indigenous territories of the Downtown Eastside. Participants were invited into breakout groups to share their thoughts and experiences of building allyships across communities.</td>
</tr>
<tr>
<td>May 1-31, 2021</td>
<td>explorAsian 2021 Virtual Festival</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorASIAN celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 6-16, 2021</td>
<td>2021 DOXA Documentary Film Festival (Virtual)</td>
<td>Documentary Media Society</td>
<td>The 20th Annual DOXA Festival featured 64 films (shorts and features) from across Canada and around the world streaming online, as well as special live events. DLC sponsored screenings of one Filipino film: ASWANG (Alyx Ayn Arumpac)</td>
</tr>
<tr>
<td>May 21, 2021</td>
<td>Chinese Canadian Writing Speaker Series #3: Writing Humanities for the Transcultural Reader</td>
<td>Shuyu Kong, Professor, SFU Ruoyun Bai, Associate Professor, University of Toronto</td>
<td>Professors Kong and Bai discussed how a humanities scholar could introduce World Literature to Chinese general readers, and bridge the gap between creative writing and the academic world.</td>
</tr>
<tr>
<td>June 18, 2021</td>
<td>Chinese Canadian Writing Speaker Series #4: The Cross-cultural Story of Three Chinese Women Aviators</td>
<td>Patty Gully, Writer and Historian Songyu Lin, Senior Editor and Lecturer</td>
<td>Patti Gully and Songyu Lin talked about how <em>Sisters of Heaven: China’s Barnstorming Aviatrixes</em> was introduced to China and enthusiastically received by Chinese readers, with a film adaptation on the way.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>June 21, 2021</td>
<td>What does it mean to be Ainu in the twenty-first century? - Ainu authenticity -</td>
<td>Kanako Uzawa</td>
<td>People of Northern Japan, the Ainu once described as a “dying race,” continue to remain and develop their culture even today. Throughout the nineteenth to mid-twentieth centuries, the Ainu were targeted as a fascinating research object for both Japanese and foreign researchers. This was a result of the discourse of “race” together with Social Darwinism. Such history continues to affect Ainu communities negatively, and various challenge remain. In this lecture, Dr. Uzawa highlighted the living experiences of the Ainu today by sharing her personal stories on her ongoing website project and an artistic project, which expresses contemporary Ainu authenticity through dance and song.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------</td>
<td>-----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>July 17, 2021</td>
<td>Indian Summer Festival: A Night at the Orpheum</td>
<td>Indian Summer Festival Society</td>
<td>In a double bill featuring nine internationally recognized musicians, this was a celebration of the diverse artistic talent in our city. The evening featured the world premiere of two new musical works. The Naadaleela Ensemble creates a musical conversation between ancient cultures that span the Silk Road – from Iran to India and China – and which have been influencing each other for over 2,000 years. Mohamed Assani and Friends present 'Watersmeet' – a project that imagines musical collaboration between Hindustani and Western musicians as a metaphoric meeting between rivers. Individually, rivers are distinct, with their specific sources, discernible shapes, and colors, but when they meet (as in this collaboration), they come together in a way that makes it impossible to deconstruct.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 16, 2021</td>
<td>The Paueru Gai Dialogues #8: Reconsidering Land, History and Belonging</td>
<td>Powell Street Festival Society</td>
<td>In the eighth Paueru Dialogues event, Ayumi Goto was in conversation with Andrea Fatona, Peter Morin, and Abedar Kamgari. Coming from diverse communities of culture, art, and activism, the panelists all had in common the profound capacity to move between multiple worlds and to create interlinkages so that others are invited to participate. In this dialogue, conversations weaved between building Indigenous and non-Indigenous relations, the pleasures and gifts of engaging with unexpected others, and the prismatic scatter of diasporic states of affairs. Participants engaged with the invited speakers, to share their life experiences of bridging lives and communities, and to forge new paths and conversations.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| November 3, 2021| China Unbound & In the Camps: Inside Beijing’s High-Tech Global Policing | Joanna Chiu, Senior Journalist, Toronto Star  
Darren Byler, Assistant Professor of International Studies, SFU  
Jeremy Brown, Professor and Chair of Department of History, SFU | Joanna Chiu's book [China Unbound: The New Global Disorder](#) portrays Beijing’s use of high-tech police surveillance and aggressive human rights violations against those who challenge its power in China and around the globe. Byler’s book [In the Camps: China’s High-Tech Penal Colony](#) reveals the way global developments in automated surveillance have been utilized in the mass internment of religious minorities in Northwest China. This discussion focused on the global implications of their two books and what these developments mean for vulnerable peoples like the Uyghurs. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 12 –</td>
<td>Exhibition and Film Screening: The Living</td>
<td>Centre A</td>
<td>Centre A’s first experiential project “The Living Room” in 2022, the gallery space is transformed into a furnished living room space. Visitors have the opportunity to sit down in the makeshift living room to watch a series of curated films and videos. By converting the gallery rooms into a (semi-)domestic space, Centre A hopes to demystify and challenge the oftentimes inaccessible, highly curatorial nature of a contemporary art gallery. Through this project, the gallery hopes to host a space in which visitors can reconnect with each other after almost two years of isolation. There are two series of films programmed as part of The Living Room project: The first one, addressing reconnection, lineage, and exile, takes place from February to March 2022, and the second series will run from April to May 2022. The second series is built upon an examination of Canada’s role in the Multicultural discourses in terms of inequality, intermediacy, and extraction. Bringing together an array of approaches, through documentary or futuristic lens, this program points to the making of a nationhood and its discontents from a</td>
</tr>
</tbody>
</table>
sociopolitical perspective.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2, 2022</td>
<td>Migration, Emotion, and Digital Economies</td>
<td>Beatrice Zani, Postdoctoral Research Fellow, McGill University</td>
<td>In this talk Dr. Zani drew on her multi-sited ethnographic work in China and Taiwan, where she explores the mobilities of women who have moved from the countryside to the city in China and who re-migrate to Taiwan through marriage. Broadly, this talk illuminated how, in the digital age of migration, Chinese women’s migratory paths are growing more complex and are increasingly characterized by the use of digital platforms. Looking at the e-entrepreneurship produced by Chinese women in Taiwan, we will delve into the new digital, emotional, and commercial geographies of interconnection between China and Taiwan.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 9, 2022</td>
<td>History Written in Advance</td>
<td>Justin Haruyama, PhD candidate, University of California, David</td>
<td>Over the last decade, Mandarin-language Jehovah’s Witness congregations have proliferated across Zambia. These congregations are almost exclusively composed of local Zambians who have learned Mandarin as a second language, but count few to no ethnic Chinese congregants. Though they find little success in converting Chinese people, these Witnesses transgress common Zambian social norms by befriending Chinese migrants, eating Chinese food, and expressing appreciation for Chinese culture. Explaining their actions, Witnesses invoke and elide history in ways that erase national and racialized differences between themselves and Chinese migrants. They instead act upon a temporal horizon in which Biblical truths must be quickly spread before the rapidly approaching dissolution of the current system of things. In doing so, they enact a diffracted modernity that appropriates modernity’s totalizing tropes while challenging the secular liberalism of the nation-state, as they anticipate the world entering its final years before Jehovah God vanquishes all human-governed polities.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 10, 2022</td>
<td>The World is Bright: Panel Discussion on Mental Illness</td>
<td>Ying Wang, Director Jaswant Guzder, Professor of Transcultural Psychiatry Martin Mroz, Director of SFU Health &amp; Counseling Services Anthony Swan, Impact Director and Moderator</td>
<td>When Qian Hui Deng and Xue Mei Li are notified by the Canadian government about their son Shi-Ming’s sudden death and burial on Canadian soil, they decide to travel from Beijing to Vancouver to search for answers. The documentary film The World is Bright chronicles the journey of the grieving parents as they navigate a new culture and a complex web of bureaucracy to uncover the truth behind their son’s death by suicide. An expert panel discussed some of the themes explored in the film, such as the stigma surrounding mental illness, resources available to immigrant families, the dislocation and disconnection arising from global migration, and the importance of cultural competence in mental health care.</td>
</tr>
</tbody>
</table>
## List of Past Events Sponsored/Organized by the DLC in 2021-22

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 23, 2021</td>
<td>Chinese Canadian Writing Speaker Series #2: Writing a Chinese Story as World Literature</td>
<td>Ling Zhang, Writer and Xueqing Xu, Associate Professor, York University</td>
<td>Ling Zhang and Xueqing Xu discussed the challenges and advantages of writing in Canada, and the cultural identity of being a Chinese writer in Canada.</td>
</tr>
<tr>
<td>April 24, 2021</td>
<td>The Paueru Gai Dialogues #4: Old Roots and New Relationships on Indigenous Lands</td>
<td>Powell Street Festival Society</td>
<td>How can Japanese Canadians request the return of lost property in the Powell Street neighbourhood without perpetuating colonial practices? Guest host Jeff Masuda and panelists Doris Chow, Justin Sekiguchi, and Chris Livingstone shifted the white-centered colonial lens on housing, racial discrimination, and dispossession to an exploration of what it means to live and work on behalf of the multiracial and diverse community that dwells today on the unceded and occupied Indigenous territories of the Downtown Eastside. Participants were invited into breakout groups to share their thoughts and experiences of building allyships across communities.</td>
</tr>
<tr>
<td>May 1-31, 2021</td>
<td>explorAsian 2021 Virtual Festival</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorAsian celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>May 6-16, 2021</td>
<td>2021 DOXA Documentary Film Festival (Virtual)</td>
<td>Documentary Media Society</td>
<td>The 20th Annual DOXA Festival featured 64 films (shorts and features) from across Canada and around the world streaming online, as well as special live events. DLC sponsored screenings of one Filipino film: <em>ASWANG</em> (Alyx Ayn Arumpac)</td>
</tr>
<tr>
<td>May 21, 2021</td>
<td>Chinese Canadian Writing Speaker Series #3: Writing Humanities for the Transcultural Reader</td>
<td>Shuyu Kong, Professor, SFU Ruoyun Bai, Associate Professor, University of Toronto</td>
<td>Professors Kong and Bai discussed how a humanities scholar could introduce World Literature to Chinese general readers, and bridge the gap between creative writing and the academic world.</td>
</tr>
<tr>
<td>June 18, 2021</td>
<td>Chinese Canadian Writing Speaker Series #4: The Cross-cultural Story of Three Chinese Women Aviators</td>
<td>Patty Gully, Writer and Historian Songyu Lin, Senior Editor and Lecturer</td>
<td>Patti Gully and Songyu Lin talked about how <em>Sisters of Heaven: China’s Barnstorming Aviatrixes</em> was introduced to China and enthusiastically received by Chinese readers, with a film adaptation on the way.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 21, 2021</td>
<td>What does it mean to be Ainu in the twenty-first century? - Ainu authenticity -</td>
<td>Kanako Uzawa</td>
<td>People of Northern Japan, the Ainu once described as a “dying race,” continue to remain and develop their culture even today. Throughout the nineteenth to mid-twentieth centuries, the Ainu were targeted as a fascinating research object for both Japanese and foreign researchers. This was a result of the discourse of “race” together with Social Darwinism. Such history continues to affect Ainu communities negatively, and various challenge remain. In this lecture, Dr. Uzawa highlighted the living experiences of the Ainu today by sharing her personal stories on her ongoing website project and an artistic project, which expresses contemporary Ainu authenticity through dance and song.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------</td>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 16, 2021</td>
<td>The Paueru Gai Dialogues #8: Reconsidering Land,</td>
<td>Powell Street Festival Society</td>
<td>In the eighth Paueru Dialogues event, Ayumi Goto was in conversation with Andrea Fatona, Peter Morin, and Abedar Kamgari. Coming from diverse communities of culture, art, and activism, the panelists all had in common the profound capacity to move between multiple worlds and to create interlinkages so that others are invited to participate. In this dialogue, conversations weaved between building Indigenous and non-Indigenous relations, the pleasures and gifts of engaging with unexpected others, and the prismatic scatter of diasporic states of affairs. Participants engaged with the invited speakers, to share their life experiences of bridging lives and communities, and to forge new paths and conversations.</td>
</tr>
<tr>
<td></td>
<td>History and Belonging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 3, 2021</td>
<td>China Unbound &amp; In the Camps: Inside Beijing’s High-Tech Global Policing</td>
<td>Joanna Chiu, Senior Journalist, Toronto Star ; Darren Byler, Assistant Professor of International Studies, SFU; Jeremy Brown, Professor and Chair of Department of History, SFU</td>
<td>Joanna Chiu’s book China Unbound: The New Global Disorder portrays Beijing’s use of high-tech police surveillance and aggressive human rights violations against those who challenge its power in China and around the globe. Byler’s book In the Camps: China’s High-Tech Penal Colony reveals the way global developments in automated surveillance have been utilized in the mass internment of religious minorities in Northwest China. This discussion focused on the global implications of their two books and what these developments mean for vulnerable peoples like the Uyghurs.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------</td>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 12 –</td>
<td>Exhibition and Film Screening: The Living Room</td>
<td>Centre A</td>
<td>Centre A’s first experiential project “The Living Room” in 2022, the gallery space is transformed into a furnished living room space. Visitors have the opportunity to sit down in the makeshift living room to watch a series of curated films and videos. By converting the gallery rooms into a (semi-)domestic space, Centre A hopes to demystify and challenge the oftentimes inaccessible, highly curatorial nature of a contemporary art gallery. Through this project, the gallery hopes to host a space in which visitors can reconnect with each other after almost two years of isolation. There are two series of films programmed as part of The Living Room project: The first one, addressing reconnection, lineage, and exile, takes place from February to March 2022, and the second series will run from April to May 2022. The second series is built upon an examination of Canada’s role in the Multicultural discourses in terms of inequality, intermediacy, and extraction. Bringing together an array of approaches, through documentary or futuristic lens, this program points to the making of a nationhood and its discontents from a sociopolitical perspective.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 2, 2022</td>
<td>Migration, Emotion, and Digital Economies</td>
<td>Beatrice Zani, Postdoctoral Research Fellow, McGill University</td>
<td>In this talk Dr. Zani drew on her multi-sited ethnographic work in China and Taiwan, where she explores the mobilities of women who have moved from the countryside to the city in China and who re-migrate to Taiwan through marriage. Broadly, this talk illuminated how, in the digital age of migration, Chinese women’s migratory paths are growing more complex and are increasingly characterized by the use of digital platforms. Looking at the e-entrepreneurship produced by Chinese women in Taiwan, we will delve into the new digital, emotional, and commercial geographies of interconnection between China and Taiwan.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 10, 2022</td>
<td>The World is Bright: Panel Discussion on Mental Illness</td>
<td>Ying Wang, Director Jaswant Guzder, Professor of Transcultural Psychiatry Martin Mroz, Director of SFU Health &amp; Counseling Services Anthony Swan, Impact Director and Moderator</td>
<td>When Qian Hui Deng and Xue Mei Li are notified by the Canadian government about their son Shi-Ming’s sudden death and burial on Canadian soil, they decide to travel from Beijing to Vancouver to search for answers. The documentary film The World is Bright chronicles the journey of the grieving parents as they navigate a new culture and a complex web of bureaucracy to uncover the truth behind their son’s death by suicide. An expert panel discussed some of the themes explored in the film, such as the stigma surrounding mental illness, resources available to immigrant families, the dislocation and disconnection arising from global migration, and the importance of cultural competence in mental health care.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 18, 2020</td>
<td>Online Artist Talk: Pixy Liao</td>
<td>Pixy Liao, Artist / Centre A</td>
<td>In this talk, Pixy discussed her practice and inspirations, in connection with her exhibition at Centre A, which stems from her ongoing exploration of the dynamic of a romantic relationship. Pixy is known for her staged photography, where she poses with her boyfriend-turned-muse, Moro. Her works challenge traditional gender roles within heterosexual relationships, humorously revealing a multitude of ways of being together.</td>
</tr>
<tr>
<td>May 1-31, 2020</td>
<td>explorAsian 2020 Virtual Festival</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorASIAN celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
<tr>
<td>May 16, 2020</td>
<td>Indian Summer Festival: Beginnings – Sonic Tributes</td>
<td>Indian Summer Festival Society</td>
<td>Nine local musicians were brought together virtually in a special event to kick off ISF’s 10th anniversary season. This was an ode to the city and a tribute to the wealth of musical languages that exists here.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>June 18-26, 2020</td>
<td>2020 DOXA Documentary Film Festival</td>
<td>Documentary Media Society</td>
<td>The 19th Annual DOXA Festival featured 64 films (shorts and features) from across Canada and around the world streaming online, as well as special live events. DLC sponsored screenings of two Asia-related films: <em>Forget Me Not</em> (Sun Hee Engelstoft) and <em>Overseas</em> (Sung-A Yoon)</td>
</tr>
<tr>
<td>August 1, 2020</td>
<td>Powell Street Festival 2020 (Online Telethon)</td>
<td>Powell Street Festival Society</td>
<td>The Telethon streamed on PSFS website and featured appearances from local Japanese Canadian (JC) artists, vendors and booths, and community stakeholders who are the heart of the festival. Telethon proceeds went toward PowellStFest Community Kitchen program to cook 200 meals for the unhoused and precariously housed in the DTES.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 2-24, 2020</td>
<td>Conference on “Indigenous Struggles and the Ideology of Development”</td>
<td>Institute for Humanities, SFU</td>
<td>The struggles of Indigenous people against the assault of extractivism, under the banner of development, is the most important struggle in the world today, not only for the survival of what remains of them but for humanity as a whole facing the existential crisis of climate change and the devastation of life on this planet by the inexorable logic of capital. The goal of the conference was to bring together knowledge on the issues addressed by the speakers, create connection between localized struggles to establish their global character, share the knowledge of experts with activists and the community, and subject the hegemonic ideology to critical scrutiny.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 30-31, 2020</td>
<td>Global Art Exchange and Modernism in Socialist China (1949-1979)</td>
<td>Shuyu Kong, Co-director, David Lam Centre and Professor, Department of Humanities, SFU</td>
<td>Fourteen researchers and artists presented in this workshop as part of the series “Art and Modernism in Socialist China,” an international cooperative research and publication project launched in 2017 at Taikang Space, Beijing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This workshop focused on global exchanges among left-wing artists and their impacts on Chinese art during the most rigid period of Socialist China. From artistic exchanges with Latin America to the Romanian school in Chinese art education; from discreet international exhibitions in China to underground artist groups during the Cultural Revolution; together the panelists presented a complex contemporary Chinese art history, in which artists thirsted after alternative aesthetic inspiration, and international cultural dialogues continued amidst revolutionary turmoil, albeit in discreet and distorted guises.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>December 4, 2020</td>
<td>Anti-Asian Racism During COVID and the Model Minority Myth Workshop</td>
<td>Vancouver Asian Film Festival</td>
<td>This online workshop unpacked the model minority myth and the role it plays on anti-Asian racism that has been amplified during the COVID-19 pandemic. Presenters and participants shared and reflected on their own experiences with the myth, and developed different strategies to support those who disclosed experiences of anti-Asian racism within intersecting communities. While this workshop was geared towards building a collective and diverse memory of anti-Asian racism and developing tools to challenge it, participants also had the opportunity to question their privilege and how this myth was being used to divide communities of colour.</td>
</tr>
<tr>
<td>January 30, 2021</td>
<td>The Paueru Gai Dialogues #1: Catalyzing Social Equity through Culture &amp; Connection to Place</td>
<td>Powell Street Festival Society</td>
<td>Guest host Izumi Sakamoto facilitated a discussion with three panelists — Ayumi Goto, Kathy Shimizu and Terry Watada — as they shared their perspectives on how cultural heritage and connection to place impact their artistic practice. Participants joined breakout groups to share their own experiences and to consider how Japanese Canadian art and culture might advance social justice. To wrap up the event, everyone reconvened to offer questions for further contemplation.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 27, 2021</td>
<td>The Paueru Gai Dialogues #2: On Food &amp; Culture for Community Building</td>
<td>Powell Street Festival Society</td>
<td>Guest host erica hiroko isomura facilitated a discussion with panelists Carmel Tanaka, Kage, and Ingrid Mendez de Cruz as they shared stories on how food and culture contribute to their experiences of building community in Japanese Canadian, DTES communities, and beyond. Panelists talked about how they use food to build relationships across differences, create inclusive food and garden spaces for community, and support agricultural migrant workers who grow the food that so many of us eat.</td>
</tr>
<tr>
<td>February 28, 2021</td>
<td>New Empirical Contributions to Cantonese Linguistics and Language Processing</td>
<td>John Alderete, Department of Linguistics, SFU</td>
<td>Recent work at Simon Fraser University, the University of British Columbia, and the Chinese University of Hong Kong makes new empirical contributions that support both linguistic and psycholinguistic research on Cantonese. Seven researchers from these three universities presented in this online micro-workshop.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 9, 2021</td>
<td>Myanmar, Once Again?</td>
<td>Bob Anderson, School of Communication, SFU</td>
<td>Following the 8 November election, some of the losing candidates appear to have planned protests and even a court case about their perception that the election process was full of ‘irregularities’ and ‘fraud’. They vowed to confront the Election Commission in court. Their prolonged agitation inspired and enabled the senior General to warn that there must be changes in the process. Then in the early morning of 1 February, when Parliament was reassembling, he had Ang San Suu Kyi and a number of election-winners arrested. Day by day the restrictions of a martial law were put into place, restrictions quite familiar to people over 30 but a shock to the 15 year olds who expected something quite different. The speaker looked back at the martial law which lasted 49 years, starting from 1962, and discussed the current situation.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 25, 2021</td>
<td>Invisible Indigenous descendants in Hokkaido</td>
<td>Mai Ishihara, Center for Ainu and Indigenous Studies at Hokkaido University in Sapporo, Japan</td>
<td>In this presentation, Dr. Mai Ishihara introduced the previously unexplored case of the silent Indigenous descendants in Hokkaido, Japan, and talked about the process of putting the pain of silence into words for those who could not inherit historical and social connections to indigeneity. In this age of diversity, mutual understanding has become increasingly essential. Yet, it remains a difficult task in many situations, such as the one highlighted in this presentation. It is not always easy to understand others’ pain, especially when there is no social consensus on each individual’s suffering or pain as they may be transparent and invisible. This presentation on Invisible Indigenous Descendants in Hokkaido aimed to break the silence, confront the associated pain, and shed light on some of the challenges of understanding indigeneity.</td>
</tr>
<tr>
<td>March 26, 2021</td>
<td>Chinese Canadian Writing Speaker Series #1: Finding the East by Going to the West: on Discovering the Hidden History of Missionaries and Modern China</td>
<td>Jia Shen, writer and historian; Jiawei Shen, artist and historian</td>
<td>Jia Shen and Jiawei Shen discussed how they discovered historical sources and artistic inspiration in Canada and Australia, and how their historical writing consequently had a profound influence in China.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| March 27, 2021 | The Paueru Gai Dialogues #3: On Memory, Mythmaking and Community Resilience | Powell Street Festival Society | What, if anything, have we learned from our past? Are there ways we can harness this renewed sense of connection to heal a fractured community and open the future to new possibilities?  

Guest host John Endo Greenaway facilitated a discussion with panelists Bryce Kanbara, Sherri Kajiwara, and Michael Prior exploring their work and these questions.

The COVID-19 pandemic and ensuing lockdowns have us looking back at the 1940s internment, dispossession and dispersal of Japanese Canadians through a new lens, bringing up questions of community resilience and cultural values and how they may have been passed down through the generations. |
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 30, 2021</td>
<td>Fake Churches and False Unification: the Anthropology of Conversion in the Divided Koreas</td>
<td>Angie Heo, University of Chicago</td>
<td>Since the 1990s, the sums of faith-based aid to North Korea have been so vast as to stir speculations that Protestant Christians are the ones secretly propping up the North Korean regime. The irony is that Evangelicals in South Korea and the Korean diaspora remain the most strident proponents of anticommunism and the South’s total conquest of the North. What is the relationship between Christianity, communism, and capitalism in the divided Koreas? How do South Korean perceptions of religion in North Korea entwine theologies of mission with ideologies of unification? In this lecture, Angie Heo explored the contradictions of economic aid and religious freedom in a unique geopolitical zone where the Cold War never ended. Drawing inspiration from Sonja Luehrmann’s writings on religion, atheism, and communism, Angie further specified how Christianity in the divided Koreas presents a challenge to current anthropological scholarship on conversion and sectarianism.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 1, 2019</td>
<td>Vancouver as the Gateway to Asia: How Chinese Art and Artists Have Come to Our City</td>
<td>Zheng Shengtian, Artist, Scholar and Curator</td>
<td>Members of the local art circle as well SFU Asia-related researchers attended this artist talk and social organized by David Lam Centre at Centre A Vancouver International Asian Art in Chinatown.</td>
</tr>
<tr>
<td>April 6, 2019</td>
<td>Canadian South Asian Youths Conference: Identity, Gender, Sexuality, Employment, and Activism</td>
<td>Habiba Zaman, Professor of Gender, Sexuality and Women’s Studies, SFU</td>
<td>A one-day conference organized by Habiba Zaman to discuss challenges faced by South Asian youths in Canada</td>
</tr>
<tr>
<td>April 27, 2019</td>
<td>explorAsian 2019 Opening Ceremony</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorASIAN celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
<tr>
<td>April 30, 2019</td>
<td>Paul Tai Yip Ng Memorial Award for 2018 Best Graduate Student Paper</td>
<td>SFU David Lam Centre</td>
<td>Ms. Daniella Silva, an MA student in the Global Communication program, was the winner of our 2018 Best Graduate Student Paper award. Daniella received her BA in international communications with an emphasis in French and a minor in biology from Walla Walla University (WA). Her winning paper is a case study exploring how the forces of neoliberalism and global IP regulations shape power relations between Huawei, Canadian universities, and nation-states.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>May 2019</td>
<td>2019 DOXA Documentary Film Festival</td>
<td>Documentary Media Society</td>
<td>The 18th Annual DOXA Festival featured 82 films from across Canada and around the world, representing some of the very best in contemporary documentary cinema.</td>
</tr>
<tr>
<td>May 6, 2019</td>
<td>In the Claws of a Century Wanting</td>
<td>Jewel Maranan, Director</td>
<td>David Lam Centre sponsored this film screening and dialogue at DOXA 2019. Filmmaker Jewel Maranan observes the contradictions in the changing landscape and their effect on the lives of various characters who share the same fate in this film.</td>
</tr>
<tr>
<td>May 6-7, 2019</td>
<td>Person-Centred Care for Older Adults with Dementia in BC and Hong Kong</td>
<td>Habib Chadhury, Professor of Gerontology, SFU</td>
<td>Co-sponsored by David Lam Centre, this 2-day symposium brought together researchers from Hong Kong and BC to share research results and insights on dementia care.</td>
</tr>
<tr>
<td>June 1, 2019</td>
<td>International Workshop on Gender Diversity &amp; Inclusiveness</td>
<td>Habiba Zaman, Professor of Gender, Sexuality and Women’s Studies, SFU</td>
<td>Researchers participated in this 1-day workshop co-organized by SFU and Hohai University in China.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>June 20, 2019</td>
<td>The Acquisition of Lexical Tone by Cantonese-speaking Children</td>
<td>Peggy Mok, Associate Professor, Department of Linguistics and Modern Languages, Chinese University of Hong Kong</td>
<td>Cantonese tone acquisition, contrary to the general principle that perception precedes production in child language, while some recent studies demonstrated that Cantonese tone acquisition is a protracted process. This study revisited the acquisition of lexical tone by Cantonese-speaking children, exploring the possible link between production and perception in first language acquisition with data from over 100 children aged between 2 and 6. The speaker shared the findings call for a wider perspective on how to define successful phonological acquisition.</td>
</tr>
<tr>
<td>July 2019</td>
<td>Indian Summer Festival</td>
<td>Indian Summer Festival Society</td>
<td>Twelve days with 31 events featuring 195 artists celebrated the festival’s theme ‘Tricksters, Magicians and Oracles’. The festival was attended by 8,675.</td>
</tr>
<tr>
<td>July 13, 2019</td>
<td>Vancouver Art Gallery Keynote Lecture: Sunil Gupta</td>
<td>Sunil Gupta, Artist, Educator and Curator</td>
<td>The speaker critically addressed issues of race, migration and queer identity in India.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2019</td>
<td>The 43rd Annual Powell Street Festival</td>
<td>Powell Street Festival Society</td>
<td>The Powell Street Festival is the largest Japanese Canadian festival in the country and the longest running community arts celebration in Vancouver! Enjoy traditional and contemporary Japanese Canadian performances and demonstrations, including taiko drumming, sumo wrestling, martial arts, bonsai and ikebana, folk and modern dance, alternative pop/rock/urban music, visual arts, film/video, as well as historical walking tours, tea ceremonies, and a fantastic array of Japanese food, crafts, &amp; displays.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 10, 2019</td>
<td>Taiwan’s Politics in Action: Elections Past and Future</td>
<td>John Franklin Copper, Stanley J. Buckman Distinguished Professor of International Studies (emeritus), Rhodes College</td>
<td>Elections in Taiwan have an interesting and colorful history. They have been critical to Taiwan’s successful democratization. Taiwan held local elections in the 1950s after the United States afforded it protection. In the 1960s Taiwan’s miracle economic growth provided the basis for a middle class—essential to democracy. In 1986 a new party formed and became a competitive party; two-party elections followed. In 1996 Taiwan had its first direction presidential election. In 2000 the opposition party won the presidency. Since then there have been three more changes of ruling parties. Professor Copper assessed how the 2020 election campaign would proceed and what were the factors to understand to grasp this election’s importance.</td>
</tr>
<tr>
<td>September 19, 2019</td>
<td>Wisdom Amidst Crisis: the Case for Ecodharma in the Anthropocene</td>
<td>David R. Loy, Professor of Buddhist and Comparative Philosophy</td>
<td>The speaker discussed the profound parallels between our perennial personal predicament, according to Buddhist teachings, and the predicament of our now-global civilization today in relation to the rest of the biosphere. Is the ecological crisis also a spiritual crisis?</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 25, 2019</td>
<td>2019-20 Social Science Colloquium on China: Economic Origins and Geopolitical Limits of China’s Belt and Road Initiative</td>
<td>Ho-fung Hung, Henry M. and Elizabeth P. Wiesenfeld Professor in Political Economy, Department of Social and the Nitze School of Advanced International Studies at the Johns Hopkins University</td>
<td>Professor Hung kicked off the first lecture of the Social Science Colloquium on China by arguing that China’s export-oriented developmental miracle is in fact a constitutive part of the global neoliberal order, and is made possible by unique conditions difficult to be replicated in other places. At the same time, China’s overseas economic interests are still relatively small if we discount capital flight in the outgoing flow of investment. Having that said, China’s rise as a capital exporter is still making it follow in the footsteps of preceding capitalist-hegemonic powers to protect its global economic interests by projecting its military power and political influence overseas.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 26, 2019</td>
<td>Chinese State Capitalism in Hong Kong</td>
<td>Ho-fung Hung, Henry M. and Elizabeth P. Wiesenfeld Professor in Political Economy, Department of Social and the Nitze School of Advanced International Studies at the Johns Hopkins University</td>
<td>In his second talk at SFU, Professor Hung’s presentation discussed the role of Hong Kong as China’s offshore financial market amidst the rise and faltering of the China Boom, as well as its implications to the local politics and society of Hong Kong. While China continues to maintain a lot of restrictions on foreign financial capital, Hong Kong’s financial sector has been fully open to the world. In the meantime, US and other developed countries treat Hong Kong as a separate entity on import-export control and capital control, offering Hong Kong free access to their markets with privileges close to those enjoyed by any OECD country. One consequence of this special status of Hong Kong is the rising economic dominance and political influence of Chinese state companies and the princeling elite associated with them. Such domination, ironically, could erode Hong Kong’s autonomy from Beijing and jeopardize Hong Kong’s special status in the world economy.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 1, 2019</td>
<td>Urban Media Art as Social Mediation in Hong Kong</td>
<td>Kingsley Ng, Assistant Professor in Academy of Visual Arts, Hong Kong Baptist University</td>
<td>Interest in urban media art has been on the rise over the last decade. The form has been used in art festivals such as <em>Lumiere Vancouver</em> and <em>Lumiere Hong Kong</em> as large-scale spectacles and tourism promotion campaigns. This lecture used the emerging discourse on urban media as its point of departure and contextualise it with the situation of Hong Kong. In a city known for its sensory overload, can urban media art take an alternative path?</td>
</tr>
</tbody>
</table>
October 2, 2019  
Reanimating the Mammoth  
Matthew Chrulew, Senior Research Fellow, School of Media, Creative Arts and Social Inquiry, Curtin University  
The woolly mammoth has often appeared as a figure of lost connection, of ecological immersion and reciprocity from which we have become alienated. Its distinctive significance lies both in its prehistoric overlap with emerging humans, and its centrality to scientific controversies around questions of extinction, geological time and climate change. Debates over the cause of Pleistocene megafauna extinctions weighed up theories of overkill (human hunting), overchill (climate change) and over ill (disease), informed by differing conceptions of the extent and limits of human agency within the natural world. Current rewilding projects (such as the ecological experiment of Siberia’s Pleistocene Park) and de-extinction projects (seeking to clone and breed extinct animals back into existence) draw heavily on perceptions of culpability for the disappearance of the mammoth and other species. Fictional encounters with mammoths have drawn upon these themes, exploring both human environmental destructiveness and vulnerability to climate, histories of colonisation and survival, and the capacity for ecopolitical remediation, repair and redemption. Examples include Jean Auel’s pre-historical fiction Earth’s Children series (1980-2011), Stephen Baxter’s science fiction Mammoth trilogy (1999-2001), and Eleanor Arnason’s alternate history novella Mammoths of the Great Plains (2010). A burdened subject of anthropological and ecopolitical speculation, the mammoth can be considered a totem animal of the Anthropocene. What can we learn from the stories we tell about the mammoth—both scientific, and science fictional? What animates this reanimation?
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 4, 2019</td>
<td>Thai Forest Buddhism Enters the British Columbian Forest: Building Birken Monastery in the 1990s</td>
<td>Karen Ferguson, Professor of the Urban Studies Program, SFU Luke Clossey, Associate Professor of History and Director of the Global Asian Program, SFU</td>
<td>In April 1994, the Venerable Sona (ne Tom West), a Coquitlam, BC-born-and-bred Buddhist monk from the austere and orthodox Thai Forest Tradition of Theravada Buddhism, travelled to a complex of rundown shacks on the road between Mount Currie and D’Arcy in the Birkenhead River valley near Pemberton, BC. There, he succeeded in establishing a foothold of the Thai Forest tradition, the first initiated by a westerner in North America. This presentation explored the depth and meaning of these intersections, which didn’t happen in the cosmopolitan environs of a Global City, like Vancouver, but rather at the periphery, in a remote and reputedly “redneck” place, where the Thai and Sri Lankan “ethnic” Buddhists who visited encountered an intensely foreign cultural and physical environment surrounding the familiar robes and rituals of a Buddhist monastery.</td>
</tr>
<tr>
<td>October 5, 2019</td>
<td>Media Art Workshop with Kingsley Ng</td>
<td>Kingsley Ng, Assistant Professor in Academy of Visual Arts, Hong Kong Baptist University</td>
<td>Professor Ng shared his views on media art with a group of SFU researchers in this interactive workshop as one of the two David Lam Centre’s events under the new Faculty Exchange Program with Hong Kong Baptist University.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 6, 2019</td>
<td>Pacific Region Forum: Ethnic Diversity in Africa and Its Implications for Chinese Investments</td>
<td>Peng Zhang, Assistant Professor of Managerial Economics, Beedie School of Business, SFU</td>
<td>Investments from China have played important roles in regional development in Africa. However, they have also caused a lot of controversy. After the extension of China’s Belt and Road Initiative to many African countries in 2018, China will continue to be a key investor in Africa in the future, but making good investment decisions and managing potential risks will require a further understanding of African society and culture. This talk provided an overview of the complexity of ethnic relations in Africa based on the speaker’s research in South Africa in particular. Professor Zhang shared about how ethnic diversity affects the economic development in South Africa and other major African countries, and how it can influence Chinese investments in Africa in general.</td>
</tr>
<tr>
<td>November 12, 2019</td>
<td>History Matters</td>
<td>Linda Hoaglund, Film Producer</td>
<td>Organized by SFU History and co-sponsored by David Lam Centre, the bilingual filmmaker born in Japan gave a talk to students and faculty at SFU.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 14, 2019</td>
<td>Taiwan Studies Group Speakers Series: Decolonizing Mothering: Asian Immigrant Mothers’ Learning in Transnational Canada</td>
<td>Yidan Zhu, Postdoctoral Fellow, Faculty of Dentistry, UBC</td>
<td>The speaker discussed how Asian immigrant mothers in Canada learn to become “ideal mothers” and (re)construct their identities in association with the reproduction of race, gender, and class inequalities in transnational Canada. The purpose of this talk was to use decolonization as a theoretical framework for unpacking the colonial relations behind the knowledge of mothering through the exploration of Asian immigrant mothers’ everyday lives. The researcher also discussed how knowledge has been shaped and produced through colonial relations in transnational contexts.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 15, 2019</td>
<td><strong>Taiwan Studies Group Speakers Series: Pirates and Publishers: A Social History of Copyright in Modern China</strong></td>
<td>Fei-Hsien Wang, Assistant Professor of History, East Asian Languages and Cultures, and the Liberal Arts &amp; Management Program, Indiana University</td>
<td>China has long been criticized as the heaven of intellectual property piracy. In mass media as well as in academic discussions, China’s inability or reluctance to protect copyright is often attributed to its cultural tradition which embraces imitation over innovation. But is this the whole story? The speaker used a new conceptual framework to reveal an intertwined history of copyright and piracy in modern China. By shifting the attention from the letter of the law to the actual practices of copyright, it explores how copyright, a seemingly alien concept, was actually received, appropriated, and employed to respond to emerging issues of piracy in China’s local socio-economic contexts, both within and beyond the legal institutions of the state. While Chinese publishers and authors might be labeled as ruthless pirates by their foreign counterparts, they were advocates for domestic copyright in their own ways.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 19, 2019</td>
<td>2019-20 Social Science Colloquium on China: South-South Encounters: The Politics of Interactions Among Africans and Chinese on the Ground</td>
<td>Saheed A. Adejumobi, Associate Professor of History Department, Seattle University Nellie Chu, Assistant Professor of Cultural Anthropology, Duke Kunshan University Huamei Han, Associate Professor of Faculty of Education, SFU Derek Sheridan, Assistant Research Fellow, Institute of Ethnology at Academia Sinica, Taiwan</td>
<td>Led by the discussant, Professor Adejumobi, three researchers shared their findings and insights as well as current projects on African migrant workers in China as well as Chinese workers in Africa.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 19, 2019</td>
<td>Eating as Moral Philosophy: A Comparison Between Singapore and the U.S.</td>
<td>Richard Wilk, Distinguished Professor and Provost’s Professor Emeritus, Indiana University</td>
<td>People across the world think about foods that are “good” and “bad,” and see some kinds of eating as virtuous while others make them feel guilty. This talk contrasted such beliefs in Singapore and the United States. There is every reason for food to have a close connection with morality – every religion has something to say about what we should and should not eat, and sharing food is the most fundamental act that binds us together, starting with a mother’s breast. But how do people enact such moral precepts in practice? Professor Wilk presented his paper which is based on interviews, discussions and self-reports of college students in both the United States and the National University of Singapore's Tembesu College. The paper reveals the complexity of the negotiable valences of different foods, and the moralities involved in the ways they are consumed and their social context. For college students, the everyday morals of food turn out to be closely linked with other morally fraught behavior, including exercise, sex, drinking and work.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 19, 2019</td>
<td>Ground Down by Growth: Tribe, Caste, Class and Inequality in 21st Century India</td>
<td>Alpa Shah, Associate Professor, London School of Economics</td>
<td>Alpa Shah presented her co-authored ‘Ground Down by Growth: Tribe, Caste, Class and Inequality in 21st Century India’, listed as a 2018 Book of the Year by The Hindu newspaper. While the world marvels at India’s economic growth rates, inequality is rising and the country’s ‘untouchable’ and ‘tribal’ communities – who make up a staggering one in twenty-five people across the globe – remain at the bottom of the economic and social hierarchy. How and why is this the case? In conversation with economists, a team of anthropologists lived with Adivasis (‘tribes’) and Dalits (‘untouchables’) in five different sites across India to answer this question. They show how capitalism is entrenching social difference, transforming traditional forms of identity-based discrimination into new mechanisms of exploitation and oppression. Inherited inequalities of power are merging with the super-exploitation of migrant labour, and the conjugated oppression of class, caste, tribe and gender. The struggles against these inequalities are considered.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 20, 2019</td>
<td>Taiwan Studies Group Speakers Series: A Glimpse on Indigenous Traditional Territory Policy Through the Land Disputes from the Thao People in Taiwan</td>
<td>Yung-ching Lo, PhD, Institute of Cultural Anthropology and Development Sociology, Leiden University</td>
<td>In 2005, Taiwan has stipulated an Indigenous Basic Law to bring rights to come true. For indigenous land rights, in the Basic Law, article 21 is concerned on the principle of free prior informed consent (FPIC) and sharing about the benefit of any developments in indigenous land. But the problems come that where are indigenous lands that actually include conservation land and traditional territories. The former is clear but the traditional territories are still in the mapping process that is formulated by the Indigenous Council that insists these lands do not include private land. This policy triggers many pros and cons especially, indigenous people demonstrate private lands should be concerned, otherwise it is not transitional justice at all. The talk illustrated the case from the Thao people to see how Indigenous Traditional Territory Policy worked through disputes.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 22, 2019</td>
<td>Night March: Among India’s Revolutionary Guerrillas</td>
<td>Alpa Shah, Associate Professor, London School of Economics</td>
<td>Alpa Shah discussed <em>Nightmarch: Among India’s Revolutionary Guerrillas</em>, which was shortlisted for the 2019 Orwell Prize for Political Writing and the New India Foundation Book Prize, and a 2018 Book of the Year for the New Statesman, the Hindu, the Scroll and History Workshop. <em>Nightmarch</em> refers to a seven-night trek when Shah found herself dressed as a man amidst a Naxalite guerrilla platoon, walking 250 km across the dense forests of eastern India at the peak of counterinsurgency operations in 2010. Framed by the government and the media as a deadly terrorist group, the Naxalites are Marx, Lenin and Mao-inspired ideologues and tribal combatants, seeking to overthrow a system that has abused them for decades, in what is now the world’s longest running armed insurgency. Based on years of living as an anthropologist with indigenous communities, Shah explores why they have taken up arms to fight for a fairer society and asks how they may be undermining their own aims.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 22, 2019</td>
<td>Taiwan Studies Group Speakers Series: Testing Hearing: Audiometry and Environmental Noise Control in Postwar Taiwan</td>
<td>Jennifer Hsieh, LSA Collegiate Fellow, Department of Anthropology, University of Michigan</td>
<td>As part of democratic liberalization in the late 1970s and 1980s, noise abatement signified the Kuomintang (KMT) regime’s efforts to attend to the quality of life of local Taiwanese subjects. However, the use of scientific, objective indicators for noise, as decibels, had the effect of subjecting individual, human experience to the standardizing techniques of quantification and measurement. Through an analysis of audiometric testing of hearing health among deaf schoolchildren to socio-acoustic surveys that assessed one’s noise tolerance levels, Dr. Hsieh examined how hearing and noise became an interest of the state—as both a continuation of surveillance practices and as a symbol of liberalization. This paper is part of a larger project in which the researcher analyzed how noise petitioners and civil servants in Taiwan mediate political engagement through the technocratic measurement of environmental noise.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 22, 2019</td>
<td>Revisiting Indigenous Articulations: A Film Screening and Discussion with Anita Chang</td>
<td>Anita Chang, Assistant Professor, Department of Communication, California State University</td>
<td>What is at stake in generating and representing Indigenous articulations in Asia and the Pacific? Articulations in this usage encompass both attempts to generate meanings and new connections and relations that cut across the boundaries of nation-states. To help engage with this question, David Lam Centre welcomed filmmaker, educator, and writer Anita Chang for a screening and discussion of <em>Tongues of Heaven</em>, a collaboratively directed experimental documentary film project that brings together the work of four Indigenous female filmmakers: An-Chi Chen and Shin-Lan Yu from Taiwan and Leivallyn Kainoa Kaupu and Monica Hauʻoli Waiau from Hawai‘i. This film represents in at-times unexpected ways efforts at Indigenous language revitalization, responses to settler colonial education policies, and the impact of extreme climate variability on Indigenous communities. Following the screening, Anita discussed the film, as well as demonstrated the companion web application named <em>Root Tongue</em>.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 27, 2019</td>
<td>Taiwan Studies Group Speakers Series: Early Cinema in Colonial Taiwan</td>
<td>Laura Jo-Han Wen, Assistant Professor of Chinese Studies, Department of Asian Studies, Randolph-Macon College</td>
<td>What was the role of cinema during the expansion of empires in East Asia? This talk introduced early film culture in colonial Taiwan and shed light on the intermediality between cinema and other popular media during the first half of the twentieth century. Inspired by media archaeology to investigate “where was cinema” in the colonial context during Sino-Japanese encounters. Professor Wen explored the technohistorical significance of cinema and examined the role of early film culture in modern discourses propagated by the Japanese empire. Rare images and archival materials concerning magic lantern shows, talkies, and eight-millimeter films were revisited in this talk in the discussion of transnational modernism, colonial propaganda, and the practice of amateur cinema.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>December 10, 2019</td>
<td>Taiwan Studies Group Speakers Series: Taiwan in Dynamic Transition: Nation Building and Democratization</td>
<td>Ashley Esarey, Assistant Professor, Department of Political Science, University of Alberta</td>
<td>This talk provided an up-to-date assessment of contemporary Taiwan, highlighting Taiwan’s emergent nationhood and its significance for world politics. Taiwan’s path has important implications for broader themes and preoccupations in contemporary thought, such as consideration of why political transitions in the aftermath of the Arab Spring have sputtered or failed while Taiwan has evolved into a stable and prosperous democratic society. Taiwan serves as a test case for nation and state building, the formation of national identity, and the emergence of democratic norms in real time.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>December 11, 2019</td>
<td>Taiwan Studies Group Speakers Series: The Portraits of a Heroine: Huang Bamei and the Politics of Wartime History in East Asia, 1930-1960</td>
<td>Weiting Guo, Assistant Professor, History, SFU</td>
<td>Professor Guo explored the life and images of Huang Bamei (1906–82)—a female bandit, guerrilla leader, and women’s organization coordinator. While films and literature revealed her past as a pirate and “Han traitor,” the Nationalist authorities granted her land, garment factory, and fund to prevent her collaboration with the Central Intelligence Agency (CIA) of the United States. Drawing on abundant sources from government archives, newspapers, memoirs, and films, this talk looked at this chameleon-like woman in light of the vicissitudes of cultural and national imaginations in WWII and Cold War. Through a close reading of the life history of this legendary woman, the presentation examined how Huang developed her survival strategies during a turbulent time and how her competing representations were embedded in the wartime politics of modern East Asia.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>January 15, 2020</td>
<td>Pacific Region Forum: A Balancing Act: Translating Scholarly Management Research for Chinese and English Speaking Managers</td>
<td>Jean M. Bartunek, Robert A. and Evelyn J. Ferris Chair and Professor of Management and Organization, Boston College Isabelle Yi Ren, Visiting Assistant Professor of Management, Adelphi University</td>
<td>How is knowledge in scholarly management research papers (often 30 to 50 pages long) converted into insights meant to be brief, applicable, and interesting for managers? And how does this differ for managers with different cultural backgrounds? In this presentation, the researchers examined the motivations, translation strategies, and tensions that underlie the conversion process. In particular, they discussed how research translations for Chinese-speaking managers may differ systematically from research translations for English-speaking managers. Jean and Isabelle studied this using a research translation magazine that converts management research from top journals into both Chinese and English research highlights.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>January 29, 2020</td>
<td>2019-20 Social Science Colloquium on China: China and Global Ocean Governance: Opportunity or Threat?</td>
<td>Tabitha Grace Mallory, Affiliate Professor, Henry M. Jackson School of International Studies, University of Washington and Founder and CEO of the China Ocean Institute</td>
<td>China’s foreign policies such as the Belt and Road Initiative and “Made in China 2025” make some observers nervous. China’s investment abroad and technology planning raise concerns about possible threats to the liberal international order through the potential creation of spheres of influence, competing standards, and a protectionist economic system. Such anxieties are accompanied by apprehensions over China’s stricter domestic political and social policies. Against this backdrop, China is also increasingly involved in global ocean governance thanks to domestic blue economy initiatives, the 21st Century Maritime Silk Road, and a desire to shape international institutions in its favor. China’s global fishing fleet is the largest in the world, and China participates in international negotiations over seabed mining and marine genetic resources. What are the implications of China’s role in how we govern our global oceans? Dr. Tabitha Mallory provided an overview of China’s strategic ocean development plans, and discussed both areas for concern as well as for future cooperation.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 12, 2020</td>
<td>2019-20 Social Science Colloquium on China: Taiwanese Capitalism with Socialist Characteristics: Guomindang Land Reform in Cold War Taiwan</td>
<td>James Lin, Assistant Professor of International Studies and History, University of Washington</td>
<td>This presentation explored the role of imagined capitalism and socialism in constructing a new form of modernity on postwar Taiwan. GMD land reform formed the basis of a modern, Taiwanese anticommunism in a global Cold War. Its architects crafted a capitalist (and thus “non-radical”) solution centered on financial ingenuity and social welfare. By the late 1960s, Taiwan turned its experience in land reform into a Global South-South enterprise, sending land reform experts to countries like Iran and Vietnam, while hosting dozens of Third World bureaucrats over several decades at its Land Reform Training Institute founded in 1968. Ultimately, the discourse and power of capital were critical for the representation of Taiwan’s own development modernity, both at home and abroad. Its key findings demonstrate the significance of swapping land for debt in the rise of global capitalist logics that undergirded greater 20th century social and economic transformations in Taiwan, Asia, and the Global South.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 28, 2020</td>
<td>Mukhtiyar Ali &amp; Friends – A Concert of Sufi and Bhakti Music</td>
<td></td>
<td>Mukhtiyar Ali represents the folk tradition of Sufi and Bhakti singing that spans the north of India and Pakistan. Singing in his native Marwari, as well as Hindi and Punjabi, Ali sings of the spirit and the worldly, of truth and of love, of passion and of reason.</td>
</tr>
<tr>
<td>February 29, 2020</td>
<td>South Asia Conference of the Pacific Northwest (SACPAN)</td>
<td>Robert Anderson, Professor Emeritus, School of Communication</td>
<td>Twenty-five researchers from SFU, UBC, University of Washington and Yale joined 4 panels to discuss evolving perspectives of South Asia including gender, politics, social struggles, culture, and religious frontiers and blindspots in this 1-day conference.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 5, 2018</td>
<td>Bayanihan and Belonging: Filipinos and Religion in Canada</td>
<td>Alison R. Marshall, Professor of Religion, Brandon University</td>
<td>The talk provided an overview of Filipino religiosity in Canada today. The speaker drew on research participant narratives, archival research, and fieldwork in Canada and the Philippines to explain the link between Filipino religious beliefs and practices, migration and belonging.</td>
</tr>
<tr>
<td>April 19, 2018</td>
<td>Paul Tai Yip Ng Memorial Award for 2017 Best Graduate Student Paper</td>
<td>SFU David Lam Centre</td>
<td>Ms. Maggie Tsang, an MA student in Humanities, was the winner of our 2017 Best Graduate Student Paper award. Maggie obtained a B.Sc. in Environmental Science &amp; Management and an MA in Philosophy from Hong Kong. The winning paper examines the nature of knowledge of Chinese and Modern Medicine with a hermeneutic approach.</td>
</tr>
<tr>
<td>May 2018</td>
<td>explorAsian 2018</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorASIAN celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>May 2018</td>
<td>2018 DOXA Documentary Film Festival</td>
<td>Documentary Media Society</td>
<td>The 17th Annual DOXA Festival featured 93 films and 96 screenings including the screenings of <em>From Our Eyes</em>, curated by Yi Cui and sponsored by SFU David Lam Centre</td>
</tr>
<tr>
<td>May 12, 2018</td>
<td>Mountain High River Flow</td>
<td>Sound of Dragon Society</td>
<td>This workshop provided hands-on opportunity for the participants to explore the inspiration from the natural world, both musically and visually. The artist Dailin Hsieh brought one zheng for everyone to take turns to play. Participants were welcomed to bring other musical instruments to play and paint mountains, trees, flowers and rivers with ink and rice paper.</td>
</tr>
<tr>
<td>May 28, 2018</td>
<td>Taiwan Studies Group Speakers Series: The Bamboo Union: Romance, History and Politics</td>
<td>Yun Xia, Associate Professor of History and International Studies, Valparaiso University</td>
<td>From the 1950s to the 1980s, student gangs founded by children of mainlanders in Taiwan evolved into entrepreneurial criminal organizations, against the backdrop of Taiwan’s modernization and gradual democratization. This metamorphosis is best illustrated in the formation and vicissitudes of the Bamboo Union (zhulian bang). The speaker unveiled the historical realities of this often fantasied organization, its inner-workings and its intricate relations with competing gangs as well as with the Nationalist party.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>May 29, 2018</td>
<td>Taiwan Studies Group Speakers Series: Gendering Masculinity: Taiwanese Households and the Japanese Colonial Courts</td>
<td>Tadashi Ishikawa, Postdoctoral Fellow in the Chiu Program for Taiwan Studies, Oregon State University</td>
<td>This talk examined the construction of Taiwanese masculinity in the Japanese colonial courts from 1919 to 1936. In the early 1920s, new Taiwanese elites emerged against the backdrop of preexisting male elitism and women’s subordination to men and began envisioning new manliness within and outside the household.</td>
</tr>
<tr>
<td>June 26, 2018</td>
<td>2018 Canada-China Sino-Western Cultural Exchange Forum</td>
<td>International Multicultural Development Foundation</td>
<td>This forum shared examples of non-governmental protection of cultural heritages.</td>
</tr>
<tr>
<td>July 2018</td>
<td>Indian Summer Festival</td>
<td>Indian Summer Festival Society</td>
<td>The theme of the 11-day festival was ‘Mythmaking’. People have always longed to know where we come from, why the world came to be and why things are the way they are. ISF 2018 took on this massive theme, examining ten centuries of human imagination and storytelling and presented a trans-continental range of artists, from the inheritors of ancient oral storytelling traditions to genre-defying musicians, award-winning novelists, and provocative visual artists.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>August 2018</td>
<td>The 42nd Annual Powell Street Festival</td>
<td>Powell Street Festival Society</td>
<td>The Powell Street Festival is the largest Japanese Canadian festival in the country and the longest running community arts celebration in Vancouver! Enjoy traditional and contemporary Japanese Canadian performances and demonstrations, including taiko drumming, sumo wrestling, martial arts, bonsai and ikebana, folk and modern dance, alternative pop/rock/urban music, visual arts, film/video, as well as historical walking tours, tea ceremonies, and a fantastic array of Japanese food, crafts, &amp; displays.</td>
</tr>
<tr>
<td>September 13, 2018</td>
<td>Going Home</td>
<td>Bei Ling, poet and essayist</td>
<td>Beijing has changed greatly since the year 2000. Bei-Ling, exiled and not able to return to his home - Beijing, shared his impression of Beijing today.</td>
</tr>
<tr>
<td>September 18, 2018</td>
<td>MIKTA Workshop: Middle Powers’ Role in the Era of the Confrontations Among Major Powers</td>
<td>Consulate General of the Republic of Korea</td>
<td>A 1-day workshop featuring panelists from the Royal Roads University, UBC, former Korean ambassador to Australia, Fairleigh Dickinson University, and the Asia-Pacific Foundation of Canada</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 18, 2018</td>
<td>The Future of the Asian Pacific Economy and Trans-Pacific Trade</td>
<td>Stewart M. Patrick, Director of the International Institutions and Global Governance Program, Council on Foreign Relations, Washington, D.C.</td>
<td>The speaker spoke to what the implications are or could be of the U.S.’s non-participation in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, formerly known as the Trans-Pacific Partnership, or TPP), especially as China proceeds to deepen trade and economic engagement around the world through the Belt and Road Initiative and Regional Comprehensive Economic Partnership (RCEP). In addition, his comments touched on what the American domestic foundations are for the re-engagement of Asia in a context of rising sovereigntism, insularity, and protectionism in the United States.</td>
</tr>
<tr>
<td>September 27, 2018</td>
<td>The Burden of Housing Refugees: A Perspective from Rohingya Hosting Chittagong</td>
<td>D. Mitra Barua, Annette and Hugh Gragg Postdoctoral Fellow in Transnational Asian Studies, Rice University</td>
<td>This presentation warned that the delay in resolving the Rohingya crisis may trigger another refugee-generating crisis by victimizing the non-Bengali and Buddhist minority living in Chittagong. This observation, made after a month-long visit to Rohingya refugee hosting Chittagong, highlights the urgent need for international intervention so that the Rohingya refugees are repatriated in timely fashion to stop another humanitarian crisis in the region.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 3, 2018</td>
<td>Pacific Region Forum Asian Waters: The Struggle Over the Asia-Pacific and the Strategy of Chinese Expansion</td>
<td>Humphrey Hawksley, former BBC correspondent</td>
<td>Whether on trade or tension around the Korean peninsula, America and China suspiciously circle each other while many other countries are deciding where their long-term future best lies. How these complexities are handled will have repercussions on all our lives. In this Pacific Region Forum, Humphrey Hawksley, a former BBC China and Asia correspondent, drew on decades of first-hand experience in Asia for this compelling and comprehensive analysis of the Asia-Pacific region.</td>
</tr>
<tr>
<td>October 10, 2018</td>
<td>Taiwan Studies Group Speakers Series: The Contentious Public Sphere: Law, Media, and Authoritarian Rule in China</td>
<td>Yan-wen Lei, Assistant Professor in the Department of Sociology, Harvard University</td>
<td>Despite ongoing censorship and repression, public opinion and debate in China has become increasingly common and consequential. How did this happen? The speaker, drawing on her new book <em>The Contentious Public Sphere</em>, discussed how the Chinese state mobilized law, the media, and the Internet to further an authoritarian project of modernization, but in so doing, inadvertently created a nationwide public sphere in China—one the state must now endeavor to control. She examined how this unruly sphere has influenced Chinese politics and the ways that the state has responded.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 11, 2018</td>
<td>Pacific Region Forum China and the New Generation of Entrepreneurs: Is There a Lesson for Other Developing Countries?</td>
<td>Majid Ghorbani, Associate Professor at the Business School of Renmin University of China</td>
<td>Since the introduction of the open-door policy, and the shift away from extreme levels of state control of the economy, entrepreneurship in China has flourished. The speaker reported on the state of entrepreneurship in China based on the findings of three academic research projects and 30 years of experience observing China. This presentation touched upon the promotion and results of entrepreneurship among China's rural population and the creation of an uber class and middle class as well as some potential future obstacles and implications for Pacific Rim developing nations were discussed.</td>
</tr>
<tr>
<td>October 13, 2018</td>
<td>2018 K-Pop Competition</td>
<td>Consulate General of the Republic of Korea</td>
<td>Sponsored by the DLC to take place at SFU Goldcorp Centre for the Arts</td>
</tr>
<tr>
<td>October 16, 2018</td>
<td>Taiwan Studies Group Speakers Series: The Formation of Taiwanese Identity After Democratization</td>
<td>Shiho Maehara, Research Assistant Professor of Taiwan Studies Project at Kyushu University, Japan</td>
<td>Taiwan is an ethnically and culturally diverse island whose have long been asking themselves “who are we?” As Taiwan has democratized since the 1980s, the answers to this question have changed considerably. In this talk, Shiho analyzed the historical background to this shifting identity discourse, focusing especially on the influence of former Taiwanese President Lee Teng-hui.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>October 29, 2018</td>
<td>Running on Empty: Canada and the Indochinese Refugees, 1975-1980</td>
<td>Panelists: Michael Molloy, former ambassador to Jordan</td>
<td>The story of how Canada launched this major refugee program is told in <em>Running on Empty: Canada and the Indochinese Refugees, 1975-1980</em>. The book was written by four retired federal immigration officials. It describes the efforts of their colleagues working under difficult conditions in Indochinese refugee camps and in Canadian communities to resettle those displaced by war and oppression. The lessons learned and new programs launched in this Indochinese refugee movement informed later refugee movements to Canada.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>David Ritchie, former Foreign Services Officer served in Pakistan, Afghanistan, India and Sri Lanka</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mohammed Alsaleh, a Syrian refugee and former medical student</td>
<td></td>
</tr>
<tr>
<td>November 1, 2018</td>
<td>Taiwan Studies Group Speakers Series: Loyalty Marathon: Career Norms and Choices in Taiwan Law Firms</td>
<td>Sida Liu, Assistant Professor of Sociology and Law, University of Toronto</td>
<td>Lawyers often face difficult career choices in times of market uncertainty. After the global financial crisis in 2008, Taiwan law firms have experienced business downturns, which have taken a toll on lawyers’ careers. Drawing on more than 60 interviews conducted in Taipei and Tainan in 2017-2018, this talk investigated how lawyers in Taiwan make career choices in an unfavourable market for professional services. The speaker argued that professional careers in Taiwan law firms is driven by an extra-long “loyalty marathon.”</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 5, 2018</td>
<td>Taiwan Studies Group Speakers Series: Indigenous Taiwan: Traditional Knowledge Navigating Modernity</td>
<td>Michael Jacobson, rescuer of two Daowu fishing boats in Seattle</td>
<td>Taiwan’s 16 recognized indigenous tribes daily navigate the pressures of modernity while maintaining their traditional cultures and traditions. Contemporary indigenous people must make a living, maintain their language and culture within the dominant Han culture, and deal with the negative impacts of mass tourism and environmental degradation. The speaker examined the Daowu, Paiwan, Rukai and Atayal tribes and the significance of Taiwan’s indigenous communities in Taiwan’s history and culture.</td>
</tr>
<tr>
<td>November 15, 2018</td>
<td>Pacific Region Forum: Globalization, Movement of Intellectual Capital and Innovation – The Russian Case</td>
<td>Daniel Satinsky, business consultant and analyst</td>
<td>Based on in-depth interviews with 157 Russian-speaking immigrants in the tech sectors of Silicon Valley and Boston/Cambridge, one of the authors of <em>Hammer and Silicon – The Soviet Diaspora in the U.S. Innovation Economy</em> examined the role of U.S. and Soviet, then Russian government immigration policy and the experience of immigration for the real people who comprise human intellectual capital, was discussed and summarized in this presentation.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 20, 2018</td>
<td>Taiwan Studies Group Speakers Series: Hierarchy and Egalitarianism in Austronesia Taiwan: A Case Study of the Paiwan</td>
<td>Kun-hui Ku, Institute of Anthropology, National Tsing Hua University</td>
<td>This lecture reviewed previous attempts to characterize the nature of social differences among the Austronesian Taiwan and the theoretical roots of these efforts. Linguistic research over the past three decades has suggested that Proto-Austronesians may have already developed chiefdoms and social hierarchies and that Taiwan was one of the key sites for the migration of Austronesian speakers. Some scholars thus concluded that the “egalitarian” type of societies among the Austronesian Taiwan must have been the result of Japanese colonialism. The speaker compared this dichotomy with ethnographic material from Austronesian Taiwan, especially the Paiwan; distinguished the ideological and practical dimensions of this historical reconstruction; and examined the viability of the analytical tools which have been widely adopted in the anthropological literature on other Austronesian societies.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 26, 2018</td>
<td>Taiwan Studies Group Speakers Series: ‘Struggle for 100% Freedom’: The Legacy of Nylon Cheng and Taiwan’s Democratization</td>
<td>Ashley Esarey, University of Alberta</td>
<td>A provocative media entrepreneur and radical advocate of Taiwan independence in the 1980s, Nylon Cheng 鄭南榕 has since been commemorated with a “Freedom of Speech Day” and his quotations have served as rallying cries for a later generation of political activists. In a talk on Taiwan’s transition from authoritarian rule. The speaker argued that the ways in which Nylon Cheng’s ultimate sacrifice have been remembered can reveal much about the enduring effects of 1980s democratic activism as well as illustrate the vibrance of democracy in contemporary Taiwan.</td>
</tr>
<tr>
<td>November 28, 2018</td>
<td>Research Seminar</td>
<td>Miles Powell, Professor at Nanyang Technological University (Singapore)</td>
<td>The speaker shared new work on the environmental history of the Pacific shark fin trade: “How Would You Feel If Someone Were Allowed to Kill One of Your Grandparents?”: Kānaka Maoli Opposition to the Hawaiian Shark Fin Trade.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 11, 2019</td>
<td>Taiwan Studies Group Speakers Series: Fissures in the Historical Terrain: Revisit the Cold War in East Asia in the Hoover Archives</td>
<td>Hsaio-ting Lin, research fellow and curator of the Modern China collection at the Hoover Institution</td>
<td>The presentation showcased several archival treasures from the Hoover Institution Archives, Stanford University. The speaker illustrated how these archival collections might provide both evidence and opportunity for scholars to reconsider the Cold War binary thinking in Asia that has greatly simplified the intricate and intriguing political and military landscape in the region, overlooking the complicated intra-alliance between Taiwan and the United States, and across the Taiwan Strait.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 27, 2019</td>
<td>Soundscapes of Uyghur Islam</td>
<td>Rachel Harris</td>
<td>The speaker shared her research that encompasses field-based ethnographic study of village ritual practices, and digital ethnography of mediated spheres of religious life, oral traditions of Central Asian Sufism, transnational flows of Qur’anic recitation and radical anashid, ideological debates and state interventions. In the fraught sphere of the discourse surrounding Islamic revivals, where dominant narratives privilege the visual in ways that routinely stereotype, demonize, and render Muslim subjects as passive Others, attending to the politics of voice and place may help to cut through the polarized political debates, and create new narratives about the lived experience of Islam.</td>
</tr>
<tr>
<td>March 5, 2019</td>
<td>Through the Looking Glass</td>
<td>Yi Cui, filmmaker and term lecturer SFU School for the Contemporary Arts</td>
<td>The speaker, Yi Cui, introduced a few works made by Tibetan herdsmen, monks and young students, and discussed her observations and analyses developed while she worked in the local Tibetan communities working with people making their own films.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 9, 2019</td>
<td>Workshop: Identifying Challenges and Potential Solutions in Protecting Indigenous Heritage in Japan and North America</td>
<td>Department of Archaeology</td>
<td>Two faculty from the Center for Ainu and Indigenous Studies (Hokkaido University) and faculty from Canada and the US shared latest development in indigenous heritage in Japan and North America</td>
</tr>
<tr>
<td>March 14, 2019</td>
<td>Indigenous Worlds in Life and Death: Indigenous Worlds Beyond Borders as Seen from Victoria, BC in the 19th Century</td>
<td>David Chang, Distinguished McKnight Professor of History and Chair of the Department of American Indian Studies, University of Minnesota</td>
<td>Coordinated with SFU History, this lecture explored how two different ways of studying the past (standard social history and interdisciplinary Indigenous study) lead to different understandings of past worlds. The standard tools of social history shed useful light on the early roots of colonial processes of hyper-policing and mass incarceration of indigenous people. Yet a study that proceeds from indigenous language sources and indigenous ideas of kinship and connection can reveal indigenous lives that transcend the boundaries that colonial powers archives impose upon them, in the past and also in the present.</td>
</tr>
<tr>
<td>March 22, 2019</td>
<td>Association of Asian Studies Conference</td>
<td>Michael Hathaway, Director of David Lam Centre</td>
<td>Michael presented papers on Indigenous Asia at the AAS Conference in Denver, Colorado and hosted largest known gathering of scholars of Indigenous Asia</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 27, 2019</td>
<td>Conversations with Ambedkar: Ten Ambedkar Memorial Lectures</td>
<td>Valerian Rodrigues, Visiting Scholar in the Department of Humanities at SFU</td>
<td>The speaker shared the lectures at Ambedkar University Delhi which dwell on some of the most telling concerns that our age confronts: concerns of justice, social closures, bare life and sovereign power, political agency, discrimination and affirmative action, displacement and migration, new modes and languages of command and control, social movements under the shadow of global capital, and politics of epistemic and normative frames on offer today.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>April 6, 2017</td>
<td>Of Shadows: Film Screening and Talk by Director Yi Cui</td>
<td>Yi Cui, filmmaker of Camera Lucida and Shadow Puppet</td>
<td>Filmed in China’s Loess Plateau, where shadow theatre has entertained people and deities for centuries, OF SHADOWS follows a lively and resilient group of local shadow play performers as they navigate between the rural staging of ancient plays and the urban spectacles of national cultural heritage.</td>
</tr>
<tr>
<td>April 21, 2017</td>
<td>Celebration of the Chinese Canadian History Public Education Project’s Book Launch</td>
<td>Chinese Canadian History Project Council, SFU David Lam Centre</td>
<td>Canada's Chinatowns: Past, Present, and into the Future is collection of eight Chinatown booklets. It is also a contribution to Canada's sesquicentennial celebration, Canada 150. The book is both a public information project and a statement of advocacy for maintaining the viability and integrity of Canada's historic Chinatowns.</td>
</tr>
<tr>
<td>May 2017</td>
<td>explorAsian 2017</td>
<td>Vancouver Asian Heritage Month Society (VAHMS)</td>
<td>explorASIAN celebrates national Asian Heritage Month each May by building bridges between mainstream and Asian Canadian communities in promotion of multiculturalism and diversity.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>June 7, 2017</td>
<td>Paul Tai Yip Ng Memorial Award for 2016 Best Graduate Student Paper</td>
<td>SFU David Lam Centre</td>
<td>Ms. Tina Kong, an MA graduate in English, is the winner of our 2016 Best Graduate Student Paper award. Tina earned her BA (University of British Columbia, 2013). The winning paper examines the mechanics of white supremacy in mid-century Canada, as told through Velma Demerson's autobiography <em>Incorrigible</em>.</td>
</tr>
<tr>
<td>July 16, 2017</td>
<td>Border Crossing and Interaction: Evolution and Achievements of Chinese Canadian Literature</td>
<td>Chinese Canadian Writers’ Association (CCWA)</td>
<td>Nearly 30 writers and scholars from Canada, the United States, China, Hong Kong, Macao, Korea and Thailand came to present their papers.</td>
</tr>
<tr>
<td>September 9, 2017</td>
<td>Curator’s Talk with Ying Tan</td>
<td>Ying Tan, Curator at the Centre for Chinese Contemporary Art (CFCCA) in Manchester, UK</td>
<td>Ying shared in more detail on her curatorial practice, the history of CFCCA as an institution in the diverse art ecology of Manchester and its place in a global contemporary art context.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 16, 2017</td>
<td>Researching Contemporary Topics in Asia</td>
<td>Asia-Pacific Foundation (APF)</td>
<td>A panel discussion with Asia Pacific Foundation of Canada’s post-graduate research fellows, who talk about their recent short-term field work in Asia, looking at:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• East Asian youth cultures (China, Hong Kong, Japan, South Korea, Taiwan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Women entrepreneurs in Asia’s start-up scene (Pakistan, the Philippines, Vietnam)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canadian support for LGBTQ rights groups (Myanmar, South Korea, and Taiwan)</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>September 16, 2017</td>
<td>Canada 150 Conference on Migration of Bengalis</td>
<td>Department of Gender, Sexuality, and Women’s Studies</td>
<td>Paper presentations by speakers from both academia and the community at this 2-day conference on:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Migration and Settlement of Bengalis: History, Demography, Religion, and Health Issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Gender Culture, Family, and Work: Stories of Migration</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Multiculturalism, Bengali Organizations, and Social Justice Issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Canadian Bengali Youths: Identity, Social, Cultural, and Family Life</td>
</tr>
<tr>
<td>September 18-20, 2017</td>
<td>Writing for Readers: Academic Publishing in a Time of Change</td>
<td>Ken Wissoker, Editorial Director of Duke University Press</td>
<td>This talk explores problems and discusses how to think about writing first and subsequent scholarly books at a time of change in the academy and in publishing. One-on-one workshops are held for SFU faculty with Ken.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| September 25, 2017 | The Book of Swindles                                                | Chris Rea, Associate Professor of Asian Studies former Director of the Centre for Chinese Research at the University of British Columbia  
Bruce Rusk, associate professor of Asian studies at the University of British Columbia | The two authors talk about *The Book of Swindles*, compiled by an obscure writer from southern China, presents a fascinating tableau of criminal ingenuity. The flourishing economy of the late Ming period created overnight fortunes for merchants—and gave rise to a host of smooth operators, charlatans, forgers, and imposters seeking to siphon off some of the new wealth. |
<p>| September 28, 2017 | James Legge and the Chinese Classics: the Missionary, the Shanghai Hippie, and the Opium Taipan in the Turmoil of Colonial Hong Kong | Marilyn Bowman, Professor Emerita, SFU Department of Psychology                       | Marilyn presents to the audience James Legge (1815-1897), a brilliant Scots scholar and missionary famed as a translator of the Chinese Classics in Hong Kong when struggles between Britain and China included two wars, in an entertaining way. |
| September 28, 2017 | Not-Your-Grandma’s Social Movements                                  | Aya H. Kimura, Associate Professor of Sociology at the University of Hawai`i-Manoa   | This lecture explores projects after the Fukushima nuclear accident as examples of citizen science (participation by lay citizens in getting scientific information), and examines its relationship to social movements. |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speaker/Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 29, 2017</td>
<td>Women’s Participation in Post Fukushima Radiation Monitoring: Exploring Gendered Scientization</td>
<td>Aya H. Kimura, Associate Professor of Sociology at the University of Hawai`i-Manoa</td>
<td>Citizen radiation measuring organizations (CRMO) were citizens’ groups established to measure the concentration of radioactive materials in food to ensure its safety after the Fukushima nuclear accident. CRMOs had active participation by laywomen. This lecture explores the motivations of these women to get involved in CRMOs and how they understood the value of using science in the face of the nuclear accident.</td>
</tr>
<tr>
<td>October 5, 2017</td>
<td>Information Session on Opportunities in Hong Kong</td>
<td>Hong Kong Economic and Trade Office (HKETO)</td>
<td>The HKETO, which is the official representative office of the Hong Kong Special Administrative Region (HKSAR) Government in Canada, hosts an information session on opportunities in Hong Kong.</td>
</tr>
<tr>
<td>October 27, 2017</td>
<td>Taiwan Studies Group Speakers Series: Telling Tales: Tradition and Historiography in Taiwanese Comics</td>
<td>Nick Stember, Translation Editor of Ricepaper Magazine</td>
<td>Over the last three years, the Ministry of Culture of the Republic of China has sponsored the ground-breaking Books from Taiwan initiative to translate a juried selection of these works into English. Nick introduces and explains Taiwanese comics to the public in this talk.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>November 1,</td>
<td>Pacific Region Forum: Economic Incentives, Societal Culture, and</td>
<td>Joe Cheng, Professor Emeritus of Business Administration, University of</td>
<td>This presentation examines the interactive influence of economic incentives and societal culture on new business creation within the context of cultural effects. It argues that economic incentives can help promote entrepreneurship by taking on a compensatory or reinforcing role in relation to societal culture.</td>
</tr>
<tr>
<td>2017</td>
<td>Entrepreneurship</td>
<td>Illinois at Urbana-Campaign</td>
<td></td>
</tr>
<tr>
<td>November 17,</td>
<td>Taiwan Studies Group Speakers Series: Reflections on a Half-Century of</td>
<td>Stevan Harrell, Emeritus Professor, University of Washington</td>
<td>Taiwan in the 1960s and 1970s was a very different place, almost unrecognizable to today’s young people or to people who visit for the first time in the 21st century. Through the eyes of an ethnographer, this talk describes the very different worlds of urban Taipei and rural north Taiwan in the late 1960s and 1970s, contrasting them with today’s Taiwan in terms of their material culture, intellectual culture, and social organization.</td>
</tr>
<tr>
<td>2017</td>
<td>Experience with Taiwan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>November 24,</td>
<td>Taiwan Studies Group Speakers Series: Neo-colonialism or Cultural</td>
<td>Tony Tai-Ting Liu, Postdoctoral Research Fellow, National Chung Hsing</td>
<td>Based on first hand observation of everyday life in current day Taiwan from restaurants to daily commodities, this talk explores the “Japanese-ness” of Taiwan and ponders over the possibility of understanding Taiwan from the somewhat curious perspective of Japan.</td>
</tr>
<tr>
<td>2017</td>
<td>Infatuation?</td>
<td>University</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>January 4, 2018</td>
<td>Reading Confucius Beyond the Analects</td>
<td>Michael Hunter, Yale University</td>
<td>In this talk, the speaker summarizes the findings from his recent monograph (Confucius Beyond the Analects) to argue that the Analects was first compiled under the Han dynasty (202 BCE–9 CE) as an instrument of imperial legitimacy.</td>
</tr>
<tr>
<td>January 18, 2018</td>
<td>The BRICS and Collective Financial Statecraft</td>
<td>Leslie Elliott Armijo (SFU International Studies)</td>
<td>Leslie Armijo discusses her new book on the BRICS, with critical commentary by colleagues from SFU and UBC.</td>
</tr>
<tr>
<td>January 18, 2018</td>
<td>The BRICS and Collective Financial Statecraft</td>
<td>Yves Tiberghien (UBC Political Science)</td>
<td></td>
</tr>
<tr>
<td>January 18, 2018</td>
<td>The BRICS and Collective Financial Statecraft</td>
<td>Eric Werker (SFU Beedie School of Business)</td>
<td></td>
</tr>
<tr>
<td>January 20, 2018</td>
<td>Food Security, Culture and Urban Development in the Context of Vancouver’s Chinatown</td>
<td>Angela Ho, Lead Author of the Vancouver Food Security Report</td>
<td>At this event, the report’s lead author, Angela Ho, details her findings and share insights into the impacts these changes have on the neighbourhood. The presentation is followed by a panel discussion to explore ideas on how various stakeholders can play a role to retain and revive these unique spaces where history, culture, food security, local economy, and policy intersects.</td>
</tr>
<tr>
<td>January 20, 2018</td>
<td>Food Security, Culture and Urban Development in the Context of Vancouver’s Chinatown</td>
<td>Elvy Del Bianco, Vancity’s Program Manager for Cooperative Partnerships</td>
<td></td>
</tr>
<tr>
<td>January 20, 2018</td>
<td>Food Security, Culture and Urban Development in the Context of Vancouver’s Chinatown</td>
<td>Wes Regan, City of Vancouver’s Community Economic Development Planner</td>
<td></td>
</tr>
<tr>
<td>January 20, 2018</td>
<td>Food Security, Culture and Urban Development in the Context of Vancouver’s Chinatown</td>
<td>Andy Yan, Director of SFU City Program</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 23, 2018</td>
<td>Labor Regimes of Indenture</td>
<td>Rhacel Salazar Parrenas, Professor of Sociology and Gender Studies, University of Southern California</td>
<td>This talk interrogates various theoretical frameworks for thinking about contemporary unfreedoms – slavery, human trafficking and structural violence – and proposes the alternative concept of “indentured mobility,” which recognizes the personal gains made by migrants in the face of servitude.</td>
</tr>
<tr>
<td>February 5, 2018</td>
<td>Taiwan Studies Group Speakers Series: Enduring the Long Take</td>
<td>Louis Lo, Professor, Department of English, National Taipei University of Technology</td>
<td>Louis presents his paper to show that <em>Stray Dogs</em> offers a social critique of Taipei as a neoliberal, global, consumer city and by so doing establishes a cinema of contemplation through such signature cinematic devices as the sustained long-take and slow, virtually still cinematic images.</td>
</tr>
<tr>
<td>February 9, 2018</td>
<td>Taiwan Studies Group Speakers Series: Crowdfunding the Hospital</td>
<td>Cheng pang Lee, Assistant Professor of Sociology, National University of Singapore</td>
<td>Cheng pang asks why among these three projects, only Tzu-Chi’s project succeeded while the other two failed. In contrast to the common understanding (i.e., the state sponsorship), his explanatory framework is hinged upon the role of the creation of multiple social networks during the mobilization period.</td>
</tr>
<tr>
<td>February 23, 2018</td>
<td>Film Screening: <em>From Our Eyes</em></td>
<td>Yi Cui, filmmaker of <em>Camera Lucida</em> and <em>Shadow Puppet</em></td>
<td>Three short films featuring the daily life and colorful culture in Tibet followed by a brief presentation by Yi Cui, Curator of “From Our Eyes”</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>February 25, 2018</td>
<td>Together: Explore the Past and the Present, and Visualize the Future (Public Film Screening and Panel)</td>
<td>Huamei Han, Associate Professor, SFU Faculty of Education</td>
<td>Three short films tell the story of shared struggles among Indigenous peoples and migrants of Chinese and African descents in the past and today, in the city of Vancouver. Screening is followed by a 10-person panel discussion with film producers/directors, community members, organizers and activists in and for the Downtown Eastside, Black Strathcona and the Historical Chinatown</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 8, 2018</td>
<td>A Discussion of Some Mistaken</td>
<td>Yang Zilu, Political Science and Public</td>
<td>SFU David Lam Centre’s Visiting Scholar explains the following questions: Does the Laozi (Daode jing) really proclaim an anti-intellectual message entailng the ignorance of the masses? Confucian, Buddhist, and Taoist cultures all esteem gentleness and generosity, yielding and kindness; but do they not also include a heroic teaching? Concerning the core ideas of Buddhists and Daoists, what are the fundamental differences and similarities between them? Is “nourishing life” simply concerned with nourishing the body? Where does that process start? When did the Taiji diagram comprised of the Yin Yang “fishes” originate? And why is the semi-circular form of this diagram inaccurate? What exactly is the Liezi parable about Lie Gong moving the mountain talking about?</td>
</tr>
<tr>
<td></td>
<td>Notions Concerning Chinese Traditional Culture</td>
<td>Management at Southwest University, China</td>
<td></td>
</tr>
<tr>
<td>March 10, 2018</td>
<td>The 7th Annual DocuAsia Forum</td>
<td>Cinevolution Media Arts</td>
<td>Film screening of “Those Who Jump” followed by a panel with Yasin Kiraga, Carla Hilario and Minah Lee</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Speaker/Organization</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>March 13, 2018</td>
<td>Taiwan Studies Group Speakers Series: Public Understanding of Climate Change in China and Taiwan</td>
<td>John Chung-En Liu, Assistant Professor of Sociology, Occidental College</td>
<td>John draws from multiple data sources, including books, online forums, social media, and surveys, to examine the factors that shape people's knowledge on climate change. In particular, he demonstrates that knowledge is often intertwined with social relations and identities.</td>
</tr>
<tr>
<td>March 15-16, 2018</td>
<td>Two Films (<em>Surname Viet Given Name Nam and Forgetting Vietnam</em>) and a Talk with Trinh T. Minh-ha</td>
<td>SFU Humanities; Centre A</td>
<td>A special two-night program of renowned Vietnamese-born artist, writer and scholar, Trinh T. Minh-ha, acclaimed film work. Subjective, self-reflexive, and intellectual, infused with feminism and anti-colonialism, and offering a dizzying array of sights and sounds, the award-winning “anti-anthropological” films of Trinh represent a startling reinvention of the documentary form.</td>
</tr>
</tbody>
</table>
**Report Type:** Renewal Application  

**Reporting Year:** 2022

---

**General Information**

**Name of the Centre/Institute:** Institute of Governance Studies  
**Website:** [https://www.sfu.ca/research/institute-governance-studies](https://www.sfu.ca/research/institute-governance-studies)  
**Faculty:** Arts and Social Sciences  
**Director:**  
Patrick Smith (Director)  
Aude-Claire Fourot (Acting Director)  
**Director’s term end:** 2022-08-15  
**Renewal date:** 2027-04-01

---

**Details**

**Description of the Centre/Institute:**
The objectives of the Centre for Urban Governance and Citizenship Studies include the following:

1. To provide a focus for collaborative research on issues related to urban governance and citizenship at Simon Fraser University, in Canada and elsewhere;

2. To host research fellows, post-doctoral fellows and graduate students specializing in the areas of urban governance and citizenship;

3. To provide a forum within the Vancouver metropolis, British Columbia and Canada for the presentation and dissemination of research and ideas on issues of urban governance and citizenship;

4. To provide a facility in which data for the study of urban governance and citizenship can be collected, catalogued and made readily accessible through data management and exchange;

5. To ensure that in keeping with SFU strategic research plans, research on urban governance and citizenship also informs community discourse and decision-making.

**The Centre/Institute’s membership and organization structure:**
Dr. Patrick Smith was the previous IGS Director; previous IGS IGS membership included SFU Faculty from Urban Studies and Political Science as well as colleagues from Langara college.
Rationale for the renewal of the Centre/Institute:
The Institute of Governance Studies has been created and led by Dr. Patrick Smith, who is currently on medical leave and will retire from SFU in January 2023.

Given the current policies governing SFU Research Centres and Institutes (R 40.01), I propose to rename the Institute for Governance Studies to the Centre for Urban Governance and Citizenship Studies.

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
The previous Director is on leave. I was appointed Director in August 2022.

Given the pandemic, no renewal reports were generated in the last two years and I did not have access to previous IGS reports.

How has the Centre/Institute accomplished its goals?
No research activities have been carried out in the last five years.

Changes planned upon renewal (e.g. membership, organization structure, etc.):
The most significant changes upon renewal involve the research centre name and its organizational structure.

1) Name: Centre for Urban Governance and Citizenship Studies; the description of the centre has been revised accordingly.

2) Structure: In addition to the Centre director, an advisory committee and a more formal membership mechanism will be created.

Significant accomplishments:
No research activities have been carried out in the last five years.

Notable media successes:
No research activities have been carried out in the last five years.

Events, workshops, public outreach events:
No research activities have been carried out in the last five years.

The Centre/Institute's multi-year goals for the next renewal term:
1) 1. Developing sponsored collaborative research activities on issues related to urban governance and citizenship at Simon Fraser University, in Canada and elsewhere

**KPI 1:**
1. Sponsored research activity KPIs
1.1 Total value of proposal submitted
1.2 Number of proposals submitted
1.3 Research outputs (publications, conferences, etc.)
Potential funding sources include: SFU/SSHRC Small Explore Research Grants, Foundation on German-American Academic Relations, France Canada Research Fund, and SSHRC Insight Development Grants.

2) 2. Hosting research fellows, post-doctoral fellows and training of graduate students specializing in the areas of urban governance and citizenship;

**KPI 2:**
2. Hosting & Training of Graduate Students KPIs
2.1 Number of visiting scholars, including graduate students and postdoctoral fellows
2.2 Total value of scholarships
2.3 Research outputs (publications, conferences, etc.)
Potential funding sources include: Mitacs Globalink Research Award, Accelerate Research Internships, SFU/SSHRC Small Explore Research Grants, Foundation on German-American Academic Relations, France Canada Research Fund, and SSHRC Insight Development Grants.

3) 3. To provide a forum within the Vancouver metropolis, British Columbia and Canada for the presentation and dissemination of research and ideas on issues of urban governance and citizenship;

**KPI 3:**
3. Events organization and participation KPIs
3.1 Number of events organized
3.2 Number of participants
3.3 Partnerships
3.4 Research outputs (publications, etc.)
Potential funding sources include: SFU VP Grants, SSHRC Connection grants, and City of Vancouver Community Grants.

4) 4. To provide a facility in which data for the study of urban governance and citizenship can be collected, catalogued and made readily accessible through data management and exchange

**KPI 4:**
4. Media and Public Outreach KPIs
4.1 Creating an up-to-date web/social media presence that includes at minimum a list of members and research activities;

**Supporting documents:**
- 

**Financial Summary**

**Does your Centre/Institute receive direct financial support from the university?**
No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
No

**Confirm policy review:**
Yes

**Submitted by:**
Aude-Claire Fourot, Acting Director

**Director's comments:**
One research project (S139073) is currently associated with the IGS and has an available balance of $4,580.08. Moreover, once the IGS/CUGCS renewal plan has been approved, the Urban Studies Program’s Initiative in Urban Sustainable Development endowment has committed seed funding to launch new IGS programming in 2022-23. Urban Studies has also offered shared office space at the Vancouver campus.

**Reviewer's Section**

**Reviewed by:**
Steeve Mongrain, Associate Dean, Research & International

**Reviewer's decision:**
Approved for 5 years

**Reviewer's comments:**
Professor Fourot, who is currently the acting director of the centre, will become Director of the IGS following Dr. Smith retirement from SFU. Professor Fourot will bring a new vision to the centre. She first plans to rename the Institute for Governance Studies to the Centre for Urban Governance and Citizenship Studies. She will also form a new steering committee and
add new members. Urban Studies has committed seed funding and has offered shared office space at the Vancouver campus. The new director clearly laid out five objectives to accomplish during the next five years. It is an ambitious plan, but a valuable one. It should fit into SFU strategic research plans. I am confident that under Professor Fourot, the newly renamed centre will contribute to enhancing SFU’s research profile in an important area.
Report Type: Renewal Application
Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for Corporate Governance and Sustainability
Website: http://beedie.sfu.ca/ccgs/
Faculty: Beedie School of Business
Director: Stephanie Bertels
Director's term end: 2018-03-31
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
The Centre’s mandate is to provide innovative, rigorous, and practically relevant research on corporate governance and sustainability. More specifically, the Centre’s mandate focuses on how global companies navigate changing governance obligations including the need to address environmental and social obligations. The Centre facilitates and disseminates research through its own research program including the research of its Director, Fellows and Research Associates.

The Centre also has a mandate to bridge international research and practice in the areas of governance and sustainability through the development of resources and tools for practitioners, seminars, public dialogues, conferences, visiting scholars and the Centre’s website. In executing on this mandate, the Centre also seeks to facilitate productive national and international knowledge exchange among scholars and practitioners addressing corporate governance and sustainability issues.

The Centre/Institute’s membership and organization structure:
For a full list the Centre’s membership and organizational structure, please see the attached document. The Centre benefits from guidance from its advisory board comprised of leading practitioners with experience in sustainability and governance.

The Centre encompasses two major research projects: the Embedding Project and the Next Generation Governance Project (sponsored by CPA Canada).

Rationale for the renewal of the Centre/Institute:
Through the Embedding Project initiative, the Centre is currently in Year 5 of our SSHRC
Partnership Grant, a $2.45 million dollar, 7-year project that seeks to facilitate a multidirectional flow of theoretical and practical knowledge among researchers and practitioners by co-creating resources and tools that will help companies embed sustainability across their operations and decision-making. As described throughout this renewal application, we have made significant strides towards our goal to be a globally recognized source of knowledge for organizations seeking to advance their sustainability performance through collective learning grounded in high quality research. We intend to continue this important work.

Though the Next Generation Governance Project initiative, the Centre has successfully leveraged $250,000 in funding from CPA Canada over 5 years to examine how global companies navigate changing governance obligations including the need to address environmental and social obligations.

The Centre has also further strengthened its partnerships with the Shareholder Association for Research and Education (SHARE) and the Salzburg Global Seminar Corporate Governance Forum through a series of successful joint events on environmentally and socially responsible investment and governance. These partnerships have been mutually beneficial for the past five years and are intended to continue.

We have been in conversation with our advancement team to seek out a long-term funding partner interested in helping influence board readiness around sustainability issues.

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

The Centre is able to seed collaborative research opportunities by bringing together academics and practitioners around topics of mutual interest, attracting funding from CPA Canada, the BC Office of the Human Right Commissioner, and Scotiabank, and building long-lasting partnerships with other institutions, including SHARE Canada, the Salzburg Global Seminar Corporate Governance Forum, and the UBC Sauder School of Business.

**How has the Centre/Institute accomplished its goals?**

The Next Generation Governance Project is on track to deliver on the Centre’s commitment to investigate how global companies navigate changing governance obligations including the need to address environmental and social obligations. The research team has published three guidebooks and three 4-part video series on this topic. The research team has also compiled a database of leading position statements on sustainability issues by companies from across the globe.

Through the Embedding Project, the Centre is undertaking efforts to bridge international research and practice by undertaking joint research initiatives with a multilateral partnership of over three dozen private companies and research organizations working collectively to exchange knowledge on corporate governance and sustainability issues and
to develop resources and tools on these topics. In addition to the $2.45 million SSHRC Partnership Grant, we have secured over $2.2 million from partner organizations over the past 5 years to continue and expand this initiative. In the past five years, the Embedding Project has held successful partnerships with over three dozen global companies and we are continuously working to expand this global network. We have also produced joint resources with the World Business Council for Sustainable Development, the Cambridge Judge Business School, and the BC Office of the Human Rights Commissioner, and are currently working on a suite of resources on how companies can support decarbonization funded by Scotiabank as part of their Net Zero Research Fund program.

Through its long-term partnership with the Shareholder Association for Research and Education (SHARE) and the Salzburg Global Seminar Corporate Governance Forum, the Centre continues to bring together researchers, practitioners, and students to engage in annual events on environmentally and socially responsible investment and governance.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**
With the recent creation of a new Business & Society area within the Beedie School of Business and new faculty hires, the aim is to broaden the internal membership and leadership of the Centre to become a hub for research on corporate sustainability and corporate governance. For instance, Dr. Kam Phung (start date July 1, 2022) brings considerable expertise in the area of modern slavery.

**Significant accomplishments:**

1) **PUBLICATIONS**

The Embedding Project has published 14 reports, 3 case studies, and 25 blog posts to help companies embed sustainability into their operations and governance. We also curate a “resource wheel” – a selection of the best resources on embedding sustainability currently available. We offer all these resources to the public for free on our website (https://www.embeddingproject.org/), and collectively, they have been viewed over 100,000 times in the past five years. We have also published 14 monthly newsletters to our global subscriber network of over 600 sustainability professionals, academics, and students. Lastly, Dr. Bertels and collaborators have published 3 academic papers in top journals, and have 1 paper under review. For a detailed list of publications, please see the attached supplementary document.

2) **ONLINE DATABASES**

The Embedding Project launched three online databases:

Our Position Database (https://www.embeddingproject.org/position-database) aims to help companies develop strong, clear position statements on sustainability and governance issues and contains leading position statements articulated by large companies globally. We
have reviewed over 4,000 position statements and related documents and are actively monitoring over 1,200 companies. Our database currently includes over 200 examples of leading positions, and we actively update this each month. It has been viewed over 5,000 times in the past five years.

Our Goals Database (https://www.embeddingproject.org/goals-database) aims to help advance progress in credible corporate sustainability goals and contains leading sustainability goals and commitments set by large companies globally. We have reviewed over 14,000 goals and are actively monitoring over 1,300 companies. Our database currently includes over 900 active, leading goals, and we update this on a weekly basis. It has been viewed 1500 times in the past five years.

Our Issue Snapshots tool (https://www.embeddingproject.org/issue-snapshots) is a curated selection of the most relevant resources and tools to help sustainability practitioners better understand and address a wide range of key sustainability issues. This tool launched this year.

3) VIDEOS

The Embedding Project has published three 4-part series of videos on Climate Risk Oversight for Corporate Directors on its YouTube channel (https://www.youtube.com/c/EmbeddingProject). These videos aim to help corporate directors and leaders to understand the risks of climate change and their role and fiduciary responsibilities to oversee these risks.

In collaboration with Nedbank, we also developed two free online teaching modules: an introduction to business sustainability module and a climate risk module.

4) STUDENT ENGAGEMENT

The Centre had two affiliated SFU PhD Students (Sara Graves and Jordyn Hrenyk) and four additional affiliated PhD students from University of Cape Town GSB and HEC Montreal. Dr. Bertels held frequent PhD Pod meetings with research collaborators Dr. Hamann from the University of Cape Town and Dr. Cloutier from HEC Montreal that brought together these six PhD students from SFU, UCT, and HEC to exchange their research findings.

Through the Embedding Project, we have placed six MBA students as interns into our partner organizations. Those interns gained valuable career experience and were able to leverage their internships into full-time employment.

The Centre sponsored five Net Impact SFU Sustainability Challenge Case competitions hosted by the SFU Beedie NetImpact Chapter, with live cases by Vancity (April 2022), Telus (April-May 2021), QuadReal (April 2020 and March 2019), and Port of Vancouver (May
Additionally, the Centre continued to support the student SIAS and BEAM funds in integrating ESG into their processes.

5) INCLUSION IN CURRICULUM

Our research has been included in graduate and post-graduate courses at dozens of academic institutions, and academic programs at University of Toronto, Cambridge and Yale routinely refer students to our website. For a detailed list, please see the supplementary document.

**Notable media successes:**
The Embedding Project received 4 major awards for its performance in advancing sustainability:

- 2022 GBSN and EFMD Going BEYOND Awards – one of the top nominations
- “2019 Innovations That Inspire”, Association to Advance Collegiate Schools of Business International (AACSB) – winner
- 2019 Clean 50 Top Project – winner
- 2018 Academy of Management’s inaugural International Impactful Collaboration Award - winner

We also received 14 media mentions - for a detailed list, please see the attached document.

**Events, workshops, public outreach events:**
1) CENTRE EVENTS

The Centre has continued its longstanding collaboration with the Salzburg Global Seminar Corporate Governance Forum. Dr. Bertels sits on the Forum’s Advisory Board, is the Program Chair, and has presented at eight events hosted or co-hosted by the Forum that were attended by CEOs and Board members from across the globe.

The Centre has also continued its longstanding collaboration with the Shareholder Association for Research and Education (SHARE Canada), through co-hosting five events on responsible investment.

Additionally, the Centre has collaborated with various other partners, including UBC Sauder
School of Business, the NEXT Leaders’ Council, and the Business Council of British Columbia to co-host nine events attended by students, professionals, educators, and the general public.

For a more detailed list, please see the attached document.

2) ACADEMIC CONFERENCES

Centre members and students have presented their research on embedding sustainability at three EGOS conferences (2017, 2018, and 2021), two Academy of Management conferences (2018 and 2020), and three other scholarly events. For a detailed list, please see the attached document.

3) PRACTITIONER CONFERENCES

We have also shared our research at four major practitioner conferences: GLOBE (2021), NAEM (2019), Sustainable Brands (2018), and GreenBiz (2018), as well as 34 other practitioner conferences, reaching an audience of hundreds of professionals, academics, students, and the general public. For a detailed list, please see the attached document.

4) EMBEDDING PROJECT EVENTS

The Embedding Project has hosted 42 presentations, workshops, and webinars for our global peer network of 36 companies from around the globe to discuss embedding sustainability in their operations, strategy, and governance, as well as engage in peer-to-peer sharing and mentoring. Our network has included over 100 sustainability professionals over the years, and we have also presented to dozens of board members and members of executive teams at our partner companies and more broadly in the global business community.

The Centre/Institute’s multi-year goals for the next renewal term:

1) Working with Beedie’s advancement team, secure long-term stable funding for CCGS.

KPI 1:
Size of endowment

2) Expand internal involvement in the CCGS to become a hub for business sustainability and sustainable governance research through the creation of Associate Director roles.

KPI 2:
#of associate directors; #of engagements led by these associate directors; #of outputs from these associate directors
3) Execute on the remaining two years of the SSHRC Partnership Grant by expanding upon the current partnerships and research initiatives undertaken by the Embedding Project and ensure the longevity of the project beyond the Grant’s term by entrenching the Embedding Project as a leading global source of expertise on corporate sustainability and governance.

**KPI 3:**
# of corporate partners, website visits, associated events, knowledge products

4) Continue to collaborate with key external partners such as the Shareholder Association for Research and Education (SHARE) and the Salzburg Global Seminar for Corporate Governance to run events on sustainable governance. Leverage these events to further expand the Centre’s connections with a global network of experts on governance, sustainability, and responsible investment.

**KPI 4:**
# partners, # events, and seniority of attendees (with a focus on senior executives and directors)

5) Continue to support students who wish to undertake research, participate in events, or gain practical experience in the fields of governance, sustainability, and responsible investment through research assistantship positions, scholarships, and stipends.

**KPI 5:**
None.

6) Continue to help facilitate and disseminate the research undertaken by the Centre’s Fellows and Research Associates.

**KPI 6:**
None.

**Supporting documents:**
1) Membership_signoff_form_lOAYvnl.xlsx (See attachment below)
2) 2022_06_20_CCGS_Renewal_Supplementary_Document_zAwtSWw.pdf (See attachment below)

**Financial Summary**

Does your Centre/Institute receive direct financial support from the university?
Yes
SFU account number:
N876112

Opening balance:
$19,296.02

Revenues:
$331,943.54

Expenditures:
$274,193.45

Closing balance:
$77,046.11

Financial report:
CCGS_2022_Renewal_-_Financial_Report_pUWzgY6.xlsx (See attachment below)

Financial contributions from the university:
331,943.54 from donor fund.

List of major equipment provided by the university:
None.

University personnel:
Part time program assistant.

Space provided by the university:
Office space (room 4935 at Segal).

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
Over the past five years, the Centre attracted $250,000 from CPA Canada to support the Next Generation Governance Project, as well as an additional $1.3 million in industry funding.

Confirm policy review:
Yes

Submitted by:
Alexandra Cooperman, Operations Manager
**Director's comments:**
I have begun to build new internal connections within Beedie to understand how we can broaden the work of the Centre and use it as focal point for research in the area of governance and sustainability. To explore possible connections, I put together two Ideas at Beedie public panels on governing in alignment with community values and on sustainable supply chains. As a result of these successful collaborations, we are welcoming three new Beedie faculty as members to the centre.

I also continue my work on trying to secure ongoing funding for the Centre. Much of the funding and the work of the Centre have been heavily intertwined with my own Embedding Project SSHRC partnership grant (and the partner funds associated with this grant). To build a Centre with a broader more inclusive research agenda, it will be important to secure ongoing funding.

**Reviewer's Section**

**Reviewed by:**
Christina Atanasova, Associate Dean, Research

**Reviewer's decision:**
Approved for 5 years

**Reviewer's comments:**
-
<table>
<thead>
<tr>
<th>Object</th>
<th>Description</th>
<th>Budget</th>
<th>Total</th>
<th>Mar-2018</th>
<th>O/S</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Report Filter: User: aca13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fund: 13 Internal Research (OR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project: N876112 Cibc Cntr For Corp Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5280 Acad Salary-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>5372 Hourly Staff - Student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>5430 Sals Non-Students RA</td>
<td>0</td>
<td>0</td>
<td>6923.07</td>
<td>34615.35</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>5436 Sals Masters RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>5440 Sals Doctorate RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6264.34</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>5446 Sals Post-Doc RA Foreign</td>
<td>0</td>
<td>0</td>
<td>574.71</td>
<td>4597.68</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>5780 Support Staff-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10000</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>5834 Stipends-Adm-Instr and Res</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>5911 Welfare Benefits</td>
<td>0</td>
<td>0</td>
<td>550.05</td>
<td>3231.77</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>6010 Computer Hardware under 5k</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>6092 Equipment - General over 5K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>6100 Office Supplies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>6116 Books and Publications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>315.67</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>6164 Software License and Purchases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>6199 Materials and Supplies - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>6520 Printing and Duplication Exp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>6610 Consulting Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>6660 Telecommunication Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>6662 Long Distance Phone Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>31.48</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>6910 General Program Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>366.69</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>6999 Internal Expense Transfer</td>
<td>0</td>
<td>66703.98</td>
<td>66703.98</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>7000 Employee Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3252.76</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>7002 Employee Field Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Employee Travel Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>-------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>30</td>
<td>7020</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>7040</td>
<td>Conference Registration</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>965.67</td>
</tr>
<tr>
<td>32</td>
<td>7050</td>
<td>Meals Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>7414</td>
<td>MECS Internal Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2879.79</td>
</tr>
<tr>
<td>34</td>
<td>7468</td>
<td>Information Services Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>7499</td>
<td>Internal Charges - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>7915</td>
<td>Budget Balance Forward</td>
<td>0</td>
<td>19296.02</td>
<td>19296.02</td>
<td>0</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td>86000</td>
<td>86000</td>
<td>11893.29</td>
</tr>
<tr>
<td>38</td>
<td></td>
<td>Total</td>
<td>0</td>
<td>86000</td>
<td>86000</td>
<td>11893.29</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- The table shows financial data with amounts and balances.
- The budget balance forward indicates the balance carried over from the previous period.
- Total amounts are calculated by summing the subtotals.
<table>
<thead>
<tr>
<th>Object</th>
<th>Description</th>
<th>Budget</th>
<th>Total</th>
<th>Mar-2019</th>
<th>O/S</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Report Filter: User: aca13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Fund: 13 Internal Research (OR)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Project: N876112 Cibc Cntre For Corp Governance</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>5280 Acad Salary-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>5372 Hourly Staff - Student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>5430 Sals Non-Students RA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>5436 Sals Masters RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>5440 Sals Doctorate RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>5446 Sals Post-Doc RA Foreign</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>5780 Support Staff-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>5834 Stipends-Adm-Instr and Res</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>5911 Welfare Benefits</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>6010 Computer Hardware under 5k</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>6092 Equipment - General over 5K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>6100 Office Supplies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>6116 Books and Publications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>6164 Software License and Purchases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>6199 Materials and Supplies - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>6512 Postage Courier and Delivery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>6520 Printing and Duplication Exp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>6590 Grants to Other Organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5000</td>
<td>6968.09</td>
</tr>
<tr>
<td>25</td>
<td>6610 Consulting Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>6660 Telecommunication Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>6662 Long Distance Phone Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>6910 General Program Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>6912 New Faculty Startup Expenses</td>
<td>0</td>
<td>95691.67</td>
<td>95691.67</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Balance: 95691.67
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Internal Expense Transfer</th>
<th>0</th>
<th>-7905.22</th>
<th>-7905.22</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>-7905.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>7000</td>
<td>Employee Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9453.52</td>
<td>0</td>
<td>-9453.52</td>
</tr>
<tr>
<td>32</td>
<td>7002</td>
<td>Employee Field Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>7020</td>
<td>Non-Employee Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3344.93</td>
<td>0</td>
<td>-3344.93</td>
</tr>
<tr>
<td>34</td>
<td>7030</td>
<td>Visitor Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>353.22</td>
<td>0</td>
<td>-353.22</td>
</tr>
<tr>
<td>35</td>
<td>7040</td>
<td>Conference Registration</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>7050</td>
<td>Meals Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>287.93</td>
<td>419.69</td>
<td>0</td>
<td>-419.69</td>
</tr>
<tr>
<td>37</td>
<td>7414</td>
<td>MECS Internal Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1021.39</td>
<td>0</td>
<td>-1021.39</td>
</tr>
<tr>
<td>38</td>
<td>7468</td>
<td>Information Services Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>-50</td>
</tr>
<tr>
<td>39</td>
<td>7499</td>
<td>Internal Charges - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>7862</td>
<td>Credit Card Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>58.09</td>
<td>58.09</td>
<td>0</td>
<td>-58.09</td>
</tr>
<tr>
<td>41</td>
<td>7915</td>
<td>Credit Card Charges</td>
<td>0</td>
<td>4308.33</td>
<td>4308.33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4308.33</td>
</tr>
<tr>
<td>42</td>
<td>Subtotal</td>
<td>Budget Balance Forward</td>
<td>0</td>
<td>92094.78</td>
<td>92094.78</td>
<td>5346.02</td>
<td>32125</td>
<td>0</td>
<td>59969.78</td>
</tr>
<tr>
<td>43</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>Assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>1300</td>
<td>Travel Advances Receivable</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>46</td>
<td>Subtotal</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>47</td>
<td>Total</td>
<td></td>
<td>0</td>
<td>92094.78</td>
<td>92094.78</td>
<td>5346.02</td>
<td>32125</td>
<td>0</td>
<td>59969.78</td>
</tr>
<tr>
<td>48</td>
<td></td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>Description</td>
<td>Budget</td>
<td>Total</td>
<td>Mar-2020</td>
<td>O/S</td>
<td>Balance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>--------</td>
<td>-------</td>
<td>----------</td>
<td>-----</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Report Filter: User: aca13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fund: 13 Internal Research (OR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project: N876112 Cibc Cntre For Corp Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5280 Acad Salary-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>5372 Hourly Staff - Student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5430 Sals Non-Students RA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>5436 Sals Masters RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>5440 Sals Doctorate RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>5446 Sals Post-Doc RA Foreign</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>5780 Support Staff-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10000</td>
<td>0</td>
<td>-10000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>5834 Stipends-Adm-Instr and Res</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>5911 Welfare Benefits</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>5920 Benefits - Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>724.05</td>
<td>0</td>
<td>-724.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>6010 Computer Hardware under 5k</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>6092 Equipment - General over 5K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>6100 Office Supplies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.25</td>
<td>15.52</td>
<td>0</td>
<td>-15.52</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>6116 Books and Publications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>6164 Software License and Purchases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>6199 Materials and Supplies - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>6512 Postage Courier and Delivery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>6520 Printing and Duplication Exp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>6532 Membership Fees - Institutionl</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>355.77</td>
<td>0</td>
<td>-355.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>6590 Grants to Other Organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2500</td>
<td>4000</td>
<td>0</td>
<td>-4000</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>6610 Consulting Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>6660 Telecommunication Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>6662 Long Distance Phone Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Program Costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>----------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>6910</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>6912</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>6999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>7000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>7002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>7020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>7030</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>7040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td>7050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>7414</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>7430</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td></td>
<td>7468</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>7499</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>7862</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>7915</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td></td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>General Program Costs</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td>6910</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>6912</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>6999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>7000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td></td>
<td>7002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td>7020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>7030</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>7040</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td></td>
<td>7050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39</td>
<td></td>
<td>7414</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>7430</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td></td>
<td>7468</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42</td>
<td></td>
<td>7499</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td></td>
<td>7862</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44</td>
<td></td>
<td>7915</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td></td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>Description</td>
<td>Budget</td>
<td>Total</td>
<td>Mar-2021</td>
<td>O/S</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------</td>
<td>--------</td>
<td>-------</td>
<td>----------</td>
<td>-----</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Report Filter:</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Fund: 13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Project: N876112</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5280 Acad Salary-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>5372 Hourly Staff - Student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>5430 Sals Non-Students RA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32105</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>5436 Sals Masters RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>5440 Sals Doctorate RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>5446 Sals Post-Doc RA Foreign</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>5780 Support Staff-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10000</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>5834 Stipends-Adm-Instr and Res</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>5911 Welfare Benefits</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2322.51</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>5920 Benefits - Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1376.04</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>6010 Computer Hardware under 5k</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>6092 Equipment - General over 5K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>6100 Office Supplies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>6116 Books and Publications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>90.17</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>6164 Software License and Purchases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>6199 Materials and Supplies - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>6512 Postage Courier and Delivery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>6520 Printing and Duplication Exp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>6532 Membership Fees - Institutionl</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>355.77</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>6590 Grants to Other Organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2500</td>
<td>7600</td>
</tr>
<tr>
<td>27</td>
<td>6610 Consulting Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>6660 Telecommunication Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>6662 Long Distance Phone Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>30</td>
<td>6910</td>
<td>General Program Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>6912</td>
<td>New Faculty Startup Expenses</td>
<td>0</td>
<td>57770.23</td>
<td>57770.23</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>32</td>
<td>6999</td>
<td>Internal Expense Transfer</td>
<td>0</td>
<td>-10000</td>
<td>-10000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>7000</td>
<td>Employee Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>34</td>
<td>7002</td>
<td>Employee Field Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>35</td>
<td>7020</td>
<td>Non-Employee Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>7030</td>
<td>Visitor Travel Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>37</td>
<td>7040</td>
<td>Conference Registration</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>38</td>
<td>7050</td>
<td>Meals Expenses</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>39</td>
<td>7414</td>
<td>MECS Internal Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>7430</td>
<td>Creative Svcs Internal Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>41</td>
<td>7468</td>
<td>Information Services Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>42</td>
<td>7499</td>
<td>Internal Charges - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>43</td>
<td>7862</td>
<td>Credit Card Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>44</td>
<td>7915</td>
<td>Budget Balance Forward</td>
<td>0</td>
<td>42229.77</td>
<td>42229.77</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td>90000</td>
<td>90000</td>
<td>2500</td>
<td>53874.49</td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>Total</td>
<td>0</td>
<td>90000</td>
<td>90000</td>
<td>2500</td>
<td>53874.49</td>
</tr>
<tr>
<td>47</td>
<td></td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Object</td>
<td>Description</td>
<td>Budget</td>
<td>Total</td>
<td>Mar-2022</td>
<td>O/S</td>
<td>Balance</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
<td>----------</td>
<td>-----</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Report Filter: User: aca13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fund: 13 Internal Research (OR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project: N876112 Cibc Cntre For Corp Governance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Expenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>5280 Acad Salary-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>5372 Hourly Staff - Student</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>5430 Sals Non-Students RA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>5436 Sals Masters RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>5440 Sals Doctorate RA Cdn</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>5446 Sals Post-Doc RA Foreign</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>5780 Support Staff-Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>5834 Stipends-Adm-Instr and Res</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>5911 Welfare Benefits</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>5920 Benefits - Internal Charge</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 + 1136.58</td>
<td>0 -1136.58</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>6010 Computer Hardware under 5k</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>6092 Equipment - General over 5K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>19</td>
<td>6100 Office Supplies</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>6116 Books and Publications</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 + 254.49</td>
<td>0 -254.49</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>6164 Software License and Purchases</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>6199 Materials and Supplies - Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>6512 Postage Courier and Delivery</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>24</td>
<td>6520 Printing and Duplication Exp</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>6532 Membership Fees - Institutionl</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 + 355.77</td>
<td>0 -355.77</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>6590 Grants to Other Organizations</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 + 4976.9</td>
<td>0</td>
</tr>
<tr>
<td>27</td>
<td>6610 Consulting Services</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>6660 Telecommunication Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>6662 Long Distance Phone Charges</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>06</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>30</td>
<td>General Program Costs</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>31</td>
<td>New Faculty Startup Expenses</td>
<td>057747.44</td>
<td>57747.44</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>57747.44</td>
</tr>
<tr>
<td>32</td>
<td>Internal Expense Transfer</td>
<td>0-10000</td>
<td>-10000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>-10000</td>
</tr>
<tr>
<td>33</td>
<td>Employee Travel Expenses</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>34</td>
<td>Employee Field Travel Expenses</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>35</td>
<td>Non-Employee Travel Expenses</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>36</td>
<td>Visitor Travel Expenses</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>37</td>
<td>Conference Registration</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>38</td>
<td>Meals Expenses</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>39</td>
<td>MECS Internal Charges</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>40</td>
<td>Creative Svcs Internal Charges</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>41</td>
<td>Information Services Charges</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>025</td>
<td>000</td>
<td>-25</td>
</tr>
<tr>
<td>42</td>
<td>Internal Charges - Other</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>43</td>
<td>Credit Card Charges</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>000</td>
</tr>
<tr>
<td>44</td>
<td>Budget Balance Forward</td>
<td>036125.51</td>
<td>36125.51</td>
<td>000</td>
<td>000</td>
<td>000</td>
<td>36125.51</td>
</tr>
<tr>
<td>45</td>
<td>Subtotal</td>
<td>083872.95</td>
<td>83872.95</td>
<td>000</td>
<td>6826.84</td>
<td>000</td>
<td>77046.11</td>
</tr>
<tr>
<td>46</td>
<td>Total</td>
<td>083872.95</td>
<td>83872.95</td>
<td>000</td>
<td>6826.84</td>
<td>000</td>
<td>77046.11</td>
</tr>
<tr>
<td>47</td>
<td>Total - All Pages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Centre for Corporate Governance and Sustainability – Renewal Application 2022

Supplementary Document

Membership and organizational structure

Members

<table>
<thead>
<tr>
<th>Member Name</th>
<th>Institution</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stephanie Bertels</td>
<td>SFU Beedie</td>
<td>Director / Associate Professor, Business and Society</td>
</tr>
<tr>
<td>Eric Werker</td>
<td>SFU Beedie</td>
<td>Professor, Strategy</td>
</tr>
<tr>
<td>Dara Kelly</td>
<td>SFU Beedie</td>
<td>Assistant Professor, Business and Society</td>
</tr>
<tr>
<td>Kam Phung</td>
<td>SFU Beedie</td>
<td>Assistant Professor, Business and Society</td>
</tr>
<tr>
<td>Feyza G. Sahinyazan</td>
<td>SFU Beedie</td>
<td>Assistant Professor, Technology &amp; Operations Management</td>
</tr>
<tr>
<td>Peng Zhang</td>
<td>SFU Beedie</td>
<td>Assistant Professor, Managerial Economics</td>
</tr>
<tr>
<td>Robert Adamson</td>
<td>SFU Beedie</td>
<td>Lecturer, Strategy</td>
</tr>
</tbody>
</table>

Note: upon renewal we will initiate a process to invite associate director roles to expand the leadership and impact of the Centre.

External Advisory Board

<table>
<thead>
<tr>
<th>Member Name</th>
<th>Institution</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigi Dawe</td>
<td>CPA Canada</td>
<td>Director, Corporate Governance and Oversight</td>
</tr>
<tr>
<td>Jamie Grey-Donald</td>
<td>QuadReal</td>
<td>SVP Sustainability</td>
</tr>
<tr>
<td>Esther Speck</td>
<td>lululemon athletica</td>
<td>VP Sustainability</td>
</tr>
<tr>
<td>Nathan Maycher</td>
<td>Suncor</td>
<td>Director, Climate Change</td>
</tr>
<tr>
<td>Mark Fattedad</td>
<td>Jarislowsky Fraser</td>
<td>Director &amp; Portfolio Manager, Institutional Management</td>
</tr>
<tr>
<td>Brigitte Burnet</td>
<td>Nedbank Limited</td>
<td>Head: Sustainability, Group Strategy</td>
</tr>
</tbody>
</table>
Publications

Peer Reviewed Publications


Practitioner-oriented guidebooks and reports


**Media mentions**

Wired (Chasing Zero Series), “How to know when you can trust corporate climate targets”, June 2021. [Link](https://link.wired.co.uk/view/60995759efe06710262561faeb39f.oz/1fddabb7).

Climate 21 podcast, “The importance of climate-related goals for organizations”, January 2021. [Link](https://www.climate21podcast.com/1329991/7145473)

World Business Council for Sustainable Development, “The Reporting Exchange”, October 2019. The link to our Goal Database was disseminated to 1,500 subscribers.


BC Business, "It's a Good Thing: SFU's Stephanie Bertels brings sustainability to corporate boardrooms" (print & online). http://ow.ly/xezh30nXHxG


Green Biz, "To chart the course of sustainability, grab the right map", September 2017. https://www.greenbiz.com/article/chart-course-sustainability-grab-right-map


Centre collaborations and events

**Salzburg Global Seminar Corporate Governance Forum**

The Centre has continued its longstanding collaboration with the Salzburg Global Seminar Corporate Governance Forum. Dr. Bertels sits on the Forum’s Advisory Board and is the Program Chair.

*Salzburg Global Seminar Corporate Governance forum, October 2021 (Online).*

*Accountable to Whom? Restating the Purpose of a Corporation, Salzburg Global Seminar, July 2021 (Online).*

*Corporate Governance - Driving Accountability: Integrating EESG into Executive Compensation, Salzburg Global Seminar, May 2021 (Online).*

*Putting Directors to The Test: How Does Leadership Measure Up in Times of Crisis?, October 2020 (Online).*

*Climate Risk and the Role of Pension Trustees, Centre for Corporate Governance and Sustainability Forum, November 2019, (Vancouver)*

*Climate Risk for Directors, Corporate Governance Forum, Salzburg Global Seminar, October 2019 (Salzburg, Austria)*

*Brave New World: How Can Corporate Governance Adapt?, Salzburg Global Seminar, October 2018 (Salzburg, Austria)*

*Embedding Sustainability into Corporate Governance, Salzburg Global Seminar, October 2017 (Salzburg, Austria)*

**Shareholder Association for Research and Education (SHARE Canada)**

The Centre also continued its longstanding partnership with SHARE Canada by co-organizing the following events over the past five years:

*SHARE Pension Trustee Bootcamp: An Introduction to Pension, Investment, and Governance, February 2021 (online).*

*SHARE Investor Summit 2020, February 2020 (Vancouver, BC).*

*Democratization & Decarbonization: Imagining a New Kind of Economy: Public Dialogue with Ted Howard, February 2020 (Vancouver, BC). This event was also co-sponsored by Vancity.*
Forum on Pension Fund Investing and Climate Change, October 2019 (Vancouver, BC). This event was also co-sponsored by CCLI, Peter P. Dillon School for Business Ethics, UBC Allard School of Law, and the Centre for Business Law.

Investing for 2-Degrees: How can investors make the transition?, February 2018 (Vancouver, BC). This event featured experts from the 2-Degree Investing Initiative, the Fonds de solidarité and the B.C. Investment Management Corporation (bcIMC).

The Centre has also collaborated with various other partners on the following events:

In Conversation with Mariana Mazzucato, Centre for Corporate Governance and Sustainability, October 2021 (Online).

BC CLE Corporate Governance 2020, February 2020 (Online). This content is currently available as online courses via the Continuing Legal Education Society of BC (https://www.cle.bc.ca/).

Economic Research into the Causes and Consequences of the U.S. Opioid Epidemic, February 2019 (Vancouver, BC). This was a talk by Molly Schnell, a postdoctoral research fellow at the Stanford Institute for Economic Policy Research.

Contracting Beyond the Market: Property Rights, Externalities, Historical Conflict, and Contractual Agreements between Firms and Nonmarket Stakeholders, November 2018 (Vancouver BC). This event featured a presentation by Dr. Sinziana Dorobantu of the New York University Stern School of Business.

How Culture Shapes the Climate Change Debate, February 2018 (Vancouver, BC). Organized by the SFU Beedie NetImpact Chapter, this event featured a presentation by Dr. Andrew Hoffman of the University of Michigan.

Academia’s Emerging Crisis of Relevance and the Consequent Role of the Engaged Scholar, February 2018 (Vancouver, BC). Organized by the SFU Beedie NetImpact Chapter, this event featured a presentation by Dr. Andrew Hoffman of the University of Michigan.


Reconciliation: A New Relationship for Investors, October 2017 (Vancouver, BC). Co-Hosted with the Peter P. Dhillon Centre for Business Ethics at UBC Sauder School of Business.

Academic conferences and invited talks

"Keynote address: social responsibility division", Stronger Together Conference, ASAC Canada, June 2022 (Online).

“Equipping early-career organizational researchers to become engaged scholars”, AOM Impact Scholar Community event, July 2021 (online)


"Getting the Word Out: Translating Your Research to a Wider Audience", AOM Impact Scholar Community Event, October 2020 (online)

“Organizing for the Climate Emergency: Organizational Underpinnings of Climate Action (session 313)”, Annual Meeting of the Academy of Management, August 2020 (Vancouver, BC)

“Industry/Academic Collaboration”, Annual Meeting of the Academy of Management, August 2018 (Chicago, USA)

“Bridging the Knowledge Practice Gap”, Annual Meeting of the Academy of Management, August 2018 (Chicago, USA)


Practitioner conferences and invited talks

2022

Key note Address Governing the Climate Emergency Common Ground Conference, April 2022 (Online)

Building Sustainable Global Value Chains, IDEAS@SFUbeedie Speaker Series, SFU Beedie, April 2022 (online)
**Companies and Communities: Governance that Addresses Community Values**, IDEAS@SFU Beedie Speaker Series, SFU Beedie, March 2022 (online)

**Purpose Governance**, GPC ESG Conference, March 2022 (online)

**Governing with a Green Lens**, Synergy on Boards, February 2022 (online)

**Board Training – Sustainability**, Canadian Climate Law Initiative, January 2022 (online)

**2021**

**Sustainability 101: Starting Your ESG Journey**, Burnaby Board of Trade, October 2021 (online)

**Roundtable on Excessive Executive Compensation**, NEI Investments, October 2021 (online)

**Embedding Sustainability into Procurement and Supply Chain**, 2021 Supply Chain Canada National Conference, October 2021 (online)

**Bank Sustainability Roundtable**, September 2021 (online)

**Sustainability Panel | SAP Midmarket Summit**, September 2021 (online - pre-recorded)

**Session Two - ESG in BC, an Opportunity for a Sustainable Economy**, Business Council of British Columbia Series on ESG in BC, June 2021 (online)

**Digital Transformation: Enabler or Enemy of a Resilient Future**, GLOBE Conference 2021, April 2021 (Online)

**2020**

**Engaging the Board and Executive Management**, A4S Summit 2020, November 2020 (online)

**International Research Round Table on North-South, Arts, Business, and Climate Governance**, Canadian Centre for Climate Law, September 2020, (online).


Suncor Supply Chain Forum, February 2020 (Calgary, AB)
2019

**Vancouver Institutional Investor and Corporate Issuer Forum**, Hosted by Broadridge Financial Solutions Inc., December 2019, (Vancouver, BC)

**Ceres annual Stakeholder Engagement with Suncor**, November 2019 (Calgary, AB)

**Corporate Sustainability Goal Setting**, NAEM EHS Forum, October 2019 (Toronto, ON)

**Best ESG Governance Practices as seen from the Perspective of Corporate Directors, Sustainability Leaders and NGOs**, Governance Professionals of Canada ESG Conference, May 2019, (Vancouver)

**Conference Board of Canada Sustainability Working Group**, February 2019 (Toronto, ON)

**Putting it all Into Context: A Follow up to Panel Discussion**, CRSI, January 2019

**Road to Context and the Embedding Framework**, Toyota South Africa senior executive presentation, January 2019 (Johannesburg and Durban, South Africa).

2018

**Social Responsibility and Social Innovation in Canadian Business Schools**. November 2018 (Vancouver, BC)


2017


Contextualizing Sustainability Performance: Tools for Corporate strategy-making and Goal-setting, Sustainable Brands Conference, May 2017 (Detroit, MI)

Inclusion in curriculum

Inclusion of Embedding Project resources in courses offered by University of Toronto’s St. Michael’s College; Cambridge Institute for Sustainability Leadership; MIT Sloan School of Business; Oxford Saiid Business School; Yale; University of Cape Town Graduate School of Business; University of Stellenbosch Business School; Warwick University and several other schools.


Strategic Importance of Sustainability (session as part of MBA course), November 2020.

Business in Society, Postgraduate Diploma in Leadership Development, Stellenbosch University (Online from Cape Town, WC), September 2020.

Sustainable Competitiveness, Senior Management Development Programme, Stellenbosch University (Online from Cape Town, WC), August 2020.

Sustainability Reporting Monitoring and Evaluation Module, Sustainability Institute (Online from Cape Town, WC), June 2020.

Change Agent Guide within Supply Chain Management Course at University of Cambridge, to supplement the learning experience for enrolled students, September 2019.

How companies embed sustainability, CSR and ESG, best practices and tools, CSR program at the University of Toronto, July 2019.


Being an Effective Change Agent, University of Stellenbosch Business School Postgraduate diploma, December 2018.

Road to Context, Embedding Framework and Storytelling, University of Stellenbosch Business School Postgraduate diploma, December 2018.

MPhil in Sustainable Development at Stellenbosch University, August 2018.

Certificate in CSR/Sustainability - Embedding Project Webinar, University of St. Michael’s College, University of Toronto, June 2018.
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Institution</th>
<th>Faculty (if SFU)</th>
<th>Department (if SFU)</th>
<th>Active Member</th>
<th>Peripheral Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Werker</td>
<td>Eric</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Kelly</td>
<td>Dara</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Sahinyazan</td>
<td>Feyza</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Zhang</td>
<td>Peng</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Adamson</td>
<td>Robert</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Phung</td>
<td>Kam</td>
<td>SFU</td>
<td>Beedie</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

By uploading this list, the Director certifies that all the members listed in this document have agreed to be affiliated with the Centre/Institute and approve of this renewal application.
Report Type: Renewal Application

Reporting Year: 2022

General Information

**Name of the Centre/Institute:** Centre for Research on Early Child Health and Education (CRECHE)

**Website:** [http://www.creche.sfu.ca/](http://www.creche.sfu.ca/)

**Faculty:** Education

**Director:** Maureen Hoskyn

**Director's term end:** 2021-04-01

**Renewal date:** 2027-11-01

Details

**Description of the Centre/Institute:**
The Centre for Research on Early Child Health and Education (CRECHE) is a multidisciplinary research group at Simon Fraser University. Current research projects focus on health, learning and the social lives of children from infancy to adolescence.

CRECHE activities unite researchers throughout the world on common issues related to the health, care and education of young children and their families. We strive to make connections among researchers and theorists from diverse schools of thought to address complex issues that directly impact the wellness of children and families living in a global community.

CRECHE researchers share the view that multiple research perspectives are needed to fully explore the diversity in children's health and educational outcomes. Consolidation of findings from studies of genetics, neurobiology and physiology with those from research on culture, society and language creates understandings of children's diversity that go beyond those gleaned from any strand of research in isolation.

**The Centre/Institute's membership and organization structure:**
Presently, we have one executive director (Maureen Hoskyn), two directors (Elina Birmingham; Daniele Moore) and faculty representatives from linguistics (Henny Yeung) and psychology (Grace Iarrocci). Several other researchers and community partners are affiliated with the centre, depending on the projects we are running. As of June 30, 2021, we currently have projects/partnerships with researchers at UBC, Japan, France, and Brazil. We are working with community partners at SFU (SFU Community Engagement Programs), across Canada (Squiggle Park, Halifax) and internationally.
Rationale for the renewal of the Centre/Institute:
CRECHE is well known as a research centre internationally and locally. Researchers affiliated with CRECHE are currently working on large scale international partnership grants (for the next 5 years) on the topics related to multilingualism and early literacy of children in schools. The centre has been pivotal in also creating partnerships with local schools and other provinces in Canada, Australia, Europe for both research and knowledge mobilization.

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
The research affiliated with the Centre is enhanced because we focus on interdisciplinary collaborations among researchers and with community partners where we actively engage in projects of common interest. Our projects are larger in scale than is possible for a single faculty member to carry to fruition, and the grants we have received have recognized the benefit of this interdisciplinary, collaborative effort.

How has the Centre/Institute accomplished its goals?
Yes, over the years, the Centre has always accomplished its goals by engaging in community based research (before it was popular to do so), but creating outlets for interdisciplinary and collaborative discussion, for sharing of SFU resources in a productive way. All 3 directors of the centre have desks that are situated in the same area that our RAs work - we do not have separate offices. This organization of collaborative space has led to some of the most interesting research projects that would never have been considered if we simply met to discuss research in planned meetings.

Changes planned upon renewal (e.g. membership, organization structure, etc.):
Maureen Hoskyn will be retiring in a few years, and Elina Birmingham will become the director of CRECHE in 2023. The organizational structure will be reviewed, and as new faculty are hired, the emphasis of the partnership research projects may change slightly.

Significant accomplishments:
* completion of a partnership with Squiggle Park to create a research-based app for young emerging bilingual children learning to read and write in French.

* completion of a 5 year longitudinal study on the relations between executive functions and emerging plurilingualism of young children (involves over 25 publications co-authored with colleagues and students, 30 or more international presentations, a book.

* completion of several international projects to promote French education in Brazil, Africa and Japan. We also engaged in international collaborations with scholars in Australia.
*completion of an initial proof of concept project for a ear-piece to regulate sensitivities to sound among individuals with ASD

*training of 1 post-doc, over 25 RAs.

*currently, our faculty are PIs on over $500,000 of national (SSHRC, NSERC) grants. Maureen Hoskyn is also a co-PI on an national partnership grant to study technology and early bilingualism, awarded to Janet Werker at UBC (2.1 million dollars).

**Notable media successes:**
None.

**Events, workshops, public outreach events:**
1) Due to the pandemic, we have had little public outreach in the past 2.5 years. We are involved in ongoing workshops in West Vancouver and Surrey school districts and have worked closely with Squiggle Park for 2 years creating the content for an online literacy program for multilingual children in French Immersion schools.

2) We have done very little recent public outreach due to the Covid-19 pandemic restrictions on access to schools and young families. We will begin planning these activities again in the Fall of 2023.

**The Centre/Institute’s multi-year goals for the next renewal term:**
The goal for the next 2 years is to create a 5 year strategic research plan to guide CRECHE activities from 2024-2029. We have allowed 2 years for this to occur to coincide with the hiring of 2 new faculty to support the Educational Psychology cognate in the Faculty of Education who are affiliated with CRECHE.

**KPI:**
*A written strategic research plan will be submitted to the Associate Dean of Research and the Dean in the Faculty of Education for review. We will also do an annual review to ascertain whether our aims and objectives of this plan are met (through key performance indicators embedded into the plan).

**Supporting documents:**
-

**Financial Summary**
Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Maureen Hoskyn, Director

Director’s comments:
We are very fortunate to have a space dedicated to our research activities in the Faculty of Education. All of our funding comes from external grants at the moment.

Reviewer's Section

Reviewed by:
Nathalie Sinclair, Associate Dean, Research and International

Reviewer’s decision:
Approved for 5 years

Reviewer's comments:
The ongoing grant funding is fantastic and provides a good basis for the continuation of the centre. I’d like to meet with you to decide on a plan for the centre’s activities this year, particularly as the post-pandemic period is now upon us and research activities across the other centres have resumed. That does not preclude a more long-range planning process for 2024-2029. Finally, while I understand the hope for 2 new faculty members, we should come up with alternate plans in case that target is not met within the next two years—with the uncertainty in hiring in the FoE, we’ll need to discuss how the centre can continue its activities with fewer hires and whether the space you currently have is warranted.
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for Collaborative Action on Indigenous Health

Governance
Website: https://www.sfu.ca/

Faculty: Health Sciences

Director: Jeff Reading (Director)
Angela McIntyre (Co-Director)

Director’s term end: -
Renewal date: 2024-11-01

Details

Description of the Centre/Institute:
I am the Interim Director for the Centre for Collaborative Action on Indigenous Health. I participated on the hiring committee for the permanent director, who is scheduled to begin at SFU in July, 2022.

Interim Director Profile: As an established, respected senior Indigenous scholar I have extensive experience recognized by the broader Indigenous and mainstream research communities in Canada and abroad. I self-identify as an Indigenous person and can confirm First Nations identity with certification and other supporting references including my registration with Tyendinega First Nation and ‘Indian Status’ provided by Indigenous Affairs Canada.

The Centre/Institute’s membership and organization structure:
The Centre is in the process of hiring a permanent director thus there are not operational resources until the permanent director is established. Two staff:

Interim Director: Jeff Reading PhD

Research Associate: Angela McIntyre PhD

Rationale for the renewal of the Centre/Institute:
Important for SFU to establish the Centre which has been delayed due to Covid 19 Pandemic and the search for the inaugural director.
How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
My engagement in Indigenous health research demonstrated expertise in mentorship to junior Indigenous scholars, combined with wide-ranging research, teaching and community service projects and experience merged working within a healing space using a cultural foundational approach.

How has the Centre/Institute accomplished its goals?
Working in partnership with Indigenous communities and SFU Faculty and Staff to create proposals and innovation in teaching, research and community service.

Changes planned upon renewal (e.g. membership, organization structure, etc.):
Inaugural Director is scheduled to begin in July 2022, CRC Tier 2 chair application to be submitted by SFU for director

Significant accomplishments:
1) Funded research projects:


2. PHAC and Covid-19 Immunity

Task Force Nuu-chah-nulth Tribal Council COVID-19 Vaccine Study into Immune Response, Effectiveness, Safety $5.5M 2022-2023

Indigenous governance resolved Co-Principal Investigator

3. CIHR KWIIS HEN NIIP – CHANGE. Change for emergency care services in remote Indigenous communities in BC $1,172,436. 2020-2024 Co-PI

4. CIHR BC Network Environment for Indigenous Health Research (NEIHR) $3 Million 2019- Nominated Principal Investigator

5. CIHR HeLTI entitled “Hishuk-ish tsawalk (everything is one, everything is connected): Using two-eyed seeing to optimize healthy early life trajectories for Indigenous Peoples $506,250 (2 year) 2020-2022- to be extended. Co-PI Ranked #1 in peer review national competition

6. CIHR When Rare Becomes Common: The impact of the AnkB p.S646F variant on heart disease in a Northern BC First Nation, Funded 2020 Co-applicant
7. Genome Canada L. Arbour, Caron, N., Wasserman, W.: Silent Genomes $10M 2018-22 Co-Applicant

8. UBC Faculty of Medicine Dr. Jim Christenson, Strategic Funding Improving patient outcomes in BC’s Indigenous communities: Assessing local needs through dialogue, engagement and community partnership. $165K 2017-2023 Co-Investigator

9. CIHR HeLTI – A developmental workshop led by the Nuu Chah Nulth Tribal Council. NPI Lynette Lucas, Jeanette Watts, Pablo Nepomnaschy $150K Co-Investigator Ranked #1 in peer review national competition


Notable media successes:
Bank of Montreal $2M donation to IHEART Centre, part of FNHA Heart Health research chair


Events, workshops, public outreach events:
Covid 19 limited public outreach to Zoom and email, please see research projects and the partnerships.

Critical partners are First Nations Health Authority, Providence Health Research Institute, Cardiology at St. Pauls, Universities (mainly UBC, UNBC, UVIC)

The Centre/Institute’s multi-year goals for the next renewal term:
Continue research projects funded, teaching and community service to support inaugural director of Centre

KPI:
Hiring the inaugural Centre Director and submitting the CRC Tier 2 application in support of
the inaugural director.

Supporting documents:
The_Centre_for_Collaborative_Action_on_Indigenous_Health_Annual_Report_2AndRhC.docx
(See attachment below)

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Jeff Reading, Director

Director’s comments:
Wednesday, May 11, 2022

Subject: The Centre for Collaborative Action on Indigenous Health

Director: Jeff Reading

Research Associate: Angela McIntyre

Reviewer’s Section

Reviewed by:
Robert Hogg, Associate Dean, Research

Reviewer’s decision:
Approved for 2 years

Reviewer’s comments:
Considering the Centre is not operational yet, Dr. Reading has done an amazing job of attracting funded research in this area.
Wednesday, May 11, 2022

Subject: The Centre for Collaborative Action on Indigenous Health
Director: Jeff Reading
Research Associate: Angela McIntyre

RE: PFU Policy R40.01 – Centres are required to provide an annual progress report:
The Centre for Collaborative Action on Indigenous Health (CCAIH)

Dear

As the Interim Director for the Centre for Collaborative Action on Indigenous Health I participated on the hiring committee for the permanent director, who is scheduled to begin at SFU in July, 2022.

Interim Director Profile: As an established, respected senior Indigenous scholar I have extensive experience recognized by the broader Indigenous and mainstream research communities in Canada and abroad. I self-identify as an Indigenous person and can confirm First Nations identity with certification and other supporting references including my registration with Tyendinega First Nation and ‘Indian Status’ provided by Indigenous Affairs Canada.

My engagement in Indigenous health research demonstrated expertise in mentorship to junior Indigenous scholars, combined with wide-ranging research, teaching and community service projects and experience merged working within a healing space using a cultural foundational approach.

1. Funded research projects:

<table>
<thead>
<tr>
<th>Granting Agency</th>
<th>Title</th>
<th>Amount</th>
<th>Years</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHAC and</td>
<td>Nuu-chah-nulth Tribal Council</td>
<td>$5.5M</td>
<td>2022-2023</td>
<td>Co-Principal</td>
</tr>
<tr>
<td>Project Name</td>
<td>Overview</td>
<td>Funding Details</td>
<td>Status/Role Details</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>PHAC and Covid-19 Immunity Task Force</td>
<td>Indigenous Journeys through COVID-19</td>
<td>$18M in 2 phases Awarded by peer review</td>
<td>Successful peer review and approval but project paused to resolve Indigenous governance and data sovereignty Nominated Principal Investigator</td>
<td></td>
</tr>
<tr>
<td>CIHR</td>
<td>KWIIS HEN NIIP – CHANGE. Change for emergency care services in remote Indigenous communities in BC</td>
<td>$1,172,436. 2020-2024 Co-PI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIHR</td>
<td>BC Network Environment for Indigenous Health Research (NEIHR)</td>
<td>$3 Million 2019- Nominated Principal Investigator (acting)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIHR</td>
<td>HelTI entitled “Hishuk-ish tsawalk (everything is one, everything is connected): Using two-eyed seeing to optimize healthy early life trajectories for Indigenous Peoples</td>
<td>$506,250 (2 year) 2020-2022- to be extended. Co-PI Ranked #1 in peer review national competition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIHR</td>
<td>When Rare Becomes Common: The impact of the AnkB p.S646F variant on heart disease in a Northern BC First Nation</td>
<td>Funded 2020 Co-applicant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genome Canada</td>
<td>L. Arbour, Caron, N., Wasserman, W.: Silent Genomes</td>
<td>$10M 2018-22 Co-Applicant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UBC Faculty of Medicine</td>
<td>Drs. Jim Christenson, Strategic Funding Improving patient outcomes in BC’s Indigenous communities: Assessing local needs through dialogue, engagement and community partnership.</td>
<td>$165K 2017-2023 Co-Investigator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIHR</td>
<td>HelTI – A developmental workshop led by the Nuu Chah Nulth Tribal Council. NPI Lynette Lucas, Jeanette Watts, Pablo Nepomnaschy</td>
<td>$150K 2018-19 Co-Investigator Ranked #1 in peer review national competition</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**2. External committee and board of directors:**

BC Covid 19 Strategic Research Advisory Council (2020 to Present)

2019 - 2021 Scientific Advisory Committee, Institute for Clinical Evaluative Sciences, Toronto

2017 - 2021 Board of Directors for Genome BC, Vancouver

Heart and Stroke Foundation of Canada

- CoMPASS – National Science (2015 to Present)
- Council of Champions (2016 to Present)
- Women’s Heart Health (2017 to Present)

**3. Recent Selection of Peer Reviewed Refereed Publications:**


**4. Graduate Students (All graduate students are of Indigenous ancestry)**
Principal Supervisor, Krista Stelkia (Phd defensed 2022), Simon Fraser University

Thesis/Project Title: The influence of racism on chronic disease in First Nations of BC

Project Description: How Racism Impacts Chronic Disease Management in First Nations Communities in Canada

External Reviewer: Dr. Charlotte Loppie (UVic)

Internal Reviewer: Dr. Joy Johnson (SFU President, FHS Professor)

Committee:

Supervisor: Dr. Jeff Reading

Dissertation Committee members:

Dr. Annette Brown (UBC)

Dr. Scott Venners (SFU FHS)

Graduate Student supervision, current roster:

- Berry, Brandi. Master of Science (advisor, SFU)
- Brown, Keiten. Master of Science (advisor, SFU)
- Chutter, Leigh-Anne. Master of Science (advisor, SFU)
- Dapp, Dustin Lee. Master of Science (advisor, SFU)
- Jubinville, Danette, PhD candidate (advisor, SFU)
- Cassidy-Matthews, Chenoa, PhD candidate (advisor, UBC)
- Dickens, Rachel, PhD candidate (advisor, UBC)

5. Teaching

- 2018-2022
  HSCI 842-G100: Indigenous Public Health
  Course Level: Graduate course required for all Masters of Public Health students
- 2021-2022
  HSCI 406 D100
  Global Perspectives in Indigenous Health

I also served on numerous internal committees including:

SFU Medical School Planning Group

First Nations Health Authority Public Health and Research committees

Hiring panels for SFU Faculty including Director for the Centre for Collaborative Action on Indigenous Health.
In conclusion, working under the global pandemic for the last 2 years, I have initiated some critical research projects, innovative teaching and important community service as part of my role at Interim Director of CCAIH, thus I expect these projects, initiatives and relations will continue to be connected to the Centre for Collaborative Action on Indigenous Health.

Sincerely,

Professor Jeff Reading, MSc. PhD. CAHS

Jlr6@sfu.ca (604) 240-5836 (cell)

Chair - First Nations Health Authority Chair in Heart Health and Wellness at St. Paul’s Hospital Department of Cardiology,

Director - Centre for Collaborative Action on Indigenous Health, Faculty of Health Sciences SFU

Director - The I-HEART (Indigenous Health Education Access Research Training) Centre, Providence Health Research Institute, Vancouver BC

Professor - Faculty of Health Sciences, Simon Fraser University

Emeritus Professor – University of Victoria

Adjunct Professor – University of British Columbia and University of Toronto
General Information

Name of the Centre/Institute: Centre for Natural Hazards Research
Website: http://www.sfu.ca/cnhr/index.html
Faculty: Science
Director: Brent Ward (co-Director)  
Glyn Williams-Jones (co-Director)
Director’s term end: -
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
The Centre for Natural Hazards Research (CNHR) brings together a diverse group of natural hazards experts to conduct innovative research on geophysical processes that are a threat to the population and economic infrastructure of Canada. The Centre has a western Canada focus, but the research findings and developed methodologies are applicable to the whole of Canada and to the international community.

The Centre/Institute’s membership and organization structure:
Hosted by the Department of Earth Sciences at Simon Fraser University, CNHR includes members from various SFU Departments as well as partner institutes in British Columbia and Europe. Other SFU departments include: Resource & Environmental Management, School of Environmental Science, Engineering Science, Communications; BC Partners include: UBC (Department of Earth, Ocean & Atmospheric Sciences, Geography, Civil Engineering, and Forestry); UVic (Earth and Ocean Science); Douglas College (Earth Sciences); Natural Resources Canada (Earthquake Seismology, Sidney office) and Minerva Intelligence; International partners include: University of Torino and University of Bologna, Italy and Mineral Resources Tasmania, Australia. The Centre also has a MOU with Minerva Intelligence located in Vancouver.

The Centre for Natural Hazard Research is a Schedule A Centre governed in accordance with University policies (R.40.01, CENTRES AND INSTITUTES) and comes under the direct authority of the Dean of Science. CNHR is governed by a Steering Committee made up of five Simon Fraser University faculty members and up to three representatives from the community. The Steering Committee includes the Co-Directors and Manager of CNHR. Members are appointed by recommendation to the Dean of Science by the Directors.
Rationale for the renewal of the Centre/Institute:
Climate change is leading to the retreat of glaciers, permafrost thawing and extreme rain events that significantly increase cascading natural hazards on Canadian mountains, particularly in Western Canada. The impacts of climate change profoundly affect Canadian communities with soaring economic costs. For example, in 2021, BC experienced a “heat dome”, the deadliest weather event in Canadian history; devastating forest fires in the interior (that wiped out most the village of Lytton, BC at $78M); and flooding that will likely be the most expensive Canadian weather event on record (current estimate: $9B). As such, there is a continued and critical need for multidisciplinary fundamental and applied research.

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
The centre brings together a wide range of researchers that facilitates innovative solutions to the significant problems we face. For example, in order to work towards addressing the hazards related to changing climate, the CNHR is playing a significant role in a SFU proposal to the Canada First Research Excellence Fund 2022 Competition entitled Community-Centred Climate Innovation (C3I) – CNHR co-Director Williams-Jones is one of 8 co-leads in this major joint SFU-UWaterloo initiative. Furthermore, with representation from co-Director Ward, the CNHR is in preliminary discussions with colleagues from UBC, the Provincial government and industry to discuss initiatives for geohazard risk mitigation with respect to transportation infrastructure. These collaborations will set the groundwork for future research and expand networks for HQP and ECRs within the CNHR.

How has the Centre/Institute accomplished its goals?
The goals of the CNHR are to facilitate collaborative research across faculties and institutions. As noted above, this has been accomplished through collaborative initiatives (e.g., large grant proposals) as well as supporting the ongoing research of a wide range of graduate students and early career researchers.

Changes planned upon renewal (e.g. membership, organization structure, etc.): Since its formation in 2003, the CNHR has always included members from multiple faculties and institutions (national and international) and thus functioned as an Institute rather than a Centre. As such, we would like to begin the process to transition the CNHR to an Institute over the next year. As we have significant brand recognition, we would prefer to retain the Centre moniker, but start to formally exist within the SFU framework as an institute.

Significant accomplishments:
- lead organization supporting a Sea to Sky survey of public stakeholders to assess “Effective Communication of Natural Hazards in the Era of Information Explosion” (part of ongoing PhD research by Yu Yen Pan, Earth Sciences, SFU;
- key partner in the Sea to Sky corridor Fire & Ice aspiring UNESCO Geopark (https://fireandicegeopark.ca/)

- led the development of a Public-Private Partnership (PPP), involving academia, industry and government agencies, to initiate and expand continuous monitoring (leveraging low-cost citizen science sensors and satellite remote sensing) of Canada’s only currently active volcano, Mount Meager, NW of Pemberton, BC. This PPP model is being implemented for other complex and cascading geohazard sites in the Sea to Sky corridor of BC (e.g., Stawamus Chief, Squamish; The Barrier, Garibaldi) with information made openly accessible via the Canadian Natural Hazards Knowledge Portal (https://nathaz.ca).

**Notable media successes:**
- Great BC Shakeout at SFU Burnaby (Oct. 2021) – CNHR was the SFU host and a key partner in supporting a Natural Resources Canada initiative for Early Earthquake Warning sensors on Burnaby and Surrey campuses. This will be repeated in October 2022.

- Multiple print, radio and TV media engagements in relation to the November 2021 atmospheric river. CNHR members were also heavily involved in an issue of Engineers and Geoscientists BC Innovation magazine dedicated to the atmospheric river

https://user-yinucac.cld.bz/INNOVATION-January-February-2022

**Events, workshops, public outreach events:**
1) We produce a quarterly newsletter (“Risky Ground”) posted on the CNHR webpage and distributed by email (https://www.sfu.ca/cnhr/news/newsletter.html).

2) As noted above, the Great BC Shakeout at SFU Burnaby in Oct 2021 and will be hosting in Oct 2022.

3) We regularly conduct numerous lectures to school and community groups on Natural Hazards and while Covid restricted our outreach this year.

**The Centre/Institute’s multi-year goals for the next renewal term:**
- Transition to an Institute while maintaining the existing name and recognition
- Expand the Canadian Natural Hazards Knowledge Portal and real time citizen science monitoring and knowledge sharing
- Put into place stable funding to enable part-time administrative support and engagement initiatives such as annual in person natural hazards workshops
KPI:
none

Supporting documents:
-

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
1) 2021/2-2023/1: Mount Cayley mass flow hazard monitoring, UBCM Community Emergency Preparedness Funds, $70,000

2) 2020/5-2022/4: Knowledge acquisition to understand precursor signs of a major event at Mt. Currie. BC. UBCM Community Emergency Preparedness Funds, $100,000

Confirm policy review:
Yes

Submitted by:
Glyn Williams-Jones, co-Director

Director’s comments:
The Centre for Natural Hazard Research has a long history at SFU. In spite of the challenges of COVID, we have continued to foster research that addresses a broad range of issues that are ever more critical to society as a whole. The CNHR has been operating as a de-facto Research Institute for many years with members from other Faculties, Universities and government agencies and as such we hope to work towards becoming an Institute over the coming year.

Reviewer’s Section

Reviewed by:
Michael Silverman, Associate Dean, Research
Reviewer's decision:
Approved for 5 years

Reviewer's comments:
The CNHR is highly collaborative, as one can see from their list of participants, and the importance of their work is evident, e.g., climate change, natural disasters. Considering their expansive reach and membership (and SFU guidelines), I support their eventual transition to an Institute. Overall, keep up the great work.
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for Wildlife Ecology
Website: http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm
Faculty: Science
Director: Ronald Ydenberg
Director's term end: -
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
The centre fosters high quality graduate training and research, conducts basic and applied research in wildlife ecology, and provides knowledge and personnel that help Environment and Climate Change Canada (ECCC) and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between mission-oriented research and management policies of the ECCC and the basic research agenda of Simon Fraser University.

The Centre/Institute's membership and organization structure:
The CWE consists of 3 SFU Biology professors, one Research Associate, several Research Scientists from Environment and Climate Change Canada who also hold Adjunct Professorships at SFU, about 15 - 20 graduate students, and a varying number of Post-doctoral Fellows, honours undergraduate students and research assistants. Ron Ydenberg is the director of the Centre, and he, along with Dr. David Green and Dr. Tony Williams, manage the running and budget of the CWE.

Rationale for the renewal of the Centre/Institute:
The CWE has operated very steadily for almost 30 years. During this time we have renewed agreements with ECCC at 5 year intervals, each bringing a
core agreement worth $0.75 - $1.25M, plus other research funds to which our partnership with ECCC gives us access. We are now in the final year of our current agreement. I look forward to negotiating a new 5 year agreement beginning in Spring of 2023. Renewal of the Centre would send a strong signal of continued support by SFU for the structure of the Centre.

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

As outlined in our Mission Statement, the central concept behind the CWE is to foster synergy between mission-oriented research and management policies of the ECCC and the basic research agenda of Simon Fraser University. Since my appointment as Director in 2002 to the present, CWE records show that we have published a total of 775 papers, 22 books and book chapters, and graduated 115 graduate students. Many of the theses and publications have been directly aimed at priority issues for ECCC, but many are also better classified as 'basic research' issues that a purely applied program would not have generated on its own. The high rates of both types of publication are made possible by the synergy created between the CWE and ECCC. Three faculty members working independently would never have been able to publish this extensively, or maintain more than half a dozen ongoing major projects. The organization is complex, requires more administrative support than the department or University provides (so the CWE has several staff), and demands diverse expertise provided by networks that the Centre has built up over 20 years. The whole just is much greater than the sum of its parts.

**How has the Centre/Institute accomplished its goals?**

The CWE has met the mandates of its mission statement (see description of the Centre above):

- **Fosters high quality graduate training and research:** Nine PhD degrees, 14 MScs and 3 MET degree were granted in the past five years.

- **Conducts basic and applied research in wildlife ecology:** 186 refereed journal articles, 1 book and 6 book chapters were published.

- **Provides knowledge and personnel that help Environment and Climate Change Canada (ECCC) and other agencies meet the challenges of conservation in the 21st century:** Several CWE graduates have been hired as research scientists, data managers, and conservationists with ECCC and Parks Canada.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**

We meet regularly with ECCC to review priority areas for research, and discuss how to blend the CWE’s basic research agenda into helping to illuminate issues.
in those areas. No major changes are planned, and we anticipate continuing to operate much as we have over recent decades. However, faculty renewal will become an important consideration, as the long serving Director (Ydenberg) will retire within the 5 year period, and further renewal beyond this term will depend on whether the CWE remains important enough for the Department of Biological Sciences to make replacements a hiring priority.

**Significant accomplishments:**
1) During the last five year period (Apr 2017 - present) members of the CWE published 186 refereed journal articles, 1 book and 6 book chapters. (See attached CWE Annual Reports for 2018 to 2022 for details.)

2) Over the past five years, nine PhD degrees, 14 MScs and 3 MET degrees were granted to students of the CWE. (See attached CWE Annual Reports for 2018 to 2022 for details.)

3) In June 2021, the Centre for Wildlife Ecology moved from TASC2-8540, its home on the SFU campus since 2007, back to Biology, into newly renovated, custom designed quarters. The construction of this specifically designed workspace was evidence of the value and importance of the CWE to the Department of Biological Sciences.

**Notable media successes:**
-

**Events, workshops, public outreach events:**
-

**The Centre/Institute's multi-year goals for the next renewal term:**
1) Continue to conduct basic and applied research in the field of Wildlife Ecology

**KPI 1:**
Numbers of papers in refereed journals, number of books and book chapters produced.

2) Foster high quality graduate training and research.

**KPI 2:**
Number of degrees granted to CWE students.

3) Continue to provide knowledge and personnel that help Environment and Climate Change Canada (ECCC) and other agencies meet the challenges of conservation in the 21st century.
KPI 3:
Number of CWE graduates working in the field of Wildlife Ecology at ECCC and other conservation agencies, including Environmental Consultant companies.

Supporting documents:
1) SFUCentreReportMembershipForm_x41Sjgv.xls (See attachment below)
2) CWEFunding2017-2018_zEEFttl.doc (See attachment below)
3) CWEFunding2018-2019_SjxhlS0.doc (See attachment below)
4) CWEFunding2019-2020_PY1Chnp.doc (See attachment below)
5) CWEFunding2020-2021_FQd3VN9.doc (See attachment below)
6) CWEFunding2021-2022_FLt21nf.doc (See attachment below)
7) 2018ARFinal_Y8V1YzU.pdf (See attachment below)
8) 2019ARFinal_squXWTU.pdf (See attachment below)
9) 2020ARfinal_NmyJgu0.pdf (See attachment below)
10) 2021ARFinal_d9GoyTO.pdf (See attachment below)
11) 2022ARFinal_3yDo33w.pdf (See attachment below)

Financial Summary

Does your Centre/Institute receive direct financial support from the university?  
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?  
Yes

External funding details:  
Please see attached financial reports from the CWE annual reports 2018 - 2022.

Confirm policy review:  
Yes

Submitted by:  
Connie Smith, Research Technician

Director's comments:  
The CWE has operated very steadily and successfully for all 30 years of its existence. Graduate student renewal has continued, and there is no reason to expect that this will not be able to continue through the anticipated 5 year renewal.

Reviewer's Section
Reviewed by:
Michael Silverman, Associate Dean, Research

Reviewer's decision:
Approved for 5 years

Reviewer's comments:
I fully support the renewal of the CWE. This Centre has the longest history, highest profile, and greatest collective productivity of any Centre in Science, and possibly across campus. Moreover, they are nationally and internationally renowned for their basic and applied ecology research, and training of highly qualified personnel.
ANNUAL REPORT of the
CENTRE FOR WILDLIFE ECOLOGY
2017-2018

Department of Biological Sciences
Simon Fraser University
http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

Dr. Ronald C. Ydenberg, Director
# TABLE OF CONTENTS

I. HISTORY ...................................................................................................................3

II. MISSION STATEMENT ...............................................................................................3

III. PERSONNEL ............................................................................................................4
   A. RESEARCH TEAM....................................................................................................4
      1. Faculty and Research Associates.................................................................................4
      2. Research Group.......................................................................................................4
   B. STEERING COMMITTEE ............................................................................................5

IV. INTRODUCTION ..................................................................................................6

V. THE CWE IN ACTION ............................................................................................6
   A. SPECIES AT RISK .....................................................................................................6
      1. Marbled Murrelet (Threatened, COSEWIC)..............................................................6
      2. Eastern WhipPoorWill (Threatened, COSEWIC).........................................................7
      3. Yellow-breasted Chat (Endangered, COSEWIC).......................................................7
      4. Scripp's Murrelet (Vulnerable, IUCN)...........................................................................7
      5. Tuamotu Sandpiper (Endangered, IUCN).....................................................................8
      6. Cassin's Auklet (Special Concern, COSEWIC)...........................................................8
      7. Barn Swallow (Threatened, COSEWIC).....................................................................8
   B. HUMAN IMPACTS ON BIRDS ................................................................................8
      1. Contaminants and Toxicology.......................................................................................8
      2. Reservoirs and the impact of Water Use Decisions on Riparian Birds.........................9
      3. Agricultural Effects...................................................................................................9
   C. DECLINING AVIAN POPULATIONS ........................................................................10
      1. Migratory Shorebirds.................................................................................................10
      2. Neotropical Migrant Passerines.................................................................................11
      3. Aerial Insectivores...................................................................................................11
   D. COASTAL ECOLOGY ............................................................................................12
      1. Coastal Studies of Seabirds.........................................................................................12
      2. Coastal Usage by Migratory Shorebirds .....................................................................13

VI FUNDING ...............................................................................................................13

VII. PUBLICATIONS .....................................................................................................18
   A. PAPERS IN REFEREED JOURNALS OR BOOKS ....................................................18
   B. THESSES ..............................................................................................................20
I. HISTORY

Under the Migratory Birds Convention and Canada Wildlife Acts, the mandate of the Canadian Wildlife Service is to protect and conserve migratory bird populations. In the 21st century, this historical mandate is broadening to encompass other environmental concerns such as species at risk, biodiversity, sustainability and endangered habitats. To meet these broad and varied responsibilities, Environment and Climate Change Canada depends on sound science, and participates in cooperative ventures. In 1993, the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, and Environment Canada signed a ten year agreement to create the NSERC/CWS Chair in Wildlife Ecology at SFU. That agreement has expired, but The Centre for Wildlife Ecology (CWE) as described here continues work with ECCC and with other agencies, on a range of issues pertaining to wildlife and other environmental sciences.

II. MISSION STATEMENT

The mission of the Centre for Wildlife Ecology (CWE) is to foster high quality graduate training and research, conduct basic and applied research in wildlife ecology, and to provide knowledge and personnel that will help Environment and Climate Change Canada and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between the mission-oriented research and management policies of Environment and Climate Change Canada (Canadian Wildlife Service, CWS, and Science and Technology, S&T) and the basic research agenda of the University. Information, ideas, expertise, resources and opportunity flow back and forth across this interface, giving government agencies access to a broad base of science capability that helps inform policy and decision making, while the university and its faculty and students benefit from enhanced opportunities for research and application of the ideas their disciplines generate.
III. PERSONNEL

A. Research Team

1. Faculty and Research Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Ydenberg</td>
<td>Director, Professor</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>Professor</td>
</tr>
<tr>
<td>David Green</td>
<td>Associate Director, Associate Professor</td>
</tr>
<tr>
<td>Dov Lank</td>
<td>University Research Associate / Adjunct Professor</td>
</tr>
<tr>
<td>Dan Esler</td>
<td>USGS Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Doug Bertram</td>
<td>ECCC Research Scientist</td>
</tr>
<tr>
<td>Christine Bishop</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Sean Boyd</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rob Butler</td>
<td>ECCC Research Scientist Emeritus/ Adjunct Professor</td>
</tr>
<tr>
<td>Bob Elner</td>
<td>ECCC Research Scientist Emeritus/Adjunct Professor</td>
</tr>
<tr>
<td>John Elliott</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rhonda Millikin</td>
<td>ECCC Head, Population Assessment/Adjunct Professor</td>
</tr>
<tr>
<td>Fred Cooke (retired)</td>
<td>Emeritus Chairholder</td>
</tr>
</tbody>
</table>

2. Research Group

<table>
<thead>
<tr>
<th>Postdoctoral Fellows</th>
<th>PhD (in progress)</th>
<th>MSc (in progress)</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Flower</td>
<td>Marie-Hélène Burle</td>
<td>Seth Bennett</td>
<td>Kathryn Coukell, CWE Admin. Asst.</td>
</tr>
<tr>
<td>Tanya Brown</td>
<td>David Hope</td>
<td>Rachel Canham</td>
<td>Connie Smith, CWE Research Tech</td>
</tr>
<tr>
<td>Richard Johnston</td>
<td></td>
<td>Alice Domanik</td>
<td></td>
</tr>
<tr>
<td>Mason King</td>
<td></td>
<td>Elizabeth Ruberg (MET)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Undergrads</th>
<th>PhD (defended)</th>
<th>MSc (defended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emily McAuley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eveling Tavera Fernandez</td>
<td></td>
<td>Pat Baird</td>
</tr>
<tr>
<td>Amanda Daeming</td>
<td>Michal Pavlik</td>
<td>Catherine Villeneuve</td>
</tr>
<tr>
<td>Aaron Walchuk</td>
<td>Marinde Out</td>
<td>Kristen Walters</td>
</tr>
<tr>
<td>Florian Reurink</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simon Valdez</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jeff Yap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allison Cornell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philina English</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cybele Heddle (MET)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sarah Thomsen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Olga Lansdorp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitchell Serota</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### B. Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Elner</td>
<td>Emeritus Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>David Green</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>Research Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>Elsie Krebs</td>
<td>Research Manager, Western Canada</td>
<td>ECCC</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Ron Ydenberg</td>
<td>CWE Director (non-voting)</td>
<td>SFU</td>
</tr>
</tbody>
</table>
IV. INTRODUCTION

The aim of this Annual Report is to give an overview of our activities, outline the progress on new and continuing projects, describe the personnel involved, and to give some indication of our scientific and community involvement. Previous Annual Reports are available from the CWE. Contact us via our website

http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

or contact Ron Ydenberg at ydenberg@sfu.ca.

V. THE CWE IN ACTION

The accounts that follow give brief overviews of the major projects run by the CWE. More detail is available on our website (address above). Publications and theses are listed at the end of this report. The personnel also can be contacted via the website.

A. Species at Risk

1. Marbled Murrelet (Threatened, COSEWIC)

SFU’s research on threatened Marbled Murrelets continues to address direct conservation and management issues for this listed species. This project was started by CWE chair emeritus Fred Cooke in 1994 and continued through the present by David Lank.

Lank continued to participate in the Canadian Marbled Murrelet Recovery team. A technical paper arising from the development of the original plan, co-authored by Lank, is being revised for publication in the BC Journal of Ecosystem Management.

Lank is collaborating with SFU statistician Carl Schwarz to complete an analysis of the effects of forest fragmentation on breeding populations in 4 regions of BC, using radar data as an index of local population size.

Lank has developed a proposal, together with a potential MSc student Sonya Pastran, to analyze Marbled Murrelet transect data gathered for the past 20 years by the Leskeek Bay Conservation Society, which has now received funding from ECCC under the Ocean Protection Plan. Fieldwork will start during the summer of 2018.

Tom Flower, a postdoctoral fellow in the CWE, completed several years of research on Steller's jays, a major predator on murrelet nests, focusing on their predation of other bird's eggs and chicks, termed nest predation. Nest predation is of general conservation concern because human-caused habitat fragmentation likely increases nest predation, yet when and why this happens remains unclear. Tom colour-banded 70 jays, and fitted 20 individuals with radio transmitters, providing a window into the predatory behaviour of these birds. With help from CWE graduates Olga Lansdorp and Philina English, Tom undertook experiments and observations to explore how changes in food abundance due to clear-cut forestry practices, can drive increased nest predation.
behaviour. In addition, Tom worked with Laurens Berends, an MSc student from Wageningen University (Netherlands), to investigate whether edge effects on nest predation can be driven by risk avoidance behaviour by Steller’s jays, which are vulnerable to predation in clear-cut habitats and preferentially use forest fragments and edge generated by clearcut forestry. Tom presented preliminary findings from this research as an invited speaker at a conference in Denmark (Fear: brains behaviour and society). Finally, together with Ron Ydenberg, Tom supervised a research project by undergraduate student Amanda Daemmig (BISC 498), considering how Steller’s jays make decisions about when to move between foraging patches.

Together this research will improve our understanding of how and why human land use affects breeding bird populations facilitating improved management.

2. **Eastern WhipPoorWill** (Threatened, COSEWIC)

The Eastern WhipPoorWill was designated as a Threatened species by COSEWIC in 2009. Philina English addressed identified knowledge gaps for this species in her PhD thesis that was defended in April 2017. She demonstrated 1) that changes in the distribution of whippoorwill from the first and second Ontario Breeding Bird Atlas are not explained by increases in forest cover as forests regrow on abandoned agricultural land (English et al. 2017a), 2) population declines over the last century are associated with changes in the nitrogen isotope signatures in winter grown and breeding ground tissues that reflect changes in their diet (English et al 2018a), and 3) moth abundance has a positive influence on daily chick survival rates (English et al. 2018b). In collaboration with Mike Cadman (CWS), she also used geolocators to determine the migration routes of whippoorwills breeding at three sites, (QUBS in the Frontenac arch, Torrance Barrens Dark Sky Reserve in the southern Muskoka, and Long Point on Lake Erie (English et al 2017b).

3. **Yellow-breasted Chat** (Endangered, COSEWIC)

Research conducted in collaboration with Dr. Christine Bishop (EC) has examined how factors at different stages of the annual life cycle influence the annual survival of Yellow-breasted chats. Andrew Huang (CWS) demonstrated that wind conditions during spring migration best explained variation in annual apparent survival (Huang et al. 2017). This confirms the importance of conditions during this phase of the annual cycles for the successful migration of songbirds on the western flyway.

4. **Scripp’s Murrelet** (Vulnerable, IUCN)

Santa Barbara Island in the Channel Islands, California, provides breeding habitat for 20% of the world’s population of Scripps murrelets (global population = 2800 pairs). Scripp’s murrelets on Santa Barbara may be depredated by barn owls, but barn owls also prey on deer mice that are known to be a major cause of egg failure. Sarah Thomsen explored the direct and indirect interactions between barn owls, deer mice and Scripp’s murrelets, and evaluated management options for this vulnerable species in her PhD thesis that was defended in July 2017. One chapter of her thesis has been published in Ecology and another has been submitted to Proc. Roy. Soc. Lond. B. Two others are in preparation for Global Change Biology and Conservation Biology.
5. **Tuamotu Sandpiper** (Endangered, IUCN)

The CWE is lending its expertise in shorebird biology to support a conservation project on the highly endangered Tuamotu Sandpiper, in partnership with the USF&WS (Rick Lanctot, Alaska region), Island Conservation, the French Polynesian Regional Division for the Environment (DIREN), a local ornithological NGO (the Society of Polynesian Ornithologists, SOP-MANU), and the Critical Ecosystems Partnership Fund (CEPF), administered by Conservation International.

Once widespread across the South Pacific, this species is now found on only 4 atolls, with a world population of ca. 1400 individuals. PhD student Marie-Hélène Burle has spent >16 months over 4 field seasons conducting the first study of the species’ basic biology. Her information on habitat usage, diet, and social behaviour is being used to support reintroduction planning for the species onto atolls where rats have been or will be removed, in addition to documenting fascinating novel adaptations by an arctic bird to a tropical environment.

6. **Cassin's Auklet** (Special Concern, COSEWIC) - see Section V.D.1, Coastal Studies of Seabirds.

7. **Barn Swallow** (Threatened, COSEWIC) - see Section V.B.3.b., Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows

**B. Human Impacts on Birds**

1. **Contaminants and Toxicology**

a. **Developmental neurotoxicity of mercury in birds**

Cybele Heddle (MET student) completed the final phase of this project (year 5) with experimental work looking at the combined effect of in ovo and chick dosing. She also conducted two collaborative projects with researchers at McGill. A final report was submitted to ECCC and two papers are in progress. Two other papers were published from earlier phases of this work (Morran et al. *Ecotoxicology*; Eng et al. *Developmental Neurobiology*).

b. **Chronic toxicity of petroleum hydrocarbons and other contaminants in seabird sentinel species**

We initiated a new project with Drs. John Elliott (ECCC) and collaborators at the National Wildlife Research Centre (NWRC) laboratory in Ottawa as part of the Ocean Protection Plan. This research will focus on investigating the toxicity of petroleum, specifically oil sands bitumen products, to birds on the Pacific north-west coast. A new PhD student (Mason King) joined this project in April 2017, co-supervised by Williams and Elliott. In the first year of work eggs were collected from several rhinoceros auklet colonies (a sentinel species), incubated at SFU and embryos collected for gene expression analysis (using the Avian ToxChip developed by NWRC) and contaminant analysis.

c. **Biomagnification of legacy and emergent persistent organic pollutants in a food-web of an avian top predator, the Cooper's hawk**

The CWE continues to collaborate with Dr John Elliott (ECCC, SFU Adjunct Professor) on
studies examining the exposure and impact of persistent organic pollutants (POPs) on wildlife. Kate Fremlin, who will be completing her MSc spring/summer 2018, found that the majority of legacy POPs observed in the tissues of Cooper's hawk in previous studies are in fact biomagnifying in the terrestrial food-web of the Cooper's hawk. In addition, many emergent POPs, such as perfluorinated compounds, are also biomagnifying in this terrestrial food-web. The extent of biomagnification seen in this terrestrial system for these legacy and emergent POPs is comparable to or often higher than the biomagnification observed in aquatic systems.

2. Reservoirs and the impact of Water Use Decisions on Riparian Birds

Human activities have caused a dramatic loss in the amount of riparian habitat in North America and this habitat loss is linked to population declines of many riparian dependant songbirds. CWE, working in collaboration with BC Hydro and Cooper-Beauchesne and Associates, has examined how reservoir operations on the Columbia River between 2004-2017 impact the population dynamics of yellow warblers, a species identified by Partners in Flight as a focal species for riparian habitat. Most recently, Mathew Hepp published a paper that demonstrated that reservoir operations that flood yellow warbler habitat can reduce post-fledging survival and local recruitment (Hepp et al. 2018). This result is currently being incorporated into an individual based model that will examine how different reservoir water use decisions influence productivity on the breeding grounds.

3. Agricultural Effects

a. Breeding phenology and productivity of an invasive, agricultural specialist, the European starling

European starlings are an invasive species of considerable economic importance because of their agricultural and urban impact (as well as being the focal species for Environment Canada’s terrestrial contaminant monitoring under the Chemical Management Plan). However, they are also agricultural specialists associated with less-intensive pasture (short mown or grazed fields), and are dependent on one main prey type (Tipulid larvae or leatherjackets – another introduced pest species) for successful reproduction. As such they could be a useful monitoring species for changes in agricultural land-use and intensification. Our long-term study of the ecological physiology of European starlings marked its 15th year at our Langley filed site (140 nest boxes). Basic monitoring was conducted in 2017.

b. Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows

Farmland and grassland bird species, including aerial insectivores, have been declining for decades in Europe and North America. Recent studies have cast doubt on the idea that there is a single, global cause for all population declines, e.g. there is only weak cross-correlation in population trajectories in co-occurring aerial insectivore species. This suggests there are highly variable, and complex, spatio-temporal patterns of population change perhaps related to region-specific environmental conditions (e.g. climate, land use). Two MSc students (Olga Lansdorp and Chloe Boynton) successfully defended their theses in 2017 and papers are in progress (lead by Dr. Nancy Mahony).
C. Declining Avian Populations

1. Migratory Shorebirds
Concern has been raised about apparent population declines of many species of shorebirds over the past two decades. The CWE and its ECCC associates have consistently contributed novel research findings addressing potential causes of these apparent declines. We have cooperated particularly closely with ECCC’s Mark Drever (Delta), Keith Hobson (Saskatoon), and with ECCC emeritus Bob Elner, as well as Bird Studies Canada representatives.

Six CWE members participated in the 6th Western Hemisphere Shorebird Group meeting, in Paracas, Peru. Eve Taverna-Fernandez, a CWE PhD student, was the principle organizer of the meeting, which attracted nearly 200 participants from throughout the hemisphere, with strong support for participation from both northern and southern researchers and managers. CWE staff members David Lank and Connie Smith received the first award given by the group for lifetime achievement in shorebird research.

a. Shorebird Breeding Biology

Current and former CWE members contributed to four 2017-18 publications arising from participation in the Arctic Shorebird Demographic Network, a collaborative program that includes over a dozen sites in Alaska and arctic Canada, including contributions from several ECCC staff members, utilizing common protocols. These publications address effects of environmental conditions and seasonal trends on breeding success and adult survivorship.

Lank, former CWE student Sam Franks, and the CWE’s first graduate student, Brett Sandercock, published a paper documenting changes in the breeding biology of shorebirds at Nome with respect to climate change. The paper used Sandercock’s PhD data gathered at Nome in 1993-1998 and recent data gathered by CWE students and others during the 2010s.

Graduated MSc student Willow English published on the effects of exclosures on nest success rates of red-neck phalaropes, based on the Nome data from the 1990s and the 2010s. Exclosures have been used to promote nesting success of threatened and endangered shorebirds, with mixed results depending on ecological situation. English’s paper helps to define when they will or will not be useful.

b. Non-breeding biology

PhD student Richard Johnson, from Colombia, is presented his findings breeding flight performance and aspects of the community ecology of wintering shorebirds in large riverine/estuary systems in southern Colombia. Richard submitted his first MS, describing factors influencing the location of roost sites for Whimbrels.

Eveling Tavera Fernandez conducted another successful field season at the end of 2016-spring 2017, capturing and resighting non-breeding shorebirds at Paracas, Peru. When not organizing the Western Hemisphere Shorebird meeting, she visited Cornell and worked on survivorship models with collaborators at the Lab of Ornithology.

c. Migration Biology

The CWE contributed to an analysis of migration patterns and populations connectivity based on
geolocator tracks from >140 Semipalmated sandpipers, including birds marked at our study site in Nome. PhD student Dave hope presented his models of stopover site choice during migration, emphasizing the effects of population size and environmental danger. Fieldworkers gathered another season of data within the Salish Sea against which Hope is calibrating his model. Hope also completed analyses of historical changes in site use of Atlantic migration stopover sites by Semipalmated Sandpipers, utilizing Maritime Shorebird Survey data, curated by ECCC’s Paul Smith, in Ottawa.

d. Population Biology

A paper using Audubon CBC data on Dunlin winter distributions was published by Ydenberg and CWE colleagues. The study shows that over a 35 year period, dunlin populations concentrate at larger sites when winter populations are larger, on both the Pacific and Atlantic/Gulf coasts. On the Pacific coast, dunlin populations also concentrate as falcon numbers have increased.

A highly collaborative paper addresses issues related to perceived Semipalmated sandpiper population changes, which has been of substantial concern, particularly in eastern Canada. This study brought together morphological data suggesting that wing lengths of semipalmated were longest around 1980 and have become smaller since that time. These data suggest alternative explanations for the population significance of changes in morphometrics previously reported at the Bay of Fundy. Authors and collaborators are CWE’s Lank, Xu, and Ydenberg plus ECCC staff members Cheri Gratto-Trevor, Paul Smith, Julie Paquet, Christian Friis, retired ECCC biologists Guy Morrison and Peter Hicklin, as well as several students and other academics.

2. Neotropical Migrant Passerines

CWE initiated a long-term study on yellow warblers that migrate between western Canada and Mexico/Central America in 2004. This research conducted in collaboration with Dr. Elsie Krebs (ECCC) takes a whole life cycle approach and includes work on the breeding grounds in Inuvik, NT, and Revelstoke, BC, on migration and on the wintering grounds in Jalisco, Mexico. The 2017 field season in Revelstoke completed the field component of this project.

Simon Valdez (PhD candidate) is currently investigating the non-breeding portion of the yellow warbler life cycle; he will defend his PhD in the coming year. He has demonstrated that the breeding origins of female yellow warblers influences winter habitat use in Mexico (Valdez-Juarez, In press), and 2) that winter habitat use influences the condition and winter survival of Yellow warblers in Jalisco, Mexico (in prep for Conservation Biology).

Michal Pavlik (PhD candidate) is currently examining 1) how wind conditions on migration influence the physiology of warblers on their arrival on the breeding grounds, 2) how conditions on migration interact with conditions on the breeding grounds to determine the timing of breeding and local productivity, 3) how mortality rates vary across the annual cycle, and 4) the importance of density-dependent and density-independent process for population dynamics.

3. Aerial Insectivores

The widespread population declines of this guild has led to the suggestion that declines may be due to changes in the abundance and/or availability of their insect prey. Long-term declines in insect abundance have been documented in Europe but similar data is lacking fro North America. Challenge experiments, that were a common tool used to test foraging theory in the 1990’s provide a potential alternative approach to evaluating changes in prey availability; if prey availability has decreased parents over the last three decades we would expect to see concomitant
changes in the ability of parents to meet the challenge of provisioning experimentally enlarged brood sizes. In 2017, Catherine Villeneuve, repeated a brood manipulation on tree swallows in Creston BC that was previously conducted in 1994/5. Preliminary analyses suggest that although the rate of nest visits has not changed over the last two decades, the amount of prey delivered per visit has decreased. Catherine is repeating this experiment in 2018 to strengthen conclusions that can be made about the utility of re-purposing brood manipulation experiments to evaluate changes in prey availability on the breeding grounds.

See also section V.B.3.b. Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows.

See also section V.A.2. Eastern WhipPoorWill (Threatened, COSEWIC).

D. Coastal Ecology

1. Coastal Studies of Seabirds

Coastal British Columbia supports large populations of many species of seabirds, for which Environment and Climate Change Canada has an important stewardship responsibility. The Triangle Island Seabird Research and Monitoring Station was established in 1994 as a centre for research devoted to understanding seabird ecology, aimed particularly at identifying and understanding environmental and demographic causes of population change so as to recommend appropriate conservation actions. The Anne Vallée Ecological Reserve on Triangle Island supports the largest and most diverse seabird colony in British Columbia, including the world’s largest population of Cassin’s Auklets, BC’s largest populations of Tufted Puffins and Common Murres, and a large population of Rhinoceros Auklets, among others. As part of the Scott Island Group, Triangle Island is recognized as an Important Bird Area (IBA). Moreover, waters around the Scott Islands are being developed as a Marine Wildlife Area (MWA) under the Canada Wildlife Act, to protect critical habitat for the millions of seabirds that depend on these waters throughout the year.

Our ongoing investigations examine breeding propensity and chronology, reproductive performance, nestling diet and development, parental foraging and provisioning behaviour, among other topics. Of particular interest is the issue of how climate-induced fluctuations in the timing and availability of marine prey populations affect seabird reproduction and survival.

The 2017 season. Summer 2017 marked the 24th year of operation of the Centre for Wildlife Ecology's seabird research and monitoring program on Triangle Island. The camp was opened in late April in 2017 and the field crew consisted of Étienne Boucher (ECCC Volunteer, Delta), Glenn Crossin (Professor, Dalhousie University, Halifax), Alice Domalik (MSc Candidate, Simon Fraser University, Burnaby), Ana Gonzalez (University of Saskatchewan, Saskatoon), Sarah Hudson (ECCC, Delta – WRD), Kevin Kardynal (ECCC, Saskatoon – Wildlife Research Division), Mark Maftei (ECCC, Delta – WRD), and Ken Wright (ECCC, Delta – WRD), in addition to Hipfner. As in past years, the Triangle Island crew monitored breeding chronology, breeding success and diet in Cassin’s Auklet Ptychoramphus aleuticus, Rhinoceros Auklet Cerorhinca monocerata, and Black Oystercatcher Haemotopius bachmani. They also deployed satellite tags on Glaucous-winged Gulls Larus glaucescens.
But the main focus of the research effort in 2017 (including the work on Triangle) was Domalik’s MSc project, co-supervised by Hipfner and David Green (Professor, Simon Fraser University, Burnaby). This project, which started in 2016, involves deploying GPS tags on breeding Cassin’s and Rhinoceros auklets on major colonies in BC. In 2017, work on this project (and a final year of recovery of GLS tags deployed in earlier years) occurred on Triangle, Pine, and Lucy islands, and included members of the Triangle crew (Boucher, Hipfner) plus Amos Chow (ECCC, Delta – CWS), Philina English (ECCC Volunteer, Delta), Andrew Huang (ECCC, Delta – WRD), Glen Keddie (ECCC Contractor, Smithers), Mason King (PhD Candidate, Simon Fraser University, Burnaby), Agathe Lebeau (ECCC, Delta – CWS), and Veronica Norbury (ECCC, Delta – CWS).

Several research projects were carried out concurrently with the logger deployments in 2017. Hipfner and Strahan Tucker (DFO, Nanaimo - PBS), along with a host of DFO collaborators, completed the sixth year of a project investigating the consumption of salmon Oncorhynchus spp. by seabirds in BC waters. And Hipfner, Tucker and Moira Galbraith (DFO, Sidney - Institute of Ocean Sciences), along with collaborators in Washington State, completed the eighth year of a project investigating spatio-temporal variation in the diets of Pacific sand lance and Pacific herring, two forage fish of vital importance to seabirds in British Columbia. That project is also proving to be useful for monitoring variation in the ingestion of microplastics by forage fish.

2. Coastal Usage by Migratory Shorebirds

The majority of the world’s three and a half to four million Western Sandpipers stop briefly to refuel in Boundary Bay or on Robert’s Bank during their annual northward migration, providing a thrilling sight for local residents. Much of the species’ population also stops over on southward migration, following a flight over the Gulf of Alaska. Because of this, the species is ranked in the highest priority class in the draft BC-Yukon region CWS Shorebird Management Plan. Each winter, the Fraser River Delta (FRD) hosts the most northerly wintering population of Pacific Dunlin. Local information on shorebird habitat usage, including western sandpipers and dunlin, contributes information useful for ECCC’s environmental assessments as Port of Vancouver operations continue and expand.

David Hope, who obtained an MSc at the CWE, continued his PhD studies in 2016 studying stopover strategies of southward migrating western sandpipers. In collaboration with Bird Studies Canada, he organized volunteers to survey shorebird site and habitat utilization throughout the Salish Sea. This work puts the relative importance of migratory stopover sites into regional perspectives and addresses hypotheses examining the environmental causes responsible for changes in habitat usage.

VI FUNDING

2017-2018 was the fifth year of a five year funding agreement between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division) that supplies $150,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia. The 5 year chart compares revenue projections (formulated for this agreement) to actual revenue from Environment Canada, SFU and other industrial, provincial, federal and international sectors.
CWE 5-year Funding by Source
2013/14- 2017/18

<table>
<thead>
<tr>
<th>Year</th>
<th>EC/Core</th>
<th>Other EC</th>
<th>Other Fed Gov't</th>
<th>Prov Gov't</th>
<th>NSERC</th>
<th>Industry</th>
<th>SFU Faculty</th>
<th>SFU Other</th>
<th>Int'l (Cdn$)</th>
<th>Other</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013/14</td>
<td>$150,000</td>
<td>$328,500</td>
<td>$0</td>
<td>$32,000</td>
<td>$276,584</td>
<td>$0</td>
<td>$458,816</td>
<td>$93,531</td>
<td>$87,854</td>
<td>$35,087</td>
<td>$1,462,372</td>
</tr>
<tr>
<td>2014/15</td>
<td>$150,000</td>
<td>$264,773</td>
<td>$3,680</td>
<td>$206,000</td>
<td>$16,850</td>
<td>$446,337</td>
<td>$225,199</td>
<td>$19,591</td>
<td>$11,800</td>
<td></td>
<td>$1,408,460</td>
</tr>
<tr>
<td>2015/16</td>
<td>$150,000</td>
<td>$220,442</td>
<td>$59,143</td>
<td>$208,667</td>
<td>$16,300</td>
<td>$506,394</td>
<td>$156,750</td>
<td>$9,805</td>
<td>$51,001</td>
<td></td>
<td>$1,350,659</td>
</tr>
<tr>
<td>2016/17</td>
<td>$168,500</td>
<td>$228,250</td>
<td>$73,975</td>
<td>$350,923</td>
<td>$51,800</td>
<td>$500,148</td>
<td>$117,694</td>
<td>$16,700</td>
<td>$44,281</td>
<td></td>
<td>$1,419,641</td>
</tr>
<tr>
<td>2017/18</td>
<td>$150,000</td>
<td>$125,000</td>
<td>$25,235</td>
<td>$350,923</td>
<td>$51,800</td>
<td>$500,148</td>
<td>$117,694</td>
<td>$16,700</td>
<td>$44,281</td>
<td></td>
<td>$1,381,781</td>
</tr>
</tbody>
</table>
## Scholarships, Fellowships, Grants for Students

### PhD

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Michal Pavlik</td>
<td>NSERC IPS - NSERC contribution (Summer)</td>
<td>$5,000</td>
</tr>
<tr>
<td>Industry</td>
<td>Michal Pavlik</td>
<td>NSERC IPS - Industry contribution (Summer)</td>
<td>$2,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Michal Pavlik</td>
<td>Provost's Prize of Distinction</td>
<td>$1,667</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>David Hope</td>
<td>GF (Fall), TA (Spring), Travel Award (Spring)</td>
<td>$14,033</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Jeff Yap</td>
<td>TA (Fall), GF (Spring), Travel Award (Spring)</td>
<td>$15,203</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Marie Helene Burle</td>
<td>TA (Summer)</td>
<td>$4,186</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Marinde Out</td>
<td>TA (Fall), Travel Award (Spring)</td>
<td>$6,025</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Richard Johnson</td>
<td>GF (Fall), TA (Spring), Travel Award (Spring)</td>
<td>$13,864</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Simon Valdez</td>
<td>TA (Spring)</td>
<td>$5,525</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship (Spring)</td>
<td>$7,000</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>Neotropical Migratory Bird Conservation Act</td>
<td>$3,990</td>
</tr>
<tr>
<td>International</td>
<td>Jeff Yap</td>
<td>Society Of Experimental Biology Travel Award (Summer, Spring)</td>
<td>$710</td>
</tr>
</tbody>
</table>

### M Sc

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Alice Domalik</td>
<td>NSERC PGS-M (Summer)</td>
<td>$5,833</td>
</tr>
<tr>
<td>NSERC</td>
<td>Rachel Canham</td>
<td>NSERC PGS-M (Summer, Fall, Spring)</td>
<td>$17,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Seth Bennett</td>
<td>TA (Summer, Fall, Spring)</td>
<td>$16,327</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Rachel Canham</td>
<td>Travel Award (Spring)</td>
<td>$500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Kate Fremlin</td>
<td>GF (Fall), Travel Award (Fall)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>GF (Fall), TA (Fall)</td>
<td>$13,364</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Alice Domalik</td>
<td>GF (Spring)</td>
<td>$6,500</td>
</tr>
<tr>
<td>Other</td>
<td>Alice Domalik</td>
<td>Anne Vallee Ecological Scholarship (Summer)</td>
<td>$1,500</td>
</tr>
<tr>
<td>Other</td>
<td>Alice Domalik</td>
<td>Glen Geen Scholarship in Marine Biology (Fall)</td>
<td>$1,100</td>
</tr>
<tr>
<td>Other</td>
<td>Kate Fremlin</td>
<td>SETAC Travel Awards x 2 (Fall)</td>
<td>$931</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Hancock Foundation (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Mitacs Internship</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

### General Funding for CWE

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC/Core</td>
<td>EC</td>
<td>EC Annual Chair Funding (5/5 yrs)</td>
<td>$150,000</td>
</tr>
</tbody>
</table>
### Conference Funding

### Other Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Nature</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Federal Lank</td>
<td></td>
<td>Canada Summer Jobs</td>
<td>$1,955</td>
</tr>
<tr>
<td>International Lank</td>
<td></td>
<td>Max Planck</td>
<td>$12,000</td>
</tr>
</tbody>
</table>

### Generated Research Funding

#### Species at Risk

<table>
<thead>
<tr>
<th>Source</th>
<th>Nature</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Federal Flower</td>
<td></td>
<td>Banting Postdoctoral Award (2/2 yrs)</td>
<td>$23,280</td>
</tr>
</tbody>
</table>

#### Human Impact on Birds

<table>
<thead>
<tr>
<th>Source</th>
<th>Nature</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Green DJ</td>
<td></td>
<td>BC Hydro/ Cooper Beauchesne and Associates Ltd.</td>
<td>$27,300</td>
</tr>
<tr>
<td>Other Elliott J</td>
<td></td>
<td>MITACS Elevate: Development and application of molecular tools to assess the acute and chronic impacts of petroleum hydrocarbons on birds (9 months /2 yrs - MITACS contribution)</td>
<td>$18,750</td>
</tr>
<tr>
<td>Industry Elliott J</td>
<td></td>
<td>MITACS Elevate: Development and application of molecular tools to assess the acute and chronic impacts of petroleum hydrocarbons on birds (9 months /2 yrs - Northern Gateway Pipelines contribution)</td>
<td>$22,500</td>
</tr>
</tbody>
</table>

#### Declining Avian Populations

### Coast Ecology

<table>
<thead>
<tr>
<th>Source</th>
<th>Nature</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other EC Hipfner MJ</td>
<td></td>
<td>Wildlife Research Division (A-base)</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td></td>
<td>Canadian Wildlife Service (Protected Areas)</td>
<td>$30,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td></td>
<td>WRD (Ocean Protection Plan)</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td></td>
<td>Climate Change Action Plan</td>
<td>$20,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td></td>
<td>STAGE</td>
<td>$25,000</td>
</tr>
</tbody>
</table>

### NSERC

<table>
<thead>
<tr>
<th>Source</th>
<th>Nature</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC Green DJ</td>
<td></td>
<td>Overwintering ecology, migration strategies and demography of migratory birds (4/5 yrs)</td>
<td>$27,000</td>
</tr>
</tbody>
</table>

---

SFU Contribution to Faculty Salaries (Ydenberg Williams Green) $500,148
NSERC Lank D Maintenance of ecological polymorphism by frequency-dependent selection (4/5 yrs) $27,000

NSERC Ydenberg RC NSERC Individual Research Grant - "Predation danger in the ecology of migration" (3/5 yrs) $32,000

NSERC Williams TD Physiological Adaptations for Breeding in Birds (6/6 yrs) $60,000

NSERC Williams TD (co-applicant) RTI: Advanced Facility for Avian Research $140,590

NSERC Elliott J Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (2/5 yrs) $36,000

Grand Total $1,381,781

SFU In-Kind $120,000

VII. PUBLICATIONS

This list reflects those publications produced since our last report (publications that were “in press” or “submitted” for the last report are included and have been updated). We continue to publish actively. Three PhD students, 3 MSc students and one MET student supervised by CWE faculty successfully defended their theses. Most of our publications relate to the research carried out in the main CWE programs and most refer to work carried out in the Pacific Northwest. We are however interacting with scientists throughout Canada and beyond and some of our publications reflect this.

A. PAPERS IN REFEREED JOURNALS OR BOOKS

In press:

2018:


2017:


Submitted:


B. THESES

Boyton, C. 2017. Breeding productivity, phenology and habitat use of two co-occurring aerial insectivores. MSc, Simon Fraser University, Burnaby.

Cornell, A. 2017. Predictive cues and fitness consequences of breeding phenology. PhD, Simon Fraser University, Burnaby.


Heddle, C. 2018. Lethal and non-lethal effects of exposure to methylmercury in the Zebra Finch (Taeniopygia guttata) during development. MET, Simon Fraser University, Burnaby.

Landsdorp, O. 2017. Habitat drivers of Barn Swallow (Hirundo rustica) feeding behaviour and breeding productivity. MSc, Simon Fraser University, Burnaby.

Serota, M.W. 2017. Individual variation in foraging effort of breeding birds. MSc, Simon Fraser University, Burnaby.

Thomsen, S.K. 2017. Direct and indirect interactions between owls, mice, and nocturnal seabirds: integrating marine and terrestrial food webs. PhD, Simon Fraser University, Burnaby.
# TABLE OF CONTENTS

I. HISTORY ...................................................................................................................3

II. MISSION STATEMENT ............................................................................................3

III. PERSONNEL ............................................................................................................4

   A. RESEARCH TEAM .................................................................................................4
       1. Faculty and Research Associates .................................................................4
       2. Research Group ...............................................................................................4

   B. STEERING COMMITTEE .......................................................................................5

IV. INTRODUCTION ..................................................................................................6

V. THE CWE IN ACTION ............................................................................................6

   A. SPECIES AT RISK ...............................................................................................6
       1. Marbled Murrelet (Threatened, COSEWIC) ...................................................6
       2. Eastern Whip PoorWill (Threatened, COSEWIC) ..........................................7
       3. Scripp's Murrelet (Vulnerable, IUCN) .............................................................7
       4. Northern Goshawk (Threatened, COSEWIC) ................................................7
       5. Cassin's Auklet (Special Concern, COSEWIC) ..............................................7
       6. Barn Swallow (Threatened, COSEWIC) ........................................................7

   B. HUMAN IMPACTS ON BIRDS ..............................................................................8
       1. Contaminants and Toxicology ........................................................................8
       2. Reservoirs and the impact of Water Use Decisions on Riparian Birds ............9
       3. Agricultural Effects .........................................................................................9

   C. DECLINING AVIAN POPULATIONS ...................................................................9
       1. Migratory Shorebirds .....................................................................................9
       2. Neotropical Migrant Passerines ...................................................................11
       3. Aerial Insectivores .......................................................................................11

   D. COASTAL ECOCYLOGY .....................................................................................12
       1. Coastal Studies of Seabirds .........................................................................12
       2. Coastal Ecology of Barrow's Goldeneye ......................................................12
       3. Movement Ecology of Black Oystercatchers ...............................................13
       4. Coastal Usage by Migratory Shorebirds .......................................................13

VI. FUNDING .............................................................................................................14

VII. PUBLICATIONS ..................................................................................................19

   A. PAPERS IN REFEREED JOURNALS OR BOOKS ..........................................19

   B. THESES .............................................................................................................23
I. HISTORY

Under the Migratory Birds Convention and Canada Wildlife Acts, the mandate of the Canadian Wildlife Service is to protect and conserve migratory bird populations. In the 21st century, this historical mandate is broadening to encompass other environmental concerns such as species at risk, biodiversity, sustainability and endangered habitats. To meet these broad and varied responsibilities, Environment and Climate Change Canada depends on sound science, and participates in cooperative ventures. In 1993, the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, and Environment Canada signed a ten year agreement to create the NSERC/CWS Chair in Wildlife Ecology at SFU. That agreement has expired, but The Centre for Wildlife Ecology (CWE) as described here continues work with ECCC and with other agencies, on a range of issues pertaining to wildlife and other environmental sciences.

II. MISSION STATEMENT

The mission of the Centre for Wildlife Ecology (CWE) is to foster high quality graduate training and research, conduct basic and applied research in wildlife ecology, and to provide knowledge and personnel that will help Environment and Climate Change Canada and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between the mission-oriented research and management policies of Environment and Climate Change Canada (Canadian Wildlife Service, CWS, and Science and Technology, S&T) and the basic research agenda of the University. Information, ideas, expertise, resources and opportunity flow back and forth across this interface, giving government agencies access to a broad base of science capability that helps inform policy and decision making, while the university and its faculty and students benefit from enhanced opportunities for research and application of the ideas their disciplines generate.
III. PERSONNEL

A. Research Team

1. Faculty and Research Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Ydenberg</td>
<td>Director, Professor</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>Professor</td>
</tr>
<tr>
<td>David Green</td>
<td>Associate Director, Associate Professor</td>
</tr>
<tr>
<td>Dov Lank</td>
<td>University Research Associate / Adjunct Professor</td>
</tr>
<tr>
<td>Dan Esler</td>
<td>USGS Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Doug Bertram</td>
<td>ECCC Research Scientist</td>
</tr>
<tr>
<td>Sean Boyd</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rob Butler</td>
<td>ECCC Research Scientist Emeritus/ Adjunct Professor</td>
</tr>
<tr>
<td>Bob Elner</td>
<td>ECCC Research Scientist Emeritus/Adjunct Professor</td>
</tr>
<tr>
<td>John Elliott</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rhonda Millikin</td>
<td>ECCC Head, Population Assessment/Adjunct Professor</td>
</tr>
<tr>
<td>Fred Cooke (retired)</td>
<td>Emeritus Chairholder</td>
</tr>
</tbody>
</table>

2. Research Group

<table>
<thead>
<tr>
<th>Postdoctoral Fellows</th>
<th>PhD (in progress)</th>
<th>MSc (in progress)</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom Flower</td>
<td>Richard Johnston</td>
<td>Rachel Canham</td>
<td>Kathryn Coukell, CWE Admin. Asst.</td>
</tr>
<tr>
<td>Tanya Brown</td>
<td>Mason King</td>
<td>Gwyn Case</td>
<td>Connie Smith, CWE Research Tech</td>
</tr>
<tr>
<td>Emily McAuley</td>
<td></td>
<td>Jo Enns</td>
<td></td>
</tr>
<tr>
<td>Michal Pavlik</td>
<td></td>
<td>Tess Forstner</td>
<td></td>
</tr>
<tr>
<td>Visitors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergrads</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ellery Hardy</td>
<td>Florian Reurink</td>
<td>Elizabeth Ruberg (MET)</td>
<td>Joachim Bertrands</td>
</tr>
<tr>
<td>Eveling Tavera Fernandez</td>
<td></td>
<td>Catherine Villeneuve</td>
<td>Lina Giraldo Deck</td>
</tr>
<tr>
<td>Simon Valdez</td>
<td>Kristen Walters</td>
<td>Lena Ware</td>
<td>Enver Ortiz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Stephanie Roilo</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PhD (defended)</th>
<th>MSc (defended)</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Hope</td>
<td>Seth Bennett</td>
</tr>
<tr>
<td>Jeff Yap</td>
<td>Alice Domalik</td>
</tr>
<tr>
<td></td>
<td>Kate Fremlin</td>
</tr>
</tbody>
</table>
### B. Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Elner</td>
<td>Emeritus Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>David Green</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>Research Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>Elsie Krebs</td>
<td>Research Manager, Western Canada</td>
<td>ECCC</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Ron Ydenberg</td>
<td>CWE Director (non-voting)</td>
<td>SFU</td>
</tr>
</tbody>
</table>
IV. INTRODUCTION

The aim of this Annual Report is to give an overview of our activities, outline the progress on new and continuing projects, describe the personnel involved, and to give some indication of our scientific and community involvement. Previous Annual Reports are available from the CWE. Contact us via our website

http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

or contact Ron Ydenberg at ydenberg@sfu.ca.

V. THE CWE IN ACTION

The accounts that follow give brief overviews of the major projects run by the CWE. More detail is available on our website (address above). Publications and theses are listed at the end of this report. The personnel also can be contacted via the website.

A. Species at Risk

I. Marbled Murrelet (Threatened, COSEWIC)

SFU’s research on threatened Marbled Murrelets continues to address direct conservation and management issues for this listed species. This project was started by CWE chair emeritus Fred Cooke in 1994 and continued through the present by David Lank.

Lank took on MSc student Sonya Pastran to analyze Marbled Murrelet transect data gathered for the past 21 years by the Laskeek Bay Conservation Society, which has now received funding from ECCC under the Ocean Protection Plan. Pastran conducted a full season of fieldwork during the summer of 2018 prior to starting her MSc in Sept 2018. The project involves: creating a spatially-explicit database for seabird sightings over the full period, which is largely completed; assembling relevant environmental variable, both static and dynamic to compare with historical seabird distributions, and obtaining 2 years’ data on local environmental variables to assess with respect data gathered in 2018 and 2019. The work also includes an experiment to determine whether seabirds avoid areas with coastal raptors. They appear to do so, and Pastran’s poster describing the results of her 2018 experiments won a ‘Best MSc Student Paper’ award at the Pacific Seabird Group’s meeting this year. Mark Drever of ECCC is on Pastran’s committee. Pastran and Lank participated in several OPP planning sessions, and Pastran has contributed the recent Laskeek Bay data to the Emergency Response Database being assembled by ECCC staff.

Lank continued as a member of the Canadian Marbled Murrelet Recovery team, but this was minimally active during 2019. A technical paper arising from the development of the original Canadian Marbled Murrelet Recovery plan, co-authored by Lank, was published in the BC Journal of Ecosystem Management.
2. **Eastern WhipPoorWill** (Threatened, COSEWIC)

The Eastern WhipPoorWill was designated as a Threatened species by COSEWIC in 2009. Philina English addressed identified knowledge gaps for this species in her PhD thesis that was defended in April 2017. She demonstrated 1) that changes in the distribution of whippoorwill from the first and second Ontario Breeding Bird Atlas are not explained by increases in forest cover as forests re-grow on abandoned agricultural land (English et al. 2017a), 2) population declines over the last century are associated with changes in the nitrogen isotope signatures in winter grown and breeding ground tissues that reflect changes in their diet (English et al 2018a), and 3) moth abundance has a positive influence on daily chick survival rates (English et al. 2018b). In collaboration with Mike Cadman (CWS), she also used geolocators to determine the migration routes of whippoorwills breeding at three sites, (QUBS in the Frontenac arch, Torrance Barrens Dark Sky Reserve in the southern Muskoka, and Long Point on Lake Erie (English et al 2017b).

3. **Scripp's Murrelet** (Vulnerable, IUCN)

Santa Barbara Island in the Channel Islands, California, provides breeding habitat for 20% of the world’s population of Scripps murrelets (global population = 2800 pairs). Scripps’s murrelets on Santa Barbara may be depredated by barn owls, but barn owls also prey on deer mice that are known to be a major cause of egg failure. Sarah Thomsen explored the direct and indirect interactions between barn owls, deer mice and Scripp’s murrelets, and evaluated management options for this vulnerable species in her PhD thesis that was defended in July 2017. This work has now been published in Ecology (Thomsen and Green 2017), Proceedings of the Royal Society (Thomsen et al 2018) and Global Change Biology (Thomsen and Green 2019).

4. **Northern Goshawk** (Threatened, COSEWIC)

The Northern Goshawk was designated as a Threatened species by COSEWIC in 2000. The Northern Goshawk is a forest raptor whose preference for breeding within late successional forest has placed it at risk from habitat loss and fragmentation, primarily due to timber harvest. Several knowledge gaps persist surrounding goshawk biology, particularly the amount, composition, and configuration of foraging habitat most beneficial to goshawk productivity. Gwyn Case (MSc student) initiated a research project that will be conducted in collaboration with FLNROD to quantify goshawk diet, examine how landscape-level forest structure relates to diet, and assess the role of diet and landscape-level forest structure on nest occupancy and reproductive success of goshawks. This project will fill substantial knowledge gaps related to this species at risk and inform habitat protection decisions in the province.

5. **Cassin's Auklet** (Special Concern, COSEWIC) - see Section V.D.1, Coastal Studies of Seabirds.

6. **Barn Swallow** (Threatened, COSEWIC) - see Section V.B.3.b., Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows
B. Human Impacts on Birds

1. Contaminants and Toxicology

a. Developmental neurotoxicity of mercury in birds

We have completed this 5-year study. Cybele Heddle (MET student) graduated and is currently working as an Environmental Toxicologist, with SLR, Vancouver. Final papers from this project are submitted and in review.

b. Chronic toxicity of petroleum hydrocarbons and other contaminants in seabird sentinel species

This research focuses on investigating the toxicity of petroleum, specifically oil sands bitumen products, to birds on the Pacific north-west coast. We propose the development of novel approaches to assess toxicity from chronic exposure to petroleum hydrocarbons and other contaminants. Collaborators at National Wildlife Research Centre (NWRC), Ottawa have developed gene arrays of two wildlife indicator species, the Rhinoceros Auklet and Double-crested Cormorant for the purposes of assessing the effects of a range of environmental contaminants, primarily oil derived hydrocarbons, halogenated hydrocarbons, and heavy metals. These species have been selected by both ECCC Canadian Wildlife Service (CWS) and Wildlife and Landscape Science Directorate (WLSD) managers as the bio-indicators of choice in relation to baseline measurements for the NGP (Northern Gateway Pipeline). The Rhinoceros Auklet (RHAU) is also one of our ECCC (Environment and Climate Change Canada) long term contaminant seabird monitoring species for the west coast. This work is funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC).

c. Avian dilbit toxicity studies

An initiative to increase transport of an unconventional crude petroleum known as diluted bitumen (dilbit) from the Port of Vancouver will increase the risk of a major oil spill and chronic small-scale discharges. Crude petroleum is toxic to birds, yet no published scientific studies of the effects of dilbit on birds yet exist. This pilot research will establish methods for evaluating the toxicity of dilbit to birds and bird embryos, as well as establish the range of doses at which sub-lethal effects occur. Initially this projects will have two components including, i) an oral toxicity test in adult zebra finches, and ii) a chicken embryo toxicity test (i.e. using fertile, developing eggs). The tests will yield methods for future research and some data on physiological and gene expression endpoints for dilbit toxicity. Depending on the results of these initial experiments we intend to undertake more detailed experiments, for example, looking at effects of dilbit in females and in breeding zebra finches. This work is funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC).

d. Biomagnification of legacy and emergent persistent organic pollutants in a food-web of an avian top predator, the Cooper's hawk

The CWE continues to collaborate with Dr John Elliott (ECCC, SFU Adjunct Professor) on studies examining the exposure and impact of persistent organic pollutants (POPs) on wildlife. Kate Fremlin, who is working on a Doctoral degree in the School of Resources and Environmental Management at SFU, will continue her work on this project by developing a bioaccumulation model that can be used to predict what new commercial chemicals will do in terrestrial foodwebs. She will also have more wildlife samples analysed for perfluoroalkyl substances and cyclic
methylsiloxanes to expand and improve the current data set from her MSc. Kate and colleagues recently submitted a manuscript on bioaccumulation and biomagnification of PBDEs to the journal Chemosphere.

2. **Reservoirs and the impact of Water Use Decisions on Riparian Birds**

Human activities have caused a dramatic loss in the amount of riparian habitat in North America and this habitat loss is linked to population declines of many riparian dependant songbirds. CWE, working in collaboration with BC Hydro and Cooper-Beauchesne and Associates, has examined how reservoir operations on the Columbia River between 2004-2017 impact the population dynamics of yellow warblers, a species identified by Partners in Flight as a focal species for riparian habitat. The final component of this project, an individual based model will examine how different reservoir water use decisions influence productivity on the breeding grounds.

3. **Agricultural Effects**

a. **Breeding phenology and productivity of an invasive, agricultural specialist, the European starling**

European starlings are an invasive species of considerable economic importance because of their agricultural and urban impact (as well as being the focal species for Environment Canada’s terrestrial contaminant monitoring under the Chemical Management Plan). However, they are also agricultural specialists associated with less-intensive pasture (short mown or grazed fields), and are dependent on one main prey type (Tipulid larvae or leatherjackets – another introduced pest species) for successful reproduction. As such they could be a useful monitoring species for changes in agricultural land-use and intensification. Our long-term study of the ecological physiology of European starlings marked its 16th year at our Langley field site (140 nest boxes). Basic monitoring was conducted in 2018.

b. **Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows**

This project – a collaboration with Dr. Nancy Mahony, ECCC - was completed in 2018. Chloe Boynton (MSc) is currently working as a Migratory Bird Management Biologist with Canadian Wildlife Service. One paper will be submitted shortly and two more are in preparation from this project.

C. **Declining Avian Populations**

1. **Migratory Shorebirds**

Concern has been raised about apparent population declines of many species of shorebirds over the past two decades. The CWE and its ECCC associates have consistently contributed novel research findings addressing potential causes of these apparent declines. We have cooperated particularly closely with ECCC’s Mark Drever (Delta), Keith Hobson (Saskatoon), and with ECCC emeritus Bob Elner, as well as Bird Studies Canada local representatives.

a. **Shorebird Breeding Biology**
Current and former CWE members contributed to four 2018 publications arising from their participation in the Arctic Shorebird Demographic Network, a collaborative program that includes over a dozen sites in Alaska and arctic Canada utilizing common protocols, including contributions from ECCC staff members Grant Gilchrist, Jennie Rausch, and Paul Smith. These publications address effects of environmental conditions and seasonal trends on breeding success and adult survivorship, and the extent to which these data can provide information on population trends. This last paper, which is in large measure the culmination of this extensive work, was under development during the end of 2018 and a draft has been completed by April 2019.

b. Non-breeding biology

PhD student Richard Johnson, from Colombia, completed his Ph.D thesis entitled “The influence of predation danger on the distribution of nonbreeding shorebirds in a tropical estuary system”, in late winter 2019. During 2018, he published the first chapter of the thesis, assessing the relative importance of isolation, danger, and foraging locations as predictors of roost sites used by Whimbrels in the large tropical delta he studied on the Pacific coast of Columbia. In other chapters completed by the end of the year, Johnson concluded from analysis of 5 years of survey data that environmental predation danger overrides food abundance as a priority for most overwintering shorebirds in this tropical delta. Additional chapters highlight species differences in distributional patterns with respect to body size, foraging mode, and experimental measures of escape performance. Richard obtained a prestigious postdoctoral position in a new “Coastal Solutions Fellows Program”, which aims to pair early career shorebird biologists, coastal engineers, and others to create practical management plans for neotropical coastal areas. Lank participated in workshops in Panama early in 2018, and previously in Peru in 2017 at which this program was partially developed.

Eveling Tavera Fernandez, Ph.D student from Peru, obtained substantial new funding from the US Neotropical Migratory Bird program to continue her shorebird banding and resighting field seasons in Peru throughout 2018, including both activities in autumn 2017-spring 2018 and autumn 2018-spring 2019, and resighting ‘oversummering’ birds in between. She has collaborated with ECCC staff member Mark Drever to produce mark-recapture estimates of seasonal and annual survivorship of small shorebirds, based on her current datasets. She is involved with the generation of a Peruvian Shorebird Conservation plan, and is the chair of the Western Hemisphere Shorebird Group. The CWE hosted a 6-week visit by Eve’s field manager Enver Ortiz, during which time we completed a paper on shorebird ectoparasite prevalence in Peru.

c. Migration Biology

PhD student Dave Hope finished his PhD in December 2018, focused on factors affecting habitat use by migratory shorebirds, and how these factors affect the interpretation of shorebird counts at migration sites. An analysis of Atlantic Canada Shorebird Surveys showed that Semipalmated sandpipers steadily shifted their stopover site usage toward larger sites between 1974 and 2015. This work was done in cooperation with ECCC’s Paul Smith (Ottawa). Surveys of the northbound passage of Western sandpipers and Dunlins along the Pacific Flyway show an advance in migration timing at southern, but not northern sites (1985 – 2016), an analysis done with ECCC staff Mark Drever and others.
Hope developed a model of mortality-minimizing decisions made by southbound Western sandpipers moving through a landscape with large and small stopover sites, and used the model to simulate counts that would be observed under different scenarios of population change and habitat usage, each leaving distinct 'fingerprints' of outcomes. Simulated outcomes were compared to counts made over five years by citizen-scientists across the Salish Sea region, work coordinated in association with Bird Studies Canada staff, and the Migratory Shorebird Network headquartered at Point Blue Conservation Sciences. The results support the hypothesis that inter-annual variation in the passage timing of peregrine falcons strongly affect the distribution of sandpipers across small and large stopover sites. Other scenarios appeared less parsimonious.

Each of these approaches demonstrated that the behavioural response of shorebirds to landscape-level conditions affects counts strongly enough that the accuracy of estimated population trends can be poor. Caution should be exerted when using migratory counts to generate trends in populations.

Hope presented his findings at the Salish Sea Ecosystem Conference 2018 in Seattle, CRIMBI meetings in Bellingham, at the PWRC in Delta.

2. **Neotropical Migrant Passerines**

CWE initiated a long-term study on yellow warblers that migrate between western Canada and Mexico/Central America in 2004. This research conducted in collaboration with Dr. Elsie Krebs (ECCC) takes a whole life cycle approach and includes work on the breeding grounds in Inuvik, NT, and Revelstoke, BC, on migration and on the wintering grounds in Jalisco, Mexico. The 2017 field season in Revelstoke completed the field component of this project.

Simon Valdez (PhD candidate) is currently investigating the non-breeding portion of the yellow warbler life cycle; he will defend his PhD in the coming year. He has demonstrated that the breeding origins of female yellow warblers influences winter habitat use in Mexico (Valdez-Juarez et al. 2018), and 2) that winter habitat use influences the condition and winter survival of Yellow warblers in Jalisco, Mexico (Valdez-Suarez et al. 2019). Michal Pavlik (PhD candidate) is currently examining 1) how wind conditions on migration influence the physiology of warblers on their arrival on the breeding grounds, 2) how conditions on migration interact with conditions on the breeding grounds to determine the timing of breeding and local productivity, 3) how mortality rates vary across the annual cycle, and 4) the importance of density-dependent and density-independent process for population dynamics.

3. **Aerial Insectivores**

The widespread population declines of this guild has led to the suggestion that declines may be due to changes in the abundance and/or availability of their insect prey. Long-term declines in insect abundance have been documented in Europe but similar data is lacking fom North America. Challenge experiments, that were a common tool used to test foraging theory in the 1990’s provide a potential alternative approach to evaluating changes in prey availability; if prey availability has decreased parents over the last three decades we would expect to see concomitant changes in the ability of parents to meet the challenge of provisioning experimentally enlarged brood sizes. In 2017 and 2018, Catherine Villeneuve, repeated a brood manipulation on tree swallows in Creston BC that was previously conducted in 1994/5. She found that delivery rates to the nest were lower in 2018/19 than 1994/5 because load sizes at each delivery are reduced. Her work illustrates the potential for re-purposing behavioral studies on foraging behavior to
investigate long-term changes in insect abundance in the absence of long-term monitoring data. See also section V.B.3.b. Landscape-level determinants of breeding distribution, productivity and foraging in Barn Swallows and Tree Swallows.

See also section V.A.2. Eastern WhipPoorWill (Threatened, COSEWIC).

D. Coastal Ecology

1. Coastal Studies of Seabirds

Mark Hipfner (Environment and Climate Change Canada, Delta – Wildlife Research Division), the Scientific Director of the Triangle Island Seabird Research Station, and reports that summer 2018 marked the 25th year – a quarter century - of operation of the CWE's seabird research and monitoring program on Triangle Island. The 2018 field crew consisted of David Bradley (Bird Studies Canada), Amos Chow (ECCC, Delta – Canadian Wildlife Service), Nik Clyde (ECCC Delta - WRD), Alice Domalik (ECCC Delta – WRD, and MSc Candidate, CWE), Andrew Huang (ECCC, Delta – CWS), Kevin Kardynal (ECCC, Saskatoon – WRD), Mason King (PhD Candidate, CWE), Elsie Krebs (ECCC, Delta – WRD), Greg McLelland (ECCC, Delta – CWS), Megan Ross (ECCC, Delta – WRD), and Ken Wright (ECCC, Delta – WRD), in addition to Hipfner. As in past years, the Triangle crew monitored breeding chronology, breeding success and nestling diet in Cassin’s Auklet Ptychoramphus aleuticus, Rhinoceros Auklet Cerorhinca monocerata, and Black Oystercatcher Haemotopius bachmani. The crew also took soil cores and collected vegetation and insect samples for stable isotope analysis for a project investigating the dynamic relationship between seabird populations and vegetation patterns on the island.

Research also continued on several other major Rhinoceros Auklet colonies in BC - in 2018, we visited Pine Island, Lucy Island, and (for the first time, at least for this purpose) Cleland Island. The primary objective of this program, which was initiated in 2006, is to study the effects of oceanographic variation on multiple trophic levels – the diets of the auklets and of their major fish prey, Pacific sand lance Ammodytes personatus and Pacific herring Clupea pallasii. We continue to collaborate on this research with researchers in Washington State, and with Fisheries and Oceans Canada in Nanaimo. The field crew for the BC portion of the work consisted of Isabelle Cellier (ECCC, Delta – CWS), Clyde, Domalik, Hipfner, Agathe Lebeau (ECCC, Delta – CWS), and Ross. While on the auklet colonies, we also deployed GPS tags on Rhinoceros Auklets for a study of at-sea distributions and habitat selection being led by Domalik, whose MSc is co-supervised by Hipfner and David Green (CWE, SFU); collected eggs and prey samples for a contaminants study being led by King, whose PhD is co-supervised by John Elliott (ECCC, Delta – Wildlife Toxicology Division) and Tony Williams (CWE, SFU); completed the seventh year of a project investigating the consumption of salmon Oncorhynchus spp. by seabirds in BC waters, in collaboration with Strahan Tucker (DFO, Nanaimo - PBS); and completed the tenth year of a project investigating the ingestion of microfibres/microplastics by forage fish, in collaboration with Moira Galbraith (DFO, Sidney - Institute of Ocean Sciences).

2. Coastal Ecology of Barrow's Goldeneye

Barrows goldeneye are a sea duck with a discrete western and eastern population. The majority of the larger western population winters along the Pacific, and breeds in the interior of British Columbia, Alberta and the Northwest Territories. Recent efforts, led primarily by ECCC, have focused on using satellite telemetry to determine linkages among breeding, molting and wintering
areas. These data have been used to describe the broad movements of Barrows Goldeneye throughout their annual cycle. However, the spatial scale and spatial/temporal resolution of this dataset can also be used to address research priorities of the federal Ocean Protection Plan and identified information needs of the Sea Duck Joint Venture. Tess Forstner (MSc candidate), in collaboration with Sean Boyd (ECCC) and Megan Willie (ECCC) is using the extensive satellite telemetry dataset to examine latitudinal variation in the timing of discrete stages of the annual cycle and assess the degree of migratory connectivity between wintering populations across the western range. She will also use the data to identify when and where wintering sea ducks would be sensitive to anthropogenic activities on the Pacific coasts.

3. **Movement Ecology of Black Oystercatchers**

CWE has initiated a new long-term study on the movement ecology and habitat use of the Black Oystercatcher, an indicator species for rocky intertidal habitat in the Pacific Northwest. This project is a collaboration involving federal agencies in BC (ECCC and Parks Canada) and Alaska (USGS and US National Parks Service) with assistance from non-governmental organisations in BC (Laskeek Bay Conservation Society and Rainforest Conservation Society). Fieldwork initiated in spring 2019 by Lena Ware (MSc candidate) will use detailed satellite telemetry data to define the movement and habitat use of black oystercatchers in relation the tidal and diurnal light cycle at different stages of the year. Her project will support the ECCC mandate, under the federal Ocean Protection Plan, to conduct research and monitoring in order to improve management of the coastal waters of the Pacific coast. Future work will assess the drivers of migration in Alaskan oystercatchers and assess how Alaskan migrants interact and shape the habitat selection of BC residents during the winter months.

4. **Coastal Usage by Migratory Shorebirds**

The majority of the world’s three and a half to four million Western Sandpipers stop briefly to refuel in Boundary Bay or on Robert’s Bank during their annual northward migration, providing a thrilling sight for local residents. Much of the species’ population also stops over on southward migration, following a flight over the Gulf of Alaska. Because of this, the species is ranked in the highest priority class in the draft BC-Yukon region CWS Shorebird Management Plan. Each winter, the Fraser River Delta (FRD) hosts the most northerly wintering population of Pacific Dunlin. Local information on shorebird habitat usage, including western sandpipers and dunlin, contributes information useful for ECCC’s environmental assessments as Port of Vancouver operations continue and expand.

MSc student Rachel Canham completed her thesis and defended early in 2019. Her work focused on biofilm production and grazing by migrant Western Sandpipers on Robert’s Bank. Rachel measured biofilm concentration and grazing intensity on transects and concluded that found the total accumulation during tidal periods matched that removed by sandpipers during grazing visits. During the higher-intensity (10 – 100 fold, based on daily sandpiper counts) northward migration, biofilm concentration increased and grazing decreased with proximity to the shoreline. In contrast, during southward migration biofilm was uniformly high. A danger manipulation experiment supported a trade-off with biofilm concentration: grazing declined with danger, but less so where biofilm is higher. Together the results indicate that dynamic trophic interactions between danger, sandpipers and biofilm create spatial patterns in biofilm concentration.

Florian Reurink started his PhD project, following up on work done in collaboration with Ron Ydenberg during his MSc program at Wageningen University. His previous work used flight behavior of birds to make predictions about energy intake rate in birds. Shorebird food availabil-
ity is time consuming and expensive to assess empirically, and these studies are testing a the potential for a behavioural measure to provide a simpler index of shorebird food availability. Behavioural ecological theory predicts that birds should adjust their foraging flight speed to the conditions in the habitat, where flight speed should increase with increased energy intake. The results from Florian’s MSc work matched the predictions from the theory very well, and the Ph.D. further tests the applicability of this approach. In collaboration with ECCC’s Rhonda Millikin and Ecotrack, Reurink has developed algorithms for quantifying flight speeds of dunlin and western sandpipers using a mobile radar system. Reurink and visiting MSc student Joachim Bertrand (Wageningen University, Netherlands), collected foraging flight speeds of dunlin over the course of the winter, testing the prediction that speeds would decrease as resources were depleted over the course of the winter, which was found to be the case. Reurink’s research continues with planned collection of flight speeds of migrating western sandpipers at multiple sites in the Salish Sea, allowing him to look at inter- and intra-site differences.

Ydenberg continued to develop theory focusing on shorebird responses to changes in danger from increasing raptor populations over the past 30 years, and the effects these can have on shorebird populations and interpretations of census data. He and Lank are exploring contrasting directional effects on wing lengths of Western and Semipalmated sandpipers during the 1980s, following up on Lank’s paper in 2016 on this subject.

VI FUNDING

In 2018-2019 the contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division) was renewed for three years. This grant supplies $150,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia. The 5 year chart compares revenue projections (formulated for this agreement) to actual revenue from Environment Canada, SFU and other industrial, provincial, federal and international sectors.
### CWE 5-year Funding by Source
#### 2014/15- 2018/19

<table>
<thead>
<tr>
<th>Year</th>
<th>EC/Core</th>
<th>Other EC</th>
<th>Other Fed Gov't</th>
<th>Prov Gov't</th>
<th>NSERC</th>
<th>Industry</th>
<th>SFU Faculty</th>
<th>SFU Other</th>
<th>Int'l (Cdn$)</th>
<th>Other</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014/15</td>
<td>$150,000</td>
<td>$264,773</td>
<td>$3,680</td>
<td>$310,111</td>
<td>$27,879</td>
<td>$458,732</td>
<td>$150,812</td>
<td>$30,673</td>
<td>$11,800</td>
<td></td>
<td>$1,408,460</td>
</tr>
<tr>
<td>2015/16</td>
<td>$150,000</td>
<td>$220,442</td>
<td>$59,143</td>
<td>$206,000</td>
<td>$16,850</td>
<td>$446,337</td>
<td>$225,199</td>
<td>$19,591</td>
<td>$7,097</td>
<td></td>
<td>$1,350,659</td>
</tr>
<tr>
<td>2016/17</td>
<td>$168,500</td>
<td>$228,250</td>
<td>$73,975</td>
<td>$208,667</td>
<td>$16,300</td>
<td>$506,394</td>
<td>$156,750</td>
<td>$9,805</td>
<td>$51,001</td>
<td></td>
<td>$1,419,641</td>
</tr>
<tr>
<td>2017/18</td>
<td>$150,000</td>
<td>$125,000</td>
<td>$25,235</td>
<td>$350,923</td>
<td>$51,800</td>
<td>$500,148</td>
<td>$117,694</td>
<td>$16,700</td>
<td>$44,281</td>
<td></td>
<td>$1,381,781</td>
</tr>
<tr>
<td>2018/19</td>
<td>$135,000</td>
<td>$230,333</td>
<td>$1,520</td>
<td>$188,667</td>
<td>$-</td>
<td>$510,633</td>
<td>$139,218</td>
<td>$158,478</td>
<td>$16,293</td>
<td></td>
<td>$1,399,681</td>
</tr>
</tbody>
</table>
## Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>David Hope</td>
<td>TA (Fall)</td>
<td>$5,744</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Jeff Yap</td>
<td>TA (Summer)</td>
<td>$5,744</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Eveling Tavera</td>
<td>TA (Fall)</td>
<td>$7,136</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Richard Johnson</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship (Summer, Fall, Spring)</td>
<td>$21,000</td>
</tr>
<tr>
<td>Other</td>
<td>David Hope</td>
<td>Salish Sea Ecosystem Conference</td>
<td>$293</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>NMBCA</td>
<td>$143,030</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>Amer Ornithol Soc Conference</td>
<td>$629</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>CONCYTEC (Peru) for AOS Conference</td>
<td>$2,993</td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSERC</td>
<td>Lena Ware</td>
<td>NSERC CGS-M (Fall, Spring)</td>
<td>$11,667</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Seth Bennett</td>
<td>TA (Summer)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>TA (Summer)</td>
<td>$5,819</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>GF (Summer)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Elizabeth Ruberg</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Alice Domalik</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joanna Enns</td>
<td>TA (Fall)</td>
<td>$2,526</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Tess Forstner</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joachim Bertrands</td>
<td>TA (Fall)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Rachel Canham</td>
<td>TA (Spring)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Tess Forstner</td>
<td>GF (Spring)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>Travel Award For Seabird Meeting</td>
<td>$500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joachim Bertrands</td>
<td>Travel Award for Seabird Meeting</td>
<td>$500</td>
</tr>
<tr>
<td>Other EC</td>
<td>Alice Domalik</td>
<td>EC contract (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Tess Forstner</td>
<td>EC contract (Fall)</td>
<td>$7,333</td>
</tr>
<tr>
<td>Other EC</td>
<td>Kate Fremlin</td>
<td>EC contract (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Sonya Pastran</td>
<td>ECCC / Ocean Protection Plan</td>
<td>$28,000</td>
</tr>
<tr>
<td>Other</td>
<td>Sonya Pastran</td>
<td>Society of Canadian Ornithologists</td>
<td>$2,000</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Hancock Fdn (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Provincial</td>
<td>Gwyn Case</td>
<td>FLNROD (Fall, Spring)</td>
<td>$19,541</td>
</tr>
<tr>
<td><strong>General Funding for CWE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC/Core</td>
<td>EC</td>
<td>EC Annual Chair Funding (1/3 yrs)</td>
<td>$135,000</td>
</tr>
<tr>
<td>SFU</td>
<td>SFU</td>
<td>SFU Contribution to Faculty Salaries (Ydenberg Williams Green)</td>
<td>$510,633</td>
</tr>
</tbody>
</table>
### Conference Funding

#### Other Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Federal Lank</td>
<td>Canada Summer Jobs</td>
<td>$1,520</td>
</tr>
<tr>
<td>International Lank</td>
<td>Max Plank Collaborative Agreement</td>
<td>$11,825</td>
</tr>
<tr>
<td>Other Ydenberg</td>
<td>Echotrack</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Other Green</td>
<td>Ecological Restoration Supervision</td>
<td>$1,000</td>
</tr>
</tbody>
</table>

#### Species at Risk

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green - FLNROD</td>
<td>$0</td>
</tr>
<tr>
<td>Ydenberg - ECCC (Green)</td>
<td>$0</td>
</tr>
<tr>
<td>Williams</td>
<td>$16,667</td>
</tr>
</tbody>
</table>

### Human Impact on Birds

#### Declining Avian Populations

#### Coast Ecology

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other EC Hipfner MJ</td>
<td>Wildlife Research Division (A-base)</td>
<td>$30,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td>Canadian Wildlife Service (Protected Areas)</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td>WRD (Ocean Protection Plan)</td>
<td>$75,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td>Climate Change Action Plan</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC Hipfner MJ</td>
<td>STAGE</td>
<td>$26,000</td>
</tr>
</tbody>
</table>

#### NSERC

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC Green DJ</td>
<td>Overwintering ecology, migration strategies and demography of migratory birds (5/5 yrs)</td>
<td>$27,000</td>
</tr>
<tr>
<td>NSERC Lank D</td>
<td>Maintenance of ecological polymorphism by frequency-dependent selection (5/5 yrs)</td>
<td>$27,000</td>
</tr>
<tr>
<td>NSERC Ydenberg RC</td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (4/5 yrs)</td>
<td>$32,000</td>
</tr>
<tr>
<td>NSERC Williams TD</td>
<td>NSERC Individual Research Grant &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot;(1/5yrs)</td>
<td>$55,000</td>
</tr>
<tr>
<td>NSERC Elliott J</td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

**Grand Total** $1,399,681

**SFU In-Kind** $120,000
VII. PUBLICATIONS

This list reflects those publications produced since our last report (publications that were “in press” or “submitted” for the last report are included and have been updated). We continue to publish actively. Two PhD students and three MSc students supervised by CWE faculty successfully defended their theses. Most of our publications relate to the research carried out in the main CWE programs and most refer to work carried out in the Pacific Northwest. We are however interacting with scientists throughout Canada and beyond and some of our publications reflect this.

A. PAPERS IN REFEREED JOURNALS OR BOOKS

Books and Book Chapters


In press:


2019:


2018:


tebrates animals. Integrative and Comparative Biology 58: 729-38.


2017


Dehn, M.M., R.C. Ydenberg and L.M. Dill. 2017. Experimental addition of cover lowers the perception of danger and increases reproduction in meadow voles (Microtus pennsylvani-


Reports


Submitted:


B. THESES
Bennett, S.G. 2018. Wintering and breeding distributions of Black Oystercatchers (*Haematopus bachmani*): long-term trends and the influence of climate. MSc, Simon Fraser University, Burnaby.

Domalik, A.D. 2018. At-sea distribution and foraging ecology of two North Pacific seabirds revealed through GPS tracking. MSc, Simon Fraser University, Burnaby.

Fremlin, K. 2018. Trophic magnification of legacy persistent organic pollutants and emergent contaminants within a terrestrial food-web of an avian apex predator, the Cooper's Hawk (*Accipiter cooperii*). MSc, Simon Fraser University, Burnaby.

Hope, D.D. 2018. The role of adaptive behaviour in migratory counts of shorebirds. PhD, Simon Fraser University, Burnaby.

Yap, K.N. 2018. Physiological basis of aerobic capacity and workload ability in birds. PhD, Simon Fraser University, Burnaby.
ANNUAL REPORT of the
CENTRE FOR WILDLIFE ECOLOGY
2019-2020

Department of Biological Sciences
Simon Fraser University
http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

Dr. Ronald C. Ydenberg, Director
## TABLE OF CONTENTS

I. HISTORY......................................................................................................................... 3

II. MISSION STATEMENT ........................................................................................................... 3

III. PERSONNEL ...................................................................................................................... 4

   A. RESEARCH TEAM .............................................................................................................. 4
      1. Faculty and Research Associates.................................................................................. 4
      2. Research Group ........................................................................................................... 4

   B. STEERING COMMITTEE .................................................................................................. 5

IV. INTRODUCTION ................................................................................................................. 6

V. THE CWE IN ACTION ....................................................................................................... 6

   A. SPECIES AT RISK ......................................................................................................... 6
      1. Marbled Murrelet (Threatened, COSEWIC)................................................................. 6
      2. Northern Goshawk (Threatened, COSEWIC)............................................................. 7
      3. Cassin’s Auklet (Special Concern, COSEWIC)............................................................ 7

   B. HUMAN IMPACTS ON BIRDS ....................................................................................... 7
      1. Contaminants and Toxicology..................................................................................... 7
      2. Reservoirs and the impact of Water Use Decisions on Riparian Birds........................ 8
      3. Agricultural Effects .................................................................................................... 8

   C. DECLINING AVIAN POPULATIONS ............................................................................... 8
      1. Migratory Shorebirds.................................................................................................... 8
      2. Neotropical Migrant Passerines ............................................................................... 9
      3. Aerial Insectivores....................................................................................................... 10

   D. COASTAL ECology ....................................................................................................... 10
      1. Coastal Studies of Seabirds......................................................................................... 10
      2. Coastal Ecology of Barrow’s Goldeneye................................................................. 11
      3. Movement Ecology of Black Oystercatchers ......................................................... 11
      4. Coastal Usage by Migratory Shorebirds ................................................................... 11

VI FUNDING .......................................................................................................................... 12

VII. PUBLICATIONS ............................................................................................................. 16

   A. PAPERS IN REFEREED JOURNALS OR BOOKS ....................................................... 16

   B. THESES ......................................................................................................................... 18
I. HISTORY

Under the Migratory Birds Convention and Canada Wildlife Acts, the mandate of the Canadian Wildlife Service is to protect and conserve migratory bird populations. In the 21st century, this historical mandate is broadening to encompass other environmental concerns such as species at risk, biodiversity, sustainability and endangered habitats. To meet these broad and varied responsibilities, Environment and Climate Change Canada depends on sound science, and participates in cooperative ventures. In 1993, the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, and Environment Canada signed a ten year agreement to create the NSERC/CWS Chair in Wildlife Ecology at SFU. That agreement has expired, but The Centre for Wildlife Ecology (CWE) as described here continues work with ECCC and with other agencies, on a range of issues pertaining to wildlife and other environmental sciences.

II. MISSION STATEMENT

The mission of the Centre for Wildlife Ecology (CWE) is to foster high quality graduate training and research, conduct basic and applied research in wildlife ecology, and to provide knowledge and personnel that will help Environment and Climate Change Canada and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between the mission-oriented research and management policies of Environment and Climate Change Canada (Canadian Wildlife Service, CWS, and Science and Technology, S&T) and the basic research agenda of the University. Information, ideas, expertise, resources and opportunity flow back and forth across this interface, giving government agencies access to a broad base of science capability that helps inform policy and decision making, while the university and its faculty and students benefit from enhanced opportunities for research and application of the ideas their disciplines generate.
III. PERSONNEL

A. Research Team

1. Faculty and Research Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Ydenberg</td>
<td>Director, Professor</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>Professor</td>
</tr>
<tr>
<td>David Green</td>
<td>Associate Director, Associate Professor</td>
</tr>
<tr>
<td>Dov Lank</td>
<td>University Research Associate / Adjunct Professor</td>
</tr>
<tr>
<td>Dan Esler</td>
<td>USGS Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Doug Bertram</td>
<td>ECCC Research Scientist</td>
</tr>
<tr>
<td>Sean Boyd</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rob Butler</td>
<td>ECCC Research Scientist Emeritus / Adjunct Professor</td>
</tr>
<tr>
<td>Bob Elner</td>
<td>ECCC Research Scientist Emeritus/Adjunct Professor</td>
</tr>
<tr>
<td>John Elliott</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rhonda Millikin</td>
<td>ECCC Head, Population Assessment/Adjunct Professor</td>
</tr>
<tr>
<td>Fred Cooke (retired)</td>
<td>Emeritus Chairholder</td>
</tr>
</tbody>
</table>

2. Research Group

<table>
<thead>
<tr>
<th>Postdoctoral Fellows</th>
<th>PhD (in progress)</th>
<th>MSc (in progress)</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josh Allen</td>
<td>Gwyn Case</td>
<td></td>
<td>Lesley Butler, CWE Admin. Asst.</td>
</tr>
<tr>
<td>Kirk Hart</td>
<td>Jo Enns</td>
<td></td>
<td>Silven Read, CWE Admin Asst.</td>
</tr>
<tr>
<td>Brett Hodinka</td>
<td>Tess Forstner</td>
<td></td>
<td>Connie Smith, CWE Research Tech</td>
</tr>
<tr>
<td>Mason King</td>
<td>Catherine Lee-Zuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emily McAuley</td>
<td>Katie Leonard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michal Pavlik</td>
<td>Sonya Pastran</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florian Reurink</td>
<td>Lena Ware</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Undergrads</th>
<th>PhD (defended)</th>
<th>MSc (defended)</th>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emily McMann</td>
<td>Richard Johnston</td>
<td>Rachel Canham</td>
<td>Pat Baird</td>
</tr>
<tr>
<td>Evy Gobbens</td>
<td>Eveling Tavera Fernandez</td>
<td>Catherine Villeneuve</td>
<td>Joachim Bertrands</td>
</tr>
<tr>
<td>Simon Valdez</td>
<td>Kristen Walters</td>
<td>Lina Giraldo Deck</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Elizabeth Ruberg (MET)</td>
<td></td>
<td>Jasmine Loveland</td>
</tr>
</tbody>
</table>
B. Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Elner</td>
<td>Emeritus Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>David Green</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>Research Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>Elsie Krebs</td>
<td>Research Manager, Western Canada</td>
<td>ECCC</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Ron Ydenberg</td>
<td>CWE Director (non-voting)</td>
<td>SFU</td>
</tr>
</tbody>
</table>
IV. INTRODUCTION

The aim of this Annual Report is to give an overview of our activities, outline the progress on new and continuing projects, describe the personnel involved, and to give some indication of our scientific and community involvement. Previous Annual Reports are available from the CWE. Contact us via our website

http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

or contact Ron Ydenberg at ydenberg@sfu.ca.

V. THE CWE IN ACTION

The accounts that follow give brief overviews of the major projects run by the CWE. More detail is available on our website (address above). Publications and theses are listed at the end of this report. The personnel also can be contacted via the website.

A. Species at Risk

1. Marbled Murrelet (Threatened, COSEWIC)

SFU’s research on threatened Marbled Murrelets continues to address direct conservation and management issues for this listed species. This project was started by CWE chair emeritus Fred Cooke in 1994 and continued through the present by David Lank.

MSc student Sonya Pastran is analyzing the local distributions of Marbled Murrelets, using transect data gathered for the past 22 years by the Laskeek Bay Conservation Society. The work is funded largely by ECCC under the Ocean Protection Plan. Pastran conducted full seasons of fieldwork during the summers of 2018 and 2019 and has been writing up since then, planning to graduate by autumn 2020. The project involves: creating a spatially-explicit database for seabird sightings over the full period, which is largely completed; assembling relevant environmental variable, both static and dynamic to compare with historical seabird distributions, and obtaining 2 years’ data on local environmental variables to assess with respect data gathered in 2018 and 2019. The work also includes an experiment to determine whether seabirds avoid areas with coastal raptors. They appear to do so, and Pastran’s poster describing the results of her 2018 experiments won a ‘Best MSc Student Paper’ award at the Pacific Seabird Group’s meeting in 2018. Mark Drever of ECCC is on Pastran’s committee. Pastran and Lank participated in several OPP planning sessions, and Pastran has contributed the recent Laskeek Bay data to the Emergency Response Database being assembled by ECCC staff.

Lank committed providing ground survey data gathered during the 1990s to an effort to validate the use of lidar to evaluate forest murrelet nesting habitat suitability, lead by Louise Waterhouse, BC Ministry of Forests, Lands, and Natural Resource Operations, and UBC’s Nicholas Coops.

Lank continued as a member of the Canadian Marbled Murrelet Recovery team, but this was minimally active during 2019.
2. **Northern Goshawk** (Threatened, COSEWIC)

The Northern Goshawk was designated as a Threatened species by COSEWIC in 2000. The Northern Goshawk is a forest raptor whose preference for breeding within late successional forest has placed it at risk from habitat loss and fragmentation, primarily due to timber harvest. Several knowledge gaps persist surrounding goshawk biology, particularly the amount, composition, and configuration of foraging habitat most beneficial to goshawk productivity. Gwyn Case (MSc student) initiated a research project with FLNORD in 2019 to quantify goshawk diet, examine how landscape-level forest structure relates to diet, and assess the role of diet and landscape-level forest structure on nest occupancy and reproductive success of goshawks. This project will fill substantial knowledge gaps related to this species at risk and inform habitat protection decisions in the province. The project led by Melanie Wilson (FLNORD, Surrey) was recently received $235,000 of funding for 2020/21 through 2023/24 that will provide ongoing support for Gwyn Case and a future graduate student.

3. **Cassin's Auklet** (Special Concern, COSEWIC) - see Section V.D.1, Coastal Studies of Seabirds.

**B. Human Impacts on Birds**

1. **Contaminants and Toxicology**

   a. **Chronic toxicity of petroleum hydrocarbons and other contaminants in seabird sentinel species**

   This research focuses on investigating the toxicity of petroleum, specifically oil sands bitumen products, to birds on the Pacific north-west coast. We propose the development of novel approaches to assess toxicity from chronic exposure to petroleum hydrocarbons and other contaminants. Collaborators at National Wildlife Research Centre (NWRC), Ottawa have developed gene arrays of two wildlife indicator species, the Rhinoceros Auklet and Double-crested Cormorant for the purposes of assessing the effects of a range of environmental contaminants, primarily oil derived hydrocarbons, halogenated hydrocarbons, and heavy metals. These species have been selected by both ECCC Canadian Wildlife Service (CWS) and Wildlife and Landscape Science Directorate (WLSD) managers as the bio-indicators of choice in relation to baseline measurements for the NGP (Northern Gateway Pipeline). The Rhinoceros Auklet (RHAU) is also one of our ECCC (Environment and Climate Change Canada) long term contaminant seabird monitoring species for the west coast. This work is being led by Mason King (PhD student), funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC) and Dr. Vicki Marlatt (SFU).

   b. **Avian dilbit toxicity studies**

   An initiative to increase transport of an unconventional crude petroleum known as diluted bitumen (dilbit) from the Port of Vancouver will increase the risk of a major oil spill and chronic small-scale discharges. Crude petroleum is toxic to birds, yet no published scientific studies of the effects of dilbit on birds yet exist. We have three major components to this study: a) experimental work on effects of dilbit on physiology and health using adult zebra finches as a model system (work lead by Elizabeth Ruberg); b) experimental work on toxicity of dilbit to bird embryos via shell oiling in chicken and double-crested cormorant embryos (i.e. using fertile, developing eggs) lead by Mason King (PhD), and c) effects of external (feather oiling) and internal dilbit exposure on flight dynamics of free-living rhinoceros auklets (lead by Catherine Lee-Zuck, MSc). This work is funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC) and Dr. Kyle Elliott (McGill).
2. Reservoirs and the impact of Water Use Decisions on Riparian Birds

Human activities have caused a dramatic loss in the amount of riparian habitat in North America and this habitat loss is linked to population declines of many riparian dependent songbirds. CWE, working in collaboration with BC Hydro and Cooper-Beauchesne and Associates, has examined how reservoir operations on the Columbia River between 2004-2017 impact the population dynamics of yellow warblers, a species identified by Partners in Flight as a focal species for riparian habitat. The final component of this project, an individual based model shows that managing reservoir operations by delaying when the reservoir fills by approximately 2 weeks would increase the productivity of yellow warblers (the average number of independent young produced) by 36%. This research and the code for the model will shortly be submitted for publication in the open-access journal PLoS ONE.

3. Agricultural Effects

a. Breeding phenology and productivity of an invasive, agricultural specialist, the European starling

European starlings are an invasive species of considerable economic importance because of their agricultural and urban impact (as well as being the focal species for Environment Canada’s terrestrial contaminant monitoring under the Chemical Management Plan). However, they are also agricultural specialists associated with less-intensive pasture (short mown or grazed fields), and are dependent on one main prey type (Tipulid larvae or leatherjackets – another introduced pest species) for successful reproduction. As such they could be a useful monitoring species for changes in agricultural land-use and intensification. Our long-term study of the ecological physiology of European starlings marked its 17th year at our Langley field site (140 nest boxes). Basic monitoring was conducted in 2019.

C. Declining Avian Populations

1. Migratory Shorebirds

Concern has been raised about apparent population declines of many species of shorebirds over the past two decades. The CWE and its ECCC associates have consistently contributed novel research findings addressing potential causes of these apparent declines. We have cooperated particularly closely with ECCC’s Mark Drever (Delta), Keith Hobson (Saskatoon), and with ECCC emeritus Bob Elner, as well as Bird Studies Canada local representatives.

a. Shorebird Breeding Biology

In 2019-2020, current and former CWE members contributed to two additional publications arising from their participation in the Arctic Shorebird Demographic Network, a collaborative program that included over a dozen sites in Alaska and arctic Canada utilizing common protocols, including contributions from ECCC staff members Grant Gilchrist, Jennie Rausch, and Paul Smith. These publications address effects of environmental conditions and seasonal trends on breeding success and adult survivorship. The final major paper to come out of this extensive cooperative project, which combines the data on fecundity and survivorship to generate models of population trend for 6 species of shorebirds nesting in the Canadian arctic has been submitted to the Condor. Kwon et al.’s (2019) paper quantified geographical variation in changes in timing between shorebird breeding and arctic food availability, ‘phenological mismatch’, which has become an issue under climate change.

b. Non-breeding biology
PhD student Richard Johnson, from Colombia, completed his PhD thesis entitled “The influence of predation danger on the distribution of nonbreeding shorebirds in a tropical estuary system”, in April 2019. During 2018, he published the first chapter of the thesis, assessing the relative importance of isolation, danger, and foraging locations as predictors of roost sites used by Whimbrels in the large tropical delta he studied on the Pacific coast of Columbia. In other chapters completed by the end of the year, Johnson concluded from analysis of 5 years of survey data that environmental predation danger overrides food abundance as a priority for most overwintering shorebirds in this tropical delta. Additional chapters highlight species differences in distributional patterns with respect to body size, foraging mode, and experimental measures of escape performance. Richard obtained a prestigious postdoctoral position in a new “Coastal Solutions Fellows Program”, which aims to pair early career shorebird biologists, coastal engineers, and others to create practical management plans for neotropical coastal areas. Lank participated in workshops in Panama early in 2018, and previously in Peru in 2017 at which this program was partially developed.

Eveling Tavera Fernandez, Ph.D student from Peru, defended her PhD thesis in March 2020, and is preparing chapters for publication, including one generating estimates of annual survivorship produced in collaboration with ECCC staff member Mark Drever (Delta). She obtained substantial funding from the US Neotropical Migratory Bird program to continue her shorebird banding and resighting field seasons in Peru throughout 2019-2020. She published a paper on shorebird exoparasites in Peru together with Lank and others. She is involved with the generation of a Peruvian Shorebird Conservation plan, and is the chair of the Western Hemisphere Shorebird Group.

e. Migration Biology

Former PhD student David Hope obtained a research biologist position with Environment Canada, and published two papers arising from his thesis. An analysis of Atlantic Canada Shorebird Surveys showed that semipalmated sandpipers steadily shifted their stopover site usage toward larger sites between 1974 and 2015 (Frontiers in Ecology and Evolution Jan 2020), done in association with ECCC’s Paul Smith (Ottawa) and Julie Paquet (Sackville). If not accounted for, this shift would affect the estimation of annual population numbers from Maritime census data. Hope also published a paper with Ydenberg considering the potential seasonal adjustment of migration speed.

Lank is a coauthor along with CWE PhD student Richard Johnston and former ECCC scientist Rob Butler on a paper submitted to ACE-EOC describing the formation and initial results of a hypothesis-driven hemispheric-wide network to monitor shorebird populations along the Pacific coast, with particular emphasis on Western sandpipers and Pacific dunlin.

2. Neotropical Migrant Passerines

CWE initiated a long-term study on yellow warblers that migrate between western Canada and Mexico/Central America in 2004. This research conducted in collaboration with Dr. Elsie Krebs (ECCC) takes a whole life cycle approach and includes work on the breeding grounds in Inuvik, NT, and Revelstoke, BC, on migration and on the wintering grounds in Jalisco, Mexico. The 2017 field season in Revelstoke completed the field component of this project. Simon Valdez investigated the non-breeding portion of the yellow warbler life cycle and defended his PhD in January 2020 (see Valdez-Juarez et al. 2018, 2019). Michal Pavlik (PhD candidate) is using the long-term dataset to 1) assess how conditions on migration interact with conditions on the breeding grounds to determine the timing of breeding and local productivity, 2) estimate true survival using a spatial-CJS model and 3) determine mortality rates across the annual cycle. The first chapter of his thesis demonstrates that female warblers
initiate the transition to a reproductive physiology while still on migration despite the energetic demands of this stage of the annual cycle.

3. Aerial Insectivores

The widespread population declines of this guild have led to the suggestion that declines may be due to changes in the abundance and/or availability of their insect prey. Long-term declines in insect abundance have been documented in Europe but similar data is lacking for North America. Challenge experiments, that were a common tool used to test foraging theory in the 1990’s provide a potential alternative approach to evaluating changes in prey availability; if prey availability has decreased parents over the last three decades we would expect to see concomitant changes in the ability of parents to meet the challenge of provisioning experimentally enlarged brood sizes. In September 2019, Catherine Villeneuve defended her MSc that compared the response of Tree Swallow parents to brood size manipulation experiments conducted in 1994/5 and 2017/18. She found that delivery rates to the nest were lower in 2018/19 than 1994/5 because load sizes at each delivery are reduced, perhaps because of changes in the abundance and composition of the insect community.

D. Coastal Ecology

1. Coastal Studies of Seabirds

CWE Research Associate Dr. Mark Hipfner reports that summer 2019 marked the 26th year of operation of the Centre for Wildlife Ecology's seabird research and monitoring program on Triangle Island. The 2019 field crew consisted of Nik Clyde (ECCC Delta - WRD), Kim Dohms and Josh Green (both ECCC, Delta – Canadian Wildlife Service), Sarah Hudson (ECCC, Delta – WRD), Catherine Jardine (Bird Studies Canada, Delta), Kerrith MacKay (ECCC, Delta – WRD), Megan Ross (ECCC, Delta – WRD, now with CWS) and Ken Wright (ECCC, Delta – WRD), in addition to Hipfner. As in past years, the Triangle Island field crew monitored breeding chronology, breeding success and nestling diet in Cassin’s Auklet Ptychoramphus aleuticus, Rhinoceros Auklet Cerorhinca monocerata, and Black Oystercatcher Haemotopius bachmani, and banded songbirds in the vicinity of the cabin. The crew also conducted a pilot project investigating the feasibility of using cameras to monitor oystercatcher nests, deployed audio recording units to index seabird nesting density and the presence/absence of bats, and deployed GPS tags on 10 Tufted Puffins, obtaining complete (24 h) tracks for six birds.

Research also continued on several other major Rhinoceros Auklet colonies in BC - in 2019, we visited Pine Island, Lucy Island, S’Gang Gwaay, and Cleland Island. The primary objective of this program, which was initiated in 2006, is to study the effects of oceanographic variation on multiple trophic levels – the diets fed to nestling auklets and the diets of their major fish prey, Pacific sand lance Ammodytes personatus, Pacific herring Clupea pallasii, and Pacific salmon Oncorhynchus spp. We continue to collaborate on this project with researchers in Washington State, and with Fisheries and Oceans Canada in Nanaimo. We also deployed GPS tags on 10 Rhinoceros Auklets on S’Gang Gwaay, and collected blood samples and feathers from adult auklets on all colonies visited in 2019 for baseline health assessments in collaboration with researchers with Washington Department of Fish and Wildlife and the University of California Davis. We also completed the seventh year of a project investigating the consumption of salmon Oncorhynchus spp. by seabirds in BC waters, in collaboration with Strahan Tucker (DFO, Nanaimo – Pacific Biological Station), and completed the tenth year of a project investigating the ingestion of microfibres/microplastics by forage fish, in collaboration with Moira Galbraith (DFO, Sidney - Institute of Ocean Sciences). The field crew for the BC portion of the work consisted of Clyde, Eric Gross (ECCC, Delta – CWS), Kirk Hart (new PhD student with the CWE and
Coast Mountain College, Prince Rupert), Hipfner, Andrew Huang and Agathe Lebeau (ECCC, Delta – CWS), Ross, and Kate Shapiro (ECCC, Delta – CWS).

2. Coastal Ecology of Barrow's Goldeneye

Barrow’s goldeneye is a sea duck species with discrete western and eastern populations. The majority of the larger western population winters along the Pacific, and breeds in the interior of British Columbia, Alberta and the Northwest Territories. Recent efforts, led primarily by ECCC, have focused on using satellite telemetry to determine linkages among breeding, molting and wintering areas. These data have been used to describe the broad movements of Barrow’s Goldeneye throughout their annual cycle. However, the spatial scale and spatial/temporal resolution of this dataset can also be used to address research priorities of the federal Ocean Protection Plan and identified information needs of the Sea Duck Joint Venture. Tess Forstner (MSc candidate), in collaboration with Sean Boyd (ECCC) and Megan Willie (ECCC) is using the extensive satellite telemetry dataset to examine latitudinal variation in the timing of discrete stages of the annual cycle and assess the degree of migratory connectivity between wintering populations across the western range. She will also use the data to identify when and where wintering sea ducks would be sensitive to anthropogenic activities on the Pacific coasts.

3. Movement Ecology of Black Oystercatchers

CWE has initiated a new long-term study on the movement ecology and habitat use of the Black Oystercatcher, an indicator species for rocky intertidal habitat in the Pacific Northwest (see https://davidgreensfu.com/m3bloy/). This project is a collaboration involving federal agencies in BC (ECCC and Parks Canada) and Alaska (USGS and US National Parks Service) with assistance from non-governmental organisations in BC (Laskeek Bay Conservation Society and Rainforest Education Society). Fieldwork was initiated in BC in Spring 2019 and Alaska in Summer 2019. Lena Ware (MSc candidate) is using the detailed data from 20 birds deployed with ARGOS satellite tags to define the movement and habitat use of black oystercatchers in relation the tidal and diurnal light cycle throughout the year. Her project will support the ECCC mandate, under the federal Ocean Protection Plan, to conduct research and monitoring in order to improve management of the coastal waters of the Pacific coast. Future work is planned to examine the drivers of variation in the migratory strategies of oystercatchers and assess how morphology and competitive interactions between migrants and residents shape the foraging ecology of oystercatchers in BC and Alaska.

4. Coastal Usage by Migratory Shorebirds

The majority of the world’s three and a half to four million Western Sandpipers stop briefly to refuel in Boundary Bay or on Robert’s Bank during their annual northward migration, providing a thrilling sight for local residents. Much of the species’ population also stops over on southward migration, following a flight over the Gulf of Alaska. Because of this, the species is ranked in the highest priority class in the draft BC-Yukon region CWS Shorebird Management Plan. Each winter, the Fraser River Delta (FRD) hosts the most northerly wintering population of Pacific Dunlin. Local information on shorebird habitat usage, including western sandpipers and dunlin, contributes information useful for ECCC’s environmental assessments as Port of Vancouver operations continue and expand.

MSc student Rachel Canham completed her thesis and defended early in April 2019. Her work focused on biofilm production and grazing by migrant Western Sandpipers on Robert’s Bank. Rachel measured biofilm concentration and grazing intensity on transects and concluded that found the total accumulation during tidal periods matched that removed by sandpipers during grazing visits. During the higher-intensity (10 – 100 fold, based on daily sandpiper counts) northward migration, biofilm concentration increased and grazing decreased with proximity to the shoreline. In contrast, during southward
migration biofilm was uniformly high. A danger manipulation experiment supported a trade-off with biofilm concentration: grazing declined with danger, but less so where biofilm is higher. Together the results indicate that dynamic trophic interactions between danger, sandpipers and biofilm create spatial patterns in biofilm concentration.

Florian Reurink continued his PhD project, following up on work done in collaboration with Ron Ydenberg during his MSc program at Wageningen University. His previous work used flight behavior of birds to make predictions about energy intake rate in birds. Assessing shorebird food availability empirically is time consuming and expensive, and these studies are testing the potential for a behavioral measure to provide a simpler index of shorebird food availability. Behavioural ecological theory predicts that birds should adjust their foraging flight speed to the conditions in the habitat, where flight speed should increase with increased energy intake. The results from Florian’s MSc work matched the predictions from the theory well, and the Ph.D. further tests the applicability of this approach. In collaboration with ECCC’s Rhonda Millikin and Ecotrak, Reurink has developed algorithms for quantifying flight speeds of dunlin and western sandpipers using a mobile radar system. Reurink's research continued with collection of flight speeds of migrating western sandpipers at multiple sites in the Salish Sea, allowing him to look at inter- and intra-site differences.

Ydenberg continued to develop theory focusing on shorebird responses to changes in danger from increasing raptor populations over the past 30 years, and the effects these can have on shorebird populations and interpretations of census data. He and Lank are exploring contrasting directional effects on wing lengths of Western and Semipalmated sandpipers during the 1980s, following up on Lank’s paper in 2016 on this subject. Ydenberg’s working hypothesis is that differences in the relative importance of resident versus migratory raptors could explain the contrasting trends.

VI FUNDING

In 2019-2020 the contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division) was renewed for three years. This grant supplies $135,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Brett Hodinka</td>
<td>Graduate Dean's Entrance Scholarship (Fall, Spring)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship (Summer, Fall)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Simon Valdez</td>
<td>TA (Summer, Fall)</td>
<td>$11,515</td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NSERC Fellowships etc Lena Ware NSERC CGS-M (Summer) GF (Fall) $6,000
SFU Fellowships etc Gwyn Case $6,500
SFU Fellowships etc Seth Bennett TA (Summer) $4,689
SFU Fellowships etc Sonya Pastran TA (Summer) $5,819
SFU Fellowships etc Catherine Villeneuve GF (Summer) $6,500
SFU Fellowships etc Elizabeth Ruberg GF (Fall) $6,500
SFU Fellowships etc Joanna Enns TA (Fall) $4,967
SFU Fellowships etc Joanna Enns GF (Spring) $6,500
SFU Fellowships etc Tess Forstner GF (Fall) $6,500
SFU Fellowships etc Kate Fremlin TA (Spring) $5,851
SFU Fellowships etc Kate Fremlin GF (Fall) $6,500
SFU Fellowships etc Sonya Pastran GF (Fall) $6,500
SFU Fellowships etc Joachim Bertrands TA (Fall) $4,689
SFU Fellowships etc Robert Kesic TA (Spring) $4,967
SFU Fellowships etc Tess Forstner GF (Fall) $6,500
SFU Fellowships etc Katie Leonard GF (Fall) $6,500
SFU Fellowships etc Lena Ware $6,500

**General Funding for CWE**

<table>
<thead>
<tr>
<th>EC/Core</th>
<th>EC</th>
<th>SFU</th>
<th>SFU</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC/EC</td>
<td>EC</td>
<td>SFU</td>
<td>SFU</td>
</tr>
</tbody>
</table>

EC Annual Chair Funding (1/3 yrs) $135,000
SFU Contribution to Faculty Salaries (Ydenberg Williams Green) $542,263

**Conference Funding**

| SFU Fellowships etc | Joachim Bertrands | Travel Award for Seabird Meeting | $500
| SFU Fellowships etc | Kate Fremlin | TMRA (Fall) | $500
| SFU Fellowships etc | Kate Fremlin | TMRA (Spring) | $500
| SFU Fellowships etc | Katie Leonard | TMRA (Spring) | $500
| SFU Fellowships etc | Sonya Pastran | Travel Award For Seabird Meeting | $500
<table>
<thead>
<tr>
<th>Conference Funding</th>
<th>Name</th>
<th>Organization</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference Funding</td>
<td>Gwyn Case</td>
<td>Raptor Research Foundation</td>
<td>$1,000</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Joanna Enns</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Tess Forstner</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Mason King</td>
<td>SETAC North America</td>
<td>$1,000</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Catherine Lee-Zuck</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Michal Pavlik</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Florian Reurink</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Eveling Tavera</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Catherine Villeneuve</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Kristne Walters</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
<tr>
<td>Conference Funding</td>
<td>Lena Ware</td>
<td>Conf. Budget</td>
<td>$250</td>
</tr>
</tbody>
</table>

**Other Funding**

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Organization</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prov. Government</td>
<td>Green</td>
<td>Ministry of Forests, Lands, Natural Resources Opr. &amp; Rural Developm.</td>
<td>$15,000</td>
</tr>
<tr>
<td>Government</td>
<td>Green</td>
<td>ECCC</td>
<td>$12,000</td>
</tr>
<tr>
<td>International</td>
<td>Lank</td>
<td>Max Plank Collaborative Agreement</td>
<td>$17,997</td>
</tr>
<tr>
<td>Government</td>
<td>Ydenberg</td>
<td>ECCC - Seaduck Moment throughout the annual cycle: linking water and breeding habitat</td>
<td>$22,855</td>
</tr>
<tr>
<td>MITACS</td>
<td>Elliott</td>
<td>Elevate - A. Gonzales</td>
<td>$55,000</td>
</tr>
</tbody>
</table>

**Generated Research Funding**

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Research Area</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Ydenberg</td>
<td>Miscellaneous CWS grants</td>
<td>$3,476</td>
</tr>
<tr>
<td>SFU</td>
<td>Ydenberg</td>
<td>eBERG Director funding</td>
<td>$9,489</td>
</tr>
<tr>
<td>NSERC</td>
<td>Green DJ</td>
<td>Overwinterring ecology, migration strategies and demography of migratory birds (5/5 yrs)</td>
<td>$47,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Lank D</td>
<td>Maintenance of ecological polymorphism by frequency-dependent selection (5/5 yrs)</td>
<td>$21,549</td>
</tr>
<tr>
<td>NSERC</td>
<td>Ydenberg RC</td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (4/5 yrs)</td>
<td>$32,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD</td>
<td>NSERC Individual Research Grant</td>
<td>$55,000</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>---------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot; (1/5yrs)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NSERC</th>
<th>Elliott J</th>
<th>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</th>
<th>$37,000</th>
</tr>
</thead>
</table>

Grand Total $1,175,376

SFU In-Kind $120,000
VII. PUBLICATIONS

This list reflects those publications produced since our last report (publications that were “in press” or “submitted” for the last report are included and have been updated). We continue to publish actively. Three PhD students, three MSc and one MET students supervised by CWE faculty successfully defended their theses. Most of our publications relate to the research carried out in the main CWE programs and most refer to work carried out in the Pacific Northwest. We are however interacting with scientists throughout Canada and beyond and some of our publications reflect this.

A. PAPERS IN REFEREED JOURNALS OR BOOKS

Books and Book Chapters


In press:


2020


over a 22-year period. Progress in Oceanography 182: 102290.

2019:


Submitted:


Hodinka, B.L. and Ashley, N.T. Submitted. Effect of sleep loss on executive function and plasma corticosterone levels in an arctic-breeding songbird the Lapland longspur (Calcarius lapponicus). Hormones and Behavior.


B. THESSES

Canham, R. 2019. Slime, safety and shorebirds: biofilm production and grazing by migrating Western sandpipers (Calidris mauri). MSc, Simon Fraser University, Burnaby.


Ruberg, E. 2019. Effect of diluted bitumen on the survival, physiology, and behaviour of the Zebra finch (Taeniopygia guttata). MET, Simon Fraser University, Burnaby, BC.

Tavera Fernandez, E. 2020. Survivorship and life history strategies in relation to migration distance in Western and Semipalmated sandpipers in Peru. PhD, Simon Fraser University, Burnaby, BC

Valleuve, C. 2019. Repurposing historical data to investigate aerial insectivore declines. MSc, Simon Fraser University, Burnaby.

Walters, K. 2019. Ideal free eagles: bald eagle distribution patterns and use of kleptoparasitism on salmon rivers. MSc, Simon Fraser University, Burnaby.

Valdez-Juarez, S.O. 2020. Influence of agriculture over the condition and survival of wintering Yellow
Warblers (*Setophaga petechia*) and its implication for the Neotropical migratory community. PhD, Simon Fraser University, Burnaby.
ANNUAL REPORT of the
CENTRE FOR WILDLIFE ECOLOGY
2020-2021

Department of Biological Sciences
Simon Fraser University
http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

Dr. Ronald C. Ydenberg, Director
# TABLE OF CONTENTS

I. HISTORY .......................................................................................................................... 3

II. MISSION STATEMENT ...................................................................................................... 3

III. PERSONNEL .................................................................................................................... 4

A. RESEARCH TEAM ........................................................................................................... 4
   1. Faculty and Research Associates ............................................................................. 4
   2. Research Group ......................................................................................................... 4

B. STEERING COMMITTEE .................................................................................................. 5

IV. INTRODUCTION ............................................................................................................. 6

V. THE CWE IN ACTION ..................................................................................................... 6

A. SPECIES AT RISK ......................................................................................................... 6
   1. Marbled Murrelet (Threatened, COSEWIC) .............................................................. 6
   2. Northern Goshawk (Threatened, COSEWIC) .......................................................... 7
   3. Cassin's Auklet (Special Concern, COSEWIC) ......................................................... 7

B. HUMAN IMPACTS ON BIRDS ......................................................................................... 7
   1. Contaminants and Toxicology .................................................................................. 7
   2. Reservoirs and the impact of Water Use Decisions on Riparian Birds ..................... 8
   3. Agricultural Effects .................................................................................................... 8

C. DECLINING AVIAN POPULATIONS ............................................................................... 8
   1. Migratory Shorebirds ............................................................................................... 8
   2. Neotropical Migrant Passerines .............................................................................. 9

D. COASTAL ECOLOGY ...................................................................................................... 9
   1. Coastal Studies of Seabirds ...................................................................................... 9
   2. Coastal Ecology of Barrow's Goldeneye .................................................................. 10
   3. Movement Ecology of Black Oystercatchers ......................................................... 10
   4. Coastal Usage by Migratory Shorebirds ................................................................ 10

VI FUNDING ........................................................................................................................ 11

VII. PUBLICATIONS ........................................................................................................... 14

A. PAPERS IN REFEREED JOURNALS OR BOOKS .......................................................... 14

B. THESES ......................................................................................................................... 17
I. HISTORY

Under the Migratory Birds Convention and Canada Wildlife Acts, the mandate of the Canadian Wildlife Service is to protect and conserve migratory bird populations. In the 21st century, this historical mandate is broadening to encompass other environmental concerns such as species at risk, biodiversity, sustainability and endangered habitats. To meet these broad and varied responsibilities, Environment and Climate Change Canada depends on sound science, and participates in cooperative ventures. In 1993, the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, and Environment Canada signed a ten year agreement to create the NSERC/CWS Chair in Wildlife Ecology at SFU. That agreement has expired, but The Centre for Wildlife Ecology (CWE) as described here continues work with ECCC and with other agencies, on a range of issues pertaining to wildlife and other environmental sciences.

II. MISSION STATEMENT

The mission of the Centre for Wildlife Ecology (CWE) is to foster high quality graduate training and research, conduct basic and applied research in wildlife ecology, and to provide knowledge and personnel that will help Environment and Climate Change Canada and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between the mission-oriented research and management policies of Environment and Climate Change Canada (Canadian Wildlife Service, CWS, and Science and Technology, S&T) and the basic research agenda of the University. Information, ideas, expertise, resources and opportunity flow back and forth across this interface, giving government agencies access to a broad base of science capability that helps inform policy and decision making, while the university and its faculty and students benefit from enhanced opportunities for research and application of the ideas their disciplines generate.
III. PERSONNEL

A. Research Team

1. Faculty and Research Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Ydenberg</td>
<td>Director, Professor</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>Professor</td>
</tr>
<tr>
<td>David Green</td>
<td>Associate Director, Associate Professor</td>
</tr>
<tr>
<td>Dov Lank</td>
<td>University Research Associate / Adjunct Professor</td>
</tr>
<tr>
<td>Dan Esler</td>
<td>USGS Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Doug Bertram</td>
<td>ECCC Research Scientist</td>
</tr>
<tr>
<td>Sean Boyd</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rob Butler</td>
<td>ECCC Research Scientist Emeritus / Adjunct Professor</td>
</tr>
<tr>
<td>Bob Elner</td>
<td>ECCC Research Scientist Emeritus / Adjunct Professor</td>
</tr>
<tr>
<td>John Elliott</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rhonda Millikin</td>
<td>ECCC Head, Population Assessment / Adjunct Professor</td>
</tr>
<tr>
<td>Fred Cooke</td>
<td>Emeritus Chairholder</td>
</tr>
</tbody>
</table>

2. Research Group

<table>
<thead>
<tr>
<th>Postdoctoral Fellows</th>
<th>PhD (in progress)</th>
<th>MSc (in progress)</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>None (CoVid)</td>
<td>Josh Allen</td>
<td>Gwyn Case</td>
<td>Sadika Jurvic, CWE Admin. Asst.</td>
</tr>
<tr>
<td></td>
<td>Kirk Hart</td>
<td>Jo Enns</td>
<td>Connie Smith, CWE Research Tech</td>
</tr>
<tr>
<td></td>
<td>Brett Hodinka</td>
<td>Hannah Hall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mason King</td>
<td>Catherine Lee-Zuck</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Michal Pavlik</td>
<td>Katie Leonard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Florian Reurink</td>
<td>Cole Rankin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hannah Roodenrijs</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lena Ware</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrads</td>
</tr>
<tr>
<td>None (CoVid)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
## B. Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Elner</td>
<td>Emeritus Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>David Green</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>Research Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>Elsie Krebs</td>
<td>Research Manager, Western Canada</td>
<td>ECCC</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Ron Ydenberg</td>
<td>CWE Director (non-voting)</td>
<td>SFU</td>
</tr>
</tbody>
</table>
IV. INTRODUCTION

The aim of this Annual Report is to give an overview of our activities, outline the progress on new and continuing projects, describe the personnel involved, and to give some indication of our scientific and community involvement. Previous Annual Reports are available from the CWE. Contact us via our website http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm or contact Ron Ydenberg at ydenberg@sfu.ca.

V. THE CWE IN ACTION

The accounts that follow give brief overviews of the major projects run by the CWE. More detail is available on our website (address above). Publications and theses are listed at the end of this report. The personnel also can be contacted via the website.

A. Species at Risk

1. Marbled Murrelet (Threatened, COSEWIC)

SFU’s research on threatened Marbled Murrelets continues to address direct conservation and management issues for this listed species. This project was started by CWE chair emeritus Fred Cooke in 1994 and continued through the present by David Lank.

MSc student Sonya Pastran completed her analysis of the local distributions of Marbled Murrelets, using transect data gathered for the past 22 years by the Laskeek Bay Conservation Society. Pastran conducted full seasons of fieldwork during the summers of 2018 and 2019, funded largely by ECCC through the Ocean Protection Plan. Sonya completed her MSc and graduated in October 2020. Her major findings on marine habitat usage are presented in a paper accepted by Ornithological Applications. Mark Drever of ECCC was on Pastran’s committee and is a co-author on this paper. Sonya’s MSc research also included an experiment to determine whether seabirds avoid areas with coastal raptors. They appear to do so, and a second paper from her MSc is in progress, with Ydenberg as a collaborator.

Sonya is currently working with ECCC’s Doug Bertram, analyzing VHF radiotracking data gathered during the late 1990s by the CWE in Desolation and Clayoquot Sounds. Lank provided archival data to ECCC for these analyses.

Lank provided ground survey data gathered during the 1990s to an effort to validate the use of lidar to evaluate forest murrelet nesting habitat suitability, lead by Louise Waterhouse, BC Ministry of Forests, Lands, and Natural Resource Operations, and UBC’s Nicholas Coops

Lank continued as a member of the Canadian Marbled Murrelet Recovery team, but this was minimally active during 2020–2021.
2. **Northern Goshawk** (Threatened, COSEWIC)

The Northern Goshawk (*Accipiter gentilis laingi*) was designated as a Threatened subspecies by COSEWIC in 2000. The Northern Goshawk *laingi* subspecies is a forest raptor whose preference for breeding within late successional forest has placed it at risk from habitat loss and fragmentation, primarily due to timber harvest. Management actions are hampered by knowledge gaps surrounding the breeding season diet and foraging ecology of goshawks in coastal British Columbia. Gwyn Case (MSc student) initiated a research project to quantify goshawk diet and investigate potential links between dietary variation and goshawk reproductive success in 2019 and will defend her thesis in summer 2021. She found that although goshawks consumed 33 different prey species *Tamiasciurus* squirrels made up the majority of their diet. Diet composition differed slightly between the coastal and transition zones but did not influence productivity. Gwyn also conducted a pilot study of goshawk breeding season movement using GPS-UHF transmitters that will be extended into 2023/24 with funding provided by the Habitat Conservation Trust Fund. This project led by Melanie Wilson (FLNRORD, Surrey) will fill substantial knowledge gaps related to this species at risk and inform habitat protection decisions in the Province.

3. **Cassin's Auklet** (Special Concern, COSEWIC) - see Section V.D.1, Coastal Studies of Seabirds.

### B. Human Impacts on Birds

#### 1. Contaminants and Toxicology

**a. Chronic toxicity of petroleum hydrocarbons and other contaminants in seabird sentinel species**

This research focuses on investigating the toxicity of petroleum, specifically oil sands bitumen products, to birds on the Pacific north-west coast. We propose the development of novel approaches to assess toxicity from chronic exposure to petroleum hydrocarbons and other contaminants. Collaborators at National Wildlife Research Centre (NWRC), Ottawa have developed gene arrays of two wildlife indicator species, the Rhinoceros Auklet and Double-crested Cormorant for the purposes of assessing the effects of a range of environmental contaminants, primarily oil derived hydrocarbons, halogenated hydrocarbons, and heavy metals. These species have been selected by both ECCC Canadian Wildlife Service (CWS) and Wildlife and Landscape Science Directorate (WLSD) managers as the bio-indicators of choice in relation to baseline measurements for the NGP (Northern Gateway Pipeline). The Rhinoceros Auklet (RHAU) is also one of our ECCC (Environment and Climate Change Canada) long term contaminant seabird monitoring species for the west coast. This work is being led by Mason King (PhD student), funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC) and Dr. Vicki Marlatt (SFU).

**b. Avian dilbit toxicity studies**

An initiative to increase transport of an unconventional crude petroleum known as diluted bitumen (dilbit) from the Port of Vancouver will increase the risk of a major oil spill and chronic small-scale discharges. Crude petroleum is toxic to birds, yet no published scientific studies of the effects of dilbit on birds yet exist. We have three major components to this study: a) experimental work on effects of dilbit on physiology and health using adult zebra finches as a model system (work lead by Elizabeth Ruberg); b) experimental work on toxicity of dilbit to bird embryos via shell oiling in chicken and double-crested cormorant embryos (i.e. using fertile, developing eggs) lead by Mason King (PhD), and c) effects of external (feather oiling) and internal dilbit exposure on flight dynamics of free-living rhinoceros auklets (lead by Catherine Lee-Zuck, MSc). This work is funded under the Ocean Protection Plan and is a collaboration with Dr. John Elliott (ECCC) and Dr. Kyle Elliott (McGill).
c. Glaucous-winged gulls and the health of the Salish Sea
In the second year of this collaborative project, 150 glaucous-winged gulls were caught in January-February 2021 at coastal sites throughout the Salish Sea. Blood samples were obtained for assessment of physiological health, contaminant, and stable-isotope analysis. In addition, a further 17 adult gulls received a GPS tag to provide fine-scale data on movement patterns and habitat use. This project is a collaboration between Dr. Mark Hipfner from the Wildlife Research Division (WRD) of Environment and Climate Change Canada (ECCC), Dr. Tony Williams and M.Sc. candidate Hannah Hall from the Centre for Wildlife Ecology at Simon Fraser University (SFU), and Dr. Theresa Burg from the University of Lethbridge. The project also involves researchers from the Ecotoxicology and Wildlife Health Division of ECCC, and Fisheries and Oceans Canada.

2. Reservoirs and the impact of Water Use Decisions on Riparian Birds
Human activities have caused a dramatic loss in the amount of riparian habitat in North America and this habitat loss is linked to population declines of many riparian dependant songbirds. CWE, working in collaboration with BC Hydro and Cooper-Beauchesne and Associates, has examined how reservoir operations on the Columbia River between 2004-2017 impact the population dynamics of yellow warblers, a species identified by Partners in Flight as a focal species for riparian habitat. The final component of this project, an individual based model shows that managing reservoir operations by delaying the reservoir fills by approximately 2 weeks would increase the productivity of yellow warblers (the average number of independent young produced) by 36%. This research and the code for the model was published in the open-access journal PLoS ONE in February 2021.

3. Agricultural Effects

a. Breeding phenology and productivity of an invasive, agricultural specialist, the European starling
European starlings are an invasive species of considerable economic importance because of their agricultural and urban impact (as well as being the focal species for Environment Canada’s terrestrial contaminant monitoring under the Chemical Management Plan). However, they are also agricultural specialists associated with less-intensive pasture (short mown or grazed fields), and are dependent on one main prey type (Tipulid larvae or leatherjackets – another introduced pest species) for successful reproduction. As such they could be a useful monitoring species for changes in agricultural land-use and intensification. Our long-term study of the ecological physiology of European starlings marked its 20th year at our Langley field site (140 nest boxes) in 2021. In addition to basic monitoring of timing of laying and breeding productivity a current focus is on habitat use and foraging behaviour during chick rearing using GPS units and accelerometers. In the context of climate warming, we are re-visiting the relationship between temperature and laying date, and whether this is mediated by effects of temperature on invertebrate prey.

C. Declining Avian Populations

1. Migratory Shorebirds
Concern has been raised about apparent population declines of many species of shorebirds over the past two decades. The CWE and its ECCC associates have consistently contributed novel research findings addressing potential causes of these apparent declines. We have cooperated closely with ECCC’s Mark Drever (Delta), Keith Hobson (Saskatoon), and with ECCC emeritus Bob Elner, as well as Bird Studies Canada local representative David Bradley.

a. Shorebird Breeding Biology
In 2020–2021, current and former CWE members contributed to two additional publications arising from their participation in the Arctic Shorebird Demographic Network, a collaborative program that included over a dozen sites in Alaska and arctic Canada utilizing common protocols, including contributions from ECCC staff members Grant Gilchrist, Jennie Rausch, and Paul Smith. The final major paper published combines data on fecundity and survivorship to generate models of population trend for 6 species of shorebirds nesting in the Canadian arctic was published in The Condor/Ornithological Applications. This large study generally estimated stable population growth rates, and confirms that annual adult survival rates strongly influence shorebird demographics. A second paper utilized data gathered by the group to model levels of invertebrate biomass phenology in the arctic, an important variable for shorebird breeding ecology.

b. Non-breeding biology

Eveling Tavera Fernandez, Ph.D student from Peru, defended her PhD thesis in March 2020, with ECCC’s Mark Drever on her graduate committee. Eve published a first paper from the thesis considering the fitness consequences of oversummering in Peru by juvenile and adult sandpiper, with Lank and Ydenberg. She is now working with ECCC’s Kristy Gurney on shorebird breeding phenology. She is involved with the generation of a Peruvian Shorebird Conservation plan, and is the chair of the Western Hemisphere Shorebird Group.

Lank and Ydenberg are coauthors along with CWE PhD student Richard Johnston and former ECCC scientist Rob Butler on a paper published in ACE-EOC describing the formation and initial results of a hypothesis-driven hemispheric-wide network to monitor shorebird populations alone the Pacific coast, with particular emphasis on Western sandpipers and Pacific dunlin.

c. Migration Biology

Lank co-authored a paper focusing on stopover behaviour of migrant Semipalmated sandpipers with respect to weather, seasonal timing and migration routes.

2. Neotropical Migrant Passerines

CWE initiated a long-term study on yellow warblers that migrate between western Canada and Mexico/Central America in 2004. This research conducted in collaboration with Dr. Elsie Krebs (ECCC) takes a whole life cycle approach and includes work on the breeding grounds in Inuvik, NT, and Revelstoke, BC, on migration and on the wintering grounds in Jalisco, Mexico. The 2017 field season in Revelstoke completed the field component of this project. Michal Pavlik (PhD candidate) is using the long-term dataset to 1) assess how conditions on migration interact with conditions on the breeding grounds to determine the timing of breeding and local productivity, 2) estimate true survival using a spatial-CJS model and 3) determine mortality rates across the annual cycle. The first chapter of his thesis, that was recently published in Physiological and Biochemical Zoology, demonstrates that female warblers initiate the transition to a reproductive physiology while still on migration despite the energetic demands of this stage of the annual cycle.

D. Coastal Ecology

1. Coastal Studies of Seabirds

CWE Research Associate Dr. Mark Hipfner reports that the regular field activities on seabird colonies in British Columbia in summer 2020 were cancelled due to CoVid-19. In winter 2020 (January, February), Hipfner, Nik Clyde, Anneka Vanderpass, Joshua Green (all ECCC-WRD, Delta, BC) and Hannah Hall (CWE MSc candi-
date) completed the first season of a new research project investigating movements and health status in relation to diet of Glaucous-winged Gulls wintering in the BC sector of the Salish Sea. This project is funded through the TMX-PIER program of ECCC, and involves deploying GPS tags and collecting blood, feather and prey samples from across the region for measurements of C, N, and H stable isotope ratios, as well as a suite of physiological traits and contaminant levels. Collaborators on the project include Tony Williams (SFU), and John Elliott and Keith Hobson (ECCC).

2. **Coastal Ecology of Barrow's Goldeneye**

Barrows Goldeneye are a sea duck with a discrete western and eastern population. The majority of the larger western population winters along the Pacific, and breeds in the interior of British Columbia, Alberta and the Northwest Territories. Recent efforts, led primarily by ECCC, have focused on using satellite telemetry to determine linkages among breeding, molting and wintering areas. These data have been used to describe the broad movements of Barrows Goldeneye throughout their annual cycle. However, the spatial scale and spatial/temporal resolution of this dataset can also be used to address research priorities of the federal Ocean Protection Plan and identified information needs of the Sea Duck Joint Venture. Tess Forstner (MSc 2021) used the extensive satellite telemetry dataset to describe the migratory connectivity of Barrow’s Goldeneye and latitudinal variation in the timing of spring and fall migration. Jesse Kemp (a new MSc candidate in Fall 2021) will use the same dataset to examine how temperature and the timing of ice melt and ice up impact the timing of migration. Future work, in collaboration with Sean Boyd (ECCC) and Megan Willie (ECCC) will identify when and where wintering sea ducks would be sensitive to anthropogenic activities on the Pacific coasts.

3. **Movement Ecology of Black Oystercatchers**

CWE has initiated a new long-term study on the movement ecology and habitat use of the Black Oystercatcher, an indicator species for rocky intertidal habitat in the Pacific Northwest (see https://davidgreensfu.com/m3bloy/). This project is a collaboration involving federal agencies in BC (ECCC and Parks Canada) and Alaska (USGS and US National Parks Service) with assistance from non-governmental organisations in BC (Laskeek Bay Conservation Society and Rainforest Education Society). Fieldwork was initiated in BC in Spring 2019 and Alaska in Summer 2019. Lena Ware (MSc candidate) used the detailed data from 20 birds deployed with ARGOS satellite tags to define the movement and habitat use of black oystercatchers in relation the tidal and diurnal light cycle throughout the year. Her thesis that will be defended in Fall 2021 supports the ECCC mandate, under the federal Ocean Protection Plan, to conduct research and monitoring in order to improve management of the coastal waters of the Pacific coast. Incoming MSc. students Cole Rankin and Hannah Roodenrijs will examine the drivers of variation in the migratory strategies of oystercatchers and assess how morphology and competitive interactions between migrants and residents shape the foraging ecology of oystercatchers in BC and Alaska.

4. **Coastal Usage by Migratory Shorebirds**

The majority of the world’s three and a half to four million Western Sandpipers stop briefly to refuel in Boundary Bay or on Robert’s Bank during their annual northward migration, providing a thrilling sight for local residents. Much of the species’ population also stops over on southward migration, following a flight over the Gulf of Alaska. Because of this, the species is ranked in the highest priority class in the draft BC-Yukon region CWS Shorebird Management Plan. Each winter, the Fraser River Delta (FRD) hosts the most northerly wintering population of Pacific Dunlin. Local information on shorebird habitat usage, including western sandpipers and dunlin, contributes information useful for ECCC’s environmental assessments as Port of Vancouver operations continue and expand.

Graduated MSc student Rachel Canham published a paper from her 2019 MSc thesis validating the use of
footprints as a measure of mudflat usage by foraging shorebirds.

Florian Reurink continued his PhD project, following up on work done in collaboration with Ron Ydenberg during his MSc program at Wageningen University. His previous work used flight behavior of birds to make predictions about energy intake rate in birds. Assessing shorebird food availability empirically is time consuming and expensive, and these studies are testing the potential for using behavioural models to predict net energy intake rates from behavioural measures in the field. Behavioural ecological theory predicts that birds should adjust their foraging flight speed and power expenditure to various conditions in the habitat, where flight power expenditure should increase with increased energy intake. The results from Florian’s MSc work matched the predictions from the theory well, and the Ph.D. further tests the applicability of this approach. Reurink has combined various behavioral adjustments from well established theories into a single model, allowing for more accurate predictions across a variety of conditions. Net energy intake rates have been predicted for wintering dunlin and migrating western sandpipers using flight speed estimates from a mobile radar system used in collaboration with EchoTrack (Rhonda Millikin). These field estimates are used for a qualitative test of the model predictions, while a feeding experiment with Steller's jays is used as a quantitative test of the model. Reurink continued to implement the various behavioral theories into his model while finalizing his analysis of flight speed estimates from dunlin and western sandpipers as well as his feeding experiment with Steller’s jays.

Ydenberg continued to develop theory focusing on shorebird responses to changes in danger from increasing raptor populations over the past 30 years, and the effects these can have on shorebird populations and interpretations of census data. He and Lank are submitting a paper exploring contrasting directional effects on wing lengths of Western and Semipalmated sandpipers during the 1980s, testing the hypothesis that differences in the relative importance of resident versus migratory raptors could explain the contrasting trends.

VI FUNDING

Fiscal year 2020-2021 marked the conclusion of the current three year contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division). This grant supplied $135,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

1 April 2020 - 31 March 2021
Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD</td>
<td>Allen, Josh</td>
<td>TA (Fall 2020, Spring 2021)</td>
<td>$13,389</td>
</tr>
<tr>
<td>PhD</td>
<td>Fremlin, Katharine</td>
<td>PGS NSERC (2021); GF (Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>PhD</td>
<td>Hart, Kirk</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td>PhD</td>
<td>Hodinka, Brett</td>
<td>Dean's Entrance Scholarship (Fall 2020, Summer 2020, Spring 2021)</td>
<td>$21,000</td>
</tr>
<tr>
<td>PhD</td>
<td>King, Mason</td>
<td>GF (Fall 2020); President's PhD Award (Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>PhD</td>
<td>Reurink, Florian</td>
<td>Dean's Entrance Scholarship (Fall 2020, Summer 2020, Spring 2021)</td>
<td>$21,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Name</td>
<td>Details</td>
<td>Amount</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Enns, Joanna</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Forstner, Tess</td>
<td>TA (Spring 2021)</td>
<td>$7,509</td>
</tr>
<tr>
<td></td>
<td>Hall, Hannah</td>
<td>Salish Sea Gull Project (Summer 2020); GF (Fall 2020)</td>
<td>$14,000</td>
</tr>
<tr>
<td></td>
<td>Robert Kesic</td>
<td>MITACS RTA (Summer 2020); TA (Spring 2021); GF (Fall 2020)</td>
<td>$19,288</td>
</tr>
<tr>
<td></td>
<td>Lee-Zuck, Catherine</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Leonard, Kathryn</td>
<td>TA (Fall 2020)</td>
<td>$6,288</td>
</tr>
<tr>
<td></td>
<td>Leonard, Kathryn</td>
<td>GF (Fall 2020, Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td></td>
<td>Pastran, Sonya</td>
<td>GF (Summer 2020); Laskeek Project Funding</td>
<td>$14,000</td>
</tr>
<tr>
<td></td>
<td>Roodenrijs, Hannah</td>
<td>GF (Spring 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Ware, Lena</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
</tbody>
</table>

**M Sc**

**General Funding for CWE**

<table>
<thead>
<tr>
<th>EC/Core</th>
<th>SFU</th>
<th>EC/SFU</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>EC Annual Chair Funding (3/3 yrs)</td>
<td>$135,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SFU Contribution to Faculty Salaries (Ydenberg Williams Green)</td>
<td>$548,053</td>
</tr>
</tbody>
</table>

**Conference Funding**

<table>
<thead>
<tr>
<th>SFU Fellowships etc</th>
<th>Name</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allen, Josh</td>
<td>TMRA Summer 2020</td>
<td>$500</td>
</tr>
</tbody>
</table>

**Other Funding**

| Federal government | Williams             | ECCC                      | $73,300|
| Federal government | Elliott, Williams, Ydenberg | COVID Relief              | $19,200|

**NSERC**

<table>
<thead>
<tr>
<th>NSERC</th>
<th>Name</th>
<th>Details</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green DJ</td>
<td>Overwintering ecology, migration strategies and demography of migratory birds (5/5 yrs)</td>
<td>$47,000</td>
</tr>
<tr>
<td></td>
<td>Ydenberg RC</td>
<td>NSERC Individual Research Grant - “Predation danger in the ecology of migration” (4/5 yrs)</td>
<td>$28,000</td>
</tr>
<tr>
<td></td>
<td>Williams TD</td>
<td>NSERC Individual Research Grant &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot;(1/5yrs)</td>
<td>$55,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Elliott J</td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</td>
<td>$37,000</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grand Total</td>
<td>$1,136,527</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFU In-Kind</td>
<td>$120,000</td>
</tr>
</tbody>
</table>
VII. PUBLICATIONS

This list reflects those publications produced since our last report (publications that were “in press” or “submitted” for the last report are included and have been updated). We continue to publish actively despite working remotely, and being unable to conduct any fieldwork this year. One PhD student, two MSc and one MET students supervised by CWE faculty successfully defended their theses. Most of our publications relate to the research carried out in the main CWE programs and most refer to work carried out in the Pacific Northwest. We are however interacting with scientists throughout Canada and beyond and some of our publications reflect this.

A. PAPERS IN REFEREED JOURNALS OR BOOKS

Books and Book Chapters


2021


2020


Hodinka, B.L. and N.T. Ashley. 2020. Effect of sleep loss on executive function and plasma corticosterone levels in an arctic-breeding songbird the Lapland longspur (Calcarius lapponicus). Hormones Behav. 122: 104764.


Reiter, M., E. Palacios, D. Usacios, E. Johnston, P. Davidson, D. Bradley, R. Clay, K. Strum, J. Chu, B.


2019:


Submitted:

Domalik, A.D., M. Maftei, K.G. Wright, S.A. Hudson and J.M. Hipfner. Submitted. Migration and winter habitat use of Glaucous-winged Gulls Larus glaucus breeding on Triangle Island,
British Columbia. Waterbirds.


**B. THESES**


ANNUAL REPORT of the
CENTRE FOR WILDLIFE ECOLOGY
2021-2022

Department of Biological Sciences
Simon Fraser University
http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

Dr. Ronald C. Ydenberg, Director
# TABLE OF CONTENTS

I. HISTORY ........................................................................................................................................... 3
II. MISSION STATEMENT .................................................................................................................. 3
III. PERSONNEL .................................................................................................................................. 4
   A. RESEARCH TEAM .......................................................................................................................... 4
      1. Faculty and Research Associates .......................................................................................... 4
      2. Research Group ...................................................................................................................... 4
   B. STEERING COMMITTEE .............................................................................................................. 5
IV. INTRODUCTION .............................................................................................................................. 6
V. THE CWE IN ACTION ...................................................................................................................... 6
   A. SPECIES AT RISK .......................................................................................................................... 6
      1. Marbled Murrelet (Threatened, COSEWIC) ........................................................................... 6
      2. Northern Goshawk (Threatened, COSEWIC) ....................................................................... 6
      3. Cassin’s Auklet (Special Concern, COSEWIC) .................................................................... 7
   B. HUMAN IMPACTS ON BIRDS ....................................................................................................... 7
      1. Contaminants and Toxicology ............................................................................................... 7
      2. Agricultural Effects ............................................................................................................... 8
      3. Urban ecology and bird collisions with windows ............................................................... 9
   C. DECLINING AVIAN POPULATIONS ............................................................................................. 9
      1. Migratory Shorebirds ............................................................................................................. 9
      2. Neotropical Migrant Passerines ............................................................................................ 10
   D. COASTAL ECOLOGY .................................................................................................................... 10
      1. Coastal Studies of Seabirds .................................................................................................... 10
      2. Coastal Ecology of Barrow’s Goldeneye .............................................................................. 11
      3. Movement Ecology of Black Oystercatchers ...................................................................... 11
      4. Coastal Usage by Migratory Shorebirds .............................................................................. 12
VI FUNDING ........................................................................................................................................ 12
VII. PUBLICATIONS ........................................................................................................................... 15
   A. PAPERS IN REFEREED JOURNALS OR BOOKS ..................................................................... 15
   B. THESSES ..................................................................................................................................... 19
I. HISTORY

Under the Migratory Birds Convention and Canada Wildlife Acts, the mandate of the Canadian Wildlife Service is to protect and conserve migratory bird populations. In the 21st century, this historical mandate is broadening to encompass other environmental concerns such as species at risk, biodiversity, sustainability and endangered habitats. To meet these broad and varied responsibilities, Environment and Climate Change Canada depends on sound science, and participates in cooperative ventures. In 1993, the Natural Sciences and Engineering Research Council of Canada, Simon Fraser University, and Environment Canada signed a ten year agreement to create the NSERC/CWS Chair in Wildlife Ecology at SFU. That agreement has expired, but The Centre for Wildlife Ecology (CWE) as described here continues work with ECCC and with other agencies, on a range of issues pertaining to wildlife and other environmental sciences.

II. MISSION STATEMENT

The mission of the Centre for Wildlife Ecology (CWE) is to foster high quality graduate training and research, conduct basic and applied research in wildlife ecology, and to provide knowledge and personnel that will help Environment and Climate Change Canada and other agencies meet the challenges of conservation in the 21st century. The central concept is to foster synergy between the mission-oriented research and management policies of Environment and Climate Change Canada (Canadian Wildlife Service, CWS, and Science and Technology, S&T) and the basic research agenda of the University. Information, ideas, expertise, resources and opportunity flow back and forth across this interface, giving government agencies access to a broad base of science capability that helps inform policy and decision making, while the university and its faculty and students benefit from enhanced opportunities for research and application of the ideas their disciplines generate.
III. PERSONNEL

A. Research Team

1. Faculty and Research Associates

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ron Ydenberg</td>
<td>Director, Professor</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>Professor</td>
</tr>
<tr>
<td>David Green</td>
<td>Associate Director, Professor</td>
</tr>
<tr>
<td>Dov Lank</td>
<td>University Research Associate / Adjunct Professor</td>
</tr>
<tr>
<td>Dan Esler</td>
<td>USGS Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Doug Bertram</td>
<td>ECCC Research Scientist</td>
</tr>
<tr>
<td>Sean Boyd</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rob Butler</td>
<td>ECCC Research Scientist Emeritus/ Adjunct Professor</td>
</tr>
<tr>
<td>Bob Elner</td>
<td>ECCC Research Scientist Emeritus/Adjunct Professor</td>
</tr>
<tr>
<td>John Elliott</td>
<td>ECCC Research Scientist / Adjunct Professor</td>
</tr>
<tr>
<td>Rhonda Millikin</td>
<td>ECCC Head, Population Assessment/Adjunct Professor</td>
</tr>
<tr>
<td>Fred Cooke (retired)</td>
<td>Emeritus Chairholder</td>
</tr>
</tbody>
</table>

2. Research Group

<table>
<thead>
<tr>
<th>Postdoctoral Fellows</th>
<th>PhD (in progress)</th>
<th>MSc (in progress)</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Josh Allen</td>
<td>Hannah Hall</td>
<td>Sadika Jurvic, CWE Admin. Asst.</td>
<td></td>
</tr>
<tr>
<td>Kirk Hart</td>
<td>Jessie Kemp</td>
<td>Connie Smith, CWE Research Tech</td>
<td></td>
</tr>
<tr>
<td>Brett Hodinka</td>
<td>Catherine Lee-Zuck</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kate Fremlin</td>
<td>Katie Leonard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mason King</td>
<td>Cole Rankin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michal Pavlik</td>
<td>Hannah Roodenrijs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Florian Reurink</td>
<td>Rachel Sullivan-Lord</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Undergrads</th>
<th>PhD (defended)</th>
<th>MSc (defended)</th>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellery Hardy</td>
<td>Gwen Case</td>
<td>Joshua McInnes</td>
<td></td>
</tr>
<tr>
<td>Jonson Lee</td>
<td>Jo Enns</td>
<td>Lena Ware</td>
<td></td>
</tr>
</tbody>
</table>
B. Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Elner</td>
<td>Emeritus Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>David Green</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Mark Hipfner</td>
<td>Research Scientist</td>
<td>ECCC</td>
</tr>
<tr>
<td>Elsie Krebs</td>
<td>Research Manager, Western Canada</td>
<td>ECCC</td>
</tr>
<tr>
<td>Tony Williams</td>
<td>CWE faculty (non-voting)</td>
<td>SFU</td>
</tr>
<tr>
<td>Ron Ydenberg</td>
<td>CWE Director (non-voting)</td>
<td>SFU</td>
</tr>
</tbody>
</table>
IV. INTRODUCTION

The aim of this Annual Report is to give an overview of our activities, outline the progress on new and continuing projects, describe the personnel involved, and to give some indication of our scientific and community involvement. Previous Annual Reports are available from the CWE. Contact us via our website

http://www.sfu.ca/biology/wildberg/NewCWEPage/CWEnewTestHome.htm

or contact Ron Ydenberg at ydenberg@sfu.ca.

V. THE CWE IN ACTION

The accounts that follow give brief overviews of the major projects run by the CWE. More detail is available on our website (address above). Publications and theses are listed at the end of this report. The personnel also can be contacted via the website.

A. Species at Risk

1. Marbled Murrelet (Threatened, COSEWIC)

SFU’s research on threatened Marbled Murrelets continues to address direct conservation and management issues for this listed species. This project was started by CWE chair emeritus Fred Cooke in 1994 and continued through the present by David Lank.

MSc student Sonya Pastran published a paper from her 2020 MSc thesis describing marine habitat usage by Marbled Murrelets in Leskeek Bay, Haida Gwaii, using transect data gathered for the past 22 years by the Laskeek Bay Conservation Society and additional data gathered during 2 years of her fieldwork during the summers of 2018 and 2019, funded largely by ECCC through the Ocean Protection Plan. ECCC’s Mark Drever was a co-author on the paper. Sonya’s MSc research also included an experiment to determine whether seabirds avoid areas with coastal raptors. They appear to do so, and a second paper from her MSc is in progress, with Ydenberg as a collaborator.

Sonya completed a manuscript analyzing VHF radiotracking data gathered by the CWE during the late 1990s from Marbled Murrelets in Desolation and Clayoquot Sounds. Lank provided archival data to ECCC for these analyses and guided the analysis and writing.

Lank continues as a collaborator on an analysis of the use of lidar to evaluate forest murrelet nesting habitat suitability, lead by Louise Waterhouse, BC Ministry of Forests, Lands, and Natural Resource Operations, and UBC’s Nicholas Coops. Lank continued as a member of the Canadian Marbled Murrelet Recovery team, but this was minimally active during 2021.

2. Northern Goshawk (Threatened, COSEWIC)

The Northern Goshawk (Accipiter gentilis laingi) was designated as a Threatened subspecies by COSEWIC in 2000. The Northern Goshawk laingi subspecies is a forest raptor whose preference for breeding within late successional forest has placed it at risk from habitat loss and fragmentation,
primarily due to timber harvest. Management actions are hampered by knowledge gaps surrounding the breeding season diet and foraging ecology of goshawks in coastal British Columbia. Gwyn Case conducted an MSc, defended in July 2021, that quantified goshawk diet using a combination of nest cameras, prey remains and regurgitated pellets, and investigated the link between dietary variation and goshawk reproductive success. She found that although goshawks consumed 33 different prey species *Tamiasciurus* squirrels made up the majority of their diet. Diet composition differed slightly between the coastal and transition zones but did not influence productivity. The major chapter of her thesis is being prepared for publication in Raptor Research. Gwyn also conducted a pilot study of goshawk breeding season movement using GPS-UHF transmitters that is being used to determine whether further telemetry based research on goshawk movements is warranted.

3. **Cassin's Auklet** (Special Concern, COSEWIC) - see Section V.D.1, Coastal Studies of Seabirds.

**B. Human Impacts on Birds**

1. **Contaminants and Toxicology**

   a. **Persistent pollutant monitoring and transcriptomic effects in marine bird sentinel species**

      Marine birds are exposed to a broad and increasing number of anthropogenic chemical contaminants. Accordingly, the eggs of seabirds such as the rhinoceros auklet are routinely collected for long-term contaminant monitoring by Environment and Climate Change Canada (ECCC). Inside of such eggs, the developing embryos may be sensitive to maternally transferred contaminants, but inferring whether measured contaminant concentrations may result in adverse effects in wild species faces uncertainty. We are implementing molecular tools that measure mRNA transcription in marine bird embryos to better quantify how adverse effects in the organism correlate with measured contaminant residue generated by National Wildlife Research Centre (NWRC) lab services for 94 persistent organic pollutants and mercury. These gene transcript-based approaches are novel in their application to monitoring the effects of industrial contaminants or other potential environmental disasters like oil spills in marine birds. This project lead by Mason King (PhD) in collaboration with researchers including Dr. John Elliott (ECCC PWRC), Dr. Vicki Marlatt (SFU), Dr. Amy Lee (SFU), and Doug Crump (NWRC) is using a combination of qPCR gene arrays and RNA Seq tools in two wildlife indicator species, the rhinoceros auklet and double-crested cormorant. These species have been selected by both ECCC Canadian Wildlife Service (CWS) and Wildlife and Landscape Science Directorate (WLSD) managers as the bio-indicators of choice in relation to baseline measurements for past major national projects. This work is being funded under the Ocean Protection Plan and has produced data presented at several scientific meetings to date.

   b. **Avian dilbit toxicity studies**

      A national pipeline project to increase transport of an unconventional crude petroleum known as diluted bitumen (dilbit) from the oil sands region to the Port of Vancouver will increase the risk of a major oil spill and chronic small-scale discharges. We recently published three major reviews summarising the effects of petroleum toxicity in wildlife and identifying research needs on unconventional crude petroleum such as dilbit (King et al. 2021; Ruberg et al. 2021a,b). We found that crude petroleum is toxic to birds, yet no published scientific studies of the effects of dilbit on birds yet exist. We have three major components to our dilbit work: a) experimental work on effects of dilbit on physiology and health using adult zebra finches as a model system (work lead by Elizabeth Ruberg, MSc); b) experimental work on toxicity of dilbit to bird embryos via shell oiling in chicken and double-crested cormorant embryos (i.e. using fertile, developing eggs) lead by Mason King (PhD), and c) effects of external (feather oiling) and internal dilbit exposure on flight dynamics of free-living rhinoceros auklets (lead by Catherine Lee-Zuck, MSc). This work is funded under the Ocean Protection Plan, TransMountain Pipeline Expansion wildlife impacts research funding, and is a collaboration among Dr. John Elliott
(ECCC PWRC), Dr. Kyle Elliott (McGill), Dr. Vicki Marlatt (SFU), Doug Crump (NWRC), and Dr. Gregg Tomy (University of Manitoba). This year we published two papers on our laboratory studies with dilbit in zebra finches (Ruberg et al. 2022) and chicken/cormorant embryos (King et al. 2022), which together constitute the first published papers on the effect of oil sands bitumen products on avian wildlife.

c. Glaucous-winged gulls and the health of the Salish Sea

In the second year of this collaborative project, 150 adult glaucous-winged gulls were caught in January-February 2021 at coastal sites throughout the Salish Sea. Blood samples were obtained for assessment of physiological health, contaminant burdens, *Toxoplasma gondii* infections, and dietary stable-isotope analysis. Additionally, 17 adult gulls were not blood sampled, but instead received a GPS tag to provide fine-scale data on movement patterns and habitat use. This project is a collaboration between Dr. Mark Hipfner from the Wildlife Research Division (WRD) of Environment and Climate Change Canada (ECCC); also an Adjunct Professor at SFU and member of the CWE, Dr. Tony Williams and M.Sc. candidate Hannah Hall from the CWE, wildlife veterinarian Dr. Amy Wilson, and Dr. Theresa Burg from the University of Lethbridge. The project also involves researchers from the Ecotoxicology and Wildlife Health Division of ECCC, and Fisheries and Oceans Canada. All data are being uploaded to a shared, accessible database (with Allison Patterson) to ensure common approaches to movement analysis across different species. This work will help identify the most important seabird areas to inform decision making in event of an oil spill crisis. (See additional details - Section V.D.1, Coastal Studies of Seabirds.)

2. Agricultural Effects

a. Breeding phenology and productivity of an invasive, agricultural specialist, the European starling

European starlings are an invasive species of considerable economic importance because of their agricultural and urban impact (as well as being the focal species for Environment Canada’s terrestrial contaminant monitoring under the Chemical Management Plan). However, they are also agricultural specialists associated with less-intensive pasture (short mown or grazed fields), and are dependent on one main prey type (Tipulid larvae or leatherjackets – another introduced pest species) for successful reproduction. As such they could be a useful monitoring species for changes in agricultural land-use and intensification. Our long-term study of the ecological physiology of European starlings marked its 20th year at our Langley field site (140 nest boxes) in 2021. In addition to basic monitoring of timing of laying and breeding productivity a current focus is on habitat use and foraging behaviour during chick rearing using GPS units and accelerometers. In the context of climate warming, we are re-visiting the relationship between temperature and laying date, and whether this is mediated by effects of temperature on invertebrate prey as well as looking at social factors.

b. Aerial insectivores

In 2021 we published two papers from previous research on tree swallows and barn swallows in the Lower Mainland. One was a large-scale, collaborative analysis using breeding bird survey data and breeding performance data collected at field sites in three regions across Canada (including BC with Nancy Mahony, Olga Lansdorp and Chloe Boynton) to examine long- and short-term barn swallow population trends in Canada, differences in breeding performance across regions, if average breeding performance measures or colony size predicted regional population growth rates and if local breeding performance is driven by density dependence and/or recruitment (Put et al. 2021). The second paper examined breeding productivity and phenology in relation to habitat, weather, and insect availability for co-occurring tree and barn swallows over four years on the southern coast of British Columbia, Canada (Boynton et al. 2021).
3. **Urban ecology and bird collisions with windows**

CWE, in collaboration with Elizabeth Gow and Krista De Groot (ECCC), has initiated a research project focusing on bird communities in the urban environment, under the supervision of Dr. David Green. The first project, initiated by Vanessa Hum (new MSc candidate), extends work on bird collisions on university campuses in BC by examining seasonal variation in collisions/mortality and species specific vulnerability to window collisions on SFU campus. Vanessa will also examine how architectural and landscape features influence bird-window collision risk. Future work on mitigation efforts will be conducted in collaboration with SFU Facilities.

**C. Declining Avian Populations**

1. **Migratory Shorebirds**

Concern has been raised about apparent population declines of many species of shorebirds over the past two decades. The CWE and its ECCC associates have consistently contributed novel research findings addressing potential causes of these apparent declines. We have cooperated closely with ECCC’s Mark Drever (Delta), Keith Hobson (Saskatoon), and with ECCC emeritus Bob Elner, as well as Bird Studies Canada local representative David Bradley.

a. **Shorebird Breeding Biology**

In 2021, current and former CWE members contributed to an additional publication arising from their participation in the Arctic Shorebird Demographic Network, a collaborative program that included over a dozen sites in Alaska and arctic Canada utilizing common protocols, including contributions from ECCC staff members Grant Gilchrist, Jennie Rausch, and Paul Smith. The 2021 paper utilized data gathered by the group to model levels of invertebrate biomass phenology in the arctic, an important variable for shorebird breeding ecology.

Dov Lank closed down his 35-year breeding population of captive ruff sandpipers by sending remaining birds to collaborators in Germany and North Carolina. He continues to work on papers on ruffs with students from the Max Planck Institute and others.

b. **Non-breeding biology**

Eveling Tavera Fernandez, Ph.D student from Peru, defended her PhD thesis in March 2020, with ECCC’s Mark Drever on her graduate committee. Eve published a first paper from the thesis considering the fitness consequences of over-summering in Peru by juvenile and adult sandpiper, with Lank and Ydenberg. She is now working with ECCC’s Kristy Gurney on shorebird breeding phenology. She is involved with the generation of a Peruvian Shorebird Conservation plan, and is the chair of the Western Hemisphere Shorebird Group.

Lank and Ydenberg are coauthors along with CWE PhD student Richard Johnston and former ECCC scientist Rob Butler on a paper published in ACE-EOC describing the formation and initial results of a hypothesis-driven hemispheric-wide network to monitor shorebird populations alone the Pacific coast, with particular emphasis on Western sandpipers and Pacific dunlin.

c. **Migration Biology**

Lank co-authored a paper focusing on stopover behaviour of migrant Semipalmated sandpipers with respect to weather, seasonal timing and migration routes, based on reanalysis of data collected in 1977.

Ydenberg continued to develop theory focusing on shorebird responses to changes in danger from increasing raptor populations over the past 40 years, and the effects these can have on interpretations of census data and actually on population growth rates. He submitted a paper quantifying the seasonal change in predation danger to migrant raptors as a function of the timing of arctic spring. He, Lank, and Eveling Tavera submitted an opinion paper exploring the consequences of these interactions. Ydenberg and Lank submitted a second MS contrasting directional effects on wing lengths of Western and Semipalmated sandpipers during the 1980s, testing the hypothesis that differences in the relative...
importance of resident versus migratory raptors could explain the contrasting trends. Ydenberg continues to develop a model of the population consequences of predation danger induced alterations in the propensity to migrate versus over-summer, which he believes could account for much of the reported population declines of shorebird species.

2. Neotropical Migrant Passerines

CWE initiated a long-term study on yellow warblers that migrate between western Canada and Mexico/Central America in 2004. This research conducted in collaboration with Dr. Elsie Krebs (ECCC) takes a whole life cycle approach and includes work on the breeding grounds in Inuvik, NT, and Revelstoke, BC, on migration and on the wintering grounds in Jalisco, Mexico. The 2017 field season in Revelstoke completed the field component of this project. Michal Pavlik (PhD candidate) is using the long-term dataset to 1) assess how conditions on migration interact with conditions on the breeding grounds to determine the timing of breeding and local productivity, 2) estimate true survival using a spatial-CJS model and 3) determine mortality rates across the annual cycle. The first chapter of his thesis demonstrates that female warblers initiate the transition to a reproductive physiology while still on migration despite the energetic demands of this stage of the annual cycle. The second chapter that will soon be submitted for publication shows how strong cross winds during spring migration can both delay arrival on the breeding grounds, and increase the number of days between arrival and egg-laying with negative effects on productivity.

D. Coastal Ecology

1. Coastal Studies of Seabirds

Mark Hipfner (ECCC-WRD and Adjunct at CWE) reports that summer 2021 marked the 28th year of operation of the Centre for Wildlife Ecology’s seabird research program on Triangle Island. The 2021 field crew consisted of Alice Domalik, Josh Green and Sarah Hudson. The research program in 2021 was severely restricted due to COVID-19, but the field crew was able to obtain information on growth rates and diets of nestling Cassin’s Auklets Ptychoramphus aleuticus and Rhinoceros Auklets Cerorhinca monocerata, adding to long-term datasets on those species. The crew also deployed GPS tags on 10 breeding Tufted Puffins Fratercula cirrhata, obtaining complete (24 h) tracks for six birds. As in 2019, foraging areas for puffins were largely contained within the boundaries of the Scott Islands marine National Wildlife Area.

Research also continued on other major Rhinoceros Auklet colonies in 2021. Hipfner, Nik Clyde, Kristina Hick and Vivian Pattison (all ECCC, Delta – WRD) visited Pine Island off BC’s Central Coast; Hipfner, Pattison and Ken Wright (all ECCC, Delta – WRD) along with CWE PhD candidate Kirk Hart, visited Lucy Island off BC’s North Coast; and Mark Maftei (Raincoast Education Society, Tofino) visited Cleland Island off the west coast of Vancouver Island. The main goal of this program, which started in 2006, is to study the effects of oceanographic variation across multiple trophic levels – the diets fed to nestling auklets and the diets of their major fish prey, the Pacific sand lance Ammodytes personatus and Pacific herring Clupea pallasii. Field crews also deployed GPS tags on a total of 36 Rhinoceros Auklets on Pine and Lucy islands, obtaining 26 complete tracks. While on the colonies we also completed the ninth year of a project investigating the consumption of Pacific salmon Oncorhynchus spp. by seabirds in BC waters, in collaboration with Strahan Tucker (Fisheries and Oceans Canada (DFO), Nanaimo – Pacific Biological Station); and completed the 13th year of a project investigating the ingestion of microplastics by forage fish, in collaboration with Moira Galbraith (DFO, Sidney - Institute of Ocean Sciences).

In addition to the summer field work, there was winter field work completed in January and February
2021. Tony Williams and CWE MSc candidate Hannah Hall, assisted by Clyde, Domalik, Green, Hipfner, Hudson, Pattison, along with Elsie Krebs and Anneka Vanderpass (both ECCC, Delta), trapped Glaucous-winged Gulls *Larus glaucescens* around the BC portion of the Salish Sea (Strait of Georgia, Juan de Fuca Strait) for a study of food-web contamination and its implications for the physiological health of gulls that spend winter in the region. GPS tags were deployed on 17 of the gulls, to assess habitat use in winter, including the extent to which the gulls feed at landfills. (See also Section V.B.1.c, Glaucous-winged gulls and the health of the Salish Sea.)

2. Coastal Ecology of Barrow's Goldeneye

Barrow’s Goldeneye is a sea duck with a discrete western and eastern population. The majority of the larger western population winters along the Pacific, and breeds in the interior of British Columbia, Alberta and the Northwest Territories. Recent efforts, led primarily by ECCC, have focused on using satellite telemetry to determine linkages among breeding, molting and wintering areas. These data have been used to describe the broad movements of Barrows Goldeneye throughout their annual cycle. However, the spatial scale and spatial/temporal resolution of this dataset can also be used to address research priorities of the federal Ocean Protection Plan and identified information needs of the Sea Duck Joint Venture. Tess Forstner (MSc 2021) used the extensive satellite telemetry dataset to show that adult Barrow’s Goldeneye had a high degree of migratory connectivity (Forstner et al. 2022). Tess also found that the movement of first-year birds aligned with that of older birds suggesting that regional sub-populations functioned as discrete units and should be managed independently. Jesse Kemp (a new MSc candidate in Fall 2021) has used the same dataset to show how spring temperature and the timing of ice melt and ice up impact the timing of migration. Future work, in collaboration with Sean Boyd (ECCC) and Megan Willie (ECCC) will identify when and where wintering sea ducks would be sensitive to anthropogenic activities on the Pacific coasts.

3. Movement Ecology of Black Oystercatchers

In 2019 CWE initiated a new long-term study on the movement ecology and habitat use of the Black Oystercatcher, an indicator species for rocky intertidal habitat in the Pacific Northwest (see [https://davidgreensfu.com/m3bloy/](https://davidgreensfu.com/m3bloy/)). This project is a collaboration involving federal agencies in BC (ECCC and Parks Canada) and Alaska (USGS and US National Parks Service) with assistance from non-governmental organisations in BC (Laskeek Bay Conservation Society and Rainforest Education Society). Fieldwork was initiated in BC in Spring 2019 and Alaska in Summer 2019. Lena Ware (MSc 2021) used the detailed data from 20 birds deployed with ARGOS satellite tags to define the movement and habitat use of black oystercatchers in relation to the tidal and diurnal light cycle throughout the year. In summer 2021 the Black Oystercatcher research team searched for nest sites, resighting banded birds, and collected blood samples and potential prey items for stable isotope analyses, in Pacific Rim National Park Reserve and Gwaii Haanas National Park Reserve and Haida Heritage Site. This project is led by David Green and MSc Candidate Hannah Roodenrijs (CWE, SFU), and in 2021 was supported by Clyde, Domalik, and Maftei (all ECCC). In addition, Kathryn Hargan and MSc Candidate Alex Zvezdin (Memorial University of Newfoundland, St. John’s) collected cores from the bottom of a small pond on S’Gang Gwaay, in GHNPR, for assessment of decadal to centurial trends in seabird populations at this UNESCO World Heritage Site.

Ongoing satellite data supports the ECCC mandate, under the federal Ocean Protection Plan, to conduct research and monitoring in order to improve management of the coastal waters of the Pacific coast. Currently, Cole Rankin and Hannah Roodenrijs are examining the drivers of variation in the migratory strategies of oystercatchers and examining site and regional differences in morphology and foraging ecology of oystercatchers in BC and Alaska.
4. Coastal Usage by Migratory Shorebirds

The majority of the world’s three and a half to four million Western Sandpipers stop briefly to refuel in Boundary Bay or on Robert’s Bank during their annual northward migration, providing a thrilling sight for local residents. Much of the species’ population also stops over on southward migration, following a flight over the Gulf of Alaska. Because of this, the species is ranked in the highest priority class in the draft BC-Yukon region CWS Shorebird Management Plan. Each winter, the Fraser River Delta (FRD) hosts the most northerly wintering population of Pacific Dunlin. Local information on shorebird habitat usage, including western sandpipers and dunlin, contributes information useful for ECCC’s environmental assessments as Port of Vancouver operations continue and expand.

Recent CWE alumni Rachel Canham and Dave Hope published an analysis with Mark Drever (ECCC) and Scott Flemming (CWS) showing marked drops in local use of the Fraser River delta by northward migrating Western sandpipers (-54% between 1990 and 2020), and dunlin (-31%), controlling for several environmental variables. They attribute this to a broader population decrease in Pacific flyway populations, rather than to local factors.

Florian Reurink continued his PhD project, following up on work done in collaboration with Ron Ydenberg during his MSc program at Wageningen University. His previous work used flight behavior of birds to make predictions about energy intake rate in birds. Assessing shorebird food availability empirically is time consuming and expensive, and these studies are testing the potential for using behavioural models to predict net energy intake rates from behavioural measures in the field. Behavioural ecological theory predicts that birds should adjust their foraging flight speed and power expenditure to various conditions in the habitat, where flight power expenditure should increase with increased energy intake. The results from Florian’s MSc work matched the predictions from the theory well, and the Ph.D. further tests the applicability of this approach. Reurink has combined various behavioral adjustments from well established theories into a single model, allowing for more accurate predictions across a variety of conditions. Net energy intake rates have been predicted for wintering dunlin and migrating western sandpipers using flight speed estimates from a mobile radar system used in collaboration with EchoTrack (with Dr. Rhonda Millikin, ECCC-Emeritus). These field estimates are used for a qualitative test of the model predictions, while a feeding experiment with Steller's jays is used as a quantitative test of the model. Reurink continued to implement the various behavioral theories into his model while finalizing his analysis of flight speed estimates from dunlin and western sandpipers as well as his feeding experiment with Steller's jays. He expects to defend his thesis in April 2022.

VI FUNDING

Fiscal year 2021-2022 marked the first year of a two year contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division). This grant supplied $115,000 in 2021-2022, and will supply $180,000 in 2022-2023 for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

<table>
<thead>
<tr>
<th>1 April 2021 - 31 March 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scholarships, Fellowships, Grants for Students</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Name</td>
<td>Position</td>
<td>Funding Period</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------</td>
<td>------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>PhD</td>
<td>Allen, Josh</td>
<td>TA (Fall 2021), GF (Spring 2022)</td>
<td>$18,076</td>
</tr>
<tr>
<td></td>
<td>Fremlin, Katharine</td>
<td>GF (Summer 2021, Spring 2022)</td>
<td>$10,500</td>
</tr>
<tr>
<td></td>
<td>Hodinka, Brett</td>
<td>Dean's Entrance Scholarship (Summer 2021, Fall 2021, Spring 2022; TA (Spring 2022)</td>
<td>$25,620</td>
</tr>
<tr>
<td></td>
<td>King, Mason</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Reurink, Florian</td>
<td>GF (Summer 2021, Fall 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>MSc</td>
<td>Enns, Joanna</td>
<td>GF (Spring 2022)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Hall, Hannah</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Kemp, Jessica</td>
<td>TA (Spring 2022)</td>
<td>$6,426</td>
</tr>
<tr>
<td></td>
<td>Lee-Zuck, Catherine</td>
<td>GF (Summer 2021, Fall 2021)</td>
<td>$9,700</td>
</tr>
<tr>
<td></td>
<td>Leonard, Kathryn</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td></td>
<td>Linton, Anna</td>
<td>TA (Spring 2022)</td>
<td>$6,426</td>
</tr>
<tr>
<td></td>
<td>Rankin, Cole</td>
<td>TA (Fall 2021); GF (Spring 2022)</td>
<td>$12,178</td>
</tr>
<tr>
<td></td>
<td>Roodenrijs, Hannah</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
</tbody>
</table>

**General Funding for CWE**

<table>
<thead>
<tr>
<th>SFU Fellowships etc</th>
<th>Name</th>
<th>Position</th>
<th>Funding Period</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECCC</td>
<td>ECCC</td>
<td>EC Annual Chair Funding (1/2 yrs)</td>
<td>$115,000</td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>SFU</td>
<td>SFU Contribution to Faculty Salaries (Ydenberg, Williams Green)</td>
<td>$582,559</td>
<td></td>
</tr>
</tbody>
</table>

**Conference Funding**

<table>
<thead>
<tr>
<th>SFU Fellowships</th>
<th>Name</th>
<th>Event</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>eBerg</td>
<td>Rankin, Cole</td>
<td>PEEC Spring 2022</td>
<td>$150</td>
</tr>
<tr>
<td>eBerg</td>
<td>Roodenrijs, Hannah</td>
<td>PEEC Spring 2022</td>
<td>$150</td>
</tr>
</tbody>
</table>

**Other Funding**

<table>
<thead>
<tr>
<th>SFU Fellowships</th>
<th>Name</th>
<th>Event</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal government</td>
<td>Williams</td>
<td>ECCC</td>
<td>$36,750</td>
</tr>
<tr>
<td>Federal government</td>
<td>Green</td>
<td>ECCC</td>
<td>$49,200</td>
</tr>
<tr>
<td>Name</td>
<td>Funding Source</td>
<td>Project Description</td>
<td>Amount</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Green DJ</td>
<td>Federal government</td>
<td>Overwintering ecology, migration strategies and demography of migratory birds</td>
<td>$47,000</td>
</tr>
<tr>
<td>Ydenberg RC</td>
<td>Federal government</td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (4/5 yrs)</td>
<td>$28,000</td>
</tr>
<tr>
<td>Williams TD</td>
<td>Federal government</td>
<td>NSERC Individual Research Grant &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot; (1/5 yrs)</td>
<td>$55,000</td>
</tr>
<tr>
<td>Elliott J</td>
<td>Federal government</td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</td>
<td>$37,000</td>
</tr>
</tbody>
</table>

**Total funding:** $1,089,235

| SFU In-Kind | $120,000 |
VII. PUBLICATIONS

This list reflects those publications produced since our last report (publications that were “in press” or “submitted” for the last report are included and have been updated). We continue to publish actively despite working remotely, and having our fieldwork severely restricted this past year because of the Covid-19 pandemic. Three MSc students supervised by CWE faculty successfully defended their theses. Most of our publications relate to the research carried out in the main CWE programs and most refer to work carried out in the Pacific Northwest. We are however interacting with scientists throughout Canada and beyond and some of our publications reflect this.

A. PAPERS IN REFEREED JOURNALS OR BOOKS

In press

2022


**2021**


2020


Maida JR, B.C., Larsen KW. 2020. Migration and disturbance: Impact of fencing and development on


**Submitted:**


**B. THESES**

Case, G. 2021. Foraging Ecology of the Northern Goshawk in Coastal British Columbia. MSc, Simon Fraser University, Burnaby.

Enns, J. 2021. Paying attention but not coordinating: parental care in European starlings (*Sturnus vulgaris*). MSc, Simon Fraser University, Burnaby.

Ware, L. 2021. Satellite telemetry reveals habitat selection decisions by black oystercatchers (*Haematopus bachmani*) across, diel, and tidal cycles. MSc, Simon Fraser University, Burnaby
## Scholarships, Fellowships, Grants for Students

### PhD

<table>
<thead>
<tr>
<th>Source</th>
<th>Recipient</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Michal Pavlik</td>
<td>NSERC IPS - NSERC contribution (Summer)</td>
<td>$5,000</td>
</tr>
<tr>
<td>Industry</td>
<td>Michal Pavlik</td>
<td>NSERC IPS - Industry contribution (Summer)</td>
<td>$2,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Michal Pavlik</td>
<td>Provost’s Prize of Distinction</td>
<td>$1,667</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>David Hope</td>
<td>GF (Fall), TA (Spring), Travel Award (Spring)</td>
<td>$14,033</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Jeff Yap</td>
<td>TA (Fall), GF (Spring), Travel Award (Spring)</td>
<td>$15,203</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Marie Helene Burle</td>
<td>TA (Summer)</td>
<td>$4,186</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Marinde Out</td>
<td>TA (Fall), Travel Award (Spring)</td>
<td>$6,025</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Richard Johnson</td>
<td>GF (Fall), TA (Spring), Travel Award (Spring)</td>
<td>$13,864</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Simon Valdez</td>
<td>TA (Spring)</td>
<td>$5,525</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship (Spring)</td>
<td>$7,000</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>Neotropical Migratory Bird Conservation Act</td>
<td>$3,990</td>
</tr>
<tr>
<td>International</td>
<td>Jeff Yap</td>
<td>Society Of Experimental Biology Travel Award (Summer, Spring)</td>
<td>$710</td>
</tr>
</tbody>
</table>

### M Sc

<table>
<thead>
<tr>
<th>Source</th>
<th>Recipient</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Alice Domalik</td>
<td>NSERC PGS-M (Summer)</td>
<td>$5,833</td>
</tr>
<tr>
<td>NSERC</td>
<td>Rachel Canham</td>
<td>NSERC PGS-M (Summer, Fall, Spring)</td>
<td>$17,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Seth Bennett</td>
<td>TA (Summer, Fall, Spring)</td>
<td>$16,327</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Rachel Canham</td>
<td>Travel Award (Spring)</td>
<td>$500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Kate Fremlin</td>
<td>GF (Fall), Travel Award (Fall)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>GF (Fall), TA (Fall)</td>
<td>$13,364</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Alice Domalik</td>
<td>GF (Spring)</td>
<td>$6,500</td>
</tr>
<tr>
<td>Other</td>
<td>Alice Domalik</td>
<td>Anne Vallee Ecological Scholarship (Summer)</td>
<td>$1,500</td>
</tr>
<tr>
<td>Other</td>
<td>Alice Domalik</td>
<td>Glen Geen Scholarship in Marine Biology (Fall)</td>
<td>$1,100</td>
</tr>
<tr>
<td>Other</td>
<td>Kate Fremlin</td>
<td>SETAC Travel Awards x 2 (Fall)</td>
<td>$931</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Hancock Foundation (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Mitacs Internship</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

### General Funding for CWE

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC/Core</td>
<td>EC Annual Chair Funding (5/5 yrs)</td>
<td>$150,000</td>
</tr>
</tbody>
</table>
SFU SFU SFU Contribution to Faculty Salaries
(Ydenberg Williams Green) $500,148

Conference Funding

Other Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Lank</th>
<th>Canada Summer Jobs</th>
<th>$1,955</th>
</tr>
</thead>
<tbody>
<tr>
<td>International</td>
<td>Max Planck</td>
<td>$12,000</td>
<td></td>
</tr>
</tbody>
</table>

Generated Research Funding

Species at Risk

<table>
<thead>
<tr>
<th>Source</th>
<th>Flower</th>
<th>Banting Postdoctoral Award (2/2 yrs)</th>
<th>$23,280</th>
</tr>
</thead>
</table>

Human Impact on Birds

<table>
<thead>
<tr>
<th>Source</th>
<th>Green DJ</th>
<th>BC Hydro/ Cooper Beauchesne and Associates Ltd.</th>
<th>$27,300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>Elliott J</td>
<td>MITACS Elevate: Development and application of molecular tools to assess the acute and chronic impacts of petroleum hydrocarbons on birds (9 months /2 yrs - MITACS contribution)</td>
<td>$18,750</td>
</tr>
<tr>
<td>Industry</td>
<td>Elliott J</td>
<td>MITACS Elevate: Development and application of molecular tools to assess the acute and chronic impacts of petroleum hydrocarbons on birds (9 months /2 yrs - Northern Gateway Pipelines contribution)</td>
<td>$22,500</td>
</tr>
</tbody>
</table>

Declining Avian Populations

Coast Ecology

<table>
<thead>
<tr>
<th>Source</th>
<th>Hipfner MJ</th>
<th>Wildlife Research Division (A-base)</th>
<th>$25,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>Hipfner MJ</td>
<td>Canadian Wildlife Service (Protected Areas)</td>
<td>$30,000</td>
</tr>
<tr>
<td>Other</td>
<td>Hipfner MJ</td>
<td>WRD (Ocean Protection Plan)</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other</td>
<td>Hipfner MJ</td>
<td>Climate Change Action Plan</td>
<td>$20,000</td>
</tr>
<tr>
<td>Other</td>
<td>Hipfner MJ</td>
<td>STAGE</td>
<td>$25,000</td>
</tr>
</tbody>
</table>

NSERC

<table>
<thead>
<tr>
<th>Source</th>
<th>Green DJ</th>
<th>Overwintering ecology, migration strategies and demography of migratory birds (4/5 yrs)</th>
<th>$27,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Lank D</td>
<td>Maintenance of ecological polymorphism by frequency-dependent selection (4/5 yrs)</td>
<td>$27,000</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>NSERC</td>
<td>Ydenberg RC</td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (3/5 yrs)</td>
<td>$32,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD</td>
<td>Physiological Adaptations for Breeding in Birds (6/6 yrs)</td>
<td>$60,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD (co-applicant)</td>
<td>RTI: Advanced Facility for Avian Research</td>
<td>$140,590</td>
</tr>
<tr>
<td>NSERC</td>
<td>Elliott J</td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (2/5 yrs)</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

Grand Total $1,381,781

SFU In-Kind $120,000
VI FUNDING

In 2018-2019 the contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division) was renewed for three years. This grant supplies $150,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia. The 5 year chart compares revenue projections (formulated for this agreement) to actual revenue from Environment Canada, SFU and other industrial, provincial, federal and international sectors.
## Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>David Hope</td>
<td>TA (Fall)</td>
<td>$5,744</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Jeff Yap</td>
<td>TA (Summer)</td>
<td>$5,744</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Eveling Tavera</td>
<td>TA (Fall)</td>
<td>$7,136</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Richard Johnson</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship</td>
<td>$21,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Summer, Fall, Spring)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>David Hope</td>
<td>Salish Sea Ecosystem Conference</td>
<td>$293</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>NMBCA</td>
<td>$143,030</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>Amer Ornithol Soc Conference</td>
<td>$629</td>
</tr>
<tr>
<td>International</td>
<td>Eveling Tavera</td>
<td>CONCYTEC (Peru) for AOS Conference</td>
<td>$2,993</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSERC</td>
<td>Lena Ware</td>
<td>NSERC CGS-M (Fall, Spring)</td>
<td>$11,667</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Seth Bennett</td>
<td>TA (Summer)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>TA (Summer)</td>
<td>$5,819</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>GF (Summer)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Elizabeth Ruberg</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Alice Domalik</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joanna Enns</td>
<td>TA (Fall)</td>
<td>$2,526</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Tess Forstner</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>TA (Fall)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joachim Bertrands</td>
<td>TA (Fall)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Rachel Canham</td>
<td>TA (Spring)</td>
<td>$6,051</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Tess Forstner</td>
<td>GF (Spring)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>Travel Award For Seabird Meeting</td>
<td>$500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joachim Bertrands</td>
<td>Travel Award for Seabird Meeting</td>
<td>$500</td>
</tr>
<tr>
<td>Other EC</td>
<td>Alice Domalik</td>
<td>EC contract (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Tess Forstner</td>
<td>EC contract (Fall)</td>
<td>$7,333</td>
</tr>
<tr>
<td>Other EC</td>
<td>Kate Fremlin</td>
<td>EC contract (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Sonya Pastran</td>
<td>ECCC / Ocean Protection Plan</td>
<td>$28,000</td>
</tr>
<tr>
<td>Other</td>
<td>Sonya Pastran</td>
<td>Society of Canadian Ornithologists</td>
<td>$2,000</td>
</tr>
<tr>
<td>Other</td>
<td>Kristen Walters</td>
<td>Hancock Fdn (Summer)</td>
<td>$7,000</td>
</tr>
<tr>
<td>Provincial</td>
<td>Gwyn Case</td>
<td>FLNROD (Fall, Spring)</td>
<td>$19,541</td>
</tr>
</tbody>
</table>

**General Funding for CWE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC/Core</td>
<td>$135,000</td>
</tr>
<tr>
<td>SFU</td>
<td>$510,633</td>
</tr>
</tbody>
</table>

**Conference Funding**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Other Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Federal</td>
<td>Lank Canada Summer Jobs</td>
<td>$1,520</td>
</tr>
<tr>
<td>International</td>
<td>Lank Max Plank Collaborative Agreement</td>
<td>$11,825</td>
</tr>
<tr>
<td>Other</td>
<td>Ydenberg Echotrack</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Other</td>
<td>Green Ecological Restoration Supervision</td>
<td>$1,000</td>
</tr>
<tr>
<td>Green - FLNROD</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Ydenberg - ECCC (Green)</td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td>Williams</td>
<td>Chair's support</td>
<td>$16,667</td>
</tr>
</tbody>
</table>

### Species at Risk

<table>
<thead>
<tr>
<th>Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green - FLNROD</td>
<td>$0</td>
</tr>
<tr>
<td>Ydenberg - ECCC (Green)</td>
<td>$0</td>
</tr>
<tr>
<td>Williams</td>
<td>$16,667</td>
</tr>
</tbody>
</table>

### Human Impact on Birds

#### Declining Avian Populations

#### Coast Ecology

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other EC</td>
<td>Hipfner MJ Wildlife Research Division (A-base)</td>
<td>$30,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Hipfner MJ Canadian Wildlife Service (Protected Areas)</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Hipfner MJ WRD (Ocean Protection Plan)</td>
<td>$75,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Hipfner MJ Climate Change Action Plan</td>
<td>$25,000</td>
</tr>
<tr>
<td>Other EC</td>
<td>Hipfner MJ STAGE</td>
<td>$26,000</td>
</tr>
</tbody>
</table>

#### NSERC

<table>
<thead>
<tr>
<th>Source</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Green DJ Overwintering ecology, migration strategies and demography of migratory birds (5/5 yrs)</td>
<td>$27,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Lank D Maintenance of ecological polymorphism by frequency-dependent selection (5/5 yrs)</td>
<td>$27,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Ydenberg RC NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (4/5 yrs)</td>
<td>$32,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD NSERC Individual Research Grant &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot;(1/5yrs)</td>
<td>$55,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Elliott J Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

Grand Total $1,399,681

SFU In-Kind $120,000
VI FUNDING

In 2019-2020 the contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division) was renewed for three years. This grant supplies $135,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

1 April 2019 - 31 March 2020
Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Brett Hodinka</td>
<td>Graduate Dean's Entrance Scholarship (Fall, Spring)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Mason King</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Florian Reurink</td>
<td>Graduate Dean's Entrance Scholarship (Summer, Fall)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Simon Valdez</td>
<td>TA (Summer, Fall)</td>
<td>$11,515</td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSERC</td>
<td>Lena Ware</td>
<td>NSERC CGS-M (Summer)</td>
<td>$6,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Gwyn Case</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Seth Bennett</td>
<td>TA (Summer)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>TA (Summer)</td>
<td>$5,819</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Catherine Villeneuve</td>
<td>GF (Summer)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Elizabeth Ruberg</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joanna Enns</td>
<td>TA (Fall)</td>
<td>$4,967</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joanna Enns</td>
<td>GF (Spring)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Tess Forstner</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Kate Fremlin</td>
<td>TA (Spring)</td>
<td>$5,851</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Kate Fremlin</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Sonya Pastran</td>
<td>GF (Fall)</td>
<td>$6,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Joachim Bertrands</td>
<td>TA (Fall)</td>
<td>$4,689</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Robert Kesic</td>
<td>TA (Spring)</td>
<td>$4,967</td>
</tr>
</tbody>
</table>
SFU Fellowships etc  Tess Forstner  GF (Fall)  $6,500
SFU Fellowships etc  Katie Leonard  GF (Fall)  $6,500
SFU Fellowships etc  Lena Ware  GF (Fall)  $6,500

**General Funding for CWE**

<table>
<thead>
<tr>
<th>EC/Core</th>
<th>EC</th>
<th>SFU</th>
<th>SFU</th>
<th>EC Annual Chair Funding (1/3 yrs)</th>
<th>$135,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFU</td>
<td>SFU</td>
<td></td>
<td></td>
<td>SFU Contribution to Faculty Salaries (Ydenberg Williams Green)</td>
<td>$542,263</td>
</tr>
</tbody>
</table>

**Conference Funding**

| SFU Fellowships etc | Joachim Bertrands | Travel Award for Seabird Meeting | $500 |
| SFU Fellowships etc | Kate Fremlin | TMRA (Fall) | $500 |
| SFU Fellowships etc | Kate Fremlin | TMRA (Spring) | $500 |
| SFU Fellowships etc | Katie Leonard | TMRA (Spring) | $500 |
| SFU Fellowships etc | Sonya Pastran | Travel Award For Seabird Meeting | $500 |
| Conference Funding | Gwyn Case | Raptor Research Foundation | $1,000 |
| Conference Funding | Joanna Enns | Conf. Budget | $250 |
| Conference Funding | Tess Forstner | Conf. Budget | $250 |
| Conference Funding | Mason King | SETAC North America | $1,000 |
| Conference Funding | Catherine Lee-Zuck | Conf. Budget | $250 |
| Conference Funding | Michal Pavlik | Conf. Budget | $250 |
| Conference Funding | Florian Reurink | Conf. Budget | $250 |
| Conference Funding | Eveling Tavera | Conf. Budget | $250 |
| Conference Funding | Catherine Villeneuve | Conf. Budget | $250 |
| Conference Funding | Kristne Walters | Conf. Budget | $250 |
| Conference Funding | Lena Ware | Conf. Budget | $250 |

**Other Funding**

<p>| Prov. Government | Green | Ministry of Forests, Lands, Natural Resources Opr. &amp; Rural Developm. | $15,000 |
| Government       | Green | ECCC | $12,000 |
| International    | Lank  | Max Plank Collaborative Agreement | $17,997 |
| Government       | Ydenberg | ECCC - Seaduck Moment throughout the annual cycle: linking water and | $22,855 |</p>
<table>
<thead>
<tr>
<th>Organization</th>
<th>First Name</th>
<th>Last Name</th>
<th>Project Title</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>MITACS</td>
<td>Elliott</td>
<td></td>
<td>Breed - A. Gonzales</td>
<td>$55,000</td>
</tr>
<tr>
<td>Generated Research Funding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>Ydenberg</td>
<td></td>
<td>Miscellaneous CWS grants</td>
<td>$3,476</td>
</tr>
<tr>
<td>SFU</td>
<td>Ydenberg</td>
<td></td>
<td>eBERG Director funding</td>
<td>$9,489</td>
</tr>
<tr>
<td>NSERC</td>
<td>Green DJ</td>
<td></td>
<td>Overwintering ecology, migration strategies and demography of migratory birds</td>
<td>$47,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Lank D</td>
<td></td>
<td>Maintenance of ecological polymorphism by frequency-dependent selection</td>
<td>$21,549</td>
</tr>
<tr>
<td>NSERC</td>
<td>Ydenberg RC</td>
<td></td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot;</td>
<td>$32,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD</td>
<td></td>
<td>NSERC Individual Research Grant - &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot;</td>
<td>$55,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Elliott J</td>
<td></td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator</td>
<td>$37,000</td>
</tr>
<tr>
<td>Grand Total</td>
<td></td>
<td></td>
<td></td>
<td>$1,175,376</td>
</tr>
<tr>
<td>SFU In-Kind</td>
<td></td>
<td></td>
<td></td>
<td>$120,000</td>
</tr>
</tbody>
</table>
VI FUNDING

Fiscal year 2020-2021 marked the conclusion of the current three year contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division). This grant supplied $135,000 per year for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

1 April 2020 - 31 March 2021

Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Allen, Josh</td>
<td>TA (Fall 2020, Spring 2021)</td>
<td>$13,389</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Fremlin, Katharine</td>
<td>PGS NSERC (2021); GF (Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Hart, Kirk</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Hodinka, Brett</td>
<td>Dean's Entrance Scholarship (Fall 2020, Summer 2020, Spring 2021)</td>
<td>$21,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>King, Mason</td>
<td>GF (Fall 2020); President's PhD Award (Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Reurink, Florian</td>
<td>Dean's Entrance Scholarship (Fall 2020, Summer 2020, Spring 2021)</td>
<td>$21,000</td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Enns, Joanna</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Forstner, Tess</td>
<td>TA (Spring 2021)</td>
<td>$7,509</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Hall, Hannah</td>
<td>Salish Sea Gull Project (Summer 2020); GF (Fall 2020)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Robert Kesic</td>
<td>MITACS RTA (Summer 2020); TA (Spring 2021); GF (Fall 2020)</td>
<td>$19,288</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Lee-Zuck, Catherine</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Leonard, Kathryn</td>
<td>TA (Fall 2020)</td>
<td>$6,288</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Leonard, Kathryn</td>
<td>GF (Fall 2020, Spring 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Pastran, Sonya</td>
<td>GF (Summer 2020); Laskeek Project Funding</td>
<td>$14,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Roodenrijs, Hannah</td>
<td>GF (Spring 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Ware, Lena</td>
<td>GF (Fall 2020)</td>
<td>$7,000</td>
</tr>
</tbody>
</table>

**General Funding for CWE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC/Core</td>
<td>$135,000</td>
</tr>
<tr>
<td>SFU</td>
<td>$548,053</td>
</tr>
</tbody>
</table>

EC Annual Chair Funding (3/3 yrs)  
SFU Contribution to Faculty Salaries (Ydenberg Williams Green)
## Conference Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Recipient</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFU Fellowships etc</td>
<td>Allen, Josh</td>
<td>TMRA Summer 2020</td>
<td>$500</td>
</tr>
</tbody>
</table>

## Other Funding

<table>
<thead>
<tr>
<th>Source</th>
<th>Recipient</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal government</td>
<td>Williams</td>
<td>ECCC</td>
<td>$73,300</td>
</tr>
<tr>
<td>Federal government</td>
<td>Elliott, Williams, Ydenberg</td>
<td>COVID Relief</td>
<td>$19,200</td>
</tr>
</tbody>
</table>

## NSERC

<table>
<thead>
<tr>
<th>Source</th>
<th>Recipient</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSERC</td>
<td>Green DJ</td>
<td>Overwintering ecology, migration strategies and demography of migratory birds (5/5 yrs)</td>
<td>$47,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Ydenberg RC</td>
<td>NSERC Individual Research Grant - &quot;Predation danger in the ecology of migration&quot; (4/5 yrs)</td>
<td>$28,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Williams TD</td>
<td>NSERC Individual Research Grant &quot;Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?&quot;(1/5yrs)</td>
<td>$55,000</td>
</tr>
<tr>
<td>NSERC</td>
<td>Elliott J</td>
<td>Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs)</td>
<td>$37,000</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td><strong>$1,136,527</strong></td>
</tr>
<tr>
<td><strong>SFU In-Kind</strong></td>
<td></td>
<td></td>
<td><strong>$120,000</strong></td>
</tr>
</tbody>
</table>
VI  FUNDING

Fiscal year 2021-2022 marked the first year of a two year contract between the Simon Fraser University (Centre for Wildlife Ecology) and Environment and Climate Change Canada (Science and Technology Division). This grant supplied $115,000 in 2021-2022, and will supply $180,000 in 2022-2023 for CWE research in priority coastal, riparian and grassland ecosystems in British Columbia.

1 April 2021 - 31 March 2022
Scholarships, Fellowships, Grants for Students

<table>
<thead>
<tr>
<th>Description</th>
<th>Name of person</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Allen, Josh</td>
<td>TA (Fall 2021), GF (Spring 2022)</td>
<td>$18,076</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Fremlin, Katharine</td>
<td>GF (Summer 2021, Spring 2022)</td>
<td>$10,500</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Hodinka, Brett</td>
<td>Dean's Entrance Scholarship (Summer 2021, Fall 2021, Spring 2022; TA (Spring 2022)</td>
<td>$25,620</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>King, Mason</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Reurink, Florian</td>
<td>GF (Summer 2021, Fall 2021)</td>
<td>$14,000</td>
</tr>
<tr>
<td><strong>M Sc</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Enns, Joanna</td>
<td>GF (Spring 2022)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Hall, Hannah</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Kemp, Jessica</td>
<td>TA (Spring 2022)</td>
<td>$6,426</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Lee-Zuck, Catherine</td>
<td>GF (Summer 2021, Fall 2021)</td>
<td>$9,700</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Leonard, Kathryn</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Linton, Anna</td>
<td>TA (Spring 2022)</td>
<td>$6,426</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Rankin, Cole</td>
<td>TA (Fall 2021); GF (Spring 2022)</td>
<td>$12,178</td>
</tr>
<tr>
<td>SFU Fellowships etc</td>
<td>Roodenrijs, Hannah</td>
<td>GF (Fall 2021)</td>
<td>$7,000</td>
</tr>
</tbody>
</table>

**General Funding for CWE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Source</th>
<th>Notes</th>
<th>Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECCC/Core</td>
<td>ECCC</td>
<td>EC Annual Chair Funding (1/2 yrs)</td>
<td>$115,000</td>
</tr>
<tr>
<td>SFU</td>
<td>SFU</td>
<td>SFU Contribution to Faculty Salaries (Ydenberg, Williams Green)</td>
<td>$582,559</td>
</tr>
</tbody>
</table>

**Conference Funding**
SFU Fellowships | Hodinka, Brett | TMRA Spring 2022 | $500
---|---|---|---
eBerg | Rankin, Cole | PEEC Spring 2022 | $150
eBerg | Roodenrijs, Hannah | PEEC Spring 2022 | $150

**Other Funding**

Federal government | Williams | ECCC | $36,750
---|---|---|---
Federal government | Green | ECCC | $4

**NSERC**

Green DJ | Overwintering ecology, migration strategies and demography of migratory birds | $47,000
---|---|---|---
Federal government | Ydenberg RC | NSERC Individual Research Grant - "Predation danger in the ecology of migration" (4/5 yrs) | $28,000

Federal government | Williams TD | NSERC Individual Research Grant "Diet or exercise? How do birds cope with transitions in workload associated with parental care or fledging?" (1/5yrs) | $55,000

Federal government | Elliott J | Investigating sources, transport, accumulation and effects of persistent contaminants in urban environments using a top predator as indicator (3/5 yrs) | $37,000

Total funding: $1,089,235

SFU In-Kind | | | $120,000
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Position</th>
<th>Institution</th>
<th>Faculty (if SFU)</th>
<th>Department (if SFU)</th>
<th>Active Member</th>
<th>Peripheral Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ydenberg</td>
<td>Ronald</td>
<td>Director, Professor</td>
<td>SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Williams</td>
<td>Tony</td>
<td>Professor</td>
<td>SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>David</td>
<td>Associate Director, Professor</td>
<td>SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Lank</td>
<td>Dov</td>
<td>University Research Associate / SFU Adjunct Professor</td>
<td>SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Esler</td>
<td>Dan</td>
<td>USGS Research Scientist / SFU Adjunct Professor</td>
<td>USGS / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Hipfner</td>
<td>Mark</td>
<td>ECCC Research Scientist / SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Boyd</td>
<td>Sean</td>
<td>ECCC Research Scientist / SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Elner</td>
<td>Bob</td>
<td>ECCC Research Scientist Emeritus/ SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Elliott</td>
<td>John</td>
<td>ECCC Research Scientist / SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Millikin</td>
<td>Rhonda</td>
<td>ECCC Head, Population Assessment/ SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Butler</td>
<td>Rob</td>
<td>ECCC Research Scientist Emeritus/ SFU Adjunct Professor</td>
<td>ECCC / SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bertram</td>
<td>Doug</td>
<td>ECCC Research Scientist</td>
<td>ECCC</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Cooke</td>
<td>Fred</td>
<td>Emeritus SFU Chairholder</td>
<td>SFU</td>
<td>Science</td>
<td>Biological Sciences</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

By uploading this list, the Director certifies that all the members listed in this document have agreed to be affiliated with the Centre/Institute and approve of this renewal application.
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: Centre for Operations Research and Decision Sciences
Website: http://www.sfu.ca/math/research/cords.html
Faculty: VP Research
Director: Tamon Stephen (Director)
            Alexander (Sandy) Rutherford (Acting Director)
Director’s term end: -
Renewal date: 2024-04-01

Details

Description of the Centre/Institute:
The Centre for Operations Research and Decision Sciences (CORDS) includes members from Business, Computing Science, Mathematics, SIAT and Statistics. It focuses on research activities in the area of operations research: the science of optimal decision-making. Members undertake applied research projects. During the past 5 years, the Centre has continued to provide support for Operations Research at SFU. The Centre’s members include those responsible for the Operations Research programs. The undergraduate O.R. program is notable for its hands-on, project based courses, including the Operations Research Clinic, which produced finalists in the Canadian O.R. Society’s undergraduate paper competitions from 2018-22, including one winner and one runner up.

The Centre/Institute’s membership and organization structure:
Director: Tamon Stephen
Steering Committee: Tamon Stephen, Tom Loughin, Randall Pyke and Alexander Rutherford


Rationale for the renewal of the Centre/Institute:
The COVID-19 pandemic has highlighted the importance of mathematical modelling and Operations Research (OR) in informing public policy. During the pandemic, researchers at
CORDS collaborated with the BC Ministry of Health, Health Authorities, and the BC Centre for Disease Control to develop mathematical models to support capacity planning in acute care and critical care. The importance of OR in data-driven decision-making was recently recognized in the Mathematical and Statistical Modeling Education Act passed by the US House of Representatives. In BC and Canada, both the public and private sectors are seeking to engage with universities to build capacity in data-driven decision-making.

CORDS provides a focal point at SFU for bringing together researchers working in OR and other fields related to data-driven decision-making through its sponsorship of the OR seminars. By bringing together researchers at SFU working in OR and related fields, CORDS facilitates collaborations with government agencies and private sector companies seeking expertise at SFU in OR and data-driven decision-making. Government agencies, especially in the healthcare sector are seeking to build capacity in mathematical modelling and OR through a combination of hiring highly qualified personnel and engaging in training programmes with universities. During the pandemic, CORDS established initiatives in both areas with a particular focus on healthcare. A recent graduate of the OR MSc programme is developing simulation models at Decision Support, Vancouver Coastal Health to improve community care. A team of researchers from CORDS led by A. Rutherford recently provided a 1-year training program in simulation modelling for healthcare to the Hospital & Diagnostic Analytics Team in the BC Ministry of Health to build capacity in simulation modelling within the Ministry.

With the success of its research and training programs in OR and data analytics for healthcare during the pandemic, CORDS is engaged in a renewal phase to focus more on outreach to the public sector—especially in the healthcare sector—with the intention of playing a leading role in building capacity for data-driven decision-making in BC. Our renewal request is for two years, during which we will engage with our membership, other researchers at SFU, and the leaders from the public and private sector to build longer-term programs.

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

The Centre is a contact point for Operations Research at SFU, which facilitates engagement of SFU in OR consulting. Through CORDS, A. Rutherford has developed collaborations and obtained research contracts in healthcare operations research with the BC Ministry of Health, the Provincial Health Services Authority, Vancouver Coastal Health, and the BC Centre for Disease Control. Recently, T. Stephen has established collaborations with Save-on-Foods and the United Way of BC. R. Pyke, A. Rutherford, and T. Stephen have developed a consulting collaboration with Alberta Machine Intelligence Institute (Amii). These collaborations would have been more difficult for individual faculty members because CORDS allows us to present to outside stakeholders and collaborators the combined expertise of the CORDS membership.
CORDS members often jointly supervise graduate students. This allows us to involve graduate students in collaborative research contracts. In particular, the graduate students of C. Colijn, A. Rutherford, and T. Stephen have been actively involved in research contracts at CORDS. CORDS also contributes to undergraduate education in the Operations Research Program by facilitating projects for the OR capstone course (MATH 402W) and USRA projects. These projects sometimes lead to larger collaborations, which involve graduate students.

The collaborations facilitated by CORDS have also led to data sharing agreements, which have enhanced the research of CORDS members. Examples of data access facilitated by CORDS are an agreement with the Ministry of Health to obtain access to the BC Discharge Abstract Database (DAD) for hospital admissions, an agreement with the BC Critical Care Services Executive Committee for access to the BC Critical Care Database, and an agreement currently under negotiation for access to the Transparent Blood Inventory Database.

Operations Research is inherently interdisciplinary, and CORDS sponsors a seminar series to bring together faculty in different departments and faculties. The CORDS seminar series is also helpful in connecting with other institutions, notably UBC-Okanagan. During the last two years, the CORDS seminars were also offered on Zoom, which attracted participation from non-academics from health authorities and the Ministry of Health. This raised the profile in BC of SFU as a leading center for the application of Operations Research to healthcare.

**How has the Centre/Institute accomplished its goals?**
The centre has accomplished its goals by:

1. Organizing seminars and conferences.

2. Regular meetings with stakeholders to foster collaborations. A. Rutherford meets weekly with the Hospital and Diagnostic Analytics Group in the BC Ministry of Health to support capacity building for Operations Research and Simulation Modelling. A. Rutherford and J. Dhahan (PhD student working with Rutherford and Stephen) meet biweekly with the simulation modelling advisory group in the Provincial Blood Coordinating Office.

3. CORDS members apply jointly for research grants. C. Colijn and A. Rutherford have CANMOD funding from NSERC to support simulation modelling for planning critical care capacity in BC over the next year in the face of potential future COVID-19 waves.

4. Submitting applications for research contracts through programs such as the Partnerships for Health Innovation at the BC Ministry of Health.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**
Upon renewal, we plan to review the membership and bring in additional members from
other departments and faculties. The recent successes of CORDS in applying Operations Research and modelling to pandemic response and healthcare planning has highlighted the growing demand in BC for operations research and modelling applied to healthcare. We propose to target the Faculty of Health Sciences in expanding our membership to broaden the expertise of CORDS in this field.

Graduate students have been actively engaged in CORDS research projects in recent years. We will discuss with our membership proposal for formalizing graduate student membership in CORDS. This will allow graduate students to play a more active role in training opportunities supported by CORDS.

Students in the undergraduate Operations Research program and related programs at SFU participate in the Operations Research Student Union (ORSU), which publishes undergraduate papers in the journal Analytics Now. Members of CORDS have supported ORSU for many years. We will discuss with the CORDS membership the possibility of formalizing a relationship between CORDS and ORSU.

**Significant accomplishments:**

1) CORDS sponsors the Operations Research Seminar Series at SFU. Over the past 5 years, this seminar series has featured over 50 speakers from different disciplines and institutions.

For several years, the O.R. Seminar has been held jointly with UBC-Okanagan via videoconference. The migration to Zoom in Fall 2020 has allowed us to expand our audience to operations research practitioners at BC health authorities and the Ministry of Health.

2) CORDS sponsored and organized three West Coast Optimization Meetings in the past 5 years:

1. Fall 2017 (in-person at SFU Surrey, 53 participants).

2. Spring 2021 (on-line meeting co-organized with COCANA at UBC-Okanagan, 79 participants).

3. Spring 2022 (in-person as part of the Canadian Applied and Industrial Mathematics Society (CAIMS) annual meeting in Kelowna, 29 participants).

3) The healthcare operations group in CORDS led by A. Rutherford has been involved in a long-term project with the Ministry of Health to improve capacity for simulation modelling. This project helped to support the response to the pandemic in BC through:

1. A queuing theory model to project mechanical ventilator demand under different public health response scenarios.
1. A large-scale simulation model of the BC Critical Care system to project demand under different scenarios for endemic COVID-19.


3. A mini-course in simulation modelling given to modellers in the acute care analytics group at the Ministry of Health.


4) CORDS promotes training of HQP by involving graduate students in research projects with external partners. During the two years of the COVID-19 pandemic, graduate students affiliated with CORDS were involved in a number of mathematical modelling collaborations to support the response to the pandemic:

1. N. Mulberry (PhD student supervised by C. Colijn & A. Rutherford) worked with the BCCDC to develop models for projecting COVID-19 cases. Her work informed the initial phase of the BC vaccine strategy.

2. K. Susvitasari (PhD student supervised by C. Colijn & A. Rutherford on this project) worked with the Ministry of Health to develop a simulation model for emergency hospital admissions. She presented her work at the Operational Research Applied to Health Services Conference (2021) and received the Steve Gallivan Award for best presentation by a PhD student.

3. J. Dhahan (PhD student supervised by A. Rutherford & T. Stephen) analyzed data on emergency hospital admissions in BC. Dhahan is currently working with the BC PBCO to develop a simulation model to improve inventory management of O-negative blood.
4. S. Zimmerman (MSc student supervised by A. Rutherford & T. Stephen) developed a queuing theory model to inform management of the provincial mechanical ventilator supply during the first 3 months of the pandemic and a simulation model of the BC Critical Care System to support pandemic planning. Zimmerman is currently working at VCH Decision Support.

5) Additional projects pairing HQP with external partners include:

1. B. He. (MSc student supervised by S. Mitrovic-Minic and T. Stephen) with the Surrey Fire Department (2015-17).


**Notable media successes:**
During the pandemic, CORDS members (A. Rutherford and a team of graduate students from Rutherford, Stephen, and Colijn) collaborated extensively with the BC Ministry of Health to inform planning for mechanical ventilators and critical care capacity. Much of this work informed COVID updates provided by the Ministry of Health, especially during the first three months of the pandemic. However, by agreement with the Ministry of Health all reporting to the media went through either the Ministry of Health or the BC Centre for Disease Control.

**Events, workshops, public outreach events:**
In 2019, CORDS applied for funding from PIMS to bring Prof. Margaret Brandeau (Stanford) to SFU as Distinguished Visitor on Healthcare Operations Research. Her visit would have included a public lecture. This funding application was successful; however, her visit has been postponed due to the pandemic. Subject to Prof. Brandeau’s availability, we intend to renew this application.

**The Centre/Institute’s multi-year goals for the next renewal term:**
1) Expand CORDS membership to include representation from more faculties.
A review and revitalization of CORDS membership was planned for two years ago; however, this has been delayed due to the pandemic. It has been impossible to plan in-person events, which are important for engaging with new faculty members. Furthermore, some of the current members in CORDS have been extensively involved in pandemic modelling and been unable to devote time to outreach within SFU.
Over the next two years will focus on expanding our membership in the following faculties, schools, and departments: Faculty of Health Sciences, Computing Science, Beedie School of Business, School of Interactive Arts and Technology, and Department of Statistics and Actuarial Sciences. Particular focus will be placed on engaging with new faculty members.

**KPI 1:**
This goal will be measured according to the number of new members and their breadth across different faculties.

2) Graduate students play an important role in research projects at CORDS. In our recent meetings, we discussed formalizing a process for graduate student membership in CORDS to foster more collaboration and interaction between graduate students of faculty members. Part of this vision was inviting Prof. Brandeau as a PIMS Distinguished Visitor in Healthcare Operations Research. Development of a process for greater graduate student involvement in CORDS has been delayed due to the pandemic; however, we plan to begin discussions on this with the membership in fall 2022.

**KPI 2:**
Existence of an active graduate student membership in CORDS.

3) Developing a mini-course on Operations Research and Modelling for promotion to the government and private sector.
We plan to use the mini-course that was developed for the Ministry of Health as the basis for a course that can be offered more broadly to decision support, data analytics, and operations research teams at health authorities in BC and other provinces. We hope to work with the Partnerships Hub at the SFU VPR’s office to establish a model for offering this course for paid tuition to provide financial support for CORDS.

**KPI 3:**
Revenue generated by offering training course(s) to outside agencies.

4) Establish long-term collaborations with external agencies to provide ongoing consulting support.
Currently discussion are underway with Vancouver Coastal Health and the Ministry of Health to formalize relationships to provide ongoing expertise in Operations Research. Our relationship with the Community Health Division at VCH was formalized in an MOU between VCH and SFU that was signed in 2020. We feel that formalizing relationships in this way will allow us to coordinate the research contracts, mini-course training, and internships for graduate students.

**KPI 4:**
Existence of collaboration agreements or MOUs with outside agencies.
5) Host an edition of the West Coast Optimization Meeting (WCOM) at SFU in 2023 or 2024. WCOM was meeting regularly once or twice a year through 2019. In 2020 it was unable to meet. This was followed by an on-line meeting in 2021 and meeting within a conference in 2022. We would like to resume traditional meetings of this series. It will probably not make sense to do this in Spring 2023 with the SIAM Optimization Meeting running in Seattle, but Fall 2023 or Spring or Fall of 2024 may work well. We will co-ordinate with other potential hosts (UW, UBC Vancouver, UBC Okanagan and UVic).

**KPI 5:**
Whether the series resumes.

**Supporting documents:**
Membership_signoff_form_2022_2vr9va7.xlsx (See attachment below)

**Financial Summary**

**Does your Centre/Institute receive direct financial support from the university?**
No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
Yes

**External funding details:**
   Project: Develop and support simulation models for hospital ward beds and the critical care system
   PI: A. Rutherford
   Amount: $315,000
   Funding term: April 1, 2020 to March 31, 2021 (granted a co-cost extension)

2. CANMOD Grant (NSERC)
   Project: A Decision Support Tool for Advanced Acute Care Resource Allocation during COVID-19
   Project PI: A. Rutherford
CANMOD PI: C. Colijn

Amount: $44,000

Funding term: March 15, 2021 to March 31, 2023

Confirm policy review:
Yes

Submitted by:
Tamon Stephen, Director

Director’s comments:
It’s certainly been an unusual 5 year period. CORDS was founded along with the O.R. program in Mathematics in Surrey, and had made some connections there. Not long after the previous renewal, Math decided to rebase the O.R. program in Burnaby. The O.R. Seminar has followed. In fact, many of O.R.’s natural partners, such as Computing Science, Economics and Business are Burnaby-based.

Soon after arriving in Burnaby, Covid hit, causing a variety of disruptions. While our core activities didn’t stop except for a brief period in Spring 2020, we haven’t managed to reach out as we would have liked to. For this reason, we propose a two year renewal which will give us some time to do this.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer’s decision:
Approved for 2 years

Reviewer’s comments:
This centre is undertaking active mathematical-based research on a number of important public issues, especially pandemic-related modelling. It is encouraging too see the desire to expand the membership of this centre upon renewal. I recommend renewal of this centre.
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Institution</th>
<th>Faculty (if SFU)</th>
<th>Department (if SFU)</th>
<th>Active Member</th>
<th>Peripheral Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stephen</td>
<td>Tamon</td>
<td>SFU</td>
<td>Science</td>
<td>Mathematics</td>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Loughin</td>
<td>Tom</td>
<td>SFU</td>
<td>Science</td>
<td>Statistics and Actuarial Sci</td>
<td>Steering Committee</td>
<td></td>
</tr>
<tr>
<td>Pyke</td>
<td>Randall</td>
<td>SFU</td>
<td>Science</td>
<td>Mathematics</td>
<td>Steering Committee</td>
<td></td>
</tr>
<tr>
<td>Rutherford</td>
<td>Sandy</td>
<td>SFU</td>
<td>Science</td>
<td>Mathematics</td>
<td>Steering Committee</td>
<td></td>
</tr>
<tr>
<td>Bartram</td>
<td>Lyn</td>
<td>SFU</td>
<td>SCAT</td>
<td>Computing Science</td>
<td>New member</td>
<td></td>
</tr>
<tr>
<td>Bhattacharya</td>
<td>Binay</td>
<td>SFU</td>
<td>SCAT</td>
<td>Computing Science</td>
<td>Retired, but still attending OR meetings</td>
<td></td>
</tr>
<tr>
<td>Colijn</td>
<td>Caroline</td>
<td>SFU</td>
<td>Science</td>
<td>Mathematics</td>
<td>Pretty busy though</td>
<td></td>
</tr>
<tr>
<td>Mitrovic-Minic</td>
<td>Snezana</td>
<td>MDA</td>
<td></td>
<td></td>
<td>Works at MDA in Vancouver</td>
<td></td>
</tr>
<tr>
<td>van der Vaal</td>
<td>Alexa</td>
<td>SFU</td>
<td>Science</td>
<td>Mathematics</td>
<td>Works at the United Way of BC</td>
<td></td>
</tr>
<tr>
<td>Zhang</td>
<td>George</td>
<td>SFU</td>
<td>Beedie</td>
<td>Business</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

This list includes people who have been in touch in 2022, though they have not vetted the renewal application.
**Report Type:** Renewal Application  
**Reporting Year:** 2022

### General Information

**Name of the Centre/Institute:** Centre for Studies in Print and Media Cultures  
**Website:** [http://www.sfu.ca/cspmc.html](http://www.sfu.ca/cspmc.html)  
**Faculty:** VP Research  
**Director:** Rebecca Dowson  
**Director's term end:** 2022-12-31  
**Renewal date:** 2025-11-01

### Details

**Description of the Centre/Institute:**
The Centre for Studies in Print and Media Cultures is a multidisciplinary research group at Simon Fraser University. Its mission is:

(a) to encourage interdisciplinary exchange among researchers in the multi-disciplinary areas of Print and Media Studies;

(b) to promote innovative theoretically and historically grounded research in these areas;

(c) and to support advanced education in the overlapping investigative fields of print culture, media cultures in general, communications technologies, the arts, and the public sphere.

This interdisciplinary community builds on the foundation established since 1998 by the Print Culture Studies group based in the Department of English. The CSPMC, formed in 2007, brings together scholars in a wide range of humanities, social sciences, and applied sciences departments, schools, and non-departmentalized programs, including Communication, Contemporary Arts, English, History, Humanities, Interactive Arts and Technology, Linguistics, Publishing Studies, and Scottish Studies. Through the involvement of senior and upcoming scholars in the Faculties of Arts and Social Sciences (FASS) and of Communication, Arts and Technology (FCAT), the Centre is well positioned to profile new research clusters and initiatives in some of the university’s largest departments, and to build bridges between the humanities, the social sciences, and the applied sciences. The CSPMC has also established a strong relationship with the SFU Library; with its holdings in Special Collections and its ongoing technological innovations, the Library is a central player to the Centre’s collaborations.
The Centre/Institute’s membership and organization structure:
The Centre welcomes members of the SFU community whose interests are in keeping with the mission of the Centre. The Centre’s cross-faculty membership has included representatives from Communication, Contemporary Arts, English, Gender, Sexuality and Women’s Studies, History, Interactive Arts and Technology, Linguistics, Publishing, and the Library. Graduate students are particularly encouraged to participate in the Centre’s activities. The Centre is governed by a Director and a Steering Committee.

Rationale for the renewal of the Centre/Institute:
The opportunities and challenges identified in SFU’s Strategic Research Plan resonate strongly with the work of the Centre and its membership. In particular, the Centre is well positioned to respond to the identified research clusters of “Community-Based Research” and “Big Data” and research challenges 2, 4, 5, 6 (Understanding our origins; Strengthening civil society by advancing justice equity and social responsibility; Enhancing our world through technology, and Transforming the landscape of teaching and learning).

A founding principle of the Centre is to build bridges between disciplinary specialists in the areas of Print and Media Studies. The research collaborations facilitated by Centre activities since 2007 have established strong links between scholars from the Faculty of Arts and Social Sciences, the Faculty of Contemporary Studies, and the SFU Library. Connections among these groups promote the exchange of theoretical and methodological approaches across disciplines and positions SFU scholars for strategic networking and collaboration with academics from other universities, creative and technological industries, and memory institutions holding cultural data collections.

The SFU Library, home of Special Collections and Rare Books and the Digital Humanities Innovation Lab, has recently opened the Media Maker Commons (MMC). MMC users have access to tools and expertise for experimentation and prototyping, as well as support for acquiring digital literacies. Available technologies support several key areas of activity and inquiry, including video and audio production; letterpress printing; 3D printing and scanning; and electronics. Of particular interest to the Centre’s membership is the inclusion of letterpress printing technology and the planned development of the Dick Kouwenhoven Book Arts Studio and Printer-in-Residence program. Access to this technology will open partnership opportunities with local experts in the publishing industry and academic specialists in the areas of bibliography and book history to lead expert seminars on the material culture of print.

The international turn towards examining cultural memory through a data-driven lens invites scholars to develop computationally driven approaches to gather, analyze, and disseminate research in the areas of Print and Media Cultures. The Digital Humanities Innovation Lab is a natural point of continued collaboration with the Centre, however, there
is potential for further collaboration with other research partners located at SFU’s Big Data Hub. In particular, access to training resources in computational approaches to scholarship and partnerships in data visualization align well with the goals of the Centre. In addition to leveraging the potential to develop methodological interventions using Big Data, the Centre is also well positioned to examine the limits and ethical questions of Big Data through humanistic inquiry.

In addition to the current expertise and research initiatives at SFU supporting the mandate of the Centre, there are potential future funding supports that will increase the capacity to engage in collaborative study of print and media cultures. Centre member Michelle Levy is co-lead on a recently submitted Canadian Foundation for Innovation (CFI) Innovation grant proposal titled “Digital Cultures: Co-Designing Technology for Cultural Heritage and Community Engagement”. The project details the development of a Digital Cultures Centre and Main Digital Studio, staffed with experts in digital storytelling, digital media, software development, and user interface design. This infrastructure will support collaboration between researchers and community groups to develop platforms that enable research-driven digital stories about the cultural past and present and “will engage academic and non-academic communities in new understandings of our cultural past and present, combat disinformation, and promote more inclusive and diverse digital culture.” Several centre members form part of the core research team and wider user group identified in the application. The results of the competition will be announced in Summer 2023.

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

The Centre draws on the expertise and resources of affiliated units to enhance educational and research opportunities in the areas of Print and Media Studies through research collaborations, public events, discussion groups, and workshops. These activities bring together researchers to discuss theoretical and methodological approaches, build digital research skills, and co-develop new modes of critical analysis in the areas of print and media theory and culture.

The use of computationally-intensive methods to collect, analyze, and disseminate innovative digital scholarship in the social sciences, arts, and humanities requires a combination of expertise in these academic disciplines, digital curation and preservation, software and web development, and publishing and dissemination. This research movement demands new models of collaboration between scholars, librarians, technologists, and communities engaged in the production of cultural memory. The Centre serves as a platform to connect researchers and practitioners across these interrelated sectors and as such, facilitates new modes of scholarly production.

**How has the Centre/Institute accomplished its goals?**

The Centre facilitates research exchange and collaboration through colloquia, conferences featuring internationally and nationally prominent speakers, and reading groups. The
interdisciplinary research culture fostered by the Centre has produced several major research or colloquium proposals. Past conference and colloquium topics have included “Digital Humanities: Theory, Practice, Pedagogy,” “Media in Time and Space,” “Media and Cultural Memory,” and “The Afterlife of Media.” Reading groups have focused on the themes of “Remediation,” “Residual Media,” “Participatory Media,” and “Actor Network Theory.”

During this renewal period, Centre members, affiliated programs and partners have continued this work via the Print Culture Program Speaker series; Digital Humanities Innovation Lab events and @Us Discussion Series; co-creation of digital and public humanities research projects; and presentations at major disciplinary conferences.

Additionally, Centre members as well as affiliated programs and partners have supported advanced education in print and media cultures through specialized workshops in research software, digital and archival research methods, and access to advanced technologies that support the production of media and research creation. These resources have supported independent and course-integrated research.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**
During the first year of the requested renewal period, the Centre will undertake a strategic planning process to reassess its mission, vision, and goals. As part of this process the Centre will also make changes required to adhere to the requirements of policy R 40.01, including a revamped web presence and change of name request to reflect its position as an institute.

This renewal period will also provide the Centre with an opportunity to grow the membership through outreach to SFU researchers who have established aligned research programs since the Centre was last active. There will also be an effort to connect with other Centres and Institutes with shared research interests, as well as potential partner units such as SFU Galleries, the Knowledge Mobilization Hub, and the Community-Engaged Research Initiative (CERi), and the Centre for Digital Media. The Centre will accomplish this outreach, in part, through programming efforts in the second and third years of the renewal period. Additional outreach mechanisms may also be developed through the strategic planning process.

**Significant accomplishments:**
1) The Digital Humanities Innovation Lab is a collaboration based in the Library and developed in partnership with faculty members engaging in Digital Humanities research. This initiative aligns emerging research and teaching agendas in the Digital Humanities with the Library’s expertise in digital initiatives, unique special collections, skill development and research dissemination programming. The DHIL works to establish best practices in developing digital projects, supports the development of highly qualified personnel via a digital humanities student intern program, and facilitates a robust digital humanities community at SFU. The lab has supported 11 Digital Fellows, SFU graduate students from FASS, FCAT, and FAS) between 2017-2022.
Co-founders Drs. Colette Colligan and Michelle Levy directed the DHIL until 2020. Several Centre members work together through DHIL sponsored research projects and participation in DHIL hosted workshops and events from 2016 to present. Centre member projects supported by DHIL include: Books in English Parishes (J. Craig), Reconstructing Early Circus: Entertainments at Astley’s Amphitheatre, 1768-1833 (L. Davis), Photoshop Inscriptions (F. Lesage), Women’s Print History Project, 1750-1836 (M. Levy), and Aldus@SFU (J. Maxwell), Amplify Podcast Network (H. McGregor), Manuscript Verse Miscellanies (B. Schellenberg). A full list of projects and events can be found on the DHIL website (dhil.lib.sfu.ca).

2) The SSHRC funded SFU-UVic Digital Pedagogy Network (Co-PIs Drs. Colette Colligan & Michelle Levy) was established to build on the existing interdisciplinary and interinstitutional connections between Simon Fraser University and University of Victoria. The multi-lab, cross-institutional regional network emphasized the exchange and mobilization of knowledge and training between faculty, students, librarians, educational partners, and the general public in the field of digital research and learning. Funding provided by a SSHRC Connections grant supported a series of events in 2016-2018 that will enable us to share new methods, training opportunities, and research on digital pedagogy.

Events included an Indigenous Film and Media Wikipedia Edit-a-thon (2016), two Student Project Showcases (2017 & 2018), a Symposium (2017), the development and delivery of a short course for the Digital Humanities Summer Institute on Digital Fieldwork Methods (2018), and the publication of a special issue of Digital Studies (V. 10, issue 1) titled “Student Perspectives from within the Digital Pedagogy Network (DPN)”, guest edited by SFU graduate student Kandice Sharren.

3) The SSHRC-funded SpokenWeb partnership (2018-present) aims to develop coordinated and collaborative approaches to literary historical study, digital development, and critical and pedagogical engagement with diverse collections of literary sound recordings from across Canada and beyond. Centre members M. Levy, H. McGregor and R. Dowson are co-applicants on the project, while additional SFU representation includes Melissa Salrin, Tony Power, and Mark Jordan (Library), Clint Burnham and Carole Gerson (English), and 11 current or former SFU graduate students.

Outcomes of the project thus far include digitization of key literary audio recordings held in SFU Special Collections and Rare Books, the SpokenWeb Podcast (Hosted by H. McGregor); and a series of annual Symposiums and Sound Studies Institutes. The inaugural Institute and Symposium was held at SFU in May 2019. A full list of research outputs and partnership activities can be found at spokenweb.ca.

4) The Implementing New Knowledge Environments (INKE) Partnership is a North American-based research network with the goal of fostering open social scholarship:
academic practice that enables the creation, dissemination, and engagement of open research by specialists and non-specialists in accessible and significant ways. Centre members R. Dowson, M. Levy, J. Maxwell, alongside Colette Colligan and University Librarian Gwen Bird are active participants in the INKE membership activities, including the annual INKE gatherings. A full list of research outputs and partnership activities can be found at inke.ca.

5) The SSHRC funded Women in Book History, 1660-1836 Symposium was held in Vancouver in August 2018 and continued at the Folger Shakespeare Library in Washington, D.C., in March 2019. This international meeting of experts working to unearth and communicate the stories of women’s involvement in creating manuscript and print literature in the long eighteenth century brought together scholars, librarians, and archivists from Europe and North America. Participants “thought collectively about how the often-separate practices associated with literary studies, textual and editorial scholarship, bibliography and book history, social and feminist history, and archival, digital, computational, and quantitative methods” could be combined. Some of these reflections were captured in a Special Issue of Huntington Library Quarterly (Volume 84, Number 1, Spring 2021), edited by Drs. Levy and Schellenberg. Centre members participating in the symposium included: L. Davis, R. Dowson, M. Levy, B. Schellenberg. Additional SFU participation included Colette Colligan, Carole Gerson and Diana Solomon (English) and Melissa Salrin (Library).


Notable media successes:

Events, workshops, public outreach events:
1) Over the past five years, members of the Centre have organized colloquia, speaker series, conferences, and workshops relevant to the mission of the Centre. In particular, the Print Culture Speaker Series organized by the Department of English and the workshop and events series organized by the Digital Humanities Innovation Lab continues to provide opportunities to promote innovative research in the areas of Print and Media Studies.

2) Print Culture Program Speakers Series (PCP Coordinators: Matthew Hussey, Diana Solomon, Leith Davis)

Canadian Magazines & the Emergence of Contemporary Cultures of Celebrity in English Canada. Dr. Katja Lee, University of Western Australia. January 26, 2018.


Chaucer and his Books. Professor Alexandra Gillespie, University of Toronto. April 6, 2018.


Obcenity & Censorship in Modernist Literature. Professor Robert Spoo, University of Tulsa. February 1, 2019


Indigenizing Book History. Presenters: Dr. Carole Gerson, Dr. Sophie McCall, Dr. Deanna Reder, & Dr. Alix Shield, SFU. October 7, 2021.

3) Archival Research: A Best-Practices Workshop (Feb 18 2022)

Co-organized by Betty Schellenberg and Linda Morra (Visiting Farley Professor). Featuring talks by Centre members Betty Schellenberg, Michelle Levy and John Craig.

This workshop was designed to facilitate the process for students embarking on archival research for the first time. The workshop featured scholars who have used archival materials in crucial ways in their own research, theorized about them and what they mean, and developed material or digital forms of archives, with which other scholars and researchers have come to work.

4) Digital Humanities Innovation Lab Workshops & Events

Each semester the DHIL offers hands-on workshops on methods and tools relevant to digital research in the humanities that are free and open to all. A number of these topics are relevant to the research interests of Centre members and frequently DHIL supported projects by Centre members are used as examples in the workshops. A sample of topics offered between 2017-2022 include:

Intro to Digital Humanities Tools

Using Palladio for Social Network Visualization

Introduction to the Text Encoding Initiative (TEI): What is it and why should I care?

Minimal Computing, or When Wordpress No Longer Sparks Joy

Introduction to APIs and Web Scraping: Ethical Considerations

Introduction to Content Management Systems: Creating Exhibits with Omeka

Introduction to Twitter Bots with Tracery
Using NVivo for Humanities Research

Introduction to Spatial Data in the Humanities: The Spatial Elements of Textual Analysis

Introduction to Spatial Data in the Humanities: Creating Story Maps

Beyond the Cloud: Using Voyant Tools to Analyze Texts

Tools for Humanities Data Analysis

You Mean I Produce Data, Too? Managing Research Objects in the Arts, Humanities, and Social Sciences

5) @Us Critical Digital Humanities Discussion Series

From 2018-2019 the DHIL hosted a reading group focused on critical digital humanities. Topics covered included: Social Media, Research, and Teaching; Feminism and the Digital Humanities; Intersectionality and Digital Projects; and Disorienting Democracy.

6) Building Better Galleries, Libraries, Archives and Museum Labs

On February 25, 2019, the DHIL hosted a keynote and workshop by Mahendra Mahey, British Library Labs (BL Labs) Manager. The British Library is one of the largest reference libraries in the world, created in 1753 as a part of the British Museum and made a separate institution in 1973. BL Labs is a part of the British Library’s Digital Scholarship team, and it works to connect researchers, artists, and educators with the BL’s digital collections in innovative ways.

7) Speculative Interventions: Employing the imaginary in Value-Sensitive Design

On February 27, 2020, the DHIL hosted a keynote and workshop by designer, curator, and researcher Gillian Russell. The event focused on the potential for the imaginary as a design tool for social change. Working at the intersection of design, anthropological futures, and narrative environments, Russell’s work uses a combination of speculative intervention and value-sensitive design to engage publics to question the authority of a specific reality in order to foreground its assumptions and ideologies – raising awareness that if reality is made, then it can be unmade and made anew.

The Centre/Institute’s multi-year goals for the next renewal term:

1) Make any necessary changes to adhere to the requirements of policy R 40.01.

KPI 1:
KPI 1: Complete a name change request to reflect the appropriate status as an Institute.
KPI 2: Launch a renewed website under the new name. Consider launching other social media accounts as appropriate.

2) Develop a strategic plan for 2022-2025 that includes a refreshed mission.

**KPI 2:**
KPI 1: A strategic plan for the centre is published on the website.
KPI 2: Planned activities will reference identified priorities in the strategic plan.

3) Conduct outreach to new members that reflect the current research strengths in print and media culture at SFU. Consider outreach to external experts in these areas (scholars, creative and tech professionals, cultural memory organizations, community members).

**KPI 3:**
KPI 1: The centre’s membership will be expanded.

4) Promote interdisciplinary exchange and increase cross-institutional collaboration in the overlapping areas of fields of print culture, media cultures in general communications technologies, the arts, and the public sphere.

**KPI 4:**
KPI 1: Host an event, such as a colloquium, to explore the place of print and media culture research at SFU and beyond.
KPI 2: Explore grant funding opportunities to support the CSPMC research activities.

**Supporting documents:**
CSPMC_Membership_signoff_form_IJgDyTj.xlsx (See attachment below)

**Financial Summary**

**Does your Centre/Institute receive direct financial support from the university?**
Yes

**SFU account number:**
N890521

**Opening balance:**
$492.26

**Revenues:**
-
Expenditures:
-

Closing balance:
$492.26

Financial report:
CSPMC_FAST22_DLtSYj9.pdf (See attachment below)

Financial contributions from the university:
No ongoing contributions. The funds reflected in the account are those remaining from previous CSPMC activities.

List of major equipment provided by the university:
-

University personnel:
-

Space provided by the university:
-

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Rebecca Dowson, Director

Director’s comments:
SFU's research excellence in the overlapping fields of print and media cultures continues to produce innovative theoretical and practical interventions in a wide range of fields. Recent expansion of research infrastructure to support these areas of investigation provides fertile ground for continued growth. However, due to capacity challenges (pandemic and personal), the Centre’s activities during the period of this report have been largely facilitated through the connections between members and partner units rather than Centre organized activities. The members listed on this renewal application are enthusiastic to revive the activity of the Centre, reaching out to colleagues within their departments and beyond who have joined SFU recently for guidance during the proposed strategic planning process. We
feel a renewal period of three years will be adequate to conduct such a process, learn the results of the proposed CFI Innovation Fund application, and make progress on Centre organized research exchange and collaboration initiatives.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved for 3 years

Reviewer's comments:
This centre is very interdisciplinary with members from across SFU departments and Faculties. The research is innovative, especially in Digital Humanities. Upon renewal there is a plan to review the centre's strategic plan and membership, with the hope of expanding membership even further. I recommend renewal of this Centre.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Internal Research (OR)</td>
<td>0.00</td>
<td>492.26</td>
<td>492.26</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>492.26</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.00</td>
<td>492.26</td>
<td>492.26</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>492.26</td>
</tr>
<tr>
<td>Last Name</td>
<td>First Name</td>
<td>Institution</td>
<td>Faculty (if SFU)</td>
<td>Department (if SFU)</td>
<td>Active Member</td>
<td>Peripheral Member</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>---------------------</td>
<td>---------------</td>
<td>------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bizzocchi</td>
<td>Jim</td>
<td>SFU</td>
<td>FCAT</td>
<td>JAF</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chun</td>
<td>Wendy</td>
<td>SFU</td>
<td>FCAT</td>
<td>Communication</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Craig</td>
<td>John</td>
<td>SFU</td>
<td>FASS</td>
<td>History</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Davis</td>
<td>Leith</td>
<td>SFU</td>
<td>FASS</td>
<td>English</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dowson</td>
<td>Rebecca</td>
<td>SFU</td>
<td>Library</td>
<td>Research Commons</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Druck</td>
<td>Zoe</td>
<td>SFU</td>
<td>FCAT</td>
<td>Communication</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Everton</td>
<td>Michael</td>
<td>SFU</td>
<td>FASS</td>
<td>English</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesage</td>
<td>Frederick</td>
<td>SFU</td>
<td>FCAT</td>
<td>Communication</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Levy</td>
<td>Michelle</td>
<td>SFU</td>
<td>FASS</td>
<td>English</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maxwell</td>
<td>John</td>
<td>SFU</td>
<td>FCAT</td>
<td>Publishing</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McGregor</td>
<td>Hannah</td>
<td>SFU</td>
<td>FCAT</td>
<td>Publishing</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Mauve</td>
<td>SFU</td>
<td>FCAT</td>
<td>Publishing</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schellenberg</td>
<td>Betty</td>
<td>SFU</td>
<td>FASS</td>
<td>English</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taboada</td>
<td>Malte</td>
<td>SFU</td>
<td>FASS</td>
<td>Linguistics</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Takeda</td>
<td>Joey</td>
<td>SFU</td>
<td>Library</td>
<td>Research Commons</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: International Cybercrime Research Centre (ICRC)
Website: https://www.sfu.ca/iccrc.html
Faculty: VP Research
Director: Richard Frank
Director’s term end: 2021-04-01
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
The International Cyber Crime Research Centre (ICCRC) was borne out of a joint venture consisting of Simon Fraser University, the Province of BC, and the International Society for the Policing of Cyberspace (POLCYB), a BC-based non-profit organization established to prevent and combat crimes on the Internet. It opened at the Surrey Campus of Simon Fraser University in the summer of 2008. Significant core funding was provided by the Government of British Columbia. The ICCRC is a focal point for collaboration among cybercrime researchers from universities, government agencies, NGOs and private sector organizations. The Centre brings together SFU faculty researchers, researchers from other Canadian and international universities, relevant government agencies, and private sector organizations to address issues related to countering criminal activity within cyberspace. Projects are concerned with child exploitation, terrorism, the dark web or Internet crimes such as hate narratives on social media platforms. Some of the projects are more technical in nature, two current projects, for example, deal with ways to detect money laundering using machine learning, capture and analyze data from online cryptomarkets. Other projects are more qualitative in nature, such as our project on surveying people’s attitudes about online cryptomarket purchases, or their experiences with online abuse during COVID. Finally, the Centre also conducts studies on online social movements, like the #metoo Twitter movement bringing support for the victims of sexual assault and harassment. Throughout these projects, the Centre develops web-crawling and analysis tools for studying a wide variety of activities and content on the Internet although a lot of the recent research projects have involved the application of machine learning models to solve these problems. Many of our research projects are in collaboration with various organizations or government entities, relationships built through years of work and collaboration, recently leading to larger research projects and student complement.
The Centre/Institute's membership and organization structure:
Richard Frank became director in late Fall 2017. There are two Associate Directors:

- Dr. Barry Cartwright, who retired from the School of Criminology in August of 2020 but still remains very active, or is co-PI, in a number of our research projects at the Center, and is expected to continue to participate in our research projects and publications.

- Dr. Ryan Scrives, who did his PhD at the School of Criminology (SFU) while at the ICCRC, and is currently an Assistant Professor the School of Criminal Justice at Michigan State University. We have a number of ongoing research projects, and he is the webmaster for the ICCRC website. He is also a prolific publisher in journals.

Our members include scholars from:

- The USA
  - Thomas Holt at MSU
  - Bryce Westlake and San Jose State U

- Australia
  - Lennon Chang at Monash U
  - Russel Brewer at the University of Adelaide, with whom we are trying to establish a reciprocal Field School

- the UK
  - George Weir, U of Strathclyde, who hosted, and is expected to host in 2023, our Field School to Scotland

- Malaysia
  - Manmeet Kaur Mahinderjit Singh at University Sains Malaysia with whom we currently have a joint project

- Canadians
  - Laura Huey at Western University

- The ICCRC would not be complete without students. We currently have the following students:
o Noelle Warkentin, who is currently a first-year PhD student interested in studying dark-web firearm sales

o Ashleigh Gonzales, who is a third-year MA student, and also full time RCMP analyst, who is studying money laundering in BC

o Yuxuan Zhang, a third-year MA student, studying online threats against critical infrastructure, and will be a PhD student in Fall 2023

o Ruby Ling, who is a third-year MA student studying the female contributions to the gender-based extremist incel community who will defend in a month

o Shu Liu, a second-year MA student studying online cryptomarkets who will defend in a month

o Kelley Massingale, a first-year MA student studying cults

- We currently have 5 co-op students from Computing Science helping with technical work at the ICCRC

- We are currently sponsoring 3 half-time Undergrad Student Research Award recipients doing research for one of our projects

- We are expecting at least 1 MA student and 2 PhD students in Fall 2022

The full list of members can be viewed here: https://www.sfu.ca/iccrc/members.html

**Rationale for the renewal of the Centre/Institute:**

Hopefully the activities of the Centre will speak to the success of the research and work being done at the Centre. However, the Centre should continue for all of these reasons:

- The productivity of our members is increased through the collaborative nature of the Centre, where professors/researchers/students can draw upon each other’s strengths knowing exactly who is doing what work and what special skills each person has. Without the Centre, this would be lost.

- Infrastructure: The Centre now has 4 servers within the lab, and 10 workstations that belong to the Centre used for day-to-day research by the members. We are also in the process of setting up 3 “secure” workstations where sensitive (for example, from the RCMP) data can be safely analyzed. In addition to this, the Centre has (virtual) infrastructure (one database server, one application server + 6 data-scraping virtual machines) that SFU IT
Services has provided for the data collection and analysis needs of the Centre. Without the umbrella of the Centre, this infrastructure would not have been possible, and our research would not have been possible.

- The importance and number of research projects we have ongoing. The Centre allows us to apply for external grants and other funding as an established institution, with the backing of multiple members and all the infrastructure provided by the Centre. We can use the ICCRC to provide continuity of projects in the event the members leave or join. Increasingly the name is being recognized during discussions with law enforcement.

- The role the Centre has played at the national and international level with the organizing of multiple conferences over the past few years, and by attracting professors and students from other national and international institutions for research and collaboration. Several professors have spent their sabbaticals with us in the past 5 years.

- The uniqueness of the Centre in Canada despite the growing importance of cybercrime, especially with it located within the School of Criminology, which gives the Centre a unique angle to address cybercrime issues. There are numerous very technical research centers and businesses that are trying to address cybercrime, but the ICCRC is unique in that we are also addressing the human element in this space.

None of our most recent projects would have been successfully received had we not had continuity in our reputation, the history of previous grants under the umbrella of the ICCRC, and the resources established over the years.

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?

The ICCRC provides an important infrastructure for government and law enforcement agencies who want to collaborate with us. The name is becoming increasingly recognized. Without the Centre, we would not have the continuity in reputation, or infrastructure and computational capacity to organize the ambitious data collections we do on a daily basis. We need a separate server, multiple computers at a time to perform these tasks efficiently. It took years to develop.

The Centre also now has a secure environment, a lab with physical security approved by the RCMP to house sensitive data. This could not be achieved otherwise.

Having the ICCRC also allows us to attract international collaborations, and institutional collaborations like the partnership with (the just-ended) SERENE-RISC, which contributes to graduate student mentoring, and knowledge transfer to partners in the policy world. The ICCRC is currently a member and supporter of, for example, VOXPol, a Network of Excellence (NoE) funded by the European Union Framework Programme 7 (FP7) focused on researching the prevalence, contours, functions, and impacts of Violent Online Political
Extremism and responses to it. This scale of collaboration is possible due to our members, and not due to a specific individual.

**How has the Centre/Institute accomplished its goals?**

Our initial goal was to study online child exploitation here in BC. We started with that task in 2011 and worked on the problem for approximately 5 years through which we have expanded upon the research topics to include hackers and extremists, threats against critical infrastructure, the dark web, and online illicit drug sales. We’ve accomplished these by applying to provincial, federal, and sometimes private-entity, grants and contracts. If we’re able to secure the funding, then, working with ICCRC graduate students, or graduate or undergraduate students from the School of Criminology (and often from the School of Computing Science), we collect data, build tools, carry out analysis, and meet the deliverables laid out in the project proposal. Once the project is complete, we write up our findings and publish them in respected journals.

Through this process we meet our objectives of i) securing funding, ii) training undergraduate and graduate students in research, iii) conducting cutting-edge research, and iv) increasing the reputation of the ICCRC, the School of Criminology, and SFU in general.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**

There are no changes planned that are a direct result of the renewal of the ICCRC. Our membership changes periodically due to interest by researchers and students.

**Significant accomplishments:**

1)  **Graduate Students**

The following students have received their degrees directly as a result of their work within the ICCRC:

--PHD--

Logan Macnair – From Empty to Angry: Extremism, Modernity, and the Search for Identity – Currently teaching at Douglas College

Ryan Scrivens – Understanding the Collective Identity of the Radical Right Online: A Mixed-Methods Approach – Currently an Assistant Professor at the Michigan State University

--MASTERS--

Noelle Warkentin – Cyber-attacks again Critical Infrastructure

Sarah-May Strange – Fake news and LGBTQ
Rachelle Louden – Influence of robo-calls on the Canadian Election

Karmvir Padda – Foreign Interference in U.S. Politics: An Examination of “Fake News” Content on Social Media

Naomi Zakimi – Exploring anti-immigration discourse in Canada: A look at Reddit as part of the right-wing extremist movement


Myf Thomson – When survivors speak, what does Twitter say?: A multiple case study of #metoo

Tiana Gaudette – Upvoting Extremism: Exploring a far-right ‘virtual community’ on Reddit

Bryan Monk – Tor, what is it good for? How crime predicts domain stability on the darkweb

2) The following students have done their Honours work within the ICCRC:

--HONOURS--

Bomin Keum – Morphed, Entangled, and United: Introducing the Hybridity of Radicalization in the COVID-19 era

Gabriel Pratico – Written in Blood & Glass: Terrorist Narratives, e-Communities, and Mass Media Discursive Strategies and Themes

Mei Yuan – Incels or In (jail) Cells? An Exploration on Incel Killers Compared to Forum Users.

Emily Choma – Cyber-Attacks against Critical Infrastructure

Naomi Zakimi – Narratives of hate in the mainstream: A comparison of Stormfront Canada and Facebook

3) The following students have spent at least one semester at the ICCRC, paid, full time. During this time they were trained, and performed data analysis or built tools for the ICCRC:

Dingshuo Yang – 4th Year Computing Science Student, SFU. Programmer

Tianming Liu – 4th Year Computing Science Student, SFU. Programmer
Caleb Tong – 4th Year Computing Science Student, SFU. Programmer
Katelyn Kim – 4th Year Computing Science Student, SFU. Programmer
Arpit Kaur – 4th Year Computing Science Student, SFU. Programmer
Jyotiraditya Mayor – 3rd Year Computing Science Student, SFU. Programmer
Ryan Ficocelli – 3rd Year Computing Science Student, TRU. Programmer
Ritika Goyal – 3rd Year Computing Science Student, SFU. Programmer
Suki Cai – 4th Year Computing Science Student, UBC. Programmer
Hod Kimhi – 4th Year Computing Science Student, UBC. Programmer
Andy Liu – 4th Year Computing Science Student, UBC. Programmer
Akio Suzuki – 5th Year Computing Science student. Programmer
Nick Yang – 3rd Year Computing Science student. Programmer
Manav Sharma – 3rd Year Computing Science student. Programmer

4) Over the last 5 years, the ICCRC has conducted $1.28m worth of projects:

**ICCRC-led Research projects**

Public Safety Canada’s Cyber Security Cooperation Program: “Securely Linked Anti-Trafficking and Exploitation Database” $494,500 CAD 8 students trained

Environment and Climate Change Canada: “Pilot project on using a webcrawler to study online wildlife trafficking networks” $18,362.50 CAD 2 students trained

Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “The role of trust between buyer and vendor trust on dark web firearms and drug markets in
British Columbia $78,046 CAD 3 students trained

Government of Canada's Digital Citizen Contribution Program “Deploying artificial intelligence to combat COVID-19 disinformation on social media” $96,600 CAD 5 students trained

Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Deploying artificial intelligence to detect and respond to the use of digital technology by perpetrators of human trafficking” $84,688 CAD 4 students trained

Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Understanding the Drug and Firearms on Dark Web Markets in British Columbia” $79,688 CAD 3 students trained

Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Impact of the COVID-19 Pandemic on Gender-based Violence and Related Essential Services” $95,188 CAD 3 students trained

5) **ICCRC-led Research projects (cont’d)**

Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Detecting Money Laundering An intelligent system for automatic detection of money laundering typologies from FINTRAC disclosures” $100,000 CAD 2 students trained


Government of Canada’s Innovation for Defence Excellence and Security (IDEaS) Program: “The Dark Crawler: Detecting and responding to hostile information activities via textual analysis, sentiment analysis, and machine learning” $164,956 CAD 7 students trained

SSHRC Partnership Engage Grants: “The Dark Figure of Reporting and the Dark Figure of Recording: Measuring Ransomware Attacks on Businesses in British Columbia” partnering with the RCMP $18,750 CAD 2 students trained

Small SSHRC. “Beyond extremism: Examining the The_Donald and MetaCanada users” $6,954 CAD 1 student trained

Public Safety Canada’s Cyber Security Cooperation Program. “Fighting Disinformation Warfare with Artificial Intelligence - Using machine learning to identify and combat
disinformation attacks” $28,750 CAD 3 students trained

Public Works and Government Services Canada “A taxonomy-based data collection and notification system for online investigations” $158,102 CAD 6 students trained

6) **ICCRC-led Research projects (cont’d)**

Public Safety Canada. “Hackers hedging bets: a cross-community analysis of online hacking forums” $43,700 CAD 3 students trained

7) --INTERNATIONAL RESEARCH FUNDING--

2020-2023 Researcher Ministry of Higher Education, Malaysia – “Advanced Persistent Threat Attacks Defender and Remediation model using behavioural based tactics, techniques and procedures (TTP) for Smartphone Environment” $35,000 CAD

8) --Publications--


9) --PUBLICATIONS--


10) --PUBLICATIONS--


https://doi.org/10.52922/ti78566


11) --PUBLICATIONS--


12) --PUBLICATIONS--

Scrivens, R., Gaudette, T., Davies, G., Frank, R.: “Upvoting extremism: Examining the collective identity of the extreme right on Reddit”, New Media and Society, 2020

Activity", Deviant Behavior, Aug 2020


Scrivens, R., Davies, G., Frank, R.: “Measuring the Evolution of Radical Right-Wing Posting Behaviours Online”, Deviant Behavior, 2018

Macnair, L., and Frank, R. “Changes and stabilities in the language of Islamic state magazines: a sentiment analysis”, Dynamics of Asymmetric Conflict, 11:2, 109-120. 2018

Macnair, L., and Frank, R.: “The mediums and the messages: exploring the language of Islamic State media through sentiment analysis” Studies in Conflict and Terrorism, March 2018

**Notable media successes:**
1) --This is a sample of media engagements --

CBC Radio Kamloops. Commenting on the rise of online fraud in Merritt, BC  Radio

CTV News. Commenting on the fake encrypted phones created by FBI.  TV


VOXPol: “Triggered by Defeat or Victory? Assessing the Impact of Presidential Election
Results on Extreme Right-Wing Mobilisation Online” https://www.voxpol.eu/triggered-by-defeat-or-victory/ Online


CFAX. Commenting on the LifeLabs hack of 15m Canadian data Radio

CKNW Morning Show. Commenting on the LifeLabs hack of 15m Canadian data Radio

2) Ming Pao Daily News. Commenting on the LifeLabs hack of 15m Canadian data Print

ATV. Commenting on hacks against BKK (In Hungarian) Live TV http://www.atv.hu/videok/video-20170811-frank-richard

https://www.youtube.com/watch?v=LRGeKD_8bzc&feature=youtu.be

CBC. Commenting on the move to encrypted digital scanners Radio

C-FAx 1070, Commenting on the WannaCry Ransomware Radio

RoundHouse Radio 983, Commenting on the WannaCry Ransomware Radio

The Source, SFU students counter extremism through competition Print http://thelasource.com/en/2017/01/09/sfu-students-counter-extremism-through-competition/

Country 103, Commenting on arrest of man for Child Exploitation Radio

Events, workshops, public outreach events:
Members continue to showcase ICCRC research and activities at various conferences and events. ICCRC members routinely meet with members of the law enforcement community to collaboratively work on policy issues, and other challenges facing either municipal, provincial or federal law enforcement agencies. We do not participate in active investigations, but attempt to help whenever possible. This allows us to be visible, while at
the same time influencing our research directions to be as relevant as possible. We have established relationships with various sections of the RCMP (with whom we have worked on, or are actively working on, three projects), as well as the Vancouver Police Department with whom we have discussed collaboration, and joint grants.

--Conferences organized--

FOSINT-SI (Forensic Open Source INTelligence – Security Informatics) 2017

--Public Outreach--

Panelist on the “CyberCrime and Security session of the Canadian Mortgage Brokers Association Conference” – ONLINE

Discussant after the documentary “Truth Detectives”, discussing the role of open source intelligence and big data in police investigations

Discussant after “The Events” theater production, discussing with audience how and why violent extremist individuals think, act, and how extremist communities work (online/offline)

“Lighting Up the Dark Web: Mapping the Lifecycle of Dark Websites in Search of Violent Extremist Content” presented to the Vancouver Security Special Interest Group

**The Centre/Institute’s multi-year goals for the next renewal term:**
Our goals are to continue what we are doing right now: i) apply for funds to do research projects, ii) train students through those projects, iii) publish, and iv) engage with media/community.
Over the last 5 years, the ICCRC has conducted $1.28m worth of projects, with $963,710 within the last two years. We hope to continue along this path of applying for increasingly complex and larger projects, with a specific goal of applying for and securing, funding for a large multi-year project that can keep the ICCRC occupied for 4-5 years.

**KPI:**
N/A

**Supporting documents:**
-

**Financial Summary**
Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

**External funding details:**
Over the last 5 years, the ICCRC has conducted $1.28m worth of projects:

* **ICCRC-led Research projects**

  Public Safety Canada’s Cyber Security Cooperation Program: “Securely Linked Anti-Trafficking and Exploitation Database” $494,500 CAD 8 students trained

  Environment and Climate Change Canada: “Pilot project on using a webcrawler to study online wildlife trafficking networks” $18,362.50 CAD 2 students trained

  Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “The role of trust between buyer and vendor trust on dark web firearms and drug markets in British Columbia” $78,046 CAD 3 students trained

  Government of Canada's Digital Citizen Contribution Program “Deploying artificial intelligence to combat COVID-19 disinformation on social media” $96,600 CAD 5 students trained

  Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Deploying artificial intelligence to detect and respond to the use of digital technology by perpetrators of human trafficking” $84,688 CAD 4 students trained

  Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Understanding the Drug and Firearms on Dark Web Markets in British Columbia” $79,688 CAD 3 students trained

  Office of Crime Reduction & Gang Outreach (OCR-GO) - Policing and Security Branch. “Impact of the COVID-19 Pandemic on Gender-based Violence and Related Essential Services” $95,188 CAD 3 students trained

  **ICCRC-led Research projects (cont’d)**

laundering typologies from FINTRAC disclosures” $100,000 CAD 2 students trained


Government of Canada’s Innovation for Defence Excellence and Security (IDEaS) Program: “The Dark Crawler: Detecting and responding to hostile information activities via textual analysis, sentiment analysis, and machine learning” $164,956 CAD 7 students trained

SSHRC Partnership Engage Grants: “The Dark Figure of Reporting and the Dark Figure of Recording: Measuring Ransomware Attacks on Businesses in British Columbia” partnering with the RCMP $18,750 CAD 2 students trained

Small SSHRC. “Beyond extremism: Examining the The_Donald and MetaCanada users” $6,954 CAD 1 student trained

Public Safety Canada’s Cyber Security Cooperation Program. “Fighting Disinformation Warfare with Artificial Intelligence - Using machine learning to identify and combat disinformation attacks” $28,750 CAD 3 students trained

Public Works and Government Services Canada “A taxonomy-based data collection and notification system for online investigations” $158,102 CAD 6 students trained

**ICCRC-led Research projects (cont’d)**

Public Safety Canada. “Hackers hedging bets: a cross-community analysis of online hacking forums” $43,700 CAD 3 students trained

**Confirm policy review:**

Yes

**Submitted by:**

Richard Frank, Director

**Director’s comments:**

I feel very privileged to be able to lead the ICCRC, and conduct research within it, with a fantastic group of members and graduate students without whom none of this would be possible. We have established relationships with RCMP, VPD, and other agencies who are active in our area. These networks have taken years to develop and would not be possible
without the ICCRC, but are critical for the formulation of research grants, which often involve these organizations as interested parties.

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved for 5 years

**Reviewer's comments:**
This is a very active Centre with a wide range of members from both SFU and International organizations, and with clear public outreach (especially with local and national police). I recommend renewal of this Centre.
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: Science and Technology for Aging Research Institute (STAR)
Website: http://www.sfu.ca/starinstitute.html
Faculty: VP Research
Director: Andrew Sixsmith
Director's term end: 2022-04-01
Renewal date: 2027-04-01

Details

Description of the Centre/Institute:
AgeTech - using existing and emerging advanced technologies to support health and well-being in later life - is increasingly being recognized as a key component of the services and supports needed to help everyone age healthily and live independently. AgeTech can help older Canadians to keep healthy and active, increase their safety and security, support independent living, and enhance social participation, whatever the person's needs, abilities and circumstances.

This sector has enormous potential to not only improve the quality of all of our lives as we age, but to create good jobs and spark economic growth. Rapid advances in technology are occurring at the same time as population aging. AgeTech innovation is a key strategy for creating a society that is responsive to seniors' needs while reducing healthcare costs.

SFU's Science and Technology for Aging Research (STAR) Institute was founded in 2016 to support and nurture this process. The mission of the STAR Institute is to make SFU a world leader in research and innovation in the AgeTech sector, becoming an essential resource for students, researchers, industry and services in BC.

STAR and SFU has been a major partner of AGE-WELL Network of Centres of Excellence, Canada's Technology and Aging network (www.agewell-nce.ca). STAR Director Dr. Sixsmith was a founding co-Scientific Director of AGE-WELL and STAR has been at the forefront of research and innovation in AgeTech both in Canada and internationally. STAR is currently engaged in six transformational joint projects with AGE-WELL:

• AGE-WELL Healthy Lifestyles and Wellness Challenge Area program of research


• Rehabilitation and Assistive Technologies Engineering (RATE) Journal strategic publications - Including the AGE-WELL Special Collection on "Robots to Support Caregiving and Promote Independent Living of Older Adults" (https://agewell-nce.ca/journal-of-rehabilitation-and-assistive-technologies-engineering-rate-collaboration)


• AGE-WELL Amplify Program (development phase) - Designed to support knowledge mobilization activities aligned with the AGE-WELL mandate

The Institute is committed to supporting community-engaged research in the rapidly growing area of technology and aging. The Institute supports the development and implementation of technologies to address many of the health challenges encountered in old age, as well as address the social, commercial and policy aspects of using and accessing technologies including barriers around equitable access.

The STAR Institute is affiliated with SFU and conducts its activities in such a way as to enhance the reputation and the programs of the University. STAR’s research activities align with SFU’s Strategic Research Plan, particularly:

• Supporting health across the human lifespan

• Enhancing our world through technology

Our research is based on community engagement and we also recognize SFU’s commitment to the United Nations Sustainable Development Goals, notably:

• SDG3 - Ensure Healthy Lives and Promote Well-being for All at All Ages

• SDG9 - Industry, Innovation and Infrastructure
• SDG10 - Reduced Inequalities
• SDG17 - Partnerships for the Goals

Please see the “How has the Institute accomplished its goals” section and the accompanying supporting document on significant accomplishments, media successes and public outreach for more specific details.

**The Centre/Institute’s membership and organization structure:**

STAR Research Institute Governance

**Management Team**

• Andrew Sixsmith, Director
• Pam Borghardt, Managing Director
• Juliet Neun-Hornick, Special Projects Manager

The Management Team is responsible for the operations of the facility, including day-to-day decision making, budget allocation, resource assignment, policy recommendations, and strategic planning. The Management Team presents the operating plans for the Institute annually to the Steering Committee for ratification.

**Steering Committee 2016-22**

**Academic:**

• Pam Borghardt, SFU
• Theodore Cosco, SFU
• Sarah Lubik, SFU
• Carlo Menon, SFU
• Andrew Sixsmith, SFU

**Community:**

• Mike Harcourt (Current Chair), United Way’s Public Policy Institution; Past BC Premier; Past Vancouver Mayor
• Jim Mann, Advisory Board on Dementia, Federal Minister of Health; Alzheimer Society of Canada; AGE-WELL Research Management; BC SUPPORT Unit Patient Council

Industry:

• Lynda Brown Ganzert, CEO, Curatio

• Aly Devji, Director, Stakeholder Relations and Business Development, BC Care Providers Association

• Kahir Lalji, Provincial Director, Population Health, United Way of the Lower Mainland

Research Project Team

Mei Lan Fang, Education and Engagement Director

J Lynn Fraser, Technical Editor

Becky Horst, Research Assistant, SFU

Hannah Shin, Community-Engaged Researcher, SFU-411

Becky White, Research Assistant, SFU

Karen Lok Yi Wong, Research Assistant, SFU

Research Scholars

Mei Lan Fang, University of Dundee, United Kingdom

Vicki Komisar, University of Northern British Columbia, Canada

Norm O’Rourke, Ben-Gurion University of the Negev, Be’er Sheva, Israel

Jason Powell, Staffordshire University, United Kingdom

Karen Yi Lok Wong, Registered Social Worker, Canada

SFU Affiliates

Laurie Anderson, Faculty of Education
Siamak Arzanpour, Engineering Science
Lupin Battersby, Knowledge Mobilization Hub
Mirza Faisal Beg, Engineering Science
Habib Chaudury, Gerontology
Teresa Cheung, Engineering Science
Greg Christie, Digital Health Hub
Theodore Cosco, Gerontology
Ryan D'Arcy, Engineering/Computing Science
Martin Ester, Computing Science
Faranak Farzan, Mechatronic Systems Engineering
Uwe Glasser, Computing Science
Farid Golnaraghi, Mechatronic Systems Engineering
Diane Gromala, Interactive Arts and Technology
Gloria Gutman, Gerontology
Angelica Lim, Computing Science
Sarah Lubik, Beedie School of Business
Elicia Maine, Beedie School of Business
Randy McIntosh, Biomedical Physiology and Kinesiology
Laurence Meadows, Partnerships Hub
Carlo Menon, Engineering Science
Barbara A. Mitchell, Gerontology
Sylvain Moreno, Interactive Arts and Technology

Edward Park, Mechatronic Systems Engineering

Jane Pulkingham, Anthropology

Indira Riadi, Interactive Arts and Technology

Stephen Robinovitch, BPK

Emma Rodriguez, Interactive Arts and Technology

Thecla Schiphorst, Interactive Arts and Technology

Carolyn Sparrey, Mechatronic Systems Engineering

Andrew Wister, Gerontology

Community Partners and Collaborators

411 Seniors Centre Society

AGE-WELL Network of Centres of Excellence


BC Care Providers Association

Brenda Strafford Foundation

Canadian Consortium on Neurodegeneration in Aging

Canadian Institutes of Health Research - Institute of Aging

AGE-WELL Prince George Innovation Hub - Centre for Technology Adoption for Aging in the North (CTAAN)

Curatio

Digital Health Circle

University of Dundee
Rationale for the renewal of the Centre/Institute:
While STAR has been highly successful the last 5 years in its various AgeTech activities, the next five years will build on the foundations put in place and develop and explore new opportunities.

Build on foundations already put in place

STAR will continue to work in key areas, notably:

Community engaged research: Continue to work with community partners such as 411 Seniors Centre Society and the United Way of the Lower Mainland to co-design equitable technology-based solutions and services to support healthy aging.

Publications: STAR, funded through AGE-WELL, leads on its publication strategy in AgeTech.

- Springer Nature series on AgeTech: A special series of publications on AgeTech which publishes the introductory texts on AGE-WELL's eight Challenge Areas (https://agewell-nce.ca/challenge-areas).
- Special issues on AgeTech in journals: Leading on special issues in: Healthcare Management Forum; Aging and Mental Health; Journal of Rehabilitation and Assistive Technology Engineering.

New opportunities

Through consultation with our Steering Committee and with our academic and community partners, we have identified a number of key directions for future work:

Pushing conceptual boundaries of AgeTech: Here, the aim is to develop a research network
focused on theoretical and ethical aspects of AgeTech.

Healthy Lifestyles and Aging: STAR, awarded funding to lead AGE-WELL’s challenge area on healthy lifestyles and wellness, will carry out an environmental scan of AgeTech in this sector, with a book in the Springer AgeTech series in the pipeline.

NeuroTech and Healthy Aging: Our work on healthy lifestyles will have a particular focus on brain health. STAR collaborated with SFU’s Institute for Neuroscience and Neurotechnology (INN) (https://www.sfu.ca/neuro-institute.html) on an awarded New Frontiers in Research Transformation pilot grant and is collaborating on a larger NFRFT grant in 2022.

Modelling Cognitive Health: Precision medicine in the context of healthy aging will help a better understanding, prevention, and treating of age-related cognitive impairment (ARCI). STAR, recently awarded a Mitacs Accelerate, PDF joining in April 22, will carry out the project.

Ethics and AgeTech: While technology offers many possibilities to support healthy aging, it also brings the potential to increase inequalities in access to health services and outcomes. A workshop on Ethical Issues in AgeTech will convene at the PETRA conference in Greece June 2022 (http://www.petrae.org/workshops/EAT.html).

Education and Training: STAR has been at the forefront of innovation in training in the AgeTech sector in Canada and internationally. Education and training activities will involve STAR in various collaborations with other centres at SFU and organizations in Canada and worldwide. Planned training initiatives include:

• SFU Gero 830 Course on Aging in a Technological World - Seniors Centre of the Future student project - STAR Director Dr. Sixsmith will teach a course on innovation and aging in Fall 2022 that will include a student project with 411 Seniors Centre Society on what a ‘Seniors Centre of the Future’ looks like.

• CREATE - STAR will continue to collaborate with SFU colleagues in education and training initiatives, specifically in an application to the CREATE program.

• AGE-WELL EPIC-AT training program - STAR will partner in the recently re-funded AGE-WELL Early Professionals, Inspired Careers in AgeTech (EPIC-AT) Health Research Training Program https://agewell-epic.ca/

• Joint training activities with NHSA in the UK - STAR continues collaborations with NHSA and in June 2022 STAR researchers will work with UCLAN in UK in planning a sandpit workshop to encourage engineers working in health tech and AgeTech to adopt user-centered design principles.
• International Society of Gerontechnology (ISG) - STAR Education and Engagement Director Dr. Mei Lan Fang will be the ISG General Secretary commencing September 2022. STAR will support activities in training, communications, conferences, and coordination. https://www.gerontechnology.org/

Long term sustainability

We will continue to work towards long-term sustainability through submission of research proposals focused on the above themes, with a particular emphasis on collaborations with community partners and with the SFU INN on major funding opportunities such as New Frontiers Research Fund - Transformation and International.

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

Real-world impact in the AgeTech sector can only be achieved through meaningful collaboration across disciplines and with stakeholders in industry, communities, and government. The many partnerships that STAR has developed within SFU and at the local, national, and international levels have allowed it to leverage scientific and real-world impact beyond what could be achieved as an individual research program. STAR has developed key partnerships at the community level and its continued close connection with AGE-WELL NCE ensures that the Institute is closely linked to the Canadian AgeTech community. STAR will continue to nurture its existing partnerships, while exploring opportunities for new ventures, particularly:

• 411 Seniors Centre Society and community organizations on local technology initiatives

• SFU’s new Institute of Neuroscience and Neurotechnology on brain health initiatives

• AGE-WELL on publications and Highly Qualified Personnel (HQP) training

• International groups (e.g., UK Northern Health Services Alliance) on various initiatives

STAR has had or currently has active collaborations with the following Universities and Institutes:

Canadian: University of British Columbia; University of Northern British Columbia; Emily Carr University of Art and Design; University of Victoria; University of Toronto; University of Ottawa; University of Alberta; University of Waterloo; McMaster University; Carleton University; CIHR Institutes of Aging

International: University of Dundee, Scotland; Heriot-Watt University, Scotland; Universitat
Heidelberg, Germany; Universitat Jaume, Spain; Landsteiner University, Austria; Ben-Gurion University of the Negev, Israel; Staffordshire University, UK; Lancaster University, UK; University of Central Lancashire, UK; Kings College London, UK; Florida State University, US; University of Florida; University of California

How has the Centre/Institute accomplished its goals?
Please see the accompanying supporting document attachment in the Supporting Document section that lists STAR's achievements over the last five years. STAR's research activities align closely with SFU’s Strategic Research Plan, particularly:

• Supporting health across the human lifespan - STAR and partner AGE-WELL focus on supporting the health, independence and participation of older people. Our work emphasizes healthy lifestyles and wellness across the lifespan.

• Enhancing our world through technology - We live in an increasingly digital world. STAR focuses on AgeTech and the potential of technology to support health aging.

Our research is based on community engagement, with stakeholders (older adults and caregivers, service providers, government, industry, community organizations) involved in all aspects of our work. We also recognize SFU’s commitment to the United Nations Sustainable Development Goals, notably:

SDG3 - Ensure Healthy Lives and Promote Well-being for All at All Ages: STAR Institute Director Dr. Sixsmith is the co-founding Scientific Director of AGE-WELL (www.agewell-nce.ca) with the aim to drive the AgeTech sector in Canada in order to harness the potential of technology to support the healthy aging for everyone. STAR has played a major role in AGE-WELL's success over the last 7 years (see below). For example, STAR leads the development of AGE-WELL eight Challenge Areas that frame the strategic vision for technology and aging in Canada in AGE-WELL's second cycle 2020-24 and beyond.

SDG9 - Industry, Innovation, and Infrastructure: A weakness of the AgeTech sector has been the failure to turn research into real-world products and services that will benefit older people. STAR in conjunction with AGE-WELL has addressed this issue through training and support of researchers, and developing partnerships with industry, service providers and stakeholder organisations to foster innovation. STAR played a key role in facilitating the set-up of the Digital Health CIRCLE now based at SFU Venture Labs that focuses on helping companies develop tech-based products for the seniors’ market. STAR will continue to address real-world innovation through training and KMb activities, such as involvement in CREATE proposals / initiatives (Sparrey, Mechatronics), and ongoing activities with AGE-WELL's HQP “EPIC-AT” training program (https://agewell-epic.ca/). A key output in 2021 was the book “Knowledge, Innovation, and Impact: A Guide for the Engaged Health Researcher” (Sixsmith et al, 2021, https://link.springer.com/book/10.1007/978-3-030-34390-3), published by Springer Nature, which captured many of the key learnings that
made AGE-WELL one of the most successful innovation networks in Canada.

SDG10 - Reduced Inequalities: STAR’s community-engaged approach has focused on supporting grass roots community organizations to address the digital divide and address the digital determinants of health and well-being. Our engaged research approach helped Seniors 411 Seniors Centre Society to successfully lobby TELUS to extend their low-cost “Internet for All” programs to low-income seniors (see Significant Accomplishments section).

SDG17 - Partnerships for the Goals: Real-world impact in the AgeTech sector can only be achieved through meaningful collaboration across disciplines and with stakeholders in industry, communities, and government. The many partnerships that STAR has developed at the local, national and international levels has allowed it to leverage scientific and real-world impact beyond what could be achieved as an individual research Institute. STAR has developed key partnerships at the community level (see above). STAR continued close connection with AGE-WELL NCE ensures that the Institute is closely linked to the Canadian AgeTech community. We will continue to nurture existing partnerships, while exploring opportunities for new ventures.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**

We are not planning or anticipating any significant change in organizational structure of the STAR Institute over the coming five years (see organizational structure in “The Centre/Institute’s membership and organization structure” section). However, we are planning some changes to membership:

Management: No change is envisaged for management of the Institute at this time.

Steering Group: STAR has had a Steering Committee comprising SFU scholars and community stakeholders since its inception. The Steering Committee provides ideas, feedback, support and mentorship for STAR and its members. An updated Steering Committee will convene commencing in mid 2022 to represent our mission and program of activities going forward. New Steering Committee members will include Randy McIntosh, Director of SFU’s Neuroscience and Neurotechnology Institute and Leslie Remund, Executive Director of 411 Seniors Centre Society.

Research Team: Our team of researchers actively engaged on STAR projects has expanded over the last five years and will continue to do so.

Research Scholars: STAR actively collaborates with a number of researchers from other Institutes in Canada and worldwide. New research scholars in 2022 include Charlene Chu (Faculty of Nursing at University of Toronto) and Giovanni Rubeis (Landsteiner University, Austria) who collaborate on issues relating to ethical aspects of AgeTech.
SFU Affiliates: STAR connects with numerous faculties from across SFU with an active interest in AgeTech as well as numerous universities and organizations outside of SFU (see Appendix A: SFU STAR Institute’s Membership Sign-Off Form in the accompanying supporting document attachment in the Supporting Document section).

**Significant accomplishments:**

1) Please see the accompanying supporting document in the Supporting Documents section where we highlight just a few of our many activities in the last five years. A few of our significant accomplishments over the last five years are also listed in this section.

2) SFU interdisciplinary institute community impact

STAR’s community-engaged approach has fostered collaborations with local seniors’ organisations, such as 411 Seniors Centre Society that operates in Vancouver. The “In Community” report ([https://tinyurl.com/yc5k34hd](https://tinyurl.com/yc5k34hd)) was a major output arguing that addressing the digital divide through low-cost access to internet and mobile data is essential for social participation. This helped 411 successfully lobby TELUS to extend their low-cost “Internet for All” program to low-income seniors. The following is a testimony from 411:

The 411 Seniors Centre Society is a volunteer-driven, senior-led agency in Vancouver that assists over 5000 seniors each year. The 411 membership and clientele are older adults who are disproportionately underserved and impacted by poverty. Weekly meetings with Dr. Sixsmith and STAR team helped translate out of reach academic research and knowledge. This enabled 411 to make more informed decisions, including on where to target limited resources. Understanding the full complexity of the challenge’s seniors face enhanced 411 lobbying efforts for a fairer and just world by naming digital discrimination as a human rights issue and joining with others across Canada on a Day of Action for Affordable internet. The partnership with STAR and work to date has given 411, a small grassroots organization, the confidence to move forward and to continue to tackle the digital divide (Leslie Remund, Director of 411 Seniors).

3) Training the next generation of AgeTech researchers

STAR is committed to supporting training of researchers in the AgeTech sector. A key output in 2021 was the book “Knowledge, Innovation, and Impact: A Guide for Engaged Health Researcher” (Sixsmith et al, 2021), published by Springer, which captured many of the key learnings from AGE-WELL and SFU STAR. This is the only book currently available dealing with practical aspects of transdisciplinary, community-based research and will place AGE-WELL and SFU at the forefront of scientific leadership in this approach to research. The book is directly relevant to SFU’s commitment to community-engaged research by providing a practical guide to this approach ([https://tinyurl.com/b5vtb6r6](https://tinyurl.com/b5vtb6r6)). STAR received $85,000 in funding from CIHR Institute of Aging between 2017-18 to co-organize and co-host an innovative five-day Summer Program in Aging training program that focused on Technology
and Innovation Supporting the Health of Older Adults. STAR organized and facilitated the week and developed and designed all event materials (https://tinyurl.com/4bfmskbd). STAR supports the newly funded AGE-WELL Early Professionals, Inspired Careers in AgeTech (EPIC-AT) Health Research Training Program - a national training platform that will prepare graduate students, postdoctoral fellows and early career researchers to be future leaders in digital health solutions for older adults with complex health needs (https://agewell-epic.ca/).

4) AGE-WELL AgeTech Book Series

STAR and AGE-WELL are publishing a series of books on AgeTech, including a sub-series on AGE-WELL’s eight Challenge Areas (https://agewell-nce.ca/challenge-areas), in partnership with Springer and as part of a “Synthesis Lectures on Technology and Health”. Two books have been published so far and thirteen more are in the book development pipeline or are being commissioned. The series publishes state-of-the-art short books on transformative technologies for health, wellness, and independent living. The books are written in accessible language appropriate to a multidisciplinary and worldwide readership. https://www.morganclaypool.com/toc/arh/1/1.

5) Rehabilitation and Assistive Technologies Engineering (RATE) Journal Publications Strategy

RATE Journal and AGE-WELL have partnered on a special issue on “Robots to Support Caregiving and Promote Independent Living of Older Adults” to be published in late 2022 and on a broader publication strategy to support manuscript submissions by AGE-WELL Network Investigators whose research will form part of a special section in RATE. STAR supports the partnership by supporting the editorial process. STAR Director and STAR Engagement and Education Director are RATE Associate Editors.

https://agewell-nce.ca/journal-of-rehabilitation-and-assistive-technologies-engineering-rate-collaboration

6) Renewal of AGE-WELL NCE and continued collaboration with STAR

STAR Institute Director Dr. Sixsmith is the co-founding Scientific Director of AGE-WELL (www.agewell-nce.ca) funded ($36.6 million) under the federal Networks of Centres of Excellence program 2015-2020. The mission of AGE-WELL and STAR is to encourage and support research and innovation in technology that will enhance the health, independence and social participation of older people and caregivers. In 2019, Dr Sixsmith with support from STAR co-led a successful renewal application to NCE ($21.9 million) 2020-24. By any metric, AGE-WELL has been one of the most successful NCEs and SFU has benefited hugely from its association with AGE-WELL as the second highest recipient of research funding in the country.
Notable media successes:
STAR researchers and affiliates have been very active in engaging with the media and STAR has a significant social media presence. Our website is continuously updated. Please see the accompanying supporting document in the Supporting Documents section where we highlight just a few of our many activities in the last five years.

Events, workshops, public outreach events:
A major goal of STAR is community and public engagement. Please see the accompanying supporting document in the Supporting Documents section where we highlight just a few of our many activities in the last five years.

The Centre/Institute’s multi-year goals for the next renewal term:
1) We have an ambitious plan to place STAR and SFU at the forefront of AgeTech research and innovation over the next five years. We will build on the foundations already put in place, develop new opportunities for research and innovation and put in place plans for long-term sustainability. Please see STAR Institute’s multi-year goals below for specific details on objectives, actions and KPIs.
Continued sustainability of SFU interdisciplinary institute
We aim to be a viable and effective interdisciplinary research institute at SFU. Many of our activities are supportive of projects and collaborations (such as AGE-WELL, Point of Care Healthcare Technologies (PCHT), International Society of Gerontechnology) with the aim to drive research and innovation in the AgeTech sector. We will continue to work towards sustainability through submission of research proposals around the below themes, with a particular emphasis on collaborations with community partners and with the SFU INN on major funding opportunities such as New Frontiers Transformation and International. STAR will also continue its close relationship with AGE-WELL driving AgeTech research and innovation within Canada. This will focus on promoting strategic publications; research on AgeTech for Healthy Lifestyles and Wellness; supporting outreach and community engagement; education and training.

KPI 1:
- Annual number of projects
- Annual amount of funding per year
- Annual total direct costs
- Annual reimbursed indirect costs
- Annual number of collaborative grant submissions
- Annual total dollar value of proposals submitted
- Annual number of successful proposals
- Dollar value of successful proposals
• Centre-supported publications per year
• Affiliated faculty from SFU and elsewhere that collaborate on STAR activities and proposals each year

2) Partnerships and community engaged research
STAR will continue to nurture its existing partnerships, while exploring opportunities for new ventures, including: SFU’s INN; SFU’s DHC; AGE-WELL; community organisations; International Society of Gerontechnology; International research groups and institutes. We will continue to work with community partners such as 411 Seniors and United Way of the Lower Mainland to co-design technology-based solutions and services to support healthy aging. We have a particular emphasis on making technology more affordable and usable for low-income and marginalized individuals and groups in Vancouver. STAR will continue to work with local community organisations in Vancouver and BC, with the aim of creating a vision for the “Seniors Centre of the Future”.

KPI 2:
• MoUs in place
• Jointly planned activities (e.g., training events, symposia, exchanges, advisory meetings)
• Number of academic articles
• Number of communications for general public
• Impact case study

3) Publications - Springer series on AgeTech and special issues on AgeTech in journals
STAR has been funded through AGE-WELL to lead on its publication strategy in AgeTech. Since 2020, STAR has been leading on a special series of publications on AgeTech (https://www.morganclaypool.com/toc/arh/1/1). This series initially aimed to publish introductory texts on AGE-WELL’s eight Challenge Areas (https://agewell-nce.ca/challenge-areas). Seven of these are in the pipeline and we are now looking to expand the series with an additional six being commissioned. In 2022-23, STAR and AGE-WELL will lead on special issues in: Healthcare Management Forum; Aging and Mental Health; Journal of Rehabilitation and Assistive Technology Engineering. We will continue to look for opportunities for future initiatives. Two special issues will be published in 2022/23: Health Care Management Forum (HMF) Journal - AGE-WELL AgeTech Special Edition on “Aging, Technology and Health in a Post-COVID World” (https://tinyurl.com/2bc72s88); Rehabilitation and Assistive Technologies Engineering (RATE) Journal strategic publications - Including the AGE-WELL Special Collection on “Robots to Support Caregiving and Promote Independent Living of Older Adults” (https://tinyurl.com/4edfx6n).

KPI 3:
• Number of books published in new series each year
• Number of new books commissioned each year
• Sales metrics
• Number of journal special issues each year
• Number of new special issues in pipeline

4) New opportunity - Healthy Lifestyles and Aging
Through consultation with our Steering Committee and with our academic and community partners we have identified a number of key directions for future work including research on healthy lifestyles and aging. STAR received funding in 2022 to lead AGE-WELL’s challenge area on healthy lifestyles and wellness. During 2022-24 we will be carrying out an environmental scan of AgeTech in this sector with a book in the Springer AgeTech series in the pipeline co-authored by Dr Sixsmith and other SFU researchers and HQP. There will be a major focus on KT through publications, communications and social media.

KPI 4:
• Annual total dollar value of proposals submitted
• Annual number of proposals submitted
• Number of successful proposals
• Dollar value of successful proposals
• Number of STAR supported workshops and symposia
• Number of presentations and publications

5) New opportunity - NeuroTech and Healthy Aging
STAR has also identified research on neurotechnology and healthy aging as a key direction for future work. Our work on healthy lifestyles will have a particular focus on brain health. STAR is already a collaborator with SFU’s Institute for Neuroscience and Neurotechnology on a recently funded New Frontiers Exploration grant and we will continue to develop this collaboration with the STAR playing a lead role in knowledge mobilization. The research involves an interdisciplinary approach that brings together theoretical, empirical and applied perspectives to establish a cycle of building knowledge and solutions for brain resilience. Additionally, STAR was awarded Mitacs Accelerate funding to look at precision medicine in the context of healthy aging to help better understand, prevent, and treat age-related cognitive impairment (ARCI). To date, despite the known risk factors related to cognitive impairment, it is not yet clear how these factors interact to influence cognitive health, especially in older adults at the individual level. The research involves transdisciplinary collaboration with researchers at SFU, notably the SFU Institute of Neuroscience and SFU Digital Health Circle, to develop new models that can explicate inter- and intra-variability within the older adult population which can lead to the development of better prevention and treatment of ARCI.

KPI 5:
• Annual total dollar value of proposals submitted
• Annual number of proposals submitted
• Number of successful proposals
• Dollar value of successful proposals
6) New opportunity - Ethics and AgeTech
STAR has also identified research on ethics and AgeTech as a key direction for future work. While technology offers many possibilities to support healthy aging, it may also bring with it the potential to increase inequalities in access to health services and health outcomes. Research has indicated a crucial need to fully understand who and in what ways AgeTech can have both positive benefits for older people or further exacerbate experiences of marginalization. We have founded a group of researchers in Canada and Europe with a strong track record in ethics that we intend to grow in the coming years. A workshop on Ethical Issues in AgeTech will be convened at the PETRA conference in Greece 29th June – 1st July 2022 (http://www.petrae.org/workshops/EAT.html) and there are plans to expand the group, convene conference symposia and publish findings.

KPI 6:
• Number of STAR affiliated scholars/researchers
• Number of STAR supported workshops and symposia
• Number of presentations and publications

7) New opportunity - Pushing conceptual boundaries of AgeTech
The aim is to develop a research network focused on theoretical and ethical aspects of AgeTech. Research in the sector has been overwhelmingly practice-oriented and is limited by a weak understanding of technology development, implementation and innovation in psycho-social terms. A better theoretical foundation for AgeTech will afford more useful, usable and appropriate solutions for healthy aging. Discussions around publications and symposia at key conferences in 2023 and after have already taken place with collaborators at UCL in the UK.

KPI 7:
• Number of STAR affiliated scholars/researchers
• Number of STAR supported workshops and symposia
• Number of presentations and publications

8) Communications and outreach
STAR will continue its knowledge mobilization activities that focus on outreach and involvement of community partners, older adults and caregivers, service providers and industry, aligning with our mission of making SFU a world leader in research and innovation in the AgeTech sector, becoming an essential resource for students, researchers, industry and services in BC. A STAR monthly webinar series will launch in Fall 2022 and bring together local, national and international researchers and thought leaders in the broad AgeTech sector.
KPI 8:

- Number of reports and articles for general audience
- Number of interviews and features in media
- Social media analytics
- Webinar series metrics including attendance, post event hits, etc.

Supporting documents:
SFU_STAR_Institute_Renewal_Application_June_2022_Supporting_Document_-_Significant_Accomplishments_Media_Successes_and_Public_Outreach_aGg1ER0.pdf (See attachment below)

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
We have provided a summary of STAR Institute External funding in the 2021-22 year directly below. Please see accompanying supporting document attachment in the Supporting Document section for details on our funding initiatives between 2016-2024.

STAR Institute External funding in the 2021/2022 year (donations, grants, contracts):

1. Mitacs Accelerate Award - Cognitive Effects of Individualized Lifestyle Interventions in Typical Ageing (Project partners - SFU Institute of Neuroscience and Neurotechnology and SFU Digital Health Circle) 2022-24

$80,000

Recent award information: Award start date - August 1, 2022

2. AGE-WELL NCE Funding: AGE-WELL Challenge Area Development Grant 2021-23

$57,000

3. SFU STAR Institute/411 Seniors Research Grant - Navigation and Peer Support 2021-23

$50,000
4. Partial Operating from the Point of Care Health Technologies - STAR (Science and Technology for Aging Research) Institute Node 2021-22

$18,000

5. AGE-WELL NCE Funding: AGE-WELL Scientific Director (SD) Stipend 2020-24

$75,000 per year

Confirm policy review:
Yes

Submitted by:
Juliet Neun-Hornick, Special Program Manager

Director’s comments:
The STAR Institute has had a highly active program of research and training on aging and technology over the last five years. The research team has carried out some outstanding work with the key goal of mobilizing and communicating results that will lead to practical solutions in the aging and technology sector. The STAR Institute is affiliated with SFU and conducts its activities in such a way as to enhance the reputation and the programs of the University. The mission of the STAR Institute is to make SFU a world leader in research and innovation in the AgeTech sector; becoming an essential resource for students, researchers, industry and services in BC. The STAR Institute, in addition to being an SFU Research Institute, also plays an important role in facilitating the activities and research of the AGE-WELL Network of Centres of Excellence (www.agewell-nce.ca). STAR Director and SFU Professor Dr. Andrew Sixsmith was the founding co-Scientific Director of the AGE-WELL Network from 2015-2020 and is the Associate Director from 2020 onward. A major priority between 2020-24 is to establish sustainable legacies for both the STAR Institute and the AGE-WELL Network. This work is a key focus over the next few years, specifically through activities related to AGE-WELL’s Challenge Areas (https://agewell-nce.ca/challenge-areas) which form the basis of AGE-WELL’s 2020-24 newly refunded core research program.

The team’s efforts have also extended internationally, with missions and events with academic partners and universities in Europe and Asia. This resulted in an MoU with the Northern Health Sciences Alliance (NHSA) in the UK (https://www.thenhsa.co.uk) with a number of research and training activities in aging already underway.

Understandably, the last two years have been dominated by the COVID-19 pandemic. The pandemic has had a huge impact on everyone but has had a particular impact on the health and well-being of older people. The aging of world populations is one of the biggest challenges of our time, but the impact of the COVID-19 pandemic has had a particular
impact on older people and their caregivers. The pandemic has rightly sparked a serious and long overdue national conversation about long-term care, while there is increasing attention on the needs of isolated seniors living in the community.

In an effort to share what is happening in the field both nationally and internationally, STAR also will launch a monthly webinar series in Fall 2022, has an active communications program and is dedicated to providing a wide-range of resources and news (from publications and community-engaged research templates to alerts on community-engaged events, opportunities and initiatives/services), via our website and social media platforms.

STAR has been highly active over the last 5 years, working closely with local community organizations during the COVID-19 pandemic. Our work with 411 Seniors Centre Society in Vancouver and other community groups speaks directly to SFU’s mission of being an “engaged university”. It also fulfills STAR’s ambition to combine both excellent academic research with real-world impact. From very modest beginnings, our “In-Community” project and report has generated a lot of interest provincially and nationally and has led to academic articles and numerous presentations. The project has provided 411 Seniors with a platform for taking a province-wide role in developing information and referral services, where STAR will continue to partner with 411 Seniors in a 2-year action research and outreach project.

We have also been active in supporting national research communities and strengthening our international collaborations. We continue to work with AGE-WELL in pushing research and innovation boundaries within the aging and technology sector further forward. STAR has the responsibility of supporting transdisciplinary working within the AGE-WELL Network and carrying out environmental scans to inform its strategic priorities. The last year saw the fruition of some key joint initiatives. These included the publication of two major books aimed at the AgeTech sector: "Knowledge, Innovation, and Impact: A Guide for the Engaged Health Researcher" (Springer, https://link.springer.com/book/10.1007/978-3-030-34390-3) and "AgeTech, Cognitive Health, and Dementia" (Morgan & Claypool).

STAR looks forward to continuing its work, and keeping SFU at the forefront of AgeTech research in Canada and worldwide, in particular:

• Leading on a program of research on AgeTech for Healthy Lifestyles and Wellness

• Collaborating with partners at SFU on initiatives in neuroscience and healthy cognitive aging

• Supporting outreach and community engaged research

• Providing innovative education and training activities
• Promoting strategic publications to push the boundaries of theory and research in AgeTech

• Continuing its collaboration with AGE-WELL

**Reviewer's Section**

**Reviewed by:**
Michael Richards, Associate Vice-President, Research

**Reviewer's decision:**
Approved for 5 years

**Reviewer's comments:**
This is clearly a very active Institute with significant research outputs and public outreach, and is well integrated into local and national health agencies. I recommend renewal of this Institute.
# Table of Contents

**Significant Accomplishments 2016-2022** ................................................................. 3

- Key Outputs and Publications ........................................................................... 4
- STAR Institute COVID-19 Response .................................................................. 14
- SFU Collaborations ......................................................................................... 16
- Provincial & National Collaborations and Partnerships .............................. 17
- International Collaborations and Partnerships ............................................ 19
- Funding Initiatives .......................................................................................... 20

**Media Successes 2016-2022** ............................................................................. 26

**Public Outreach 2016-2022** .............................................................................. 28

**Appendix A: SFU STAR Institute Membership Sign-Off Form** ....................... 35

**Appendix B: SFU AgeTech and Innovation Asset Map** .................................. 37
STAR Institute Significant Accomplishments 2016/2022

The STAR Institute has had a highly active program of research and training on aging and technology over the last five years. The research team has carried out some outstanding work with the key goal of mobilizing and communicating results that will lead to practical and equitable and diverse solutions in the aging and technology sector. The STAR Institute is affiliated with SFU and conducts its activities in such a way as to enhance the reputation and the programs of the University. The mission of the STAR Institute is to make SFU a world leader in research and innovation in the AgeTech sector, becoming an essential resource for students, researchers, industry and services in BC. STAR activities are determined with SFU priorities towards equity, diversity and inclusion in mind. STAR works closely with 411 Seniors Centre Society, a seniors’ service agency in Vancouver that assists over 5000 predominantly low-income and immigrant older adults per year. The ongoing partnership is called LEADS: Learning, Equity, Aging, Digital for Seniors. The STAR Institute, in addition to being an SFU research institute, also plays an important role in facilitating the activities and research of the AGE-WELL Network of Centres of Excellence (www.agewell-nce.ca). STAR Director and SFU Professor Dr. Andrew Sixsmith was the founding co-Scientific Director of the AGE-WELL Network from 2015-2020 and is the Associate Director from 2020 onward. A major priority between 2020-24 is to establish sustainable legacies for both the STAR Institute and the AGE-WELL Network. This work is a key focus over the next few years, specifically through activities related to AGE-WELL’s Challenge Areas which form the basis of AGE-WELL’s 2020-24 newly refunded core research program. STAR is currently engaged in six transformational joint projects with AGE-WELL:

- AGE-WELL Healthy Lifestyles and Wellness Challenge Area program of research
- AGE-WELL Amplify Program (development phase) - Designed to support knowledge mobilization activities aligned with the AGE-WELL mandate
The team’s efforts have also extended internationally, with missions and events with academic partners and universities in Europe and Asia. This resulted in an MoU with the Northern Health Alliance in the UK, with the prospect of joint future research and training activities in aging.

In an effort to share what is happening in the field both nationally and internationally, STAR also has an active communications program and is dedicated to providing a wide-range of resources and news (from publications and community-engaged research templates to alerts on community-engaged events, opportunities and initiatives/services), via our website and social media platforms.

Below we highlight the following significant accomplishments between 2016/22:

1. Key Outputs and Publications
2. STAR Institute COVID-19 Response
3. SFU Collaborations
4. Provincial & National Collaborations and Partnerships
5. International Collaborations and Partnerships
6. Funding Initiatives

1) Key Outputs and Publications

STAR has been highly active over the last five years producing a number of reports and publications in the AgeTech sector. The summary below is not a list of individual publications by STAR researchers, but presents the key strategic publications that have contributed to the STAR vision and mission. These outputs will help position and provide SFU and Canada with opportunities in relation to global research and innovation in the field of aging and technology.

2021/2022

Citadel Love Stories: An Intergenerational Creative Storytelling Project and Zine

Out of a series of creative writing online workshops in Summer 2021, the Citadel Love Stories: An Intergenerational Creative Storytelling Project created a zine that includes countless stories and poems from people of different ages including older adults, many of whom identified as belonging on the LGBT2QI+ rainbow. The international project, with partners at SFU STAR Institute, University of Dundee, Scotland, and Citadel Youth Centre, Scotland, aligns with SFU’s priorities toward Equity, Diversity and Inclusion (EDI) and was a hugely collaborative project exploring a diverse range of relationships, identities and experiences. SFU STAR supported the project and STAR’s project manager created the zine’s design layout. The project wouldn’t
have been possible without the success of the Age-Friendly Living Ecosystems project 2020-onward, which STAR has supported through project management and graphic design of project materials.  


**STAR Institute - Karl Landsteiner University of Health Sciences Special Collection**

STAR Institute and colleagues at Karl Landsteiner University of Health Sciences are collaborating on a special collection to be published in early 2023 by Springer Nature Publishers on “Ethical and Societal Implications of AgeTech”. Ethical issues in AgeTech are multifaceted, arise in different contexts, and are in part determined by the cross sectoral organization of health services for the older people. Thus, an interdisciplinary and cross-sectoral approach is needed that facilitates a dialogue between the different actors and disciplines involved, giving each the opportunity to provide their expertise and perspective. This special issue will bring together perspectives from medical informatics, engineering science, nursing science, social sciences, and ethics to provide a more holistic and coherent picture of the ethical issues in AgeTech.  

https://link.springer.com/collections/chbhbeafjj

**STAR Institute - Journal of Mental Health and Aging Special Collection**

STAR Institute and Dr. Teddy Cosco in the SFU Gerontology Department are collaborating on a special collection to be published in early 2023 on “Technology, Aging, and Mental Health: Opportunities and Challenges” in the Journal of Mental Health and Aging. The collection will include original research exploring, developing and evaluating innovative solutions to support the mental health and well-being of older adults. The goal is to provide a benchmark issue of wide interest to an interdisciplinary community of researchers across fields and disciplines.  


**SFU AgeTech and Innovation Asset Map**

STAR collaborated with Laurence Meadows (SFU Strategic Partnerships Manager) and Fred Popowich (Scientific Director of KEY, SFU’s Big Data Initiative and Professor at SFU’s School of Computing Science) as part of the NRC-SFU initiative. STAR developed an SFU AgeTech and Innovation Asset Map that included information about researchers at SFU within the AgeTech and innovation field, including individual expertise and community connections. The NRC program was approved in 2020 and we look forward to continued collaborations as part of the NRC-SFU initiative (see Appendix B for SFU AgeTech and Innovation Asset Map).
AGE-WELL Healthy Lifestyles & Wellness Challenge Area Program of Research Lead

STAR received AGE-WELL Healthy Lifestyles and Wellness Challenge Area development funding for a two-year project, with STAR Director Dr. Andrew Sixsmith as the Healthy Lifestyles and Wellness Challenge Area research lead. The broad aim is to stimulate and support research and innovation within the AgeTech sector, with a particular focus on the Healthy Lifestyles and Wellness Challenge Area. The objectives of the project are the development of a Community of Practice around this Challenge Area and to look at how this can be sustained in the years to come. A key activity of the project is laying a basic foundation for the Challenge Area, including the development of an environmental scan of the Challenge Area, development of personas and scenarios to illustrate problems and opportunities for AgeTech, and briefing documents, summary reports, and data.

Having a healthy lifestyle contributes to the prevention and delay of chronic disease and enhances life expectancy. Being healthy encompasses more than physical wellbeing, but also relates to our emotional and social wellbeing. However, many individuals do not have healthy lifestyles and find it challenging to maintain healthy habits over time. Technology can play an important role in supporting individuals to adopt and maintain healthy lifestyle behaviors, and live an engaged and purpose-filled life. Despite the proliferation of commercially-available health and wellness technologies in recent years, there remains a significant gap in the provision of digital solutions focused on promoting healthy lifestyles for older people. The STAR Institute brings together researchers from diverse perspectives and academic disciplines, who will expand and develop this knowledge base, building on existing collaborative relationships across SFU departments and other institutions both in Canada and internationally. Furthermore, understanding how innovative health and wellness technologies can be successfully embedded within individuals’ lives, whether living independently in the community or in long-term care facilities, is integral for optimizing health and wellbeing outcomes. To support the effective translation of digital health and wellbeing solutions to real-world settings, the STAR Institute will work with community partners to develop and create a suite of tools and resources to assist organizations with implementing and evaluating the impact of new technologies which promote healthy aging.

AGE-WELL AgeTech Book Series

As a joint STAR / AGE-WELL initiative, in partnership with Morgan & Claypool Publishers and as part of a “Synthesis Lectures on Technology and Health” Lecture Series edited by STAR Director Dr. Andrew Sixsmith and colleagues from Universities of Toronto, Florida and California, AGE-WELL is publishing a series of books on AgeTech, including a sub-series on AGE-WELL’s eight Challenge Areas (https://agewell-nce.ca/challenge-areas). In 2022, Springer bought Morgan & Claypool and took over the series publication, significantly expanding the potential readership. The series publishes state-of-the-art short books on transformative technologies for health, wellness, and independent living. The books are written in accessible
language appropriate to a multidisciplinary and worldwide readership. Authors include material on their own work while surveying the broader landscape of related research, development, and impact.

Two books have been published so far. The first book entitled “AgeTech, Cognitive Health, and Dementia” was published in 2020 lead by STAR Director Dr. Andrew Sixsmith. The second book entitled “Autonomy and Independence: Aging in an Era of Technology” was published in 2021. A remaining seven books in the sub series will be published between 2022-24, including a second book lead by STAR Director Dr. Andrew Sixsmith on “Healthy Lifestyles and AgeTech”. An additional four books are in the pipeline to be published in the next five years as part of the larger AGE-WELL AgeTech book series (Ethical Issues in AgeTech; AgeTech and Virtual Reality; Technology in Palliative Care; and, Art, Technology, and Healthy Aging).

https://www.morganclaypool.com/toc/arh/1/1

Health Care Management Forum AGE-WELL AgeTech Special Edition

The Canadian College of Health Leaders and AGE-WELL are collaborating on a special edition of Healthcare Management Forum to be published in Fall 2022 on the theme of “Aging, Technology and Health in a Post-COVID World”. STAR Director Dr. Andrew Sixsmith is a guest editor on the collection and STAR is providing project management support. The special edition will focus on Leveraging Technology to Improve the Health and Quality of Life of Older Adults and papers within the collection will address the policy and practice issues relating to innovation, adoption and implementation of technology-based services and products to improve the health of older Canadians. http://www.sfu.ca/starinstitute/about/institute-activities/archive/age-well---healthcare-management-forum-ageTech-special-edition-o.html

Rehabilitation and Assistive Technologies Engineering (RATE) Journal - AGE-WELL Special Collection and Broader Publications Strategy

RATE Journal and AGE-WELL have partnered to support manuscript submissions by AGE-WELL Network Investigators whose research will form part of a special section in RATE. RATE is an interdisciplinary journal focusing on the engineering aspects and their practical applications of rehabilitation and assistive technologies. It covers engineering design, electrical engineering, mechanical engineering, engineering devices and their applications, robotics and biomedical engineering. STAR Director Dr. Andrew Sixsmith was a RATE Associate Editor from 2019-21 and STAR Engagement and Education Director Dr. Mei Lan Fang become a RATE Associate Editor from 2021 onward. STAR supports the partnership by overseeing the submissions process, selecting reviewers for submitted manuscripts where appropriate and making recommendations based on reviews and the editor’s own review.
RATE Journal and AGE-WELL are collaborating on a special collection on “Robots to Support Caregiving and Promote Independent Living of Older Adults” to be published in Summer 2022. STAR Director Dr. Andrew Sixsmith is a co-editor on the collection and STAR is providing project management support. The special collection has an international focus as RATE has a strong international readership and the invited guest editors are from the UK and Japan. https://agewell-nce.ca/journal-of-rehabilitation-and-assistive-technologies-engineering-rate-collaboration

AGE-WELL publications on seniors’ attitudes and use of technology

AGE-WELL commissioned surveys in 2019 and 2020 by Environics Research, to examine older people’s use of, and attitudes towards, technology in their everyday lives. The 2020 survey was commissioned to particularly explore the impact of the COVID-19 pandemic. AGE-WELL and STAR published two articles entitled “Demographic and Psychographic Factors of Social Isolation During the COVID-19 Pandemic: The Importance of Technology Confidence” published in Frontiers in Public Health in 2021 and “Older People’s Use of Digital Technology During the COVID-19 pandemic” published in Bulletin of Science, Technology & Society in 2022. A third paper is currently being developed on the accessibility of telehealth during COVID-19. The two surveys collected data on a combined 1923 older adults aged 65 years and older in Canada. These looked at how older adults think about and use technology, with the 2020 survey additionally questioning how COVID-19 has impacted their use and attitudes towards technology.

https://journals.sagepub.com/doi/full/10.1177/02704676221094731


AGE-WELL Amplify Program

This new program is designed to support various knowledge mobilization (KM) activities aligned with the AGE-WELL mandate. The program will also support international KM opportunities beyond simple event sponsorship to help teams make a splash with their international conference plans and create follow-up opportunities for their work to have impact with network support. STAR is providing coordination support to the program’s pilot project -
organizing a joint STAR / AGE-WELL workshop on “Ethical Issues in AgeTech to Support Healthy Ageing (EAT) at the PErvasive Technologies Related to Assistive Environments (PETRA) 2022 Conference in Summer 2022 (see International Collaborations and Partnerships section). STAR is also providing design support for the program (branding development, presentation slide template development, etc.)

2020-2021

Information and Referral Services to Seniors in British Columbia - Past Learnings and Learnings since COVID-19 Report

A joint STAR / 411 Seniors Centre Society report entitled “Referral Services for Seniors in British Columbia | Past Learnings and Learnings since COVID-19” was published online in February 2021. STAR Director Dr. Andrew Sixsmith co-supervised a UBC Masters student’s practicum at 411 and the report was a direct result of the practicum. STAR designed the report. The report was in response to the growing need for a comprehensive review of existing information and referral services for seniors in B.C. in an attempt to capture the state of senior-focused service provision in B.C. The report explores the existing barriers that community-based service-providers face in the provision of Information and Referral (I&R) services as well as the existing challenges that older adults and caregivers face in accessing these services. The report aims to fill a knowledge gap as a means of assessing and evaluating current best practices and the future potential for providing equitable and inclusive I&R support to seniors. The report was widely disseminated through the STAR Institute and 411 Seniors networks and communications channels, including the BC Seniors Advocate, BC Ministry of Poverty Reduction, Parliamentary Secretary for Seniors, City of Vancouver Social Policy, United Way, MOSAIC Seniors Hub, various BC MLA’s and BC MP’s, BC-based community groups and seniors’ organizations, and Fair Child TV and other media outlets. The report was also received by Open Media for their campaign Affordable Internet Day of Action (https://affordable-internet.ca). https://tinyurl.com/3upzs7ye


A joint STAR / AGE-WELL book entitled “Knowledge, Innovation, and Impact: A Guide for the Engaged Health Researcher” was published by Springer in January 2021. The book has 68 author contributors and was a tremendous and rewarding effort to coordinate. The aim of the book is to provide researchers with a straightforward and accessible guide on how to carry out research that will help them to combine both good science with real-world impact. The book is divided into 4 sections: Thinking about impact; Working Collaboratively; Designing Together; and Reaching Out. It consists of 47 chapters (25 short chapters on key topics each addressing a key pillar in the translational research process, 15 case study chapters and 7 learning activity chapters). The book is written in plain language (maybe a first in a book aimed at the research
A STAR manuscript entitled “COVID-19 and AgeTech” was published in Quality in Ageing and Older Adults Journal in November 2020. This paper aims to provide an overview of the emerging AgeTech sector and highlight key areas for research and development that have emerged under COVID-19, as well as some of the challenges to real-world implementation.


A joint STAR / AGE-WELL book entitled “AgeTech, Cognitive Health, and Dementia” was published by Morgan & Claypool in September 2020. The book was the first in AGE-WELL’s AgeTech book sub series on AGE-WELL’s Challenge Areas. The manuscript explores the ways in which AgeTech can contribute to healthy cognitive aging and support the independence of people with dementia. It consists of 16 chapters and is part of a series titled Assistive, Rehabilitative and Health Preserving Technologies. AgeTech refers to the use of technologies, such as information and communication technologies (ICTs), robotics, mobile technologies, artificial intelligence, ambient systems, and pervasive computing to drive technology-based innovation to benefit older people.

https://www.morganclaypool.com/doi/10.2200/S01025ED1V01Y202006ARH014

2019/2020

Environmental Scans of AGE-WELL Challenge Areas

Beginning in March 2020, AGE-WELL and STAR commenced a comprehensive environmental scan of AGE-WELL’s 8 challenge areas (https://agewell-nce.ca/challenge-areas) which are
driving AGE-WELL’s research and innovation agenda between 2020-24. The environmental scans were an important early step in advancing the challenge areas, looking at current actors within each CA landscape and what they are doing in the sector (i.e., a scan of products, projects, policies, organizations, articles, patents, media, information website and specialized websites, best practice/impact case studies and more). The information was compiled in a more agile way compared to conventional academic research.

An Exploration of Experiences of Transdisciplinary Research in Aging and Technology Manuscript

A joint STAR / AGE-WELL manuscript entitled “An Exploration of Experiences of Transdisciplinary Research in Aging and Technology” was published in Forum: Qualitative Social Research (FQS) Journal in January 2020. STAR Director Dr. Andrew Sixsmith lead AGE-WELL’s Crosscutting Activity 3 (CC3) Transdisciplinary Working team which produced the manuscript.


Point of Care Health Technology (PCHT) Real-World Output Guidelines and Templates Tool-kit

One of the roles of STAR is to communicate research outcomes to the "real-world". Each research project within the SFU technology and aging world should have parallel academic and real-world outputs. As well as academic papers, projects coming out of STAR and PCHT aim to provide outputs targeted at knowledge users. In order to facilitate this, STAR developed a set of guidelines and templates for researchers which are available on STAR’s website. http://www.sfu.ca/starinstitute/about/institute-activities/star-institute-real-world-output-guidelines-and-templates-tool-k.html

Key Issues in Aging in the 21st Century Digital Booklet

A STAR digital booklet entitled “Key Issues in Aging the 21st Century” was published online in September 2019. The booklet outlines 18 key issues for research, innovation and technology that will have real-world benefits for older adults, the economy and policy-makers. Our aim is to help people working in the field of aging to identify where we need innovation - new ideas, technologies, policies and practice - in order to make an impact in each of these areas. STAR partnered with United Way of the Lower Mainland (https://www.uwlm.ca/), launching the
booklet at their 2019 Summit on Aging with a view to explore future avenues for collaboration within the 18 key areas identified.

The booklet provided the groundwork for the joint STAR / AGE-WELL book on “AgeTech, Cognitive Health, and Dementia” within AGE-WELL’s AgeTech book sub-series (see AgeTech, Cognitive Health, and Dementia section in 2020-21 Year section above) and a joint STAR / AGE-WELL Older Adult and Caregivers Advisory Committee COVID-19 report (see STAR Institute COVID-19 Response section for more details). https://tinyurl.com/4jbftyvy

2018/2019

Aging Workforce Manuscript

The ageing of populations worldwide has implications for workforces in developed countries, and labour shortages have increasingly become a political concern. Governments in developed countries have responded by increasing the retirement age as a strategy for overcoming the fall in labour supply. Using bibliometric techniques, STAR produced a manuscript entitled “Defining organizational contributions to sustaining an ageing workforce: a bibliometric review” which reviewed 122 articles published between 1990 and 2018. The aim was to examine the effectiveness of the strategy in addressing the labour shortages and, in particular, to identify the factors that contribute positively to maintaining worker participation within an ageing workforce at an organizational level. The manuscript was published in March 2019 in European Journal of Ageing.


Canadian Consortium on Neurodegeneration in Aging (CCNA) Project Environmental Scan and Report

Following the development of the preliminary e-health scoping review (see 2017-18 Year section below), STAR carried out an environmental scan focusing on the developments over the past decade in technology for the support and care of persons with dementia, and a final report which was used to identify the current global landscape of products, services, and policies to make evaluations of the gaps and opportunities for future research and development. A final report was developed in parallel with a Knowledge Café workshop at SFU in October 2018. https://tinyurl.com/yc7kyz5a
CIHR Summer Program in Aging (SPA) 2018

STAR partnered with the CIHR Institute of Aging (IA), as the local organizing institution, to host an innovative five-day training program that focused on Technology and Innovation Supporting the Health of Older Adults. STAR co-organized and facilitated the entire week, including securing an impressive group of mentors within the aging and technology sector. STAR developed and designed all event materials.

During SPA 2018, trainees (Postdoc, PhD and MSc students from all over Canada) had the opportunity to engage in learning sessions, experiences, and activities. SPA 2018 explored fundamental topics such as research and professional skill building, grant writing, communications and knowledge translation. To further the interdisciplinary experience, trainees had access to networking and mentoring opportunities that were offered throughout the week including core mentors that were available throughout the program.

http://www.sfu.ca/starinstitute/about/institute-activities/archive/spa.html

Provincial and International Ageing Policies Environmental Survey/Scan

In parallel with an environmental scan carried out by AGE-WELL’s New Brunswick Innovation Hub (https://agewell-nih-appta.ca/) focusing on national Canadian ageing policies, STAR conducted an environmental scan that looked at policy documents released by extra-governmental, research and international ageing organizations, as well as those released by other nations and by organizations invested in the “silver economy.” Sources were gathered on expert recommendation. While the organization summary, policy challenges and provenance categories have been summarized by STAR, the policies were copied verbatim from their sources. These formed the basis for STAR Institute’s 18 Key Issues in Aging in the 21st Century digital booklet (see 2019-20 Year section above) and AGE-WELL’s 8 Challenge Areas booklet entitled “The Future of Technology and Aging Research in Canada.”

https://tinyurl.com/yckuu548

2017/2018

Canadian Consortium on Neurodegeneration in Aging (CCNA) Project E-Health Scoping Review

As part of a large international project between Canada and France, STAR lead a sub-project on “Technologies for Cognitive Health” which looked at market opportunities in relation to technologies for people with dementia. The project aimed at investigating integrated models of dementia care, study concrete solutions to sustain or improve health in aging population (i.e., training, activities), and the determinants of dementia over the lifespan. STAR carried out a preliminary e-health scoping review that looked at cost effectiveness of technology supports
for people with dementia and explored the extent to which current research on dementia technology-aids demonstrate the cost-effectiveness of these initiatives.

2) STAR Institute’s COVID-19 Response

Throughout 2020 and 2021 in response to COVID-19, STAR developed a set of resources to support the needs of Vancouver-based 411 Seniors Centre Society’s members and Canadian older adults more widely, in a time where self-isolation was and, in some ways, continues to be imperative. Eventually STAR developed similar resources for Researchers and shared this initiative with SFU Communicators across the 3 campuses. See STAR’s COVID-19 related resources which span from March 2020 to present.

As Canadian citizens increasingly become vaccinated, the compiled lists will be adjusted accordingly. Many of the resources on the lists (such as Technology Basics which provide basic tech guides to stay connected with family as well as resources and services that are increasingly found online) will remain helpful.

STAR COVID-19 Resources and Solutions

COVID-19 Resources for Seniors and Caregivers
As part of STAR’s community engagement strategy, STAR curated a comprehensive set of resources and solutions for older adults and caregivers. These range from simple guides for using technology to services that can help with daily living. [http://www.sfu.ca/starinstitute/covid-19.html](http://www.sfu.ca/starinstitute/covid-19.html)

COVID-19 Resources for Researchers
STAR also compiled a comprehensive list of practical information and resources for the academic community. These range from funding opportunities for research projects to available resources and networks, all with the aim of developing technology-based solutions for problems related to COVID-19. [http://www.sfu.ca/starinstitute/covid-19-info-for-researchers.html](http://www.sfu.ca/starinstitute/covid-19-info-for-researchers.html)

This initiative was launched in March 2020 and was widely circulated across the STAR, SFU and AGE-WELL networks. STAR received a lot of positive feedback from older adults, community organizations and researchers through an online feedback survey. Over the last two years, STAR has continued to update and revise its resource lists based on feedback and new information as it is received.

STAR’s response to the COVID-19 outbreak has generated discussion about and shone a light on the digital divide faced by older adults. How willing are older adults to adopt and use
technology and how much support can they access to help them learn to actually use that technology? Based on these questions, STAR’s next challenge was to understand how we might help older adults who are unable to access online resources, to benefit from the resources compiled and to remain healthy, connected, and getting the most out of life during COVID and post-COVID. This research question has and is being discussed widely across the sector.

As a next step and as described in publication section above, STAR Director Dr. Andrew Sixsmith co-supervised a 411 Seniors Centre Society UBC student’s practicum in Summer 2020. This resulted in the opportunity to co-author a STAR-411 report that looks at the current information and referral service provision landscape for seniors in B.C. and the need for an adaptive technology-based approach to I&R services in the face of the COVID-19 pandemic. STAR designed the report. From there, a longer-term partnership between STAR and 411 was formed named “LEADS: Learning, Equity, Aging, Digital for Seniors” (see National Collaborations and Partnerships section below) with the overarching goal of supporting key priorities and projects identified by 411 and its member base.

SFU COVID-19 Engagement Events

SFU Centre for Dialogue Presentation: STAR COVID-19 Resource Initiative

STAR Director Dr. Andrew Sixsmith is part of the SFU Vancouver Engagement Committee organized by the SFU Centre for Dialogue which meets regularly. During an April 2020 meeting, members presented on their COVID-19 related efforts and STAR presented on its COVID-19 Resource initiative specifically. STAR received a lot of positive feedback as well as suggestions which were implemented.

SFU Vancouver Lunch ‘N’ Learn: Connecting Isolated Seniors at a Time of Disconnection

The SFU Centre for Dialogue asked STAR Director Dr. Andrew Sixsmith to be the featured speaker for SFU Vancouver’s first virtual Lunch ‘N’ Learn in April 2020 and present on STAR’s COVID-19 Resource initiative. The presentation was entitled “Connecting Isolated Seniors during a Time of Disconnection.” There were approximately 230 attendees (most of which were older adults and caregivers) and the presentation received a huge response with very engaged commentary throughout (via chat box) which was both extremely positive and also constructive. The conversations were recorded and reviewed by STAR’s team following the presentation which further informed STAR’s COVID-19 project. We also asked participants to visit our website and provide further feedback via the online feedback survey.

https://events.sfu.ca/event/10686

BCCPA Webinar: Navigating the uncertain waters of the pandemic wave together
Following the SFU Lunch ‘N’ Learn, STAR was contacted to present on its COVID-19 Resource initiative in a June 2020 webinar hosted by Medical Pharmacies and supported by BC Care Providers Association (BCCPA) which featured three astute panelists (Dr. Andrew Sixsmith included) providing their unique perspectives on managing COVID-19 and faring a potential future wave together.

SFU Gerontology Research Centre (GRC) News COVID-19 Special Issue: Risk, Response, and Resilience in an Aging COVID-19 World

STAR met with SFU GRC staff and researchers to produce a COVID-19 special summer 2020 issue. STAR wrote an article within the issue titled “SFU STAR Institute COVID-19 Response, Resources and Solutions” [http://www.sfu.ca/content/dam/sfu/grc/stories/grc-news/GRC-News-Summer-2020.pdf]

3) SFU Collaborations

As a university-wide research institute, the STAR Institute collaborates across SFU, with affiliate researchers in every faculty. Within this report, we highlight just a few of the many collaborations over the last five years - notably with SFU Gerontology Research Centre (GRC), SFU Centre for Dialogue, SFU Vancouver, SFU Digital Health Circle, various SFU schools and departments including SIAT and Mechatronics, and the SFU VPRI office.

STAR has collaborated with the Point of Care Health Technologies (PCHT) team at SFU [http://www.sfu.ca/pcht.html] over the last five years with the intention of securing more funding past the final PCHT funding cycle 2022-23. PCHT is a multidisciplinary collaboration of 16 SFU faculty members from 4 faculties working to research and develop new point of care health technologies to improve health outcomes and keep people out of hospitals. The team is focused on ground breaking research from fundamental mechanistic ideas to clinical trials of point of care technologies. Throughout the research process PCHT aims to develop a community of health technology innovators, build research and training capacity across SFU campuses, and prepare the next generation of innovators to take on the unique challenges of effective, cost-conscious healthcare. STAR is the Independent Living Technologies node of PCHT, providing PCHT project management support to the larger team. Duties include and have included the launch and coordination of a biweekly and now bi-annual PCHT training forum, including securing guest presenters, the coordination of PCHT research presentations and meetings, the coordination of outreach sessions with local senior centres, development and dissemination of PCHT newsletter on PCHT and other aging and technology related events and activities, and identification of ongoing funding opportunities.

STAR collaborated with Laurence Meadows (SFU Strategic Partnerships Manager) and Fred Popowich (Scientific Director of KEY, SFU’s Big Data Initiative and Professor at SFU’s School of
Computing Science) as part of the NRC-SFU initiative. STAR developed an SFU AgeTech and Innovation Asset Map that included information about researchers at SFU within the AgeTech and innovation field, including individual expertise and community connections. The NRC program was approved in 2020 and we look forward to continued collaborations as part of the NRC-SFU initiative (see Appendix B for SFU AgeTech and Innovation Asset Map).

The STAR Institute and AGE-WELL have played a role in developing the SFU FASS Innovation Curriculum, a programme shaped around innovation-focused teaching & learning. The core idea of the curriculum is to improve the possibilities for graduates to land work in new knowledge and tech-intensive positions. Dr. Sixsmith was on the SFU FASS Innovation Curriculum advisory board and he built his Spring 2020 (undergrad), Spring 2021 (grad) and Spring 2022 (undergrad) Innovation and Aging GERO 412, 480 and 101 courses around the principles developed within the new curriculum. The courses were based off of AGE-WELL’s 8 Challenge Areas and acted as a pilot/model to be used by other AGE-WELL members across other academic institutions.

STAR collaborated with the SFU Neuroscience and Neurotechnology Institute (https://www.sfu.ca/neuro-institute.html) (INN) on a large New Frontiers in Research Fund - Transformation (NFRFT) grant in 2021-22 on cognitive health and aging. While the larger NFRFT grant was not funded in this round, a smaller NRF grant was funded which will allow the team to develop ideas and address the weaknesses in the larger NFRFT proposal for resubmission in early 2024. STAR will make a significant contribution through the development of a conceptual framework for brain health that could then be operationalized in the mathematical modelling. STAR’s role would be the connector between the science and the end-user (integrated knowledge mobilization).

4) Provincial & National Collaborations and Partnerships

LEADS: Learning, Equity, Aging, Digital for Seniors

Since 2019, STAR Institute and 411 Seniors Centre Society (www.411seniors.bc.ca) in Vancouver, have partnered on numerous community-based projects with the overarching goal of supporting key priorities identified by 411 and its member base.

The partnership is called LEADS: Learning, Equity, Aging, Digital for Seniors and brings together staff and researchers from SFU STAR, staff and members from 411, and staff from the province-wide Navigation & Peer Support (NPS) initiative (https://tinyurl.com/49z2jyd9) monthly, to identify projects and protocols that enhance local information and referral services to better connect seniors and caregivers to the resources in their community.

The 411 is the Provincial lead on the NPS initiative sponsored through the United Way Lower Mainland Healthy Aging Strategy (https://www.uwlm.ca/your-impact/healthyaging/). The goal
of the NPS project is to establish navigation and peer support best practices through collaboration to develop strategies for enhancing information and referral services across BC. Community-based services provide on-the-ground localized expertise to support older adults’ quality of life, sense of social connectedness, and empowerment.

SFU STAR and 411 co-hired a Community-Embedded Researcher in 2021/22 to promote the service development and academic objectives of the LEADS project and NPS initiative.


**United Way of the Lower Mainland**

STAR launched its “Key Issues in Aging in the 21st Century” digital booklet ([http://www.sfu.ca/content/dam/sfu/starinstitute/Key%20Issues%20in%20Aging%20-%2021st%20Century_Print%20Version.pdf](http://www.sfu.ca/content/dam/sfu/starinstitute/Key%20Issues%20in%20Aging%20-%2021st%20Century_Print%20Version.pdf)) at Healthy Aging by United Way’s 2019 Provincial Summit on Aging. The 2019 Provincial Summit on Aging brought together community-based seniors services (CBSS) organizations, older adults, family and friend caregivers, academia and government representatives to discuss and collaborate on current issues and innovations in healthy aging. The Institute had a booth at the summit to share copies of the booklet and project findings and the booklet was launched in the last session of the summit by STAR Director Dr. Sixsmith and the United Way team. STAR and United Way will continue to co-design technology-based solutions and services to support healthy aging, building off of the work identified within STAR’s digital booklet.

**AGE-WELL Network**

As highlighted in Significant Accomplishments section above, the STAR Institute, in addition to being an SFU research institute, plays an important role in facilitating the activities and research of the AGE-WELL Network of Centres of Excellence ([www.agewell-nce.ca](http://www.agewell-nce.ca)). AGE-WELL is focused on building a lasting legacy over the next five years and STAR will continue to support key AGE-WELL projects, initiatives and events, as well as strategic publications and knowledge mobilization activities. STAR provides part time management and coordination support, and more recently, design support to the AGE-WELL Network.

**Publications:** AGE-WELL AgeTech book series project management (nine books on AGE-WELL’s Challenge Areas and 4 books on other areas of AgeTech research); Special Collections project management (RATE Journal collection on Robotics and Healthcare Management Forum collection on Aging, Tech and Health in a Post-COVID World); AGE-WELL publications relating to Environics survey of seniors’ use of technology.
AGE-WELL Conferences and other events: Event and webinar project management including AGE-WELL’s annual conference (event identity and branding materials, prospectus and program materials, PowerPoint slides, virtual backgrounds, etc.).

Amplify Program: Program project coordination and design support (identity and branding materials and Amplify program pilot project management - PETRA Conference 2022 Workshop). The program is designed to support various knowledge mobilization (KM) activities aligned with the AGE-WELL mandate (includes support of international KM opportunities beyond simple event sponsorship to help teams make a splash with their international conference plans & creating follow-up opportunities for their work to have impact with network support).

Canadian Institute of Healthy Aging (CIHR) Institutes of Aging

The STAR Institute is an official Institute of Aging and a member of the CIHR Research Centres and Institutes on Aging. As such, STAR participates in the bi-annual CIHR Research Centres and Institutes on Aging Directors meetings which provide a unique opportunity to engage with directors and associates of aging institutes across Canada, share resources, collaborate, work on joint projects and more. STAR provides detailed activity updates and an overview of current and future research efforts, including the strategic work of the AGE-WELL Network.

5) International Collaborations and Partnerships

STAR Institute - AGE-WELL Symposium at the British Society of Gerontology (BSG 2022)

STAR and AGE-WELL are collaborating on a symposium on “Lost in translation - Realising the potential of new and emerging technologies for healthy ageing” at BSG Conference from July 6 – 8, 2022. The symposium will bring together researchers from the UK and Canada to explore the opportunities and barriers for AgeTech to support healthy aging in an increasingly digital 21st Century. STAR Director Dr. Andrew Sixsmith is one of the symposium authors and STAR managed the project, disseminating the call for papers, managing the paper submission process and coordinating the symposium. The conference theme is Better Futures for Older People - Towards Resilient and Inclusive Communities.

https://www.britishgerontology.org/events-and-courses/bsg-annual-conference

STAR Institute - AGE-WELL Workshop at PErvasive Technologies Related to Assistive Environments (PETRA 2022)

STAR and AGE-WELL are collaborating on a workshop on “Ethical Issues in AgeTech to
Support Healthy Ageing (EAT)” at PETRA Conference from June 29 - July 1, 2022. The workshop will bring together researchers from the UK and Canada and aims to provide a multidisciplinary and critical overview of ethical issues related to the use of AI-based solutions for health care and social support of older people. STAR Director Dr. Andrew Sixsmith is one of the workshop authors and STAR managed the project, disseminating the call for papers, managing the paper submission and external review process, and coordinating the workshop. The outcomes of this conference have a broad impact in application areas that include, manufacturing, transportation, healthcare, energy systems, security and safety, robotics, biomedicine, environment and conservation, and many others.

http://www.petrae.org/workshops/EAT.html

Northern Health Science Alliance (NHSA)

STAR partners with the Northern Health Science Alliance (NHSA) and is involved in a Canadian and Northern England Multi-Organizational Collaboration on Healthy Ageing MoU. Current objectives include: 1) Creating a two-way knowledge exchange in research and development of health tech acceleration and technology adoption; 2) Building relationships and research partnership opportunities set to address mutual, international challenges; and 3) Creating potential channels for future commercial collaboration. The NHSA collaboration was disrupted due to the pandemic 2020/21, but is now ramping up during 2022, including a joint symposium. Dr Sixsmith is on the NHSA advisory panel and on a major UK-based project on brain health that connects various NHSA groups.

Age-Friendly Living Ecosystem (AFLE)

STAR provided coordination and design support for the Age-Friendly Living Ecosystem (AFLE) project piloted in Dundee, Scotland. Over the course of six virtual co-creation camps between June to December 2020, the project created translational opportunities for intergenerational placemaking towards developing an age-friendly and intergenerational community ecosystem. Participants from all over the world joined the workshops. STAR designed all identity documents for the AFLE project, summary posters and key thematic findings reports for each workshop (https://tinyurl.com/yn2jn7d7). STAR designed the project’s final report (https://tinyurl.com/he8462zz) and is currently developing a website for the next phase of the project.

6) Funding Initiatives

The STAR Institute team has been involved in numerous grant applications and funded projects over the past five years, including a number of collaborative grants with SFU affiliates. Where proposals were not successful the collaborations as a result of the proposal development
continue and more initiatives are underway. We have included details on some of our funded projects below. Key performance indicators include:

- STAR researchers were involved in 26 proposals between 2016-22, as lead or as partners
- Of these 18 were successful
- STAR has been involved in successful proposals for research funding amounting to $1,731,452.98
- ** indicates funding directly awarded to the STAR Institute

**New Frontiers in Research Fund - Transformation 2022 pilot grant 2022-24**

In collaboration with SFU academic partners at the SFU Institute for Neuroscience and Neurotechnology, an application to the New Frontiers in Research Fund Transformation 2022 titled “What makes our brain resilient” was submitted and approved in 2021. STAR is collaborating on a larger NFRFT grant in 2022 with SFU INN.

**Mitacs Accelerate Award: Cognitive effects of individualized lifestyle interventions in typical ageing 2022-24**

STAR received $160,000 in funding for a two-year project on Cognitive effects of individualized lifestyle interventions in typical ageing, in partnership with SFU Institute for Neuroscience and Neurotechnology and SFU Digital Health Circle. Precision medicine in the context of healthy aging will help a better understanding, prevention, and treating of age-related cognitive impairment (ARCI). A new STAR PDF joined in April 2022 to officially begin in August 2022 to carry out the project.

**AGE-WELL Challenge Area Development Funding: Healthy Lifestyles and Wellness 2021-23**

STAR received $57,000 in funding for a two-year project on AGE-WELL’s Healthy Lifestyles and Wellness Challenge Area with Dr. Sixsmith being the Healthy Lifestyles and Wellness Challenge Area lead. The broad aim is to stimulate and support research and innovation within the AgeTech sector, with a particular focus on HL&WCA. The key objectives of the project are the development of a Community of Practice around this Challenge Area and to look how this can be sustained beyond AGE-WELL’s Network of Centres of Excellence time frame.

**SFU STAR Institute - 411 Seniors Research Grant: Navigation & Peer Support 2021-23**

STAR received $50,000 in funding between 2021-23 to co-fund a community-based researcher to support joint STAR - 411 projects with the aim of enhancing local information and referral
services to better connect seniors and caregivers to the resources in their community.

Community Partnership Fund David and Celia Ting Endowment for Education and Public Responsibility Award: Town Hall on Digital Health Informatics 2021-22**

STAR received $3,000 in funding between 2021-22 to co-create and co-host a Town Hall for older adults and community-based seniors’ agencies with 411 Seniors Centre Society as part of STAR and 411’s LEADS: Learning, Equity, Aging, Digital for Seniors partnership. The Town Hall, on the theme of Digital Health Information & Older Adults: COVID-19 and Beyond, will take place in Fall 2022 and will feature panelists from various sectors to address the digital divide and digital health informatics for older adults.

AGE-WELL Scientific Director Stipend 2020-24**

As Associate Scientific Director of AGE-WELL between 2020-24, Dr. Sixsmith will receive an annual Scientific Director stipend (a total of $225,000 between 2020-24) to support AGE-WELL activities and research, particularly in the western provinces, and to carry out activities and research at the STAR Institute that align with AGE-WELL’s mandate. STAR continues to support numerous AGE-WELL activities and events as outlined in above and below sections.

SSHRC Partnership Engage Grant: COVID-19 and Mental Health 2020-22

In collaboration with SFU academic partners in Gerontology, SIAT and Mechatronics, an application to the SSHRC Partnership Engage Grant titled “COVID-19: Mental health needs and technological interventions for social connectedness amongst older adults” was submitted in June 2020 and approved in August 2020.

AGE-WELL 2020-24 - $21.9 million in federal funding

Under the leadership of Scientific Directors Andrew Sixsmith (SFU) and Alex Mihailidis (UoT), AGE-WELL was successful in being renewed for three additional years (2020-23) under the Network of Centres of Excellence (NCE) program, with federal funding of $21.9 million. AGE-WELL received a no-cost extension to 2024. The next phase of AGE-WELL represents a singular opportunity to continue the growth of Canada’s leadership in AgeTech. This phase builds on the foundation that it has created and positions AGE-WELL to deliver a strong and sustainable technology and aging sector in Canada. With input from over 1000 partners, older adults and caregivers, AGE-WELL identified it’s 8 Challenge Areas. Meeting these challenges will be the key to continuing to drive the sector forward. AGE-WELL will ensure that everyone is pulling in the same direction so that technologies are actually having an impact on people’s
lives. A major focus will be to ensure that the Network creates sustainable legacies that will generate social and economic benefits for Canada in years to come. As mentioned earlier in this report, the STAR Institute will continue to work closely with the AGE-WELL Network.

AGE-WELL Initiatives at SFU 2015-24 (in addition to direct STAR funding)

Digital Health Circle (DHC) - AGE-WELL Innovation Hub on SFU Campus

Digital Health Circle (DHC) is the non-profit connector of scientific expertise to Canadian-made digital healthcare innovators. The unique hub approach brings together inventors, researchers, businesses and end-users to create digital solutions that make a meaningful difference in people’s lives. This work serves multiple objectives by leading to the creation of relevant and effective new digital technologies, creating high-quality jobs in British Columbia, improving the lives of its citizens and helping create industry clusters. SFU has benefited from DHC’s involvement with its students, acting as a training centre to prepare high technology innovators of tomorrow. DHC also assists with technology transfer and leveraging academic excellence at SFU to create new opportunities to enhance innovation positioning of the university.

STAR provided extensive time, resources and coordination support during the development phase of the AGE-WELL Innovation Hub in Surrey and played a huge role in getting the hub off the ground. STAR scheduled and tracked meetings and outreach efforts with local partners, stakeholders, government and community over the course of six months prior to launch and helped coordinate the hub’s launch event on SFU Surrey campus in 2018. STAR Director Dr. Andrew Sixsmith provided strategic support to hub director Dr. Sylvain Moreno, Associate Professor, SFU School of Interactive Arts and Technology. https://www.digitalhealthcircle.ca/

AGE-WELL Core Project: Stephen Robinovitch, Professor, SFU Biomedical Physiology and Kinesiology (BPK) - $550,000

STAR affiliate and SFU researcher, Dr. Stephen Robinovitch was successfully funded through AGE-WELL’s core research project funding for a project on “Wearable technology implementation and innovation to prevent fall-related hip fractures and traumatic brain injuries in older adults”. Summary of project: Falls cause 95% of hip fractures and 80% of traumatic brain injuries (TBI) in older adults. These injuries are twice as common among older adults in long-term care (LTC) and acute care, than seniors living independently. Falls management in these settings requires complementary strategies to prevent falls, and prevent injury when falls occur. This research program focuses on facilitating the use of proven technologies, and developing new technologies for preventing injuries from falls in older adults. In Project 1, we will work with care providers to co-develop and evaluate strategies to increase uptake with wearable hip protectors. We will build on our success in implementing hip protectors in LTC in BC’s Fraser Health Authority (FHA), where hip protectors are worn in 60% of falls, and reduce
fracture risk 3-fold. We will adapt and evaluate the FHA hip protector implementation model to LTC sites in Schlegel Villages (SV) in Ontario. In Project 2, we will also co-design and evaluate the usability of wearable technologies to prevent fall-related TBI. Our deliverables include evidence-based strategies for implementing hip protectors in LTC, and wearable devices designed to prevent fall-related TBI. Ultimately, this project will advance the health, safety, and mobility of seniors. [https://agewell-nce.ca/wp-content/uploads/2021/05/PDF-CRP-1.pdf](https://agewell-nce.ca/wp-content/uploads/2021/05/PDF-CRP-1.pdf)

**AGE-WELL Core Project: Theodore Cosco, Assistant Professor, SFU Gerontology and Martin Ester, Professor, Computing Science - $474,000**

STAR affiliates and SFU researchers, Drs. Theodore Cosco and Martin Ester were successfully funded through AGE-WELL’s core research project funding for a project on “Precision mental health: A stakeholder-informed, Big Data approach to psychological and wellbeing”. Summary of project: One in five seniors suffers from some form of mental illness. Lack of attention and support for mental illness not only harms the person, but also costs the healthcare system and economy billions. Our challenge is to identify: What seniors believe is good mental health and Factors that make and keep a person mentally healthy. Our objectives are to 1) Understand seniors’ definitions of good mental health, 2) Identify who is more likely to be at risk and/or showing early signs of poor mental health 3) Link people with help and support specific to their needs. Our project will use detailed information about the lives of thousands of people, collected in large study of aging, and advanced computer programming, such as machine learning. Rather than using traditional statistics that are only able to determine how a few variables are related to another, we will use machine learning to determine how many variables interact and relate to mental health. This will lead to the development of an "early-warning system" identifying seniors at risk and connecting them to personalized pathways for better mental health. [https://agewell-nce.ca/wp-content/uploads/2021/05/PDF-CRP-1.pdf](https://agewell-nce.ca/wp-content/uploads/2021/05/PDF-CRP-1.pdf)

**AGE-WELL Crosscutting Activity: CC3 T-Work Transdisciplinary Working Research 2017-20**

STAR received $179,443 in funding over the course of 2017-21 to support AGE-WELL’s Crosscutting Activity: CC3 T-Work Transdisciplinary Working research. Transdisciplinary working is an approach to research that involves scientists from diverse academic disciplines and experiential stakeholders (e.g., older adults and caregivers, industry and financers, policymakers) as researchers or partners. The aim of this type of approach is to solve complex social problems by developing innovations and knowledge that have real-world impact. It is not research that involves only one discipline or sector, or research that includes experiential stakeholders only as research participants or subjects. [https://agewell-nce.ca/research/crosscutting-activities](https://agewell-nce.ca/research/crosscutting-activities)
AGE-WELL OA Involve: Older Adults’ needs, experiences and preferences for Assistive Technology (AT) 2017-19**

STAR received $40,800 in funding over the course of 2017-19 to support AGE-WELL’s OA Involve project. The aim of OA-INVOLVE is to develop best practices to support the active involvement of older adults in AGE-WELL projects. It will focus on understanding how to best incorporate the experience and insight of older adults in aging and technology research.

http://www.oa-involve-agewell.ca/

Canadian Consortium on Neurodegeneration in Aging (CCNA) Team 15: Gerontechnology and Technologies for Cognitive Health 2017-19**

STAR received $39,375 in funding between 2017-19 as part of a large international project between Canada and France. STAR lead a sub-project on “Technologies for Cognitive Health” which looked at market opportunities in relation to technologies for people with dementia. The project aimed at investigating integrated models of dementia care, study concrete solutions to sustain or improve health in aging population (i.e., training, activities), and the determinants of dementia over the lifespan. Outputs included a preliminary e-health scoping review, environmental scan and final report (see Significant Accomplishments section above for more details).

CIHR Summer Program on Aging (SPA) 2017-18**

STAR received $85,000 in funding from CIHR between 2017-18 to co-organize and co-host an innovative five-day training program that focused on Technology and Innovation Supporting the Health of Older Adults. STAR organized and facilitated the entire week and developed and designed all event materials. During SPA 2018, trainees (Postdoc, PhD and MSc students from all over Canada) had the opportunity to engage in learning sessions, experiences, and activities (see Significant Accomplishments section above for more details).

Community Engagement Fund Point of Care Health Technologies (PCHT) team - Independent Living Technologies Node 2016-22**

STAR received $84,000 in funding over the course of 2017-22 for work within SFU’s Point of Care Health Technologies team funded though Community Engagement Fund. PCHT is a multidisciplinary collaboration of 16 SFU faculty members from 4 faculties working to research and develop new point of care health technologies to improve health outcomes and keep
people out of hospitals. The team is focused on ground breaking research from fundamental mechanistic ideas to clinical trials of point of care technologies. Throughout the research process PCHT aims to develop a community of health technology innovators, build research and training capacity across SFU campuses, and prepare the next generation of innovators to take on the unique challenges of effective, cost-conscious healthcare.

AGE-WELL Scientific Director Stipend 2015-20**

As Scientific Director of AGE-WELL between 2015-20, Dr. Andrew Sixsmith received an annual Scientific Director stipend (a total of $500,000 between 2015-20) to support AGE-WELL activities and research, particularly in the western provinces, and to carry out activities and research at the STAR Institute that align with AGE-WELL’s mandate. STAR supported numerous AGE-WELL activities and events between 2015-20 (e.g., AGE-WELL annual conferences, roadshows, impact challenge competitions and more), lead core research projects (outlined in below section) and supported AGE-WELL strategic planning (e.g., AGE-WELL renewal 2020-24; Challenge Area development informing AGE-WELL’s core research program 2020-24; sitting on various AGE-WELL committees and participating in Network Management Office strategic meetings).

AGE-WELL 2015-20 - $36.6 million in federal funding

Under the leadership of Scientific Directors Andrew Sixsmith (SFU) and Alex Mihailidis (UoT), AGE-WELL received funding for five years (2015-20) under the Network of Centres of Excellence (NCE) program, with federal funding of $36.6 million.

As noted above, the STAR Institute plays a major role in AGE-WELL, Canada’s AgeTech network. This relationship is reflected in funding flowing for AGE-WELL to support a range of STAR activities and funding flowing to SFU researchers affiliated with STAR. Below we highlight a few funded projects through AGE-WELL that support STAR activities. We also highlight funded projects through AGE-WELL that support SFU researchers affiliated with STAR.

STAR Institute Media Successes 2016/2022

The STAR Institute has been successful in engaging with public media. We highlight a few below:

researchers-say-1.5658920


Sixsmith, A. (2020, August 4). Canada, we need to talk about COVID-19, Pandemics, Technology and the way forward. YOUAREUNLTD. https://tinyurl.com/m89kau56


urban-design-can-help-people-with-dementia-navigate-neighbourhoods-and-public-spaces-1.5298810


STAR Institute Public Outreach 2016/2022

STAR is committed to supporting community-based research in the area of technology and aging and has been highly active over the last five years working with community partners as well as supporting AGE-WELL’s community engagement efforts. Below we highlight a few of
the many activities STAR has been involved in between 2016-21.

2021/2022 Year

**2021/2022 Year**

**Town Hall on Digital Health Informatics - Fall 2022**
STAR and 411 Seniors Centre Society received funding in 2021 to co-create and co-host a Town Hall for older adults and community-based seniors’ agencies. The Town Hall will take place in Fall 2022 on the theme of *Digital Health Information & Older Adults: COVID-19 and Beyond* and will feature panelists from various sectors to address the digital divide and digital health informatics for older adults.

**AGE-WELL AgeTech Innovation Week - Fall 2021**
STAR provided management, coordination and design support to the AGE-WELL Network Management Office leading up to and during AGE-WELL’s virtual AgeTech Innovation Week. STAR also presented a poster at the conference. AgeTech Innovation Week was a unique virtual event for anyone with an interest in technology-based solutions that support older adults and caregivers and featured curated public panels, workshops, networking opportunities and catalytic conversations that connect people and create change. The week-long event was a huge success. STAR played a large role in supporting program development, securing panelists and scheduling planning sessions, supporting logistics work and virtual event app use, and designed the event branding materials, marketing materials (including a full page spread in Canada’s Globe and Mail newspaper), slide deck materials, etc.

https://agetechinnovationweek.com/

**411 Seniors Centre Society - 2021/22**
STAR and 411 officially named their partnership of a few years LEADS: Learning, Equity, Aging, Digital for Seniors. The project brings together staff and researchers from SFU STAR, staff and members from 411, and staff from the province-wide Navigation & Peer Support (NPS) initiative (https://tinyurl.com/49z2jyd9) monthly, to identify projects and protocols that enhance local information and referral services to better connect seniors and caregivers to the resources in their community. In 2021-22, STAR and 411 co-supervised a community-based researcher to support the project and ramped up the number of sub-projects within the partnership significantly. See full list of past, present and ongoing LEADS projects, events, outputs and publications here: https://tinyurl.com/uj4wdy9w. The Institute is also engaged in supporting the development of a new communications infrastructure for 411 and is currently putting new and efficient communications protocols in place, developing a new website to act as the central communications platform for the centre, creating new branding materials and a new monthly e-and-print newsletter, all in close conversation and audit interviews with 411 members, volunteers, staff and board.

2020/2021 Year

---

STAR Institute - Simon Fraser University
New Technologies International Conference Presentation - Late Winter 2021
STAR presented on “COVID-19 and AgeTech: Experiences and Implications” at the New Technologies: Opportunity or Challenge for the Aging Population? Conference held virtually. The international conference was the fifth in the series within the eng(aging)! project (see 2018/19 section below for more details).

Maple Ridge Probus Club Visit - Spring 2020
STAR was invited to present to the Maple Ridge Probus Club whose members comprise of a community of retired professionals ranging between 60-90 years of age. STAR Director Dr. Andrew Sixsmith spoke on the topic of “COVID-19 and AgeTech”.

411 Seniors Centre Society - 2020/21
STAR and 411 worked closely over 2020/21, identifying areas for collaboration as part of the MoU in place. STAR supported 411’s transition to online member support in Spring 2020 by way of consultation and soon after compiled STAR’s COVID-19 online resource lists (see STAR Institute’s COVID-19 Response section above). STAR co-supervised a UBC Masters student’s practicum at 411 and co-authored and designed a report on Information and Referral Services to Seniors in British Columbia (see Significant Accomplishments section above). 411 also became the Provincial lead in a new Navigation & Peer Support Project. STAR partnered with 411 on the two-year project which includes the co-supervision of a community-based researcher with the aim to enhance local information and referral services to better connect seniors and caregivers to the resources in their community. A key component of the project will include hosting a workshop involving SFU collaborators and community members. https://www.411seniors.bc.ca/

2019/2020 Year

AGE-WELL Annual Conference - Fall 2019
STAR provided management and coordination support to the AGE-WELL Network Management Office leading up to and during the AGE-WELL Conference on Exploring the Future of Technology and Aging in Moncton, New Brunswick, Canada. STAR also presented one poster at the conference. The conference showcased a multi-disciplinary program of research and innovation from across the AGE-WELL network and engaging demonstrations and presentations spotlighted real-world solutions to support healthy aging. Sessions were designed to maximize networking, knowledge exchange and collaboration among AGE-WELL stakeholders. https://agewell-nce.ca/conference

AGE-WELL National Impact Challenge Competition - Summer 2019
The AGE-WELL Impact Challenge Competition was co-hosted by STAR in Vancouver. The top five finalists from the region were selected to compete for $15,000 cash plus in-kind prizes. Attendees had the opportunity to learn from industry experts, gain key insights on

411 Seniors Centre Society - Spring 2019/20
The Executive Director of 411 Seniors Centre Society in Vancouver contacted STAR in 2019 with an interest in understanding the kind of work STAR was involved in and how it supports community-based research. STAR and 411 met to discuss further and develop avenues for collaboration (with an MoU in place). STAR provided guidance on the layout of 411 new facilities pre construction (Fall 2022 move in date) with regards to accessibility, space for future collaborative opportunities and engagement with outside organizations and universities (e.g., meeting spaces, a ‘tech room’ where older adults can test assistive technologies that help with healthy aging, as well as discussions around the funding of putting computers and training supports in place at the new centre for those who need access to online resources, filling in governmental forms and so forth). In late Spring 2022, STAR took part in a 411 Powered by Age podcast series ([https://www.poweredbyage.com/](https://www.poweredbyage.com/)) meeting, a podcast for seniors by seniors tackling issues pertinent to older adults in modern life. Episode topics range from finding ways to tackle the digital divide, to housing and health challenges for an aging population, to debunking myths on aging, leadership in the community, sharing poetry, storytelling, and much more. STAR Director Dr. Andrew Sixsmith was interviewed in one of their episodes. [https://www.411seniors.bc.ca/](https://www.411seniors.bc.ca/)

Brock House Seniors Society Visit - Spring 2019
STAR researchers in collaboration with PCHT colleagues visited Brock House Seniors Society for a second time (see 2017-18 Year section below) to share current STAR research with older adult members, specifically STAR’s recently published Key Issues in Aging in the 21st Century digital booklet.

2018/2019 Year

New Technologies International Conference Presentation - Early Spring 2019
STAR presented at the New Technologies: Opportunity or Challenge for the Aging Population? Conference in Prague. The international conference was the third in a series within the eng(aging)! project, organized by KEYNOTE ([https://www.keynote.cz/](https://www.keynote.cz/)), a well-established consultancy firm. The project reflects the crucial importance of a society-wide debate regarding the topic of demographic change and an aging population, and aims to highlight these issues, stimulate constructive discussion, and help to create conditions that will make use of demographic change for the benefit of societies. The project consists of a series of panel discussions, public seminars, roundtables and annual international conferences focusing on topics related to demographic change and population aging.
**AGE-WELL Annual Conference - Fall 2018**
STAR provided management and coordination support to the AGE-WELL Network Management Office leading up to and during the AGE-WELL Conference on *Innovation in Action* in Vancouver, British Columbia, Canada. STAR also presented two papers at the conference. The conference showcased a multi-disciplinary program of research and innovation from across the AGE-WELL network and engaging demonstrations and presentations spotlighted real-world solutions to support healthy aging. Sessions were designed to maximize networking, knowledge exchange and collaboration among AGE-WELL stakeholders.  
[https://agewell-nce.ca/conference](https://agewell-nce.ca/conference)

**STAR Institute Knowledge Café - Fall 2018**
STAR hosted a Knowledge Café workshop at SFU Harbour Centre in Vancouver. As mentioned in the Significant Accomplishments section of this report, STAR received funding from the Canadian Consortium on Neurodegeneration in Aging (CCNA) for sub-project 15.8 which specifically looked at market opportunities in relation to technologies for people with dementia. The findings from the environmental scan that was carried out were used to develop the Knowledge Café on the topic of cognitive health and technology. AGE-WELL NCE and the CIHR Institute of Aging also provided funds for event development and organization expenses. The Knowledge Café was a great opportunity for researchers, students, industry and government partners and stakeholders in the aging and technology sector to: prioritize areas of development for future care technologies; identify key ethical considerations of current and future technologies; discuss strategies to best distribute knowledge concerning technologies for dementia to those who may need it. [http://www.sfu.ca/starinstitute/about/institute-activities/archive/star-institute-knowledge-cafe-2019.html](http://www.sfu.ca/starinstitute/about/institute-activities/archive/star-institute-knowledge-cafe-2019.html)

**AGE-WELL National Roadshow - Spring 2018**
The 2018 AGE-WELL Roadshow on “Creating the Future: AGE-WELL 2020-2025” was co-hosted by STAR at SFU Harbour Centre in Vancouver. The roadshow was a part of a national dialogue about the next phase of Canada’s technology and aging network. In early 2018, AGE-WELL began a strategic planning process that enabled it to define its priorities for 2020-2025. AGE-WELL organized six roadshows across Canada to engage in a dialogue with stakeholders by sharing highlights of plans for the future, describing how to get involved in the network and inviting participants to share their comments.

**Point of Care Health Technology (PCHT) Research Forum Community Engagement Event - Spring 2018**
Notably, STAR organized a Research Forum event on behalf of the PCHT team at the Brock House Seniors Society in Vancouver. Trainees from PCHT and STAR connected with members of Brock House to provide information on emerging care health technologies and research findings through a series of short presentations. Each presentation was followed by a Q&A period with a chance to see prototypes of upcoming technology. [http://www.sfu.ca/pcht.html](http://www.sfu.ca/pcht.html)
AGE-WELL HQP and OACAC, STAR Institute and AGING 2.0 Social - Spring 2018
STAR co-sponsored, organized and hosted a social event at Rogue Restaurant in Vancouver for local researchers, local AGE-WELL Highly Qualified Personnel (HQP) and local members of AGE-WELL’s Older Adult and Caregiver Advisory Committee (OACAC). Members from Vancouver’s Aging 2.0 Chapter also attended. The social provided the opportunity to meet and chat informally with others in BC interested in technology and aging and develop community and industry partnerships.

2017/2018 Year

AGE-WELL Annual Conference - Fall 2017
STAR provided management and coordination support to the AGE-WELL Network Management Office leading up to and during the AGE-WELL Conference on Benefiting Canada: Technologies, Services and Policies for Healthy Aging in Winnipeg, Manitoba, Canada. STAR also presented two papers at the conference. The conference showcased a multi-disciplinary program of research and innovation from across the AGE-WELL network and engaging demonstrations and presentations spotlighted real-world solutions to support healthy aging. Sessions were designed to maximize networking, knowledge exchange and collaboration among AGE-WELL stakeholders.
https://agewell-nce.ca/conference

Kitsilano House Seniors’ Centre Visit - Fall 2017
A STAR Research Associate (Mei Lan Fang) shared current STAR research with older adults at the Kits House Seniors’ Centre on National Seniors Day

AGE-WELL Summer School on Aging - Summer 2017
A STAR Research Associate (Mei Lan Fang) attended the AGE-WELL Summer School on Aging in Santiago, Chile. She presented scoping reviews conducted in collaboration with other graduate students on the etiological, ethical and political implications of mild cognitive impairment and technology. This international collaboration emphasized the importance of having different disciplines collaborating to deliver a superior result.
https://agewell-nce.ca/archives/3819

CIHR Summer Program in Aging (SPA) - Summer 2018
STAR partnered with the CIHR Institute of Aging (IA), as the local organizing institution, to host an innovative five-day training program that focused on Technology and Innovation Supporting the Health of Older Adults (see Significant Accomplishments 2018-19 Year section for more details). STAR co-organized and facilitated the entire week, including securing an impressive group of mentors within the aging and technology sector. STAR developed and designed all event materials including the week program booklet and program at a glance. During SPA 2018, trainees (Postdoc, PhD and MSc students from all over Canada) had the opportunity to
engage in learning sessions, experiences, and activities.  
http://www.sfu.ca/starinstitute/about/institute-activities/archive/spa.html

AGE-WELL National Roadshow - Spring 2017
The 2017 AGE-WELL Roadshow was co-hosted by STAR at SFU Segal Graduate School of Business in Vancouver. The roadshow included presentations on AGE-WELL’s comprehensive suite of research, funding, and HQP training programs and announced new opportunities for researchers, trainees, community and partners to become involved.

AGE-WELL Hacking Health National Ideathon - Spring 2017
The 2017 AGE-WELL Ideathon was co-hosted by STAR at SFU Joseph and Rosalie Centre in Vancouver. The large workshop generated ideas, teams and proposals to submit proposals to the National AGE-WELL/Hacking Health Ideathon Competition. The goal of the national competition was to identify and invest in great new technologies and services to support healthy aging. Prizes awarded at the AGE-WELL–HACKING HEALTH National Ideathon totaled $75,000 in cash and in-kind services. https://tinyurl.com/ys43t3na

SFU Point of Care Health Technologies team - 2017/18
STAR provided administration and coordination support to the PCHT team. Duties included launch and coordination of a bi-weekly PCHT Training Forum and securing guest presenters, coordination of PCHT research presentations and meetings, coordination of outreach sessions with local senior centres, development and dissemination of a weekly PCHT newsletter on PCHT and other aging and technology related events, and identification of funding opportunities. http://www.sfu.ca/pcht.html

SFU PCHT Research Forum - 2017/18
PCHT facilitated PCHT Research Forum meetings as a primary venue for research translation, capacity building, communication, and community development. The Research Forum meetings provided the opportunity for PCHT trainees and PIs to share their work and expertise, ensuring that PCHT researchers developed the crucial knowledge to be successful and generate transformative impact at SFU and beyond. The meetings helped build strong connections across the community, including outreach to local stakeholders. http://www.sfu.ca/pcht.html

AGE-WELL National Innovation Hub - 2017/18
STAR provided resources and coordination support during the development phase of the AGE-WELL National Innovation Hub based at SFU - Digital Health Circle. Duties included scheduling and tracking meetings and outreach efforts with local partners, stakeholders, government, community over the course of six months prior to launch. https://www.digitalhealthcircle.ca/
<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Institution</th>
<th>Faculty (If SFU)</th>
<th>Department (If SFU)</th>
<th>Active Member</th>
<th>Peripheral Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adeel</td>
<td>Isaac</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Anderson</td>
<td>Laurie</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Arceounci</td>
<td>Uskuk</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Mechanical Systems Engineering</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Asfeld</td>
<td>Armarie</td>
<td>University of Toronto</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Batteford</td>
<td>Lująhi</td>
<td>Simon Fraser University</td>
<td>Knowledge Mobilization</td>
<td>Knowledge Mobilization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pamatànla Femarrez</td>
<td>Oscar</td>
<td>Universitat Lleida, Spain</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Roger</td>
<td>Jennifer</td>
<td>University of Waterloo</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Scott</td>
<td>Walter</td>
<td>University of Florida</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Sonhardt</td>
<td>Pam</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>Lynne</td>
<td>Curtice</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fensal Beg</td>
<td>Naira</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chausibley</td>
<td>Habbi</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Christiakw</td>
<td>Michael</td>
<td>AGE-WELL, University Health Network</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chu</td>
<td>Charlene</td>
<td>University of Toronto</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chung</td>
<td>Teresa</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Charaka</td>
<td>Greg</td>
<td>Simon Fraser University</td>
<td>Communications, Art and Technology</td>
<td>Interactive Arts and Technology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cisco</td>
<td>Theodore</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D'Arcy</td>
<td>Ryan</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hojdy</td>
<td>Aly</td>
<td>BC Care Providers</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dion</td>
<td>Mandii</td>
<td>Northern Health Science Alliance (NHSA)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Elder</td>
<td>Martin</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Computing Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fenn</td>
<td>Mikei</td>
<td>Simon Fraser University</td>
<td>University of Dundee</td>
<td>Arts and Social Sciences</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fenran</td>
<td>Faramast</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Mechanical Systems Engineering</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Flynn</td>
<td>Ailing</td>
<td>SFU, National University of Ireland, Scotland</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Frappatt</td>
<td>Lynn</td>
<td>University of Central Lancashire, UK</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Giriasar</td>
<td>Vieve</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Computing Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Goliaranghi</td>
<td>Fard</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Mechanical Systems Engineering</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Goldran</td>
<td>Felix</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Giramide</td>
<td>Diana</td>
<td>Simon Fraser University</td>
<td>Communications, Art and Technology</td>
<td>Interactive Arts and Technology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Gularene</td>
<td>Habana</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Guthman</td>
<td>Gloria</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Harvard</td>
<td>Mike</td>
<td>Former Premier of British Columbia, Former Mayor of Vancouver</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Horst</td>
<td>Beckii</td>
<td>University of Western Ontario</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jackson</td>
<td>Piper</td>
<td>Thompson Rivers University</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Janzahni</td>
<td>Dian</td>
<td>University of Victoria</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fan</td>
<td>Shermoz</td>
<td>University Health Network</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Knebel</td>
<td>Frank</td>
<td>University of Ottawa</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Kirwan</td>
<td>Vocki</td>
<td>SFU 2016-20, UNBC 2020-22</td>
<td>Science</td>
<td>Biomedical Physiology and Kinesiology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lez</td>
<td>Kehri</td>
<td>United Way of the Lower Mainland</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lim</td>
<td>Angelica</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Computing Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lu</td>
<td>Lea</td>
<td>University of Waterloo</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lubik</td>
<td>Sarah</td>
<td>Simon Fraser University</td>
<td>Beedle School of Business</td>
<td>Beedle School of Business</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>MAHAMADOU</td>
<td>Abdoul Jall DUMBOU</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nahwood</td>
<td>Ayla</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Niaa</td>
<td>Bice</td>
<td>Simon Fraser University</td>
<td>Beedle School of Business</td>
<td>Beedle School of Business</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nein</td>
<td>Lin</td>
<td>AGE-WELL</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Muclanyay</td>
<td>Richard</td>
<td>AGE-WELL</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>McIntosh</td>
<td>Randy</td>
<td>Simon Fraser University</td>
<td>Science</td>
<td>Biomedical Physiology and Kinesiology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Maxiezenk</td>
<td>Lawrence</td>
<td>Simon Fraser University</td>
<td>Partnerships Hub</td>
<td>Partnerships Hub</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Menn</td>
<td>Carls</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Engineering Science</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Miguel-Cru</td>
<td>Antonio</td>
<td>University of Alberta</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mihabik</td>
<td>Ali</td>
<td>AGE-WELL, University Health Network, University of Toronto</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Michell</td>
<td>Barbara A.</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Monierweart</td>
<td>Sarah</td>
<td>KIT Senior Centre Society - ERS Program</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Moren</td>
<td>Sylvia</td>
<td>Simon Fraser University</td>
<td>Communications, Art and Technology</td>
<td>Interactive Arts and Technology</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Murphy</td>
<td>Bridgette</td>
<td>AGE-WELL, University Health Network</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Neftznerwe</td>
<td>Noleenrneh</td>
<td>University of Calgary</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Neft-Horwezt</td>
<td>Judith</td>
<td>Simon Fraser University</td>
<td>Simon Fraser University</td>
<td>Simon Fraser University</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Nesrni</td>
<td>Amaranthus Callius</td>
<td>Lancaster University, UK</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>O'Rourke</td>
<td>Norm</td>
<td>Ben-Gurion University of the Negev, Israel</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Park</td>
<td>Edward</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Mechanical Systems Engineering</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Palevski</td>
<td>Margaret</td>
<td>AGE-WELL, University Health Network</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

By uploading this list, the Director certifies that all the members listed in this document have agreed to be affiliated with the Centre/Institute and approve of this renewal application.
<table>
<thead>
<tr>
<th>Name</th>
<th>First Name</th>
<th>Last Name</th>
<th>Institution</th>
<th>Department</th>
<th>Role</th>
<th>Co-Author</th>
<th>Email Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powell</td>
<td>Jason</td>
<td>Staffordshire University, UK</td>
<td>Arts and Social Sciences</td>
<td>Anthropology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pullingham</td>
<td>Jane</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Anthropology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raber</td>
<td>Ceyke</td>
<td>Emily Carr University</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rameun</td>
<td>Leslie</td>
<td>411 Seniors Centre Society</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rabid</td>
<td>Indra</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Interactive Arts and Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rincon</td>
<td>Adriana Row</td>
<td>University of Alberta</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robsonitch</td>
<td>Stephen N.</td>
<td>Simon Fraser University</td>
<td>Science</td>
<td>Biomedical Physiology and Kinesiology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rodriguez</td>
<td>Emma</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubeis</td>
<td>Giovanni</td>
<td>Karl Leindster University, Austria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandesi</td>
<td>Samantha</td>
<td>AGE-WELL, University Health Network</td>
<td>Communications, Art and Technology</td>
<td>Interactive Arts and Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schiporst</td>
<td>Thecla</td>
<td>Simon Fraser University</td>
<td>Communications, Art and Technology</td>
<td>Interactive Arts and Technology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schneider</td>
<td>Alison</td>
<td>AGE-WELL, University Health Network</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ten</td>
<td>Hannah</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teasmith</td>
<td>Andrew</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teasmith</td>
<td>Judith</td>
<td>University of Dundee</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tinkeny</td>
<td>Carolyn</td>
<td>Simon Fraser University</td>
<td>Applied Sciences</td>
<td>Mechatronic Systems Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tinker</td>
<td>Anthea</td>
<td>Kings College University</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>Becky</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wilson</td>
<td>Nicole</td>
<td>Northern Health Science Alliance (NHSA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weather</td>
<td>Andrew</td>
<td>Simon Fraser University</td>
<td>Arts and Social Sciences</td>
<td>Gerontology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wong</td>
<td>Karen Lok Y</td>
<td>University of British Columbia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wooltych</td>
<td>Ryan</td>
<td>Heriot-Watt University, UK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: SFU STAR Institute - SFU AgeTech and Innovation Asset Map June 2022

<table>
<thead>
<tr>
<th>Institution</th>
<th>Faculty</th>
<th>Department</th>
<th>First</th>
<th>Last</th>
<th>SFU Title</th>
<th>Email</th>
<th>Expertise</th>
<th>Community Connections</th>
<th>City</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFU</td>
<td>Beedie School of Business</td>
<td>Business</td>
<td>Jan</td>
<td>Keizmann</td>
<td>Assistant Professor</td>
<td><a href="mailto:jkeizmann@sfu.ca">jkeizmann@sfu.ca</a></td>
<td>Human-computer interaction, Information technology and social change, information systems, communication technology, technological innovation</td>
<td>Associate editor, Business Horizons [<a href="https://www.journals.elsevier.com/business-horizons/">https://www.journals.elsevier.com/business-horizons/</a>] Fellow, Consumer and Organizational Data Analytics (CODA) Research Centre, King University, UK [<a href="https://www.ktlau.lib.ubc.ca/research/cent">https://www.ktlau.lib.ubc.ca/research/cent</a> re/coda]</td>
<td>Surrey</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Use</td>
<td>Glasser</td>
<td>Professor</td>
<td><a href="mailto:pglasser@cs.sfu.ca">pglasser@cs.sfu.ca</a></td>
<td>Situational awareness and decision support, formal engineering methods</td>
<td>Principle investigator and founder, Software Technology Lab and the Public Safety and Security HPC Lab, SFU [<a href="https://www.sfu.ca/computing/research/layout.html">https://www.sfu.ca/computing/research/layout.html</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Lovedeep</td>
<td>Gondara</td>
<td>PhD student</td>
<td><a href="mailto:sgondara@sfu.ca">sgondara@sfu.ca</a></td>
<td>Privacy preserving machine learning, machine learning in healthcare</td>
<td>Bestesitician, BC Cancer Agency [<a href="http://www.bestesitician.bc.ca">http://www.bestesitician.bc.ca</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Yee</td>
<td>Liu</td>
<td>Assistant Professor</td>
<td><a href="mailto:byliu@sfu.ca">byliu@sfu.ca</a></td>
<td>Machine learning (inc. deep learning, generative models, meta-learning and reinforcement learning), computer vision, algorithm</td>
<td>Information not readily available</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Angelika</td>
<td>Lin</td>
<td>Roger Family Assistant Professor</td>
<td><a href="mailto:angelika@sfu.ca">angelika@sfu.ca</a></td>
<td>Human-robot interaction, affective computing, multimodal sensor fusion and learning, development robotics</td>
<td>Director, Robo Lab [<a href="https://www.robolab.chemsoc.org">https://www.robolab.chemsoc.org</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Gaswei</td>
<td>Song</td>
<td>Adjunct Professor</td>
<td><a href="mailto:gsong@sfu.ca">gsong@sfu.ca</a></td>
<td>Patient care through health sciences and technology innovations, high-performance structural and functional MRI, computational biomechanics, bio-signal processing, neuromodulation technologies, brain stimulation and interfaces</td>
<td>Senior Clinical Scientist, Fraser Health Authority [<a href="https://www.fraserhealth.ca">https://www.fraserhealth.ca</a>]; MRI Program Lead, SFU ImageTech Lab in Surrey Memorial Hospital [<a href="https://www.sfu.ca/research/techlab/imageTech">https://www.sfu.ca/research/techlab/imageTech</a> Lab]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Tao</td>
<td>Wang</td>
<td>Professor</td>
<td><a href="mailto:twang@cs.sfu.ca">twang@cs.sfu.ca</a></td>
<td>Graph and network data, data privacy, data security, mining massive datasets, mining biological data</td>
<td>Associate editor, ACM TKDD journal [<a href="http://www.sfu.ca/neurospine.html">http://www.sfu.ca/neurospine.html</a>]; Director, NeuroSpine Lab</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Computing Science</td>
<td>Fred</td>
<td>Popowich</td>
<td>Professor</td>
<td><a href="mailto:fpopowich@sfu.ca">fpopowich@sfu.ca</a></td>
<td>Technology commercialization, cognitive science, machine learning, smart houses, technology enhanced learning</td>
<td>Senior member, IEEE; Associate Editor, IEEE Transactions on Professional Communication [<a href="https://www.ieee.org/">https://www.ieee.org/</a>]; Co-founder, Shield-X Technology Inc.; Fellow, Canadian Academy of Engineering [<a href="https://www.caeng.ca">https://www.caeng.ca</a>]; Co-founder, Lab/Youth Addiction Recovery and Mental HealthTech Inc.</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Michael</td>
<td>Afachi</td>
<td>Assistant Professor</td>
<td><a href="mailto:mafachi@sfu.ca">mafachi@sfu.ca</a></td>
<td>Nanofabrication, 2D materials and devices, solar cells</td>
<td>Chair in Technology Innovations, eBrain spinoff [<a href="https://www.nanodevice.fas.sfu.ca/">https://www.nanodevice.fas.sfu.ca/</a>]; President, Nano device fab group</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Teresa</td>
<td>Cheung</td>
<td>Assistant Professor</td>
<td><a href="mailto:tcheung@sfu.ca">tcheung@sfu.ca</a></td>
<td>Patient care through health sciences and technology innovations, high-performance structural and functional MRI, computational biomechanics, bio-signal processing, neuromodulation technologies, brain stimulation and interfaces</td>
<td>Physical and medical imaging scientist, Fraser Health [<a href="https://www.fraserhealth.ca">https://www.fraserhealth.ca</a>]; National Research Council of Canada Postdoctoral Fellow [<a href="https://erl.ensc.sfu.ca/">https://erl.ensc.sfu.ca/</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Ryan</td>
<td>Choisy</td>
<td>Professor</td>
<td><a href="mailto:rchoisy@sfu.ca">rchoisy@sfu.ca</a></td>
<td>Neuroscience and non-invasive biomedical imaging, interventional complex neural systems, treatment of brain diseases and disorders</td>
<td>Neuroscience and entrepreneur; Co-founder, president and chief scientific officer, HealthTech Connex Inc. [<a href="https://healthtechconnex.com">https://healthtechconnex.com</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Myria</td>
<td>Fatah-Beg</td>
<td>Professor</td>
<td><a href="mailto:mftabeg@sfu.ca">mftabeg@sfu.ca</a></td>
<td>Computational anatomy, non-rigid registration of medical images, shape analysis, medical image computing</td>
<td>Co-Director, Medical Image Analysis Laboratory; Scholar, Michael Smith Foundation for Health Research Scholar [<a href="https://www.research.sfu.ca">https://www.research.sfu.ca</a>]; President and co-founder, CEA Innovations Corp. [<a href="https://www.ceainnovations.com">https://www.ceainnovations.com</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Carlos</td>
<td>Miron</td>
<td>Professor</td>
<td><a href="mailto:cmiron@sfu.ca">cmiron@sfu.ca</a></td>
<td>Robotics, machine learning, automation, physical human interaction, wearable robotics, sensors, perception, robot control, smart materials and structures, artificial intelligence and design of mechanical systems</td>
<td>President and co-founder, CEA Innovations Corp. [<a href="https://www.ceainnovations.com">https://www.ceainnovations.com</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Shahram</td>
<td>Rezvani</td>
<td>Professor</td>
<td><a href="mailto:srezvani@sfu.ca">srezvani@sfu.ca</a></td>
<td>Robotics, motion planning, robotics, human-robot interaction, healthcare applications, wearable robotics</td>
<td>Co-founder, ROSIE (Resource Optimisation and Service Innovation in the Enterprise); Co-founder, Mobiobile Systems (SFU spinoff) [<a href="https://www.kcl.ac.uk/biz/research/centres/series/series">https://www.kcl.ac.uk/biz/research/centres/series/series</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Sialam</td>
<td>Arzanpur</td>
<td>Associate Professor</td>
<td><a href="mailto:sarzanpur@sfu.ca">sarzanpur@sfu.ca</a></td>
<td>Co-innovation, medical technology, brain stimulation technologies, brain-computer interface, neuroscience</td>
<td>Co-founder and CEO, Optical Systems Inc.; Co-founder, Shield-X Technology Inc.; Fellow, Canadian Academy of Engineering</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Farzad</td>
<td>Foroughi</td>
<td>Associate Professor</td>
<td><a href="mailto:fjforoughi@sfu.ca">fjforoughi@sfu.ca</a></td>
<td>Application of intelligent sensor systems to biomedical, automotive and condition monitoring and diagnostic systems</td>
<td>Co-founder and CEO, Lab/Youth Addiction Recovery and Mental Health [<a href="https://www.nanodevice.fas.sfu.ca/">https://www.nanodevice.fas.sfu.ca/</a>]; Scientific Director, SFU Research and Technology Development Centre (R&amp;D); Associate Director, SFU Research and Technology Development Centre (R&amp;D) [<a href="https://www.kcl.ac.uk/business/research/cent">https://www.kcl.ac.uk/business/research/cent</a> res/res/coda]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Xiaowei</td>
<td>Song</td>
<td>Professor</td>
<td><a href="mailto:xiaowei.song@fraserhealth.ca">xiaowei.song@fraserhealth.ca</a></td>
<td>Robotics, machine learning, artificial intelligence, computer vision, algorithms, robotics, medical imaging, computer-aided diagnosis, real-time and interactive robotics, image-guided robotics, assistive robotics</td>
<td>Director, Biomechatronic Systems Laboratory [<a href="https://www.sfu.ca/mechanosystems">https://www.sfu.ca/mechanosystems</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>Faculty of Applied Sciences</td>
<td>Engineering Science</td>
<td>Carolyn</td>
<td>Sparney</td>
<td>Assistant Professor</td>
<td><a href="mailto:csparney@sfu.ca">csparney@sfu.ca</a></td>
<td>Injury biomechanics, computational models of injury, tissue mechanics and materials</td>
<td>Director, NeuroSpine Lab [<a href="http://www.sfu.ca/neurospine.html">http://www.sfu.ca/neurospine.html</a>]</td>
<td>Burnaby</td>
<td>BC</td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Beedie School of Business</td>
<td>Sarah Lubik</td>
<td>Director of Entrepreneurship, SFU CBC Odyssey</td>
<td>Director, Technology Innovation</td>
<td><a href="mailto:lubik@sfu.ca">lubik@sfu.ca</a></td>
<td>business models, commercialization of advanced technologies, partnerships, innovation ecosystems, incubation</td>
<td>Certified expert business coach and mentor, SFU’s Venture Connection incubator (<a href="https://www.sfu.ca/vc/">https://www.sfu.ca/vc/</a>]</td>
<td>Vancouver, BC</td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Beedie School of Business</td>
<td>Eila Maie</td>
<td>U. of British Columbia: Professor of Innovation &amp; Entrepreneurship</td>
<td><a href="mailto:eina@sfu.ca">eina@sfu.ca</a></td>
<td>technology innovation, science and technology entrepreneurship, technology-based innovation, science-based business, innovation policy</td>
<td>Graduate certificate in “innovation” in science &amp; technology commercialization, Board member, Directors of the Foremost Clean Tech Accelerator and Innovate BC New Ventures BC</td>
<td>Vancouver, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Coast Capital Savings Venture Connection</td>
<td>Doug Flett</td>
<td>Lead Mentor</td>
<td>darkwater_tek.com</td>
<td>entrepreneurship, building successful companies</td>
<td>Consulting for entrepreneurship and social impact organizations, strategy, innovation, partnerships, due diligence, program development, impact measurement</td>
<td>Consultant and strategist, Ventures Program Strategist, Radiuss SFU</td>
<td>Burnaby, BC</td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>RADIUS Ventures</td>
<td>Kimberly Bresolin</td>
<td>Ventures Program Strategist</td>
<td><a href="mailto:kresolin@radiussfu.com">kresolin@radiussfu.com</a></td>
<td>sustainable business models</td>
<td>Co-Director, Radiuss SFU</td>
<td>Vancouver, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>The City Program</td>
<td>Andy Yen</td>
<td>Director</td>
<td><a href="mailto:yen@sfu.ca">yen@sfu.ca</a></td>
<td>urban planning and regeneration, neighborhood development, applied demographics, transportation</td>
<td>Co-Director, Radiuss SFU</td>
<td>Vancouver, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Venture Connections</td>
<td>William Brunner</td>
<td>Incubator Programs Manager</td>
<td><a href="mailto:wbrunner@sfu.ca">wbrunner@sfu.ca</a></td>
<td>entrepreneurship, management information systems</td>
<td>Incubator Programs Manager, SFU’s Coast Capital Savings Venture Connection</td>
<td>Vancouver, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Big Data Initiative</td>
<td>Laurence Meadows</td>
<td>Strategic Partnerships Manager</td>
<td><a href="mailto:smeadow@sfu.ca">smeadow@sfu.ca</a></td>
<td>creating and growing partnerships and helping to support key university initiatives</td>
<td>Director, Business Development, Centre for Digital Media</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Surrey Campus</td>
<td>Steve Dooley</td>
<td>Executive Director</td>
<td><a href="mailto:steved@sfu.ca">steved@sfu.ca</a></td>
<td>information not readily available</td>
<td>Information not readily available</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Faculty of Education, SFU Public Square</td>
<td>Luann Anderson</td>
<td>Executive Director, Adjunct Professor, Lead Facilitator</td>
<td><a href="mailto:luann_anderson@sfu.ca">luann_anderson@sfu.ca</a></td>
<td>education, curriculum development, mediation, youth development challenges</td>
<td>Former consultant on education reform, Ministry of Education; Former curriculum developer and instructor, Vancouver Community College; Former mediation consultant for schools throughout BC; Former member, Vancouver Board of Education; Former consultant on education reform, Ministry of Education; Former curriculum developer and instructor, Vancouver Community College; Former mediation consultant for schools throughout BC; Former member, Vancouver Board of Education</td>
<td>Vancouver, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Faculty of Arts and Social Sciences</td>
<td>Wendy Thornton</td>
<td>Professor</td>
<td><a href="mailto:wthorton@sfu.ca">wthorton@sfu.ca</a></td>
<td>Aging, cognitive changes in later life, elder fraud, decision making in later life, social cognition in later life, age differences in cognitive performance</td>
<td>Director, Cognitive Aging Research Lab</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Faculty of Communication, Art and Technology</td>
<td>Steve D’Praets</td>
<td>Professor</td>
<td><a href="mailto:vdpraeis@sfu.ca">vdpraeis@sfu.ca</a></td>
<td>artificial intelligence, computer graphics and interaction, computational systems for expression, movement, gesture and creativity</td>
<td>Director, Media Research lab</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Faculty of Environment</td>
<td>Mark Roseland</td>
<td>Professor, Director of Centre for Sustainable Community Development</td>
<td><a href="mailto:roseland@sfu.ca">roseland@sfu.ca</a></td>
<td>sustainable communities, development, community economic development, social economy, community capital framework</td>
<td>Knowledge sharing within and across disciplines and sectors as a means of improving health, social and environmental policy and practice</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SFU</td>
<td>N/A</td>
<td>Research Commons</td>
<td>Lynn Babineau</td>
<td>Knowledge Mobilization Officer</td>
<td><a href="mailto:lynn_babineau@sfu.ca">lynn_babineau@sfu.ca</a></td>
<td>Information not readily available</td>
<td>Information not readily available</td>
<td>Burnaby, BC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Report Type: Renewal Application

Reporting Year: 2022

General Information

Name of the Centre/Institute: The Institute on Violence, Terrorism, and Security
Website: https://www.ivts.ca/
Faculty: VP Research
Director: Raymond Corrado (Director)
Garth Davies (Associate Director)
Director’s term end:
Renewal date: 2027-11-01

Details

Description of the Centre/Institute:
The Terrorism, Violence & Security Institute Research Centre (TVSIRC) was established in 2019 according to Simon Fraser University’s (SFU) Policy R 40.01. The TVSIRC aims to promote interdisciplinary and cross-national research focused on intra/interstate terrorism, major violent crimes and related security and safety policies. The institute’s Director is Dr. Raymond Corrado, and Associate Director is Dr. Garth Davies. Membership in the TVSIRC is drawn from the School of Criminology, Department of Political Science, Department of Psychology, Faculty of Education, and Continuing Studies, as well as scholars from other major universities globally and government and community agencies in Canada and internationally. Since its inception, the TVSIRC has grown its membership within SFU and internationally and initiated two international workshops on anti-state terrorism threat profiling instruments. Currently, the TVSIRC is actively engaged in five major projects: first, a study of gang involvement intervention programs in Surrey B.C.; second, a cross-national study of immigrant crime profiles in France and Germany; third, a collaboration with Combined Forces Special Enforcement Unit to review the production and use of 3D-printed “ghost guns” and offer recommendations for how to address the threat of these weapons moving forward; fourth, members of the TVSIRC are part of a join partnership between Defense Research and Development Canada (DRDC) and the Swedish Civil Contingencies Agency (MSB) studying comparative targeted violence; and finally, a research project in collaboration with the Portland Police Bureau (Oregon) on the prediction of violence in hostage and barricade incidents. The goal of this project is to conduct an in-depth analysis of these incidents to identify and propose a tool that can be used by the police before intervening in hostage and barricade incidents (see also Beauregard & Michaud, 2015). These projects involve either internal grants, including the Ting Foundation and the Dean of Arts and Social Science, and/or external funding from several sources, including the B.C. provincial government (e.g., Civil Forfeiture Proceeds: Crime Prevention Grant), the
Royal Canadian Mounted Police (RCMP), Social Science and Humanities Research Council (Ph.D. fellowships), the Max Planck Institute for the Study of Crime, Security & Law in Freiburg, Germany, and Defense Research and Development Canada. A primary objective of the TVSIRC is to facilitate policy-focused research on various major violent crimes among SFU researchers in several disciplines and faculties, as well as scholars/policymakers national and cross-nationally. The joint research and scholar exchange (including Ph.D. students) protocol with the Max Planck Institute in Germany and the Interdisciplinary Centre Herzliya (ICD) at Reichman University in Israel are significant steps toward meeting this objective. Recently, we have completed a similar joint research protocol with the Netherlands’s National Police.

Terrorism has always had an international component, requiring cross-national intelligence and security policies. However, in the last several decades, this crime has become increasingly complex, particularly regarding the role the internet plays in messaging, recruitment, planning and financing across national borders. Accordingly, while criminology is typically interdisciplinary, the study of major violent crimes such as terrorism and organized gang violence has substantially required theories and researchers from other faculties, such as computing science, economics, and business. The first TVSIRC book publication, Terrorism Risk Assessment Instruments: Contemporary Policy and Law Enforcement Challenges (Corrado, Wössner and Merari; 2021; IOS Press), brought together perspectives from scholars and policy analysts from several disciplines in nine countries. Currently, the TVSIRC director, Dr. Corrado, has completed a protocol approved by SFU’s Office of Research Services concerning a research/scholarly exchange protocol for inter-institute research collaboration and training with Professor Assaf Moghadam, Director of the Interdisciplinary Center Herzliya (ICD) in Tel Aviv. IDC is a leading global research institute in the study of terrorism. Further, Dr. Corrado is discussing a similar arrangement with Professor Marco Lombardi, Director of the Italian Team for Security Terroristic Issues & Management Emergencies (ITSTIME). Through TVSIRC, Dr. Davies and Dr. Corrado are currently conducting a joint research project on ghost guns with RCMP E Division policy and research section. In addition, Dr. Davies is involved in leadership roles on several national and cross-national research projects. Most notably, he is centrally involved in a collaboration between Defense Research and Development Canada (DRDC) and the Swedish Civil Contingencies Agency (MSB). At present, this national-level collaboration is being extended to also include the Netherlands.

The Centre/institute’s membership and organization structure:
There are currently 16 SFU Faculty Members (representing the School of Criminology, Departments of Psychology & Political Science, Continuing Studies, and the Faculty of Education) and 40 Associate Members representing 8 countries (Australia, Belgium, Canada, Germany, Italy, Norway, Scotland, the Netherlands, and the United States). In addition, there are 6 SFU Graduate Student Members. A Steering Committee has been established and is responsible for setting the strategic direction of the Institute; ensuring the effective
management of the Institute and its activities; providing advice to the Director about future
directions; approving appointments of new members, the Director, and the Associate
Director; and monitoring the activities of the Institute to ensure it is in keeping with its
principles and goals. The following are current members of the Steering Committee.

Members of the Steering Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond Corrado</td>
<td>Simon Fraser University</td>
<td>School of Criminology</td>
</tr>
<tr>
<td>Garth Davies</td>
<td>Simon Fraser University</td>
<td>School of Criminology</td>
</tr>
<tr>
<td>Martin Andresen</td>
<td>Simon Fraser University</td>
<td>School of Criminology</td>
</tr>
<tr>
<td>Richard Frank</td>
<td>Simon Fraser University</td>
<td>School of Criminology</td>
</tr>
<tr>
<td>Aaron Hoffman</td>
<td>Simon Fraser University</td>
<td>Department of Political Science</td>
</tr>
<tr>
<td>Ron Roesch</td>
<td>Simon Fraser University</td>
<td>Department of Psychology</td>
</tr>
<tr>
<td>Kris Magnusson</td>
<td>Simon Fraser University</td>
<td>Faculty of Education</td>
</tr>
<tr>
<td>Andy Yan</td>
<td>Simon Fraser University</td>
<td>Continuing Studies</td>
</tr>
</tbody>
</table>

**Rationale for the renewal of the Centre/Institute:**

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

**How has the Centre/Institute accomplished its goals?**

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**

**Significant accomplishments:**
The initial major accomplishment for the TVSIRC was the formal research and faculty/graduate student exchange protocol with the Max Planck Institute for the Study of Crime, Security & Law (MPISCSL) in Freiburg, Germany. The Max Planck Institute is world-
renowned through its substantial involvement in conducting innovative policy research on a broad range of issues related to sex offenders, terrorism, and criminal law in the European Union countries. Its location and facilities in Freiburg in the southwestern German state of Baden-Württemberg, its array of researchers, visiting scholars’ offices, and specialized criminology library offer excellent opportunities to conduct cross-national policy research for our institute members. The former Director of the MPISCSL, Dr. Hans-Jorg Albrecht, and senior researcher, Dr. Gunda Wössner, each played a significant role in establishing the formal protocol arrangement with SFU. These roles include participating in the 2018 Vancouver conference/workshop on terrorism risk/threat instruments in the Canadian context; the submission of the successful the 2019 North Atlantic Treaty Organization (NATO) Advanced Research Workshop grant application and subsequent NATO book publication in 2021; and, coordinating the workshop held in the Max Planck Society’s conference site, the Harnack House, in Berlin. Also, the current Director, Dr. Jean-Louis van Gelder, was supportive in facilitating Dr. Wössner’s key role in editing the book as mentioned above.

**Notable media successes:**

1. As mentioned previously, a one-day conference open to the public was co-sponsored by the TVSIRC and RCMP, with support funding from the Ting Foundation, which took place in Vancouver in the spring of May 2018. SFU media assisted in publicizing this event. Also, scholars from SFU and other B.C. universities as well as senior policy individuals in the federal Ministry of Public Safety and Solicitor General, Canadian Intelligence Service, and the RCMP were invited and attended. On the first day of the conference, researchers from the TVSIRC, Germany, and Israel presented original research papers. The following day a closed workshop of researchers and government officials directed by Dr. Garth Davies explored key policy issues that emerged in the papers presented.

2. The NATO Advanced Research workshop held in Berlin in December 2019 was publicized primarily in Europe by Dr. Gunda Wössner and the media team associated with MPISCSL.

3. Faculty and graduate student members of the TVSIRC presented papers at theme panels on either youth violence and psychopathy and terrorism at the American Society of Criminology annual conferences in 2018 and 2019.

4. In 2019, TVSIRC members participated a one-day conference hosted by Dr. Ronald Roesch, Director of the MHLPI, for a larger delegation of 11 members of the Norway Prison system, again led by Dr. Waage. We held a one-day conference in which MHLPI and TVSIRC (i.e., Dr. Corrado, Dr. Evan McCuish, and Ph.D. student Jeff Mathesius) pres

**Events, workshops, public outreach events:**
The Centre/Institute's multi-year goals for the next renewal term:

- 

Supporting documents:

- 

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
Yes

External funding details:
The TVSIRC received funds from:

- The British Columbia Crime Reduction Research Program is providing $100,000 to study the threat posed by 3D-printed firearms and other “ghost guns”.

- Federal Ministry of Public Safety provided $40,000 to undertake both literature research of the theory/policy bases of the to be initiated SAFE project and conduct interviews with its key service providers as well as conduct network analysis of incarcerated young offenders from Surrey.

- B.C. Ministry of Public Safety provided $ 67,000 to conduct a process evaluation of the SAFE project and undertake a wave 6 set of interviews with mothers and their adolescent children who have participated in (Greater) Vancouver Longitudinal Cohort Study.

- The Ting Foundation and the RCMP provided $20,000 to conduct a 1-day conference and 1 day closed workshop.

- NATO provided $65,000 to conduct the 2-day advanced research workshop in Berlin and publish a book based on papers and policy discussions.

- Four SSHRC doctoral fellowships for TVSIRC student members Amanda Champion, Sara Doering, Olivia Ha, and Jenny Yang, one post-doctoral fellowship for Oliva Ha.
Confirm policy review:
Yes

Submitted by:
Raymond Corrado, Director

Director's comments:
-

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research

Reviewer's decision:
Approved for 5 years

Reviewer's comments:
-
Dear Colleagues,

On behalf of the Faculty of Education, I am proposing the following for consideration by the office of the VPR and SCUP:

Recommendation:
That the David Wheeler Institute for Research in Mathematics Education be terminated, effective immediately upon approval from the Senate Committee on University Priorities and subsequent notice to Senate.

Rationale:
The David Wheeler Institute was largely under the leadership of Dr. Stephen Campbell. Dr. Campbell retired June 30 2022, and the Institute has largely been dormant for the past 2 years. The research interests of the remaining Mathematics Education faculty members have shifted to other priorities, and there is no interest or perceived value in maintaining the work of the Institute.

Should you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Kris Magnusson, Dean pro tem

cc: Nathalie Sinclair, Associate Dean Research and International
Memo

Attention: Dr. Michael Richards, Associate Vice-President, Research

From: Lara Campbell, Dean pro tem, Faculty of Arts and Social Sciences

cc: Steeve Mongrain, Associate Dean, Research & International, FASS
    Anil Hira, Chair, Department of Political Science

Subject: Recommendation to Dissolve the Centre for Global Political Economy

Date: November 2, 2022

Dear Dr. Richards,

After being contacted by the AVPRI office about the renewal of the Centre for Global Political Economy, Dr. Steeve Mongrain, Associate Dean, Research & International, Faculty of Arts and Social Sciences contacted the current director, Dr. Geoff Mann. Dr. Mongrain and Dr. Mann discussed the future of the Centre, and Dr. Mann has decided to not request renewal. The Centre has been inactive over the last few years.

I support this conclusion and therefore recommend that the Centre for Global Political Economy be dissolved.

Sincerely,

Dr. Lara Campbell
Dean pro tem, Faculty of Arts and Social Sciences

/sf
General Information

Name of the Centre/Institute: Centre for Global Political Economy
Website: http://www.sfu.ca/cgpe.html
Faculty: Arts and Social Sciences
Director: Geoff Mann
Director's term end: 2019-06-30
Renewal date: 2022-04-01

Details

Description of the Centre/Institute:
The Centre for Global Political Economy is housed in the Dept. of Political Science, but involves faculty from other academic units at SFU to provide a focus for existing strengths in the field of global political economy and to win a position as an international centre for such research. The Centre aims to support related research and community collaboration, in addition to providing a venue for visiting scholars and a means of cross-disciplinary engagement for faculty and graduate students.

The Centre/Institute’s membership and organization structure:
The Centre is led by the Director, who works with a Board of Advisors drawn from SFU Faculty. The membership is made up of social scientists from across SFU, and includes both faculty, postdoctoral fellows and graduate students.

Rationale for the renewal of the Centre/Institute:
The Centre's main accomplishment this year has been the continued organization of a graduate student reading group, which involves students from across the social science disciplines at SFU and, increasingly, UBC as well. Faculty from both SFU and UBC also participate regularly in the group, and it has helped to build a cohort of graduates students interested in political economy. This is particularly helpful for those students, who tend often to be quite isolated in their own departments, since political economic research is spread across Sociology, Geography, Political Science, Economics (and even English).

How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?
How has the Centre/Institute accomplished its goals?

Changes planned upon renewal (e.g. membership, organization structure, etc.):

Significant accomplishments:

Notable media successes:

Events, workshops, public outreach events:

The Centre/Institute's multi-year goals for the next renewal term:

Supporting documents:

Financial Summary

Does your Centre/Institute receive direct financial support from the university?
No

Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?
No

Confirm policy review:
Yes

Submitted by:
Geoff Mann, Director

Director's comments:
Trying to just submit it blank.
Reviewer's Section

Reviewed by:
Steeve Mongrain, Associate Dean, Research & International

Reviewer's decision:
Declined

Reviewer's comments:
After discussions with Professor Mann, the director of the Center for Global Political Economy, we concluded that it was better not to ask for a renewal of the centre.
Memorandum

From: Michael Richards, Associate Vice-President, Research        Date: November 1, 2022
Re: Dissolution of the Behavioural and Cognitive Neuroscience Institute (BCNI)
To: Wade Parkhouse, Chair, *Ex-officio*, Senate Committee on University Planning (SCUP)

The Behavioural and Cognitive Neuroscience Institute (BCNI) is being dissolved as there is a new neuroscience Institute that has been created (the Institute for Neuroscience and Neurotechnology (INN)). This was mutually agreed by the Director of the BCNI (Urs Ribary) and the Vice-President, Research and International (Dugan O’Neil).

**Motion:** That SCUP approve the dissolution of the Behavioural and Cognitive Neuroscience Institute.

I recommend the immediate dissolution of the Institute.

[Signature]
General Information

Name of the Centre/Institute: Behavioural and Cognitive Neuroscience Institute
Website: https://www.bcni-sfu.net/
Faculty: VP Research
Director: Urs Ribary
Director's term end: 2027-07-01
Renewal date: 2022-04-01

Details

Description of the Centre/Institute:
Mission and Goals: The BCNI institute fosters interdisciplinary and collaborative engagement across disciplines and institutions in brain imaging infrastructure, technology-development, research, translational applications, interventions and training in brain imaging concerning the relationship between mind and brain. Building on the strengths of world-renowned researchers who investigate a variety of behavioral, sensory-motor, cognitive, and neurophysiological phenomena, the BCNI focuses on a broad range of topics related to the neurobiological mechanisms underlying attention, perception, sensory integration, language, memory and action in health and disease. The major emphases is on using structural and functional brain imaging and behavioral/clinical assessments, for better understanding the underlying “Human Cognitive Brain Network in Health and Disease”, the brain’s network connectivity and dynamics among local and large-scale networks relating to cognitive human brain functions, and its alterations in cognitive disabilities, neurological and psychiatric symptoms. The continuing goal is to further develop objective "quantitative diagnostic markers and strategies" translating into better pedagogical applications and more specific cognitive, pharmacological and neurosurgical interventional therapies.

The institute engages to further provide a matrix to facilitate scientists working synergistically across centers and institutes toward these and related goals across disciplines and institutions.

The Centre/Institute's membership and organization structure:
The BCNI Director, Co-Director, and the two Associate Director's, in consultation with selective Advisors, are representing the interests and needs related to BCNI’s mission and goals across disciplines and institutions. These advisors include members from SFU.
departments, including Psychology, Biomedical Physiology and Kinesiology, Physics, Engineering, Computing Science etc, and members from departments of other institutions, including BCCH (BC Children’s Hospital) and UBC. In addition, the BCNI has a long list of BCNI Associates, who contributed and continuously contribute to the BCNI’s overall mission, efforts and goals, especially related to networking, grant writing, facilitating /initiating specified research and training in multimodal imaging, and correlating to behavioral/clinical correlates, translational diagnostics, applications and interventional therapies.

> Recent BCNI Faculty (20):

- Director: Urs Ribary, Professor and former BC LEEF Chair (SFU, BCCH, UBC),

- Co-Director: Sam Doesburg, Associate Professor, Biomedical Physiology and Kinesiology (SFU),

- Associate Director: Teresa Cheung, Assistant Professor, Engineering Science (SFU), Clinical NeuroImaging Scientist, Fraser Health BC,

- Associate Director: Tony Herdman, Associate Professor, Audiology (UBC, SFU),

- Carolyn Sparrey, Associate Professor, School of Mechatronic Systems Engineering (SFU), Head ImageTech,

- Todd Woodward, Associate Professor Psychiatry (UBC),

- Christine Tipper, Associate Professor Psychiatry (UBC) - passed away 2022,

- Linda Siegel, Professor Emeritus Education (UBC),

- Anthony Bailey, Professor and Chair Child & Adolescent Psychiatry (UBC),

- Grace Iarocci, Professor Psychology (SFU),

- Sylvain Moreno, Associate Professor School of Interactive Art and Technology (SFU),

- Faisal Beg, Professor and Assoc. Dean Engineering Science (SFU),

- Ruth Grunau, Professor Pediatrics (UBC, BCCH),

- Lawrence Ward, Professor Psychology (UBC, Brain Research Center),

- Judy Illes, Professor Neurology and CRC (UBC), Director National Neuroethics Core (UBC),
- Dan Marigold, Associate Professor Biomedical Physiology and Kinesiology (SFU),

- Victoria Claydon, Professor Biomedical Physiology and Kinesiology (SFU),

- Ryan D'Arcy, Professor and BC LEEF Chair, Engineering Science (SFU),

- Xiaowei Song (Fraser Health), Adjunct Professor Computing Science (SFU), former Head of MRI Operation (ImageTech),

- Garrett Bernie, Associate Professor School of Nursing (UBC),

> BCNI Staff and Students (20-30):

- Alexander Moiseev: Senior Scientist, expert in MEG/EEG imaging software development & data analysis,

- Vasily Vakorin: Senior Scientist, NeuroInformatics and NeuroAnalytics Lead BCNI, ImageTech Lab, SFU,

- Harry Janke: IT Staff – Psychology, Managing BCNI IT Services,

- James Peltier: Manager SFU Research Computing Group, Managing BCNI on colony cluster,

- Approx. at least 20-30 current Students directly related to BCNI using BCNI resources.

> BCNI Associates (see BCNI website):

www.bcni-sfu.net

> BCNI Users: Overall, the BCNI has currently yet about 55+ registered users on the Research Training and Data Analysis Platform and publishes on average 50+ Abstracts/Papers each year.

**Rationale for the renewal of the Centre/Institute:**

- This renewal relates to an invitation from the VPR office asking to submit a renewal by Jun/30/2022 -

The BCNI is currently the only resource-platform for all the brain imaging data analysis at SFU, has yet about 55+ registered users, published on average 50+ abstract/paper publications each year and co-raised about $55M together with its collaborators since inception - a most important and needed resource to SFU's brain imaging and beyond. In
addition, we have several ongoing grants and were just awarded with one NRC grant and one CIHR grant...

Moreover, the BCNI is currently exploring how it can be best and optimally integrated with SFU’s Initiative on Neuroscience and how it can be best connected with the new Institute for Neuroscience and Neurotechnology (INN).

The BCNI Institute was originally established in regards to the Endowed BC LEEF Chair (Dr. Ribary 2007-2019, and after retirement to his successors) using the BCNI as an instrumental tool in order to better perform all comprehensive and multidisciplinary duties across disciplines and institutions (together with all the growing staff and all collaborative colleagues), as laid out in the original reviewed and very much supported 15 year LEEF plan proposal.

In addition, the BCNI was/is successfully growing and continuing to focus on collaborative multidisciplinary cognitive neuroscience brain imaging signal processing expertise and research in health and disease with the achieving goal to provide a centralized and user-friendly imaging data analysis platform and to better understand the typical/atypical brain development with further translating such findings into underlying neural diagnostic and prognostic procedures to modify and improve individual targeted interventional therapeutic programs. (See accomplishments above and below for more detailed description).

**How has the Centre/Institute enhanced research over and above what would have been accomplished by an individual faculty member?**

Again, all the comprehensive BCNI efforts across disciplines and institutions mentioned above and below, (I) Engagement in expanding Brain Imaging Infrastructure and Technology, (II) BCNI Services and Training, (III) BCNI’s Basic and Clinical Collaborative Research Efforts, (IV) Engaging in the Public Community, and (V) especially BCNI’s Infrastructure facilitating many other Research Projects across Disciplines and Institutions, speak for themselves that they would not have been accomplished by an individual (isolated) faculty member.

In addition, the BCNI Director performed his duties on behalf of his former BC LEEF Chair with the BCNI as an instrument and in alignment with the overall mission and goals.

**How has the Centre/Institute accomplished its goals?**

All the comprehensive accomplishments of the collaborative BCNI Institute across disciplines and institutions described above and below are speaking for itself, and indicate the enormous success.

Again, the BCNI is currently the only resource-platform for all the brain imaging data analysis at SFU, has yet about 55+ registered users, published on average 50+ abstract/paper publications each year and co-raised about $55M together with its
collaborators since inception - a most important and needed resource to SFU’s brain imaging and beyond...

In addition, the BCNI’s vision, mission, goals, plans and comprehensive accomplishments are all well in line with the BCNI’s approved renewal-proposal in 2017, and are also in line with the original laid out 15yr strategy by the BCNI Director and the original BC LEEF Chair’s proposal in 2006, having being reviewed and strongly supported by the Canadian Provincial and Federal Government including the senior-expert national and international scientific community.

**Changes planned upon renewal (e.g. membership, organization structure, etc.):**
- No Changes -

The BCNI will continue with its current structure, but is exploring how it can be best and optimally integrated with SFU’s Initiative on Neuroscience and how it can be best connected with the new Institute for Neuroscience and Neurotechnology (INN).

**Significant accomplishments:**
1) (1) BCNI during the Covid-Pandemic

Currently towards the end of the pandemic, most brain imaging operations are yet not fully operationally but all BCNI members are working full speed from campus or home and login to all the BCNI resources, platforms and online available data cohorts. We have further submitted several grants including CIHR, NSERC, NSERC-CREATE, NSERC-Discovery, NIH operating grants, DARPA, MSFHR and one successful NRC grant. In addition, the traffic on our BCNI website has increased with new visitors and an increase in page views.

Overall, the BCNI Institute continues to connect the brain imaging across SFU, BCCH and UBC, harbours collaborative meeting/working spaces, portable scanners and has a most comprehensive and user-friendly training/analysis platform on computer clusters with all the required pipelines analyzing state-of-the-art MRI, fMRI, dynamic EEG and MEG imaging data including newer AI resources and expertise.

The BCNI has yet about 55 registered users, about 20-30 active members (faculty, staff, students) who have full /part-time presence, and the BCNI published about 50+ abstract/paper publications each year before the pandemic and 40 /43 publications during the pandemic in 2020 /2021 !

2) (2) BCNI’s Continuous Engagement across Disciplines and Institutions:

The BCNI continues to facilitate collaborative engagement across disciplines and institutions (including SFU, BC Children’s Hospital Research Institute BCCHRI, UBC and others). The overarching goal is to team-up to better understand and quantify the 5-Dimensional...
“Cognitive Human Brain Network in Health and Disease”: In particular, the BCNI’s mission is to provide more coherent and complementary facilities and services, equipment, innovative hard and software, towards comprehensive multimodal brain imaging and absolutely necessary centralized and user-friendly state-of-the-art data analysis.

The collaborative BCNI strategy is therefore continuously facilitating and expanding:

- Multimodal Brain Imaging Infrastructure (structural, functional and dynamic brain imaging);

- Behavioral Research Infrastructure (behavioral and clinical assessments);

- Technology Development (centralized, user-friendly data analysis/ visualization tools and strategies);

- Applied and Translational Research (basic cognitive and clinical research);

- Training Platform (HQP: scientists, staff, postdocs, students);

- Knowledge Development and Translation (human brain: education, health and disease);

- Development: Neuro-diagnostic and Prognostic Markers (cognitive disabilities, neurology, psychiatry);

- Interventional Strategies (cognitive, pharmacological, neurosurgical);

- Monitoring Strategies and Industrial Commercialization;

3) (3) BCNI’s Basic and Clinical Collaborative Research Efforts:

Despite the recent pandemic over the past two years, the BCNI has successfully progressed along its mission and goals, to continue collaborative efforts on the analysis of multimodal brain imaging research data and behavioral/clinical assessments. The BCNI continuous to stress and facilitate a more comprehensive strategy/approach beyond traditional analysis of dynamic brain imaging data, namely focusing on the state-of-the-art detailed underlying human brain network’s oscillations and functional connectivity/causality dynamics across 5 dimensions, and relating with sensory-motor, cognitive or behavioral /clinical correlates in the typical and atypical human brain. The continuous mission is to better understand the basic biological and unified mechanisms of the underlying network function and task-specific functional and effective connectivity dynamics among local and large-scale networks, relevant for cognitive functions, and for its alterations in cognitive disabilities and patients with neurological /psychiatric symptoms. The continuing goal is to expand integration of functional brain dynamics into multimodal structural /functional imaging,
towards the quantification and development of neural markers for cognition, and neuro-diagnostic markers for disabilities and pathologies. Although focusing mostly on data analysis, publications and grant writing during the pandemic, the continuing projects are:

4) 3a)

- Brain network oscillations, synchronization and connectivity in health and disease with Lawrence Ward (UBC);

- Alterations in brain network connectivity dynamics in child dyslexia pre/post interventional therapies with Lawrence Ward (UBC), Linda Siegel (UBC) and BC School;

- Alterations in brain network connectivity dynamics in children born very preterm with Ruth Grunau (Pediatrics, UBC) and colleagues;

- Alterations in brain network connectivity dynamics in ASD with Grace Iarocci (Psychology, SFU) and colleagues;

- Advancing the analysis /localization of MEG/EEG brain imaging data with BCNI’s senior scientist Alex Moiseev (SFU) and Tony Herdman (Audiology, UBC);

- Alterations in mobile EEG recordings under hypoxic/hypobaric conditions with Victoria Claydon (SFU-BPK) and Sherri Ferguson (SFU);

- Alterations in mobile EEG recordings of children with ASD with Grace Iarocci (SFU-Psychology) earlier obtained during ASD spring/summer camps;

- Fostering collaborations between SFU Surrey brain imaging operation and SFU researchers based in Burnaby;

- Integrating computational modeling and neuroimaging methods to develop models of neural systems; extending current dipole equations to quadrupolar forms to better model magnetic fields from white matter and spinal cord conduction (with MEG Operation at Fraser Health/SFU Surrey);

- Developing techniques to apply "drizzle" (providing higher resolution) to MEG data (with MEG Operation at Fraser Health/SFU Surrey);

5) 3b)

- Exploring OPM magnetometers towards building a multichannel system for magnetic spinal cord imaging (with MEG Operation at Fraser Health/SFU Surrey);
- Using median nerve stimulation data to examine the feasibility of spinal cord SEP detection using a commercial QuSpin OPM sensor (with MEG Operation at Fraser Health/SFU Surrey);

- Developing well-validated and automated data analysis pipelines using AI to improve the clinical efficacy of MEG in surgical planning for epilepsy patients and further translating more advanced analysis methods into clinical practice (with BCNI's senior scientist Vasily Vakorin (SFU), Fraser Health and with MEG Operation at Fraser Health/SFU Surrey);

- Analysis of imaging data using continuous naturalistic stimuli to better probe complex cognitive and perceptual processes (with MEG/fMRI at Fraser Health/SFU Surrey);

- Evaluating the integration of hemodynamic (fNIRS) and electrophysiological (MEG) imaging towards a greater understanding of brain activity (with MEG Operation at Fraser Health/SFU Surrey).

- Mapping the development in the typical brain networks and their alteration in autism using MEG and MRI, as well as how developmental trajectories differ between males and females (with Fraser Health/SFU Surrey);

- Investigating functional trajectories in ageing;

6) (4) BCNI's Training of HQP:

The BCNI facilitated/s collaborative cognitive neuroscience brain imaging research across disciplines and institutions, providing additional expertise, tools, training of HQP and guidance to individual researchers (PhD students, postdocs, and scientists) and at the same time initiated/s new innovative cognitive neuroscience brain imaging research projects.

- See attached list of selected paper publications (2017-2022) - -

**Notable media successes:**

Regarding BCNI's Knowledge Transfer, see List of some selected BCNI Paper Publications (2017-2022) uploaded.

**Events, workshops, public outreach events:**

1) (1) Outreach and Engagement in the Research Community:

Despite the recent pandemic, the BCNI was/is continuously engaging in many collaborating team-efforts across disciplines and institutions, to further stabilize and expand the brain imaging infrastructure and applications, to further facilitate and streamline required data analysis procedures, towards a coherent multimodal imaging environment across SFU, BC
Children Hospital, and UBC as follows:

(a) BCNI Institute Equipment and Services (all free-of-charge):

Although physical space and brain imaging scanners were not operational during the pandemic, the BCNI was/is continuously providing (a) networking area with smartboard and video-conferencing capabilities, (b) assessment area for behavioral/clinical measurements (c) portable EEG brain scanner and portable eye-tracker, (d) larger imaging data analysis area, (e) merger with SFU’FAS cluster-computers to boost computing power and storage, (f) centralized data analysis platforms and innovative in-house developed pipelines, (g) continuous innovative software development to further boost data analysis and visualization, and (h) various upgrades for the MEG brain imaging operation (see research output and publications).

2) (b) MEG Brain Imaging at Fraser Health /SFU Surrey:

The BCNI was/is continuously providing all available HQP training and data analysis platforms to all scientists, students and staff at the brain imaging operation at Fraser Health/SFU Surrey, and all free of charge (see research output and selected publications). Coming slowly out of the pandemic, the BCNI will again further provide all its infrastructure (networking areas, portable imaging devices, etc).

(c) 3T MRI Imaging Research Facility at BC Children’s Hospital Research Institute (BCCHRI):

The BCNI was/is continuously contributing to the new state-of-the-art 3T MRI imaging facility (with the BCNI director and former BC LEEF Chair as the Co-PI of the original CFI grants). The facility allows structural and functional brain imaging and analysis on newborn babies, as well as children suffering from various neurological or psychiatric conditions.

3) (d) Multimodal Imaging Facility at University of British Columbia (UBC):

The BCNI was/is continuously contributing to the current setup and further fundraising of the Multimodality Neuroimaging Facility at the new Center for Brain Health at UBC Hospital (with the BCNI director and former BC LEEF Chair as the Co-PI of the original CFI grant), which houses 3T-MRI/fMRI, MR-PET, EEG, TMS, and will house a future MEG (BCNI Associate Director is the Co-PI of submitted CFI grant) etc, and serving the research community across disciplines and institutions in BC, including UBC, BCCH and SFU, to study healthy human subjects and patients suffering from neurological or psychiatric conditions.

(e) Brain Imaging Signal Processing Development:

The BCNI was/is continuously facilitating and expanding state-of-the-art brain imaging signal-processing development and tools across disciplines and institutions towards more
user-friendly and semi-automatic centralized analysis procedures, which are extremely crucial for training of HQP and for successful brain imaging research (see research output and selected publications).

4) (f) BCNI’s Collaborative Meeting Space:

Coming slowly out of the pandemic, the BCNI will again further provide its meeting space to advance networking among researchers, students and staff towards multimodal brain imaging infrastructure, software development and imaging analysis across disciplines and institutions, which was widely used over the past years by: SFU-FASS, SFU-FAS, MIAL Imaging Laboratory, SFU-Psychology, SFU-Psych-IT, SFU-Engineering Science, SFU-Computing Science, Fraser Health/SFU Surrey, UBC-Pediatrics, UBC-Psychiatry, UBC-Psychology, UBC-Neurology, UBC-Audiology, UBC-Education, BC School Representatives, etc. The BCNI will further continue to host the head-quarter for the SFU Undergraduate BCNS society and the head-quarter for the Student Journal Club for their regular weekly or bi-weekly meetings held at the BCNI.

5) (2) Outreach and Engagement in the Public Community (Public Schools):

Facilitating the integration of brain-based interventional cognitive training programs for Learning Disabilities (Child-Dyslexia) in BC schools: The BCNI director is the co-founder of the “BC Fast ForWord Intervention Consortium”; a BC school interdistrict strategy to facilitate the knowledge and integration of such programs in BC schools. Although these programs were slowed down during the pandemic, the interventional FFW training platform was/is continuously growing since 2008; More than 12,000 students have been trained in more than 130 schools across 22 districts in BC over the past years, with an overall gain of about 0.7-2.0 years in reading level, including elementary and secondary schools. This is yet by far the largest successful effort across Canada with close to 50% training in BC alone, despite funding cuts and resistance in many BC schools over the past years and despite waiting lines due to yet limited access to these training programs.

The Centre/Institute's multi-year goals for the next renewal term:

1) - Main Goals -
Again and first of all, the BCNI is currently exploring how it can be best and optimally integrated with SFU’s Initiative on Neuroscience and how it can be best connected with the new Institute for Neuroscience and Neurotechnology (INN). The BCNI is currently the only resource-platform for all the brain imaging data analysis at SFU, has yet about 55+ registered users, published on average 50+ abstract/paper publications each year and co-raised about $55M together with its collaborators since inception - a most important and needed resource to SFU’s brain imaging and beyond...
The BCNI will continue its mission and goals and further expand the brain imaging and research environment (as mentioned above).
- Further engagement in expanding brain imaging infrastructure and technology,
- Expanding BCNI services and training,
- Expanding BCNI’s basic and clinical collaborative research efforts,
- Further engaging in the public community,
- Further facilitation of BCNI’s infrastructure into other research projects across disciplines and institutions,
- Further facilitation of BCNI’s infrastructure into other training programs and research projects for SFU-Psychology

**KPI 1:**
None - The performance will be indicated/monitored by the success of the collaborative research and HPQ, as well as its publications and outreach activities...

**2) Additional Goals -**
- The BCNI will further focus on advanced improvements of comprehensive state-of-the-art analysis of human brain networks and connectivity,
- The BCNI will further enhance awareness in brain imaging and providing leadership and assistance in brain imaging research across disciplines and institutions,
- The BCNI will further facilitate the engaging in the multidisciplinary scientific community and translation into the public community,
- The BCNI will continue its efforts to facilitate interventional programs across BC school districts and engage in public private foundations to improve human health.
- The BCNI will continue its engagement in advanced brain imaging research and production of conceptual research publications, to initiate and facilitate discoveries, translation into future research projects and technology developments.

**KPI 2:**
None - The performance will be indicated/monitored by the success of the collaborative research and HPQ, as well as its publications and outreach activities...

**Supporting documents:**
selected_Publications_2017-2022_iU8NeYt.docx (See attachment below)

**Financial Summary**

**Does your Centre/Institute receive direct financial support from the university?**
No

**Was the Centre/Institute leveraged to attract external funding (donations, grants, contracts) which were only made possible by its existence?**
No
Confirm policy review:
Yes

Submitted by:
Urs Ribary, Director

Director's comments:
- Financial Support and Leverage -

> Unfortunately SFU did not financially support the BCNI over the past 15 years.

> Unfortunately, SFU did not leverage any direct resources in funding, personnel, equipment, maintenance etc to the BCNI Institute to attract more funding.

- Director's Comments -

Despite all the challenges especially during the past pandemic, the BCNI was/is continuing to focus on innovative collaborative multidisciplinary cognitive neuroscience brain imaging, signal processing expertise and research in health and disease with the ultimate goal to provide a yet more centralized and user-friendly imaging data analysis platform and to better understand the typical/atypical brain development with further translating such findings into underlying neural diagnostic and prognostic procedures to modify and improve individual targeted interventional therapeutic programs.

The Director, Co-Director and Associate Directors with all the BCNI faculty, staff and collaborative BCNI associates are looking forward towards coming out of the pandemic and the re-opening of all facilities across disciplines and institutions to further implement BCNI's mission and goals together with BCNI's available equipment and services to benefit the research community at large, providing and expanding opportunities within a growing multimodal brain imaging environment across disciplines and institutions including SFU, BCCH and UBC.

SFU is progressing on its new initiative on neuroscience and brain imaging and has established a new Institute (INN); the focus is now how to best integrate the BCNI Institute into the Neuroscience initiative and best connect with the new INN Institute.

Thank you for renewing our BCNI Institute to benefit the brain imaging community.

Reviewer's Section

Reviewed by:
Michael Richards, Associate Vice-President, Research
Reviewer's decision:
Declined

Reviewer's comments:
This Institute was agreed to be dissolved this year, as there is a new INN Institute that will incorporate the BCNI (as mentioned in the report). The dissolution of this Institute was agreed with the Director and the VPRI.
Selected BCNI Publications: 2017 - 2022 (selected Papers only)
(about 35 selected papers during pandemic)


DOI: 10.1007/s13534-017-0033-4. Online: http://link.springer.com/article/10.1007/s13534-017-0033-4

Anterpal Sandhu; Yasong Li; Nicholas Peatfield, Xin Yi Yong; Ryan D'Arcy; Carlo Menon; Teresa P L Cheung. Non-magnetic compliant finger sensor for continuous fine motor movement detection. Biomedical Engineering Letters, 2017.


Iman Mohammad-Rezazadeh, Sheraz Khan, Robert Coben and Urs Ribary, Guest-Editors, Special Issue "Computational Methodologies in Brain Imaging and Connectivity: EEG and MEG Applications", Frontiers in Computational Neural Circuits, 2018.
> 9 Articles resulted in 16,143 views and 1,205 downloads 5-6 months later in Mar/2019.


Liu CC, Ghosh Hajra S, Pawlowski GM, Fickling SD, Song X, D’Arcy RCN. Novel signal processing technique for capture and isolation of blink-related oscillations using a low-density electrode array for bedside evaluation of consciousness. IEEE Transactions on Biomedical Engineering 2019, Epub. DOI: 10.1109/TBME.2019.2915185


**During the Pandemic:**


Subspace based Multiple Constrained Minimum Variance (SMCMV) Beamformers. *bioRxiv*, 2021. doi: https://doi.org/10.1101/2021.05.10.443467


Weik E, Virji-Babul N, Ribary U and Tipper C. Distinct brain mechanisms are involved in the evaluation of social feedback about the self and another person. Social Neurosci., 1-16, 2022.
DOI: 10.1080/17470919.2022.2058081


November 9, 2022

To: The Office of the Associate Vice-president, Research and International, SFU
From: Dr. June Francis, Director, Institute for Black and African Diaspora Research and Engagement; Adjua Akinwumi, Administrator, Institute for Black and African Diaspora Research and Engagement

Subject: Extension request for the renewal of the Institute for Black and African Diaspora Research and Engagement

We are writing to request an extension for the renewal of the Institute for Black and African Diaspora Research and Engagement (IBADRE), formerly known as the Institute for Diaspora Research and Engagement (IDRE).

IDRE was constituted as a research institute at Simon Fraser University under the terms of SFU Policy R 40.01 (Research Centers and Institutes) in fall 2013. In July 2022, IDRE began a reconstitution process, which includes a change of Institute name and focus, as well as an affiliation with and formalization of the SFU Black Caucus. These motions are still being deliberated by SFU Senate.

We would like to coordinate the renewal application with our submission to SCUP regarding the issues raised at SCUP. For these reasons, we request an extension till February 2023.

Best Regards

June N. P. Francis LLB; PhD
Co-Director - The Co-Laboratorio Project
Director The Institute for Black and African Diaspora Research and Engagement
Associate Professor, Beedie School of Business
Simon Fraser University
MEMORANDUM

ATTENTION: Senate
FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies
RE: Program Changes
DATE: 14 October 2022

For information:

Acting under delegated authority at its meeting of October 13, 2022 SCUS approved the following curriculum revision effective Summer 2023.

a. Faculty of Applied Sciences

1. School of Mechatronic Systems Engineering (SCUS 22-55)

   (i) Requirement changes to the:
   
   • Mechatronic Systems Engineering Major
   • Mechatronic Systems Engineering and Business Double Degree Program Major
   • Mechatronic Systems Engineering Honours

b. Faculty of Communication, Art and Technology (SCUS 22-57)

1. School of Interactive Arts and Technology

   (i) Admission requirement changes to the major and joint major programs

2. Faculty of Science SCUS 22-63

1. Department of Molecular Biology and Biochemistry

   (i) Lower division requirement changes to the:
   
   • Molecular Biology and Biochemistry Major
   • Molecular Biology and Biochemistry Honours

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at https://docushare.sfu.ca/dsweb/View/Collection-12682.
MEMORANDUM

ATTENTION: Senate

FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies

RE: Program Changes

DATE: November 4, 2022

For information:

Acting under delegated authority at its meeting of November 3, 2022, SCUS approved the following curriculum revisions effective Summer 2023.

a. Faculty of Applied Sciences (SCUS 22-69)

1. School of Computing Science

   (i) Upper division requirement changes to the:

   - Computing Science Major
   - Computing Science Honours
   - Computing Science Dual Degree Program
   - Computing Science Second Degree
   - Computing Science and Linguistics Joint Major
   - Information Systems in Business Administration and Computing Science Joint Major
   - Computing Science Minor
   - Certificate in Computing Studies

b. Faculty of Arts and Social Sciences (SCUS 22-70)

1. Cognitive Science Program (Fall 2023)

   (i) Upper division requirement changes for the:

   - Cognitive Science Honours
   - Cognitive Science Major
   - Cognitive Science Minor
2. **School of Criminology**

   (i) Upper division requirement changes to the:
   
   - Police Studies Minor
   - Legal Studies Minor
   - Criminology Major

3. **Department of Economics**

   (i) Upper division requirement changes to the:
   
   - Economics Major
   - Business and Economics Joint Major
   - Political Science and Economics Joint Major

4. **Global Asia Program (Fall 2023)**

   (i) Lower division requirement changes to the Global Asia Minor

5. **Department of History**

   (i) Upper and lower division requirement changes to the:
   
   - History Major
   - History Honours

6. **Department of Indigenous Studies**

   (i) Upper division requirement changes to the:
   
   - Indigenous Studies Major
   - Indigenous Studies Minor
   - Indigenous Studies Post Baccalaureate Diploma

   (ii) Admission requirement changes to the Certificate in Indigenous Studies Research

7. **Department of Linguistics (Fall 2023)**

   (i) Lower division requirement changes to the Certificate in Linguistics of Speech Science
8. **Department of Political Science (Fall 2023)**

(i) Requirement changes to the:

- Political Science Honours
- Political Science Major
- Political Science Minor
- Political Science Extended Minor

9. **School of Public Policy**

(i) Upper and lower division requirement changes to the Public Policy Minor

10. **Department of World Languages and Literatures**

(i) Requirement changes to the Chinese Studies Certificate

*c. Faculty of Environment (SCUS 22-71)*

1. **Department of Geography**

(i) Upper division requirement changes to the Human Geography Major and Honours

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at [https://docushare.sfu.ca/dsweb/View/Collection-12682](https://docushare.sfu.ca/dsweb/View/Collection-12682).
MEMORANDUM

ATTENTION: Senate
FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies
RE: New Course Proposals
DATE: 14 October 2022

For information:

Acting under delegated authority at its meeting of October 13, 2022 SCUS approved the following curriculum revision effective Summer 2023.

a. Faculty of Applied Sciences

1. School of Mechatronic Systems Engineering

   (i) New Course Proposals (SCUS 22-51)

   • MSE 360-3, Introduction to Biosystems Engineering
   • MSE 413-3, Machine Learning in Mechatronics (SCUS 22-62)
   • MSE 460-3, Precision AgriTech Engineering

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at https://docushare.sfu.ca/dsweb/View/Collection-12682.
MEMORANDUM

ATTENTION: Senate

FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies

RE: New Course Proposals

DATE: November 4, 2022

For information:

Acting under delegated authority at its meeting of November 3, 2022 SCUS approved the following curriculum revisions effective Summer 2023.

a. Faculty of Science

1. Department of Biological Sciences (SCUS 22-52)
   (i) New Course Proposal: BISC 447-3, Stem Cells – Current Trends

2. Department of Molecular Biology and Biochemistry (SCUS 22-54)
   (i) New Course Proposals: MBB 447-3, Stem Cells – Current Trends

b. Faculty of Applied Sciences (SCUS 22-67)

1. School of Computing Science
   (i) New Course Proposal: CMPT 476-3, Introduction to Quantum Algorithms

c. Faculty of Arts and Social Sciences (SCUS 22-68)

1. Global Asia Program
   (i) New Course Proposals (Fall 2023):
   • GA 210-3, How Asia Became Global: Empire, Migration, and Globalization in the Making of Modern Asia
   • GA 211-3, Asian Migration Across the Globe
2. **Urban Studies Program**

(i) New Course Proposal: URB 499-9, Urban Innovation Lab

3. **Department of World Languages and Literature**

(i) New Course Proposal: JAPN 351-3, Japanese Language and Culture through Film (Fall 2023)

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at [https://docushare.sfu.ca/dsweb/View/Collection-12682](https://docushare.sfu.ca/dsweb/View/Collection-12682).
MEMORANDUM

ATTENTION: Senate

FROM: Elizabeth Elle, Vice-Chair, Senate Committee on Undergraduate Studies

RE: Course Changes

DATE: 14 October 2022

For information:

Acting under delegated authority at its meeting of October 13, 2022 SCUS approved the following curriculum revision effective Summer 2023.

a. Faculty of Applied Sciences

1. School of Computing Science [SCUS 22-61]

   (i) Deletion of CMPT 322W
   (ii) Title, description and equivalent statement change for CMPT 376W

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at https://docushare.sfu.ca/dsweb/View/Collection-12682.
MEMORANDUM

For information:

Acting under delegated authority at its meeting of November 3, 2022 SCUS approved the following curriculum revisions effective Summer 2023.

a. Faculty of Arts and Social Sciences

1. Department of Economics

(i) Prerequisite change for ECON 331
(ii) Title and description change for ECON 455W

2. Global Asia Program (Fall 2023)

(i) Description change for GA 101
(ii) Title and description change for GA 202
(iii) Course deletion for GA 200 and 201

3. Department of History (Fall 2023)

(i) Title, description and equivalent statement change for HIST 276
(ii) Title and description change for HIST 359 and 441
(iii) Description change for HIST 102W, 146 and 255

4. School for International Studies

(i) Description change for IS 322
(ii) Course number and equivalent statement change for IS 439
5. Department of Linguistics (Fall 2023)

(i) Course number and equivalent statement change for LING 290
(ii) Prerequisite change for LING 323 and 350

6. Department of Philosophy (Fall 2023)

(i) Description change for PHIL 105 and 110
(ii) Units and description change for PHIL 477
(ii) Course deletion for PHIL 478

7. Department of Political Science (Fall 2023)

(i) Equivalency statement change for POL 463

b. Faculty of Communication, Art and Technology

1. School of Communication

(i) Prerequisite change for CMNS 359

c. Faculty of Science

1. Department of Biological Sciences

(i) Temporary withdrawal of BISC 406 and 435

Senators wishing to consult a more detailed report of curriculum revisions may do so on the Senate Docushare repository at https://docushare.sfu.ca/dsweb/View/Collection-12682.
At its meeting on October 4, 2021 SGSC reviewed and approved the revision Graduate General Regulation 1.5 Graduate Grading Systems and Policies. This gives rise to the following motion, effective Summer 2023:

**Motion 1:**
That Senate approve the revisions to Graduate General Regulation 1.5 Graduate Grading Systems and Policies
MEMORANDUM

ATTENTION: SGSC  
FROM: Krista Gerlich-Fitzgerald  
        Associate Director, Graduate and Postdoctoral Studies  
RE: GRR 1.5 Graduate Grading Systems and Policies  
DATE: September 21, 2022

For Approval:

The following Graduate General Regulation changes have been approved by Graduate and Postdoctoral Studies and are forwarded to the Senate Graduate Studies Committee for your approval. The items should be effective for Summer 2023.

Sincerely,

Krista Gerlich-Fitzgerald  
Associate Director, Graduate and Postdoctoral Studies  
Simon Fraser University
Calendar Entry Change for GGR 1.5 Graduate Grading Systems and Policies

**Summary of change:**
Adding language on time limit for a graduate student to request a change the grading basis of an individual course.

**Rationale for change:**
When GGR 1.5 was reformatted in 2020, the sentence requiring S/U requests to be done prior to the start of the term was removed from the notion section, but, not re-added to the overall competency-based grading section. This was an oversight.
Prior to 2020 students had until the start of the term. In this revision, we are recommending that student have up to the 100% drop deadline (two weeks into the term) to allow more time for the student to determine if they want to change the grading basis.

**Effective term and year:**
Summer 2023

**Will this change impact current students? If yes, what is the plan for current students?**
No

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 Graduate Grading Systems and Policies</td>
<td>1.5 Graduate Grading Systems and Policies</td>
</tr>
<tr>
<td>The cumulative grade point average (CGPA) is the cumulative average of the grade points earned in the Simon Fraser University graduate courses completed towards a credential. Each letter grade is assigned a numerical equivalent, which is then multiplied by the unit value assigned to the course to produce the grade point. Grades without a numerical equivalent are not included in the calculation of the grade point average.</td>
<td>The cumulative grade point average (CGPA) is the cumulative average of the grade points earned in the Simon Fraser University graduate courses completed towards a credential. Each letter grade is assigned a numerical equivalent, which is then multiplied by the unit value assigned to the course to produce the grade point. Grades without a numerical equivalent are not included in the calculation of the grade point average.</td>
</tr>
<tr>
<td>Term grade point average (GPA) is computed by dividing the total grade points earned by the total units completed in the term to the second decimal place.</td>
<td>Term grade point average (GPA) is computed by dividing the total grade points earned by the total units completed in the term to the second decimal place.</td>
</tr>
</tbody>
</table>

An individual student may request permission to have the grading basis changed or to take a course as an audit by applying to their supervisory committee. If
that committee concurs, the request will be submitted to the graduate program chair followed by GPS for approval. The grading basis change must occur no later than end of week two. None of the student's minimum course work requirement under 1.7.2 may be completed S/U or audit. […]
MEMORANDUM

ATTENTION: Senate

FROM: Jeff Derksen,
Chair of Senate Graduate Studies Committee (SGSC)

RE: Program Change

DATE: October 4, 2022

For information:
Acting under delegated authority at its meeting of October 4, 2022, SGSC approved the following program changes, effective **Summer 2023:**

**Beedie School of Business**
1) Program Change: Indigenous Business Leadership Graduate Certificate
2) Program Change: Indigenous Business Leadership Graduate Diploma
3) Program Change: Indigenous Business Leadership EMBA

**Faculty of Applied Science**
School of Computing Science
1) Program Change: Master of Science in Professional Cybersecurity
2) Program Change: Master of Science in Professional Visual Computing

**Faculty of Arts and Social Sciences**
Department of Linguistics
1) Program Change: Linguistics MA
2) Program Change: Linguistics PhD

**Faculty of Communication, Art & Technology**
Publishing Program
1) Program Change: Publishing MA

**Faculty of Science**
Department of Molecular Biology and Biochemistry
1) Program Change: Molecular Biology and Biochemistry MSc
2) Program Change: Molecular Biology and Biochemistry PhD
MEMORANDUM

ATTENTION: Senate
FROM: Jeff Derksen
Chair, Senate Graduate Studies Committee (SGSC)
RE: Program Change

DATE: November 7, 2022

For information:
Acting under delegated authority at its meeting of November 1, 2022, SGSC approved the following program change effective Summer 2023:

Faculty of Arts and Social Sciences
Department of English
English MATE
MEMORANDUM

ATTENTION Senate

FROM Jeff Derksen,
Chair of Senate Graduate Studies
Committee (SGSC)

RE: New Courses

DATE October 4, 2022

For information:
Acting under delegated authority at its meeting of October 4, 2022, SGSC approved the following new courses, effective Summer 2023:

Faculty of Arts and Social Sciences
Department of Linguistics
1) New Course: LING 880 Advanced Linguistic Research for Professional Development

Faculty of Communication, Art & Technology
Publishing Program
1) New Course: PUB 890 Professional Practices Seminar I
2) New Course: PUB 891 Professional Practices Seminar II

Faculty of Science
Department of Molecular Biology and Biochemistry
1) New Course: MBB 803 MBB Department Seminar Series
ATTENTION Senate  
DATE October 4, 2022

FROM Jeff Derksen,  
Chair of Senate Graduate Studies  
Committee (SGSC)

RE: Course Changes

For information:
Acting under delegated authority at its meeting of October 4, 2022, SGSC approved the following course changes, effective Summer 2023:

Beedie School of Business
1) Course Change (description): BUS 697 Applied Project

Faculty of Arts and Social Sciences
Department of Linguistics
1) Course Change (title, description): LING 893 Indigenous Linguistics MA Project

Faculty of Science
Department of Earth Science
1) Course Change (title, description): EASC 620 Advanced Volcanology

Department of Molecular Biology and Biochemistry
1) Course Change (title, description): MBB 801 Student Seminar in Molecular Biology and Biochemistry
2) Course Change (description): MBB 806 PhD Graduate Research Candidacy Examination
For information:
Acting under delegated authority at its meeting of November 1, 2022, SGSC approved the following course change effective Summer 2023:

Faculty of Communication, Art, & Technology
Master of Digital Media
Course Change (title, description): DMED 501 The Visual Story
Please find attached the annual report of the Senate Library Committee and the Library Penalty Appeals Committee. We also include a copy of the Library’s annual report in order to share with Senate information about activities of the SFU Library during the past year, beyond what is captured in the SLC report. Link to Library’s Annual report:

Senate Library Committee

MEETINGS
The Senate Library Committee met 3 times during 2021/22:
- October 25, 2021
- February 14, 2022
- June 13, 2022

HIGHLIGHTS

October 25, 2021
- Full services and access to library stacks were restored before Fall term but gate counts have been lower than expected since many students are not remaining on campus to study after classes. Usage statistics were shared, and the committee discussed strategies to continue providing a safe study environment that will be attractive to students
- The Public Knowledge Project (PKP) that has been based at SFU Library for more than 15 years will be transitioning into a Core Research Facility
- Committee offered suggestions on communicating some of the highlights from Library’s 2017-2021 strategic plan to the SFU Community
- The committee reviewed and provided input into a draft webpage outlining library services available to support grant-funded research projects. In many areas, the library offers a base level of service as an in-kind contribution at no direct cost to the project, while services beyond the base level may be available at a cost to the project. These costs will be displayed behind an SFU login. This menu of services is meant to help inform accurate budgets in grant applications, and to promote the library’s array of services available as collaborations on grant-funded research projects.
- The library is collaborating with University Advancement to commission a feasibility study for a $20 million campaign to partially fund a three-story addition to Bennett library.

February 14, 2022
- A presentation summarizing the Media and Maker Commons (MMC) and what it offers to the SFU Community was provided by Mikael Kriz, Makerspace Librarian. It was noted that MMC was at capacity for use of 3D printers and the laser cutter. The TEKX101 course which uses the MMC as its lab has increased in size and now has a waitlist of interested students.
- G. Bird advised that activity and student use of Bennett Library is noticeably higher as more students return to life on campus.

- A slideshow was presented to the committee with renderings of the proposed 39,000 sq. ft. library addition on three levels, situated to the north of the existing Bennett Library. The committee was informed a feasibility study on the library’s capacity for fundraising a portion of the needed funds has just been completed and was given the green light to proceed. The Library has begun to speak with possible donors.

June 13, 2022

- Changes to the committee’s Terms of Reference (TOR) were approved by the members and were subsequently forwarded to SCAR (Senate Committee on Agenda and Rules) for approval. The TOR had not been updated for more than 20 years.

- A refreshed Library Strategic Plan was discussed and endorsed by the committee.

- The committee reviewed and supported the 2022/23 materials budget. The budget reflects support from the University to protect the collection budget from exposure to the USD exchange rate. Additional e-book packages have been added in response to greater demand for e-books and new models of purchasing e-books.

**Senate Library Committee Membership, 2021/22**

*Pooria Arab, Alternate Undergraduate Representative (through May 31, 2022)*

Gwen Bird, Dean of Libraries/University Librarian

Hugo Cardoso, Environment

Jeff Derksen, Graduate Studies

Priyanka Dhesa, Undergraduate Representative

Elizabeth Elle, VP Academic Representative

Michael Everton, Faculty of Art and Social Sciences

Reza Davallo Ghajar, Library Staff Representative (through May 31, 2022)

Natalie Gick, Associate Dean of Libraries

David Kloepfer, Library Staff Representative (effective June 1, 2022)

Yolanda Koscielski, Librarian Representative

Daniel Leznoff, Senator at Large

John Maxwell, Communication, Art & Technology

Judit Nagy, Senator at Large

Kate Elliott, Graduate Representative

Dugan O’Neil, Vice-President, Research and International – Chair

Geoffrey Poitras, Business

Judy Smith, Lifelong Learning Representative

Susie Smith, Recording Secretary

Ljiljana Trajkovic, Applied Science

Vance Williams, Science

Anastasiya Zhukova, Alternate Undergraduate Representative (effective June 1, 2022)
Library Penalties Appeal Committee (LPAC)

Annual Report for September 2021 – August 2022
There were no appeals sent to the Library Penalties Appeal Committee (SLC/LPAC) for the previous year. The committee did not meet this year.

Other Business
There were two (2) new individuals elected by acclamation to the both the Senate Library and Library Penalties and Appeals Committees:

1. One (1) Graduate Student to a dual position on the Senate Library Committee (SLC) and Library Penalties Appeal Committee (LPAC), Kate Elliot has been elected by acclamation for a term of office until May 31, 2023

2. One (1) Undergraduate Student to a dual position on the Senate Library Committee (SLC) and Library Penalties Appeal Committee (LPAC), Anastasiya Zhukova has been elected by acclamation for a term of office until May 31, 2024

LPAC Membership 2021/2022
Open, Senator at Large (Chair)
Danny Leznoff, Senator at Large (effective until May 31, 2023)
Judit Nagy, Senator at Large (effective until May 31, 2023)
Priyanka Dhesa, Undergraduate Rep (effective until May 31, 2023)
Anastasiya Zhukova, Undergraduate Rep (Alternate) (effective until May 31, 2024)
Kate Elliot, Graduate Rep (effective until May 31, 2023)
Open, Graduate Rep (Alternate)
Mark Christensen, Ex-Officio, Secretary (non-voting)

Terms that expired this year
Pooria Arab, Undergraduate Rep (Alternate) (effective until May 31, 2022)
It is my pleasure to present this review of some of the activities and developments at SFU Libraries over the past year. This year has been a time of change and regrouping. We successfully re-opened all library locations and reinstated in-person services. We were delighted to welcome students back to campus and into the libraries again. We were thrilled to launch a beautiful new Research Commons space for graduate students on the Vancouver campus, and to continue development of the Indigenous Curriculum Resource Centre, supporting Indigenization of courses across SFU.

Now we turn our attention to applying the lessons learned during the pandemic. For example, we see that our newfound expertise in offering virtual services and programs has, in some cases, increased access to the Library. Even with the return to in-person classes, many students still prefer to attend a workshop or consult with a librarian or peer mentor online. We can conveniently offer virtual research help and writing appointments to students in different time zones. Yet we know the physical presence on campus, and having welcoming and inclusive spaces, is still tremendously important.

We continue to build responsive and enduring collections in all formats, and to carefully steward the materials in our care. This is an essential role of the library at the university, and remains a constant. Around this, we adapted our services, refurbished our spaces, and engaged our community. My sincere thanks to the outstanding team in the Library who made it all possible. It is an honour to work with such a dedicated and innovative group.

MESSAGE FROM THE DEAN

Robyn Maynard (left) and Leanne Betasamosake Simpson (right) were in conversation for our virtual 2021 Dean’s Lecture on Information + Society.

Gwen Bird, Dean of Libraries
The 2021-2022 fiscal year highlighted Simon Fraser University Library’s role as a critical partner at the university, providing essential services, collections, and expertise for SFU students, faculty, staff, and postdoctoral fellows. During the period of remote learning, this included expansive virtual services and, as the university returned to on-campus learning in Fall 2021, SFU Library maintained many of our virtual options while we welcomed the community back into our physical branches, the W.A.C. Bennett Library at SFU Burnaby, the Samuel and Frances Belzberg Library at SFU Vancouver, and the Fraser Library at SFU Surrey.

We build and curate responsive collections, and provide instruction and consultation on research, writing, and study strategies. Innovative spaces and initiatives such as Special Collections, the Knowledge Mobilization Hub, the Digital Humanities Innovation Lab, and the Media and Maker Commons provide specialized expertise to students and researchers, as well as opportunities for learning and creativity. This year, we completed exciting renovations to library spaces at Vancouver campus, and our Digital Library Services team coordinated major upgrades to the Library website and our Library Search tool, improving the usability of one of the primary points of access for our community. We also hosted vibrant online events, including Robyn Maynard and Leanne Betasamosake Simpson for our Dean’s Lecture on Information + Society, and Hiromi Goto, Sarah Leavitt, and Erica Hinko Isomura for our One Book One SFU event.

Through our deeply rewarding partnerships, our rich and responsive collections, and our indispensable expertise, SFU Library continues to advance the learning, research, and creativity of the SFU community.
The new Research Commons offers specialized spaces and services for graduate students and researchers at SFU’s Vancouver campus.

For me the Research Commons at Harbour Centre has been exactly the resource I have needed to support me in bringing together various aspects of my practice as a scholar, sessional instructor, and grad student. The workshops, expert support, and meeting spaces have allowed me to carry forward and further my work with others, as well as individually.

- Melora Koepke
PhD candidate in Geography and instructor in Geography and Semester in Dialogue

New graduate student space at Vancouver campus

In Fall 2021, SFU Library opened a new space for graduate students, faculty, and postdoctoral fellows at Vancouver campus, joining our popular Research Commons in Bennett Library. Providing services and expertise to users at all stages of the research process, the Research Commons fosters an empowered, collaborative, and transformative research culture across SFU. This new flexible, technology-enabled space will anchor and expand the Library’s specialized programs and services at Vancouver campus, and includes spacious individual workstations, bookable group consultation rooms, flexible learning space, and areas for discussion and relaxation.

Providing critical support for students, in-person and online

As the university transitioned back to in-person learning in Fall 2021, the Library opened our physical spaces and services to our community. At the same time, our virtual workshops, consultations, and resources continued to be in demand. Addressing a range of student needs, our mix of online and in-person services included discipline-specific expertise from liaison librarians, real-time research help from AskAway online chat, academic writing, learning, and study skills from the Student Learning Commons, and graduate writing, research, and publishing skills from the Research Commons.

Students Mahindhar Kumar (left), Melissa Ho (middle) and Jaden Thom (right) are the 2021 winners of the SFU Library Mike McIntosh Undergraduate Awards.
EXPANDING RECOGNITION OF DIVERSE UNDERGRADUATE WRITING

The Student Learning Commons Undergraduate Writing Contest celebrates undergraduate writing excellence across disciplines. As they entered the contest’s fifth year, the organizers restructured the submission categories to invite even more student participation. The addition of a First Year category allows for submissions from first year, first semester students. This change was made based on feedback from students and professors from programs, like Engineering, that include writing-intensive courses early in the academic program. The new Plurilingual Prize recognizes the excellence of plurilingual writing, including incorporation of multiple languages or multiple forms of English into academic writing. Steve Marshall, a professor of education whose research focuses on plurilingualism and academic literacy in higher education described the prize as “groundbreaking and exciting.” This year, sixteen exceptional undergraduate student papers were published across four categories, serving as samples of strong undergraduate writing that can be read and shared across SFU. “I am excited to go and apply my writing skills to real-world solutions,” shared Mireta Strandberg-Salmon, first place winner of the Fourth Year+ category and recent Resource and Environmental Management graduate, “and will do so now with an extra bounce in my step.”

DEEPENING UNDERSTANDING OF INDIGENOUS RESEARCH METHODS

Four Indigenous researchers from across SFU, Alanaise Ferguson, Dorothy Cucw-la7 Christian, Lyana Patrick and Dara Kelly, shared their expertise in a new online speakers series, Indigenous Research Methods in Action. Over four sessions, the researchers spoke to 258 attendees about their experiences using Indigenous research methods in their work. The featured speakers were: Alanaise Ferguson, an Anishinaabe psychologist and assistant professor in the counselling psychology program; Dorothy Cucw-la7 Christian, whose cultural roots are in Splatsin, one of the 17 communities of the Secwepemc Nation; Lyana Patrick, Dakelh from the Stellat’en First Nation and Acadian/Scottish and an assistant professor in health sciences; and Dara Kelly from the Leq’á:mel First Nation, part of the Stó:lō Nation, and an assistant professor in business. The Library is grateful to Elder Margaret George for opening and engaging in each of the events. The Library also expresses thanks to these four researchers for generously sharing their time and expertise.

UNIQUE HANDS-ON LEARNING IN THE MEDIA AND MAKER COMMONS

TEKX 101 offers experiential learning opportunities for SFU students inside the Media and Maker Commons (MMC), a collaborative, hands-on makerspace inside Bennett Library. Designed specifically for non-engineering students by Dr. Juan Ferrer, a lecturer in engineering, the popular course provides foundational knowledge and skills for students new to using 3D printing and scanning technologies. Throughout their scaffolded assignments, students can select, design and print their own designs and customize their projects—"I really appreciated that we didn’t lose marks if our print didn’t work," shared a student who took the course in Spring 2022. “It doesn’t discourage me from 3D printing but instead, encourages me to improve the best I can… I loved the hands-on nature of the assignments and the fact that we could work on them at our own time and pace.” Supporting students with the software and technology throughout the course, the makerspace librarian, Mikael Kriz, also finds that many of them become regular users of the MMC’s 3D printers and other technologies.

HIGHLIGHTS OF LIBRARY USAGE 2021-22

- 8,151 research and learning consultations
- Over 1,027 workshops with 18,530 participants
- 32,196 views of instructional videos on YouTube
- 4.6mil digital items accessed
- 808 writing consultations provided by WriteAway
- Over 808 writing consultations provided by WriteAway
- 800 research, course and subject guides
- Approx. 126 digital items accessed per student, faculty and staff member
- 3097 questions answered on AskAway online chat
- 808 writing consultations provided by WriteAway
- 1,027 workshops with 18,530 participants
- 32,196 views of instructional videos on YouTube
- 4.6mil digital items accessed
- 808 writing consultations provided by WriteAway
- Over 808 writing consultations provided by WriteAway
- 800 research, course and subject guides
- Approx. 126 digital items accessed per student, faculty and staff member
- 3097 questions answered on AskAway online chat
-TEKX 101 offers experiential learning opportunities for SFU students inside the Media and Maker Commons (MMC), a collaborative, hands-on makerspace inside Bennett Library. Designed specifically for non-engineering students by Dr. Juan Ferrer, a lecturer in engineering, the popular course provides foundational knowledge and skills for students new to using 3D printing and scanning technologies. Throughout their scaffolded assignments, students can select, design and print their own designs and customize their projects—"I really appreciated that we didn’t lose marks if our print didn’t work," shared a student who took the course in Spring 2022. “It doesn’t discourage me from 3D printing but instead, encourages me to improve the best I can… I loved the hands-on nature of the assignments and the fact that we could work on them at our own time and pace.” Supporting students with the software and technology throughout the course, the makerspace librarian, Mikael Kriz, also finds that many of them become regular users of the MMC’s 3D printers and other technologies.

ENHANCING TEACHING + LEARNING

- 8,151 research and learning consultations
- Over 1,027 workshops with 18,530 participants
- 32,196 views of instructional videos on YouTube
- 4.6mil digital items accessed
- 808 writing consultations provided by WriteAway
- Over 808 writing consultations provided by WriteAway
- 800 research, course and subject guides
- Approx. 126 digital items accessed per student, faculty and staff member
- 3097 questions answered on AskAway online chat
-TEKX 101 offers experiential learning opportunities for SFU students inside the Media and Maker Commons (MMC), a collaborative, hands-on makerspace inside Bennett Library. Designed specifically for non-engineering students by Dr. Juan Ferrer, a lecturer in engineering, the popular course provides foundational knowledge and skills for students new to using 3D printing and scanning technologies. Throughout their scaffolded assignments, students can select, design and print their own designs and customize their projects—"I really appreciated that we didn’t lose marks if our print didn’t work," shared a student who took the course in Spring 2022. “It doesn’t discourage me from 3D printing but instead, encourages me to improve the best I can… I loved the hands-on nature of the assignments and the fact that we could work on them at our own time and pace.” Supporting students with the software and technology throughout the course, the makerspace librarian, Mikael Kriz, also finds that many of them become regular users of the MMC’s 3D printers and other technologies.

"I have found AskAway to be extremely useful and rely on this service so much. The research experts are always very kind and helpful — I owe a lot to them. Thank you."
The 5th annual Undergraduate Research Symposium (UGRS), coordinated by SFU Library in partnership with Graduate and Postdoctoral Studies, celebrates undergraduate research excellence. More than 40 students from across disciplines created research posters which were presented live at the Symposium, displayed in Bennett Library, and published in the open access journal. The poster exhibition in Bennett Library was a new opportunity for 2022 participants, expanding the visibility of undergraduate research beyond the symposium event. The Undergraduate Research Symposium Journal, hosted on the open access software Open Journal Systems, provides a permanent record of the student research, and also enables students to gain experience with research activities such as open access publishing and peer-reviewed journal submissions. One student shared: “I hope it will raise awareness to the kind of research that is possible at SFU and allow more students to take advantage of that in their undergraduate degrees.”

Eternity Martis joined SFU Library in the spring semester as the second Non-Fiction Writer in Residence. An award-winning journalist and author of the bestselling memoir, They Said This Would Be Fun: Race, Campus Life, and Growing up (P), Martis offered a program of well-attended virtual events, workshops, and consultations to support the SFU community’s non-fiction writing for public audiences. Topics included pitching to media outlets, drafting non-fiction book proposals, and writing about topics such as trauma and violence. “Thanks to Eternity and SFU Library for such an excellent lineup of events!” one attendee shared. “So many great insights. I look forward to applying some in my own work.”

Eternity Martis joined SFU Library in the spring semester as the second Non-Fiction Writer in Residence. An award-winning journalist and author of the bestselling memoir, They Said This Would Be Fun: Race, Campus Life, and Growing up, Martis offered a program of well-attended virtual events, workshops, and consultations to support the SFU community’s non-fiction writing for public audiences. Topics included pitching to media outlets, drafting non-fiction book proposals, and writing about topics such as trauma and violence. “Thanks to Eternity and SFU Library for such an excellent lineup of events!” one attendee shared. “So many great insights. I look forward to applying some in my own work.”

Eternity Martis (left) in conversation with journalist and author Kamal Al-Solaylee (middle) and undergraduate student moderator Emily Lam (right) at the Non-Fiction Writer in Residence launch event.

The UGRS gave me a taste of presenting science to the public. Specifically, it gave me a better understanding of why science communication is sometimes considered challenging. It’s now something that I keep in mind moving forward.

- SFU student and presenter at the 2022 Undergraduate Research Symposium
As part of their degree requirements, most SFU graduate students complete a thesis or extended essay that is made openly accessible through SFU's research repository, Summit. To assist with preparing theses for Summit, SFU Library's Theses Office team provides critical and timely support for students through in-depth consultations and workshops. In addition, as graduate students increasingly look at unconventional and novel ways of presenting their research, or incorporating Indigenous ways of knowing, the team helps identify ways to enable students to present their research authentically, while still allowing readers to readily access their work. One graduate student shared how vital these services were at such a key point in the graduate student experience: “Every single thesis-related support I accessed more than surpassed my expectations. All of the staff were supportive, knowledgeable, available, clear, and caring. I felt recognized as a whole human, with physical, intellectual, and emotional needs and those needs were recognized and supported through the stress marathon that was researching and writing a thesis during a pandemic.”

The Hartmut Lutz Collection of Indigenous Literature was generously gifted to SFU Library's Special Collections and Rare Books in 2018, significantly expanding our collection of 20th century Indigenous literature. Centering Indigenous voices and authors, the collection includes over 1500 works for adults and children in multiple languages and includes fiction, storytelling, poetry, criticism, and biography. Dr. Lutz amassed his library over the course of his academic career which lasted almost 50 years. “It is [an] act of tremendous generosity that at the moment of his retirement he decided to return this book collection to Canada,” shared Deanna Reder, professor in Indigenous studies and English. Special Collections library assistant Ewa Delanowski has been applying a modified version of the Brian Deer Classification system to this collection in collaboration with Indigenous Initiatives librarian Ashley Edwards. The Brian Deer Classification System prioritizes Indigenous subjects, communities, and worldviews, ensuring that the materials are organized and accessible in a way that reflects the uniqueness of the collection. This invaluable collection of Indigenous literature will continue to be of significant interest to students and scholars in English, history, publishing, Indigenous studies, and many other disciplines.

Seeking to document SFU’s response to the COVID-19 pandemic and the major shifts in operations at the university and the Library, Janice Banzer, Digital and Web Services Librarian, started the SFU COVID-19 web archive collection in March 2020. The collection, which continues to grow, includes more than 80 pages of web content, containing almost 700,000 unique items of data, including updates from the university president, the Library’s swift change to online services, COVID-19 research efforts, and information about the impacts on students. Given increased interest in digital research and tools that support text and data mining, this web archive is a valuable primary source of information about the university during the COVID-19 pandemic.

New scholarly electronic resources added to our collection over the past year include:

- Bloomsbury Design Library
- Project Muse 2022 eBook collection
- Policy Comma
- SAGE Skills: Business
- Periodicals Archive Online
- Wiley’s Evidence-Based Acquisiton eBook collection

Growing our online collections

The Lutz collection is a tremendous legacy, a rich resource that can be used by a future generation of researchers.

- Deanna Reder, Associate Professor, Indigenous Studies and English

A selection of books in the Hartmut Lutz Indigenous Literature Collection.
New institutional partnerships expand reach for community scholars

Since 2016, SFU Library’s Community Scholars Program has provided staff members in charitable and non-profit organizations in BC with access to online paywalled scholarship and research support from the Community Scholars Librarian, Heather De Forest. Over the last few years, new partnerships with University of British Columbia, Kwantlen Polytechnic University, and University of Fraser Valley have enabled the program to offer localized librarian expertise and expanded access to the latest research and knowledge for scholars and practitioners working in communities across the province. The expanded partnerships also allow for deeper relationships between librarians and community scholars, ensuring that needs and gaps can be meaningfully addressed and the program can continue to improve.

In Spring 2022, the MISinformation exhibit at Fraser Library on SFU’s Surrey campus showcased posters on misinformation designed by students in a first year Interactive Arts and Technology class.

In 2021-22, 416 generous donors contributed $1,487,760 in support of the SFU Library including:

- $106,180 to the W.A.C. Bennett Library Development Fund to improve resources, pilot new services, and enhance physical spaces
- $100,000 to the Bennett Library renewal fund to name the Dr. Geeta Somjee and Dr. A.H. Somjee Room at the Research Commons
- $217,925 to the Public Knowledge Project to make scholarly publishing more accessible and open for all
- $10,000 to the Alumni Library Endowment to update student learning spaces
- $42,201 to the Alumni Library Endowment to update student learning spaces
- $30,350 to support the Peer Educator Program at the SFU Library Student Learning Commons
- $865,410 to the Special Collections & Rare Books
- $15,000 to support the Salish Weave project

4.85M visits to the website
500 non-profits in BC who have less access to academic research through the Community Scholars Program
36 events from our Knowledge Mobilization Hub with 1106 participants
$333,523 awarded through the Open Access Fund to fund 155 articles by SFU authors
$30,350 to support the Peer Educator Program at the SFU Library Student Learning Commons
570 attendees of the Celebration of SFU Authors, One Book One SFU, and Dean’s Lecture on Information + Society
215 participants in our Non-Fiction Writer in Residence events
500 non-profits in BC who have less access to academic research through the Community Scholars Program

EXPANSIVE ACCESS AND PROGRAMMING

BUILDING CONNECTIONS

Bringing geospatial knowledge into the community

Deepening our commitment to public engagement, SFU Library partnered on two community events that drew on librarian expertise to share information about geospatial data and tools. The first event, a collaboration with Coquitlam Public Library, offered an introduction to GIS (geographic information systems); while the second, Mapping Equity, offered a hands-on workshop on creating thematic maps that make social and demographic inequities visible, as part of SFU Public Square’s 2021 Community Summit. Towards Equity, Designed and delivered by Sarah Zhang, Librarian for Geography, GIS, and Maps, both workshops addressed the need to make GIS education for the public more available and equitable. The sessions were positively received by the participants, one of whom said: “I feel like I learnt so much in such a short period of time. I want to do more.” Another shared: “I am inspired to begin creating a GIS map of my own neighborhood.”

BUILDING THE FUTURE

In 2021-22, 416 generous donors contributed $1,487,760 in support of the SFU Library including:
To: Senate

From: Kris Nordgren, Secretary
Senate Nominating Committee

Date: November 18, 2022

Subject: Senate Committee Elections

This is a summary of the nominations received and outstanding vacancies for Senate committees.

All nominations must be received by the Senate Office from the Nominating Committee in time to be included in the documentation sent out for the next Senate meeting. Senators will be informed that further nominations may be made by individual members of Senate. Any such nominations must reach the Committee Secretary the Friday before the meeting of Senate, and no further nominations will be accepted after this time. The Committee Secretary will provide members of Senate at the Senate meeting with such further nominations as may have been received. Oral nominations during the meeting of Senate will not then be allowed.

If only one nomination is received for a position, the position will be elected by acclamation. If more than one nomination is received for a position, online voting will be held during the week following the Senate meeting on Monday, December 5, 2022. An email will be sent to all Senators with information about the candidates and a link to the online voting system. Voting will be permitted for 48 hours and election results will be released within three days of the end of voting.

<table>
<thead>
<tr>
<th>COMMITTEE</th>
<th>POSITION</th>
<th>TERM (from June 1, 2022)</th>
<th>NOMINATIONS RECEIVED (after October Senate Elections)</th>
<th>CANDIDATES ELECTED (from October Senate Meeting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DQAC</td>
<td>Faculty Member</td>
<td>1 year</td>
<td></td>
<td>Gordon Coleman</td>
</tr>
<tr>
<td>ESC</td>
<td>Senator</td>
<td>2 years</td>
<td></td>
<td>Gordon Coleman</td>
</tr>
<tr>
<td>SAB</td>
<td>Undergraduate Student (Alternate)</td>
<td>1 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAB</td>
<td>Graduate Student (Alternate)</td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCAR</td>
<td>Senator</td>
<td>2 years</td>
<td>Dan Laitsch</td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>Faculty Member</td>
<td>2 years</td>
<td>Matt Martell</td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>Convocation Senator</td>
<td>1 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>Student</td>
<td>2 years</td>
<td>Jessica Simpson</td>
<td></td>
</tr>
<tr>
<td>SCS</td>
<td>Student (Alternate)</td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCIA*</td>
<td>Faculty Member (Communication, Art and Technology)</td>
<td>1 year</td>
<td>Elspeth Pratt</td>
<td></td>
</tr>
<tr>
<td>SCIA*</td>
<td>Faculty Member (Education)</td>
<td>2 years</td>
<td>Nathalie Sinclair</td>
<td></td>
</tr>
<tr>
<td>SCIA*</td>
<td>Faculty Member (Health Sciences)</td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCIA*</td>
<td>Faculty Member (Science)</td>
<td>2 years</td>
<td>Arne Mooers</td>
<td></td>
</tr>
<tr>
<td>SCIUH</td>
<td>Faculty Senator (Applied Sciences)</td>
<td>2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>Contact Person</td>
<td>Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Education)</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convocation Senator</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCUP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student Senator</td>
<td>Suzanne Smythe</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student Senator (Alternate)</td>
<td>Reema Faris</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Member (Education)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Senator</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLC/LPAC Dual Positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student (Alternate)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Arts and Social Sciences)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Business Administration)</td>
<td>Michael Parent</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Communication, Art and Technology)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Education)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Environment)</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator (Health Sciences)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPCSAB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Senator</td>
<td>Connie Liu</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPCSAB/SGAAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Member</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Student (Alternate)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPCSAB/SUAAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Member</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUAAC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Student (alternate)</td>
<td>Jessica Simpson</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SCIA Faculty members: In the event that the Faculty Member is unable to attend, the Faculty Dean is authorized to appoint an alternate replacement.

CC: Calendar Committee
DQAC: Diverse Qualifications Adjudication Committee
ESC: Electoral Standing Committee
REB: Research Ethics Board
SCAR: Senate Committee on Agenda and Rules
SCCS: Senate Committee on Continuing Studies
SCEMP: Senate Committee on Enrolment Management and Planning
SCIA: Senate Committee on International Activities
SCODA: Senate Committee on Disciplinary Appeals
SCUH: Senate Committee on University Honours
SCUP: Senate Committee on University Priorities
SCUS  Senate Committee on Undergraduate Studies
SCUTL  Senate Committee on University Teaching and Learning
SGAAC  Senate Graduate Awards Adjudication Committee
SGSC  Senate Graduate Studies Committee
SLC/LPAC  Senate Library Committee/Library Penalties Appeal Committee
SNC  Senate Nominating Committee
SPCSAB  Senate Policy Committee on Scholarships, Awards & Bursaries
SUAAC  Senate Undergraduate Awards Adjudication Committee