

C.3 - Faculty Research and Teaching Interests Related to Environment and Sustainability

A survey conducted for Dalhousie University

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Overview

As the title indicates, this document lists Dalhousie University faculty members with research and teaching interests in the realm of environment and sustainability. Each section also describes several research and / or teaching interests of these faculty members.

The interests described here are as broad as the themes themselves reflecting a variety of perspectives. Faculties described in this document include the Faculty of Arts and Social Sciences, Engineering, Law, Management, Planning and Architecture and Science. What emerges from this work is that Dalhousie University has nearly 140 faculty members interested in environment and sustainability.

Arts and Social Sciences

King's

Gordon McOuat – Natural kinds and classification, Darwinism and evolution.

Eric Mills – History of the marine sciences, especially biological and physical oceanography, nineteenth century British natural history and the history of science in Canada.

English

Carrie Dawson – Nature literature in Canada.

Bruce Greenfield – Travel writing.

History

Claire Campbell – Environmental history and Canadian cultural landscapes.

Jack Crowley – American landscapes and British imperial landscapes.

Jerry Bannister – Seafaring and maritime history.

International Development Studies

John Cameron – Rural development in Latin America.

Rebecca Tiessen – Sustainable development, gender and the environment.

Matthew Schnurr (Incoming Appointment) – Political ecology.

Philosophy

Christian Becker – Environmental philosophy and resource economics.

Trish Glazebrook – Environmental philosophy.

Political Science

Jerome Davis (CRC) – Oil and gas policy.

David Black – Southern Africa and the political economy of development.

Robert Boardman – Canadian environmental policy.

Peter Arthur – Development studies.

Sociology and Social Anthropology

Richard Apostle – Regional fisheries in the North Atlantic.

Marian Binkley – Fisheries

Liz Fitting – Cultures of food production and consumption.

Brian Noble – Heritage and the environment.

Engineering

Prabir Basu - Design of fluidized bed systems.

Gordon Fenton - Risk assessment, reliability modeling of landfill liner systems.

Graham Gagnon - Water and wastewater treatment, water treatment process optimization, environmental microbiology.

Abdel Ghaly - Industrial ecology and cleaner production, waste management (reduction, recycling and reuse) and integrated bioindustrial systems and industrial biotechnology, process control and production of value added products from various wastes .

David Hansen - Groundwater hydrology and hydrogeology, urban hydrology.

Bill Hart - Eutrophication, EIA, community involvement, environmental management.

Larry Hughes – Energy security and energy policy.

Rob Jamieson - Environmental impacts of watersheds, engineered wetlands.

Craig Lake - Landfill liner systems, cement-based solidification/stabilization, geotechnical engineering.

Lei Liu - Modeling for groundwater management, site remediation system design, modeling of air/water/waste pollution control systems, and environmental risk assessment.

Mysore Satish - Groundwater pollution monitoring network design, stochastic modeling, design of environmental pollution monitoring devices.

Pak Yuet - Extended coal bed methane recovery, cement-based solidification/stabilization.

Ismet Ugursal - Modeling of GHG emissions, modeling of energy systems, energy efficiency, energy conversion and management.

Margaret Walsh - Water and wastewater treatment, membrane filtration.

Law

Aldo Chircop - Maritime law, marine and environmental law and policy, law of the sea, and integrated coastal and ocean management.

Meinhard Doelle - Law and policy relating to climate change, international environmental law, environmental assessment, alternative dispute resolution in environmental law and energy law, including tidal power.

Constance MacIntosh - Constitutional, health and environmental law, including as regards governance, health and quality of life on First Nations Reserves.

Moira McConnell - International law (public and private) shipping law, law of the sea, ocean governance, international labour law, international environmental law, contract law and Canadian public law.

Chidi Oguamanam - International intellectual property law making, biotechnology in the context of health and agriculture, indigenous peoples, indigenous knowledge, farmers' rights, environmental law and biodiversity conservation, the policy and legal intersections of traditional and hi-tech agricultural practices, documentation and digitization of local knowledge systems, globalization, complementary and alternative medicine (CAM), medical ethics, public health law and policy, colonialism and the legal profession.

Dawn Russell - Law of the Sea and Oceans law and policy, international law, maritime boundary limitation, corporate law, UN reform and UN enforcement actions.

Phillip Saunders - Law of the Sea, environmental law, international fisheries law, judicial remedies, international advocacy and torts.

David VanderZwaag - Oceans governance, environmental law, international environmental law, law of the sea, conservation law and management.

Management

School of Resource and Environmental Management

Karen Beazley - Protected areas systems design and identification of priority areas for protection based on conservation biology, protected area systems planning, with a focus on terrestrial with interest in marine and refinement of a focal-species approach to biodiversity conservation, including extension of the concept to invertebrate, plant, and marine species.

Peter Bush – Geomatics, GIS, remote sensing, and GPS, wildlife habitat, landscape ecology, bird conservation, old-growth forests, green mapping.

Fay Cohen – Indigenous peoples and natural resource issues, environmental education, community-based resource management and community health.

Raymond Cote - Interdisciplinary management of chemicals and wastes, the management of land-based sources of marine pollution, the relationship between business and environment and the new field of industrial ecology.

Peter Duinker - Forest management and policy, environmental assessment, particularly impact prediction and monitoring, natural resources decision-making, land-use and forest planning, wildlife-habitat supply analysis, criteria and indicators of sustainable forest management, model forest partnerships and management of agricultural wastes.

Lucia Fanning - The roles of policy networks in influencing marine policy decisions, the assessment and effectiveness of evolving oceans governance regimes in managing marine uses and ecosystem-based approaches to the management of coastal and marine space and use.

Julia Sagebien - The intersection between public policy and corporate behaviour particularly in terms of the impact of business on society and the environment.

Peter Tyedmers - Using biophysical accounting tools (e.g. ecological footprint analysis, energy analysis, life cycle assessment, etc.) to assess the sustainability of alternative technologies and the substitution of technology systems generally for ecosystem services; Evaluating the eco-efficiency of food production systems, and refining biophysical accounting tools and related ecological economic models for improved policy analysis.

Planning and Architecture

Planning

Jill Grant - Sustainable communities, built environment and health, smart growth.

Susan Guppy - Urban ecology, environmental analysis, food in the city.

Patricia Manuel - Wetlands ecology, built environment and health, landscape ecology.

Frank Palermo - Urban design, community planning.

John Zuck - Environmental site analysis, landscape architecture, environmental heritage.

Architecture

Sarah Bonnemaison - Lightweight and tensile structures, temporary urbanism of festivals and responsive textile environments.

Terrance Galvin - Human settlements, urban design, international development, and appropriate technologies in developing countries.

Peter Henry - Environmentally benign design strategies for private homes and gardens.

Brian Lilley - Ecological and programmatic strategies in design, material research in glass, assemblies, and natural ventilation.

Patrick Kelly - Geographical information systems, astroarchaeology (astronomical alignments of ancient structures) and responsible lighting and light pollution abatement.

Richard Kroeker - Sustainable and green building strategies, innovative construction in green wood, recycled materials, and earth formed structures and community development and cultural continuity.

Christine Macy - Civic infrastructure: temporary urbanism, lightweight structures, and responsive textile environments.

Steven Mannell - Building technology and building performance, lightweight and self-build construction, public works architecture and urban infrastructure, adaptive re-use, heritage conservation, alternative energy and water/wastewater systems and buildings and landscapes for environmental education.

Susan Molesky - Material process and creative imagination and natural forms and systems.

Roger Mullin - Material detailing and composite materials.

Austin Parsons - Wood technology, wood lot management, wood processing, wood construction, environmental impact of forest management practices and building performance of residential wood frame construction systems.

Peter Sassenroth - Sustainable building technologies, rammed earth construction, naturally lit long span construction, urban densification and sustainable urban design.

Niall Savage - Design of affordable housing.

J. Grant Wanzel - Sustainable community building, urban intensification, development of mid- to high-density residential environments, alternatives to sprawl and small towns and their territories.

Science

Marine Biology

Shelley Adamo - Insect behavioural neuroscience, cephalopod behavior, cuttlefish and squid.

Shannon Bard - Marine ecotoxicology.

Paul Bentzen (DFO Chair in Fisheries Resources) - Population and evolutionary genetics of fishes and marine organisms.

John Cullen (Killam Professor) - Phytoplankton processes, optical measurements.

Katja Fennel (CRC) - Coupled physical-biological modeling, data assimilation.

Jonathan Grant - Aquaculture-environment interactions, ecosystem modeling, GIS and habitat mapping.

Christophe Herbinger - Aquaculture and quantitative genetics of marine organisms.

Jeff Hutchings (CRC) - Evolutionary ecology, organization and conservation biology of fishes.

Sara Iverson - Marine mammals, fatty acids, physiological and biological mechanisms.

Marlon Lewis - Phytoplankton ecology, bio-optical oceanography.

Heike Lotze (CRC) - Human impacts on marine species and ecosystems.

Anna Metaxas - Larval ecology of marine benthic invertebrates including invasive species, deep sea corals.

Ron O'Dor (Senior Scientist of the international Census of Marine Life) - Biogeographic information systems, cephalopods.

David Patriquin - Conservation and management of seagrass beds. Developed successful on-line biology courses.

Alan Pinder - Regulation metabolism in amphibians and fish.

Tamara Romanuk - Aquatic food web modeling.

Daniel Ruzzante (CRC) - Conservation genetics in exploited marine and anadromous fish.

Robert Scheibling - Ecology of marine rocky intertidal and subtidal zones.

Christopher Taggart - Physical, ecological biochemical and genetic influences on early life history and recruitment in fish and on fish population structure and distribution.

Sandra Walde - Population dynamics, predator-prey interactions in arthropod populations.

Hal Whitehead - Behavioural ecology, social organization, and conservation of several cetacean species (sperm whale, northern bottlenose whale, bottlenose dolphin, long-finned pilot whale, Amazon River dolphin, and narwhal).

Martin Willison - Conservation biology, marine protected areas, biosphere reserves.

Boris Worm - Marine biodiversity and its conservation on a global scale.

Jonathan Wright - Genetics of marine species.

Terrestrial Environment

Sina Adl - Soil ecology, protists.

Bill Freedman - Ecological effects of industrial activities, focused on those associated with forestry. Author of a leading Canadian text, *Environmental Science: A Canadian Perspective*, Pearson.

Marty Leonard - Effects of noise on parent-offspring communication, conservation of endangered birds.

Leslie Phillmore - Songbirds, animal behaviour and learning, seasonality.

Atmospheric Science

Thomas Duck - Laser remote sensing, pollution transport, arctic climate change.

James Drummond (CRC) - Remote sensing, changes in the ozone layer, climate change.

Ian Folkins - Tropical convection and chemistry, modeling dynamics.

Richard Greatbatch - Atmospheric-ocean interaction, modeling.

Randall Martin - Air quality and climate, tropospheric ozone and aerosols, modeling.

Physical Oceanography

Tony Bowen - Continental shelf regions, boundary processes, sediment transport.

Alex Hay - Ocean acoustics, sediment transport.

Paul Hill - Sediment transport.

Dan Kelley - Dynamics of transport and mixing.

Tetjana Ross - Acoustic remote sensing, turbulence, bio-physical interactions.

Barry Ruddick - Ocean mixing, internal waves.

Jinyu Sheng - Modeling and prediction, shelf circulation.

Keith Thompson (CRC) - Data assimilation (4d), shelf circulation, climate variability of the North Atlantic.

Chemical Oceanography

Bernie Boudreau - Benthic processes and diagenesis, mathematical modeling, bioturbation.

Markus Kienast - Marine geochemical proxies for climate change, paleoceanography.

Robert Moore - Marine sources of halocarbons, air-sea interaction.

Helmuth Thomas (CRC) - Marine carbon cycle, coastal biogeochemistry.

Earth Science

Christopher Beaumont (CRC) - Geodynamic modeling.

Martin Gibling - Sedimentary, surface and environmental geology.

John Gosse (CRC) - Geochronology, landscape evolution.

Djordje Grujic - Modeling of complex geosystems.

Lawrence Plug - Permafrost and climate change, self-organization in nature, fracture networks.

David Scott - Environmental and marine geology.

Social aspects of sustainability

Deborah Buszard - Fruit physiology and production, environmental design.

Peter Burton - Department of Economics. Natural resource and environmental economics.

Melvin Cross - Department of Economics. Natural resource economics.

Swapan Dasgupta - Department of Economics. Optimal growth profiles.

Ruth Forsdyke - Department of Economics. Environmental economics.

Lars Osberg - Department of Economics. Intergenerational bequest of productive assets.

Tarah Wright - Environmental sustainability in higher education, institutional environmental change.

Statistics and Data Management

Michael Dowd - Stochastic marine ecosystem modeling, ocean prediction.

Joanna Flemming - Modeling dependent data with applications in biology and medicine.

Bruce Smith - Time series and point processes with applications to sea level and flood risk predictions.

Materials

Heather Andreas - Alternative energy storage, supercapacitors.

Jeff Dahn (CRC) - Long-lasting high-efficiency batteries, new materials, carbon filters.

Bruce Grindley - Organic synthesis, NMR spectroscopy, stereochemistry, molecular recognition, conformational analysis, and molecular modelling. Species specific recognition of mammalian sperm by eggs which leads ultimately to fertilization is mediated by glycoproteins.

Ian Hill - Organic thin film transistors, organic solar cells, diffusion of species in organic device structures.

Harm Rotemund - Surface science, CO-Oxidation on platinum, efficiency of automobile exhaust filters.

Andrew Rutenberg - Bacterial biophysics.

Norm Schepp - Influence of biological structures, namely specific amino acid sequences found in enzymes and peptides, on the dynamics and reactions of reactive intermediates.

Mary Anne White - Thermal properties of materials, energy storage.

Peng Zhang - Synchrotron spectroscopy.

Josef Zwanziger (CRC) - NMR, lead-free glass.