In memory of
DR. WOLFGANG HAIDER,
colleague and friend

1953 - 2015
According to the Organization for Economic Collaboration and Development, research consists of “creative work undertaken on a systematic basis in order to increase the stock of knowledge.” Perhaps the OECD is correct but in the following pages, I believe that you will discover much more than simply a compendium of information that extends our knowledge “stock.”

Instead, you will read about serious and passionate efforts to solve the world’s most pressing environmental problems. The research described here is not simply a set of abstract ideas but reflects how genuine research enables curiosity, expands our visions and inspires genuine solutions to build a better, more sustainable world.

Much of the research at the Faculty of Environment is community-engaged, not simply as an “add-on” but as core to our mission. At the same time, I am pleased to say that the academic integrity of the work here is stellar – in many cases, garnering international acclaim.

By simply turning the pages, you will experience the meaning of true interdisciplinarity, that spans the humanities, social sciences and sciences, and engages the lived challenges of a complex set of problems. And you will see that our research, more than a mere “stock of knowledge,” promises solutions, just as it reflects our passion for understanding, and our enthusiasm for endless learning.

INGRID LEMAN STEFANOVIC  Professor and Dean, Faculty of Environment
Jonn Axsen is the co-director of the Energy and Materials Research Group (EMRG), with which he is currently developing the Sustainable Transportation Research Team (START). His research program focuses on several aspects of sustainable energy, behaviour and policy, including four broad themes: adoption of pro-environmental technology, pro-environmental motivations (social influence, lifestyle and values), citizen acceptance of energy technology and policy, and modeling effective low-carbon technology and policy.

His research program is highly interdisciplinary by design; to match the context of a particular environmental problem and set of research questions, he draws from behavioral theories and research methods relating to economics, psychology, sociology, geography, policy and engineering. His research program addresses several different applications and examples of sustainable behaviour, technology and policy—with particular specialization in plug-in electric vehicles (PEVs) and other alternative fuel vehicles, in addition to the cases of renewable energy, unconventional fossil fuels, and climate policy. Many of his novel contributions to the literature relate to consumer and citizen behaviour, including perceptions, preferences, values and lifestyle in regards to pro-environmental technology and policy.

To date, he has published a total of 21 articles in top-level peer-reviewed journals, three book chapters, 11 academic and industry reports, one magazine article and two Op-Eds, and he has presented his research findings through over 60 academic presentations at a variety of international venues. In 2011, he was awarded the “Young Researcher of the Year Award” by the OECD’s International Transport Forum.
Francesco Berna joined the Department of Archaeology at SFU in January 2013 and expanded the Department’s Geoarchaeology Lab capabilities with petrographic thin sectioning instrumentation and Fourier transform infrared spectrometry and micro-spectrometry. The core of his research is focused on two main archaeological questions:

- The origin of controlled use of fire and its role in human evolution;
- The Upper Paleolithic culture in the Middle East and its part in the origin of our species.

These two lines of research see him conducting excavation and analytical work at Early Stone Age sites of Wonderwerk cave in South Africa and Koobi Fora Fx/J20AB in Kenya, the L’Oscurscuito Neanderthal rock-shelter in Southern Italy, and the Upper Paleolithic site of Manot Cave in Israel.

The Geoarchaeology Lab is also contributing to several other important issues in Old and New World Archaeology. These include: dating the earliest out-of-Africa evidence of Homo erectus at Dmanisi, Republic of Georgia; the origin of Middle Paleolithic/Middle Stone Age in South Africa (Fauresmith level at Wonderwerk cave, Kathu Pan 1, and Bestwood farm) and in the Caucasus (Proto-levallois levels in Armenia); the site formation processes at the Final Pre-Pottery Neolithic site of Beisamoun in the Upper Jordan Valley, Israel; ancient lime plaster technology during the classic Maya period in Guatemala and the Bronze Age in Cyprus; the nature of prehistoric sites on Calvert Island (EjTa-4) and Indian River in British Columbia. His research is sponsored by SSHRC and the Wenner-Gren Foundation and has been partially published in high impact journals such as PNAS, Science and Nature.
Nick Blomley has a longstanding engagement with the geographic dimensions of law, notably in relation to real property. He has engaged in a number of SSHRC funded research programs in this regard, most recently concerning the regulation of panhandling on urban public property, and the nature of the landholding defined by participants in the modern-day Crown-First Nations treaty process in British Columbia.

He is currently engaged in three projects that continue this concern with the geographies of property:

- The documentation and analysis of “area restrictions” used as components of “conditions of release” in bail, parole and conditional sentencing orders, with case studies in Vancouver, Ottawa, Toronto and Montreal. Undocumented area restrictions are a remarkably pervasive and wide-ranging form of spatial control affecting marginal Canadians, both in their private and public spaces. Data collection for this collaborative SSHRC project is close to completion.

- The liquidation of Japanese-Canadian property during World War II within British Columbia. The ‘Landscapes of Injustice’ project, a seven-year multi partner SSHRC funded initiative (currently in Year 2) will analyze a poorly documented moment within Canadian history through multiple research sites (oral histories, GIS, legal records, community records, land titles), including extensive forms of knowledge mobilization.

- The territories of property. Connecting vibrant but disparate scholarship in Law and Geography, this proposed book-length project will provide an original analysis of the territorial dimensions of real property.
Tracy Brennand is a geomorphologist and director of the Paleoglaciology Research Group. Her research focuses on improving our understanding of how the storage and movement of meltwater over, through, under or away from ice sheets modulates ice dynamics, and contributes to landscape change. The generation and routing of meltwater as present-day ice sheets decay due to global warming is a key uncertainty in discussions of the impacts and drivers of future climate and sea level change.

Whereas the meltwater systems of present-day ice sheets are difficult to access and investigations spatially restricted, the landscapes of past ice sheets record past ice sheet response to similar climate forcing and provide a more accessible and spatially extensive means to address these uncertainties. Her current research has three strands:

- Remote predictive mapping (morphogenetic mapping) of glacial landforms in order to test hypotheses of landform genesis, to verify numerical ice sheet models, and to improve aggregate and mineral exploration.

- Quantification of the amount of water stored in proglacial lakes at the margins of the last Cordilleran Ice Sheet (CIS) and determination of when and how they drained in order to provide verification data for numerical models of ice sheet decay, and allow assessment of landscape change associated with these events.

- Testing the stagnation hypothesis for decay of the last CIS against field observations. Further details can be found at www.sfu.ca/people/tracybrennand.
David Burley’s research programs over the past two and a half decades have largely focused in the west Polynesian Kingdom of Tonga and the Republic of Fiji. Tonga was the first set of islands in Polynesia to be colonized, and it is here that the Ancestral Polynesian homeland developed. His archaeological studies consequently concentrate on the discovery and excavation of first settlement locales, sites we refer to generically as “Lapita” based on a distinctive type of pottery.

Of particular concern has been the establishment of refined chronologies for first settlement, the expansion of peoples through the 170 island-archipelago, the impact colonizers had on pristine tropical ecosystems and the documentation of culture change as these peoples formed a cultural and technological template that would ultimately be transported throughout the Polynesian triangle. His research in Fiji has been alternatively focused on a single site, the Sigatoka Sand Dunes, and what this site can tell us about migration and culture change on the island of Viti Levu. Sigatoka is a parabolic dune system with archaeological materials constantly exposed as the dune sands move. SFU archaeological field schools and a collaborative project with the Fiji Museum and the National Trust for Fiji have completed nine excavation and recovery projects and generated a very large volume of data on the Fijian mid-sequence (500 BC – 1000 AD). These data are significant to the question of Fijian ethno-genesis and why Fijians are considered Melanesian not Polynesian. Finally, with Adjunct Professor Robyn Woodward, he has been intermittently carrying out survey and excavations at the first Spanish colony in Jamaica, Sevilla la Nueva (1509-1534 AD). In 2014, they shifted their studies to Maima, an indigenous Taino Village that provisioned Christopher Columbus for a year in 1503 AD. This village was annihilated within 20 years of first Spanish presence.
Hugo Cardoso is an Assistant Professor in the Department of Archaeology and co-director of the Centre for Forensic Research at SFU. He is primarily a biological anthropologist and a human skeletal biologist interested in developing theory and methods in bioarchaeology and forensic anthropology. His research interests fall in the following three broad areas.

The first one is experimentation in bone trauma and bone taphonomy. He was awarded a Discovery grant from NSERC to develop the first dedicated outdoors facility in Canada to study bone decomposition.

His second area of interest refers to the validation of methods for the estimation of identity from the skeleton, where he has been testing and developing new techniques for age estimation from juvenile skeletal material and living individuals.

His last broad area of interest is in child growth and health in the past. Growth and health status of children can provide powerful insights into the effects of transition and change in the past. As such, he has started a new research project to study the impact of the Muslim occupation of Portugal during the Islamic Medieval Golden Age period on health and well-being of local populations. To carry out this project, he is partnering with the heritage department of the Santarem municipality, in Portugal, where a field school in bioarchaeology is currently being planned and prepared. He has also done forensic anthropology consulting work for the Yukon Coroner’s Office and the RCMP.
Research Interests

Open Data, Environmental Policy and Boundary Organizations. Boundary organizations, institutions that answer to both political and scientific standards, are emerging as key actors in environmental politics. The data they collect and analyze have become public utilities because of their influence on political decisions, and open data approaches have become essential for transparency, credibility and legitimacy. Several case studies examine how boundary organizations and open data shape responses to environmental conflict and crisis, including BC’s Coast Information Team, the Deepwater Horizon disaster, and the global temperature record.

The Conservation Mosaic

Common property theory has important implications for protected area design and management. The national park and wilderness models work well for remote uninhabited spaces, but are a poor fit in productive lowlands with communities with customary rights to local resources. Spatial conservation strategies to promote ecosystem resilience and adaptation in a changing climate require additional models of protected areas that accept humans as a part of nature, not apart from it. Private and community protected areas are essential components of well-connected conservation networks. These projects evaluate whether landscapes under local control can extend and link protected areas across a mosaic of property types without sacrificing the wellbeing of local residents. Case studies include the temperate rainforests (BC, Chile, New Zealand and Tasmania), and research collaborations on Costa Rica and Ecuador.
Professor Collard joined SFU in 2007, after stints at University College London, Washington State University, and the University of British Columbia. Currently, he is the Canada Research Chair in Human Evolutionary Studies and a Full Professor in the Department of Archaeology. Prof. Collard also holds a part-time Chair in Archaeology at the University of Aberdeen, UK, and adjunct positions at several institutions, including the University of the Witswatersrand, South Africa, Uppsala University, Sweden, and George Washington University, USA.

Prof. Collard’s training is in archaeology and biological anthropology, and he has published extensively in both of these fields, as well as on topics that fall under the purview of sociocultural anthropology. Much of Prof. Collard’s research in the last decade has focused on the ways in which humans and other hominins have been affected by, and adapted to, environmental conditions. Currently, he and his trainees are using historical data and time series analysis to investigate the impact of climate change on the frequency of warfare in non-industrial populations over the long term.

Professor Collard is involved in two major interdisciplinary undertakings at the moment. One is the SFU Human Evolutionary Studies Program (HESP). Established in May of 2011, HESP is a five-year initiative that is designed to stimulate collaborative interaction among researchers who are based at SFU and interested in human evolution. Dr. Collard is the director of the program. The other major interdisciplinary initiative is the Cultural Evolution of Religion Consortium (CERC). The goal of CERC is to use cross-cultural experimental and historical data to test the hypothesis that religious behaviour evolved, and is maintained, because it fosters intra-group cooperation and therefore allows some groups to outcompete other groups. Prof. Collard is one of the co-PIs on the grant and is a member of the Consortium’s four-person Executive Committee.
Andy Cooper is a quantitative ecologist specializing in the application of statistical and mathematical tools to questions rooted in ecology and resource management. His research focuses on such topics as population dynamics and stock assessment, decision-making under uncertainty, historical ecology, biodiversity, animal movement, and resource selection. Dr. Cooper is currently working on: (1) adapting tools from epidemiology and medical diagnostic screening for use in designing and evaluating ecological indicators, (2) applying data-poor methods to fisheries assessment and management, and (3) developing capacity-building materials to improve fisheries management in the Indian Ocean. Andy’s students have been or are involved in a wide range of topics including caribou management, salmon ecology, skate abundance estimation, whale spatial distribution and energetics, lake nutrient cycling, and even grizzly bear harvests. In addition, Andy collaborates and publishes with students and faculty on topics such as wind dynamics, ocean acidification, wildfire risk assessment, clouded leopard abundance estimation, sea turtle diving behavior, human/bear encounters, biodiversity and ecological portfolio management, fish ecology, and historical ecology.

Dr. Cooper has worked extensively with federal and regional resource management agencies as well as conservation groups throughout North America. He spent over 10 years on the science and statistical committee that advises U.S. South Atlantic Fishery Management Council and now serves on the same committee for the U.S. Pacific Fishery Management Council.
Sean is a fisheries scientist interested in applying mathematical, statistical, and technology solutions to fisheries stock assessment and management challenges. He has been an Associate Professor (2009) in the School of Resource and Environmental Management at Simon Fraser University since 2002 following a 2-year postdoctoral fellowship at the University of Wisconsin. His academic background includes a B.Sc. Biology/Chemistry (Minor) (University of Massachusetts, Lowell 1993), M.Sc. Oceanography (University of B.C., 1997), and Ph.D. Resource Management and Environmental Studies (U.B.C., 2000).

Sean is currently Director of the Cooperative Resource Management Institute at SFU and co-leads the Fisheries Science and Management Research group with Dr. Andy Cooper. Sean is known within Canada and internationally for his stock assessment modeling expertise and systems design approaches to managing some of North America’s largest and most valuable fisheries including Sablefish, Atlantic Halibut, Pacific Halibut, Pacific Herring, and Pacific Hake. He currently Chairs the Scientific Review Board of the International Pacific Halibut Commission, is the Independent Member of the Pacific Hake Joint Technical Committee, and has served on invited expert review panels for South African Sardine and Hake, Chilean Hoki, Southern Resident Killer Whales, as well as several regional and national Canadian fisheries. He has published over 45 original research articles and technical reports.
Valorie Crooks is a health geographer who specializes in health services research. She currently holds the Canada Research Chair in Health Service Geographies and a Scholar Award from the Michael Smith Foundation for Health Research. The bulk of her research is focused on medical tourism, which refers to the practice of patients crossing international borders in pursuit of private health care.

Funded by a number of research grants primarily awarded by the Canadian Institutes of Health Research, her work in this area is focused on examining the equity, ethical, and safety issues surrounding this transnational global health services practice and its implications in patients’ home and destination countries. In recent years, her research has taken her and members of her research group to Barbados, Jamaica, Guatemala, Belize, St. Lucia, the Bahamas, Mexico, India, Mongolia, Colombia, and the Cayman Islands.
Catherine D’Andrea’s recent research has focused on early agricultural peoples and the rise of complex societies in the Horn of Africa. She has been involved in several ongoing archaeological projects as palaeoethnobotanist, ethnoarchaeologist, and initiated surveys and excavations in northern Ethiopia. Currently she is director of the Eastern Tigrai Archaeological Project (ETAP), an interdisciplinary group which includes participants from Canada, Ethiopia, Italy, USA, Egypt, and Turkey. The team is examining the dynamics of early state formation in northern Ethiopia, concentrating on the pre-Aksumite period (>800-400 BC), and investigating questions of indigenous (East African) vs. imported (Sabaean) cultural influences in both rural and urban settings. Their research group is also consulting with rural farming communities in formulating plans to use local archaeological and cultural resources to support tourism. This initiative will assist rural populations in achieving goals of sustainable economic development, education, poverty reduction, and food security.

Her palaeoethnobotanical work has drawn attention to marginalised and poorly understood crops cultivation and plant management in Africa, including pearl millet, t’ef, fonio, cowpea, emmer wheat, and oil palm. For t’ef and fonio she has proposed an alternate domestication cereal syndrome that differs from the accepted scheme based on Near Eastern cereals. This research has been informed by several years of ethnoarchaeological field studies of crop processing methods practiced by traditional (non-mechanised) farmers of northern Ethiopia, which has enabled her to blend scientific and traditional knowledge in elucidating the domestication history of African cereals. In addition to Ethiopian fieldwork, she is collaborating as a palaeoethnobotanist on research projects based in Ghana, Eritrea, and Turkey.
Dr. Suzana Dragićević has acquired over 25 years of academic experience focusing on geographic information systems and science (GIS), more particularly in the areas of GeoComputation and GeoSimulation. Her research program is theoretically situated within the multi-disciplinary domains of complexity science, computational intelligence, soft computing and GIS for the analysis and modeling of complex dynamic geographical systems. The main objective is to continue advancing scientific understanding and knowledge about the human-environment interactions and mechanisms associated with environmental change processes by developing novel simulation modeling approaches and tools that would improve decision-making and management. Application areas include land-use/land-cover change, urban growth, forestry, landscape ecology and their relationships to overall environmental planning and management. The research is conducted in the Spatial Analysis and Modeling (SAM) Research Laboratory at the Geography Department, SFU, that has been established since 2001 as an excellent collaborative hub for training students at all levels. Dr. Dragićević has published over 70 peer-reviewed papers and book chapters, conference papers, encyclopedia entries, journal editorials and book reviews. She co-edited the books “Collaborative GIS” (Idea Group Inc., 2006) and “Advances in Web-based GIS, Mapping Services and Applications” (CRC Press, 2011). In addition, Dr. Dragićević is co-editor of the Springer book series on “Advances in Geographic Information Science”; associate editor for the Landscape and Urban Planning and the Geomatica journals; member of numerous international journal editorial boards and international conference program committees. She is involved as director of the SFU Esri Canada Center of Excellence (ECCE) established in 2014 as one of seven across Canada forming a GIS research network.
Dr. Biruté Mary Galdikas has been studying wild orangutans for over 44 years at her Camp Leakey study area in Tanjung Puting National Park, Kalimantan Tengah, Indonesia. With the exception of Jane Goodall’s work, Dr. Galdikas’ research is the longest continuous study of any single wild mammal population undertaken by a principal investigator.

Dr. Galdikas is the co-founder and President of Orangutan Foundation International (OFI), a non-profit with sister organizations in Canada, Europe, Indonesia, and Australia. She leads OFI’s work and spends up to half the year in Kalimantan at the Orangutan Care Center and Quarantine, Camp Leakey and other facilities she has established in Borneo. Dr. Galdikas and OFI are fighting the threat of orangutan extinction which is mainly due to the destruction of tropical rainforests, the orangutan’s only habitat. Dr. Galdikas teaches half time at Simon Fraser University where she is a Full Professor. She has received many awards and honors including Officer of the Order of Canada, the Tyler Award (sometimes said to be precursor to the Nobel), and Kalpataru award from the President of Indonesia.
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Alison Gill is a Professor at Simon Fraser University with a joint appointment in the Department of Geography and the School of Resource and Environmental Management.

Alison’s research has for many years focused on issues of growth and change associated with tourism in mountain resort communities. Institutional arrangements and the politics of place are important theoretical constructs underpinning much of her work on tourism and the transformation of place.

Over the past four years, she collaborated with her colleague, Dr Peter Williams, together with a team of graduate students in the School of Resource and Environmental Management, on a SSHRC-funded project entitled “Rethinking governance in resort communities”. Using the resort of Whistler as a case study, she is examining factors that serve as both catalysts and constraints in the resort’s ‘journey towards sustainability’. Theoretically, this research adopts the lens of evolutionary economic geography (an emerging perspective in economic geography) to understand the underlying forces of path dependence and path creation and the resulting contested domain of resort destination governance. Overall, the research seeks to offer new insights into how destinations can proceed towards a more sustainable future.
Dr. Gobas’ research is focused on the environmental behaviour and effects of pollutants. His research investigates how pollutants are taken up by wildlife and humans; how pollutants move through ecosystems; how pollutants cause health effects; and how damaged environmental systems can be remediated.

Dr. Gobas is an environmental toxicologist with expertise in chemistry, chemical engineering and biology. His food-chain bioaccumulation models have been adopted by Environment Canada for bioaccumulation categorization and by the USEPA for water quality guideline development and pesticide registration. Dr. Gobas has worked with government agencies and industry in Canada and the US and with international organizations on regulatory issues related to the fate and exposure of environmental contaminants in wildlife and human populations. He has also been involved in several contaminant fate and exposure studies on Super Fund sites in the US.

Dr. Gobas has been a member of the UN Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) (This is the scientific advisory body of the IMO, FAO, UNESCO, IOC, WMO, WHO, IAEA, UN and UNEP on global marine environment & protection), a Member of the Aquatic Life Criteria Panel of the US-EPA Science Advisory Board and a Member of the Science Advisory Board for Contaminated Sites in British Columbia.
Dr. Gunton heads the Sustainable Planning Research Group. The research program is currently focused on assessing the environmental, social and economic impacts of major natural resource projects on BC First Nations. The research group has been working with First Nations to assess the impact of two major oil pipeline projects: The Enbridge Northern Gateway and the Kinder Morgan Trans Mountain project. A new multiple accounts evaluation methodology was developed to assess the risk and public interest impacts of oil pipelines and assessments were completed of the two pipelines and submitted as evidence to the National Energy Board on behalf of First Nations and environmental groups. Research is also being conducted to evaluate the regulatory process of reviewing pipeline projects and to identify new collaborative approaches to planning major projects.

A second research area is working with First Nations to assess the impacts of proposed Liquefied Natural Gas Projects (LNG) in BC through a 4 year $400,000 research grant. The focus of the research is developing new methods for cumulative impact assessment of LNG that assesses social, environmental and economic impacts and developing impact benefit agreements between First Nations, LNG companies and government. The research is being used by First Nations in their assessment of LNG proposals in their territories.
Dr. Pascal Haegeli is a renowned expert in avalanche safety research working on projects in Canada and worldwide. He joined the School of Resource and Environmental Management as an Assistant Professor in the fall of 2015 and is one of the newest members of our Faculty.

Every winter, an average of 11 people are killed in avalanches in Canada and about 250 worldwide. The objective of Dr. Haegeli’s research is to develop evidence-based tools that assist backcountry recreationists and avalanche professionals to make better informed decisions when preparing for, and travelling in, avalanche terrain. Since avalanche safety includes both natural and human aspects, Dr. Haegeli’s research is situated at the interface between the natural and social sciences. His interdisciplinary research team uses approaches and methods from a wide variety of fields including atmospheric science, snow science, geography, GIS, risk analysis, decision-making science, communication, psychology, sociology, accident analysis, public health and medicine.

Some of the highlights of Dr. Haegeli’s prior research and development activities include: the development of the Avaluator, a decision aid for amateur recreationists travelling in avalanche terrain; and an examination into the effectiveness of avalanche airbags and the complete redesign of the InfoEx, the daily information exchange among Canadian avalanche safety operations.

Dr. Haegeli’s research is conducted in close collaboration with key stakeholders of the Canadian avalanche community including CP Rail, HeliCat Canada, Avalanche Canada, Avalanche Canada Foundation and the Canadian Avalanche Association.
Wolfgang Haider was a professor and Director of the School of Resource and Environmental Management at Simon Fraser University. He was also Director of the Centre for Tourism Policy and Research. Prior to his appointment at SFU in 1998, he spent eight years as Social Research Scientist at the Centre for Northern Forest Ecosystem Services of the Ontario Ministry of Natural Resources in Thunder Bay, Ontario.

Wolfgang’s research focused on the human dimensions in resource management with a specialization in outdoor recreation and nature-based tourism, and in conservation and protected areas management. Methodologically, he was well known for stated preference and choice modelling, a skill set which has proven highly relevant to many research questions. He was principal investigator of a recently awarded SSHRC grant ($480,000) on exploring non-utility maximizing utility modeling. These choice models often constitute the social component of coupled social – ecological systems, and therefore further refinement of choice modelling is crucial. Under this grant, his research group will have developed coupled models for the recreational fishery for rainbow trout in BC, and for conservation strategies of an international migratory species between Mexico and Ontario, the monarch butterfly.

Wolfgang authored and co-authored over 80 peer reviewed papers and book chapters, and was the Founding Editor-in-Chief of the Journal of Outdoor Recreation and Tourism, published by Elsevier.
Roger Hayter is wrapping up a research project that has explored the evolutionary dynamics of British Columbia’s forest industries since 1980. This project has examined location, employment and organizational trends in these industries across the Province, estimated entry and exit rates for industry sub-sets, assessed how lumber firms have responded to the impacts of the US-Canada softwood lumber dispute, and provided insights into the location and environmental behaviour of small so-called “value-added” firms.

David Edgington (UBC) and Dr. Hayter are in the final stages of a project that has examined the location dynamics of Japanese electronic MNCs in Asia since the 1960s. They have basically examined the entry of these firms in various Asian countries, the extent to which they have adjusted their operations since entry, and the implications for the evolving spatial division of labour.

With Alex Clapp, a new project is exploring the (changing) nature of science and innovation in BC’s forest industry; so far this project has focused on changes in the governance of forestry in the Great Bear Rainforest. It will be Dr. Hayter’s main focus over the next two years.

With Jerry Patchell, they are conducting some unfunded research into the role of MNCs in global climate-mitigation strategies.
Nick Hedley and his team design and develop geovisual interface technologies to simulate, analyze and interactively explore complex geographic phenomena.

His group focuses on the development of virtual and augmented reality environments for geovisual analysis and communication in a wide range of geographic contexts: 3D hazard simulation; 3D kelp-ocean-debris dynamics; tsunami risk perception/communication; AI crowd simulation; 3D urban geovisual analysis; drone space; 3D archaeological analysis; climate change impacts.

Recent technical innovations include flexible mixed reality, Citizen Risk; CLIVE; geovisual lensing, situated simulation and geospatial x-ray vision. These have led to new theoretical constructs with which to understand spatial analysis and communication mediated by 3D visual interfaces, virtual environments and mixed reality.

His recent activities include: sent to New Zealand as a member of an NSF-funded expert team to study data use and visualization in post-earthquake Christchurch; testing new tsunami risk assessment methods in Wellington, NZ, Seaside, Oregon and Ucluelet, BC; co-author of a funded major project with Parks Canada/Pacific Rim National Park Reserve to enhance coastal safety; development of the award-winning CLIVE 3D climate change visualization tool; a new funded project to build climate change visualization tools for First Nations communities in BC, combining coastal vulnerability analysis, First Nations knowledge capital and archaeology.
Meg Holden’s major research project from 2014-2019 is called Ecourbanism Worldwide, funded by the Social Sciences and Humanities Research Council of Canada. Ecourbanism Worldwide expands upon a two year Research Development Initiative, called Critical Comparative Urban Sustainability, that examined the ways in which understandings of the failures and successes of new urban waterfront redevelopment projects in Vancouver and Melbourne were contextualized, argued, and brought to bear in their specific multi-actor contexts.

Ecourbanism Worldwide is creating a global compendium of neighbourhood-scale model sustainable development initiatives and conducting case study research into the outcomes of these developments in terms of the opportunities they may offer for new ways of life in the city. The project takes a qualitative approach, aiming to examine the diversity of perspectives across the wide range of urban actor types involved in bringing to life, justifying, and critiquing these new pieces of city.

She also is active in research partnership projects in the Vancouver Metropolitan area that focus on developing more reliable, longitudinal data sets related to housing development, and reporting that sheds light on relationships between municipalities and home builders in the residential development industry (the Getting to Groundbreaking project), and that examine opportunities for infill housing development that is sensitive to ecological, social, and economic concerns that this form of housing development creates (the Redefining Infill project). She supervises graduate students in a range of research areas related to urban sustainability, urban planning, urban development policy, public participation processes, and resilience and transitions thinking.
Mark has been professor in the School of Resource and Environmental Management at Simon Fraser University, Vancouver, since 1986 – interrupted from 1992-97 while he served as Chair and CEO of the British Columbia Utilities Commission. His PhD is from the Energy Economics and Policy Institute at the University of Grenoble.

Internationally, Mark is known for his work on the Intergovernmental Panel on Climate Change (1993-96, 2008-09), the China Council for International Cooperation on Environment and Development (1994-2001, 2008-09), most recently as co-chair of a task force on sustainable coal use which reported to the Chinese Premier, and the Global Energy Assessment (2007-2012), where he served as convening lead author for sustainable energy policy. He was a member of Canada’s National Roundtable on the Environment and the Economy (2006-2009) and is a research fellow at the CD Howe Institute. He has over 100 academic publications. His 2005 book, Sustainable Fossil Fuels, won the Donner Prize for best policy book in Canada. Mark was named 2008 Academic of the Year by the association of British Columbia faculty members.

In 2009, he was named a Fellow of the Royal Society of Canada. In 2013, Mark gave testimony to a committee of the US Congress in Washington DC, and also appeared before parliamentary committees in the UK in London and the EU in Brussels. His research especially focuses on the development and application of energy-economy models that simulate the likely effects of sustainable energy policies. Mark has advised governments, industry and non-government organizations around the world.
As a historical archaeologist, Ross Jamieson’s research focuses on the colonial period in the highlands of Ecuador, South America. Since 2004 he has been working in the Colta region of the central highlands. Their excavations there have revealed the remains of the colonial city of Riobamba, destroyed by an earthquake in 1797, including the remains of the colonial hospital, several monasteries and convents, and a number of houses.

In 2014, he became a co-investigator on a project to look at the historical ecology of a 19th century sugar plantation on San Cristóbal Island in the Galapagos. Run partially with prison labour from the mainland, this plantation profoundly changed the ecology of the island, and our excavations there are aimed at revealing these ecological effects, as well as the daily lives of the workers who laboured there. He has also recently begun a project to study the historical archaeology of the City of New Westminster, here in British Columbia. This is a project involving student volunteers from the Archaeology Department, and so far they are working on initial setup of GIS data to understand the urban dynamics of New West, with the aim to eventually conduct excavations at various places in the city.
Paul Kingsbury’s research mainly engages the social and spatial theories associated with Jacques Lacan and Friedrich Nietzsche to explore two interrelated cultural geographies.

First, the psychoanalytic geographies of people’s lives in terms of the entanglements of the psyche and social, that is, collective modes of embodied doing, feeling, and thinking. This research investigates how, why, and where people’s desires, enjoyment, fantasies, and anxieties are not simply located “inside” their heads, but rather are materially externalized in the lived socio-spatial practices of tourism, consumption, and nationalism. Second, the aesthetic geographies of people’s embodied feelings, sensory evaluations, and judgments of taste in the context of popular music, multicultural festivals, a Sherlock Holmes literary society, and Google Earth.

He has also recently begun a project that examines the growth of paranormal investigation cultures by conducting a study of organizations in British Columbia and conferences across North America. Despite the formation of a modern and secular society, throughout the world, there has been a surge in beliefs, practices, and experiences associated with the paranormal. Central to these new paranormal cultures is the increase in popularity of paranormal “scientific” investigation organizations and conferences that study anomalous phenomena, in particular ghosts, UFOs, and “monsters” such as Sasquatch. Using scientific models, rhetoric, and techniques, these organizations and conferences have resulted in the democratization of paranormal investigation and greater availability of paranormal experiences for a significant number of people.
Engaging a Sustainable World
To be the leading Faculty of Environment defined by its engaged and innovative contributions to shaping a just and sustainable world.
The Faculty of Environment’s core values support:

- An understanding of “environment” as consisting of both natural and built landscapes and constituted by the intersection of social and biophysical processes;
- A positive, hopeful vision of a just and sustainable world;
- Care and respect for plural communities as well as broader ecosystem needs;
- Creative, impactful, academically rigorous, collaborative, discipline-based as well as interdisciplinary approaches to teaching, learning and research;
- Community engagement as integral, rather than supplementary to, all environmental research;
- A teaching and learning environment that is rewarding and inspiring to students, staff, faculty, alumni, sponsors and all community members;
- Activities at all levels, from hiring practices to research engagement, that promote social and environmental justice, equity and well-being.
Duncan Knowler is an ecological/environmental economist with extensive experience in the fields of natural resource economics and environment and development. His research interests include the economics of natural resource management in developing countries, valuation of environmental resources and applied bioeconomic modeling, including a more specific focus on sustainable agriculture and sustainable aquaculture. His research has included studies of nutrient enrichment and commercial fisheries in the Black Sea, the economics of invading species, the prospects for community wildlife management in Nepal and Mexico, prospects for conservation of the one-horned Indian rhino, the sustainability of shrimp-mangrove systems in India and valuing the preservation of fish spawning and spotted owl habitat in Western Canada.

More recently, the emphasis on sustainable food production systems has seen his involvement in the Canadian Integrated Multi-trophic Aquaculture Network (CIMTAN), funded by an NSERC Strategic Network grant. This research has concentrated on the market implications of introducing more sustainably raised salmon in BC, the economics of such technologies and the value BC residents place on improved environmental conditions at aquaculture sites. His research relating to sustainable agriculture concerns conservation agriculture, a more environmentally friendly farming technique championed by FAO, where he was employed before returning to academia. A highly successful article relating to this research has been extended to cover new modeling approaches as a PhD project. At present, he is spending a year in Spain as an Ikerbasque Visiting Fellow at the University of the Basque Country while on sabbatical, where he has been focusing on modeling and management research relating to the migratory European white stork.
Karen is an associate professor and Tier-2 Canada Research Chair in Climate, Resources, and Global Change in the School of Resource and Environmental Management. Her PhD is in paleoceanography from Columbia University (NY, USA). Internationally, Karen is known for her work in Earth Systems science and global carbon cycling.

She has focused on understanding the role of atmospheric dust, ocean productivity, and ocean circulation in long-term global climate change, using global datasets to test climate models. Since joining REM in 2006, Karen formed the Climate, Oceans, and Paleo-Environments (COPE) laboratory where she also focuses on regional changes in climate and the carbon cycle. Through collaborations with Metro Vancouver, Fisheries and Oceans Canada, Parks Canada, and BC Hydro, she involves students in projects relating to changes in wind speed and extreme weather behavior, ocean acidification, and climate-related shifts in fire frequency and carbon storage in terrestrial ecosystems.

Karen has contributed to the Intergovernmental Panel on Climate Change and the Millennium Ecosystem Assessment, and has been invited to co-convene or serve as keynote speaker at more than 30 international conferences and workshops, including recent invitations by the Royal Society of London and the Leopoldina German Natural Academy of Sciences.

Karen is actively involved in mentoring young scientists. She has been a member of the Earth Science Women’s Network since 2006, mentors students through the Mentor.net program since 2009, and has supervised more than 25 undergraduate and high school students since 2006.
Understanding the heterogeneity in biophysical controls of fire regimes and the ecological outcomes of burning are critical for our efforts to conserve biodiversity and grow a sustainable view of fire by society. Research in the Landscape and Conservation Science Research Group focuses on drivers and outcomes of modern-day landscape fire, under the umbrella best characterized as pyrogeography.

Pyrogeography includes the study of natural and social aspects of fire across multiple spatial and temporal scales, and though much of her work is weighted towards understanding the natural science, Meg’s research walks the boundary between ecological and social systems and feeds into the management of forests and of fire.

Her research program largely falls in the context of temperate and boreal pine-dominated ecosystems of northern/western Canada and the northwest United States, focused on four main interests: i) short-interval disturbance ecology, ii) biophysical constraints on fire, iii) fire refugia and the role of unburned patches, and iv) conservation planning. Her science uses a mixture of field-based collections and analysis of existing data to provide cool insight to hot ideas!
Dana Lepofsky is an archaeologist interested in the many dimensions of human-environmental interactions. Her research program is focused on documenting ancient resource and environmental management systems of Northwest Coast Peoples.

She is fortunate to collaborate with and learn from First Nations knowledge holders throughout the coast and academic researchers from diverse disciplines. She has learned that true collaboration means working past the fundamental differences in language, culture, and worldview that are common among both academics and non-academics. Furthermore, creating innovative, non-trivial ways of integrating knowledge is requisite for documenting ancient forms of resource management.

As an archaeologist, she has the natural and social science training and experience to facilitate this kind of cross-fertilization of ideas. She is particularly interested in situating the ecological knowledge of the past in current social and ecological contexts.

Her research on traditional management systems is focused on ancient clam gardens in Quadra Island (in Coast Salish and Kwakwaka’wakw territories) and in the Central Coast (in Heiltsuk territory, www.clamgarden.com), the use and management of herring (www.pacificherring.org), and documenting management and use in culturally valued landscapes in Heiltsuk and Gitga’at territories.
Ken Lertzman is a forest ecologist interested in a broad range of topics related to ecosystem dynamics, conservation, and management. He has a specialty in the dynamics of temperate rainforests and his work focuses on interactions between people and the landscapes they depend on. Understanding the complex interactions between natural disturbances, changing climate, and people in shaping forests over space and time has been a consistent theme through his career. Ken works in close partnership with coastal First Nations communities, trying to identify strategies for sustainability that respect cultural traditions, the needs of people living on the land, and which are grounded in ecological science.

Current projects focus mainly on the Central Coast of British Columbia (the “Great Bear Rainforest”). Ken works in collaboration with a team of other researchers at the Hakai Institute on a large-scale, multi-disciplinary project examining how pattern and dynamics of forests in the hyper-maritime landscape are reflected in watershed biogeochemistry, and how this in turn influences near-shore marine ecosystems. The other primary focus of Ken and his students on the Central Coast is challenges in the design and implementation of Ecosystem-Based Management. Research on EBM includes work examining how diverse types of cultural and ecological information can be integrated into the landscape planning process, assessing forest practices, conservation strategy, and policy and management options for enhancing local benefits from the forest.
Lance Lesack’s research has focused on limnological, biogeochemical, and hydrological processes in lakes, large rivers, and streams. He has particular interest in the ecology of floodplain lakes associated with major world rivers, ranging from their basic hydrology to their food-web configurations and energy sources sustaining them. Past work has involved rivers in West Africa and the Amazon. His present efforts are focused on lakes in the Mackenzie River Delta (western Canadian arctic) and the responses of this system to the multiple stresses of global change.

Lakes associated with large river floodplains are among the most hydrologically complex, biologically productive, and biodiverse freshwater habitats in the world. They also face a wide range of threats and remain poorly understood because such systems represent vast areas of habitat world-wide, and global change is modifying the complex water level regimes that created these systems. The Mackenzie Delta is the second largest river floodplain (13,000 km², 45,000 lakes) of the circumpolar Arctic coast, and a key ecosystem of the Canadian north because it functions as a biological hotspot relative to the surrounding Arctic landscape. Lesack’s long-term goal is to tease apart the varied mechanisms that create such complex aquatic ecosystems and understand how such systems may respond resiliently or in surprising ways to multiple stresses of global change.

The International Polar Year (2007-2009) led to expansion of Lesack’s Mackenzie Delta research and an on-going collaborative project to improve understanding of riverine nutrient fluxes from the great Arctic rivers to the rapidly changing ocean.
Geoff Mann is a Professor in the Department of Geography, and the Director of SFU’s Centre for Global Political Economy. He is interested in the political economy of contemporary capitalism. His current research has two main concerns: (1) the theory and practice of modern macroeconomic governance/regulation; and (2) the relationship between capitalism, the state, and global climate change.

Currently, the first takes the form of a book on the many lives of Keynesian economic policy and theory. Originally based in an investigation of the return of Keynesian ideas in the wake of the financial meltdown that began in 2007-2008, the book analyses the relationship between the liberal capitalist democratic states and poverty since the French Revolution.

The second concern motivates articles co-authored with Dr. Joel Wainwright of Ohio State University which examine the political challenges raised by the specifically planetary nature of climate change. These articles, which dissect the problem of “Climate Leviathan”, laid the groundwork for a book currently underway, focusing on the problem of planetary sovereignty that confronts contemporary state-centred climate regulation.
Sean Markey is Associate Dean, Faculty of Environment, and an Associate Professor with the School of Resource and Environmental Management at Simon Fraser University. Sean’s research concerns issues of local and regional economic development, community sustainability, rural development, and sustainable infrastructure.

There are a variety of research themes to Sean’s current work in both rural and urban communities. Under the umbrella of rural development, Sean is working with Canadian and international colleagues and communities to investigate rural policy to support resilient and vibrant rural communities, and to better understand the impacts of an increasingly mobile resource sector workforce on rural towns. In the urban setting, Sean is working with colleagues and community partners to implement an ecosystem-based conservation plan within an urban watershed, seeking to understand how we can bring nature back to the city.

Sean has published widely in academic journals and is the co-author of Investing in Place: Economic Renewal in Northern British Columbia (UBC Press 2012) and Second Growth: Community Economic Development in Rural British Columbia (UBC Press, 2005); and co-editor of Seeds of Transition: Convergence of the Social Economy and Sustainable Community Development (Athabasca University Press, forthcoming), and The Next Rural Economies: Constructing Rural Place in Global Economies (Cabi Press, 2010). Sean continues to work with municipalities, non-profit organizations, Aboriginal communities and the business community to promote and develop sustainable forms of community economic development.

He serves on the Board of Directors with the Vancity Community Foundation, and is on the Board of the Canadian Rural Revitalization Foundation.
Eugene McCann is an urban geographer whose research focuses on the political struggles, strategies, practices, and negotiations that characterize urban policy-making. His current focus is on developing the ‘policy mobilities’ approach in urban studies. This burgeoning literature identifies and conceptualizes how ‘best practice’ models of urban governance are made mobile through the actions of various policy actors. He researches how the circulation of policy models represents the practical work of constituting “urban globalness” while also highlighting the politics of urban policy-making.

His main focus is his long-term analysis of the emergence, development, and travels of the Harm Reduction drug policy model – and specifically the model of the Drug Consumption Room, or Supervised Injection Facility – among cities. He also studies ‘Vancouverism’ as a globally-renowned and globally-mobile set of planning strategies, intended to create more sustainable urban built environments. Beyond this work, he has a longstanding interest in the politics of urban development and public space. More recently, has developed an interest in the central relationship between food and “foodscapes” in urban environments, in collaboration with SFU Geography Adjunct Professor, Dr. Christiana Miewald.

He has published three books: Urban Geography (Wiley-Blackwell, 2015, authored with Andrew Jonas and Mary Thomas), Cities and Social Change (Sage, 2014, edited with Ronan Paddison), and Mobile Urbanism (Minnesota, 2011, edited with Kevin Ward) and over 50 journal articles and book chapters. He also edits the journal Geography Compass: Urban.
The research program of Dr. Jonathan W. Moore focuses on the conservation, management, and ecology of aquatic systems. In addition to the PI, the group generally consists of several undergraduate technicians, masters and PhD graduate students, and often a postdoctoral researcher or two. Much of their research focuses on coastal systems, primarily in BC’s rivers, their watersheds, and estuaries.

His research group works with diverse partners and collaborators. Through a variety of approaches, ranging from field-intensive work out on the boats with local communities to analyses of large datasets, the lab aims to do scientific research that not only illuminates the way that these natural systems work, but also informs important decisions and management practices. For example, much of their research focuses on the ecology of Pacific salmon and the sustainability of their populations and fisheries. The Pacific salmon life-history unfolds over hundreds if not thousands of km, connecting vast watersheds with the oceans. By understanding what influences Pacific salmon populations, their research can help inform decisions and management practices that enable salmon and salmon fisheries to continue to thrive. More broadly, he is interested in the relationship between people, water, and biodiversity.
Since 2008, George has directed the Intellectual Properties Issues in Cultural Heritage (IPinCH) research project, a $2.5 million, eight-year SSHRC Major Collaborative Research Initiative that explores and facilitate fair and equitable exchanges of knowledge relating to archaeology and heritage. This investigation of the intangible and tangible aspects of cultural heritage, and their implications for local and global interpretations of culture, rights, and knowledge, is being undertaken by an international, interdisciplinary collaboration involving more than 50 scholars, and 80 Associate members.

Through IPinCH, he is currently working with community partners from around the world, including, in North America—the Sto:lo, Secwepemc, and Yukon First Nations, the Hopi, Saginaw-Chippewa, Penobscot, and Penobscot Tribes, and Inuvialuit; and elsewhere—Indigenous groups in Japan, Australia, New Zealand, southern Africa, and Kyrgyzstan.

In 2013, he was the recipient of the inaugural Impact Award for Partnerships by the Social Sciences and Humanities Research Council.
Current Research Project
Mount Ainos and its Changing Socio-Ecological System: Retrospect and Prospect

It has been just over 50 years since the creation of Mount Ainos National Park on the island of Cephalonia. The park itself and the potential identification of a specially managed periphery zone is an effort to preserve one of Greece’s, and for that matter the Mediterranean region’s, most important and valued ecological systems and biogenetic reserves.

In this project, John T. Pierce and his colleagues examine a number of questions relating to natural and human induced threats to the resilience of the ecosystem as well as the success and efficacy of previous protective efforts. Building upon this multi-dimensional and interdisciplinary evaluation, they offer possible changes, if not innovations, to the collective management of Ainos as a protected area and its environs, particularly the immediate periphery zone, within the context of an increasingly complex constellation of forces.

These forces include new and diverse stakeholders; government uncertainty (within a context of economic recession and increasing social tensions); emergent interests/rights; and evolving interpretations of the values of ecosystems that are quickly reshaping traditional ties among the social, ecological and management systems. At the same time, this new complexity is matched by new dynamics in vegetation and landscape responses which have their own unique challenges for understanding, management and long term sustainability.
For many years, Evelyn Pinkerton has been developing and refining theories of co-management of natural resources, especially fisheries: under what conditions does co-management arise and flourish? In the last few years, this focus has been enlarged to include how co-management arrangements respond to the ruling political ideology of our time: neoliberalism.

After co-editing one special issue of Marine Policy – currently in press – on the impact of neoliberal policies on small-scale fisheries in North America (contributing an article and co-writing the introduction), she is preparing to edit a second special issue on the same topic but this time global in scope. This process takes about a year and involves extensive research, editing, and reviewing of over 20 papers. The required research analyses how higher-level neoliberal political processes interact with local and regional processes. The latter two are usually efforts by local and regional institutions to co-manage adjacent fisheries based on local values and concerns for a sustainable flow of benefits to local communities. Local and regional co-management efforts are thus usually seats of resistance to neoliberal policies which seek to economize and marketize natural resource usage.

However, there are curious forms of convergence between neoliberalism and co-management, since the former embraces deregulation and the latter aspires to self-regulation. Thus current research builds upon Dr. Pinkerton’s past history of co-management research and expands it to consider the larger political economy picture. She is also involved in case study research on this topic in Kyuquot, in the Broughton Archipelago, and in Prince Rupert.
Rudy Reimer is an Indigenous Archaeologist from Skwxwú7mesh Úxwumíxw (Squamish Nation) who likes to implement Indigenous phenomenology of places, artifacts, lithic sources, plants and animals into his research.

This culturally informed approach is both self-reflexive and seeks to return cognitive geography/sense of place and being to people in the Squamish Nation community. He uses oral history and traditions that link people to places and through fieldwork and analysis to gain a nuanced understanding of the modern and ancient worlds. He likes to research with a technique called X-ray Fluorescence that gives an elemental finger print of almost any material placed in front of it. Examination of numerous items and sites allows for both unifying cultural and scientific knowledge and making comparisons. He blends perspectives of western academic scholars and compares them to his own and other Indigenous researchers. He does this using examples and exercises to promote an Indigenous worldview.

His research projects practice minimal impact on the sites he chooses to work on and he prefers to use existing excavation/museum collections. He also pushes for the integration of Cultural Resource Management data into the academic understanding of these areas and the standards of practice related to data recovery and analysis. Within these standards of inquiry, he focuses on possible explanations of intangible or seemingly unexplainable phenomena including rock art, First Nations beings, and landscape features that often lay outside standard archaeological explanations.
When the UN’s Millennium Development Goals expire in 2015, they will be replaced by a post-2015 UN development agenda called the Sustainable Development Goals (SDGs). The SDGs include a new focus on communities and human settlements, proposing to “make cities and human settlements inclusive, safe, resilient, and sustainable.” The inclusion of cities and human settlements in the new UN development agenda marks a turning point in global efforts to address sustainability issues, highlighting the need to develop integrated responses to international challenges on a local and regional level.

Mark Roseland’s research group seeks to further the theory and practice of local community development in Canada and internationally. While there is an emerging body of literature and case studies that address the many elements of sustainable community development, more work is required to build theory, develop themes through case studies, and create a common body of knowledge that can be disseminated and built upon by both researchers and practitioners. The recognition of human settlements as critical elements in the path toward global SDGs provides the impetus for the team’s renewed efforts to advance both theory and practice in this maturing field.

Key allies in these efforts include Pando | Sustainable Communities (www.pando.sc), an online researcher-practitioner collaboration platform, and ICLEI – Local Governments for Sustainability (www.iclei.org).
Murray Rutherford is a policy scientist whose research focuses on the human dimensions of environmental policy and planning, and particularly on the values, perspectives, and institutions that shape and govern our relationships with the environment. He uses qualitative and quantitative methods to examine conservation problems and evaluate policy-making processes and outcomes. Recent publications include:


Dr. Rutherford is currently engaged in a major collaborative research project with the Metlakatla First Nation, on strategic planning for cumulative impact assessment in Metlakatla territory. He is also involved in research on watershed planning and biodiversity conservation policy. He is the Director of the new Pacific Water Research Centre in the Faculty of the Environment.
Anne Salomon is an applied marine ecologist and assistant professor at Simon Fraser University’s School of Resource and Environmental Management. She has dedicated her career to advancing our understanding of how humans alter the productivity, biodiversity and resilience of coastal marine ecosystems with the ultimate goal of informing ecosystem approaches to marine conservation.

Anne’s research program lies at the nexus of community ecology, anthropology, archaeology and marine conservation policy. Her research has revealed insights into the cascading effects of predator depletion and recovery, alternative state dynamics in kelp forest ecosystems, marine reserve design, and the factors that confer resilience to coupled social-ecological systems. Much of her work involves collaborating with coastal indigenous communities to design research projects aimed at devising solutions to pressing coastal conservation problems. Understanding the dynamics of social-ecological systems necessitates a combination of approaches. To meet this challenge, Anne and her students foster research partnerships with natural and social scientists, take an interdisciplinary approach to much of their work, and use a combination of tools and data types, including manipulative field experiments, large-scale regional surveys, quantitative models, stable isotopes, satellite remote sensing, archeological data, historical records and traditional knowledge.

Anne is motivated by the sense that meaningful marine conservation outcomes can only be achieved by engaging coastal communities, stakeholders and government agencies in constructive dialogue and collaborative research. Anne is a strong advocate for science-based ocean policies and practices and has been actively involved in marine conservation science and policy for over 15 years.
Dr. Margaret Schmidt’s research program consists of two main areas: predictive mapping and modelling of soil type and soil properties at a regional scale; and studying the impacts of deciduous trees growing among conifers on nutrient cycling and site productivity.

Dr. Schmidt’s ongoing digital soil mapping research includes: comparing various machine learning techniques for mapping soil types; and developing predictive maps of parent material, exposed bedrock cover, and soil properties such as soil texture and available water holding capacity using machine learning techniques at a regional-scale. Current spatial soil information is limited in extent and in quality and Dr. Schmidt’s research program is providing improved methods for increasing the availability of crucial soil and land information for environmental modellers and land managers.

A second major focus of Dr. Schmidt’s research concerns the impact of various deciduous trees on soil properties, nutrient cycling, and conifer growth. Dr. Schmidt and her research group have studied species-specific impacts of bigleaf maple, black cottonwood and vine maple growing within conifer forest of southwestern British Columbia. The research suggests that these deciduous species have the potential to increase nutrient availability in deciduous-conifer mixed stands, and they may be desirable species in temperate coastal forests. Dr. Schmidt’s research program is providing important knowledge concerning the role of deciduous species within conifer forest. This information will be increasingly important as there is evidence that the areal extent of the studied deciduous species may increase along with global warming.
Dr. Schuurman is a GIScience researcher whose work focuses on spatial epidemiology: understanding the spatial distribution of health events and health services in support of improved population health and health care provision. Since 2002, her research has focused on the application of GIS to bettering our understanding of health conditions (e.g., severe injury/trauma) and health services resource allocation (e.g. rural maternity services).

She is also involved in global health research in South Africa – a project which seeks to reduce traumatic injury. In all cases, her goal is to generate policy-relevant evidence to assist health policy makers and administrators understand and rationalize choices in support of improved prevention and treatment of disease, and better access to care. Dr. Schuurman’s research focuses on providing a spatial perspective on the location of health and social services.
Ingrid Leman Stefanovic is a Professor at the School of Resource and Environmental Management, and Dean of the Faculty of Environment. While holding a Ph.D. in Philosophy from the University of Toronto, her career has been strongly interdisciplinary, exploring how different ethical assumptions, value systems and paradigms affect public policy, planning and environmental decision making. A previous research project explored values and attitudes of hikers and bikers along the 600+ km-long Lake Ontario Waterfront Trail. The study also examined children’s perceptions of nature in the city, confirming the importance of experiential education as a condition of more informed and discerning environmental awareness.

Currently, a SSHRC-funded research project, entitled “Interpreting Interdisciplinarity: The Case of Environmental Studies”, addresses shifting paradigms in environmental education at Canadian universities. Drawing from interviews, surveys and archival research, the aim is to identify changes in environmental programming from the 1970s to present day, in order to recommend best practices for environmental education at Canadian universities in future. A second SSHRC-funded project investigates “Water Ethics and Public Policy” and will result in an edited book collection on that topic to be published by the University of Toronto Press. Recent books include Safeguarding Our Common Future: Rethinking Sustainable Development and a co-edited volume entitled The Natural City: Re-Envisioning the Built Environment. A monograph entitled Shaping the Natural City is in preparation.
Janet Sturgeon is a China scholar fluent in Mandarin Chinese. Her work focuses on ethnic minority peoples’ access to and control over natural resources in Xishuangbanna (China), and on cross-border dynamics for minority peoples in the Golden Triangle, now known as the Golden Economic Quadrangle within the Greater Mekong Sub-region.

Her book, Border Landscapes: The Politics of Akha Land Use in China and Thailand, traces minority peoples’ inclusion in the dramatically different regimes of China and Thailand from the 1930s to 1997, as well the cross-border dynamics with Burma for Akha living in China and Thailand. The book contributes to the theorization of borders in Southeast Asia. An Akha village in China has been her long-term research site, resulting in articles problematizing indigenous knowledge, local village elections, state policies for reforestation, poverty alleviation, and the introduction of cash crops.

Research in the lowlands of Xishuangbanna funded by an NSF grant enabled her to study the uptake of rubber and bananas as cash crops that have unexpectedly made “backward” minorities rich by urban Chinese standards. A SSHRC grant on governing minorities and development resulted in articles on rubber cultivators, showing how their wealth challenges ethnic hierarchies in China and allows rubber farmers to see themselves as more “modern” than their “backward” relatives in Laos. Their actions both unsettle the state and reify the nation. Her current work examines transformations in land use and identity for Xishuangbanna minorities, upland and lowland, through globalization and enclosure within the Chinese ideology valuing wealth and modernity.
Jeremy Venditti is an environmental earth scientist. His primary interests are in the geomorphic and sedimentary processes that shape Earth’s surface. He works at a range of temporal and spatial scales from detailed examinations of sediment dynamics occurring over fractions of a second in laboratory channels to monitoring inter-annual river and watershed responses to anthropogenic impacts.

The theme of his research throughout his career has been erosion and sedimentation processes, particularly in river channels. He uses a spectrum of research approaches, including field observation and experimentation, physical modeling in laboratories, development of theoretical models, and numerical simulation.

His most recent work has been on 1) the coupling between the uplift of mountains ranges, climate and bedrock incision, 2) the dynamics of the Fraser River and Delta, 3) turbulence and coherent flow structures in flows at Earth’s surface, 4) development of hydroacoustic techniques to monitor flow and sediment in rivers and 5) the dynamics of ripples and dunes in modern and ancient sedimentary systems.

The goal of his research is to develop physically-realistic predictive capabilities that allow us to forecast how river systems will respond to shifts in climate, land use change and other anthropogenic impacts on the environment.
John R. Welch’s long-term research and outreach partnerships with US tribes and BC First Nations center on the investigation and advancement of indigenous stewardship and sovereignty. Welch is actively collaborating on the NSF-funded University of Arizona-Southern Methodist University Fire and Humans in Resilient Ecosystems project, with responsibilities focused on the engagement of Jemez Pueblo and other Native communities in the assessment of ecological change and management responses on the Jemez Plateau northeast of Albuquerque.

During Welch’s 2014–15 study leave, an SFU/SSHRC institutional grant supported the creation of an initial inventory and selective “ground truthing” of ancient trails across the most rugged reaches of the Fort Apache Indian Reservation and adjacent jurisdictions. Welch is also assisting the White Mountain Apache Tribe in the creation of its National Archives and serves as a member of the Steering Committee for the Intellectual Property Issues in Cultural Heritage (IPinCH) SSHRC MCRI (2008–15) directed by George Nicholas (SFU Archaeology).
Dongya Yang obtained his BSc in biology, MSc in biological anthropology and Ph.D. in biological anthropology (ancient DNA) before he joined SFU in 2000 as a faculty member in the Department of Archaeology. He has since focused his research on the retrieval and analysis of DNA from ancient human, faunal and floral remains for archaeological studies. With a dedicated ancient DNA lab facility made available at SFU, and through close collaborations over the past 15 years with many colleagues from Canada and overseas, he and his graduate students have conducted a great number of projects analyzing ancient DNA from over 50 different species.

While he continues to work on optimizing lab techniques for more efficient ancient DNA analysis, he has become more focused on using ancient DNA data to reconstruct population fluctuations of non-human species for a better understanding of dual interactions between humans and other species over time. While his lab group has been working on ancient remains from all over the world, his own geographic research regions have gradually focused on the Northwest Coast of North America and China. With the support from a SSHRC Partnership Development Grant, he has helped create the SFU-JLU Joint Centre for Bioarchaeological Research (JCBR) to facilitate collaborative research between SFU in Canada and JLU in China.
Dr. Eldon Yellowhorn has a long research career examining the northern plains, and the ancient lifeways of his Piikani ancestors. His main interest is the evolution of communal hunting from the early Holocene to the nineteenth century when this custom was rendered obsolete with the extinction of the bison herds. He augmented his research of material culture with Piikani oral narratives that had survived to the present. In doing so, he contributed new insights about the archaeological sites known as buffalo jumps that are evident across prairies.

His research on Piikani mythology yielded a chronological framework for those old stories that originated in time immemorial. Currently Professor Yellowhorn has included historical archaeology in his studies of Piikani culture after they settled on the Peigan Indian Reserve. This branch of research triangulates data from material culture, oral history and archival documents to create an internalist approach to studying the early days of their reserve life. Dr. Yellowhorn now includes filmmaking in his repertoire of mobilizing knowledge he accrued through his research. He has produced one feature length documentary, “Digging up the Rez: The Piikani Historical Archaeology Project” and two short videos that are posted on YouTube. He is presently working on another feature length production, “Powwow: Copylefting Cultural Tradition,” which chronicles origin and history of powwow celebrations in Canada.
Kirsten Zickfeld’s research focuses on the effects of human activities on climate on decadal to millennial timescales. The goal is to better understand the response of the climate system to disturbances and the interactions between the different climate system components (the atmosphere, ocean, land surface, biosphere and cryosphere) in order to improve predictions for the future. To achieve this objective, she uses climate models of different complexity, from simple conceptual models to complex Earth system models running on high-performance computers. Currently, her research focuses on the following areas:

- **Carbon Budgets** She is interested in exploring the theoretical foundation of the proportional relationship between global warming and total carbon dioxide emissions, which is at the heart of the carbon budget concept, and to quantify carbon budgets associated with climate targets (e.g. the 2 degree target).

- **Reversibility of Human-Induced Climate Change** She is interested in exploring whether it is possible, in principle, to restore the climate to a previous state if human-induced emissions of greenhouse gases are eliminated or carbon dioxide is artificially removed from the atmosphere.

- **Climate Feedbacks** There are a range of climate feedbacks which have the potential to amplify human-induced climate change, potentially leading to critical thresholds or “tipping points” being crossed. She is interested in understanding and quantifying these feedbacks.
If we knew what it was we were doing, it would not be called research, would it?

ALBERT EINSTEIN