

UNIVERSITY OF  
SASKATCHEWAN

School of Environment  
and Sustainability

Annual Report 2012-2013

*Cover photographs, clockwise from top left:*

*Assistant Professor Christy Morrissey (at right) shows students how to properly handle mist-netted birds during the ENVS 801 field trip; students going to collect aquatic samples during the Ecoblitz; MES student Sarah Welter and her ENVS 803 research proposal poster; students on the ENVS 802 field trip in Prince Albert National Park.*

*On the title page: SENS graduates at the Fall 2012 Convocation ceremony.*

# School of Environment and Sustainability Annual Report 2012-2013



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## Table of Contents

THE SCHOOL OF ENVIRONMENT AND SUSTAINABILITY .....	1
COURSES .....	2
PEOPLE .....	4
STUDENT DEMOGRAPHICS.....	9
STUDENT INITIATIVES – SENSSA.....	10
RESEARCH AND SCHOLARLY WORK .....	11
PUBLIC AND COMMUNITY OUTREACH.....	28
GOVERNANCE .....	29
FINANCES .....	30





# The School of Environment and Sustainability

The School of Environment and Sustainability (SENS) community continued to grow and change through the 2012-2013 year. Toddi Steelman, a professor specializing in environmental governance, was appointed SENS' Executive Director on August 1, 2012. A number of significant initiatives were launched, including a curriculum review and revision and the development of an undergraduate certificate of proficiency in sustainability. The School hosted its first Practitioner-in-Residence, John Patterson, who facilitated the project management module in the first delivery of the SENS' professional skills certificate of attendance, designed to give students the opportunity to enhance their transferrable skill sets. Dennis O'Connor, Associate Chief Justice of the Court of Appeal of Ontario, visited SENS in October 2012 to speak about his experiences as commissioner of the Walkerton public inquiry, which investigated events leading to the worst water contamination event in Canadian history. In February 2013, SENS hosted Delta Day, which featured a screening of the documentary *Saskatchewan River Delta* and a presentation from Alli Morrison, University of Manitoba, about her work characterizing links between ecology and human well-being in the Saskatchewan River Delta. Community-engaged scholarship was introduced in ENVS 992: Research in Environment and Sustainability, giving students in the Master of Sustainable Environmental Management program the opportunity to conduct applied research in partnership with community organizations.

## Vision

We will create and integrate multiple understandings of natural and human environments and be internationally known for innovative, provocative, and wide-ranging approaches to environmental sustainability.

## Mission

We enable sustainable communities and environments through collaborative research and teaching, graduate student engagement, and community involvement. We broaden understanding and develop champions of environmental sustainability by creating, exchanging, and translating knowledge using diverse perspectives.

## Core Values

As a School, we value:

- ❖ Scholarly dialogue and debate regarding environment and sustainability
- ❖ Interdisciplinary and transdisciplinary scholarship
- ❖ Innovation and academic excellence among students and faculty
- ❖ Student growth and success
- ❖ Systems and holistic approaches to environmental sustainability
- ❖ Working on a variety of spatial and temporal scales
- ❖ Collaboration in teaching, research, and engagement
- ❖ Consultative and cooperative decision-making
- ❖ Respectful and substantive engagement with wide communities
- ❖ Inclusion of different ways of knowing
- ❖ Supporting sustainable and healthy communities and environments
- ❖ Making a difference through public discourse, deliberative processes, and informed citizenship
- ❖ Leading by example through attention to our own environmental footprint

## Programs Offered

The School of Environment and Sustainability offers three graduate programs:

- ❖ **Master of Sustainable Environmental Management (MSEM):** an interdisciplinary, course-based, professional-style program that can be completed in one year of intensive full-time study. Students enrolled in this program are required to complete 24 credit units of course work and a 6 credit unit service learning project, and to participate in the Seminar in Environment and Sustainability. This program is intended to provide prospective or current environmental practitioners a post-graduate learning opportunity in sustainable environmental management.
- ❖ **Master of Environment and Sustainability (MES):** an interdisciplinary, thesis-based program that can be completed in two years of full-time study. Students enrolled in this program are required to complete 12 credit units of course work and a thesis based on original research, and to participate in the Seminar in Environment and Sustainability.
- ❖ **Doctor of Philosophy (PhD):** an interdisciplinary, research-based program that can be completed in three years of fulltime study. Students enrolled in this program are required to complete a qualifying examination, 6 credit units of course work, a comprehensive examination, and a dissertation based on original research, and to participate in the Seminar in Environment and Sustainability.



## Courses

The following courses were offered by the School of Environment and Sustainability during the 2012-2013 academic year.

### Core Courses

#### **ENVS 801.3 Ecosystem Science and Sustainability**

**Instructors: Vladimir Kricksfalusy and Christy Morrissey**

An introduction to how principles and concepts of ecology and ecosystems science are applied to advance environmental sustainability. Students will gain a solid understanding of how natural systems function, and how scientists apply their understanding and uncertainties about ecosystems to address environmental management problems and to advance environmental sustainability.

#### **ENVS 802.3 Human Dimensions of Environmental Change**

**Instructor: Douglas Clark and Merle Massie**

This course explores the past and present interactions between people and the natural world. It addresses ways that environment has molded human societies and ways that people have altered nature. Contemporary concerns for environmental sustainability are introduced by examining human entanglement with a range of natural and modified systems.

#### **ENVS 803.3 Research in Environment and Sustainability**

**Instructors: Bram Noble and Markus Hecker**

The purpose of this course is to introduce graduate students to conceptual, practical, and ethical issues in conducting interdisciplinary research about environment and sustainability. By the end of the course, students will have a research plan from which their proposal and research activities can be developed.

#### **ENVS 804.3 Decision-Making for Environment and Sustainability**

**Instructors: Douglas Clark and MJ Barrett**

Intended to enhance students' professional and scholarly effectiveness, this course introduces an interdisciplinary approach to environmental conservation problems (from the policy sciences) that enables them to critically appraise and constructively engage with environmental and sustainability policy processes, and develop functional understanding of conventional institutional approaches to environmental management and new emergent approaches.

#### **ENVS 805.3 Environmental Data Analysis and Management**

**Instructors: Andrew Ireson and Graham Strickert**

Environmental data management is complex because of its volume, qualitative and quantitative forms, and temporal and spatial characteristics. This course introduces students to statistical, qualitative, and visual methods of problem solving and data reduction and representation, and describes methods for managing large and complex data sets.

#### **ENVS 990 Seminar in Environment and Sustainability**

**Co-ordinators: Paul Jones and Tim Jardine**

The ENVS 990 Seminar Series features topics relevant to environment and sustainability. In addition to speakers from a variety of academic and non-academic backgrounds, MES and PhD students are required to present their research in the seminar.

#### **ENVS 992.6 Project in Environment and Sustainability**

**Required For MSEM Program**

#### **ENVS 994 Research in Environment and Sustainability (Thesis)**

**Required For MES Program**

#### **ENVS 996 Research in Environment and Sustainability (Dissertation)**

**Required for PhD Program**

### Restricted Electives

#### **ENVS 811.3 Multiple Ways of Knowing in Environmental Decision-making**

**Instructor: MJ Barrett**

This course examines multiple ways of knowing (epistemologies) used in environmental decision-making, including, but not limited to, Aboriginal knowledge systems. The course supports active engagement with epistemological difference, and asks students to examine their own decision-making beliefs and practices in the context of colonization. Applications to the legal "duty to consult" with Aboriginal peoples, in particular where they are affected by decisions made in relation to public lands, waters, and other resources will be addressed.



### **ENVS 821.3 Sustainable Water Resources**

**Instructor: Helen Baulch**

This course will rigorously explore water resource sustainability in western Canada from physical, chemical, biological, socio-economic, and technological perspectives. Biophysical influences on water abundance and quality, current threats to water resources, and efforts to provide for sustainable management of water resources will be examined.

### **ENVS 822.3 Biodiversity Conservation and Sustainability**

**Instructor: Vladimir Kricsfalusy**

This course is designed to introduce students, in an integrative manner, to the field of biodiversity conservation and various aspects of sustainable development. Understanding biodiversity and its management requires an interdisciplinary approach with particular reference to mechanisms of change and human impacts on the environment.

### **ENVS 831.3 Current Issues in Land Reclamation and Remediation**

**Instructor: Charles Maulé**

Current issues in land reclamation and remediation are examined. The impact of human activity in a variety of environments is examined and strategies for reclamation and remediation are investigated. Biophysical factors are the emphasis of the course, however, the context of social and economic issues are incorporated.

### **ENVS 881.3 Resource and Environmental Policy Analysis**

**Instructor: Ken Belcher**

*This course is cross-listed with the Department of Bioresource Policy, Business, and Economics.*

This course focuses on developing a formal understanding of natural resource use and resource and environmental policy using economic models. The focus of the course will be on renewable resources with some consideration of the unique characteristics of non-renewable resources. The course will develop detailed analyses of existing and proposed natural resource and environmental policy using the economic framework to evaluate the structure, efficiency, effectiveness and flexibility of these policies.

## **Other Electives**

### **ENVS 898.3 Introductory Numerical Modeling for Environmental Scientists**

**Instructor: Andrew Ireson**

The purpose of this course is to provide graduate students with a set of modeling skills to allow them to develop their own numerical models to solve problems of coupled flow and transport in porous media. The course requires a basic understanding of groundwater flow and transport processes. A particular set of numerical methods for solving sets of partial differential equations are introduced to the student. Models are written in MATLAB using ODE solvers. Specific applications include models for water supplies in aquifers, contamination in aquifers, and water and energy balances in soils. This will also provide the student with an in-depth understanding of widely used commercial and non-commercial software such as USGS MODFLOW. The models help the student to think through the physical processes and interpret field data.

### **ENVS 898.3 Statistical Methods in Environmental Sciences**

**Instructor: Naveed Khaliq**

This course is designed for graduate students to improve their knowledge and understanding of the application of statistical methods in environmental sciences. Content will include introduction to basic statistical concepts including exploratory data analysis techniques, continuous and discrete distributions, hypothesis testing, correlation and regression analysis, analysis of variance, experimental designs, nonparametric statistics, trend testing, and introduction to generalized linear models and extreme value theory. The primary objective of the course is for students to learn a variety of techniques that are applicable across a range of problems, irrespective of a specific discipline, involving small and large datasets. At the end of the course, students should be able to apply the techniques to their own research projects.

### **GEOG 886: Advanced Environmental Impact Assessment**

**Instructor: Bram Noble**

A project-based course focusing on emerging concepts and broader applications of environmental assessment principles and practices. Course topics vary year to year following developments in the field, and may include such topics as cumulative effects assessment, strategic environmental assessment, project scoping, assessment methods and techniques, and monitoring and follow-up.

### **ENVS 990: Seminar in Environment and Sustainability**

- Measuring Genuine Progress – Laszlo Pinter, MESPOM Scholar, Central European University – September 14, 2012
- Park Prisoners: An Examination of the Men and the Labour Camps that “Built” Western Canada’s National Parks Between 1915 and 1946 – Bill Waiser, Professor, Department of History – September 28, 2012

- ❖ Framing Water Security in the Saskatchewan River Basin – Graham Strickert, Post-doctoral Fellow, School of Environment and Sustainability – October 12, 2012
- ❖ The Walkerton Inquiry Ten Years Later: Lessons Learned – Dennis O’Connor, Associate Chief Justice of Ontario – October 19, 2012
- ❖ Community Perceptions of Chronic Wasting Disease Management: Reflections from a Work in Progress – Kari Amick, MES Student, School of Environment and Sustainability, and Effects of Cumulative Landscape Stressors on Water Quality in the South Saskatchewan River Basin, SK, Canada – Amanda Burke, MES Student, School of Environment and Sustainability – October 26, 2012
- ❖ Scientific Myths and Democratic Challenges: What Path Forward for More Durable Policy Solutions Related to Climate Change? – Toddi Steelman, Executive Director, School of Environment and Sustainability – November 2, 2012
- ❖ Sustainable Farm Systems: Long-Term Socio-Ecological Metabolism in Western Agriculture – Geoff Cunfer, Associate Professor, Department of History and School of Environment and Sustainability – November 9, 2012
- ❖ Ethics in Peer Review: What SENS Students Should Know – Jeff McDonnell, Professor, School of Environment and Sustainability and Associate Director, Global Institute for Water Security – November 16, 2012
- ❖ Environmental Anthropology Research in Northern Alberta – Clint Westman, Assistant Professor, Department of Archaeology and Anthropology – November 23, 2012
- ❖ Latino Farmworkers in Saskatchewan: Social Aspects of Labour and Sustainable Agriculture – Arcadio Viveros-Guzman, PhD Candidate, School of Environment and Sustainability, and Making the Case for Just Sustainability: Exploring How Society Engages with Environmental Issues – Colleen George, PhD Candidate, School of Environment and Sustainability – November 30, 2012
- ❖ The World’s Tipping Point: How Genes, Enzymes, Microbes and Plants Regulate Greenhouse Gas Release from Arctic Soils – Steven Siciliano, Professor, Department of Soil Science – January 11, 2013
- ❖ Interdisciplinary Knowledge Creation: Locating Ourselves Part I – MJ Barrett, Assistant Professor, with MES Students Christina Thomson and Matthew Harmin, School of Environment and Sustainability – January 18, 2013
- ❖ Changing Knowledge, Changing Climate: Governance of “New” Ungulates under Plausible Future Scenarios in the Changing Social and Ecological Southwest Yukon Landscape – Dylan Beach, MES Student, School of Environment and Sustainability, and Everything You Wanted to Know About Mine Reclamation But Were Afraid to Ask – Lindsay Tallon, PhD Candidate, School of Environment and Sustainability – January 25, 2013
- ❖ Opaskwayak Cree Nation Wetland Ethnoecology: Land, Identity, and Well-Being in a Flooded Landscape – Alli Morrison, Natural Resources Institute, University of Manitoba – February 1, 2013
- ❖ Interdisciplinary Knowledge Creation: Locating Ourselves Part II - MJ Barrett, Assistant Professor, with MES Students Christina Thomson and Matthew Harmin, School of Environment and Sustainability – February 8, 2013
- ❖ Rural Communities’ Adaptation to Drought: Case Studies of Kindersley and Maidstone, Saskatchewan – Saima Abbasi, MES Student, School of Environment and Sustainability, and Water Quantity and Quality Markets to Improve Water Management in Southern Alberta – Nargiz Rahimova, MES Student, School of Environment and Sustainability – February 15, 2013
- ❖ The Sustainability Education Research Institute – Marcia McKenzie, Assistant Professor, Department of Educational Foundations – March 1, 2013
- ❖ The “F” Word and Other Unmentionables in Environmental and Sustainability Research: What’s Feminism Got To Do With It? – Maureen Reed, Professor, School of Environment and Sustainability and Department of Geography and Planning – March 8, 2013
- ❖ Identifying Spatial and Temporal Change in Nutrients in Saskatchewan Watersheds – Josh Gibb, PhD Candidate, School of Environment and Sustainability – March 22, 2013
- ❖ Exploring Water Resources Management in Partnership with the Community of Water Users of Lake Diefenbaker, Saskatchewan, Canada – Jania Chilima, PhD Student, School of Environment and Sustainability – April 5, 2013

## People

### Administration

- ❖ **Toddi Steelman** (BA, West Virginia; MPA, Princeton; PhD, Duke) – Executive Director (*started August 1, 2012*)
- ❖ **Maureen Reed** (BSc, Victoria; MA, Toronto; PhD, Waterloo), Acting Executive Director (*July 1-31, 2012*); Acting Assistant Director – Academic (*January 1 – June 30, 2013*)

### Faculty

#### Standard Appointments

- ❖ **Helen Baulch**, Assistant Professor (BSc, Waterloo; MSc, Alberta; PhD, Trent)
- ❖ **Douglas Clark**, Assistant Professor and Centennial Chair in Human Dimensions of Environment and Sustainability (BSc, Victoria; MSc, Alberta; PhD, Wilfrid Laurier)
- ❖ **Markus Hecker**, Associate Professor and Canada Research Chair in Predictive Aquatic Ecotoxicology (Diploma (MSc Equivalent), Hamburg; PhD, Hamburg)

- ❖ **Tim Jardine**, Assistant Professor (BSc, Dalhousie; MSc, New Brunswick; PhD, New Brunswick)
- ❖ **Paul Jones**, Associate Professor (BSc, Otago; PhD, Otago)
- ❖ **Naveed Khaliq**, Associate Professor (BSc, University of Agriculture, Faisalabad; ME, Asian Institute of Technology; MSc, National University of Ireland; PhD, National University of Ireland)
- ❖ **Vladimir Kricsfalusy**, Associate Professor (MSc, Uzhgorod; PhD, Uzhgorod and the Academy of Sciences of Ukraine)
- ❖ **Yanping Li**, Assistant Professor (BS, Sun Yat-Sen University; MS, Chinese Academy of Science; MPhil, Yale; PhD; Yale) (*started April 2013*)
- ❖ **Karsten Liber**, Professor (BSc, Guelph; PhD, Guelph)
- ❖ **Karl-Erich Lindenschmidt**, Associate Professor (BSc, Manitoba; MAsC, Toronto; PhD, Technical University of Berlin)
- ❖ **Jeff McDonnell**, Professor (BSc, Toronto; MSc, Trent; PhD, Canterbury, New Zealand)
- ❖ **Toddi Steelman**, Professor (BA, West Virginia; MPA, Princeton; PhD, Duke) (*started August 2012*)

### Primary Joint Appointments

- ❖ **MJ Barrett**, Assistant Professor (BAS, Harvard; BEd, Queen's; MES, York; PhD, Regina) (51% SENS; 49% Department of Curriculum Studies, College of Education)
- ❖ **Andrew Ireson**, Assistant Professor (MEng, Bath; MSc, Imperial College London; PhD, Imperial College London) (70% SENS; 30% Department of Civil and Geological Engineering, College of Engineering)
- ❖ **Maureen Reed**, Professor (BSc, Victoria; MA, Toronto; PhD, Waterloo) (70% SENS; 30% Department of Geography and Planning, College of Arts and Science)
- ❖ **Howard Wheeler**, Professor and Canada Excellence Research Chair in Water Security (MA, Cambridge; PhD, Bristol) (70% SENS, 30% Department of Civil and Geological Engineering, College of Engineering)

### Secondary Joint Appointments

- ❖ **Ken Belcher**, Associate Professor (BSA, Manitoba; MNRM, Manitoba; PhD, Saskatchewan) (30% SENS; 70% Department of Biore-source Policy, Business, and Economics, College of Agriculture and Bioresources)
- ❖ **Geoff Cunfer**, Associate Professor (BA, North Carolina; MA, Texas Tech; PhD, Texas) (25% SENS; 75% Department of History, College of Arts and Science)
- ❖ **Charles Maulé**, Professor (BSc, British Columbia; MSc, Alberta; PhD, Alberta) (33% SENS; 67% Department of Chemical and Biological Engineering, College of Engineering)
- ❖ **Christy Morrissey**, Assistant Professor (BSc, British Columbia; PhD, Simon Fraser) (30% SENS, 70% Department of Biology, College of Arts and Science)
- ❖ **Bram Noble**, Professor (BA, Memorial; MES, Wilfrid Laurier; PhD, Memorial) (30% SENS; 70% Department of Geography and Planning, College of Arts and Science)

### Associate Faculty

- ❖ **Angela Bedard-Haughn**, Associate Professor (BSc, Saskatchewan; MSc, Saskatchewan; PhD, California-Davis), Department of Soil Science, College of Agriculture and Bioresources
- ❖ **Scott Bell**, Professor (BEd, British Columbia; MA, California-Santa Barbara; PhD, California-Santa Barbara), Department of Geography and Planning, College of Arts and Science
- ❖ **Lalita Bharadwaj**, Associate Professor (BSc, Saskatchewan; MSc, Saskatchewan; PhD, Saskatchewan), School of Public Health
- ❖ **Ryan Brook**, Assistant Professor (BSc, Manitoba; MNRM, Manitoba; PhD, Manitoba), Department of Animal and Poultry Science, College of Agriculture and Bioresources
- ❖ **Rachel Engler-Stringer**, Assistant Professor (BSc, Montreal; PhD, Saskatchewan), Department of Community Health and Epidemiology, College of Medicine
- ❖ **Michael Gertler**, Associate Professor (BES, Waterloo; MSc, McGill; PhD, Cornell), Department of Sociology, College of Arts and Science
- ❖ **Jill Gunn**, Assistant Professor (BA, Saskatchewan; MSc, Northern British Columbia; PhD, Saskatchewan), Department of Geography and Planning, College of Arts and Science
- ❖ **Hayley Hesselin**, Associate Professor (BComm, Saskatchewan; PhD, Colorado), Department of Biore-source Policy, Business, and Economics, College of Agriculture and Bioresources
- ❖ **Suren Kulshreshtha**, Professor (BSc, Agra; MSc, Agra; PhD, Manitoba), Department of Biore-source Policy, Business, and Economics, College of Agriculture and Bioresources
- ❖ **Ted Leighton**, Professor (AB, Cornell; DVM, Saskatchewan; PhD, Cornell; DACVP), Department of Veterinary Pathology, Western College of Veterinary Medicine

- ❖ **Marcia McKenzie**, Assistant Professor (BSc, British Columbia; MEd, Brock; PhD, Simon Fraser), Department of Educational Foundations, College of Education
- ❖ **David Natcher**, Associate Professor (BA, Alberta; MA, Alaska; PhD, Alberta), Department of Bioresource Policy, Business, and Economics, College of Agriculture and Bioresources
- ❖ **Mehdi Nemati**, Professor (BSc, Amirkabir; MSc, Amirkabir; PhD, Manchester), Department of Chemical and Biological Engineering, College of Engineering
- ❖ **Aloysius Newenham-Kahindi**, Associate Professor (BA, Pontifical Urbaniana Universitat; MSc, University College Dublin; PhD, University College Dublin), Department of Human Resources and Organizational Behaviour, Edwards School of Business
- ❖ **Robert Patrick**, Associate Professor (BA, British Columbia; BEd, Dalhousie; MA, Simon Fraser; PhD, Guelph), Department of Geography and Planning, College of Arts and Science
- ❖ **Greg Poelzer**, Associate Professor (BA, Alberta; MA, Carleton; PhD, Alberta), Department of Political Studies, College of Arts and Science
- ❖ **Elizabeth Robertson**, Assistant Professor (BSc, Alberta; MA, Queen's; PhD, Alberta), Department of Archaeology and Anthropology, College of Arts and Science
- ❖ **Bing Si**, Professor (BSc, Hebei Agricultural; MSc, Hebei Agricultural; PhD, Guelph), Department of Soil Science, College of Agriculture and Bioresources
- ❖ **Vladimir Vujanovic**, Associate Professor (BSc, Zagreb; MSc, Belgrade; PhD, Belgrade), Department of Food and Bioproduct Sciences, College of Agriculture and Bioresources
- ❖ **Bill Waiser**, Professor (BA, Trent; MA, Saskatchewan; PhD, Saskatchewan), Department of History, College of Arts and Science
- ❖ **Ryan Walker**, Associate Professor (BA, Lethbridge; MA, Waterloo; PhD, Queen's; MCIP), Department of Geography and Planning, College of Arts and Science
- ❖ **Clinton Westman**, Assistant Professor (BA, Calgary; MES, York; PhD, Alberta), Department of Archaeology and Anthropology, College of Arts and Science
- ❖ **Chelsea Willness**, Assistant Professor (BA, Saskatchewan; MSc, Calgary; PhD, Calgary), Department of Human Resources and Organizational Behaviour, Edwards School of Business

### Adjunct Faculty

- ❖ **Murray Bentham** (BSc, Saskatchewan; MSc, Saskatchewan; PhD, Saskatchewan)
- ❖ **Biplob Das** (BSc, Chittagong; MSc, Chittagong; MSc, Alberta; PhD, Victoria), Saskatchewan Environment
- ❖ **John Mark Davies** (BSc, Saskatchewan; MSc, Manitoba; PhD, Victoria), Saskatchewan Water Security Agency
- ❖ **Annette Desmarais** (BA, Simon Fraser; MA, Sussex; PhD, Calgary), Department of Justice Studies, University of Regina
- ❖ **Steven Franklin** (BES, Waterloo; MA, Waterloo; PhD, Waterloo), Trent University
- ❖ **Monique Haakensen** (BSc, Saskatchewan; PhD, Saskatchewan), Contango Strategies
- ❖ **Andrew Harwood** (BSc, Edinburgh; PhD, Glasgow), Ecofish Research
- ❖ **Michael Hill** (BSc, North Carolina State; MSc, Eastern Kentucky; PhD, Western Ontario), Golder Associates
- ❖ **Keith Hobson** (BSc, Simon Fraser; MSc, Manitoba; PhD, Saskatchewan), Environment Canada
- ❖ **Mark Johnston** (BSc, Minnesota; MSc, Alberta; PhD, SUNY), Saskatchewan Research Council
- ❖ **Murray MacKay** (BSc, Waterloo; MSc, Toronto; PhD, Toronto), Environment Canada
- ❖ **Hans Peterson** (BSc, Lund; MSc, Wales; PhD, Dundee), retired
- ❖ **Carrie Rickwood** (BSc, Essex; MRes, Plymouth; PhD, Saskatchewan), Natural Resources Canada
- ❖ **Richard Robarts** (BSc, Victoria; MSc, Waterloo; PhD, Rhodes), Environment Canada
- ❖ **Joe Schmutz** (BSc, Wisconsin; MSc, Alberta; PhD, Queen's; BEd, Saskatchewan), Prairie Ecodesign
- ❖ **Jeffrey Sereda** (BSc, Saskatchewan; PhD, Saskatchewan), Saskatchewan Water Security Agency
- ❖ **Judit Smits** (BSc, Guelph; DVM, Ontario Veterinary College; MVetSc, Saskatchewan; PhD, Saskatchewan), University of Calgary
- ❖ **Garth van der Kamp** (BSc, British Columbia; MSc, British Columbia; PhD; Free University, The Netherlands), National Hydrology Research Institute, Environment Canada
- ❖ **Marley Waiser** (BSc, Trent; MSc, Saskatchewan; PhD, Napier), retired
- ❖ **Elaine Wheaton** (BSc, Saskatchewan; MSc, Saskatchewan; PhD, Saskatchewan), retired

### Sessional Lecturers

- ❖ **Merle Massie** (BA, Saskatchewan; MA, Saskatchewan; PhD, Saskatchewan)
- ❖ **Graham Strickert** (BA, Geography; PhD, Canterbury, New Zealand)



## Staff

- ✦ **Sharla Daviduik** (BSc, Saskatchewan; MRM, Simon Fraser), Administrative Officer
- ✦ **Charlotte Hampton**, Financial and Administrative Assistant
- ✦ **Meagan Hinthner** (BSc, McGill), Communications Specialist (*on leave December 2012 – December 2013*)
- ✦ **Lesley Porter** (BA, Saskatchewan), Communications Specialist (*December 2012 – December 2013*)
- ✦ **Twyla Rudovica** (BComm, Saskatchewan; CMA), Financial Officer
- ✦ **Irene Schwalm** (BAC, Saskatchewan), Graduate Secretary

## Students

An asterisk indicates that the student completed program requirements during the 2012-2013 year.

### Master of Sustainable Environmental Management

- ✦ **Adedoyinsola Adesokan**, BEng, Federal University of Technology, Nigeria; MSc, Nottingham
- ✦ **Ramota Balogun**, BTech, Ladoke Akintola University of Technology, Nigeria
- ✦ **Evan Bassett**, BA, Carleton
- ✦ **Kirk Bors**, BA, Saskatchewan\*
- ✦ **Manuel Chavez-Ortiz**, BA, Saskatchewan
- ✦ **Branimir Gjetvaj**, MSc, Dalhousie; PhD, Queen's
- ✦ **Paul Hawthorne**, BA, Wilfrid Laurier
- ✦ **Nicolas Howitt**, BSc, Western Ontario
- ✦ **Shweta Jarial**, BSc-Agr, Chaudhary Sarvan Kumar Agriculture University, India
- ✦ **Meghan Kelly**, BSc, Alberta
- ✦ **Vernon Kiss**, BA, Saskatchewan; LLB, Saskatchewan
- ✦ **Willem Kruger**, BSc, Saskatchewan\*
- ✦ **Jessica Lankshear**, BSc, Guelph
- ✦ **Anna Larson**, BPAPM, Carleton; MPA, Regina\*
- ✦ **Xiaoxue Li**, BSc, Acadia
- ✦ **Jennifer Locke**, BSc, Western; MES, Western\*
- ✦ **Jonathan Matson**, BA, Guelph\*
- ✦ **Ana Isabel Melgarejo Mendoza**, BSc, Universidad Iberoamericana\*
- ✦ **Liam Mulhall**, BComm, Manitoba
- ✦ **Emmanuel Obgeide**, BSc, Benin; MSc, Nottingham\*
- ✦ **Elizaveta Petelina**, BSc, Moscow
- ✦ **Joshua Salisbury**, BA, Wilfrid Laurier\*
- ✦ **Al Scholz**, BSc, Saskatchewan; BEd, Saskatchewan
- ✦ **Kurtis Trefry**, BSc, Saskatchewan
- ✦ **Xing Wu**, BSc-AGR, Nova Scotia Agricultural College
- ✦ **Firas Younes**, BSc, Damascus\*
- ✦ **Xi (Cecilia) Zhao**, BA, Henan University, China\*

### Master of Environment and Sustainability

- ✦ **Saima Abbasi**, MSc, NWRP Agricultural University, Pakistan
- ✦ **Kari Amick**, BSc, Wheaton College
- ✦ **Bennet Awume**, BSc, Kwame Nkrumah University of Science and Technology, Ghana
- ✦ **Maya Basdeo**, BES, Waterloo
- ✦ **Dylan Beach**, BSc, Denison
- ✦ **Rosa Brannen**, BSc, Saskatchewan
- ✦ **Astri Buchanan**, BSc, Wilfrid Laurier
- ✦ **Amanda Burke**, BSc, Saskatchewan
- ✦ **Meghan Carr**, BSc, Saskatchewan
- ✦ **Shannon Dyck**, BA, Saskatchewan\*
- ✦ **Yekaterina Dobrovolskaya**, BE, Kazakh-British Technical University

- ❖ **Noel Galuschik**, BSc, New Westminster College
- ❖ **Raea Gooding**, BSc, Saskatchewan
- ❖ **Matthew Harmin**, BA, Kentucky
- ❖ **Tobi Jeans**, BA, Memorial\*
- ❖ **Nils Lokken**, BSc, Alberta
- ❖ **Ayodele Olagunju**, BSc, Abafemi Awolowo University\*
- ❖ **Terri Lynn Paulson**, BAgr, Saskatchewan
- ❖ **Olena Pavlyuk**, BArch, Poltava National Technical University, Ukraine; MEcon, Sumy State University, Ukraine
- ❖ **Nargiz Rahimova**, BA, Baku State; MA, Yokohama National
- ❖ **Janell Rempel**, BSc, Saskatchewan
- ❖ **Aimee Schmidt**, BA, Victoria
- ❖ **Kiri Staples**, BA, Trent
- ❖ **Christina Thomson**, BEd, Memorial; BSc, Dalhousie
- ❖ **Sarah Welter**, BSc, Saskatchewan
- ❖ **Iryna Zamchevska**, BSc, Girne American University
- ❖ **Viktoriya Zamchevska**, BArch, Girne American University
- ❖ **Oksana Zbyranyk**, BSc, Girne American University\*
- ❖ **Jenna Zee**, BSc, Saskatchewan

#### Doctor of Philosophy in Environment and Sustainability

- ❖ **Razak Abu**, BA, Ghana; MPhil, Bergen
- ❖ **Edward Bam**, BSc, Cape Coast; MPhil, Ghana
- ❖ **Ana Maria Bogdan**, BA, Romanian American University; MSc, Vrije University
- ❖ **Jania Chilima**, BSc, Trent; MES, Saskatchewan
- ❖ **Anna Coles**, BSc, Durham; MSc, Durham
- ❖ **Ranjan Datta**, BSS, Shahjalal University of Science and Technology; MSS, Monmouth; MSS, Shahjalal University of Science and Technology
- ❖ **Felicita Egunyu**, BSc, Makerere; MSc, ITC Twente; MES, Wilfrid Laurier
- ❖ **Colleen George**, BA, McMaster; BSc, McMaster; MES, Lakehead
- ❖ **Joshua Gibb**, BSc, Leeds; MSc, Leeds
- ❖ **Allison Henderson**, BSc, Saskatchewan; MSc, Simon Fraser
- ❖ **Matthew Hiltz**, BSc, Saskatchewan; MSEM, Saskatchewan
- ❖ **Jean Kayira**, BEd, Malawi; MA, Clark
- ❖ **Anson Main**, BA, Alberta; MLA, Toronto
- ❖ **Mohammad Badrul Masud**, BSc, Bangladesh Agricultural University; MSc, Bangladesh Agricultural University; MEng, Asian Institute of Technology
- ❖ **Ehimai Ohiozebau**, BSc, Benin; MSc, Robert Gordon
- ❖ **Ayodele Olagunju**, BSc, Abafemi Awolowo University; MES, Saskatchewan
- ❖ **Amir Sadeghian**, BSc, Shahih Bahonar University of Kerman; MSc, Royal Institute of Technology, Sweden
- ❖ **Mayanin Sosa**, BA, Merida; MSc, Merida
- ❖ **Lindsay Tallon**, BSA, Saskatchewan; MSc, Saskatchewan
- ❖ **Aniekan Udofia**, BSc, Calabar; MSc, Saskatchewan
- ❖ **Arcadio Viveros Guzman**, MSc, Colegio de Postgraduados; MEd, Saskatchewan
- ❖ **Yvonne Vizina**, BEd, Saskatchewan; MEd, Saskatchewan
- ❖ **Lisa White**, BSc, Saskatchewan; MSc, Saskatchewan\*
- ❖ **Asong Elvis Zilefac**, BSc, Buea; MSc, Lund

#### Post-Doctoral Fellows

- ❖ **Willemijn Appels**, BSc, Wageningen; MSc, Wageningen; PhD, Wageningen
- ❖ **Lori Bradford**, BSc, McMaster; MES, Lakehead; PhD, Lincoln, New Zealand
- ❖ **Ryan Bullock**, BA, Laurentian; MES, Wilfrid Laurier; PhD, Waterloo

- ❖ **Kwok Chun**, BEng, Hong Kong; MSc, Imperial College; PhD, Imperial College
- ❖ **M. Reza Ghanbarpour**, BSc, Tehran; MSc, Tehran; PhD, Tehran
- ❖ **Daryl Janzen**, BSc, Saskatchewan; MSc, Saskatchewan; PhD, Saskatchewan
- ❖ **Julian Klaus**, Diploma, Freiburg; PhD, TU Munich
- ❖ **Taufique Mahmood**, BSc, Dhaka; MSc, Dhaka; MS, Mississippi; PhD, Arizona State
- ❖ **Muluneh Mekonnen**, BSc, Addis Ababa; MSc, KUL Belgium; MSc, VUB Belgium; PhD, KTH, Sweden
- ❖ **Nicole Michel**, BS, Willamette; PhD, Tulane
- ❖ **Luis Morales Marin**, BSc, Colombian School of Engineering; MSc, National University of Colombia; PhD, University College London
- ❖ **Uri Nachson**, BSc, Ben Gurion; MSc, Ben Gurion; PhD, Ben Gurion
- ❖ **Armelle Paule**, BSc, Université François Rabelais; MSc, Université Paul Sabatier; PhD, Université Paul Sabatier
- ❖ **Jay Sagin**, MS, Moscow State; MS, Ball State; PhD, Western Michigan
- ❖ **Graham Strickert**, BA, Lakehead; PhD, Lincoln, New Zealand

## Student Demographics

### Admissions

Admissions statistics for 2012-2013 are summarized in the table below. One hundred seventy-nine applications were received for the School's three graduate programs, with forty-four offers of admission made. Thirty-seven students accepted and began their studies at SENS in 2012-2013.

Table 1 - Admissions 2012-13							
Program	Applications Received	Offers of Admission	Transfers from Other Units	Total Offers of Admission and Transfers	New Students	Continuing Students	Total Number of Students
MSEM	65	17	0	17	14	6	20
MES	71	15	0	15	13	12	25
PhD	43	12	0	12	10	16	26
<b>Total</b>	<b>179</b>	<b>44</b>	<b>0</b>	<b>44</b>	<b>37</b>	<b>34</b>	<b>71</b>

The admission grade point averages for new students registering in the three programs in 2012-2013 were:

- ❖ MSEM – 74.8%
- ❖ MES – 81.8%
- ❖ PhD – 84.3%

To date, the average completion times for students at SENS are:

- ❖ MSEM – 1.23 years
- ❖ MES – 2.33 years
- ❖ PhD – 4.33 years

Students registered at SENS in 2012-2013 came to the School from around the world:

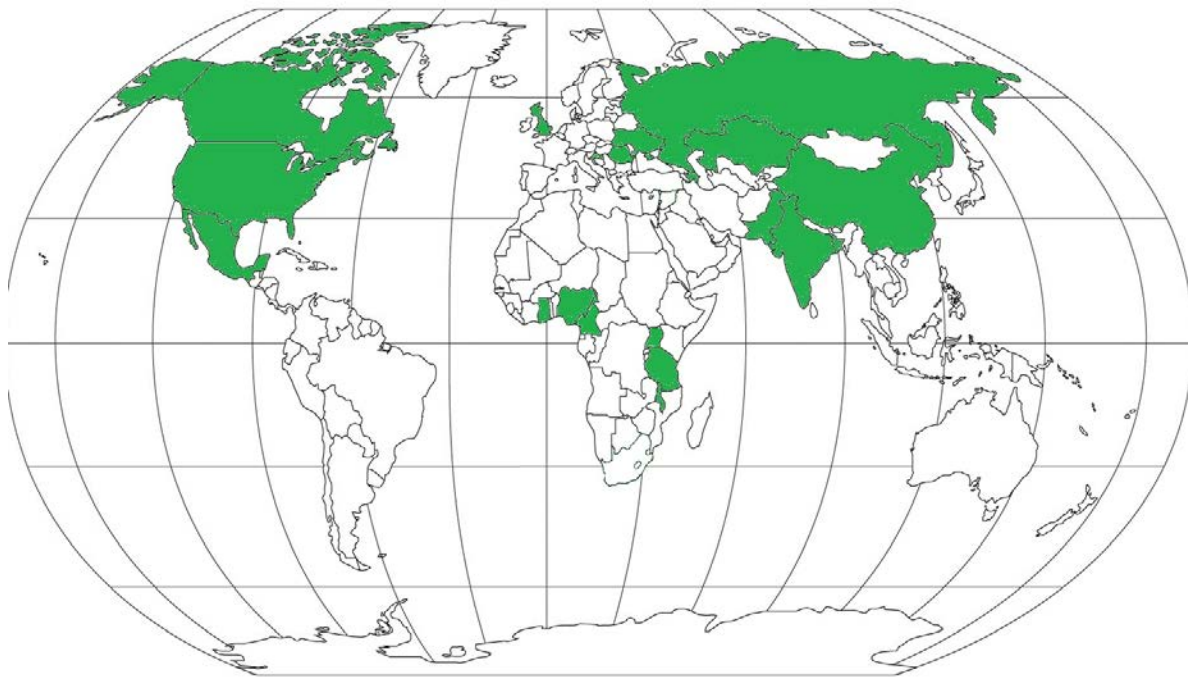
- ❖ 24.6% from Saskatchewan
- ❖ 20.3% from other provinces in Canada
- ❖ 55.1% from other countries

Twenty countries were represented by SENS students during 2012-2013:

- ❖ Azerbaijan
- ❖ Bangladesh
- ❖ Cameroon
- ❖ Canada
- ❖ China
- ❖ Croatia
- ❖ Ghana

- ❖ India
- ❖ Kazakhstan
- ❖ Malawi
- ❖ Mexico
- ❖ Nigeria
- ❖ Pakistan
- ❖ Romania
- ❖ Russia
- ❖ Tanzania
- ❖ Uganda
- ❖ Ukraine
- ❖ United Kingdom
- ❖ United States of America


Figure 2 – Countries Represented by SENS Students, 2012-2013



## Student Initiatives – SENSSA

SENSSA had a successful year in 2012-2013. The group hosted multiple events, and broadened its scope of involvement with partner organizations both on and off campus. SENSSA was successful with both grant applications it submitted in 2012-2013: 1) Let's Talk About Water in partnership with the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) (\$3,500), the Global Institute for Water Security (GIWS) and SENS. This event included a screening of *Last Call at the Oasis*, a movie examining the future of freshwater and how society can change its use of this vital resource. This was followed by a spirited panel discussion; 2) Fulbright Canada Ecoblitz (\$4,000), a 2-day event which had SENS students, City of Saskatoon employees, U of S student volunteers and Meewasin Valley Authority employees collecting ecological data in Saskatoon's Northeast Swale.





SENSSA held a number of successful pub nights for SENS students. The winter party was a huge success with good attendance. SENSSA partnered with the Office of Sustainability to promote *Switch*, a documentary examining the current reliance on power sources such as oil and coal, consumption levels across the globe and available alternatives. The Multicultural Food Fair showcased the cultural diversity of SENS students, with more than a dozen volunteers sharing twenty-five different dishes from around the globe. SENSSA promoted healthy living and active participation by fielding players and entire teams in campus rec leagues such as soccer, curling and slo-pitch. SENSSA was pleased to purchase baseball equipment for current and future students to use. Needless to say, SENSSA had a busy, productive year!

SENSSA executive members for 2012-2013 were:

- ✦ President: Anson Main
- ✦ Vice President: Elvis Zilefac
- ✦ Secretary: Edward Bam
- ✦ Treasurer: Meghan Kelly
- ✦ Campus Liaison: Anna Coles
- ✦ Community Liaison: Paul Hawthorne
- ✦ Co-Academic Affairs Rep: Badrul Masud
- ✦ Co-Academic Affairs Rep: Colleen George
- ✦ Co-Social Coordinator: Jenna Zee
- ✦ Co-Social Coordinator: Astri Buchanan
- ✦ Webmaster: Manuel Chavez-Ortiz

## Research and Scholarly Work

The following is a summary of the research and scholarly work of faculty holding standard, primary-joint, or secondary-joint appointments in the School of Environment and Sustainability during 2012-2013. While all research grants listed may not have been managed through the School, the research often involves SENS graduate students.

Names of researchers affiliated with SENS are bolded. These include core faculty, students, post-doctoral fellows, and staff.

### Books, Chapters in Books, Expository and Review Articles

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Kofinas, G., **Clark, D.**, and Hovelsrud-Broda, G. 2013. Chapter 5: Adaptive and transformative capacity. Arctic Council 2013 Arctic Resilience Interim Report. Stockholm: Stockholm Environment Institute and Stockholm Resilience Centre.

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Nowell, B. and **Steelman, T.** 2012. The role of responder networks in promoting community resilience: toward a measurement framework of network capacity. In *Disaster Resiliency: Interdisciplinary Perspectives*. Eds. N. Kapucu, C.V. Hawkins, and F. I. Rivers. New York: Taylor & Francis/Routledge.

Parkins, J. and **Reed, M.G.** (eds.) 2013. *The Social Transformation of Rural Canada: New Insights into Community, Culture, and Citizenship*. Vancouver: UBC Press.

Parkins, J. and **Reed, M.G.** 2013. Introduction: towards a transformative understanding of rural social change. In: *The Social Transformation of Rural Canada: New Insights into Community, Culture, and Citizenship*. Eds. J. Parkins and **M.G. Reed**. Vancouver: UBC Press.

Parkins, J. and **Reed, M.G.** 2013. Postscript: The future of rural studies in Canada. In: *The Social Transformation of Rural Canada: New Insights into Community, Culture, and Citizenship*. Eds. J. Parkins and **M.G. Reed**. Vancouver: UBC Press.

## Papers in Refereed Journals

Ali, G., Tetzlaff, D., Soulsby, C., **McDonnell, J.J.**, and Capell, R. 2012. A comparison of similarity indices for catchment classification using a cross-regional dataset. *Advances in Water Resources Research*, 40:11-22. DOI: 10.1016/j.advwatres.2012.01.008. 2012.

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Brinkmann, M., Hudjetz, S., Kammann, U., Hennig, M., Kuckelkorn, J., Chinoraks, M., Cofalla, C., Wiseman, S., Giesy, J.P. Schäffer, A., **Hecker, M.**, Wölz, J., Schüttrumpf, H., and Hollert, H. 2013. How flood events affect rainbow trout: evidence of a biomarker cascade in rainbow trout after exposure to PAH contaminated sediment suspensions. *Aquatic Toxicology*, 128-129:13-24.

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- Jenerette, G.D, Barron-Gafford, G., Guswa, A., **McDonnell, J.J.** and Villegas, J. 2012. Organization of complexity in water limited ecohydrology. *Ecohydrology*, 5:184-199. DOI: 10.1002/eco.217
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Muños-Villers, L. and **McDonnell, J.J.** 2013. Runoff generation in a steep, tropical montane cloud forest catchment on permeable volcanic substrate. *Water Resources Research*, DOI:10.1029/2011WR011316.

**Nachshon, U.**, **Ireson, A.M.**, van der Kamp, G. and **Wheater, H.S.** 2013. Sulfate salt dynamics in the glaciated plains of North America. *Journal of Hydrology*, doi: 10.1016/j.jhydrol.2013.07.001.

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Nazemi, A., **Wheater, H.S.**, **Chun, K.P.** and Elshorbagy, A. 2013. A stochastic reconstruction framework for analysis of water resource system vulnerability to climate-induced changes in river flow regime. *Water Resources Research*, 49(1):291-305. doi:10.1029/2012WR012755.

**Noble, B.F.**, **Ketilson, S.**, Aitken, A., and Poelzer, G. 2013. Strategic environmental assessment opportunities and risks for Arctic offshore energy planning and development. *Marine Policy*, 39:296-302.

Pettit, N.E., **Jardine, T.D.**, Hamilton, S.K., Sinnamon, V., Valdez, D., Davies, P.M., Douglas, M.M., and Bunn, S.E. 2012. Seasonal changes in water quality and macrophytes and the impact of cattle on tropical floodplain waterholes. *Marine and Freshwater Research*, 63:788-800.

**Reed, M.G.**, and **Egunyu, F.** 2012. Management effectiveness in UNESCO biosphere reserves: learning from Canadian periodic reviews. *Environmental Science & Policy*, 25:107-117.

**Reed, M.G.**, **Henderson, A.**, and Mendis-Millard, S. 2013. Shaping local context and outcomes: the role of governing agencies in collaborative natural resource management. *Human Dimensions of Wildlife: An International Journal*, 18(4):292-306.

Schiller, V., Wichmann, A., Kriehuber, R., Muth-Koehne, E., Giesy, J.P., **Hecker, M.**, and Fenske, M. 2013. Studying the effects of genistein on gene expression of fish embryos as an alternative testing approach for endocrine disruption. *Comparative Biochemistry and Physiology*, C 157:41-53.

Seibert, J. and **McDonnell, J.J.**, 2013. Gauging the ungauged basin: the relative value of hard and soft data. *Journal of Hydrological Engineering*, 10.1061/(ASCE)HE.1943-5584.

Sorensen, J.P.R., Finch, J.W., **Ireson, A.M.** and Jackson, C.R. 2013. Comparison of varied complexity models simulating recharge at the field scale. *Hydrological Processes*, doi: 10.1002/hyp.9752.


**Steelman, T.**, and McCaffrey, S. 2013. Best practices in risk and crisis communication: implications for natural hazards management. *Natural Hazards*, 65(1):683-705.

Stewart, M., Morgenstern, U., **McDonnell, J.J.**, and Pfister, L., 2012. The 'hidden streamflow' challenge in catchment hydrology: a call to action for streamwater transit time analysis. *Hydrological Processes*, 26:2061-2066. DOI: 10.1002/hyp.9262.

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Tompsett, A.R., Wiseman, S., Higley, E., Giesy, J.P., and **Hecker, M.** 2013. Effects of exposure to 17 $\alpha$ -ethynylestradiol during sexual differentiation on the transcriptome of the African clawed frog (*Xenopus laevis*). *Environmental Science and Technology*, 42:4822-4828.

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Vardy, D.W., Oellers, J., Doering, J.A., Tompsett, A.R., Giesy, J.P., and **Hecker M.** 2012. Sensitivity of early life-stages of white sturgeon (*Acipenser transmontanus*) to selected metals and in accordance with the determination of Upper Columbia River-specific water effect ratios. *Environmental Toxicology and Chemistry*, 30:2497-2505.

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Warfe, D.M., **Jardine, T.D.**, Pettit, N.E., Hamilton, S.K., Pusey, B.J., Bunn, S.E., Davies, P.M., and Douglas, M.M. 2013. Productivity, disturbance and ecosystem size have no influence on food chain length in seasonally connected rivers. *PLoS One*, 8:e66240.

**White, L.**, and **Noble, B.F.** 2012. Strategic environmental assessment in the electricity sector: an application to electricity supply planning, Saskatchewan, Canada. *Impact Assessment and Project Appraisal*, 30(4):284-295.

**White, L.**, and **Noble B.F.** 2013. Strategic environmental assessment for sustainability: a review of a decade of environmental research. *Environmental Impact Assessment Review*, 42:60-66.

**White, L.**, and **Noble, B.F.** 2013. Strategic environmental assessment best practice process elements and outcomes in the international electricity sector. *Journal of Environmental Assessment Policy and Management*, 15(2). DOI:10.1142/S1464333213400012.

Wilcox, B., Seyfried, M., Breshears, D. and **McDonnell, J.J.** 2012. Ecohydrologic connections and complexities in drylands—new perspectives for understanding transformative landscape change. *Ecohydrology*, 5:143-144. DOI: 10.1002/eco.1251.

Wiseman, S.B., He, Y., Gamal-El Din, M., Martin, J.W., **Jones, P.D.**, **Hecker, M.**, and Giesy, J.P. 2013. Transcriptional responses of male fathead minnows exposed to oil sands process-affected water. *Comparative Biochemistry and Physiology C*, 157:227-235.

Wohl, E., Barros, A., Brunsell, N., Chappell, N., Coe, M., Giambelluca, T., Goldsmith, S., Harmon, R., Hendrickx, J., Juvik, J., **McDonnell, J.J.**, and Ogden, F. 2012. A research vision for hydrology of the humid tropics: Balancing water, energy, and land use. *Nature (Climate Change)*, 2:655-662.

Zheng, X., Zhu, Y., Liu, C., Liu, H., Giesy, J.P., **Hecker, M.**, Lam, M.H.W., and Ya, H. 2013. Accumulation and biotransformation of BDE-47 by zebrafish larvae and teratogenicity and expression of henes along the hypothalamus-pituitary-thyroid axis. *Environmental Science and Technology*, 46:12943-12951.

### Papers in Non-Refereed Journals

Kavanaugh, M.T., Holtgrieve, G.W., **Baulch, H.**, Brum, J.R., Cuvelier, M.L., Filstrup, C.T., Nickols, K.J., and Small, G.E. 2013. A salty divide within ASLO? *ASLO Bulletin*, 22(2):34-37.

**Kricsfalusy, V.** 2012. Hutsulshchyna National Nature Park. In: *Internet Encyclopedia of Ukraine*. Canadian Institute of Ukrainian Studies, University of Alberta, Edmonton, AB.

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**Kricsfalusy, V.** 2012. Prytysiansky Regional Landscape Park. In: *Internet Encyclopedia of Ukraine*. Canadian Institute of Ukrainian Studies, University of Alberta, Edmonton, AB.

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**Reed, M.G.**, and Lidestav, G. 2012. Making a difference in gender and forestry: a special issue of the Scandinavian Journal of Forest Research. In: *Forests & Gender*. Eds. L. Aguilar, A. Quesada-Aguilar, and D.D.M.P.Shaw. Gland, Switzerland: IUCN and New York, NY: WEDO.

## Contributed (Non-Invited) Papers/Abstracts in Published Conference Proceedings

**Egunyu, F.** and **Reed, M.G.** 2012. Under what conditions does social learning contribute to women's empowerment in forest-based communities? Abstracts of the IUFRO 6.08 – Gender and Forestry Conference, Wondo Genet Forestry College, Ethiopia. November 26-30.

**Kricsfalusy, V.** 2013. Population structure of *Anemone patens* s.l. in relation to habitat conditions and management regimes in Saskatchewan. Thinking Plants. CBA/ABC 49th Annual Meeting and Conference. Thompson Rivers University, Kamloops, BC.

**Kricsfalusy, V.,** and **Trevisan, N.** 2013. Categorizing and prioritizing rare plant taxa for conservation and management needs. Thinking Plants. CBA/ABC 49th Annual Meeting and Conference. Thompson Rivers University, Kamloops, BC.

Lidestav, G. and **Reed, M.G.** 2012. Is gender analysis in forestry research useful? Abstracts of the IUFRO 6.08 – Gender and Forestry Conference, Wondo Genet Forestry College, Ethiopia. November 26-30.

McIntyre, N. and 21 co-authors, including **Wheater, H.S.** 2012. Modelling the hydrological impacts of rural land use management: current state of the science and future challenges. Proceedings of the British Hydrological Society, Symposium, Dundee. July 9-11.

McIntyre, N. and 19 co-authors, including **Wheater, H.S.** 2012. The potential for reducing flood risk through changes to rural land management: outcomes from the Flood Risk Management Research Consortium. Proceedings of the British Hydrological Society, Symposium, Dundee. July 9-11.

Nazemi, A.R., **Wheater, H.S.,** and Elshorbagy, A. 2012. A novel approach to vulnerability of assessment of water resources systems: Preliminary results for southern Alberta, Canada. 10<sup>th</sup> International Conference on Hydroinformatics (HIC 2012).

## Technical Reports Relevant to Academic Field

**Bradford, L., Steelman, T.A.,** McHale, M., Bunn, D., Bulla, B., Beck, S., Wiener, S., and Senganimalunje, T. 2013. Perceptions of Water Security and Access of Villagers in Hamakuya, Limpopo Province, South Africa. For: Dr. T.A. Steelman, and Dr. M. McHale, IMAGINE Program, NCSU.

Council of Canadian Academies. 2013. Water and Agriculture in Canada: Towards Sustainable Management of Water Resources. The Expert Panel on Sustainable Management of Water in the Agricultural Landscapes of Canada, Council of Canadian Academies. Including contributions from **Wheater, H.S.**

Gunn, J., and **Noble, B.F.** 2012. Critical Review of the Cumulative Effects Assessment Undertaken by Manitoba Hydro for the Bipole III project. Report commissioned by the Public Interest Law Centre, Manitoba.

Gunn, J., and **Noble, B.F.** 2013. Inclusion of Future Actions in Cumulative Effects Assessment: Good Practice Overview. Report prepared for Pape Salter Teillet LLP Barristers and Solicitors in the case of Ontario Power Generation's Deep Geological Repository Site Selection Process, Toronto, ON.

**Harmin, M.** and **Barrett, M.J.** 2013. Problem-Based Learning in One Health: Results and Recommendations. Internal report. Report of student feedback on ONE HEALTH/NSERC CREATE International Problem-Based Learning face-to-face and online course.

**Jones, P.D.** 2013. Contaminants and Health Measures in Fishes Collected from The Slave River in the Fall and Winter of 2011. Prepared for: Dr Juanetta Sanderson, Aboriginal Affairs and Northern Development Canada, Yellowknife, NWT.

**Jones, P.D.** 2013. Final Report Relating Health Assessment and Contaminant Analyses of Fish from the Peace and Slave Rivers, Spring 2012. Prepared for: Dr Erin Kelly, Environment and Natural Resources, Government of the Northwest Territories.


**Liber, K.** 2012. Evaluation of sediment quality downstream of the Rabbit Lake Uranium mine, Saskatchewan, using the sediment quality triad (1997-98). Report for Cameco Corporation, Saskatoon, SK, Canada.

**Liber, K.,** Carter, C., Matthews, A. and Wang, X. 2013. Analysis of River Otter (*Lutra canadensis*) Livers and Kidneys from Northern Saskatchewan for Metals and Trace Elements via ICP-MS. Report for Saskatchewan Environment, Regina, SK, Canada.

**Lindenschmidt, K.-E.** 2012. Qu'Appelle River Winter Flow Test – Phase 1: Ice Considerations. Report submitted to the Water Security Agency, October 11, 2012.

**Lindenschmidt, K.-E.** 2013. Qu'Appelle River Winter Flow Test – Phase 2. Report submitted to the Water Security Agency, 6 May 2013.

**Lindenschmidt, K.-E.** 2013. Simulating the Effects of Dredging on Ice Jam Flooding along the Lower Red River. In: RIVICE Model – User's Manual. Environment Canada, RIVICE Steering Committee.



**Noble, B.F.** 2012. Criteria for Ministerial Decisions under sections 12.4.6 and 12.11.1 of the Nunavut Land Claims Agreement. Her Majesty the Queen in Right of Canada: Hull, Quebec.

**Noble, B.F.** 2012. Cumulative Effects Assessment: Principles, Process, Implementation. Report prepared for the Elk Valley Cumulative Effects Management Working Group. Cranbrook, BC.

**Noble, B.F.** 2013. Development of a Cumulative Effects Monitoring Framework: Review and Options Paper Report Prepared for the Department of Indian Affairs and Northern Development Canada. (DIAND), under a memorandum of understanding between DIAND and the University of Saskatchewan.

Reynolds, B., Marshall, M., Frogbrook, Z., Solloway, I., McIntyre, N., and **Wheater, H.S.** 2012. The Pontbren Hydrological Database. FRMRC Report.

### Invited Lectures (Outside the U of S) and Invited Conference Presentations

**Barrett, M.J.** 2013. Shifting paradigms. Oskayak High School, Saskatoon. (SSHRC Knowledge Mobilization). March.

**Barrett, M.J.** 2013. Energy, art and animism, "In Memories of a Naturalist" PAVED Arts Curated Show, Saskatoon, Saskatchewan. May.

**Barrett, M.J., Thomson, C., Harmin, M., Maracle, B., and Miller, S.** 2013. From knowledge to wisdom: worldview and inner knowing. Northern Teacher Education Program (NORTEP) LaRonge (SSHRC Knowledge Mobilization). April.

**Clark, D.** 2013. Polar bear-human conflicts: state of knowledge and management needs. Circumpolar workshop on human-polar bear conflict reduction and mitigation, Framsenteret, Tromsø, Norway. March 25.

Franz, E., Wiramanaden, C., Janz, D., and **Liber, K.** 2012. An *in-situ* assessment of selenium bioaccumulation from water, sediment and dietary exposure pathways using caged *Chironomus dilutus* larvae. 39th Annual Aquatic Toxicity Workshop, Sun Peaks, BC, Canada, September 30-October 3.

**Hecker, M.** 2013. 20 years of endocrine disruptor research – what's next? 16th International Symposium for Toxicity Assessment, Cape Town, South Africa. Plenary Keynote. February 21-25.

**Ireson, A.M.** 2013. Subsurface hydrology of the prairies of central Canada. Imperial College "Civil Lunch" Seminar. July 19.

**Ireson, A.M.** 2013. Quantifying shallow subsurface flow and salt transport in the Canadian Prairies. University of Guelph Seminar. August 7.

**Jardine, T.D.** 2013. Quantifying connectivity and food-web patterns in species-rich, knowledge-poor tropical rivers. Department of Biological Sciences, University of Lethbridge, Lethbridge. April 17.

**Khaliq, M.N.** 2012. Statistical analysis of temporal trends. Invited lecture at Centre ESCER, University of Quebec at Montreal. November 20.

**Khaliq, M.N.** 2012. Water security in the context of a changing climate. Invited lecture at Agricultural Engineering and Food Technology, University of Agriculture, Faisalabad, Pakistan. November 14.

**Khaliq, M.N.** 2012. Extreme precipitation and flood risk analysis using regional climate model projections. Invited presentation at NATEG Day 2012, Monastir, Tunisia. July 15-18.

**Liber, K.** 2012. Reclamation-related research at the world's third largest oil deposit: the Canadian oil sands. Institute of Loess Plateau, Shanxi University, Taiyuan, Shanxi, P.R. China. July 9.

**Liber, K.** 2012. Monitoring of toxic chemicals in aquatic environments: Options and approaches. 2012 Forum on Fishery Science and Technology, Shanghai, China. October 16-18.

**Liber, K.** 2012. Contaminant research in the North: Interests and expertise at the Toxicology Centre, University of Saskatchewan, Canada. UArctic Thematic Network Meeting, Lyngby, Denmark. October 25-26.

**Liber, K.** 2013. Selenium ecotoxicology in a northern Canadian aquatic ecosystem. Department of Biology & Microbiology, Universidad Nacional de Ancash Santiago "Antúnez de Mayolo," Huaraz, Peru. April 3.


**Liber, K.** 2013. Canada's best known environmental concern: the Athabasca oil sands. Department of Biology & Microbiology, Universidad Nacional de Ancash Santiago "Antúnez de Mayolo," Huaraz, Peru. April 4.

Lidestav, G. and **Reed, M.G.** 2012. Is gender analysis in forestry research useful? Keynote address to the IUFRO 6.08 – Gender and Forestry Conference, Environmental governance and four decades of gender research: Where do we stand? Wondo Genet Forestry College, Ethiopia. November 26-30.





- Lindenschmidt, K.-E.** 2012. Applications in geospatial modeling: defining fluvial hydro-geomorphological regimes using geomorphic response units (GRU) to characterize fish habitat and river ice behavior. Helmholtz Centre for Environmental Research (UFZ), Magdeburg, Germany. October 9.
- Lindenschmidt, K.-E.** 2012. Monitoring and modelling ice cover formation along riverine systems. Brandenburg State Authority for Environment, Health and Consumer Protection, Frankfurt/Oder, Germany. October 16.
- Lindenschmidt, K.-E.** 2012. Surface water quality issues in the Saskatchewan River Basin, Saskatchewan Association of Rural Water Pipelines, Inc., Annual meeting, Saskatoon, Saskatchewan. December 5.
- Lindenschmidt, K.-E.** 2013. Remote sensing and GIS for river ice monitoring. Manitoba GIS Users Group (MGUG) 2012 Fall Conference & Annual General Meeting (AGM), Winnipeg, Manitoba. September 25.
- McDonnell, J.J.** 2012. The dialog between experimentalist and modeler in catchment hydrology. 50 Years of Watershed Modeling: Past, Present and Future, Boulder CO. September 12.
- McDonnell, J.J.** 2012. Water-soil interactions at the hillslope scale: The role of boundary conditions. 2nd International Conference on Hydrogeology, Leipzig, Germany. September 14.
- McDonnell, J.J.** 2012. The Willamette River water sustainability and climate project. CUASHI Cyber Seminar, 50 member universities, Broadcast from Savannah River Site. October 17.
- McDonnell, J.J.** 2012. The PUB Decade: What did we accomplish? IAHS Prediction in Ungauged Basins Decadal Celebration, Delft, NL. October 18.
- McDonnell, J.J.** 2012. Where does water go when it rains? Conceptualizing runoff processes in headwater catchments. University of Waterloo, The Water Institute, Waterloo, ON. October 22.
- McDonnell, J.J.** 2012. The role of geophysics at the hillslope scale. American Geophysical Union, Session on Hydrogeophysics, San Francisco. December 14.
- McDonnell, J.J.** 2012. The usefulness of toggling back and forth between hillslope and catchment scales. American Geophysical Union, Session on Scaling in Hydrology, San Francisco. December 14.
- McDonnell, J.J.** 2013. Catchment scale ecohydrology and the role of stable isotopes. University of North Carolina, Ecology Program, Chapel Hill, NC. January 4.
- McDonnell, J.J.** 2013. Hillslope boundary conditions and re-thinking watershed hydrology from the bottom-up. NC State University, Dept. Marine, Earth, & Atmospheric Sciences, Raleigh, NC. February 5.
- McDonnell, J.J.** 2013. Where does water go when it rains? Virginia Tech, College of Natural Resources, Blacksburg, VA. March 7.
- McDonnell, J.J.** 2013. The state of forest hydrology and biogeochemistry: Past, present and future. US-Japan Hydrology and Biogeochemistry Workshop, East-West Center, Hawaii. March 25.
- McDonnell, J.J.** 2013. Flow processes and water regimes in seasonally dry regions. Ecohydrology of Semi-Arid Environments. Ben-Gurion University of the Negev, Israel. April 15.
- McDonnell, J.J.** 2013. Groundwater-streamflow interactions across scale. Washington Hydrogeology Symposium, Tacoma, WA. April 17.
- McDonnell, J.J.** 2013. A research vision for catchment science. Gordon Research Conference on Catchment Science, Proctor Academy, NH. June 17.
- Noble, B.F.** 2012. Cumulative effects assessment and management: good principles and lessons from practice. Invited workshop presentation, Elk Valley Cumulative Effects Management Working Group. Cranbrook, BC.
- Noble, B.F.** 2013. Requisites for regional cumulative effects assessment and management, IAIA Calgary, AB. Invited Theme Forum on Cumulative Environmental Effects Assessment: The Next Generation.
- Noble, B.F.** 2013. Principles for cumulative effects indicator selection and baseline assessment. Elk Valley Cumulative Effects Management Framework Workshop, Cranbrook, BC.



**Reed, M.G.**, 2013. Gazing through the looking glass at both ends: studying sustainability in Canadian biosphere reserves from the bottom up and the top down. For the International Workshop on Transdisciplinary Research on Global Environmental Issues. Sponsored by the Research Institute for Humanity and Nature, Kyoto, Japan. January 21.

**Reed, M.G.**, 2013. Enhancing ecological and social learning in Biosphere Reserves: experiences from Canadian Biosphere Reserves. For a Workshop on Enhancing Sustainability of Local Communities, Canadian and Japanese Activities in Biosphere Reserves. Sponsored by the Japan Coordinating Committee for UNESCO-MAB, Yokohama National University, Yokohama Japan. January 23.

**Reed, M.G.**, 2013. Learning to learn: evolving sustainability practices in UNESCO Biosphere Reserves. Presented to the students and faculty of the graduate program on environmental governance. United Nations University-Institute of Advanced Studies Yokohama, Japan. January 24.

**Reed, M.G.**, 2013. 16 Bottoms up! Working in partnership with Canadian Biosphere Reserves. For the second full project meeting of the Creation and Sustainable Governance of New Commons through Formation of Integrated Local Environmental Knowledge (ILEK), Research Institute for Humanity and Nature (of Japan), Meeting held at the MOTE Marine Laboratory, Sarasota, Florida. May 7.

**Steelman, T.** 2012. Scientific myths and democratic challenges. Invited Plenary for 2012 Berlin Conference on the Human Dimensions of Global Environmental Change. October 4-6.

**Steelman, T.**, and Nowell, B. 2013. Communication risk factors - watch out situations for IMT's, local cooperators and forests. Area Commanders/Incident Commanders National Workshop, College Station, TX. March 4-8.

### Contributed (Non-Invited) Papers/Abstracts at Conferences

**Asong, Z.E., Khaliq, M.N., and Wheeler, H.S.** 2013. Projected changes in precipitation variability and extremes in the Saskatchewan River Basin under representative concentration pathways. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.

**Asong, Z.E., Khaliq, M.N., and Wheeler, H.S.** 2013. Regionalization of Canadian Prairies using precipitation sensitive large-scale atmospheric covariates. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.

**Bam, E. and Ireson, A.M.** 2013. Chemical and isotopic considerations on the aquifers of the Densu River Basin, Ghana. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.

**Barrett, M.J.** 2013. Threshold concepts and environmental education. Paper presentation at the Annual General Meeting of the Canadian Council of Studies in Education, Victoria, BC. June.

**Barrett, M.J. and Clark, D.** 2012. Through educators' eyes: teaching the policy sciences in the SENS. Paper presented at the Policy Sciences Annual Institute, Saskatoon, SK. October.

**Barrett, M.J. and Mills, S.** 2012. Transformative learning and discourse: addressing cultural differences in knowing in higher education with an environmental focus. Paper presented at the International Society for the Scholarship of Teaching and Learning Annual Conference, Hamilton, ON. October.

**Barrett, M.J., Mills, S., Dietrich, J., Patterson, M., Flowers, M., and Bors, K.** 2012. The gradual reveal: shifting paradigms, shifting epistemologies. Poster presented at the International Society for the Scholarship of Teaching and Learning Annual Conference, Hamilton, ON. October.

**Barrett, M.J., Harmin, M., Patterson, M., and Thomson, C.** 2013. Encounters with the living world: teaching and learning in a graduate school of environment and sustainability. Panel presentation at the Annual General Meeting of the Environmental Studies Association of Canada, Victoria, BC. June.

Beitel, S., Wiseman, S., Doering, J., **Zee, J.**, and **Hecker, M.** 2012. A gonadal explant assay to assess the sensitivity of three North American fish species to disruptors of steroidogenesis. 39th Aquatic Toxicity Workshop in Sun Peaks, Canada. September 30 - October 3.

Beitel, S., Doering, J., Higley, E., Patterson, S., Pro Dahl, H., Wiseman, S.B., and **Hecker, M.** 2012. Assessment of species specific sensitivity of North American fishes to disruptors of steroidogenesis *in vitro*. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

Beitel, S., Doering, J., Patterson, S., Hillary, P. and **Hecker, M.** 2013. *In vitro* assessment of the disruption of steroidogenesis in three North American fish species. SETAC Prairie Northern Chapter 4th Annual Meeting, Lethbridge, AB. June 7-8.



- Brannen, R., Ireson, A.M.** and Spence, C., 2013. Controls on connectivity and streamflow generation in a Canadian Prairie landscape. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Brinkmann, M., Hudjetz, S., Henning, H., Kammann, U., Cofalla, C., Lorke, S., Schaffer, A., Schuttrumpf, H., **Hecker, M.**, and Hollert, H. 2013. Do flood events matter? Biomarker response of rainbow trout following exposure to resuspended sediments in an annular flume. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.
- Brinkmann, M., Hudjetz, S., Hennig, M., Kuckelkorn, J., Cofalla, C., Lorke, S., Kammann, U., Giesy, J., Schuttrumpf, H., Schaffer, A., **Hecker, M.**, and Hollert, H. 2013. Can flood events affect rainbow trout? The biomarker-cascade after exposure to PAHs in sediment suspensions. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.
- Carr, M.**, Lacho, C., Pollock, M., Watkinson, D. and **Lindenschmidt, K.-E.** 2013. Investigating links between lake sturgeon (*Acipenser fulvescens*) habitat and geomorphology in the Saskatchewan River system using geomorphic response units (GRU). Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Chun, K.P., Wheeler, H.S., Khaliq, M.N., and Asong, Z.E.** 2013. A new approach for modeling multisite precipitation extremes. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Crawford S.E. and **Liber, K.** 2012. The role of sediment characteristics in the bioavailability of sediment-associated uranium to the freshwater midge, *Chironomus dilutus*. 39th Annual Aquatic Toxicity Workshop, Sun Peaks, BC. September 30 - October 3.
- Crawford, S.E., Doig, L. and **Liber, K.** 2012. Effect of sediment physicochemical properties on the bioavailability of sediment-associated uranium to a model benthic organism, *Chironomus dilutus*. Society of Environmental Toxicology and Chemistry 33rd Annual Meeting, Long Beach, CA, USA. November 11-15.
- Crawford, S.E. and **Liber, K.** 2013. The role of organic matter in altering the bioavailability of sediment-associated uranium to the freshwater midge (*Chironomus dilutus*). Society of Environmental Toxicology and Chemistry Prairie Northern Chapter 4th annual meeting, Lethbridge, AB. June 7.
- Daviduik, S., Reed, M.G.**, and Kindrachuk, J. 2012. A Saskatchewan prairie partnership: collaborating to advance sustainability research. Association for the Advancement of Sustainability in Higher Education Conference, Los Angeles, CA. October 14-17.
- Doering, J., Wiseman, S., Beitel, S., Giesy, J., and **Hecker, M.** 2012. The aryl hydrocarbon receptor signaling pathway of fishes: implications for sturgeon sensitivity to dioxin-like compounds. 39th Aquatic Toxicity Workshop in Sun Peaks, BC. September 30 - October 3.
- Doering, J.A., Wiseman, S.B., Beitel, S., Giesy, J.P., and **Hecker, M.**, 2012. The aryl hydrocarbon receptor signaling pathway of fishes: implications for sturgeon sensitivity to dioxin-like compounds. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Doering, J., Wiseman, S., Beitel, S., Patterson, S., Giesy, J.P., and **Hecker, M.**, 2013. Investigation into sturgeon responses to dioxin-like compound exposure through whole transcriptome analysis. SETAC Prairie Northern Chapter 4th Annual Meeting, Lethbridge, AB. June 7-8.
- Doig, L., Schiffer, S., and **Liber, K.** 2012. Paleoecotoxicology: reconstructing the historical effects of contaminants and other stressors in aquatic ecosystems. 39th Annual Aquatic Toxicity Workshop, Sun Peaks, BC. September 30 - October 3.
- Doig, L., Schiffer, S., and **Liber, K.** 2012. The phantom midge (*Chaoborus*) and the mystery of the disappearing fishes. 39th Annual Aquatic Toxicity Workshop, Sun Peaks, BC. September 30 - October 3.
- Doig, L., Schiffer, S.R., and **Liber, K.** 2013. Reconstructing the historical effects of mining and metallurgical activities on lake ecosystems: the paleoecotoxicology toolbox. Society of Environmental Toxicology and Chemistry – Europe 23rd Annual Meeting, Glasgow, Scotland. May 12-16.
- Dunn, M., Parkins, J., **Reed, M.G.**, and Sinclair, J. 2013. Emergence and transitions of sustainable forest management institutions in Canada. Environmental Studies Association of Canada. Victoria, BC. June 3.
- Egunyu, F.** and **Reed, M.G.** 2012. Under what conditions does social learning contribute to women's empowerment in forest-based communities? To the IUFRO 6.08 – Gender and Forestry Conference, Wondo Genet Forestry College, Ethiopia. November 26-30.
- Eichbaum, K., Brinkmann, M., Buchinger, S., Engwall, M., Reifferscheid, G., **Hecker, M.**, and Hollert, H. 2013. The dioRAMA joint project – methods for the detection of dioxin-like chemicals in risk assessment and management of contaminated sediments. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.

- Fenske, M., Muth-Koehne, E., Schiller, V., Delov, V., Wichmann, A., **Hecker, M.**, Hollert, H., Kriehuber, R., and Schaefer, C. 2013. The informative value of transcriptomics in combination with the fish embryo test. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.
- Foote, L., Ciborowski, J., Dixon, D.G., **Liber, K.**, and Smits, J. 2013. Reclamation of peat-based wetlands affected by Alberta, Canada's oil sands development. European Geosciences Union Annual General Assembly, Vienna, Austria. June 7-12.
- Flahr, L., **Jones, P.**, and **Morrissey, C.A.** 2012. Physiological and functional effects of Aroclor 1254 on avian cognition and migratory behaviour. Society for Environmental Toxicology and Chemistry. Long Beach, CA. November.
- Flahr, L. **Jones, P.**, and **Morrissey, C.A.** Physiological and functional effects of Aroclor 1254 on avian cognition and migratory behaviour. North American Ornithological Conference. August.
- George, C.**, and **Reed, M.G.** 2013. Making the case for just sustainability: exploring how society engages with environmental issues in Atlantic Canada. International Symposium for Society and Natural Resource Management, Estes Park, CO. June 8.
- Gregg, B., Hanna, K., and **Noble, B.F.** 2013. Predicting CEAA's performance and impact. International Association for Impact Assessment, Calgary, AB.
- Gunn, J.A.E., and **Noble, B.F.** 2013. What is a reasonable standard of practice for CEA in impact assessment? A critical review of the Bipole II Manitoba Hydro transmission line project. International Association for Impact Assessment, Calgary, AB.
- Hanna, K., and **Noble, B.F.** 2013. Criteria for effective EA, a Delphi study. International Association for Impact Assessment, Calgary, AB.
- Hecker, M.**, Tomsett, A.R., Wiseman, S., Higley, E.B., and Giesy, J.P. 2012. Transcriptomic effects of exposure to 17 alpha-ethynylestradiol during sexual differentiation on genetic male *Xenopus laevis*. 39th Aquatic Toxicity Workshop in Sun Peaks, BC. September 30 - October 3.
- He, Y., Patterson, S., Din, M.G., Martin, J.W., **Hecker, M.**, Giesy, J.P., and Wiseman, S.B. 2012. Toxicity of untreated and ozone-treated oil sands process-affected water (OSPW) to early life stages of the fathead minnow (*Pimephales promelas*). SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Hecker, M.**, Tompsett-Higley, A., Higley, E., Giesy, J., and Wiseman, S. 2013. Transcriptomic effects of exposure to 17 alpha-ethynylestradiol during sexual differentiation on genetic male *Xenopus laevis*. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.
- Huziy, O., Sushama, L., **Khaliq, M.N.**, Laprise, R., Lehner, B., and Roy R. 2013. Analysis of streamflow characteristics over northeastern Canada in a changing climate. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Ireson, A.M.**, **Wheater, H.S.**, and Butler, A.P. 2012. A critical assessment of groundwater recharge models for fractured porous media. IAH 2012 Congress, Niagara Falls.
- Ireson, A.M.**, van der Kamp, G., **Nachshon, U.** and Butler, A.P. 2013. Modeling groundwater-soil-plant-atmosphere exchanges in fractured porous media, *Procedia Environmental Sciences*, 19:321-330, doi:10.1016/j.proenv.2013.06.037.
- Ireson, A.M.** and van der Kamp, G. 2013. Identifiability of the lateral groundwater flow regime from point scale observations of recharge and water table level at a dry sandy upland in the Boreal Forest. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Jeong, D.I., Sushama, L., **Khaliq, M.N.**, and Roy, R. 2013. Multivariate analysis of Canadian RCM projected changes to flood characteristics for northeastern Canada. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Jones, P.**, **Ohiozebau, E.**, Tendler, B., Hill, A., Codling, G., Giesy, J.P., Kelly, E., Hodson, P.V., and Short, J. 2012. Health status and biomarker responses in fish from the Athabasca and Slave Rivers in relation to potential exposure to oilsands contaminants. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Khaliq, M.N.**, Sushama, L., Monette, A., and **Wheater, H.S.** 2013. Evaluation of NARCCAP multi-RCM simulations over the Canadian Prairies. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Koch, J., Floehr, T., Scholz-Starke, B., Wu, L.L., Hou, J., Yuan, X., Ross-Nickoll, M., Schaffer, A., **Hecker, M.**, and Hollert, H. 2013. Detection of Ah receptor agonists in sediments from the Three Gorges Reservoir and its feeder rivers using the H4IIIE-luc Cell Line. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.



- Kovach, M., Carriere, J., Montgomery, H., **Barrett, M.J.**, and Gilles, C. 2013. Removing the invisibility cloak: presentation of preliminary findings. First Peoples' House, University of Victoria, Victoria, BC. June.
- Labarerre, C.R. and **Morrissey, C.A.** 2012. Assessing the risk of petroleum contaminants in migratory shorebirds. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Li, Y.** 2013. Ocean-atmosphere coupling related to excitation and lifecycle of deep moist convection and mesoscale SST gradients. MJO field data and science workshop, Kohala Coast, Hawaii. March 4-8.
- Li, Y.** 2013. Diurnal precipitation east of the Rockies. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Lindenschmidt, K.-E.** 2013. Regional nutrient modelling of the Saskatchewan River Basin-project conceptualisation. Red River Basin Water Quality and Watershed Modeling Meeting, Energy and Environmental Research Center, University of North Dakota, Grand Forks, ND. April 30.
- Lindenschmidt, K.-E.**, Wilson, H., Davies, J.-M., Sereda, J. and Hosler, L. 2013. Winter flow testing of the Upper Qu'Appelle River. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Lucas, B., **Liber, K.**, **Jones, P.**, Giesy, J., **Wheater, H.**, and Doig, L. 2012. Reconstructing the past nutrient status of Lake Diefenbaker, a Canadian Great Plains reservoir, using paleolimnological techniques. 39th Aquatic Toxicity Workshop in Sun Peaks, BC. September 30 - October 3.
- Lucas, B., **Liber, K.**, **Jones, P.D.**, Giesy, J.P., **Wheater, H.S.**, and Doig, L.E. 2012. Reconstructing the past nutrient status of a Canadian Great Plains reservoir using depositional sediments and paleolimnological techniques. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Lucas, B.T., Tse, T.J., **Liber, K.**, **Jones, P.D.**, Giesy, J.P., **Wheater, H.S.**, and Doig, L.E.. 2013. Reconstructing environmental trends in potable lakes and reservoirs: the paleoecotoxicology toolbox. SETAC Europe 23rd Annual Meeting, Glasgow, UK. May 12-16.
- Lucas, B., **Liber, K.**, **Jones, P.D.**, Giesy, J.P., **Wheater, H.S.** and Doig, L.E. 2013. Reconstructing temporal trends in nutrient availability and primary productivity within Lake Diefenbaker, a Canadian Great Plains reservoir, using depositional sediments. SETAC Prairie Northern Chapter 4th Annual Meeting, Lethbridge, AB. June 7-8.
- Mahmood, T.H.**, Pomeroy, J.W., **Wheater, H.S.**, and **Baulch, H.M.** Evaluation of prairie hydrological simulations and uncertainty analyses of an agricultural basin in Southern Manitoba. American Geophysical Union, Fall Conference, San Francisco, CA. December.
- Mahmood, T.H.**, Pomeroy, J.W., **Wheater, H.S.**, and **Baulch, H.M.** Understanding cold region processes in an agricultural prairie basin for evaluation of beneficial management practices: results from a field-tested physically based model. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Mamo, M., Davison, B., **Ireson, A.M.**, **Mekonnen, M.**, Barr, A., van der Kamp, G. and Toth, B. 2013. Basin-scale evapotranspiration estimation based on physically-based Hydrologic-Land Surface Schemes. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Massie, M.** and **Reed, M.G.** 2012. Place, time and 'deep research' in environmental and Canadian studies. Beyond the Culture of Nature: Rethinking Canadian and Environmental Studies Conference. St. John's College, University of British Columbia, Vancouver BC. September 28-30.
- Masud, M.B.**, **Khalid, M.N.**, and **Wheater, H.S.** 2013. Drought risk analysis for the Saskatchewan River Basin. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Mekonnen, M.**, **Wheater, H.S.**, **Chun, K.P.**, Nazemi, A. and **Ireson, A.M.**, 2013. Hydrologic-land surface modelling of future streamflows in Rocky Mountain Headwater Basins, Western Canada. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Morrissey, C.A.** and **Nikiforuk, N.** 2012. Agricultural pesticide use and changes in abundance of grassland birds in the Canadian Prairies. North American Ornithological Conference. August.
- Morrissey, C.A.**, Pollet, I., Ormerod, S.J., and Elliott, J.E. 2012. Pacific salmon as a source of persistent organic pollutants to American dip-pers. North American Ornithological Conference. August.



- Morrissey, C.A., Main, A.,** Michelson, C., Clark, B., Cessna, A., Hedley, J., and Mineau, P. 2012. Losing bugs and birds: Investigating the impact of neonicotinoid insecticides on agricultural wetlands of Prairie Canada. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Nachshon, U., Ireson, A.M.,** van der Kamp, G., Davies, S. and **Wheater, H.S.** 2013. Climate change impact on salt dynamics in a prairie wetland. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Noble, B.F.,** and Fidler, C. 2012. Industry-indigenous community corporate agreements: lessons from practice in the Canadian mining sector. Prairie Political Studies Association, Saskatoon, SK. Special session on mining and communities. September.
- Noble, B.F.** and Fidler, C.F. 2013. SEA opportunities and constraints in the western Arctic. International Association for Impact Assessment, Calgary, AB.
- Noble, B.F.,** Hanna, K., and Gunn, J. 2012. Understanding the effectiveness of northern environmental assessment: a gap analysis and research agenda. The Second Annual ReSDA (63) Research Workshop, Whitehorse, YK. November 21-23.
- Nowell, B. and **Steelman, T.** 2012. Familiarity, similarity, and performance effectiveness in disaster response. Academy of Management Annual Meeting, Boston, MA. August 3-7.
- Ohiozebau, E.,** Tendler, B., Hill, A., Codling, G., Giesy, J.P., Kelly, E., Hodson, P.V., Short, J., and **Jones, P.** 2012. Exposure of fish in the Athabasca and Slave Rivers to PAHs potentially derived from oilsands operations. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.
- Pan, X., **Ireson, A.M.,** and Helgason, W., 2013. Observations and modeling of soil hydraulic and thermal dynamics on the Canadian Prairies. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Parkins, J. and **Reed, M.G.,** 2013. Toward a transformative understanding of rural social change. Canadian Sociological Association, Victoria, BC. June 7.
- Patterson, S., He, Y., Martin, J., El-Din, M., Giesy, J.P., Wiseman, S., and **Hecker, M.,** 2012. Toxicity of untreated and ozone-treated oil sands process-affected water to early life stages of the fathead minnow (*Pimephales promelas*). 39th Aquatic Toxicity Workshop, Sun Peaks, BC. September 30 - October 3.
- Peterson, A., Helgason, W. and **Ireson, A.M.** 2013. Monitoring field scale soil moisture: results from a cosmic-ray neutron probe and a neutron probe array. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Potvin, D., Mason, A., Godmaire, H., and **Reed, M.G.** 2013. Biosphere Reserves as learning sites towards sustainability: community-research partnerships and the case of Clayoquot Sound. Canadian Network for Environmental Education and Communication, Victoria, BC. June 26-30.
- Reed, M.G.** and Godmaire, H. 2012. Scaling up participatory and community-based research for policy and practical change: reflecting on research with Canadian biosphere reserves. Annual Institute for the Society of Policy Scientists. Human Rights in World Public Order: Freedom, Equality, and Dignity. University of Saskatchewan, Saskatoon, SK, Canada. October 18-20.
- Reed, M.G.** and **Massie, M.** 2012. What's left of wilderness in contemporary conservation practice? Beyond the culture of nature: Rethinking Canadian and Environmental Studies Conference. St. John's College, University of British Columbia, Vancouver BC. September 28 – 30.
- Reed, M.G.,** Godmaire, H., Abernethy, P., and Guertin, M.A. 2013. Strengthening a community of practice for learning (and evaluation of best practices) in Canadian biosphere reserves. Environmental Studies Association of Canada, Victoria, BC. June 4.
- Sagin, J.,** Hassanzedah, E., **Chun, S., Lindenschmidt, K.-E., Jardine, T.,** and **Wheater, H.** 2013. Changes in water availability for the Saskatchewan River Delta (SRD). Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.
- Sagin, J., Lindenschmidt, K.-E., Jardine, T.,** and **Wheater, H.** 2013. Digital elevation model modification for flat area watersheds. Canadian Meteorological and Oceanographic Society, Canadian Geophysical Union and Canadian Water Resources Association, Saskatoon, SK. May 26-30.



Saunders, D., Higley, E., **Hecker, M.**, Mankindy, R. and Giesy, J. 2013. Investigation into endocrine modulation and TCDD-like effects of three novel brominated flame retardants: TBPH, TBB & TBCO. SETAC Prairie Northern Chapter 4th Annual Meeting, Lethbridge, AB. June 7-8.

**Stelman, T.**, James, A., and Bulla, B. 2012. The dimensions of water security in HaMakuya, South Africa: interdisciplinary research and training in the IMAGINE Program 2012. 31st Annual Policy Sciences Institute., Saskatoon, SK. October 18-21.

**Stelman, T.** and McCaffrey, S. 2013. Best practices in risk and crisis communication". 4th International Fire Behavior and Fuels Conference, Raleigh, NC. February 18-22.

Tendler, B., **Ohiozebau, E.**, Hill, A., Codling, G., Giesy, J.P., Kelly, E., Hodson, P.V., Short, J., and **Jones, P.** 2012. Exposure of fish in the Athabasca and Slave Rivers to metals potentially derived from oil sands operations. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

Vardy, D.W., Doering, J., Beitel, S., Tendler, B., Giesy, J.P., and **Hecker, M.** 2012. Sensitivity of white sturgeon (*Acipenser transmontanus*) to selected environmental pollutants. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

Vardy, D., Doering, J., Beitel, S., Tendler, B., Giesy, J., and **Hecker, M.** 2012. Sensitivity of white sturgeon (*Acipenser transmontanus*) to selected environmental pollutants. 39th Aquatic Toxicity Workshop in Sun Peaks, BC. September 30 - October 3.

**White, L.**, and **Noble, B.F.** 2013. Strategic environmental assessment for sustainability in energy sector planning. International Association for Impact Assessment, Calgary, AB.

Wiseman, S.B., He, Y., **Jones, P.**, Martin, J.W., El-Din, M.G., **Hecker, M.**, and Giesy, J.P. 2012. Analysis of the transcriptome of the fathead minnow to determine mechanisms of toxic action of oil sands process affected water. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

Wiseman, S.B., He, Y., Anderson, J., Patterson, S., **Jones, P.**, **Liber, K.**, **Hecker, M.**, Perez-Estrada, L., Martin, J.W., and Giesy, J.P. 2012. From cell lines to fish: ozonation as a treatment option for the detoxification of oil sands process affected water. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

Woitkowiak, C., Ramirez, T., Huñer, H., Schönlaue, C., Hollert, H., Brosch, S., Zierau, O., Vollmer, G., Jäger, M., Poth, A., **Hecker, M.**, Higley, E., van Ravenzwaay, B., and Landsiedle, R. 2013. Validation of the yeast estrogen and yeast androgen screens for endocrine active substances: interlaboratory ring trial. 52nd Annual Meeting of the SOT, San Antonio, TX. March 10-14.

**Zee, J.**, Patterson, S., Doering, J., Prodahl, H., and **Hecker, M.** 2012. Sensitivity of early life-stages of walleye (*Sander vitreus*) to 17 $\alpha$ -ethinylestradiol. SETAC North America 33rd Annual Meeting, Long Beach, CA. November 11-15.

**Zee, J.**, and **Hecker, M.** 2013. Investigating the molecular and pathological effects of chronic dietary selenomethionine in juvenile white sturgeon (*Acipenser transmontanus*). SETAC Prairie Northern Chapter 4th Annual Meeting, Lethbridge, AB, Canada. June 7-8.

## Research Grants and Contracts

**Barrett, MJ**, with **ENVS 811 Students**. 2012. Communicating across multiple knowledge systems. Media Teaching Resource Fund Grant in conjunction with Courtney Milne Archive Donation, University of Saskatchewan.

**Barrett, MJ**, **Bradford, L.**, **Kricsfalussy V.**, and **Morrissey C.** 2013-2015. Community-Engaged Experiential Learning Grant . University of Saskatchewan.

**Barrett, MJ (PI)** with Misra, V., Singh, B., Townsend, H., and Reeder, B. 2013-2014. Achieving excellence in One Health graduate teaching and learning: a certificate program. University of Saskatchewan Curriculum Innovation Fund.

**Barrett, M.J.**, **Clark, D.**, Maracle, B., and Musqua, D. 2011-2013. Encounters with the living world: indigenous knowledges and natural resource management. SSHRC Insight Development Grant.


**Baulch, H.** 2012-2016. Biogeochemistry of lakes in winter, and the implications of declining ice cover. NSERC Discovery Grant.

**Baulch, H.** 2012-2016. Winter oxygen dynamics in ice covered lakes. Global Institute for Water Security, University of Saskatchewan.

**Baulch, H.** 2013-2014. Winter conditions in prairie waters. Environment Canada Science Horizons.

**Baulch, H.** 2012-2013. Indicators of nutrient saturation in prairie waters. Environment Canada Science Horizons.


**Hecker, M.** (Co-PI). 2011-present. Endocrine disrupting chemicals: potential effects on female reproductive health in Saskatchewan. Royal University Hospital Foundation.

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- Hecker, M.** (Co-PI). 2011-present. 'Exotic' chemical contaminants in the South Saskatchewan River Basin. Canada Excellence Research Chair Program.
- Hecker, M.** (PI). 2012-present. Functional transcriptomics of native Canadian fish species. NSERC Discovery Grant.
- Hecker, M.** (Co-I). 2013-present. Safe water for health research team. Phase Two Health Research Group Grant, Saskatchewan Health Research Foundation.
- Jardine, T.D.** 2012. Effects of beaver activity on mercury bioaccumulation in streams. Science Horizons Youth Internship funding.
- Jardine, T.D.** 2013-2018. Ecological benefits and toxicological consequences of flooding in river ecosystems. NSERC Discovery Grant.
- Jardine, T., Baulch, H.,** Hobson, K. and Janz, D. Identifying flood- and food-related limits to fish and wildlife production in the Saskatchewan River Delta. NSERC Collaborate Research and Development Grant.
- Jardine, T.D., Lindenschmidt, K.-E.,** Smith, N., **Wheater, H.,** Hobson, K.A., Natcher, D., **Belcher, K., Reed, M.,** and **Clark, D.** 2012-2016. Assessing links between water, animals and people in the Saskatchewan River Delta. Global Institute for Water Security, University of Saskatchewan.
- Jones, P.D., Jardine, T.D.,** Bharadwaj, L., Doig, L., and **Lindenschmidt, K.-E.** 2013-2015. SWEEP – The Slave Watershed environmental effects program. Canadian Water Network – Canadian Watersheds Research Consortium.
- Keskitalo, C. (PI), Tennberg, M. (Co-I), and **Reed, M.G.** (Co-I). 2011-2013. Preparing for and responding to disturbance: Arctic lessons for Sweden. MISTRA, The Foundation for Strategic Environmental Research (Sweden).
- Kovach, M., Carriere, J., Montgomery, M. and **Barrett, M.J.** 2010-2013. Removing the invisibility cloak: The impact of professional schools of education and social work on the lives of Aboriginal children and youth through their instructional and curricular choices. SSHRC Standard Grant.
- Kricsfalusy, V.** (Contributor). 2008-present. Internet Encyclopedia of Ukraine. Canadian Institute of Ukrainian Studies, University of Alberta, Edmonton, AB.
- Kricsfalusy, V.** 2012-2013. Native prairie restoration in the Redberry Lake Biosphere Reserve, Saskatchewan. Science Horizon Youth Internship Program, Environment Canada.
- Liber, K.** (PI). 2011-2012. Analysis of sediment core sections from Northern Saskatchewan lakes for trace elements via ICP-MS. Saskatchewan Ministry of Environment.
- Liber, K.** (PI). 2011-2014. A paleolimnological assessment of Lake Diefenbaker sediment: A reconstruction of historical contaminant trends. Canada Excellence Research Chair program via the University of Saskatchewan Global Institute for Water Security.
- Liber, K.** (PI). 2012-2013. Analysis of river otter (*Lontra canadensis*) livers and kidneys from Northern Saskatchewan for metals and trace elements via ICP-MS. Saskatchewan Ministry of Environment, Regina, SK.
- Liber, K.** (Co-I). 2012-2014. Sino-Canadian cooperation on microbial and phytoremediation technologies for clean-up of PAH and heavy metal contaminated soils in Shanxi industrial regions. Shanxi Science and Technology Department, Taiyuan, Shanxi, P.R. China.
- Liber, K.** (Co-I). 2012-2014. Network on environmental impact assessment of industry-contaminated areas in the Arctic. Nordic Council of Ministers' Arctic Co-operation Programme, Copenhagen, Denmark.
- Liber, K.** (PI). 2012-2015. Vanadium toxicity to aquatic organisms representative of the Athabasca oil sands region. Syncrude Canada Ltd.
- Liber, K.** (PI). 2013. Effectiveness of model constructed wetlands for removal of selenium from mine effluent: selenium accumulation in the larvae of the midge, *Chironomus dilutus*. NSERC Engage Grant.
- Lindenschmidt, K.-E.** (advisor). 2012-2013. Strengthening higher education stakeholder relations in Africa (SHESRA), in-kind contribution, Canadian International Development Agency (CIDA).
- Lindenschmidt, K.-E.** (co-PI), with North, R., and Doig, L. 2013. Modelling component of "Phosphorus remobilization in Lake Diefenbaker". Global Institute for Water Security, University of Saskatchewan.
- Lindenschmidt, K.-E.** (PI). 2013-2015. Defining hydro-geomorphological regimes for IFN studies using geomorphic response units (GRU). Manitoba Fisheries Enhancement Fund.





- Lindenschmidt, K.-E.** (PI) and **Wheater, H.S.** 2013-2015. Model scenarios to estimate the potential impact of hydrological standards on nutrient retention in the Tobacco Creek watershed. Manitoba Water Stewardship Fund.
- McDonnell, J.J.** (PI). 2010-2015. Water sustainability in the Willamette Basin. Oregon NSF Hydrological Science.
- McDonnell, J.J.** 2012-2013. Impacts of biofuel production in forested watersheds. US Department of Environment.
- McKenzie, M. (PI), et al., including **Reed, M.G.** (collaborator). 2012-2019. The sustainability and education policy network: leading through multi-sector learning. Social Sciences and Humanities Research Council, Partnership Grant.
- Morrissey, C.A.** 2011-2016. Effect of endocrine disrupting chemicals on avian life cycles. NSERC Discovery Grant.
- Morrissey, C.A.** 2012. Environmental contaminants in Prairie wetlands. Environment Canada.
- Morrissey, C.A.** 2012-2013. Canada-Brazil student host. Emerging Leaders of Americas.
- Morrissey, C.A.** 2012-2013. Neonicotinoid pesticides and effects on agricultural wetlands and wetland-associated birds of Prairie Canada. Ducks Unlimited.
- Morrissey, C.A.** 2012-2013. Environment Canada Science Horizons Internship (two internships).
- Morrissey, C.A.** 2013-2014. Environment Canada Science Horizons Internship.
- Morrissey, C.A.** 2012-2014. Postdoctoral position for research on aerial insectivores.
- Morrissey, C.A.** and **Liber, K.** 2012-2015. Distribution and impact of neonicotinoid insecticides on agricultural wetlands and water birds of Prairie Canada. NSERC Strategic Project Grant.
- Noble, B.F.** (PI). 2012-2016. Uncertainty analysis and communication in Canadian environmental assessment practice and decision making. SSHRC Insight Grant. Co-applicants: J. Jaeger and J. Gunn.
- Noble, B.F.** (PI). 2013. Development of social and economic indicators for sustainable remediation. MITACS.
- Noble, B.F.** (PI). 2013. Development of a cumulative effects monitoring framework. Aboriginal Affairs and Northern Development Canada.
- Reed, M.G.** (PI) and Gibson, R. 2009-2013. Environmental governance for sustainability and resilience: innovations in Canadian biosphere reserves and model forests, Social Sciences and Humanities Research Council, Canadian Environmental Issues.
- Reed, M.G.** (PI), Parkins, J. (Co-I), and Sinclair, J. (Co-I). 2012-2016. The role of communities in collaborative forest governance in Canada: contributing to theory and practice through comparative study. Social Sciences and Humanities Research Council, Insight Grant.
- Reed, M.G.** (PI), Guertin, M.A. (Co-I), with 6 collaborators and 17 partners and contributors. 2011-2014. Creating networking and social learning strategies in Canadian Biosphere Reserves. Social Sciences and Humanities Research Council, Partnership Development Grant.
- Reed, M.G.** (PI), Johnston, M.J. (Co-I) and Natcher, D. (Co-I). 2013-2015. Linking gender, climate change, adaptive capacity and forest-based communities in Canada. Social Sciences and Humanities Research Council, Insight Development Grant.
- Stelman, T.A.** (Co-PI), Roise, J. (PI), Warren, S., Cabbage, F., Bullock, B., Sills, E., Peterson, N., and Abt, B. 2008-2013. Graduate education in forest resource decision sciences: preparing professionals to meet global needs. US Department of Agriculture.
- Stelman, T.A.** (Co-PI), Moore, S. (PI), Cabbage, F., and Blank, G. 2009-2013. Innovation in environmental protection. Environmental Protection Agency.
- Stelman, T.A.** (PI), Hess, G., and Reis, K. 2010-2013. Describing cultural support for and barriers to collaborative management within the US Fish and Wildlife Service. US Geological Survey/US Fish and Wildlife Service.
- Stelman, T.A.** (PI), Roise, J., Moore, S., and Devine, H. 2010-2013. The Southern Fire Exchange: putting fire science on the ground. US Department of Agriculture Forest Service/Joint Fire Science Award.
- Stelman, T.A.** (PI), Hazel, D., and Bardon, R. 2011-2013. Support for longleaf pine restoration and regional partnerships promoting military readiness. Texas A & M University/Department of Defense.
- Stelman, T.A., Barrett, M.J., and Reed, M.G.** 2012-2014. Growing SENS as a learning organization. Curriculum Innovation Fund, University of Saskatchewan.



**Steelman, T.A.** (PI) and Nowell, B. 2011-2014. Systematic learning after a wildfire: development of a post-fire research framework and protocol. United States Forest Service Joint Research Venture Agreement.

**Steelman, T.A.** (Co-PI) and Nowell, B. (PI). 2012-2015. Relational risk assessment and management: investigating local capacity in wildfire response networks. Joint Fire Science Award/US Department of the Interior.

**Steelman, T.A.** (Co-PI) and Nowell, B. (PI). 2012-2015. A pre/post disaster investigation of the effect of network capacities on disaster response. National Science Foundation Award.

**Strickert, G.** et al. (including **Clark, D.**, as co-applicant). 2013. The human dimensions of water security: cultural biases, social relations and behavioral strategies. SSHRC Insight Development Grant.

**Strickert, G.** et al. (including **Clark, D.**, as co-applicant). 2013. Performing perspectives on water security in the Saskatchewan River Basin. SSHRC Connections Grant.


**Wheater, H.**, Pomeroy, J. and **Baulch, H.** 2012-2014. Monitoring and assessment of beneficial management practices: insights from the Tobacco Creek Watershed. Canadian Water Network Grant.

**Wheater, H.S.** et al (**Ireson, A.M.** is a collaborator among thirty-two researchers from eight Canadian universities). 2013-2017. Changing Cold Regions Network. NSERC Climate Change and Atmospheric Research Grant.

## Public and Community Outreach

Public and community outreach is an integral part of SENS' mandate. Major initiatives for the 2012-2013 year were:

- ❖ **Service Learning in ENV5 992:** In 2012, a service learning component was added to the MSEM research project, ENV5 992. Through partnerships with non-profit and charitable organizations, as well as government and private companies, students engage in hands-on learning, which permits them to develop critical thinking and interdisciplinary research skills. In 2012-2013, ENV5 992 service learning partners were:
  - Wanuskewin Heritage Park
  - South Saskatchewan Watershed Stewards, Inc.
  - Redberry Lake Biosphere Reserve
  - Saskatchewan Environmental Society
  - Meewasin Valley Authority
  - Agriculture in the Classroom
  - Habitat for Humanity
  - Saskatchewan Waste Reduction Council
- ❖ **Professional Skills Certificate of Attendance:** Due to student demand, SENS had offered workshops about financial management and communications in previous years. In 2012-2013, these workshops were offered as part of a certificate of attendance, along with workshops in project management, essentials for people management, and sustainability assessment. The certificate was made available to graduate students across campus, as a way for them to enhance their transferable skills. The workshops were facilitated by professionals working in the field, including SENS faculty, staff, and other affiliates. Nineteen students from three academic units participated in the workshops.
- ❖ **Practitioner-in-Residence:** John Patterson joined SENS as its first Practitioner-in-Residence during 2012-2013. Mr. Patterson has extensive experience in project management and as an environmental advisor with organizations such as the World Bank, the Asian Development Bank, and SNC Lavalin. He shared his project management expertise with students through a workshop as part of the SENS professional skills certificate of attendance, and advised MSEM students about professional practice.
- ❖ **Dennis O'Connor Lecture:** SENS was honoured to be visited by Associate Chief Justice Dennis O'Connor, of the Court of Appeal for Ontario, in October 2012. Justice O'Connor was the commissioner of the Walkerton Inquiry, a two-year public inquiry that examined events leading to the worst drinking water contamination event in Canadian history. The inquiry made over 100 recommendations to protect drinking water safety in Ontario and Canada, and these recommendations continue to shape water policy nationally and beyond to this day.
- ❖ **Delta Day:** SENS held its inaugural Delta Day on February 1, 2013, with a focus on the Saskatchewan River Delta, the largest inland river delta in North America. To help understand the ethnoecology of the area, Assistant Professor Tim Jardine hosted the event, which featured visits from community research partners at Cumberland House and The Pas. The visit included a screening of the documentary *Saskatchewan River Delta* and a presentation by Alli Morrison from the University of Manitoba, about her work characterizing links between ecology and human well-being in the delta.
- ❖ **MESPOM (Master in Environmental Sciences, Policy, and Management) Memorandum of Understanding.** The University of Saskatchewan joined the MESPOM consortium of universities in 2011-2012, and SENS continued to participate in 2012-2013. This prestigious Erasmus Mundus master's program is managed by four European and two North American universities, and is supported by



the European Commission. The consortium universities are Lund University (Sweden), the University of Manchester (UK), Central European University (Hungary), the University of the Aegean (Greece), Middlebury College (USA), and the University of Saskatchewan (Canada).

- ✦ **Talking SENSE and the Alumni SENSor.** SENS continued to provide updates to its community members and the wider public through *Talking SENSE*, an electronic newsletter published three times a year. The *Alumni SENSor* is sent to SENS alumni exclusively.

## Governance

The School of Environment and Sustainability follows a collegial model of decision-making, where committees are responsible for overseeing the development of policies and procedures. Final approval is sought from the SENS Faculty Council, which is comprised of all faculty holding standard, primary-joint, or secondary-joint appointments in the School. Membership of the School's committees for 2012-2013 was as follows:

### Academic Programs

- Charles Maulé (chair)
- Bram Noble
- MJ Barrett
- Helen Baulch
- Maureen Reed
- Naveed Khaliq
- Vladimir Kricsfalusy
- Colleen George
- Badrul Masud

### Admissions and Awards

- Ken Belcher (chair)
- Markus Hecker
- Geoff Cunfer
- Christy Morrissey
- Andrew Ireson

### Engagement

- Paul Jones (chair)
- Doug Clark
- Tim Jardine
- Karl-Erich Lindenschmidt
- Paul Hawthorne
- Anna Coles

# Finances

For the Period Ended April 30, 2013

<b>Fund balances, beginning of year</b>	\$	330,169.40
<b>Revenue (1)</b>		
Student Fees		19,830.47
Operating Allocation		848,920.08
Internal Transfers		
Graduate Scholarship Allocation		125,610.21
Capital Equipment Allocation		8,000.00
Centennial Chair Allocation		130,508.34
<b>Total Funds Available</b>	<b>\$</b>	<b>1,132,869.10</b>
<b>Expenses</b>		
Salaries		740,501.17
Employee Benefits		103,039.02
Operational Supplies and Expenses		43,087.30
Travel		19,234.98
Maintenance, Rental and Renovations		3,501.70
Scholarships, Bursaries and Prizes		138,575.00
Capital Assets		11,209.70
Transfers to other funds (2)		77,176.72
<b>Total Expenses</b>	<b>\$</b>	<b>1,136,325.59</b>
<b>Revenue over expenses</b>	<b>\$</b>	<b>3,456.49</b>
<b>Fund balances, end of year</b>	<b>\$</b>	<b>326,712.91</b>

(1) Only core operating and scholarship funding is summarized; research, overhead and Federal Indirect Cost Program funding for the School of Environment and Sustainability is not included.

(2) Relates to various transfers, including Senior Administrators' Expenses (DSEA), Operating budget adjustment re: contingency recovery; pension liability.