

We're 'On the Money'!

On March 26, the Bank of Canada officially announced the entry into circulation of the new \$50 polymer bank note, which prominently features the **CCGS Amundsen Research Icebreaker**, jointly operated by ArcticNet and the Canadian Coast Guard. It is an exceptional honour to have the work of our Arctic science researchers be part of such a significant celebration of Canadian Arctic science advances. The design of this bill acknowledges

As noted in the Bank of Canada documentation, "*The vastness and splendor of Canada's northern frontier have helped to shape our cultural identity. The icebreaker plays an important role in the North, keeping Canada's historic passages open, undertaking marine search and rescue, supporting isolated communities, and participating in international environmental research. The CCGS Amundsen helps Canada – the nation with the world's longest stretch of Arctic coastline*

Our growing knowledge of the effects of climate change in the Arctic leads to a recognition that our relationship to the natural world has changed and that we may well be living in a new 'Anthropocene' epoch characterized by increasing human influence on geological, biological and chemical processes on the Earth. Our Faculty is uniquely placed to address this change in our relationship to the natural world and the threats it implies, blending as it does physical and social science scholarship. Through our research, teaching and scholarship we are increasing our society's understanding and respect for the Earth and its changing environments, landscapes and resources, and the effects of, and on, human populations. A strong visible statement such as placing the CCGS Amundsen Research Icebreaker on our currency serves to demonstrate, to ourselves and to the world, that we are in fact 'on the money' in more than the strictly literal sense.

(Image used with the permission of the Bank of Canada.)



climate change, and its effects on soils and sea-ice, on animals, and on the wellbeing of Northern communities, as central issues for Canada in the 21st century.

– to remain at the leading edge of Arctic research, providing the world's oceanographers, geologists and ecologists with unparalleled access to the North." (www.bankofcanada.ca/banknotes).



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Awards.

Michelle Curry is the University of Manitoba Cooperative Education Student Champion Award Winner 2012. Michelle is an outstanding student and role model in the Cooperative Education program. Her success and demonstration of professional and personal growth has been obtained through her coop placements, extra-curricular activities and academic performance. Congratulations Michelle! (Photo Credit: Jason Jorgenson. Pictured left, Michelle Curry with her award certificate congratulated by Dr. Bonnie Hallman, Associate Dean Academic.)

Chris Stammers (M.Sc. student, CEOS) has been awarded the NSERC Alexander Graham Bell Canada Graduate Scholarship. This prestigious award is valued at \$17,500.00

Dr. Monika Pucko (Ph.D. in Geography) has been selected as one of this year's University of Manitoba Distinguished Dissertation Award recipients! These awards are given annually to recognize doctoral graduands that have made groundbreaking contributions to their disciplines. Dr. Pucko, whose dissertation is titled 'The Effect of Atmosphere-Snow-Ice-Ocean Coupling on Hexachlorocyclohexane (HCH) Pathways Within the Arctic Marine Environment', will be presented with a Citation Certificate and a cheque for \$3000 at a future awards reception. Congratulations!!

In the News.

Drs. Feiyue Wang (Environment and Geography) and **Norman Halden** (Dean) were both quoted in the CTV News story '*Melting Arctic ice could poison ecosystem, experts say*', March 18, 2012.

Dr. Fikret Berkes (Natural Resources Institute) was recognized recently in the "*List of Researchers with the Top 3 H-Index Scores by Discipline*", reproduced in the Globe and Mail, 27 March 2012, page B8. The list is the first Canadian version of Hirsch-Index Benchmarking of Academic Research. It takes into account the number of publications and their citation scores, and is an index of researchers with the most influence in their fields. Dr. Berkes' H-Index score tops the field in the Agricultural Sciences category.

The **Faculty Seminar Series** hosted the Honourable Stéphane Dion (pictured left). Mr. Dion spoke on the theme of *Climate Change, Climate Change Strategies and Policy*; to a large and enthusiastic crowd on March 22nd, 2012. (Photo Credit: Jason Jorgenson.)

WIUGC 2012

The Western Inter-University Geosciences Conference is a student-run conference hosted by a different western Canadian university annually. Riddell Faculty Geosciences students are consistently among the top presenters and 2012 proved to be no exception. This year

Akhil Ramdoyal presented on 'Lithofacies Analysis and Petroleum Reservoir Potential of the Lower Silurian Attawapiskat Formation, Hudson Bay Basin, Northeastern Manitoba', and

Lauren Eggie spoke on 'Lithofacies analysis of the middle unit of the Wymark Member of the Upper Devonian Duperow Formation, southwestern Manitoba'. Both are being supervised in their Honours theses by Dr. Nancy Chow (Geological Sciences). (Photo Credit: Tannis McCartney. Pictured left bottom Akhil Ramdoyal and Lauren Eggie.)

Curry Cook-off.



On March 15th, **Dr. Norman Halden**, Dean of the Riddell Faculty, and Dr. Chris Trott, Warden and Vice-Chancellor of St. John's College, faced-off in a little bit of friendly '*battle of the curries*' competition. Dr. Trott prepared balti chicken, and Dr. Halden a beef and spinach 'palak goscht'. Add lentils, samosas, rice, naan, chutney and some 70 hungry people and you have a Curry Cook-Off! Voting was intense, vying as they were for the '*Chef-y*', but in the end Dr. Halden was the victor by one vote, 33-32. As you can see from the photos, this was a very fun community-building event.

The real winners however are our students. The Curry Cook-Off was a fundraiser for the **Dr. William Norton** Award, which honours the career of Dr. Norton, a Professor in the Department of Environment & Geography and a Senior Fellow at St. John's College. The award will be given to a student member of St John's College in a geography program, with preference for a student in human geography. Given the success of the fundraiser, it looks like the first award will be made in 2012 – and that this may have been the '*First Annual Curry Cook-off*'!

(Photo Credit: Joshua Adria. Pictured left Dr. Norman Halden with Dr. Chris Trott and '*Chef-y*'. Pictured below, Dr. Bonnie Hallman, President David Barnard, and Dr. Norman Halden.)



Multiple Student Positions in Arctic Marine System Science:

The Centre for Earth Observation Science (umanitoba.ca/ceos), at the University of Manitoba, has entered into a new and unique partnership with Denmark (University of Aarhus: www.au.dk/en/research/researchcentres) and Greenland (Greenland Climate Research Centre: www.natur.gl/en/climate-research-centre). This partnership has evolved from the successful application for a Canada Excellence Research Chair (CERC) in Arctic Geomicrobiology and Climate Change (www.cerc.gc.ca/chairholderstitulaires/rysgaard-eng.shtml), a Canada Research Chair in Arctic System Science (www.chairschaires.gc.ca/chairholders-titulaires/profileeng.aspx?profileid=2464) and an ongoing partnership with ArcticNet, a Network of Centres of Excellence (www.arcticnet.ulaval.ca).

We are seeking at least 30 new graduate students, at the M.Sc., Ph.D. and Postdoctoral level, as a major new intake of students to conduct research in a variety of Arctic marine system studies in Canada, Greenland, northern Europe, Eurasia and Pacific sectors of the Arctic. More specifically our faculty seek students in each of the following areas:



1. Atmospheric and oceanic forcing of sea ice dynamic and thermodynamic processes (D. Barber, Professor, CRC, dbarber@cc.umanitoba.ca)
2. Sea ice geomicrobiological processes and benthic-sea ice coupling (S. Rysgaard, Professor, CERC, rysgaard@cc.umanitoba.ca).
3. Geochemistry and materials science in sea ice related processes (N. Halden, Professor, halden@cc.umanitoba.ca).
4. Carbon and contaminant cycling and process in Arctic marine and freshwater ecosystems (G. Stern, Professor and DFO chair, Gary.Stern@DFO-MPO.GC.CA).
5. Arctic physical oceanography and linkages to physical forcing of the ocean-sea ice-atmosphere (OSA) interface (I. Dmitrenko, Professor, dmitreni@cc.umanitoba.ca).
6. Trace elements, contaminant pathways and mercury deposition (F. Wang, Professor, wangf@ms.umanitoba.ca).
7. Air-sea and air-sea ice exchange of trace gases and energy, with linkages to surface ocean and sea ice biophysical and biogeochemical processes and properties (T. Papakyriakou, Associate Professor, papakyri@cc.umanitoba.ca).
8. Arctic marine geochemistry: the organic carbon cycle, ocean and coastal processes, and impacts of climate change (Z. Kuzyk, Assistant Professor, umkuzyk@cc.umanitoba.ca).
9. Solar radiation interactions with the sea ice environment, linkages to physical and biological processes governing sea ice formation, evolution and melt (J. Ehn, Assistant Professor, jens_ehn@umanitoba.ca).
10. Biological and physical processes controlling the timing, magnitude, location and fate of ice and ocean primary production (C.J. Mundy, Assistant Professor, CJ_Mundy@umanitoba.ca).

Candidates should send a CV and letter of intent directly to faculty members (at emails indicated above). General inquiries can be sent to Prof. David G. Barber, Director of CEOS, dbarber@cc.umanitoba.ca. Students will become part of a globally unique multimillion-dollar research program using state of the art instrumentation, various ocean going vessels and several field research camps around the circumpolar Arctic. Graduate stipends are competitive internationally and commensurate with qualifications. Details regarding application and deadlines can be found at:

<http://umanitoba.ca/faculties/environment/departments/geography/graduate/570.html>

Association of American Geographers Annual Meeting, New York.

February 24-28, 2012

This year's Annual Meeting of the Association of American Geographers in New York City was the most well attended meeting in the association's history with over 8,000 scholars discussing their latest ideas, techniques, and findings in over a thousand sessions in physical geography, human geography, and geographical techniques. The location of the event in mid-town Manhattan was a draw for many of the presenters and most took advantage of the excellent cultural amenities for which the city is known.

(Photo Credit: Ann Marie Murnaghan.)

The Department of Environment and Geography represented the University of Manitoba well with four presentations highlighting the department's strengths in youth geographies, health and food geographies, and environmentally-oriented research. The presentations fit well with the theme of the presidential plenary panel entitled "*The City Beyond Symbolism*."

Emily Skinner, (MA, Geography), who recently defended her thesis, advised by **Dr. Jeffrey Masuda** (Environment & Geography), presented her paper "*Going down the wrong road is easier than the right*": An arts-aligned research project articulating youth's experiential spatiality of urban injustice, health, and their "Right to the City". It was well received in one of the popular sessions on Children and the Environment: Environmental Perception & Experience, organized and chaired by Jason Gilliland and Janet Loebach of the University of Western Ontario.

Cheryl Sobie (MA student, Geography) also working with **Dr. Jeffrey Masuda**, produced and presented an interesting poster entitled *Aboriginal women's foodscapes: Moving towards a geography of food dignity* in the People and Place session in the poster hall.

Shauna Mackinnon, (MA student, Geography) working with **Dr. Bonnie Hallman** (Environment & Geography), organized and chaired (with Dr. Liz Bondi, University of Edinburgh) two sessions entitled Emotional and Affective Methodologies: Feeling, Thinking and Knowing. She presented a thought-provoking paper from research with Dr. Michelle Driedger (Community Health Sciences, and adjunct to Environment & Geography), entitled *Understanding the feelings of H1N1 through the lens of a Metis population* in one of the sessions she organized.

Dr. Ann Marie Murnaghan (Environment and Geography), presented a paper from her dissertation research entitled *Reflexively Researching with a Playful Methodology* in a session entitled Towards Methods of Possibility. She also participated in a panel discussion on Affective Attachments and Environmentalism drawing from and extending her research on the playground movement in Toronto.

University of Manitoba colleagues from the Faculty of Arts, and the Faculty of Agricultural and Food Sciences also participated in the conference, highlighting the diversity of the discipline of geography. Dr. Tina Chen, (History), presented her paper *Wartime Migration and the Markets of Repatriation in 1940s Asia* in a session series entitled Markets and Militaries. This was her first time at an AAG meeting, and she reports she had a great time! Alex Koiter, a doctoral student working with Dr. David Lobb (Soil Science), presented a paper entitled *Assessing the Sources of Suspended Sediments in the Streams of an Agricultural Watershed in the Canadian Prairies Using 137Cs as a Tracer* in a session entitled Watershed Sediment Source Identification.



'Land that Gives Life' Pimachiowin Aki Cultural Landscape Atlas.

Dr. Iain Davidson-Hunt (Natural Resources Institute) attended the Pimachiowin Aki UNESCO World Heritage Site nomination event held at the Provincial Legislative Building in Winnipeg on January 18, 2012. Dr. Davidson-Hunt, graduate students **Kristin Didora**, **Catie Burlando**, and **Julián Idrobo** and NRI Adjunct Professor **Michael**

O'Flaherty have worked with the Pimachiowin Aki Corporation supporting the preparation of the nomination. Dr. Davidson-Hunt's latest project was the writing of the "*Pimachiowin Aki Cultural Landscape Atlas, Land That Gives Life*", co-authored with **Nathan Deutsch** (NRI Ph.D. candidate) and **Andrew Miller** (NRI Ph.D. graduate). The review copy of the atlas was released at the nomination event and is included in the supporting documentation for the nomination. The atlas therefore is part of the materials that will be reviewed by the UNESCO World Heritage Centre in Paris, France in the selection of new World Heritage sites. The book is currently in review and will be published in the spring of 2012.

The cultural landscape atlas provides the opportunity to experience Pimachiowin Aki through maps, images and stories. The atlas begins by situating Pimachiowin Aki within the current process of nominating this area as a UNESCO World Heritage site.

Cultural landscapes are not static but emerge over time out of the relationship between a people and a place. A world heritage site is being woven into the relationship between the Anishinaabe people of this place and the landscape. This cultural landscape atlas is a starting point for a journey into Pimachiowin Aki.

A short video on the completion of the Nomination Bid can be found online at: <http://www.youtube.com/watch?v=nhaJKrjzob4>

More Information on the Pimachiowin World Heritage Site Nomination is available online at: <http://www.pimachiowinaki.org/our-news>

(Photo Credit: Andrew Miller. Pictured, Dr. Iain Davidson-Hunt shows the atlas to Premier Selinger.)



Aboriginal Issues Press.

The '*Voices from the Dorms*' book launch was combined with a reunion of the students and staff that attended the school from 1935-1970. This 3-day event attracted over 200 alumni and staff. The book was launched at a public Open House held on the grounds of the residential school with static museum displays of memorabilia from the school, a tour of the original building, refreshments and facilities provided by the current property developers, Pomeroy Ltd. Alumni representing each era of the school's operation presented poignant memories followed by accolades from Qualicum Beach and Nanaimo community representatives, including Councillors and the Director of the Qualicum Beach Heritage Society and Museum. Over 750 residents attended the ceremonies, which lasted throughout the afternoon. About 200 books were sold and the manuscript has since been reprinted. The '*Old Boys*' and Staff and general public were most impressed with the final product and thrilled to have the cultural history of this special landmark recorded.

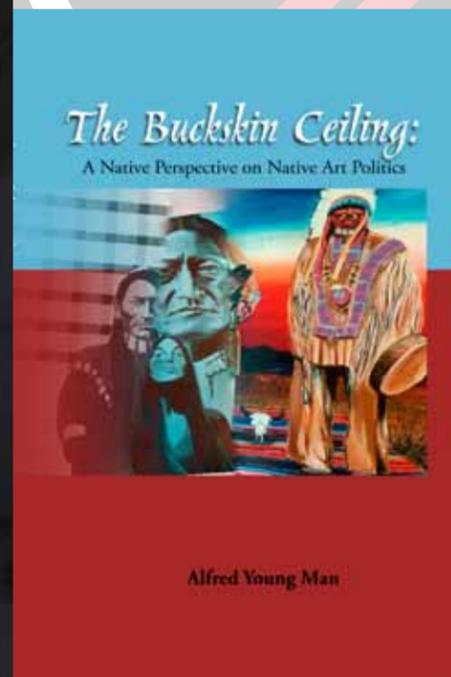
Dr. Alfred Young Man presented his new publication, "*The Buckskin Ceiling*", (the day after it was off the press) to an international conference in The Netherlands in February. The publication was very well received and a book launch is planned for summer 2012.

'*Exploring the Sacred*' is our most recent publication in the Sacred Lands book series. This exciting compilation of short research papers from students was launched this Fall.

Annually, the Aboriginal Issues Press (AIP) publishes peer reviewed sole-authored or multi-authored manuscripts from all disciplinary and multi-disciplinary perspectives. Completed manuscripts and ideas for theme publications are welcome. Publications are available at wholesale prices from the Clayton H. Riddell Faculty of Environment, Earth, and Resources. All sales profits are contributed to the Aboriginal Issues Press Scholarship, which is offered to three or four students annually.

The Aboriginal Issues Press (AIP) Scholarship has received 12 applications for 2012. There will be a total of \$5,000.00 that will be divided up between the winners. The AIP Scholarship is made possible by profits from the sales of its publications as well as a yearly contribution from the Clayton H. Riddell Endowment Fund.

(Photo Credit: Jill Oakes. Pictured top right, 'Old Boys' and their wives, Pictured above, Ainsley Foster.)



Student Profile.

Alan Ng (B.Sc. Physical Geography Co-op) For years, Alan Ng worked in the information technology industry, but realized he had a greater passion for nature. This passion fueled a desire for change, which saw him leave China to, in his words, "*redo his education, career, and life.*"

Once at the University of Manitoba, Alan describes feeling inspired by the Riddell Faculty's well-known scientists, including **Dr. David Barber** (CEOS, Environment & Geography), **Dr. Rick Baydack** (Environment & Geography) and **Dr. Mary Benbow** (Environment & Geography). Soon he enrolled in the Bachelor of Science in Physical Geography, with a focus on Geomatics. He learned of the Co-op program option and following the advice of **Leslie Goodman** (Cooperative Education Coordinator), joined the program.

Alan credits his experiences with the Co-op program with developing his skills, and importantly the connections, that have furthered his career. He selected courses related to the environment and conservation, and learned hands-on about natural resource legislation and wildlife management through a work placement with Manitoba Conservation, as a Natural Resource Officer I.

A subsequent work placement as an Environmental Intern at a Royal Canadian Air Force base, could be seen as life-altering. During this placement Alan developed his management skills, and learned more about environmental legislation, policies

and directives, environmental assessment, site investigations, hazardous material management, water and waste management and green building standards. This placement led to Alan's current employment as an Environmental Coordinator for Defense Construction Canada (DCC), working at Canadian Forces 17 Wing Detachment Dundurn, in Dundurn Saskatchewan.

As Alan states, he enjoys working in Dundurn, describing it as a beautiful place with lots of natural wildlife and habitat. There are also lots of issues and programs to be dealt with, as it is a National Defense establishment with a large range and training area, including the national Canadian Forces Ammunition Depot (CFAD). He describes '*learning [a] tremendous amount ... in an extremely fast growing sector*' and looks forward to a long career '*where [his] passion and dreams are*'.

(Photo Credit: Alan Ng.)



Alumni Profile.

Yulia Uvarova (Ph.D., Geological Sciences) was born in a small city on the shores of the White Sea in Russia. After graduating from high school, she moved to Moscow to enroll in the Faculty of Geology, Moscow State University. She received her BSc (Hons) in Geology in 2001 under the supervision of **Dr.**

Elena Sokolova, who introduced Yulia to the exciting world of mineralogy, crystallography and crystal chemistry. Upon undertaking a position in the Department of Geological Sciences,

Dr. Sokolova introduced Yulia to **Dr. Frank C. Hawthorne** (Geological Sciences). In 2002, Yulia started her studies as an M.Sc. and later as a Ph.D. student in the Department of Geological Sciences, under the supervision of Dr. Frank C. Hawthorne and Dr. Elena Sokolova.

Her dissertation work was in the field of mineralogy, petrology and geochemistry of rocks from the Kola Superdeep Borehole (KSDB), located in the north-western part of Kola Peninsula, Russia. This is the deepest hole drilled into the Earth's crust, at a depth of 12.2 km, providing an opportunity to study the upper and middle crust. Yulia examined the crystal chemistry of amphiboles (the most complex rock-forming mineral that occurs in a wide variety of rocks) and related their chemical composition and crystal chemistry to lithology and the metamorphic grade of Kola Precambrian rocks. The results of Yulia's work contributed to the fields of mineralogy and metamorphic petrology. Yulia also did research on the stable-isotopic composition of Kola rocks, and this study revealed that there was interaction of the rocks with channelized fluids moving along the major faults, but there was no pervasive fluid flow during metamorphism. While working on her dissertation, Yulia was also involved in a number of projects on the identification of new mineral species, and described eight new minerals.

Yulia and her husband, Anton Uvarov, a Ph.D. student in the Department of Biochemistry and Medical Genetics, University of Manitoba, both graduated in 2008. While working on their dissertations, Yulia and Anton had two children, Anton Jr. and Maxim. [Insert photo here]

After graduation Yulia undertook a William E. White Postdoctoral Fellow Position and later NSERC Postdoctoral Fellow Position in the Department of Geological Sciences and Geological Engineering at Queen's University, Ontario. Her research focused on geochemistry, mineralogy, petrology and the genesis of economic mineral deposits, uranium in particular; development of new exploration tools for search of uranium deposits; behaviour of High Field Strength Elements (HFSE) in high-temperature systems; geochemistry of non-traditional isotopic systems

and the application of these systems to elucidate processes responsible for deposit formation. Recently, Yulia took up a Geochemist/Exploration Geochemist position at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Perth, Australia, where she is currently moving with her family. CSIRO is Australia's national science agency and one of the largest and most diverse research agencies in the world. Yulia will work in a team to develop new workflows and techniques for mapping the distal footprints of metalliferous mineral systems (mostly Au and U) through drilling and sampling, and develop the science of understanding large geochemical footprints of mineral systems and their detection on the surface.

(Photo Credit: Yulia Uvarova. Pictured, Yulia and her family.)



Exploring Arctic Science At Fort Whyte Alive.

Introducing Arctic Science to High School Teachers and Students

A collaboration between the Centre for Earth Observation Science, Schools on Board, Department of Oceans and Fisheries, and FortWhyte Alive

Arctic Science Day, a collaboration between the Centre for Earth Observation Science, Schools on Board, the Department of Oceans and Fisheries, and FortWhyte Alive, has become an annual event since its inception in 2009. High school students and their teachers are invited for a day to participate in hands-on demonstrations of Arctic climate change research. It is an interactive way to demonstrate the research that occurs in the Arctic, usually conducted off the CCGS Amundsen, the Canadian Coast Guard research vessel, and how the Arctic plays an important role in global climate. Research associates and graduate students from the Center for Earth Observation Science and the Department of Oceans and Fisheries prepare a variety of stations based on their areas of research.

Connecting high schools students and Arctic climate change researchers benefits both groups. High school students are introduced to research and potential careers in Arctic science, and graduate students have the opportunity to interact with and communicate their research to a different audience. This year Arctic Science Day was held on February 28th, with the following stations for students to explore:

Ice Algae – Students looked at the 4W's (what, when, where, why) of ice algae and were introduced to sampling techniques.

Quicksilver: Mercury for Dummies – Students had the opportunity to sample snow and water using procedures used by scientists to determine mercury levels found in each.

The Weather Above: Weather Balloons and Microwave Profiler – Students observed and assisted with filling and launching a tethered weather balloon, interpreted data collected from a radiosonde and compared it to data from a microwave profiler.

Surface Energy Budget & Albedo – Students were given a tour of a small weather station and asked to measure the albedo of several different sources using a pyranometer.

Remote Sensing – Students were introduced to a hyperspectral optical system (measuring colour across the visible and infrared spectrum) and an advanced LiDAR (Light Detection and Ranging) system. Scientists demonstrated how these systems relate to Arctic Science and how scientists use satellites to monitor large-scale changes across the Earth.

Snow Physics – Students prepared a snow pit for sampling the snow pack, analyzed individual layers, recorded temperatures, and also determined grain size and snow density.

Inuit Clothing and Tools Used on the Sea Ice – Students had the opportunity to dress in rare skin clothing made from caribou, seal, wolf, wolverine, sea birds, and seal intestines.

Guts, Mud, and Fun: Working at Fisheries and Oceans Canada (DFO) – Scientists provided an overview of some of the ways DFO is studying marine mammals in the Arctic including DNA profiling, aerial survey photo analysis, and aging marine mammals.

Ice Cores – Students cut an ice core, created a temperature profile, and made observations using a variety of field equipment.

Participants:

University of Manitoba: David Babb, Ryan Galley, Matthew Asplin, Lauren Candlish, Amanda Chaulk, Sarah Beattie, Brent Else, Meredith Pind, Chris Stammers, Kerri Warner, Dustin Isleifson, Geoff Gund, Jack Landy, Karley Campbell, Matt Gale, Linda Chow, Rick Riewe, Megan Shields

Department of Oceans and Fisheries: Joscelyn Bailey, Maija Heikkila, Cortney Watt, Jessie Carrie, Marci Trana, Brent Young, Lianne Postma

Fort Whyte Alive: Katrina Froese, Jody Watson, Barret Miller and volunteers
Schools on Board: Michelle Watts



IMPORTANT DATES 2012

May 21 - World Day for Cultural Diversity for Dialogue and Development

www.un.org/en/events/culturaldiversityday

This Day reaffirms the need for international dialogue to prevent segregation and fundamentalism, and to promote the protection of cultural diversity.

May 22 - International Day of Biological Diversity 2012 – 'Marine Diversity'

www.cbd.int/idb

The United Nations proclaimed this Day to increase understanding and awareness of biodiversity issues.

June 5 - World Environment Day – 2012 Theme: Green Economy: Does it Include You?

www.unep.org/wed/theme

The United Nations Environment Programme (UNEP) defines the Green Economy as one that result in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.

June 8 - World Oceans Day: Youth – The Next Wave for Change

June 17 - World Day to Combat Desertification and Drought

www.unccd.int/en/Pages/default.aspx

The World Day to Combat Desertification has been observed since 1995 to promote public awareness relating to international cooperation to combat desertification and the effects of drought.

June 21 - Canadian National Aboriginal Day

www.pch.gc.ca/canada/11/jna-nad-eng.cfm

In cooperation with national Aboriginal organizations, the Government of Canada designated June 21, National Aboriginal Day. This date was chosen because it corresponds to the summer solstice, a time of year when many Aboriginal groups have celebrated their culture and heritage.

July 11 - World Population Day

www.unfpa.org/public/wpd

World Population Day was established by the Governing Council of the United Nations Development Programme in 1989 as a way to focus attention on the urgency and importance of population issues. It was an outgrowth of the interest generated by the Day of Five Billion, which was observed on 11 July 1987.

August 9 - International Day of the World's Indigenous People

<http://social.un.org/index/IndigenousPeoples/InternationalDay.aspx>

The UN General Assembly decided in 1994 that the International Day of the World's Indigenous People would be celebrated August 9th every year to further the strengthening of international cooperation for the solution of problems faced by indigenous people in such areas as culture, education, health, human rights, the environment, and social and economic development, by means of action-oriented programs and specific projects, increased technical assistance, and relevant standard-setting activities.

(Photo Credits: Michelle Watts. Pictured left, top to bottom, Guts, Mud and Fun, Ice Cores, Inuit Clothing, and Quicksilver. Pictured opposite page, the Weather Above.)

Just Food, Just Communities and the Manitoba Alternative Food Research Alliance.

Anna Weier and Dr. Stephane McLachlan

So what do inner city gardeners securing their garden plots, farmers worrying about rural depopulation and decline' and northern Indigenous fishers challenging the systemic barriers to their livelihoods all have in common? Concerns over food injustice. And involvement in the Manitoba Alternative Food Research Alliance (MAFRA).

MAFRA brings together over 50 community and 10 university partners to support and connect communities and researchers working on food justice across Manitoba. We strive to ensure that research is socially and politically engaged. We work for food justice, by promoting community food security, food sovereignty, and local food systems. This research alliance is breaking new ground across Manitoba, especially when it comes to redefining how researchers and communities work together.

One of MAFRA's main activities is helping support community-based projects related to food justice. In winter 2010, we had our first call for community proposals and received over 40 proposals from across urban, rural and northern Manitoba. Projects were chosen by a committee made up of community members from that region as well as students and researchers familiar with those regional needs. Many of

these projects also provided learning opportunities for undergraduate and graduate students.

Three of the four projects funded in northern Manitoba were school community gardens in Brochet, St. Theresa Point and Wasagamac. Funding was also given to the Interlake Reserves Tribal Council (IRTC) for the creation of an Indigenous cookbook. The IRTC said that "creating an Indigenous cookbook that reflects First Nations' customs will provide communities with culturally relevant, safe, Indigenous recipes that will be useful in supporting the importance of tradition and healthier eating habits."

Five projects were selected for rural Manitoba. One of these was a food justice community roundtable in Sagkeeng First Nation. **Tabitha Martens**, a MAFRA-supported M.Env. student in Environment and Geography, also attended and is now featuring one of the roundtable participants, the Peguis Culture Camp, in her graduate research. Another rural project, Homegrown Leaders for Sustainable Rural Food Systems and Communities, is hosted by the Harvest Moon Society. Project organizer Michelle Schram said "Let's hope that projects like Homegrown

Leaders will help encourage other young people to pursue the rewarding lifestyle of producing and providing healthy, nutritious, local food for themselves and others!"

Four Winnipeg-based projects received funding, including a community oven that will be built in North Point Douglas, providing a communal space to prepare and celebrate food. The Urban Greenspaces Coalition will also receive funding for a Community Garden and Land Tenure project. Robyn Webb from the coalition was excited to receive funding. "So much investment has already been made into our community gardens, we now need to look for ways to make sure these spaces have more secure tenure."

MAFRA, by funding these initiatives and by linking students, researchers, and communities around these issues has become an important presence in Manitoba's foodscape.

To find out more about MAFRA visit our website at localandjust.ca. If you have any questions, please contact MAFRA Coordinator Anna Weier by email (info@localandjust.ca) or by phone (204-474-9316 or 1-866-580-8160)

manitoba
alternative
food
research
alliance



New Faculty Profiles.

Ann Marie Murnaghan

Dr. Ann Marie Murnaghan (Environment and Geography), comes to the Riddell Faculty from York University in Toronto where she completed her SSHRC funded doctoral research in Geography in 2010. Her dissertation, entitled *Spaces of Nature, Places for Children: The Playground Movement at the Turn of the Twentieth Century in Toronto, Canada*, explores local expressions of the relationships between the complicated discourses of children/childhood and nature in cities from 1889-1916. Using a Foucauldian-historical approach, she examines the influences of activism on spatial regulation, as well as normalization processes of children's raced, classed, and gendered identities. She does this through documentary photographs and a textual archive. This research builds on her master's project, completed in the Faculty of Environmental Studies at York University, which brought feminist arguments to discussions of political economy and colonial representations of nature in policy documents and landscapes.



(Photo Credit: Ann Marie Murnaghan.)

Dr. Murnaghan explores many of these ideas in her classes, including Introduction to Human Geography, Urban Geography, Social Geography of the Environment, and Children's Geographies. She sees her teaching as an extension of her research program, and likes to foreground the importance of methodologies in teaching students how academics know what they know.

In her spare time she is an avid cineaste, and enjoys exploring her fascinating new home here in Winnipeg. She's still shocked by the density of the social networks here in the Prairies, and is making the transition to a more relaxed lifestyle than that of Southern Ontario quite easily.

ZouZou Kuzyk

Dr. ZouZou Kuzyk (Geological Sciences) is a biogeochemist, with particular interest in the biogeochemical cycles of carbon and other elements in Arctic coastal and marine areas. The Arctic Ocean is entering a time of dramatic change in its sea-ice distribution, river runoff, and ocean circulation and each of these changes impacts the supply, distribution and fate of organic carbon and associated nutrients differently. Dr. Kuzyk uses a variety of geochemical tracers, including radioisotopes, stable isotopes, redox-sensitive elements and specific proxies for land-derived organic matter (e.g., lignin) to study the modern marine sediment record, documenting past and present conditions and providing insight into ongoing change. Her research also contributes to our understanding of sedimentation processes in Arctic coastal and shelf environments, early diagenesis, land-ocean interactions, and pathways and fate of contaminants in Arctic seas.



(Photo Credit: ZouZou Kuzyk.)

Dr. Kuzyk completed her Master's of Science at Queen's University, her Ph.D. at the University of Manitoba, and post-doctoral research at INRS-ETE, University of Quebec. She is now an Assistant Professor in the Department of Geological Sciences, where her research builds on the existing departmental expertise in stable isotopes and geochemistry, and expands it to applications in environmental and climate change research. She is also a member of the Centre for Earth Observation Science (CEOS), where her Arctic biogeochemistry research complements other ongoing areas of Arctic research (e.g., geophysical, biological, cryospheric, etc.). She is currently working on projects within ArcticNet (Arctic Network of Centres of Excellence, www.arcticnet.ulaval.ca) and as part of the Canadian International Polar Year (IPY) program, involving field campaigns both along the margins of the Arctic Ocean and in Hudson Bay.

Research Profiles

Wetlands on Drugs.

Dr. Mark Hanson (Environment & Geography) & Dr. Charles Wong (University of Winnipeg)

What happens to water after it flows down the drain? In rural communities across the Prairies, this wastewater typically ends up in sewage lagoons. It is then kept for an extended period of time to allow for settling and some biological treatment. Eventually, the lagoons are discharged into a receiving environment, usually a river or a creek, many of which eventually lead to Lake Winnipeg, one of Canada's most stressed ecosystems. These effluents often contain high levels of nutrients and human-use pharmaceuticals, including antibiotics, which can promote the development of antibiotic resistance gene (ARG) containing bacteria. Aside from impacting the ecosystem, this can also put human health at risk. One possible solution is to extend the treatment process by discharging into a constructed wetland where the presence of plants, invertebrates, and microorganisms can uptake, metabolize or sequester these contaminants from the water column. This should result in a higher quality of water being released into the wider environment. This approach has the added benefit of ensuring that ARG bearing bacteria are forced to compete with unmodified organisms, as well as subjecting them to grazing pressure by zooplankton and benthos, which is predicted to reduce their stability, and hence possible impacts.

One way to study the utility of treatment wetlands are experimental systems called mesocosms. At the University of Manitoba, the new Prairie Wetland Research Facility (PWRF) allows scientists to create and manipulate shallow wetland systems (See photos below.). The tanks can mimic a natural functioning ecosystem in a reproducible and replicable manner. Simple to manage logistically, they contain sediments, plants and microorganisms as well as zooplankton and benthic organisms, allowing for multiple trophic-level interactions between species to be examined in ways that are not possible in the field. Several experiments were conducted this past summer (2011) by undergraduate, graduate and post-doctoral researchers to investigate whether wastewater effluents are impacting wetland plant growth, zooplankton and benthic

communities, nutrient dissipation, and to understand the fate of selected pharmaceuticals. The results of these studies will hopefully shed light on remediation technologies for Manitobans in rural and aboriginal communities that may not have access to costly infrastructure, and to ultimately improve the health of Lake Winnipeg.

This research is made possible with the help of Environment Canada through the Lake Winnipeg Basin Stewardship Fund and NSERC, with support from The Thomas Sill Foundation and the Clayton H. Riddell Faculty of Environment, Earth, and Resources. The collaborating investigators Dr. Mark Hanson (Environment and Geography) and Dr. Charles Wong from The University of Winnipeg (Chemistry and Environmental Studies) are currently focusing on the ecological implications of pharmaceuticals on non-target organisms as well as the measurement, fate, and effects of emerging organic environmental pollutants. One of the aims of the PWRF is to bring researchers and students from across disciplines together to tackle the pressing environmental issues threatening freshwater systems. For example, Dr. Charles Knapp from the University of Strathclyde, UK is collaborating with the lead researchers to examine the presence and fate of ARG containing bacteria wetlands, with the hope of predicting the mechanisms that drive their stability. And the PWRF is ideal for student research. Pascal Cardinal (M.Sc. Chemistry) is looking at the dissipation of selected pharmaceuticals namely: carbamazepine, clofibrac acid, fluoxetine, naproxen, sulfamethoxazole and sulfapyridine from the water column as well as their determination in sediments and plants. The focus of his research is to determine whether plants will uptake the drugs thus increasing the removal rate compared to mesocosms without plants.

Studies are already being planned for 2012, with researchers from the Department of Fisheries and Oceans, and other research organizations.

(Photo Credits: Pascal Cardinal.)



Climate Change, families & Polar bears... oh my!

Dr. Mary Benbow and Dr. Bonnie Hallman (Environment & Geography)

Zoological parks are one place that people trust to provide objective educational opportunities for themselves and their families about environmental and wildlife conservation issues. Understanding how to effectively communicate to the public about topics such as climate change can not only improve zoo visitors' overall experience, but also help further their awareness of and engagement with environmental concerns. However, our research is showing that different approaches are needed to address the range of visitor awareness of issues in the circumpolar North, to increase zoo visitor learning interaction and engagement with exhibits, as well as to contribute to their overall knowledge about wildlife and zoo animals specifically.

Dr. Mary Benbow (Environment and Geography) in her current research has been examining visitor behaviour at the polar bear exhibit at Toronto Zoo's "Tundra Trek". It is clear from her observations that most visitors rarely read signs, even though the exhibit was designed in part to engage the public about Arctic climate change through the presentation of information in the exhibit. Through listening to visitor conversations and then coding those conversations using grounded theory, Dr. Benbow is beginning to reveal how visitors interact and communicate with each other in the polar bear exhibit space. Visitors do tend to anthropomorphize the bears, but also have lots of questions, especially about the bears' behavior. However, there were virtually no comments about climate change; in this regard this exhibit is not working. This does not bode well for the communication of the threats to polar bear survival presented by climate change in the Arctic.

Greater emphasis on climate change with more engaging and interactive exhibits and up to date research, it is argued, can only contribute to greater visitor awareness and associated commitment for action. In order to test this, a survey developed and tested at 15 zoos in the United States is being used this summer and fall to examine visitor awareness of climate change at the Assiniboine Park Zoo in Winnipeg. Assiniboine Park Zoo has recently opened its International Polar Bear Conservation Centre (IPBCC), and the highly anticipated 'Journey to Churchill' exhibit, which will include polar bears as well as other key Arctic species, is currently under construction and is slated to open in October 2013. 'Journey to Churchill' is the most comprehensive initiative ever undertaken in Canada aimed at issues related to climate change, polar bears and other Northern species, and associated human livelihoods. Dr. Benbow and Dr. Bonnie Hallman (Environment and Geography) will be using the Climate Literacy Zoo Education Network (CLiZEN) survey to gauge visitor awareness of Arctic climate change and its implications, and over time examine the impacts of these new state of the art, interactive exhibits emphasizing climate and environmental science, as environmental education experiences for families, particularly families with young school-aged children.

More information about the IPBCC and 'Journey to Churchill' can be found at: http://www.assiniboineparkzoo.ca/attractions/exhibits-info.php?entry_id=13916, including a video that details the planned 'Journey' experience.

(Photo Credits: Mary Benbow.)





Picturing the Planet.

As a regular feature "*Picturing the Planet*" brings inspiring and informative images taken by our students, staff and faculty. Riddell Faculty Student Affairs Coordinator **Jason Jorgenson** grew up north of Kenora at Meekin Lake, enjoying this view. He tries to get back to the lake as often as possible so that his kids can enjoy the benefits he had in his childhood of growing up in such a picturesque setting. (Photo Credit: Jason Jorgenson.)

