WE STRIVE TO BE THE LEADING FACULTY OF ENVIRONMENT, DEFINED BY ITS PREEMINENT, COMMUNITY-ENGAGED EDUCATIONAL AND RESEARCH CONTRIBUTIONS TO SHAPING A SUSTAINABLE WORLD
<table>
<thead>
<tr>
<th>Page</th>
<th>Section Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>04</td>
<td>Guiding Values and Strategic Objectives</td>
</tr>
<tr>
<td>05</td>
<td>Message from the Dean</td>
</tr>
<tr>
<td>06</td>
<td>Engaging A Sustainable World</td>
</tr>
<tr>
<td>08</td>
<td>Undergraduate Programs</td>
</tr>
<tr>
<td>10</td>
<td>Graduate Programs</td>
</tr>
<tr>
<td>12</td>
<td>Experiential Learning</td>
</tr>
<tr>
<td>14</td>
<td>Community Engagement</td>
</tr>
<tr>
<td>18</td>
<td>Non-Credit Programs</td>
</tr>
<tr>
<td>19</td>
<td>Academic Programs</td>
</tr>
<tr>
<td>20</td>
<td>Academic Departments</td>
</tr>
<tr>
<td>22</td>
<td>Research Centres and Teams</td>
</tr>
<tr>
<td>25</td>
<td>Research and Innovation</td>
</tr>
<tr>
<td>28</td>
<td>Special Recognition</td>
</tr>
<tr>
<td>29</td>
<td>Making It Happen - Thank You To Our Donors</td>
</tr>
<tr>
<td>32</td>
<td>External Advisory Board</td>
</tr>
<tr>
<td>34</td>
<td>Faculty Directory</td>
</tr>
<tr>
<td>39</td>
<td>Staff Directory</td>
</tr>
</tbody>
</table>
GUIDING VALUES AND STRATEGIC OBJECTIVES

The Faculty of Environment’s guiding values support a realistic but positive, hopeful vision of a just and sustainable world. We understand “environment” to include diverse processes across both natural landscapes and sustainable human settlements. We support teaching, learning and research that are innovative, impactful, academically rigorous, collaborative, discipline-based as well as interdisciplinary. We consider indigenization and community engagement as integral, rather than supplementary to teaching, learning and environmental research. We support an experience that is rewarding and inspiring to students, staff, faculty, alumni, sponsors and community members. We promote social and environmental justice, equity and well-being at all levels, from hiring practices to research engagement.

The Faculty of Environment’s strategic objectives are:

1. **Enhancing Student Experience**
   - We are here first and foremost to support our students, each of whom deserve a rewarding set of opportunities at all levels of their learning experience. We enhance the student learning experience through environmental teaching and learning. [e.g. pp. 6, 7, 8, 9, 11, 12, 13]

2. **Supporting Research & Innovation**
   - The joy of discovery and change happens only through high-integrity research. We support world-class, leading edge environmental innovation and research excellence. [e.g. pp. 6, 7, 22, 23, 24, 26, 27]

3. **Engaging Communities**
   - More than supporting ivory tower thinking, the Faculty of Environment strives to make meaningful environmental changes regionally, nationally, and internationally in close collaboration with community partners. We engage the community in a meaningful and mutually supportive manner. [e.g. pp. 6, 7, 11, 12, 14, 15, 16, 17, 22, 23, 24]

4. **Diversity & Interdisciplinary Collaboration**
   - The Faculty of Environment aims to advance diversity, tolerance and respect for multiple voices, acknowledging that meaningful, interdisciplinary environmental dialogue is required to address “wicked” environmental problems from a range of perspectives. We support diversity and interdisciplinary collaboration. [e.g. pp. 6, 7, 11, 13, 19, 23, 24, 25]

5. **Optimizing Operational Management**
   - Delivering educational opportunities in a way that is fiscally responsible, efficient, and judicious is central to our publicly funded institution. We optimize operational management of the faculty.
Welcome to the third Annual Report of SFU’s Faculty of Environment - the only environmental “Faculty” in Western Canada and one of only a handful in Canada.

Today as a society, we face growing environmental challenges on many fronts. Climate change continues to ravage communities through floods, fires and droughts as political will to acknowledge human causes and seek optimal solutions wanes across some nations. Unfounded skepticism around scientifically-proven anthropogenic triggers of global warming is still far too prevalent amongst the uninformed.

At the same time, leaders like our own Prime Minister come to power on the strength of promises to seriously address such global, environmental challenges. Municipalities, provinces and nations are taking the lead in developing innovative policy solutions to problems of climate change. Universities increasingly commit to developing new programs to address such challenges and student interest and enrolments rise. We have so many reasons to avoid the “doom and gloom” scenario, and this annual report will provide you with inspiring examples of how progress is being made in the most promising ways at Simon Fraser University.

A few internal changes are worth noting here as well, as peoples’ roles shift. I want to first thank the long-standing, exceptionally professional and impactful Chair of the Department of Archaeology, Dave Burley, for his deep commitment supporting faculty, staff and students over the last years. Dave proved himself to be a genuine problem-solver. Never satisfied to skirt problems, he addressed them head-on, with unrelenting determination to identify optimal solutions. He was strategic as a department leader, enlarging research strengths, solidifying curriculum and building bridges with communities, from local First Nations to other groups across the globe. Dave and his colleagues in Archaeology invite us into past worlds in a consistently inspiring way. The department owes him a huge debt of gratitude for the work that he has done to help to bring his unit to first place amongst Archaeology departments in Canada in terms of research citations per paper and H Index citations. I cannot thank him enough for his commitment to his department and his help in defining the Faculty as a leading force in Canada.

Dr. George Nicholas has stepped into Dave’s big shoes. That said, George himself has a stellar record of academic excellence and research leadership, having for seven years guided the IPinCH (Intellectual Property Issues in Cultural Heritage) project – an initiative of 50 researchers, exploring equitable modes of knowledge exchange relating to heritage. We welcome George to the Executive team with great enthusiasm!

Dr. Gretchen Ferguson also joins us as inaugural Director of the Sustainable Development Program, helping to identify new governance structures and streamline curriculum with the merger of two earlier sustainability programs. Her energy and excitement in institution-building are infectious and promise to lead to an important moment of renewal for sustainability programs within the Faculty.

We are also thrilled to note that Dr. Tracy Brennand has begun her second, three-year term as Chair of the Department of Geography. Tracy is one of the most brilliant, analytical minds that I know. Enthusiastically committed to her department and her discipline, she is a leader who never stops or slows down. I look forward to working with her in her second term.

Within the Dean’s Office, a warm welcome to our new Associate Dean, Graduate and Research, Dr. Dongya Yang. Dongya is by far one of the kindest, hardworking, dependable faculty members I have known. And also within the Dean’s office, we said goodbye to staff members Angie Van Vliet and Stevie Benisch, and welcomed into the role of Dean’s Assistant Erica Anderson. Erica comes from the Faculty of Education and has stepped into her new position as if she always belonged! Collegial, supportive and friendly, she is a joy to work with.

In fact, it is such a privilege to work with all of our faculty, staff and students – and with each of you whose interest and commitment to environmental matters keeps me hopeful for a better, more equitable, more sustainable future.

Ingrid Leman Stefanovic
Professor and Dean
ENGAGING A SUSTAINABLE WORLD

The Faculty of Environment contributes to SFU’s vision of engaging students, engaging research and engaging communities in a number of ways.

Co-Op Placements

118 placements in 34 cities and 6 countries.

Research Locations

We are doing research in 34 countries:
• 9 Canadian provinces and territories,
• 3 US states and
• 32 other countries beyond Canada and the USA.
Adjunct Professors

We have adjunct professors in 25 cities, towns and villages:
- 9 in B.C.
- 3 in other parts of Canada
- 6 in the USA and
- 7 other international locations.

Presentation Locations

354 presentations in 76 cities in 21 countries.
UNDERGRADUATE PROGRAMS

We offer...

**Bachelor of Arts (BA)** in
- Archaeology
- Geography
- Geography Environment Speciality

**Bachelor of Environment (BEnv)** in
- Resource and Environmental Management
- Sustainable Business (joint major)
- Global Environmental Systems

**Bachelor of Science (BSc)** in
- Environmental Science
- Physical Geography

**Minors** in
- Archaeology
- Geography
- Resource and Environmental Management
- Development and Sustainability

**Certificates** in
- Cultural Resource Management
- Environmental Literacy
- Sustainable Community Development
- Spatial Information Systems
- Urban Studies
- Corporate, Environmental & Social Sustainability (through the Faculty of Business)

**Post Baccalaureate Diploma (PBD)** in
Sustainable Community Development

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**Faculty Gets Good Grade in Fall 2016 SFU Undergraduate Survey**

Our students ranked our instructors highest in the University in creating classroom experiences that positively impact well-being.

Students also reported higher than average access to courses.

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**BEnv** is SFU’s newest degree in 22 years...

...and is recognition that the environmental challenges of today demand an interdisciplinary approach to developing solutions. The BEnv does this by providing students with a foundation in earth systems, ecology, biology, the human role in nature, the social and built environments, environmental stewardship and governance, and the global scale.
Tessa Ramburn, Dean’s Silver Medalist
Recognizing outstanding achievement

Tessa, an Environmental Science Honours student is the recipient of this year’s Dean of Undergraduate Studies Convocation Medal. She also received the 2017 President’s Award for Leadership in Sustainability for her work as President of SFU350 (a student club about climate change), Board member with Embark Sustainability (a student-led society that empowers students to create sustainable change), and co-founder of the Invisible Wall Collaborators (an event to showcase students who feel enabled and/or disempowered to act on climate change.) Her work is innovative and exemplary of community-focused sustainability leadership.

How to Hone Your Survival Skills
Archaeology student society hosts first-ever PaleOlympics

Students enjoyed a learning experience not easily replicated in the classroom. In teams of five, participants gained hands-on experience about living in the Paleolithic or Stone Age by competing in survival tasks such as spear throwing, fire starting, foraging, and more. The event connected students, staff and faculty while these mixed teams worked together to bring in the win. SFU archaeology student Brea McCauley, who was the event’s primary organizer, told SFU News that the top three tips for survival are: learn how to make a fire; learn what you can eat and cooperate and plan because hunting in a group is more successful than by yourself.

Group Exams? Maximizing Learning Opportunities Through Student Engagement

This year Dr. Tara Holland’s geography (104W) and environmental science (100) classes took their final exam in groups. It’s called a two-stage collaborative exam that involves the student taking the exam individually and submitting it for grading and then taking the same exam again in small groups. Each group submits only one exam having reached consensus on every question. Dr. Holland explains that this type of exam can maximize learning opportunities, reinforce the value of collaboration, and make exams more engaging for the students, focusing less on memorization and more on understanding the material. This format also promotes student well-being. It lessens exam anxiety because students receive instant feedback as they collectively discuss their answers. Students can identify mistakes, immediately understanding how to correct the errors and better understand the concepts.
We offer...

**Master of Arts (MA)** in
- Archaeology
- Geography
- Heritage Resource Management

**Master of Science (MSc)** in
- Ecological Restoration
- Geography

**Master of Resource Management (MRM)**

**Master of Resource Management Planning (MRM Planning)**

**Doctor of Philosophy (PhD)** in
- Archaeology
- Geography
- Resource and Environmental Management

**Certificates** in
- Development and Sustainability
- Heritage Resource Management
- Modelling of Complex Social Systems

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**Tiffany Vass, Dean’s Gold Medallist**

*Can Canada meet its Paris targets?*

Congratulations to Tiffany Vass who received the Dean of Graduate Studies Convocation Medal in June in recognition of her outstanding 4.3 CGPA while completing her Masters in Resource and Environmental Management. In her thesis, Tiffany assessed policy options for achieving Canada’s 2030 emissions reduction commitment under the Paris agreement. She found that existing and promised policies will likely be far from sufficient to achieve the Paris target. Two alternative approaches to help reach the target were explored that involved relying on emissions pricing and relying on flexible regulations. While emissions pricing is generally considered as the most economically efficient way to reduce emissions, it would likely be very difficult politically to implement. The flexible regulations approach may be less economically efficient but may have a better chance of being implemented and thus helping Canadians achieve the target.
First Ecological Restoration MSc Cohort Graduates
Community engaged research contributions to shaping a sustainable world

The first cohort of the Joint SFU-BCIT Masters of Ecological Restoration Program graduated this June. Working with government agencies, industry and community stakeholder groups, capstone projects focused on habitat restoration in estuaries and riparian and coastal zones, elimination of invasive species, water quality, sediment flow, bird habitat and more! Research took place in the coastal and interior regions of B.C., Manitoba, Jamaica, Mexico and Belize.

In the photo to the left, MSc Julie Porter is collecting samples for her project that received extensive media attention because of her recommendations on how to restore salmon in the Katzie Slough, Pitt Meadows.

Connecting Students, Faculty and Staff: Mis-adventures in the field

The Geography Graduate Students’ Association hosted their second Mis-adventures in the field session in March. It featured three speakers (Henry Kosch - Undergrad, Hilda Fernandez - Grad, and Dr. Geoff Mann - Faculty), talking about their journeys and (mis)adventures in the field and academia, from a personal perspective. The gathering is a way to connect undergraduate and graduate students with staff and faculty in an informal and fun way while showcasing research-related stories and challenges.

Introducing the Environment Research Talks

The Faculty hosted three-minute research talks by graduates and five-minute research talks by undergraduates. These talks provide an interdisciplinary opportunity to hear about environmental research in addition to honing presentation skills given competitors have just minutes to present their research.

Presentations featured research on:
- childhood health,
- using GIS in solid waste systems,
- improving identification of juvenile remains,
- best practices for impact benefits agreements,
- impacts of oil pollution on sand dollar fertility, and more.

Graduate students Maggie Cascadden and Shera Fisk advanced to the university-wide round of 3-minute thesis graduate competition with Shera winning Runner Up and People’s Choice.
What Do Laneway Housing, Transit Plaza and Queen’s Park Arenex Have in Common?

Co-op student Daniel Ross (master’s candidate in resource and environmental management-planning) took a placement with the City of New Westminster as a Planning Assistant in the Development Services Department and worked on all three projects.

Daniel described his summer 2017 work term as “a great introduction to how planning functions in the real world outside of the classroom; how BC’s different planning tools are being implemented; and to what degree of efficiency”. Not only did he sharpen his technical and interpersonal planning skills, he made strong connections with the planners, engineers, and other key staff with the City.

“"This is something I simply could not have experienced in the classroom. I worked with a relatively small planning team in a very busy, ambitious, and socially minded city. The staff encouraged me to try different things and gain experience on different projects to gain a better understanding of where I wanted to focus my career. I am very grateful for their encouragement."
Archaeology Field School Partners with Tsleil-Waututh Nation

The Tsleil-Waututh Nation conducts research to establish pre-European environmental baseline data within their traditional territories on Burrard Inlet. This summer they formed a partnership with the Archaeology field school to undertake excavations at a site in Barnet Marine Park at the foot of Burnaby Mountain. Under research supervision of Tsleil-Waututh archaeologists, 18 SFU students gained invaluable field experience and successfully gathered data on ancient shell fish populations, traditional methods for processing and storage of shell fish, the pre-industrial fishery and Tsleil-Waututh use of the site for red elderberry and other types of plant exploitation. Visits by Tsleil-Waututh elders underscored the importance of this work and provided student insights into traditional and contemporary Tsleil-Waututh culture.

Youth Internship Program Fosters Sustainability and Food Security

The Centre for Sustainable Development in partnership with Sustainable Cities International offers a youth internship program designed to provide professional development opportunities for 40 young Canadians to positively impact urban sustainability and food security in Africa, Asia, and Latin America.

Bhavina Patel, geography alumna went to Durban, South Africa to pursue an internship with the city in the economic development department. She worked on an initiative to help poverty-stricken populations access the edamame bean, an economical protein source. This bean is an ideal crop for Durban because of the climate, its low-maintenance and its high nutritional value. The project also creates local employment for small scale, backyard farmers. As most of these farmers are visible minorities and/or women who were oppressed under apartheid, the project tackles socioeconomic and gender inequality. In an interview with The Peak, Patel noted “Female empowerment feeds back into the well-being of their family - it aids gender equality, helps children focus better in school, and will form the backbone of any sustainable community.”

Students Identify Solutions to Real World Problems in New Course on Water Security

Using a problem-based learning approach, students investigate a water security challenge – often found in news headlines - and make evidence-based policy recommendations in a new graduate course in Resource and Environmental Management developed by Dr. Zafar Adeel. Students are also required to develop out-of-the-box solutions to these water security problems. Water security in its most basic form involves access to safe and clean water for everyone whenever it is needed. In a more complex form it includes implications for human rights, development economics, public health, geopolitics, gender policies, water resource management and more. Students gain insight into how water security constitutes the keystone for eradicating poverty, achieving human well-being, and assuring economic growth.
COMMUNITY ENGAGEMENT

Sometimes we start the conversation ...

The Faculty of Environment contributes to SFU’s vision of engaging students, engaging research and engaging communities in a number of ways. Included here are highlights of how the Faculty provides learning opportunities to diverse communities, promotes community service and engagement, research, teaching and environmental sustainability.

Public Talks and Discussions

One of the ways we start the conversations is by building awareness through public talks and discussions. Our faculty members participated in numerous talks locally and internationally but the faculty also hosted the local evening talks noted below.

<table>
<thead>
<tr>
<th>An Evening on the Skeena</th>
<th>Addressing the Impact of Climate Change</th>
<th>The Columbia River Treaty: moving forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>In partnership with the World Wildlife Fund, this talk explored how scientists are working with First Nations and community groups to promote the protection and management of biodiversity in the Skeena Watershed, home to environmental, cultural and economic wealth.</td>
<td>In partnership with PICS-SFU, this talk explored the concept of urban resiliency and whether or not cities have the wisdom to adopt preventive measures before disaster strikes as we shift to a climate unsteady future.</td>
<td>This discussion explored the benefits and challenges surrounding one of the largest transboundary international water treaties in the world. Since its signing in 1964, the political and environmental landscape has changed significantly, exacerbated by the threat of climate change.</td>
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</tbody>
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<thead>
<tr>
<th>A City for the Birds?</th>
<th>Sea Level Rise and What it Means to Coastal BC and Metro Vancouver</th>
<th>Collaborative Water Governance</th>
</tr>
</thead>
<tbody>
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<td>To celebrate Canada’s 150th anniversary, the Dean hosted this talk featuring renowned ornithologist Rob Butler who took up the challenge of finding 150 birds in the city in 150 days as a way of promoting conservation and natural spaces in urban environments.</td>
<td>Vancouver is expected to have one metre of sea level rise by 2100 and there is need for action. In partnership with PICS-SFU, the City of Vancouver and the Vancouver Aquarium, this talk featured local experts showcasing what this means for British Columbians and what we can do about it.</td>
<td>The PWRC in partnership with Watersheds 2016 hosted this discussion to explore key concepts of collaborative watershed governance, including the importance of developing a water ethic, youth engagement and more.</td>
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</tbody>
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In a newly released report, Resilience Scan, the Adaptation to Climate Change Team is named one of the top climate resilience influencers on Twitter. Congratulations ACT!
sometimes we move the conversation forward...

One of the ways the Faculty moves conversations forward is through faculty expert media interactions engaging the broader public in informed discussions. We see this with headlines such as:

**BC’s LNG Debate**

*Will we learn from LNG’s failure in B.C.?*
Tom Gunton, resource and environmental management (REM) professor

*Is the Petronus departure a tragedy or an opportunity?*
Wes Reagan, director community & economic dev.

*Proposed LNG project to break Canada’s carbon budget*
Kirsten Zickfeld, geography professor

*LNG underestimates risks to salmon*
Jonathan Moore, REM professor

**Site C and Power for BC**

*What you need to know about the B.C. Utilities Commission and the Site C Dam*
Mark Jaccard, REM Professor

*Would we use Site C’s electricity?*
Mark Jaccard, REM Professor

*Widespread wind and solar energy projects make sense for B.C.***
Mark Jaccard, REM Professor

**Climate Change**

*Rising temperatures led to rising violence*
Mark Collard, archaeology professor

*Can chemical ‘clues’ in diet help identify climate change?*
Michael Richards, archaeology professor

*It’s time to take the electric vehicle plunge*
Jonn Axsen, REM professor

*Are all the proposed pipelines necessary?*
Tom Gunton, REM professor

*Decarbonizing might not be as hard as we think*
Mark Jaccard, REM professor

**Vancouver’s Hot Real Estate Market**

*Why are single family homes ‘sacred’?*
Michael Geller, REM adjunct professor

*Vancouver’s empty homes tax is unreasonable*
Michael Geller, REM adjunct professor

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**Wild Archaeology - A series you can’t miss**

Aboriginal Peoples Television Network (APTN) features “Wild Archaeology” where professor Rudy Reimer shares indigenous stories that guide journeys across Canada to uncover archaeological artifacts. Linking indigenous knowledge with scientific knowledge in this way is a powerful mechanism in building awareness, respect and reconciliation between cultures. The places you visit and stories unveiled will delight and challenge your perspectives.
sometimes we move ideas from words to action

Words to Action that Affect the Bottom Line: LEAP! accelerator program for start-up social entrepreneurs in rural BC

LEAP! helps build a community’s entrepreneurial ecosystem, directly driving economic growth and strengthening the local economy. Communities with strong local economies are more resilient, have a lower carbon footprint, and are better insulated against global economic ups and downs.

Hosted by our Community Economic Development Program in partnership with community-based organizations, 77% of participants in LEAP! sessions to date have launched a business and 28 businesses are now operating in the market. The last sessions were held in Creston and on the Sunshine Coast and examples of start-up businesses include Share-There – an app for free ride sharing; Lark Coffee Roasters providing sustainably grown beans to local shops and markets, and Health Access – a nurse practitioners clinic.

Engaging the Community to Build Flood-Resistant Rain Gardens

The North Shore’s high levels of rainfall and runoff contribute to significant flooding when the urbanized landscape does not provide adequate permeable surfaces for water absorption.

In response, Joanna Ashworth, Program Director of Professional Programs and Partnerships is spearheading a rain garden project that is moving words to action to empower communities to address the impacts of flooding. In collaboration with North Shore municipalities and NGOs she hosted various public talks highlighting research and showcasing successful case studies such as the 12,000 Rain Gardens in Puget Sound.

The next step is to establish three demonstration rain gardens in prominent public spaces on the North Shore and to develop a guide to community and school participation that includes local resources, and contractors trained in the construction of rain gardens. Workshops for residents, professional landscapers, and municipal staff that show best practices in rain garden construction are planned for the fall. The project will also develop policy recommendations for municipal incentives and standards to motivate and support residents in creating rain gardens on their properties and in public areas.
On Earth Day, the Faculty joined the Stoney Creek Environment Committee (SCEC), and the City of Burnaby to clean up Stoney Creek in our first Stewardship Challenge. Students, faculty, staff, and streamkeepers from SCEC cleaned up debris from the watershed, in an effort to keep local waterways free of garbage that contaminates water and damages vital salmon habitat.

This community event was inspired by ongoing community-based field activities in the Environmental Sciences course on Methods in Environmental Science, taught by Marnie Branfireun. This course supports student exploration and analysis of a local watershed that provides critical urban habitat for salmon and other species in the lower mainland. Spending time around Stoney Creek, and seeing how impacted it is by the dumping of garbage, spread of invasive plants, encroachment, and development, inspired students to apply what they learn and act on improving stream health.

The Centre for Sustainable Development (CSD) partnered with Greek organizations to deliver a capacity building program in Greece for local practitioners involved in social enterprise and cooperative initiatives. The course focused on community economic development and taught participants how to take profits from a social enterprise and translate them into a multiplier effect in a local community’s economy.

CSD is among the first academic institutions in the world to develop a comprehensive program on community economic development (CED) through the formation of their CED Professional Program. This training has been successfully adapted internationally to the Ukraine (2004), Mexico (2001-2007), Bolivia (2007-2013), and now Greece (2016).

Pacific Water Research Centre Partners with Ruby Lake Lagoon Society

The Lagoon Society and the Pacific Water Research Centre signed a Memorandum of Understanding to advance the Pender Ocean Discovery Station (PODS) as a way to engage community with students and faculty to study the marine and fresh-water environments of the Sunshine Coast. PODS facilitates the undertaking of citizen science and data collection and will also provide access to a state of the art laboratory, and research and event facilities.
The vision of Professional Programs and Partnerships is to bring evidence-based, engaged learning experiences to professionals and aspiring professionals. Programs are designed for:

- environmental graduates wishing to upgrade their skills and knowledge in response to evolving research, marketplace, and industry needs;
- professionals in management and leadership roles interested in gaining advanced skills through innovative and evidenced-based learning experiences; and
- public policy makers and others interested in current environmental challenges and solutions.

Professional Programs offers workshops, webinars, policy roundtables and public events on a variety of topics including collaborative natural resource planning and governance; sustainability leadership strategies, procurement and reporting skills for embedding sustainability into organizations; case studies in civic engagement in local government environmental policy development; climate change decision-making; new planning models for urban and rural economic renewal and more.

Joanna Ashworth, director of Professional Programs, in collaboration with Natural Resources Canada developed a course on renewable energy transition strategies for municipal energy managers that will be offered in the fall of 2017. It is fully subscribed with plans for additional offerings because of the high demand.

The Community Economic Development program (CED) supports communities in finding local solutions, acknowledging that the economy, the environment and people are interconnected. It offers a community economic development certificate, a short course for social entrepreneurs, an annual Summit and other public events.

The certificate in community economic development is offered over eight months and includes online coursework and two one-week, in-person residencies. One cohort was offered this year and trained 26 enthusiastic students from Canada, Japan and the U.S. Students developed social innovation projects that included the Third Wheel - a small business offering emergency wheelchair repair services; Home Sweet Home Field School – a learning opportunity for northern B.C. communities to address gaps and challenges in their local food systems; the Calgary Kitchen Library – a kitchen equipment lending program and many others.

The LEAP! Local Entrepreneurship Accelerator Program is an eight-week course for start-up social entrepreneurs in rural B.C. See page 16 for more information.

In partnership with the City of Vancouver, CED also hosted the “Hopeful Economics: Leadership and Innovation Summit”, a two-day gathering for municipal staff, urban and rural community leaders, NGOs, social entrepreneurs, credit unions and private sector partners interested in corporate social responsibility. It was intended for community changemakers of all kinds.
The Faculty of Environment partners with BCIT to offer this four-term master’s program that addresses anthropogenic impacts to ecosystems and habitats. Combining technical knowledge at BCIT with science and community engagement expertise at SFU, it advances the practice and the science of ecological restoration in a unique way. Students learn to:

- identify causes for degraded ecosystems,
- rehabilitate ecosystem functions, and
- advance the scientific knowledge of a rapidly emerging area of study.

In year two, students complete an Applied Research Project where they can specialize in a specific field of restoration and link with industry, government, and NGOs interested in restoring degraded habitats.

The Environmental Science program provides a multidisciplinary undergraduate education with solid backgrounds in natural and mathematical sciences. It trains students to think critically about how the world works and emphasizes the importance of communication skills in solving environmental problems.

Students take a common set of core courses in their first year, but later specialize in one of four concentrations:

- applied biology,
- environmental earth systems,
- water science, or
- environmetrics.

In their final year, students complete a `capstone` project where they apply what they have learned during their studies to a collaborative group research project on a real-world environmental problem.

The Sustainable Development Program (SD) explores the most pressing issues of our time - how to live in more sustainable ways in Canada and internationally. Using an interdisciplinary approach, the theory and practice of sustainable development are considered in terms of environmental regeneration and sustainability, social inclusion and equality, and reorientation of economic systems.

Classes are small and involve significant student participation through discussion and projects. Program participants come from across the university, providing a unique opportunity to collaborate across faculties. Students learn through real-world examples, and projects that respond to organizations and enterprises engaged in social and environmental sustainability.

SD offers an undergraduate minor in Development and Sustainability and/or a Certificate or Post Baccalaureate Diploma in Sustainable Community Development and a graduate Certificate in Development and Sustainability.
Combining natural and social sciences with a focus on scientific applications, SFU Archaeology studies the past from the first evidence of humans in Africa, to the classical societies of Greece and Rome, to Indigenous sites throughout British Columbia.

The Department of Archaeology offers honours, majors, minors, joint majors, certificate, master’s, and doctoral programs in archaeology and cultural and heritage resource management.

As the third archaeology program in Canada, according to QS rankings, the department offers expertise in
- archaeological and environmental science,
- First Nations heritage and resource management,
- biological anthropology, including forensic science.

Within the Department of Archaeology is the
- SFU Museum of Archaeology and Ethnology,
- SFU Archaeology Press,
- Human Evolutionary Studies Program,
- Centre for Forensic Research, shared with criminology,
- the Joint SFU and Jilin University Centre for Bioarchaeology, and

Specialized labs include
- zooarchaeology,
- paleobotany,
- stable isotopes,
- geoarchaeology,
- geochemistry,
- human osteology,
- and ancient and forensic DNA.

The Department of Geography ranks an impressive fifth in Canada and its programs take an interdisciplinary approach to understanding a complex, interconnected world and the many opportunities and challenges that come with it.

Students can choose from major, minor, master’s, doctoral, and certificate programs, including three Bachelors and two Masters, that prepare them to be engaged citizens that understand contemporary challenges.

Among its research and teaching faculty, Geography has Canada Research Chairs, Michael Smith Scholars, Fellows of the Canadian Geographical Society, and SFU Excellence in Teaching Awardees.

Geography students combine knowledge from multiple disciplines to understand and explore topics such as
- sustainable economic development,
- climate change,
- tourism,
- augmented reality,
- cultural theory,
- health services,
- informatics and medical tourism,
- politics of property,
- urban planning & policy,
- limnology,
- landscape ecology,
- soil-plant relationships,
- fluvial geomorphology,
- ecological modelling,
- paleoglaciology, and
- more.

Faculty have research strengths in geographical political economies, global environmental change, water sciences, the city, spatial health and spatial information theory.
The School of Resource and Environmental Management (REM) has a reputation for providing world-class interdisciplinary and applied graduate education and research to address resource and environmental issues. Students are provided with an understanding of essential perspectives behind environmental resource management challenges and gain specialized knowledge in at least one area of resource management.

REM provides graduate training in applied resource and environmental management and planning with a PhD and two Masters programs. It also offers major and minor programs for undergraduate students, including the recently established Bachelor of Environment.

Undergraduate programs take advantage of expertise across faculty units, preparing students to enter the field or continue in graduate studies.

REM programs combine natural and social sciences and integrate concepts from ecology, environmental sciences economics, policy and planning.

Research areas offered in resource and environmental management include:
- climate, oceans, and paleo-environments,
- co-management,
- ecology and conservation,
- energy and materials,
- development and planning,
- environmental toxicology,
- indigenous research and outreach partnerships,
- quantitative fisheries
- parks and recreation,
- avalanche science and management.
Current transportation is not sustainable and accounts for roughly one quarter of global greenhouse gas emissions. The Sustainable Transportation Action Research Team (START) is a research collaborative that focuses on the transition to lower impact transportation systems. It takes a unique interdisciplinary approach to the analysis of sustainable transportation solutions by combining:

- economics,
- engineering,
- marketing,
- policy, and
- psychology.

Research integrates both quantitative and qualitative methods, focusing around four themes:

- Markets for low-carbon transport
- Low-carbon fuel supply and infrastructure
- Acceptance of alternative fuels and policy
- Modeling of low-carbon transport systems

START works with governments, industry, and communities to actively transition the transportation sector to a sustainable system that effectively:

- limits emissions and waste to be within the planet’s absorption abilities,
- uses renewable resources efficiently while minimizing consumption of non-renewables (e.g. fossil fuels),
- is economically efficient in transition and operation, affordable to individuals and communities and supportive of vibrant economy, and
- allows basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health.

Partner with START:

- become leaders in sustainable transportation systems, producing innovative and integrated research,
- provide evidence based policy advice and business strategy,
- bring together stakeholders in transportation sector and build networks of strategic partnerships,
- disseminate research education and training to faculty, graduate and undergraduate students to work together to develop innovative transportation solutions,
- support the piloting and demonstration of innovative systems and tech,
- shape Canada’s transportation future.

BC Receives C - Grade in Canada’s Electric Vehicle Policy Report Card

START released Canada’s Electric Vehicle Policy Report Card which evaluated existing and planned electric vehicle polices to see which provinces are on track to make 40% of new vehicle sales electric by 2040. Electric vehicles currently represent 1% of new vehicle sales, well below the 40% target that climate change experts recommend if we are going to meet the two degree Paris Agreement target.

START suggests that the federal government could position Canada as an international leader by implementing effective policies such as a Zero Emission Vehicle mandate and strong purchase incentives, as well as continued strengthening of the proposed carbon pricing policy.
The Pacific Water Research Centre (PWRC) promotes and mobilizes research that addresses water issues on multiple scales ranging from local communities, to national, to global. PWRC connects critical findings from science and social science research with local knowledge. By supporting cross-disciplinary exploration at the interface of water science, social values, and public policy, the Centre provides a forum for advancing evidence-based research and concrete societal change. This research approach creates space to test policy and technological innovation.

PWRC launched five new research projects this year:

1. **Addressing Gender, Water Security and Peacebuilding Nexus in the Arab Region**
   - As a joint partnership, United Nations, PWRC, and country teams in the Arab States explore the water security-gender-peace nexus in the Arab region.

2. **Climate Change and Population Displacement**
   - Research considers the growing movement of populations due to issues such as drought, famine, disease, flooding, crop failure, storm surges, and biodiversity shifts.

3. **Fostering Knowledge Solutions for the Columbia River Treaty**
   - Research explores the emerging challenges for the Columbia River Basin and provides evidence and science-based knowledge products that inform the negotiations for a revision to the CRT.

4. **Water for Sustainable Development**
   - PWRC is developing a Canada-wide consortium of research institutions and related organizations to jointly host the secretariat for the International Decade for Action “Water for Sustainable Development” (2018-2028).

5. **Engaging the Community to Build Flood Resistant Rain Gardens**
   - This project mobilizes the community to learn about why and how rain gardens work to build flood resilience in residential, neighbourhood and community scales.

The Adaptation to Climate Change Team (ACT) joined the PWRC this year.

ACT brings leading experts from around the world together with industry, community, and government decision-makers to explore the risks posed by climate change issues and identify opportunities for sustainable adaptation. A unique combination of research, education, outreach and policy innovation, ACT is designed to benefit the Canadian economy, its decision-makers and communities.

The only university-based think tank initiative in North America dedicated to climate change adaptation, ACT studies nine areas of climate change:

- biodiversity,
- extreme weather,
- energy,
- water security,
- crops and food supply,
- sea level rise,
- health risks,
- population displacement, and
- new technologies.

Climate change is the challenge of a lifetime. It is time to ACT!
The Centre for Sustainable Development (CSD) develops practical, effective solutions for environmental, social, and economic challenges that aim to:

- integrate economic, social and environmental objectives into community development,
- stimulate research and study of sustainable development,
- distribute information about sustainable development,
- partner with communities and agencies on sustainable development projects, and
- create opportunities for professional development and programs for sustainable development practitioners.

As part of the UN Sustainable Development Solutions Network, SCD is committed to mobilizing global scientific and technological expertise to promote practical problem solving.

The Centre for Tourism, Policy and Research engages with public and private sector tourism organizations to undertake research and professional development activities that address use and management of natural and/or cultural resources for tourism and recreation.

The centre seeks to develop and disseminate knowledge that encourages more sustainable forms of tourism by:

- providing interdisciplinary graduate level studies and professional development in tourism and recreation planning,
- encouraging and conducting policy, planning and management research that enhances effective and sustained use of tourism and recreation resources,
- distributing leading edge tourism and recreation research.

The Cooperative Resource Management Institute (CRMI) houses personnel from governmental and non-governmental natural resource management agencies, coordinates joint research projects and offers occasional professional development courses to upgrade skills of agency staff.

CRMI addresses challenging multidisciplinary issues in resource management by providing an environment where agency personnel who deal with forestry, fisheries, water and wildlife management can collaborate with SFU faculty, graduate students, post-doctoral fellows, and research associates.
$9.4m total funding dollars*

$3,860,239 Tri Council

$3,612,197 Government

$1,907,380 Other Sources

58 Faculty members engaged in

220 research projects producing

232 peer reviewed publications and

155 other publications giving

354 presentations in 21 countries with

358 media engagements!

One of the ways we support diversity and interdisciplinary collaboration to address “wicked” environmental problems from a range of perspectives is through our connections with our adjunct professors and associate members. Our adjunct professors represent:

- First Nations,
- all three levels of government,
- industry,
- foundations,
- non-governmental organizations, and
- academia.

Our associate members represent disciplines ranging from:

- criminology,
- sociology,
- urban studies,
- Latin American studies,
- international studies,
- biological sciences,
- earth sciences,
- physics,
- health sciences,
- labour studies,
- history,
- english,
- communications, and
- health sciences.

With 58 faculty members involved in over 220 research projects there is a lot happening. We’ve included highlights from a few of these projects below.

* includes estimated funding from Principal Investigators, Co-P.I.’s, etc. for research activities.
Did Climate Change Kill the Classic Maya?

There are various theories about what destroyed the Classic Maya civilization including disease and war. In a new study, Archaeology PhD student Chris Carleton, his supervisor, Mark Collard and statistician Dave Campbell suggest that rising temperatures caused increased conflicts during this time. The hotter temperatures likely caused maize crops to fail, creating a crisis of political legitimacy for the elite. In response, the leaders attacked each other more frequently to maintain power and support from their starving and hot subjects. These findings have implications not only for classic Maya history but also for the debate about effects of contemporary climate change and increased conflicts.

Unexpected Findings About Long-Term Sea Level Rise and Short-Lived Greenhouse Gases

Greenhouse gas (GHG) emissions warm the Earth’s atmosphere and oceans causing sea levels to rise. While some GHGs, like methane, remain in the atmosphere for a decade or less, others like carbon dioxide, remain in the atmosphere for more than a century.

One might assume that the longer lasting GHGs would have a longer impact on sea level rise. However, in a recent study, geography professor Kirsten Zickfeld and colleagues found that the impact on sea level rise from shorter lived GHGs lasted longer than their atmospheric life and possibly longer than a century. According to the authors, the long-lasting nature of sea level rise heightens the importance of mitigating GHGs early, even in the case of short-lived chemicals such as methane.

This year, Kirsten co-authored a study that found warming from short-lived compounds could cause long-term consequences on sea level rise, even after pollutants are cleared.

New Lab Uses Isotope ‘Finger-Printing’ Methods to Identify Human Remains and Understand Climate Change

The Faculty welcomes Dr. Michael Richards as the new Canada Research Chair in Archaeological Science. Richards uses new ‘fingerprinting’ methods to study how chemical signatures from food and water consumed by humans and animals can provide clues in identifying human remains and also shed light on changes in climate.

Projects at the lab include working with the Vancouver Coroner’s office and the RCMP to resolve open cases with unidentified human remains; providing B.C.’s ecologists and biologists with baselines for tracking animal migration patterns; as well as enabling a new isotope-based method of understanding climates and climate change.
How Did the Earth Enter the Last Ice Age?
Ocean temperatures from the past help us understand thresholds in climate system

New research from professor Karen Kohfeld in Resource and Environmental Management and partners takes ocean temperatures to determine how the pre-historic ocean contributed to the last ice age 125,000 to 18,000 years ago. They explore how the ocean pulled carbon dioxide from the atmosphere and into the deep sea during this time. This research uses the fossil record to put together the first global database of ocean temperatures over the last 125,000 years. The study shows how ocean temperatures changed as the earth entered the last ice age and provides a new understanding that hints at some important thresholds in the climate system.

Is Producing and Purchasing Bottled Water Ethically Defensible? How do our values drive policies and decision-making?

Ingrid Leman Stefanovic, Dean of the Faculty of Environment and Professor in REM, is part of a research team exploring water ethics and public policy. Are boiled advisories in Canada ever morally justifiable, even in the case where provision of safe, clean water to remote communities is a costly proposition? Is access to safe water determined on utilitarian, cost-benefit grounds or is it a basic human right? How do we balance the prevailing western, technocratic management ethic with traditional knowledge that interprets water as a sacred element of Mother Earth? This SSHRC funded project explores these and other moral questions, specifically in terms of how values drive policies and decision making. Two edited volumes in preparation will profile the findings. One focuses on ethics and water security; the other on the lived experience and phenomenology of water.

Aliens and Ghosts in the Ivory Tower?

Geography professor Paul Kingsbury has been playing the part of a paranormal enthusiast for the past two years while conducting research on paranormal investigators to understand what motivates their studies. In a President’s Lecture this spring, Kingsbury shared that the investigation of the paranormal is “the perfect object of desire because it’s always out of reach. It’s a fuzzy sound recording, it’s never finally trapped so what you have is the perfect object to incite desire and to keep people interested.” As a cultural geographer, Kingsbury is fascinated by the cultural significance of contemporary society’s obsession with paranormal phenomena from aliens to ghosts.
SPECIAL RECOGNITION

Congratulations to...

... geography professor Nick Blomley who was elected to the Royal Society of Canada’s 2017 Class of Fellows,

... archaeology professor Biruté Galdikas for having a prize named in her honour by the Imperial College in London, England. The prize will be awarded to the best Master’s student in the tropical ecology program,

... geography professor emeritus Tom Poiker for receiving the Waldeo-Tobler GIScience Prize from the Austrian Academy of Sciences for his outstanding and sustained contributions to the field,

... geography professor Kirsten Zickfeld who was selected to be the lead author of a special report for the Intergovernmental Panel on climate Change,

... geography manager of logistics and technical operations B-Jae Kelly for receiving the SFU Staff Achievement Award,

... archaeology professor Dana Lepofsky for receiving the inaugural 2017 Warren Gill Award for Community Impact. Dana is an exceptional archaeologist not just for her success in academic publication and grants but also for her commitment to undertake research in equal partnership with First Nations communities. This has led to strengthened capacities in these communities for deciphering, appreciating, conserving and educating future generations about their ancestral past.

... manager community engagement and research initiatives in the Dean’s Office Laurie Wood for SFU Lifetime Achievement Award.

REM PhD Alumna Breaks Glass Ceiling

Sarah Breen graduated with a PhD from REM in June 2017. Her doctoral research examines the relationships between infrastructure and rural resilience which helped prepare her for her recent appointment as the first female president of the Canadian Rural Revitalization Foundation (CRRF) board. The CRRF was established in 1989 to contribute to the revitalization and sustainability of rural Canada through collaborative research for rural leaders in the community, private sector, and in all levels of government. Congratulations Sarah!
We thank all of the alumni, faculty, staff, individuals and organizations that have made gifts to the Faculty of Environment over the past year. These contributions provide much needed support for research, students, and community engagement activities and we include highlights of some of these projects below.

**Advancing Canada’s Zero Emissions Vehicle Strategy**

The Metcalf Foundation is supporting the Sustainable Transportation Action Research Team’s (START) project “Advancing the Dialogue on Canada’s Zero Emissions Vehicle Strategy: A Policy Handbook for Canada’s Zero Emissions Vehicle Strategy”. This evidence-based policy research is designed to inform and influence the dialogue on the policies that will support a meaningful transition to zero emissions vehicles in Canada.

**Green Infrastructure on the North Shore Saves Money, Looks Good and Works**

Rudy North supported the Pacific Water Research Centre’s Rain Garden Project which is a collaboration with North Shore municipalities and NGO’s that couples applied research with community engagement to tackle flooding and water quality issues through the planning and installation of three demonstration rain gardens on the North Shore. Rain gardens provide natural filtration for urban run-off, add aesthetic value; improve water quality, reduce flow, protect biodiversity, reduce infrastructure costs and engage communities. Our community and university-based work is a catalyst for local governments to focus their attention on greener, more resilient forms of stormwater management.

**Empowering Students to Build Public Awareness About Environmental Challenges**

David and Alix Patterson supported the Faculty’s Op-Ed Writing Contest which trains and supports undergraduate students to express complex issues about pressing environmental challenges. The winning Op-Ed pieces were featured in The Tyee, a daily online newspaper with a readership of over 175,000 per month. Their pieces contributed to public awareness and discussion on issues such as climate change, energy, biodiversity, food systems and water quality and sparked hundreds of comments.

**Using Op-Eds to Build Awareness: Headlines in the Tyee from winners of the writing contest**

- **An Enviro Student Asks: Is a ‘Just Transition’ Too Much to Ask For?** in response to the recent approval of Kinder Morgan’s Trans Mountain pipeline expansion and deduces that, “Canada’s hopes for a sustainable economy may be a pipe dream after all.” [June 16, 2017 - The Tyee]
  
  Author Gabriel Lord is an honours geography student who received the Warren Gill Memorial Award and the BOMA scholarship in Urban Studies.

- **Two Enviro Students Suggest: Time to Embrace ‘Toilet to Tap’** and propose that when “it comes to recycled wastewater, get over the yuck and suck it up.” [June 19, 2017 - The Tyee]
  
  Authors Connor Robinson, BEnv, and Jack Satzewich, BA, Geography, are recent graduates of SFU. Both will be starting their masters in Environmental Management this fall, Robinson at UBC and Satzewich at SFU.

- **An Enviro Student’s Lament: No ‘Green’ Product Is Without Baggage** “Electric cars, vegetarianism... they’re all problem plagued, a discovery that hit me hard.” [June 15, 2017 - The Tyee]
  
  Author Lydia Dickinson is in the Environmental Science program. She is a partner of the waste-to-energy company EnEco and aspires to be a leading voice of the environmental movement through her writing.
Thank You To Our Donors (continued)

Keeping Our Slopes Safe - A collaboration between industry, NGO’s and academia
In a unique partnership, Canadian Pacific, HeliCat Canada, Avalanche Canada Foundation, Canadian Avalanche Association, Avalanche Canada, and Mike Wiegele Helicopter Skiing continue to support the University Research Chair in Avalanche Risk Management held by Dr. Pascal Haegeli. Haegeli’s research combines the traditional approach to understanding the science behind the avalanche phenomenon with a new social science lens that investigates the human dimension of avalanche safety. This innovative research perspective is creating the foundation necessary to develop more effective accident prevention tools and strategies.

What Are We Doing About Climate Change?
ACT, our Adaptation to Climate Change Team, researches and develops policy options, publications, and other resources that support resilience to climate change impacts for all levels of government in Canada, with a specific focus on the nexus between water, food, energy and biodiversity in a changing climate. This work has been generously supported by the Real Estate Foundation of BC, a philanthropic organization that supports sustainable land use and real estate practices. ACT also works on best practices in this context for a variety of professions and industry sectors, and the role of ecosystems in achieving climate change adaptation and mitigation. ACT is grateful for additional support from the Bullitt Foundation and the Pacific Institute for Climate Solutions.

Building Capacity for Sustainability Leadership
The North Growth Foundation supported Professional Programs to bring evidence-based, engaged learning experiences to environmental graduates, professionals in management and leadership roles and policy makers. In the first year of programming the program developed 8 new course offerings and attracted an average of 30 environmental professionals. Visit: www.sfu.ca/env/professional-programs.html

Scientists and First Nations Working Together to Understand Disease and Salmon
Tony Allard is enabling a dynamic collaboration between the SFU’s Faculty of Environment and the Wuikinuxv First Nation to better understand the connections between freshwater and marine environments in the propagation of viruses in salmon in the Rivers Inlet region of BC.

Renewable Energy Transition Strategies: Practical Innovations for Urban Areas
Natural Resources Canada supported the development of an online course in Renewable Energy Transitions for energy managers in municipalities. This 30 hour course will help ensure that energy efficiency, renewable energy and emission reduction strategies have a significant impact on reducing GHG emissions and transitioning cities to a low carbon energy mix.

A Key to Fighting Climate Change is Ecological Restoration
PWRC’s Deborah Harford, Executive Director of the Adaptation to Climate Change Team released the results of a study titled “Low Carbon Resilience and Transboundary Municipal Ecosystem Governance: A Case Study of Still Creek” that analyzes the benefits gained from the restoration of Still Creek from 1949 to 2014 through collaborations between the City of Vancouver and the City of Burnaby. Harford observed that urban ecosystems play a crucial role in the fight against climate change impacts, such as flooding and heat waves, while reducing emissions.
Faculty and Staff Preserving Artifacts
Dr. Roy Carlson, Dr. Brian Hayden, Dr. George F. MacDonald, Joanne E. MacDonald, Dr. Arnoud Stryd and Dr. Barbara Winter continue to contribute to the Museum of Archaeology and Ethnology which collects, researches and exhibits artifacts from around the world with a focus on British Columbia. Student education programming is an important aspect of the museum and classes are offered in a wide range of topics, including, collections management, archaeological conservation, anthropological art history and more.

Supporting Our Students
The family and friends of Wolfgang Haider established the Wolfgang Haider Memorial Graduate Award. This award provides support for graduate students in the School of Resource and Environmental Management conducting research related to human dimensions of natural resource use.
Allan Kiss continues to support the Warren Gill Memorial Endowment Fund. Established in 2010, this endowment supports a full-time third year undergraduate student majoring in the Human Geography concentration.
The Koolman Family established the John Koolman Memorial Graduate Award in Environment. This annual award provides funding for graduate students in the School of Resource and Environmental Management who are conducting interdisciplinary research in fisheries science, fisheries management or fisheries policy at SFU.
The Simons Foundation Canada established The Simons Foundation Graduate Awards in the Faculty of Environment. This endowment provides much-needed support for full-time Faculty of Environment graduate students, with a preference given to students conducting research in sustainable development (from local to global scales), environmental and water security, environmental science, and/or ethics and best practices.

Science on the Coastal Margin
The Tula Foundation through its Hakai Institute is leading exciting research on interactions between ocean, marine and coastal watershed ecosystems and implications for biodiversity. Their support of SFU researchers is tackling invertebrate biodiversity, salmon biodiversity and monitoring programs in addition to understanding archaeological and ecological aspects of clam gardens.

International Scientists Working With Policy Makers to Protect Pacific Wild Salmon
Tony Allard, Val and Dick Bradshaw, Rudy North, Pacific Salmon Foundation and Tides Canada Foundation supported a Speaking for the Salmon Think Tank that brought together national and international scientists to examine the status of BC wild Salmon and identify threats and solutions to reduce risk factors. At the conclusion of the think tank, participants met with First Nations leaders, Members of Parliament and community leaders to share their recommendations.

Speaking for the Salmon: Growing the audience
The Protection of Wild Salmon Think Tank of Scientists shared their findings to local Members of Parliament, First Nations and community leaders but they also shared their message more broadly. They produced a report summarizing findings and recommending policy available at www.sfu.ca/coastal/research-series/listing/SpeakingfortheSalmon.html.

They also produced podcasts of interviews with scientists and a YouTube video that has been viewed ~1,000 times. One viewer shared the comment shown on the right.

"The video ... was conceptually brilliant and elegantly executed. The power of each message was amplified by its, honesty and simplicity; my sincere compliments. “
The External Advisory Board plays a valuable role in connecting the Faculty to community priorities and advises the Dean on the Faculty’s strategic plan. Specifically, the Board provides expertise and guidance on challenges and opportunities relating to outreach and advancement, curriculum development, and research needs and priorities. The Board also assists in raising the Faculty’s profile.

Offering dynamic perspectives, Board Members are a group of accomplished professionals that constitute an invaluable source of expertise; an expertise that complements the academic components of the Faculty.

**KIM BAIRD**

A member of the Orders of Canada and British Columbia, Kim is the owner of Kim Baird Strategic Consulting and offers First Nation related and strategic advice to industry, government and First Nations. While Chief of the Tsawwassen First Nation for over thirteen years, her most notable achievement was when she negotiated and implemented B.C.’s first urban treaty. She also spent six years on the BC Hydro Board gleaning an in-depth knowledge on energy issues in B.C.

**DEREK CORRIGAN**

Mayor Derek Corrigan has served the citizens of Burnaby for 30 consecutive years as a member of Burnaby City Council (Councillor 1987-2001, Mayor 2002-present). He has served on many key committees at the local, regional and national levels including chair of Burnaby’s Environmental Sustainability Strategy Steering Committee; chair of B.C. Transit from 1994-1997; an elected director of the Federation of Canadian Municipalities; and a Trustee of the Municipal Finance Authority of British Columbia.

**JAMIE GRAY-DONALD**

Jamie is the Vice President, Sustainability at QuadReal Property Group. Jamie finds ways that sustainability practices can enhance our risk-adjusted returns. In his prior role at Bentall Kennedy, he led the company to rank #1 on the Global Real Estate Sustainability Benchmark in the diversified portfolio category. Having worked in academia in the Philippines, Vietnam, Lima and the U.K., he moved to the corporate sector in 2008 when he started a sustainability program at Sears Canada where, in a four-year period, the sales of eco-products grew by $260MM (a compounded annual growth rate >30%) and reduced electricity consumption per square foot by 21.3%. 

FAISAL MIRZA

An alumnus of SFU (MBA), Faisal is the Senior Project Manager, Solid Waste Division with the City of Vancouver, formulating and implementing strategy with a focus on waste-to-energy and clean technology demonstration. Prior to working in the municipal sector, he worked with a clean technology investment bank as director of operations performing due diligence and creating deliverables to execute on financial transactions. Faisal is a professional engineer in BC and Washington State as well as a Project Management Professional.

ALIX PATTERSON

As a social entrepreneur, Alix established a “green” retail company and she has also implemented sustainable building practices in both commercial and residential projects. As an author, she wrote “Inspired”, to help non-profits maximize their resources and attain their goals and “Within Our Reach” to provide a framework for creating resilient and cooperative, value-inspired communities. Alix established the “Alix Vikki Patterson Bursary in the Faculty of Environment” to provide financial assistance to students within the faculty.

ROBYN WOODWARD

Robyn Woodward, PhD, is an adjunct professor of archaeology at SFU. She is also a trustee and governor of the Vancouver Maritime Museum and the vice-president of the Institute of Nautical Archaeology. Lecturing on enrichment cruises in Europe and the Caribbean since 1996, fuelled Robyn’s passion for adventure, art and archaeology. In between degrees, she has worked as an underwater archaeologist at the pirate city of Port Royal, Jamaica, and on other archaeological projects in Jamaica and Turkey. Robyn received her PhD in Archaeology at SFU in 2007.

JACK WONG

Jack is the CEO of the Real Estate Foundation of British Columbia. The Foundation provides grants to support land use and real estate practices which contribute to resilient, healthy communities and natural environments. He is a fellow of the Ford Foundation’s Regional Sustainable Development Program, member of Lambda Alpha International, and associate member of the Real Estate Institute of BC.

ANDY WRIGHT

Andy is involved in a wide range of conservation endeavours and sits on the boards of various groups and initiatives. He is a passionate conservation photographer and has produced two books: “Emeralds at the Edge” and “Faltering Light”, both arguing the case for increased conservation in British Columbia. He has also penned several conservation photography articles.
FRANCESCO BERN
Assistant Professor
Origin of modern behaviour, archaeology of fire, ancient pyrotechnologies, use of space, site formation processes

HUGO CARDOSO
Assistant Professor
Co-director, Centre for Forensic Research
Human juvenile osteology, dental and skeletal age estimation, child health in archaeological populations, trauma and taphonomy of immature bone

CATHERINE D’ANDREA
Professor
Palaeoethnobotany, cereal domestication, traditional agricultural knowledge, ethnoarchaeology, early agriculture, early complex societies, African archaeology

BIRUTÉ GALDIKAS
Professor
Primate ecology, orangutan conservation

ROSS JAMIESON
Associate Professor
Andean South America, colonialism, historical archaeology, archaeological theory, South Pacific prehistory, ceramics, maritime adaptations, ethnohistory

ROBERT MUIR
Senior Lecturer
Zooarchaeology, quantitative methods, cultural resource management, field methods, British Columbia, American Southwest

DAVID BURLEY
Professor and Department Chair
South Pacific, Northwest North America, historical archaeology, archaeological theory, South Pacific prehistory, ceramics, maritime adaptations, ethnohistory

MARK COLLARD
Professor
Human evolution, primate evolution, evolutionary archaeology, phylogenetics, hominin and non-human primate fossil record, body size estimation, material culture studies

JONATHAN DRIVER
Professor
Zoarchaeology, cultural ecology, PaleoIndian adaptations, southwestern United States, and northeast British Columbia

SABRINA HIGGINS
Assistant Professor
Late Antique Egypt; Marian Studies; Early Christian Architecture; Religious Transformation; Sacred Landscapes; Greco-Roman Religions; Byzantine Art and Monastic Archaeology

GEORGE NICHOLAS
Professor
Indigenous peoples and archaeology, intellectual property issues in cultural heritage, archaeological theory, wetland archaeology and human ecology
RUDY REIMER
Assistant Professor
Indigenous archaeology, BC archaeology, cultural resource management, lithic technology, materials science, geochemistry

DENNIS SANDGATHE
Lecturer
Stone tool technology, Palaeolithic Eurasia, nature of Middle Palaeolithic adaptations, role that fire played in Neandertal adaptations

DONGYA YANG
Associate Dean, Graduate and Research Professor
Human osteology, molecular archaeology, animal and plant ancient DNA, forensic anthropology

Geography

SHIV BALRAM
Senior Lecturer
Collaborative GIS, environmental decision making

TRACY A. BRENNAND
Professor and Department Chair
Glacial geomorphology, glacial sedimentology, paleoglaciology, paleohydrology, environmental and climate change, planetary geomorphology

VALORIE CROOKS
Professor
Health, primary health care, palliative care services and family medicine, informal family care giving, health-related social programs, socio-spatial negotiations of chronic illness

MICHAEL RICHARDS
Professor
Evolution of human diets over time, especially the diets of Neanderthals and early modern humans, and the spread and adoption of agriculture in Eurasia

JOHN WELCH
Professor, Archaeology and REM Director, Graduate Program in Heritage Resource Management
Sovereignty-driven research and Indigenous community collaborations in heritage stewardship and applied archaeology

NICK BLOMLEY
Professor
Land, property and the geography of rights, legal geography, urban

ALEX CLAPP
Associate Dean, Undergraduate Professor
Environmental and economic geography, resource conservation, forest management; environmental politics in the temperate rainforests

SUZANA DRAGICEVIC
Professor
Modeling of complex spatial environmental systems; modeling land use, land cover and urban growth; modeling dynamic spatial phenomena in forestry and landscape ecology
ALISON GILL
Professor, Geography and Resource and Environmental Management
Centre for Tourism Policy and Research; tourism and environmental planning processes, community-based planning

NICK HEDLEY
Associate Professor
Visualization, 2D geovisualization, 3D visualization, geospatial interface research, natural hazards, ocean science, spatial cognition

PETER KELLER
VP, Academic and Provost, Professor
Resource mgmt., mineral exploration and marine navigation support to preservation of Indigenous knowledge, environmental and human wellness and health, community mapping and tourism planning

MEG HOLDEN
Associate Professor
Urban, sustainable development and policy, sustainable assessment and evaluation, social learning in cities

PAUL KINGSBURY
Associate Professor
Cultural geography, consumption, social theory, psychoanalysis, aesthetics, and paranormal cultures

JASON LEACH
Assistant Professor
Process-based understanding of hydrologic systems to model and predict how these systems respond to climatic and land use changes

GEOFF MANN
Professor
Centre for Global Political Economy; Resources, natural resource labour and labour markets, comparative natural resource policy, macroeconomic policy and commodity production, race and gender

ANDREW PERKINS
Lecturer
Physical geography; geography of natural hazards; earth systems

ROGER HAYTER
Professor
Industrial restructuring, BC’s forest industry, the location dynamics of business firms, regional development, environmental economic geography

EUGENE MCCANN
Professor
Urban, drug policy in relation to urban and regional built environments, urban public space and governance, urban and regional livability, quality of life and creativity

JOHN PIERCE
Professor
Food systems, food security and sustainability of food systems
Environmental Science

JEREMY VENDITTI
Professor, Geography
Director, Environmental Science
Fluvial Geomorphology and Sedimentology, River Dynamics, Physics of Sediment Transport

KIRSTEN ZICKFELD
Associate Professor
Climate science, climate modelling, climate carbon-cycle interactions, carbon budgets compatible with climate targets, climate tipping point

资源和环境管理

ZAFAR ADEEL
Professor of Professional Practice and Executive Director, Pacific Water Research Centre
Water security and its links to the 2030 Agenda for Sustainable Development, including SDGs. Water policy and mgmt. in water-scarce environments

FRANK GOBAS
Professor
Environmental chemistry and toxicology; environmental behaviour and effects of pollutants; chemical engineering and biology

JONN AXSEN
Associate Professor
Adoption of pro-environmental technology; electric and alternative fuel vehicles; consumer attitudes, lifestyle, and social influence; citizen acceptance of energy and policy; energy system simulation modelling; climate policy design and impacts

TOM GUNTON
Professor and Director, Resource and Environmental Planning Program
Forestry, land use, energy, mining and fisheries

MARNIE BRANFIREUN
Lecturer
Climate science, climate modelling, climate carbon-cycle interactions, carbon budgets compatible with climate targets, climate tipping point

NADINE SCHUURMAN,
Professor
Health and environment, location of health services, population health, critical GIScience

CLIFFORD ATLEO (KAM’AYAAM/CHACHIM’MULTHNII)
Instructor
Indigenous governance, community development and political economy

MARGARET SCHMIDT
Associate Professor
Soil science, digital soil mapping, predictive soil mapping and modelling, impact of forest management practices on soil properties and nutrient cycling, soil rehabilitation

NADINE SCHUURMAN,
Professor
Health and environment, location of health services, population health, critical GIScience

KIRSTEN ZICKFELD
Associate Professor
Climate science, climate modelling, climate carbon-cycle interactions, carbon budgets compatible with climate targets, climate tipping point

MARGARET SCHMIDT
Associate Professor
Soil science, digital soil mapping, predictive soil mapping and modelling, impact of forest management practices on soil properties and nutrient cycling, soil rehabilitation
PASCAL HAEGELI  
Assistant Professor  
Interdisciplinary research in avalanche risk management for the development of practical tools that assist recreationists and professionals to make better informed decisions.

DUNCAN KNOWLER  
Associate Professor  
Env. influences in bioeconomic modelling of natural populations; and the economics of natural res. mgmt., incentives for biodiversity conservation, invasive species and of sustainable aquaculture/agriculture.

KEN LERTZMAN  
Professor  
Forest ecology, ecosystem dynamics, conservation and management; the dynamics of temperate rainforests; sustainability and Indigenous traditions.

JONATHAN MOORE  
Associate Professor  
Aquatic ecology, fisheries, environmental decision-making, watershed science.

MARK ROSELAND  
Professor and Director, Centre for Sustainable Development  
Sustainable planning and development. Founding director of Pando|Sustainable communities, an international network for researchers and practitioners.

ANNE K. SALOMON  
Associate Professor  
Coastal marine ecology and conservation, resilience of social-ecological systems, marine policy.

MARK JACCARD  
Professor  
Sustainable energy and public policy; environmental economics; energy and materials.

KAREN E. KOH Feld  
Associate Professor and Canada Research Chair (II) in Climate, Resource, and Global Change  
Climate change and its regional impacts, earth system science, carbon cycling, paleoceanography, paleoclimatology, paleoecology, ocean acidification.

SEAN MARKEY  
Associate Professor  
Local and regional economic development; community sustainability; rural development and sustainable infrastructure.

EVELYN PINKERTON  
Professor  
Co-Management of natural resources, political ecology and neoliberalism; local communities and fisheries management.

MURRAY RUTHERFORD  
Associate Professor  
Environment and development; human dimensions of environmental policy and planning; conservation challenges and public policy.

INGRID LEMAN STEFANOVIC  
Dean, Faculty of Environment  
Professor  
Environmental ethics; how values drive environmental decision making, including water policy.
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