Our vision is to be leaders in innovative, community-engaged teaching and research that shape a just and sustainable world.

We believe that:
- hope must accompany realism,
- both natural and built environments – past to future – matter,
- interdisciplinary means breadth and depth,
- learning means doing,
- education is life affirming and academically rigorous,
- environmental justice includes care, respect and equity.
MESSAGE FROM THE DEAN

Welcome to the fourth Annual Report of SFU’s Faculty of Environment. In this issue, we begin by acknowledging and honouring the aspirations of Canada’s Truth and Reconciliation Commission. Our Faculty is deeply aware and bears testimony to the fact that the university resides upon the traditional territories of the Coast Salish people. Such a setting constitutes more than merely a physical location. Instead, it reflects a historical, social, cultural, economic, regulatory, ecological and moral bond, and respect that we pay to the lands of Indigenous communities whose identity and sense of belonging is integrally linked to our own place of learning.

Our faculty, students, and staff do a great deal to engage with First Nations groups. This year’s annual report highlights some of these endeavours. Research and teaching programs are often pursued together with Indigenous partners, building meaningful, collaborative understanding of our environments. We acknowledge that traditional ecological knowledge complements scientific research, thereby deepening it. We recognize that who we are today can only be understood insofar as we pay heed to Canada’s historical roots and contemporary, Indigenous paradigms and perspectives.

That said, there is more to be done. For this reason, I have invited Dr. Cliff Atleo to serve as the Dean’s Indigenous Advisor and to help guide further indigenization of the Faculty. It is my pleasure to welcome Dr. Atleo to the Dean’s Office.

It is also my pleasure to announce that the Faculty now has a new, fourth academic unit. The School of Environmental Science was approved by Senate and Board of Governors this year and will be formally launched on January 1, 2019. The School will house the successful, ongoing undergraduate program in Environmental Science, as well as the MSc in Ecological Restoration, offered jointly by the Faculty and BCIT. Congratulations to Dr. Jeremy Venditti, who championed the proposal and who will serve as the School’s inaugural director, as well as to many faculty and staff who collaborated on this venture.

Finally, please stay tuned: 2019 marks ten years of the existence of the Faculty of Environment. We are planning a range of activities to celebrate this milestone and we hope that you are able to join us.

Dr. Ingrid Leman Stefanovic
Professor and Dean

MEET THE INDIGENOUS ADVISOR

My English name is Cliff Atleo, Jr. I am Tsimshian on my mother’s side from the Kitselas First Nation and Nuu-chah-nulth on my father’s side from the Ahousaht First Nation. My mother is Gyetl’aa (Hilary Atleo, née Whetung), an Anishinaabe kwe from Curve Lake First Nation in Ontario. We have two children, Nača’o’ah (Fisher) and Kiitkiiš (Eleanor). We are honoured to work and live in the territories of the x̱mūmwx̱m (Musqueam), Skwxwú7mesh (Squamish) and Sa’liwwat’ (Tsleil-Waututh) Nations. Although this lengthy introduction of names and affiliations may seem cumbersome to contemporary sensibilities, it remains important for many Indigenous people and communities to provide clear context and understanding of relationships. I am an Assistant Professor in the School of Resource and Environmental Management, where I teach Indigenous governance and resource relationships, and the social science and institutions of resource management. My research interests include Indigenous governance, economies and identities as well as Indigenous-Settler relations, especially with respect to environmental stewardship and resource management.

This year I am also the Indigenous Advisor to the Dean with a specific mandate to explore the ways in which the Faculty can improve its relations with Indigenous communities, students, staff, and faculty. This broad goal is consistent with SFU’s reconciliation efforts, including the calls to action from the Aboriginal Reconciliation Council’s 2017 final report, “Walk This Path With Us,” and the Truth and Reconciliation Commission of Canada’s 2015 final report, which included calls to action specific to post-secondary education. I will begin with an assessment of what the faculty is doing right now, both in terms of appreciating good work as well as better understanding areas that need improvement. This assessment will include consultations with students, staff, faculty, and leaders to develop as clear a picture as possible so that we can determine where we can do better. Many Canadian colleges and universities are also undertaking this kind of work and it will behoove us to explore those efforts as well. This work has begun and will continue into 2019. I appreciate the Dean’s vision and support for these endeavours and look forward to this important work of reconciliation.

Cliff Atleo, Jr.
Indigenous Advisor
ENGAGING A SUSTAINABLE WORLD

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

CO-OP PLACEMENTS
135 placements in 31 cities in 3 countries

RESEARCH LOCATIONS
We are doing research in 34 countries:
- 9 Canadian provinces and territories,
- 5 US states, and
- 32 other countries beyond Canada and US

ADJUNCT PROFESSORS
We have 78 Adjunct Professors in 25 cities

PRESENTATION LOCATIONS
Our faculty gave 204 presentations in 104 cities in 27 countries
We offer...

BACHELOR OF ARTS (BA) IN
• Archaeology
• Geography
• Geography Environment Specialty

BACHELOR OF ENVIRONMENT (BENV) IN
• Global Environmental Systems
• Resource and Environmental Management
• Sustainable Business

BACHELOR OF SCIENCE (BSC) IN
• Environmental Science
• Physical Geography

POST BACCALAUREATE DIPLOMA IN
• Sustainable Development

MINORS IN
• Archaeology
• Development and Sustainability
• Geography
• Resource and Environmental Management

CERTIFICATES IN
• Biological Anthropology
• Corporate Environmental and Social Sustainability
• Cultural Resource Management
• Environmental Literacy
• Spatial Information Systems
• Sustainable Development
• Urban Studies

1,090
STUDENTS IN HONOURS MAJORS, CERTIFICATES, AND POST BACCALAUREATE DIPLOMAS

43
THE NUMBER OF COUNTRIES OUR STUDENTS COME FROM

52% + 48%
FEMALE AND MALE STUDENTS

TESICCA TRUONG
Dean’s Silver Medal Recipient - June 2018
An Environmental Science student, Tesicca graduated this year with a Bachelor of Environment and a Minor in Environmental Education. Her passions lie at the intersection of sustainability, youth empowerment, and community building. She was named on Starfish’s Canada’s Top-25 Environmentalists Under 25 in both 2013 and 2014 and was awarded the 2015 Greenest City Leadership Award. Passionate about making the world a better place, she co-founded CityHive, a Vancouver-based, millenial-led organization with a mission to transform the way that young people are engaged in the planning, design and shaping of their cities. CityHive evolved out of her honours thesis and is a thriving organization. It seems that her passion is contagious and inspiring youth from all areas.

MICHAEL VEGH
Convocation Speaker - June 2018
Michael Vegg of the Heiltsuk First Nation, graduated with a Bachelor of Environment, concentrating in Resource and Environmental Management and was the convocation speaker at his graduation ceremony. Passionate about working alongside Indigenous communities, he has received many awards for his work in these communities, most notably from the Irving K. Barber Society, New Relationship Trust, the Pacific Salmon Foundation and SFU’s own Aboriginal Community Engagement Award. He is currently working as a wildlife technician for the Hakai Institute, a scientific research institution where he is advancing Indigenous-led environmental management.

REBECCA GUNDERSON
Recipient of the Fofonove Memorial Book Prize - June 2018
Rebecca graduated with a Bachelor of Arts in Geography but her path at SFU wasn’t the one she anticipated. Originally a French major, she recalls reading SFU’s tag line “Engaging the World” which inspired her to broaden her area of study by transferring to Geography. Through her subsequent studies and experiential learning opportunities, she realized that despite the world’s complexities, individuals can make a difference in global trajectories through local processes. She is an active volunteer serving on the City of Surrey’s Social Policy Advisory Committee where she transfers the knowledge gained from her studies to advise on issues about housing and homelessness, poverty reduction and more. She began SFU’s Master of Urban Studies Program this fall.

SCHOLARSHIPS, AWARDS, AND BURSARIES

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2015 - 2016
$535,578

2016 - 2017
$514,136

2017 - 2018
$601,040

5

THE NUMBER OF COUNTRIES OUR STUDENTS COME FROM

52% + 48%
FEMALE AND MALE STUDENTS

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52% + 48%
FEMALE AND MALE STUDENTS

1,090
STUDENTS IN HONOURS MAJORS, CERTIFICATES, AND POST BACCALAUREATE DIPLOMAS

43
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FEMALE AND MALE STUDENTS

1,090
STUDENTS IN HONOURS MAJORS, CERTIFICATES, AND POST BACCALAUREATE DIPLOMAS

43
THE NUMBER OF COUNTRIES OUR STUDENTS COME FROM

52% + 48%
FEMALE AND MALE STUDENTS
GRADUATE PROGRAMS

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 IN PLANNING (MRM PLANNING)

DOCTOR OF PHILOSOPHY (PHD) IN
• Archaeology
• Geography
• Resource and Environmental Management

CERTIFICATES IN
• Heritage Resource Management
• Modelling of Complex Social Systems
• Sustainable Development

GRADUATE PROGRAMS
DAVID SWANLUND, MA GEOGRAPHY
Dean of Graduate Studies Convocation Medalist – June 2018

In his Master’s thesis, Geosurveillance, Biometrics and Resistance, David Swanlund uncovered ways that new biometric technologies could intensify and extend surveillance. He also proposed tactics and strategies to maintain personal privacy. His work has resulted in numerous research articles, including two in the top journals in his field. Swanlund’s supervisor, Dr. Nadine Schuurman, acknowledges his achievements. ‘David is a productive and creative writer and researcher. During this degree, David achieved a 4.11 CGPA, and received numerous awards, including a SSHRC scholarship of $17,500.’ Schuurman explains how his talents extend beyond the classroom and research. “He is also a gifted leader and generous volunteer.” He was an active member of the Geography Graduate Association and served as chair of the organizing committee for the faculty-wide Graduate Research Day this spring.

JON BORON, MRM RESOURCE AND ENVIRONMENTAL MANAGEMENT
Dean’s Graduate Scholarship

Jon Boron completed his Master’s in Resource and Environmental Management in June. His research entailed working with the Skeetchestn Indian Band near Kamloops to discover how resource development royalties flow back into Indigenous and rural communities. He found this experiential learning invaluable, noting that he “just wasn’t learning stuff in a book.” Boron acknowledges that when he first met with the Skeetchestn leadership, they weren’t very interested in his project. He reflects that was his first error – not engaging with them early on to discover what they wanted. Now enrolled in REM’s PhD program, he won’t make the same mistake. He plans to work with First Nations in northern B.C. who are interested in self-governance, self-determination, and community consent in Indigenous and rural communities. Boron notes, “I like the idea that the research I’m doing will result in positive change. It’s work the community wants done… It’s a really interesting correlation between research and community – the research is not just sitting on a bookshelf. You can see it in action.”

SCHOLARSHIPS, AWARDS, AND BURSARIES

252
STUDENTS ENROLLED

28
THE NUMBER OF COUNTRIES OUR STUDENTS COME FROM

55% + 45%
FEMALE AND MALE STUDENTS

2017 - 2018
$1,520,835

2015 - 2016
$1,364,376

2016 - 2017
$1,468,219

ALL THE RAGE: FACULTY OF ENVIRONMENT GRADUATE RESEARCH DAY

The Faculty hosted this gathering, organized by a team of dynamic students from across disciplines with an aim to bring fellow graduate students together to share their research and partake in professional development. A large selection of speed research presentations resulted in three winners: David Swanlund, Thomas Royle, and Brea McCauley. Faculty members also offered sessions on how to publish and present both academic and media pieces. The ‘failure wake’ at the end of the day involved faculty members sharing some of the mistakes made in their early careers as a way to demonstrate how success is often preceded by a series of failures/mistakes.
PROGRAMS FOR PROFESSIONALS

COMMUNITY ECONOMIC DEVELOPMENT (CED)

The CED program 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 (LEAP!), and other public events.

This year’s Certificate cohort was comprised of students from all over BC including 13 First Nations communities, as well as from Alberta, the Northwest Territories, and Alaska. The LEAP! short course was offered on the Sunshine Coast, engaging local entrepreneurs working on a range of business ideas from retrofitting homes, bathrooms for seniors access to ethical mobile abattoirs for hobby farmers and more.

PROFESSIONAL MASTER’S PROGRAM IN HERITAGE RESOURCE MANAGEMENT

A professional online Master’s Program built by and for cultural heritage management practitioners.

Choose from a thesis-based MA or a coursework-only Certificate, both offering integrated study of HRM’s ethical, legal, business and research priorities. Online coursework accommodates students with family and professional obligations. MA thesis requirements comply with the Register for Professional Archaeologists and other jurisdictional standards. Applicants should hold a BA or BSc degree (or equivalent) and have, at a minimum, one year of work experience in heritage resource management.

“The Research Design and Methods course is structured so that assignments become part of our theses, so there’s no wasted effort. Brilliant!”

Whitney Spearing, Archaeologist & Natural Resources Coordinator, Sugar Coast Archaeology/Williams Lake Indian Band.

PROFESSIONAL PROGRAMS AND PARTNERSHIPS (PPP)

The vision of PPP 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 evidence-based learning experience,
- public policy makers and others interested in current environmental challenges and solutions

PPP 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.

ALERT BAY COMMUNITY COOKING SERIES BUILDS FOOD SECURITY AND REDUCES WASTE

Karla Duarte enrolled in the Community Economic Development (CED) Certificate program in the Fall of 2017 with an aim to pursue inclusive economic development with small and Indigenous communities. The CED Certificate provides technical expertise and builds project-planning capacity for local stakeholders like Karla, who go on to co-create their own projects in their communities.

As part of the program she proposed a community project, “Alert Bay Community Cooking Series” which she launched this summer. The series features local and guest chefs who provide simple cooking classes using fresh produce and locally sourced protein. The short-term goal is to foster a food ethic that promotes healthy eating, diverts food waste from the local grocery store, encourages shopping locally with a long-term goal of building food security and sustainability through local food production.

Her project was awarded $1,000 start-up funding from the CED social innovation challenge where students pitch their ideas to a jury that selects the top three projects. Karla then partnered with the local grocery store that donates produce and kitchen space for the classes. The grocery store also features the menu item from the classes in their deli to further expose the project to locals.

ADVANCING SUCCESSFUL PROJECTS IN LIGHT OF UNDRIP

Professional Programs and Partnerships introduced a new course for those working in the resource sector or who are considering business partnerships with Indigenous groups with an aim to understand the most recent legal and policy developments in Aboriginal Law in Canada, including the Crown’s duty to consult on Aboriginal rights and title and how this all fits in with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Participants left this workshop with a solid understanding of the latest legal underpinnings of resource development in Canada, as well as practical knowledge and strategies for developing relationships with Indigenous groups, addressing challenges, and advancing successful projects.
PORTUGAL FIELD SCHOOL EXCAVATES MEDIEVAL CEMETERY

Fifteen students spent five weeks excavating a medieval cemetery in the village of Cacela-Velha in Portugal’s southern Algarve. Archaeology offered a bioarchaeological field school for the first time this summer in the village of Cacela-Velha in Portugal’s southern Algarve. It was a component of a larger archaeological project (The Muslims and Christians in Medieval Cacela: Changing Territories and Identities), a collaboration between NGOs, the University of Algarve, municipal government, and SFU, seeking to better understand the region’s rich history.

EXPERIENTIAL LEARNING

When Theory Meets Practice

Experiential learning takes place in many ways from Co-operative Education, field schools, course-work, and more. Some highlights are shared below. Environment Co-op provides students with a unique opportunity to apply their classroom learning to jobs in a variety of sectors across Canada and around the globe. Co-op is an exceptional way to integrate work experience with academic studies while financing one’s education.

HOW BEING AN INTERPRETER WITH PARKS CANADA CHANGED ME FOR THE BETTER

For Jessica Fung, being an interpreter with Parks Canada was a much different experience than she had anticipated. Her Co-op experience taught her important communication methods and pathways that will help her connect with people in a divisive climate. During her time with Parks Canada, Jessica saw the opportunity to make changes that would benefit existing programs. She developed a fire management program to present to the public showing audiences that sometimes, forest fires can be healthy for National Parks. The program integrated volunteer participation opportunities and facilitated audience engagement participation. Overall, Jessica found her Co-op to be a rewarding and challenging experience.

OUR CO-OP STUDENTS ON THE JOB

LED BY ARCHAEOLOGY PROFESSOR HUGO CARDOSO, STUDENTS RECEIVED HANDS-ON TRAINING IN EXCAVATING, DOCUMENTING, AND TACKLING NINE OF THE TEN GCAP GOALS. THE TEAMS PITCHED PROJECT IDEAS TO THE CITY OF VANCOUVER AND THE CITY IDENTIFIED ONE PROJECT FOR EACH TEAM TO FURTHER DEVELOP, WHICH ADDRESSED ISSUES SUCH AS CLEAN WATER, GREEN BUILDINGS AND TRANSPORTATION, ZERO WASTE, REDUCING OUR ECOLOGICAL FOOTPRINT, AND LOCAL FOOD.

New Directions in Urban Sustainability

Students get the opportunity to tackle urban sustainability challenges through group projects with the City of Vancouver.

We see progress in urban sustainability on many fronts including recycling, composting, and urban farming. On other important fronts, such as greenhouse gas reduction, transit mode share, and stopping urban sprawl, there is more work to be done. Cities are becoming less equitable as incomes polarize. Governance structures are also largely focused on hierarchical, institutional decision-making with little citizen input. This year, the Sustainable Development Program introduced a course to address these issues. Assignments allowed students to apply what they had learned to real-world problems. Students worked directly with CityStudio and the City of Vancouver on their Greenest City Action Plan (GCAP) and tackled nine of the ten GCAP goals. The teams pitched project ideas to the City of Vancouver and the City identified one project for each team to further develop, which addressed issues such as clean water, green buildings and transportation, zero waste, reducing our ecological footprint, and local food.

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Recognizing that ecological sustainability and social justice are interconnected challenges that we face today, Anne Salomon and Ken Lertzman, ecologists in the School of Resource and Environmental Management, took a bold step when they launched a field school on the Resilience of Social-Ecological Systems in the remote Great Bear Rainforest on the Central Coast of BC.

Traditional management and conservation approaches that foster ecological sustainability often fail despite best intentions and even sound science because they may neglect or inadequately account for the social-cultural context of the project, ignore or discount traditional or local knowledge, or disregard human rights and the equitable use of resources. If society removes these barriers and adopts an approach that considers both social justice and ecological sustainability, we should be able to better support communities in regaining authority over their lands and resources, and in building resilience.

One way to do this is through the democratization of science and practice.

What is the democratization of conservation science and practice? Professors Salomon and Lertzman describe it as “the process of ensuring that all knowledge holders have the right and opportunity to participate in scientific endeavours, voice their conservation objectives and their knowledge, values and information sharing protocols to be equally considered.”

They tested how this process might work in the resilience field school. This graduate course involved the co-production of knowledge and collaborative teaching as a way to enhance the resilience of social-ecological systems. The initiative involved a novel partnership between internationally renowned scientists, Central Coast First Nations (Heiltsuk, Wuikinuxv, Nuxalk and Kitasso/Xais’Xais), federal and local natural resource managers, students, and the Hakai Institute, a private research institute. The aim of the course was to teach and advance resilience theory and practice by applying it to real-world management challenges identified as priorities by Indigenous community partners. The student projects tackled issues such as the conservation of grizzly bear and salmon, balancing ecological sustainability with social justice in coastal fisheries, the role of ancient clam gardens as one of many traditional management and stewardship practices, and the evolving relationship between Pacific herring and Indigenous peoples over time.

The resilience field school experiment caught the attention of the journal Ecology and Society where it was highlighted this spring in a special feature that included an editorial that shares perspectives on democratizing conservation and general insights from the field school and its partnerships. It also contains five research articles describing student and Indigenous knowledge-holder-led projects and a synthesis paper advocating for increased engagement between academic and Indigenous community partners in ecological research.

Thanks to the bold move of Anne Salomon and Ken Lertzman, future generations of researchers, managers, policy makers, and social innovators, have experienced how the democratization of conservation science and practice can remove barriers to ecological sustainability and social justice. Their research, now published, paves the way for others to support resilience in social-ecological systems.
WE START THE CONVERSATION

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

We do this by starting conversations, moving conversations forward, and by moving words to action. One of the ways we start the conversation is by building awareness through public talks and discussions. Our faculty members participated in numerous talks all over the world and we also hosted local evening talks.

THE OCTOPUS’S GARDEN SERIES: PLANNING FOR SEA LEVEL RISE

Regions around the world are experiencing climate change impacts while planning for the long-term effects of sea level rise and coastal storms. This series of six talks featured experts on sea level rise from a variety of backgrounds and addressed ways we can adapt and build resilience highlighting challenges and solutions at both the local and global levels. Topics included the science and physical challenges to sea level rise, local provincial and international preparations and initiatives, climate refugees, traditional knowledge and Indigenous responses to sea level rise and finally what to expect globally – and what we can do about it locally. This series was moderated by Deborah Harford, Executive Director of the Adaptation to Climate Change Team.

SERIES FEATURE: SEA LEVEL RISE IN DEEP HISTORY: FIRST NATIONS COASTAL FLOOD STORIES

Chief Ian Campbell or Xalek, his ancestral name and Sekyu Ssiyam his Chieftain name, is from the village of K’ik’elxn on the west side of Howe Sound. He joined Haida elder Captain Gold, a Haida Historian and author to share their nation’s histories about coastal flooding.

8 Talks
1,600 Attendees

GROUNDTRUTH – ANATOMY OF A PIPELINE: AN INTERACTIVE PHOTOGRAPHIC DISPLAY AT SCIENCE WORLD

To speak with Andrew Wright is to hear of a lengthy journey across two provinces and a minefield of opinions. The Adjunct Professor with the Pacific Water Research Centre travelled 20,000 kilometres through Alberta and B.C. tracing the route of the Northern Gateway pipeline, a project that has been cancelled by the federal government. The result of this journey is an interactive display that traces the route of the Northern Gateway project, which aimed to take oil sands product to the West Coast for shipment to international markets. "GroundTruth" sets photos of life along the route against a Northern Gateway map. The project "invites the viewer to consider what is to be valued in a modern Canada that is built upon resource extraction and energy production in a world of diminishing biodiversity and climate change." The display was launched with a public talk featuring Andrew Wright and Nastaran Arianpoo.

MANAGING BC FORESTS IN ECOLOGICALLY AND SOCIAL RESPONSIBILITY WAY

BC forests provide essential ecological values such as carbon sequestration and storage, biodiversity, and water. Forests also provide a diversity of social values, from healthy environments to recreation; and economic values from timber and wood products, to tourism and mitigation of climate change. Indigenous people embrace long-held cultural and spiritual values of forests – values which non-Indigenous people increasingly share. This talk with Herb Hammond – forest ecologist and forester with Silva Ecosystem Consultants – highlighted the importance of forests, examined the ecological, social, and economic effectiveness of government policies and industry practices, and explored solutions on how to manage forests in ecologically and socially responsible ways to mitigate climate change. Resource and Environmental Management’s Ken Lertzman, a forest ecologist, responded with his key recommendations and Sean Markey moderated the discussion.
WE MOVE THE CONVERSATION FORWARD

One of the ways we move the conversation forward is through media engagements that foster informed discussions with the public. Traditionally, academics have written for other academics; however, our faculty members realize the importance of communicating their research to the public with an aim of creating a better understanding of the societal challenges we collectively face.

RISING GAS PRICES IN METRO VANCOUVER
In a CBC interview, REM’s Jonn Axsen discusses his research on people’s transportation habits, which seem to be immune to rising gas prices. He suggests that prices would have to be around $4 per litre for people to give up their vehicles.

TAKING A LOOK AT PLASTIC POLLUTION ON EARTH DAY
ACT’s Deborah Harford shares important statistics on plastics pollution and what we can do to reduce our plastics usage on Global News.

CANADA’S NEW PEACE KEEPING OPPORTUNITY
In an Ottawa Citizen op-ed, PWRC’s Zafar Adeel discusses how water insecurity is a threat that cuts across geographical regions, sectors of commerce, and societal divides. Competition for water resources has intensified within and among countries sharing water resources.

TRUDEAU’S ORWELLIAN LOGIC: WE REDUCE EMISSIONS BY INCREASING THEM
“George Orwell would have fun unpacking this black-is-white logic,” says Mark Jaccard from REM. In a Globe and Mail op-ed, Jaccard notes that it is economically and socially irresponsible to build a pipeline today for expanded production that should not occur if we are to prevent the devastating effects of climate change.

CANADA’S MOST LIVEABLE CITY IS CALGARY NOT VANCOUVER
In an op-ed on The Conversation, Urban Studies Professor Meg Holden weighs in on why Vancouver slipped below Calgary in the Economist’s “Global Liveability Index,” which ranks the world’s top cities, and what it would take for Vancouver to recover its spot.

CLIMATE CHANGE INCITED WARS AMONG THE CLASSIC MAYA
Archaeology Professor Mark Collard shares his research with Seeker which suggests that rising temperatures, shortened tempests among other factors, may have caused growing conflicts among the Classic Maya.

A WAY FORWARD: HOW WE CAN RESOLVE PIPELINE WARS
Between February and June, REM Professor Thomas Gunton offered insights into the Trans Mountain Pipeline conflict using op-eds as well as media interviews to explore options, examine trade-offs, and recommend solutions.

• Globe and Mail: A way forward: How we can resolve the pipeline wars
• Vancouver Sun: Trans Mountain Pipeline is not needed
• CBC Radio: Tom Gunton weighs in on the recent Trans Mountain Pipeline buyout
• Vancouver Sun: Federal decision to buy and build Trans Mountain pipeline is irrational

SEA STARS, OTTERS AND KELP FORESTS
PUBLISHED IN THE VANCOUVER SUN
When PhD student Jenn Burt set out to study the effects of sea otters off the B.C. coast, she discovered a unique relationship between sea stars, sea urchins and kelp forests. As it turns out, sea stars tend to eat the smaller urchins, that sea otters would ignore.

Sunflower stars, in particular, were understood to be predators, but their impact in kelp-forest dynamics was under-appreciated before the Wasting Disease nearly wiped out their population by 96%.

Burt observes, “we call them the clean-up crew. By mopping up the smaller urchins that sea otters leave behind, sunflower stars are having a positive indirect effect on kelp abundance, which overall is enhancing the resilience of coastal kelp forests.”

WHY CANADA SHOULD CARE ABOUT THE UN WATER DECADE
PUBLISHED IN THE OTTAWA CITIZEN
Ingrid Leman Stefanovic, Dean of the Faculty of Environment, pens an op-ed on the importance of the UN Water Decade for Canada. For Canadians, water is viewed as an unlimited and abundant resource which we take for granted. At the same time we value that abundance and see our waterways as integral to our national identity.

A SERIES YOU CAN’T MISS!
WILD ARCHAEOLOGY
Now in its second season, Wild Archaeology on the Aboriginal Peoples Television Network features Archaeology Professor Rudy Reimer. Join him as he 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.

FACULTY WRITING CONTEST 2018
PUBLISHED IN THE NATIONAL OBSERVER
Elise Burgert is a third year student in the Sustainable Business Joint Major Program. She won first place in the op-ed category of the writing contest for her piece on how Vancouver could learn a lot about sustainability from Copenhagen. As part of her studies this year, she participated in an international exchange at Copenhagen Business School. Her most profound observation from her stay is that there is a culture of sustainability: a paradigm of self-sufficiency and internalizing environmental costs, among both citizens and governments which permeates every level of society.
COMMUNITY ENGAGEMENT

WORKING WITH COMMUNITIES TO BUILD ECOLOGICAL SUSTAINABILITY

Under the lead of Marnie Branfireun, an Instructor in the School of Environmental Science, the Faculty hosted its Second Annual Earth Day Stewardship Challenge in partnership with the Tsleil-Waututh Nation and the Wild Bird Trust at Maple Woods Flats Conservation Area on the traditional territories of the Tsleil-Waututh Nation. Students, staff, and faculty joined community members to learn, share, and get dirty while doing habitat restoration. Ginevra Toniello, an archaeology alumnus who now works with the Nation, led an introduction of the archaeological significance of the area. Michelle George, a councillor with Tsleil-Waututh Nation, shared the cultural significance with students and then Chloe Hartley, an MSc student in the Ecological Restoration Program and Volunteer with the Wild Bird Trust, gave participants a crash course in how to plant Indigenous species to support habitat restoration. Participants then set out to take all that they learned and planted the native species to enhance the surrounding habitat.

TAKE A STAND: YOUTH FOR CONSERVATION

Take a Stand: Youth for Conservation is a school program designed to share and treasure the natural beauty of British Columbia with youth, including its urban-nature areas, unique coastal wilderness, productive oceans, and expansive temperate rain forests. The program has reached over 13,000 students across the province through screenings of the award-winning documentary STAND, discussions with the filmmakers, interactive activities, and youth contests. Inspired by the ecological, cultural, and aesthetic value of the west coast, and the efforts of First Nations youth in protecting their lands and oceans, the students spearhead positive social change by competing in a “community innovation challenge” that hones their leadership, critical thinking, and innovation skills. Organizing projects like playground clean-ups, in-school recycling programs, plastic straw elimination campaigns, and more, youth are empowered to drive meaningful change in their communities and to participate in instilling public education through art and film.

WORKING WITH COMMUNITIES TO ENHANCE NUTRITION AND BUILD FOOD SECURITY

Klemtu is a small village in the Great Bear Rainforest and home of the Kitasoo First Nation. Access to fresh produce is challenging, making it absent from many diets. The PWRC’s Nutrition through Engagement and Agriculture Technology (N-EAT) project hopes to change this. The project’s aim is to help communities better incorporate sustainable and nutritious foods and ensure sustainable access to water and energy. The core N-EAT team met with the Chief and community partners to learn from their knowledge and to collaboratively create a sustainable development model that transforms problems into solutions. From improving greenhouse gardening technologies to rainwater harvesting and composting, the team is helping the community enhance their infrastructure. They are also working with the community to build awareness about nutrition and develop cooking classes so people will know how to introduce the produce into their diets in delicious ways. Furthermore, the community is developing grant proposals to support a community centre which will house a community kitchen, learning area and gym facilities. When this project is completed, the N-EAT team will look to other First Nations communities and rural communities in East Africa to expand the program and develop best practices that ensure communities are resilient to the impacts of climate change.

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MOVING WORDS TO ACTION
ACADEMIC DEPARTMENTS

ARCHEOLOGY

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 offers Honours, Majors, Minors, Joint Majors, Certificates, Master’s, a Professional Master’s, and Doctoral programs in archaeology and cultural and heritage resource management.

It is ranked first in Canada and third in North America by the QS World University Rankings and offers expertise in archaeological and environmental science, First Nations heritage and resource management, and biological anthropology, including forensic science.

ENVIRONMENTAL SCIENCE

The new School of Environmental Science provides a multidisciplinary 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.

It offers undergraduate Major and Honours options leading to a Bachelor of Science degree. In partnership with BCIT, it also offers the Master of Ecological Restoration, a 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 science of ecological restoration in a unique way.

GEOGRAPHY

Geography ranks an impressive first among Canadian comprehensive universities in the 2018 QS World University Rankings. It explores how place and space shape our physical and social processes. The 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 who understand contemporary challenges.

Among its research and teaching faculty, Geography boasts a Fellow of the Royal Society of Canada, Canada Research Chair, Michael Smith Scholar, Fellow of the Canadian Geographical Society, and SFU Excellence in Teaching Awardees.

RESOURCE AND ENVIRONMENTAL MANAGEMENT

With a vision to provide research, education, and community engagement to support a socially just and ecologically sustainable world, REM provides world-class interdisciplinary education and research on natural resource and environmental issues of local, national, and international interest. REM offers undergraduate and graduate programs in various areas of resource and environmental management and a selection of undergraduate courses that can complement a wide array of undergraduate degrees at SFU.

Students are provided with an understanding of the dynamics of natural resources, the strategies and techniques of natural resource and environmental planning, decision making and management, and the biological, physical, social, economic, and institutional implications of resource and environmental management decisions.
Understanding and preparing for profound ecological, social, and cultural changes

With the return of sea otters to BC’s West coast, Anne Salomon, a marine ecologist in the School of Resource and Environmental Management, saw a unique opportunity to conduct research with communities to better understand and prepare for the profound ecological, social, and cultural changes this key predator triggers. Taking an unconventional approach to her research, she assembled the Coastal Voices team, comprised of a diverse group of Indigenous leaders, knowledge holders, scientists, and artists from BC and Alaska. Using the lenses of traditional knowledge and western science, their goal was to collect and share information to build a respectful dialogue that better equips coastal communities and policy makers with socially just and ecologically sustainable strategies to navigate the changes that come with the recovery of the sea otter.

Sea otters have coexisted with coastal Indigenous peoples for millennia, until the maritime fur trade in the 19th century wiped out their populations in BC and along most of the Pacific coast. The loss of these keystone predators had ecosystem-wide impacts because sea otters are extraordinary consumers of all shellfish species. With sea otters gone, super-abundant sea urchins decimated kelp forest habitat, but high shellfish abundance also fuelled coastal fisheries and community harvest.

In the early 1970s a Canadian-US government effort relocated 89 otters from Alaska to the west coast of Vancouver Island, just north of the Kyuquot/Chekleset community. The reintroduction worked. There are now over 5,500 sea otters inhabiting about a third of their original territory in BC.

In areas where the sea otters have returned, sea urchins, clams and abalone populations have been or are being decimated. This has dramatic effects to the food security and cultural well-being of many coastal Indigenous communities. However, the return of sea otters brings tourism opportunities and also triggers the expansion of kelp forests, which provide critical habitat for many fish species and a diversity of marine life. There are complicated trade-offs.

The Coastal Voices research team is building knowledge about what the ecosystem used to look like before the extinction of otters and what is happening now that it is shifting with their reintroduction. The team is currently focused on identifying the factors that enable or constrain a community’s ability to adapt to the profound social and ecological changes that sea otters bring. They want to know, “What are the key strategies that help coastal Indigenous communities coexist with sea otters?”

Working with a steering committee of Hereditary Chiefs, and through community visits, surveys and interviews, the research team identified four areas that are critical in helping communities to co-exist with sea otters:

1. strengthening Indigenous governance authority,
2. promoting active and adaptive otter management
3. acquiring and integrating Indigenous knowledge, and
4. establishing learning platforms.

Using photos, film, and social media along with traditional academic publishing, the Coastal Voices research team tells a compelling story of adaptation and resilience. It tells the tale of healthy ecosystem recovery and how the transition may be difficult but over time, communities may benefit.

The images to the right were taken from the Coastal Voices website. Visit the site to hear their voices.

http://coastalvoices.net/
ADAPTATION TO CLIMATE CHANGE TEAM
As part of the Pacific Water Research Centre, 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.

CENTRE FOR SUSTAINABLE DEVELOPMENT
The CSD develops practical, effective solutions for social, environmental and economic challenges that aim to:

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

The CSD is committed to mobilizing global scientific and technological expertise to promote practical problem solving as part of the UN Sustainable Development Solutions Network.

SUSTAINABLE TRANSPORTATION RESEARCH ACTION TEAM
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,
• use renewable resources efficiently while minimizing consumption of non-renewable,
• is economically efficient in transition and operation, affordable to individuals and communities and supportive of a vibrant economy,
• allows basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health.

PACIFIC WATER RESEARCH CENTRE
The 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, PWRC provides a forum for advancing evidence-based research and concrete societal change. This research approach creates space to test policy and technological innovation.

CENTRE FOR FORENSIC RESEARCH
The Centre for Forensic Research is designed to create new knowledge in the forensic sciences for the purposes of solving crimes, identifying human remains, determining elapsed time since death and circumstances of death on local and global scales. Their core researchers specialize in entomology, bone chemistry, anthropology, DNA, and botany. The centre is designed to attract researchers and students internationally who seek a facility with well-equipped, secure laboratories and experienced colleagues to create new research initiatives arising from the challenge of cold cases, recent deaths and large scale mass disasters. The centre serves the research and day-to-day needs of law enforcement and death investigation agencies nationally and provincially. The services of the Centre for Forensic Research are available to all parties who seek an independent forensic scientific opinion.
WHEN WESTERN SCIENCE AND TRADITIONAL KNOWLEDGE CROSS PATHS

In an article published in *The Conversation* and viewed over 250,000 times, Professor George Nicholas discusses how our ways of knowing and understanding have largely been based on ethnographic sources of information. Nicholas says that in recent years, scholars have become more aware of the large body of information known as Traditional Knowledge, Indigenous Knowledge, or Traditional Ecological Knowledge, amongst other terms. A team of researchers in Australia have documented kites and falcons intentionally carrying burning sticks to spread fires. The idea that nighthawks would intentionally spread fire has long been Traditional Knowledge but has been met with scepticism in the lens of western science. Nicholas discusses the idea that there are multiple ways of knowing and this presents an opportunity for an intersection between Traditional Knowledge and western science.

B.C. SEAGRASS STORE FAR LESS ‘BLUE CARBON’ THAN SIMILAR SITES WORLDWIDE

Seagrass meadows on the west coast of Vancouver Island store substantially less carbon than seagrass sites in other parts of the world, according to a new study by SFU’s Resource and Environmental Management and Parks Canada researchers.

Because of their ability to store “blue carbon,” seagrass meadows have been touted as an important way to combat climate change. But critics argue that seagrass blue carbon in northern systems may not store as much carbon as once thought.

An SFU team, led by Resource and Environmental Management Master’s students Victoria Postlethwaite and Aimee McGowan, and their supervisor Karen Kohfeld worked cooperatively with Parks Canada scientists and found more carbon was stored in the seagrasses than in the bare patches of muddy sediments nearby. But the numbers were still a lot lower than found in tropical and subtropical systems. In fact, the amount of carbon stored in Clayoquot Sound is less than a tenth of what’s thought to be stored in many other places around the globe.

The team believes the difference is driven by many reasons, including the species of seagrass, the low light conditions in BC, temperatures, nutrients, and water conditions.

“There are many other reasons to conserve seagrass meadows,” says Postlethwaite, lead author on the paper, “for one, because they provide crucial habitat for fish.”

“But this study shows that, in terms of climate change mitigation, there should be a move away from assumptions that carbon stores are similar on a global basis, and instead a focus on getting an accurate regional picture.”

SHADOW WORKERS IN THE MEDICAL TOURISM INDUSTRY

Have you or a loved one ever considered traveling abroad for health care? There are many reasons why patients opt to seek health care abroad and many choose to travel with a friend or family member. In an article published in *The Conversation* (medicaltourismandme.com), Geography Professor Valorie Crooks sheds light on her research which takes a look at these friends and family as “shadow workers” in the medical tourism industry. Shadow workers are an invaluable asset in this industry, but they often do not know that the journey can be painful and challenging, while the industry does very little to protect them. Before travelling abroad, Crooks and her research team caution friends and family to consider nine factors relating to patient health, caregiver health, and the journey itself.

59 faculty members doing 143 research projects producing 142 peer reviewed publications and 109 other publications, giving 204 presentations in 27 countries.

There are too many innovative research projects to describe here, so we share some highlights below.
A HAZARD TRIGGERED BY CLIMATE CHANGE SUGGESTS MORE TO COME

The Director pro tem for the School of Environmental Science, Jeremy Venditti, was part of a team that studied one of the largest North American landslides in the past 30 years. Their findings were published in Nature Scientific Reports entitled: The 2015 landslide and tsunami in Taan Fiord, Alaska. This fiord was created when Tyndall Glacier began melting and retreating between 1961 and 1991. The landslide in 2015 was triggered by more glacial melting and sent 180 million tonnes of rock into the Taan Fiord affecting two square kilometres of land. It also triggered a massive tsunami that reached 193 metres high and affected more than 20 square kilometres. The field observations in this study provide an important benchmark for modelling landslide and tsunami hazards, and call attention to the indirect effect of climate change that may be increasing the frequency and magnitude of natural hazards near glaciated mountains.

URBAN PLANNING FOR FISHES

Resource and Environmental Management graduate student Luke Warkentin and Professor Jonathan Moore did a study revealing that urbanization can mean death by a thousand cuts for fishes. They documented one cut here in the Lower Mainland. In an article in the Canadian Journal of Fisheries and Aquatic Sciences they discuss how urbanization has altered fish communities in many ways. As cities expand and redevelop, it’s challenging to assess the impacts of new projects given the existing alteration. They investigated how urbanization can mean death by a thousand cuts for fishes. They documented one cut here in the Lower Mainland. In an article in the Canadian Journal of Fisheries and Aquatic Sciences they discuss how urbanization has altered fish communities in many ways. As cities expand and redevelop, it’s challenging to assess the impacts of new projects given the existing alteration. They investigated how urbanization can mean death by a thousand cuts for fishes.

VIOLATE BAIL CONDITIONS OR RISK AN OVERDOSE? A LEGAL CONUNDRUM FOR THE MARGINALIZED

What happens when a person who uses drugs is released on bail conditions that include a no-go zone such as the Downtown Eastside? The no-go zone is intended to keep the user away from an area associated with an alleged charge but also prevents access to Insite, a safe-injection site with admission criteria. A study by Nick Blomley, a Professor in Geography and others, found these types of challenges are quite common. In fact, the study found that 53% of bail orders issued for drug offences in Vancouver over a seven-year period included a no-go or “red” zone. Blomley observes that in Vancouver these “red-zones often equate to a denial of social services which becomes problematic for people who are already very vulnerable.” The study also demonstrated that a revolving door is created when a person is arrested and released on bail.

USING ANCIENT DNA TO INFORM MODERN DAY FISHERIES AND CONSERVATION MANAGEMENT

A trio from Archaeology (PhD student Antonia Rodrigues, Professor Dongya Yang and alumnus Iain McKechnie) conducted the first study to use ancient DNA to identify rockfish species in BC occurring over the past 2,500 years. Rockfish are commonly found in nearshore and continental shelf environments in the North Pacific Ocean and frequently found in coastal archaeological sites in western North America; however, the similarity of these species limits conventional zooarchaeological identifications to the genus level. This study changes all that as these archaeologists applied ancient DNA analysis to 14 archaeological rockfish remains from four sites on western Vancouver Island. Two sites were located within a marine protected area designed to facilitate the recovery of inshore rockfish populations and two sites were located outside this boundary and subject to considerable fishing pressure. Using specialized techniques, they identified at least twelve different rockfish species occurring during the past 2,500 years. Identification of rockfish at closely spaced and contemporaneously occupied sites confirms that a variety of rockfish species were consistently exploited at each site, with more exposed areas having higher number of species present. This study demonstrates that ancient DNA identifications of rockfish in archaeological assemblages can complement and expand perspectives on modern day fisheries conservation and management in the National Park Reserve and First Nations ancestral territories.
**SPECIAL RECOGNITION**

**FACULTY AND STUDENT COMMENDATIONS**

**KIRSTEN ZICKFELD**
Kirsten Zickfeld was awarded this year’s President’s Prize of the Canadian Meteorological and Oceanographic Society for her 2009 paper “Setting cumulative emissions targets to reduce the risk of dangerous climate change,” published in the Proceedings of the National Academy of Sciences. Dr. Zickfeld’s paper was the first to propose that international climate policy targets aimed at avoiding “dangerous anthropogenic interference” could be based on limiting cumulative carbon emissions.

**DANA LEPOFSKY SMITH-WINTERMBERG AWARD**
Congratulations to Dana LePofsky on receiving the Smith-Winterberg Award. The award is presented to honour professional members of the Canadian archaeological community who have made an outstanding contribution to the advancement of the discipline of archaeology and our knowledge of the archaeological past of Canada.

**THE CLAM GARDEN NETWORK**
Dana’s website, The Clam Garden Network (www.clamgarden.com) was awarded the 2018 Best Social Media Award by the Canadian Archaeological Association.

**ALYSHA VAN DUYNHOVEN, ESRI CANADA SCHOLARSHIP**
Geography student Alysha van Duynhoven is the recipient of the Esri Canada Higher Education Scholarship. The unique award recognizes excellent achievement in GIS design that advances the discipline.

**SFU ARCHAEOLOGY DOES IT AGAIN!**
It was ranked 1st in Canada and 3rd in North America for QS Rankings on citations per paper and H-Index.

**CONGRATULATIONS TO GEOGRAPHY**
MacLean’s Canadian Universities Guidebook named SFU Geography as one of the Standout Programs. MacLean’s Canadian Universities Guidebook named SFU Geography as one of the Standout Programs.

**SPENCER GREENING NAMED AS TRUDEAU SCHOLAR**
Spencer Greening is a PhD student in Archaeology linking western science and local Gitga’at knowledge to document the history of land use in the Gitga’at at First Nation in Hartley Bay. A member of the Gitga’at Nation and former councillor with the nation, Greening is now working with elders and knowledge keepers to learn about how the Gitga’at have been environmental stewards of the area since before colonization. Greening shares that from “talking about the language and watching the fish, the salmon come up the river to spawn and writing down how we express those actions in our language all the way up to hunting and trapping with the elders… that’s all a part of it.”

**ROYAL SOCIETY OF CANADA**
Election to the academies of the Royal Society of Canada is the highest honour a scholar can achieve in the Arts, Humanities and Sciences. In the last year, two of the Faculty’s Professors have been inducted. They include:

**NICK BLOMLEY, RSC FELLOW**
Considered one of the founders of the interdisciplinary field of legal geography, Blomley’s research has transformed how we conceive of law as it relates to property – those places and spaces in which we live. Blomley shares that “land is a fundamental resource, essential to life, identity, culture and freedom, and is regulated through property – a set of state-enforced relations between people in regards to land. Such relations rest on and enforce systems of power, shaping the ways in which we occupy and create place.” His research shines light on the complexities of gentrification and homelessness with respect to the regulation of public property. It also looks at it in relation to settler colonialism in British Columbia, particularly the B.C. treaty process.

**HUGO CARDOSO, RSC COLLEGE MEMBER**
A skeletal biologist specializing in the human juvenile skeleton, Cardoso’s research provides the framework to assist in the medical-legal investigation of child deaths but also provides the theoretical and methodological framework for the study of childhood in historic and prehistoric populations. His research on forensic cases helps bring closure to families and to put criminals behind bars. Some of his more archaeologically relevant work gives voice to those who can no longer speak and these often include children and other marginalized segments of historic or prehistoric societies.

**FACULTY OF ENVIRONMENT 2018 WRITING CONTEST – SPONSORED BY QUADREAL AND THE NATIONAL OBSERVER**
This contest was open to undergraduate students and featured two categories: policy briefs and op-eds dealing with improving urban sustainability. Winners received cash prizes and also pitched their policy briefs to City Hall or featured their op-eds in the National Observer. Winners included:

**Policy Brief**
1st place – Ryan Jaeger, Implementing Green Billing
2nd place – Mireta Strandberg-Salmon, Implementing Context-based Sustainability Goals

**Op-ed**
1st place – Elise Burgert, Lessons from Copenhagen: what we can learn from Denmark’s bike lane success
2nd place – Kathleen Betton, Microplastics on local beaches

**JONATHAN BORON, DEAN’S GRADUATE SCHOLARSHIP**
Jonathan Boron, a PhD student in Resource and Environmental Management, received the Dean’s Graduate Scholarship.

**PAUL KINGSBURY, PRESIDENT’S MEDIA AWARD**
Paul Kingsbury, a Professor in Geography, received the SFU 2017 Media Award in recognition of outstanding results in working with the media to promote research.

**GRADUATE RESEARCH DAY PRESENTATION FINALISTS**
1st place David Swanlund, Master’s student in Geography
2nd place Brea McCauley, Master’s student in Archaeology
Runner-Up Thomas Royle, PhD student in Archaeology

**CONGRATULATIONS TO ACADEMIC PROSTAFF**
As the President of the Western Canadian Universities, Jonathan Driver, Professor of Archaeology, was reappointed to serve.

**SPENCER GREENING NAMED AS TRUDEAU SCHOLAR**

**ALYSHA VAN DUYNHOVEN, ESRI CANADA SCHOLARSHIP**

**JONATHAN BORON, DEAN’S GRADUATE SCHOLARSHIP**

**PAUL KINGSBURY, PRESIDENT’S MEDIA AWARD**

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**GRADUATE RESEARCH DAY PRESENTATION FINALISTS**

**CONGRATULATIONS TO ACADEMIC PROSTAFF**
DONOR ACKNOWLEDGEMENT

We gratefully acknowledge the following donors for their generous support to research, scholarships and programming:

ACT (the Adaptation to Climate Change Team) is supported by the Real Estate Foundation of BC, the Bullitt Foundation and the Vancouver Foundation.

The NSERC Industrial Research Chair in Avalanche Risk Management is supported by Canadian Pacific Helicat Canada, Canadian Avalanche Association and Mike Wiegele Helicopter Skiing. The avalanche research program is further supported by Avalanche Canada and the Avalanche Canada Foundation.

Contributions were made from several individuals and organizations to the endowment funds listed to increase or establish support for students through scholarships, bursaries and experiential learning opportunities.

• The Janet Blanchet Bursary in the Faculty of Environment
• Blue Planet Links Foundation Bursary
• The Geography Undergraduate Fieldwork Endowment [Anonymous Donor]
• Katie Young Memorial Scholarship in Archaeology (established by Stantec)

Contributions were made from the following individuals and organizations in support of faculty and post-doctoral positions in the Faculty of Environment.

• Willow Grove Foundation Research Associate
• Sitka Foundation Post-Doctoral Fellowship in Sustainable Development
• REM Co-Management Position (Dr. Evelyn Pinkerton)

The 2018 Faculty of Environment Undergraduate Writing Contest was sponsored by QuadReal Property Group and The National Observer.

The Tula Foundation continues to support projects linked with the Hakai Institute.

Dr. Roy L. Carlson, Monica McGarrigle, Dr. Arnold Sryd and Heather McPherson, and Dr. Barbara Winter continue to provide support for the Museum of Archaeology and Ethnology.

The United Nations Department of Economic and Social Affairs (UNDESA) supported the Pacific Water Research Centre project, Gender, Water Security and the Peacebuilding Nexus in the Arab Region.

The North Growth Foundation sponsored Restoration for Resilience: Ecological Restoration in the 21st Century which was co-hosted by the SFU/BCIT Master of Science in Ecological Restoration Program and the Society for Ecological Restoration – Western Canada.

The 2018 Faculty of Environment Undergraduate Writing Contest was sponsored by QuadReal Property Group and The National Observer.

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FACULTY DIRECTORY

Archaeology

FRANCESCO BERNAS
Associate Professor
Origin of modern behaviour, archaeology of fire, ancient pyrotechnologies, use of space, site formation processes

HUGO CARDOSO
Associate Professor
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, ethnarchaeology, early agriculture, early complex societies, African archaeology

BIRUTE M. F. GALDIKAS
Professor
Primate ecology, orangutan conservation

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

DANA LEPFOSKY
Professor
Palaeoethnobotany, human ecology, prehistoric and traditional resource management, Northwest Pacific, Oceania, complex hunter-gatherers, public outreach

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

DAVID BURLEY
Professor
South Pacific, Northwest North America, archaeological theory, South Pacific prehistory, ceramics, maritime adaptations, ethnohistory

MARK COLLARD
Professor
Human and 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

CHRISTINA GIOVAS
Assistant Professor
Environmental archaeologist specializing in zooarchaeology

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

DAVID MAXWELL
Lecturer
Faunal analysis, particularly vertebrates; interaction of material culture and political history; Plains bison kill site population dynamic; coastal and island hunter-gatherers in southern California

GEORGE NICHOLAS
Department Chair and Professor
Andean South America, colonialism, historical archaeology, archaeological theory, South Pacific prehistory, ceramics, maritime adaptations, ethnohistory
### Archaeology

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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Rudy Reimer</td>
<td>Associate Professor</td>
<td>Indigenous archaeology, BC archaeology, cultural resource management, lithic technology, materials science, geochemistry</td>
</tr>
<tr>
<td>Sivanand Balram</td>
<td>Senior Lecturer</td>
<td>Collaborative GIS, environmental decision making</td>
</tr>
<tr>
<td>John R. Welch</td>
<td>Director of Graduate Program in Heritage Resource Management and Professor</td>
<td>Sovereignty-driven research and Indigenous community collaborations in heritage stewardship and applied archaeology</td>
</tr>
<tr>
<td>Dongya Yang</td>
<td>Associate Dean, Graduate and Research Professor</td>
<td>Human osteology, molecular archaeology, animal and plant ancient DNA, forensic archaeology</td>
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### Environmental Science

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<tbody>
<tr>
<td>Marnie Branfireun</td>
<td>Lecturer</td>
<td>Wetland marine ecology with a focus on contaminant cycling, food chain-dynamics, conservation strategies, environmental education, non-vascular plants and aquatic invertebrates</td>
</tr>
<tr>
<td>Jeremy Vendiotti</td>
<td>School Director of EVSC and Professor</td>
<td>Fluvial Geomorphology and Sedimentology, River Dynamics, Physics of Sediment Transport</td>
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### Geography

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<th>Name</th>
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<tbody>
<tr>
<td>Tracy A. Brennand</td>
<td>Department Chair and Professor</td>
<td>Glacial geomorphology, glacial sedimentology, paleoglaciology, paleohydrology, environmental and climate change, planetary geomorphology</td>
</tr>
<tr>
<td>Rosemary-Claire Collard</td>
<td>Assistant Professor</td>
<td>Human geographer interested in broadening critical thought beyond a strictly human subject</td>
</tr>
<tr>
<td>Suzana Dragicevic</td>
<td>Professor</td>
<td>Geographic information systems and science (GIS), modeling human-environment interactions as complex systems, urban informatics, geographic automata, agent-based modelling, geosimulations, artificial intelligence</td>
</tr>
<tr>
<td>Meg Holden</td>
<td>Professor</td>
<td>Urban, sustainable development and policy, sustainable assessment and evaluation, social learning in cities</td>
</tr>
<tr>
<td>Paul Kingsbury</td>
<td>Professor</td>
<td>Cultural geography, consumption, social theory, psychoanalysis, aesthetics, and paranormal cultures</td>
</tr>
<tr>
<td>Geoff Main</td>
<td>Professor</td>
<td>Centre for Global Political Economy, Resources, natural resource labour and labour markets, comparative natural resource policy, macroeconomic policy and commodity production, race and gender</td>
</tr>
<tr>
<td>Andrew Perkins</td>
<td>Lecturer</td>
<td>Physical geography, geography of natural hazards, earth systems</td>
</tr>
<tr>
<td>John Pierce</td>
<td>Professor</td>
<td>Food systems, food security, and sustainability of food systems</td>
</tr>
<tr>
<td>Eugene McCann</td>
<td>University Professor</td>
<td>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</td>
</tr>
</tbody>
</table>

### Other Disciplines

- **Geography**
- **Environmental Science**
- **Archaeology**
FACULTY DIRECTORY

Geography

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

JEREMY VENDITTI
Professor
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 points

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

IVOR WINTON
Senior Lecturer
Population geography; geographical thought in the western tradition

Resource and Environmental Management

ZAFAR ADEEL
Professor of Professional Practice; Executive Director of Pacific Water Research Centre
Water security & its links to the 2030 Agenda for Sustainable Development; including SDGs; water policy and management in water-scarce environments; threats to mangroves

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

PASCAL HAEDELI
Assistant Professor
Interdisciplinary research in avalanche risk management for the development of practical tools that assist backcountry recreationists and avalanche professionals to make better informed decisions

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

KAREN E. KOHFELD
Professor
Climate change, earth system science; carbon cycling; paleoceanography; paleoclimatology; paleoecology; ocean acidification; regional impacts of climate change

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

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

JOHN R. WELCH
Professor
Sovereignty-driven research and Indigenous stewardship and applied archaeology

Resource and Environmental Management

TOM GUNTON
Director of REM Planning Program and Professor
Forestry; land use; energy; mining and fisheries

NADINE SCHUURMAN
Professor
Soil science, digital soil mapping; predictive soil mapping and modelling; impact of forest management practices on soil properties and nutrient cycling; soil rehabilitation

SCOTT HARRISON
Senior Lecturer
Terrestrial ecologist interested in applying the concepts of ecological resilience and Adaptive Management

CLIFFORD ATLEO (KAM'AAYAM / CHACHIM'MULTHNII)
Assistant Professor and Indigenous Advisor (KAM’AYAAM/ CHACHIM’MULTHNII)
Indigenous governance; community development and political economy

ANNE SALOMON
Associate Professor
Co-management of natural resources; political ecology & neoliberalism; communities & fisheries management

TAMMARA SOMA
Assistant Professor
Food systems planning; food waste, waste management, and social justice

JOHN R. WELCH
Director of Graduate Program in Heritage Resource Management and Professor
Sovereignty-driven research and Indigenous community collaborations in heritage stewardship and applied archaeology

FACULTY DIRECTORY

DUNCAN KNOWLER
Associate Professor
Environmental influences in bioeconomic modelling of natural populations; economics of natural resource management in developing countries; economic incentives for biodiversity conservation; invasive species economics

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

INGRID LEMAN STEFANOVIC
Dean, Faculty of Environment and Professor
Sustainable energy and public policy; environmental economics; energy and materials

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

JOHN R. WELCH
Director of Graduate Program in Heritage Resource Management and Professor
Sovereignty-driven research and Indigenous community collaborations in heritage stewardship and applied archaeology

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Forestry; land use; energy; mining and fisheries
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