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We offer fully funded studentships for MA, MSc, and PhD programs. Our graduate program attracts students from across Canada and around the world, and provides opportunities for field-based scientific and social scientific studies in a wide variety of areas.

Students attending Memorial receive instruction in geographical practices and methods appropriate to their field of study. Our program offers the chance to interact with a diverse array of fellow students and to live and study in St. John's, the culturally vibrant capital of the ruggedly beautiful province of Newfoundland. Our graduates go on to further advanced study, university faculty positions, and governments and private sector employment.

Please visit our website to learn about particular faculty members' interests and to find out about specific graduate student opportunities: www.mun.ca/geog. Our application deadline is listed as January 15, but we will consider applicants on an ongoing basis. For more information and applications for graduate study at Memorial, visit www.mun.ca/sgs.

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DEPARTMENT OF GEOGRAPHY

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DEPARTMENT OF GEOGRAPHY RESEARCH REPORT 13/14





MESSAGE FROM THE GEOGRAPHY RESEARCH GROUP



FROM LEFT: CHARLES MATHER, ANDREA QUIGLEY AND TREVOR BELL

This is the second year that the Geography Research Group has produced a report that highlights some of the exciting research and emerging talent in the Geography Department of Memorial University. The first report has been very useful in introducing the research dimension of our department to colleagues and administrators across campus. It has also served us well in showing what geographers can do for the benefit of Newfoundland and Labrador and society in general. When our visiting scholars from around the globe take home a copy, they take with them a sample of our department's collaborative and supportive approach to research.

This year's report is again structured around the research clusters in the department. The profiled projects illustrate the depth of research being undertaken in each cluster and the scope for interactions between clusters. Our new Geography Research website, currently under construction, will provide further details on these and other projects in the clusters. Visit www. mun.ca/geog for updates. As was the case in last year's report, this is but a sample of the outstanding research being conducted in the department. Future reports will continue to showcase the depth and breadth of our research here in the province and beyond.

In the Talent section, we feature graduate students from the Too Big To Ignore global partnership for small-scale fisheries and from individual projects that span the discipline and the globe. Our new section this year is Research Notables, in which we highlight two projects that distinguish themselves on a national stage.

The Geography Research Group continues to develop research capacity in the department and to publicize our considerable success whenever possible. We acknowledge the Scholarship in the Arts initiative for supporting the publication of this report.

MESSAGE FROM THE ASSOCIATE VP RESEARCH PRO TEMPORE



It is a pleasure for me to introduce the second annual Research Report of Memorial University's Department of Geography, which is every bit as exciting to read as last year's inaugural report. The international impact of the Department's research in part derives from its admirable emphasis on the 'human dimension' of social attitudes, processes, and behaviors in scientific research. This focus is apparent in Finnis' work on increasing the value of climate projection communications for non-specialists and industry. As well, Brown's research on treeline range expansion indirectly comments on the effects of human activities on the earth's ecosystems (the 'anthropocene'). Mather's work compares the relative sustainability of individual- versus community-based fish quota systems. Keeling's research documents and explores the effect of resource extraction in northern, particularly Aboriginal, communities. And Simms' work demonstrates the power of applying geographic information to understanding the causes and possible ways of mitigating human illnesses. To address the above issues and more, researchers in the Department of Geography singularly excel at interdisciplinary and international collaboration with climatologists, sociologists, environmentalists, historians, medical researchers, and communities. Altogether, this report is an engaging and powerful read, and I hope you will enjoy it as much as I did.



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HEALTH & WELLBEING

GEOGRAPHY DEPARTMENT RESEARCH CLUSTERS

In late 2009, the Geography Department hosted a meeting with the vice-president (research) (VPR) and the dean of Arts. The purpose of the meeting was to allow the VPR to outline strategic initiatives coming out of his office for research at Memorial. We decided to use this opportunity to present our research, highlight our recent achievements, and raise some of the challenges we faced in reaching our goals. In preparing for this process we identified four research clusters, which have allowed us to present our varied research projects in a more coherent fashion. This is in contrast to previous efforts to present our research, which have relied on disciplinary distinctions (e.g. cultural, economic, physical geography). The four clusters are: Globalization, economy and resources; Sustainable communities and regions; Climate and environmental change; and Society, knowledge and values. We subsequently identified a fifth cluster in the area of Health and well-being. This cluster links closely with several specific research projects currently underway in the department. Our goal is to strengthen this cluster through a new appointment in the not-too-distant future.

Geography research clusters contribute to and are aligned with the strategic research themes of Memorial University.







HOW DO WE BUILD TRUST IN MARINE FORECASTING?

SOCIETY, KNOWLEDGE & VALUES



FORECASTING FOR MARINE SAFETY



The reliability of weather forecasts has improved immensely since the 1950s, gaining one to two days of skillful prediction every decade. We can now make predictions at lead times of 3 to 5 days with the same accuracy as the 24 hour forecasts of the 1980s. When incorporated into short-term planning, these forecasts have the potential to greatly reduce the impacts of hazardous weather. But are these benefits being fully realized?

"We like to think so – but there is still a huge distance between the enthusiasm I hear from forecasters and the digs at forecasting I hear from the public. I know some users are aware of improved forecast accuracy, but this awareness is far from uniform" says climatologist Joel Finnis. "It raises questions around the best way to communicate the value of forecasts, and what factors promote or limit their application." These questions are the subject of new research funded under the Marine Environment Observation Prediction and Response (MEOPAR) Network. With Dr. Barbara Neis (Dept. of Sociology) and Dr. Ron Pelot (Dalhousie), Joel is working on a pair of projects aimed at improving the quality of marine forecasts, communicating risks associated with marine hazards, and comparing forecast use across industry sectors.

"We're interested in the ways different groups approach forecasts; what they value, what they need, and how this aligns with the strengths and communication strategies of the forecasters themselves. We know some industry sectors are more pro-active in their pursuit of weather data than others; for example, offshore oil has much stronger ties to the forecasting community than the fishing industry. Is this simply a reflection of different needs and resources? Or can successes in one industry help us increase use in others?" GLOBALLY DISTRIBUTED EXPERIMENTS ALLOW US TO ASK LARGE-SCALE BIOGEOGRAPHICAL QUESTIONS

CLIMATE & ENVIRONMENTAL



Predicting the distribution of species under global change is one of the greatest scientific challenges we currently face. Species are already shifting their distributions to match changes in climate, but not always at the rate we would expect. There are many examples of species responding more slowly than expected, or seemingly not responding at all. The causes of these time lags, and their implication for species distributions in the future, are the focus of The Global Treeline Range Expansion Experiment (G-TREE), an international research effort led by Carissa Brown.

"We know that many non-climatic factors influence an individual plant's ability to establish, grow, and succeed in a given location," Carissa explains. "The presence of predators, soil characteristics, seed dispersal ability, and topography of a site can all affect an individual's ability to establish and grow. It follows that non-climatic factors, like soil conditions or species interactions, can sometimes override climate effects, leading to unexpected species responses."

Teasing apart those climatic and non-climatic factors is a challenge, and requires detailed field experiments, which is where the idea of G-TREE began. Carissa explains, "Globally distributed experiments, like G-TREE, allow us to ask large-scale biogeographical questions through the collaboration of a network of international researchers." G-TREE research sites are now located across Canada, the United States, Switzerland, France, Italy, Spain, Venezuela, Australia, and New Zealand, with many more sites planned for the coming field season. This initiative is providing empirical data on where, and under what circumstances, treeline expansion can occur globally, and the role of non-climatic factors in slowing down species responses to climate change.





The majority of Canada's fish resources are allocated to individuals or to enterprises. In this way, Canada's approach to resource allocation follows the conventional wisdom in fisheries resource management: allocating resources to individuals, the argument goes, leads to economic efficiency and environmental sustainability. But this conventional wisdom is under pressure with evidence that allocating fish resources to individuals does not always lead to economic efficiency or environmentally sustainability. When individual fish quotas are transferable from one person to another, there is also the risk that quotas will shift away from fish dependent coastal communities.

An alternative to individual quotas involves the allocation of fish resources to communities and to community-based organisations. Allocating quotas in this way has the potential to anchor resources in communities; and because these resources are used collectively, there is potential for better outcomes in terms of environmental sustainability.

Charles Mather, together with coresearchers Paul Foley and Barbara Neis, has been researching and writing about the historical origins and the ongoing use of several different community quotas in Canada's northern shrimp industry. Their work has focused on three case studies in Newfoundland and Labrador – the Labrador Shrimp Company, St. Anthony Basin Resources Incorporated and Fogo Island. As he argues, "These quotas have been crucial to the sustainability of coastal communities on the island of Newfoundland and in Labrador. Without them, it is difficult to see how these communities could sustain themselves, economically and socially." Mather believes that the lessons from Newfoundland and Labrador have wider significance: "In the United States the new policy on fish resource allocation has shifted to 'catch shares' and the policy allows community fisher associations to manage and control quotas. But not everyone is convinced that catch shares should be allocated to communities. The Newfoundland and Labrador cases are important for the US's catch share policy because they show how innovative resource allocation regimes can sustain remote coastal communities."

The research, which is ongoing, is supported by the NSERC funded Canadian Fisheries Research Network (CFRN), the Harris Centre and through a SSHRC Insight Grant.

ANCHORING RESOURCE RIGHTS IN NEWFOUNDLAND AND LABRADOR'S COASTAL COMMUNITIES



RESOURCE ALLOCATION REGIMES CAN SUSTAIN REMOTE COASTAL COMMUNITIES

INNOVATIVE

SUSTAINABLE COMMUNITIES & REGIONS



PEOPLE OFTEN FORGET THAT THESE ARE FINITE RESOURCES

GLOBALIZATION ECONOMY & RESOURCES

RESOURCES, POLLUTION, AND THE NORTH



With all the rhetoric around Canada's North as a new resource frontier, it is easy to forget that the country's northern latitudes have been the scene of industrial resource-extractive activities for at least a century. These past developments not only transformed northern environments and societies, they left historical legacies that continue to affect the North. Working with researchers and students from Memorial and across the country, Arn Keeling is exploring the lessons of the North's industrial past to inform today's resource developments.

"In the rush to promote mining and hydrocarbon development in the North, people often forget that these are finite resources, and subject to distant and often volatile market pressures," he explains. "In the past, northern communities have been devastated when such industries close." Keeling and his research partners have worked with northern Aboriginal communities to document their experience of past developments through oral history and archival research. They also help apply these lessons to current-day debates over new resource developments—and efforts to clean up the environmental problems left by past developments. Research into the environmental legacies of mineral development has led to a new collaborative project based at Memorial, "Northern Exposures: Science, indigenous peoples, and northern contaminants," funded through a SSHRC Insight Grant. This project will investigate the historical geography of pollution from industrial development and military activities, and the efforts of Aboriginal communities, scientific researchers, and governments to respond to the issue of toxics in the northern environment.

EPARTMENT OF GEOGRAPHY RESEARCH REPORT 13/14

HEALTH AND MEDICAL GEOGRAPHY

Geography, epidemiology and medicine have a long history - a history that we can trace back to John Snow's famous maps of cholera deaths in nineteenth century London. By mapping cholera deaths, Snow was able to show that cholera infections were spread through poor quality water sources. Contemporary health geographers continue to use maps, but the focus is on pressing health issues related to the impact of ageing, an increasingly mobile population, inequalities caused by the distribution of wealth and health care, and the outbreak of old and new diseases. In this complex and dynamic environment, the appropriate response involves an interdisciplinary approach that focuses on [1] the geographical variations of health, [2] links between disease, location, environment and socio-economic conditions, [3] location and impact of health care services and types, and [4] climate change and its impact on health (Source: Hayes, et. al., 1992).

Over the last 10 years Alvin Simms has been collaborating with research associates at Memorial University in Community Health and Humanities, Primary Healthcare Research Unit, and Family Medicine. The results of this collaboration have led to innovative analyses of the impact of socioeconomic changes on self-assessed and administrative health indicators. Other research outcomes include new insights into chronic disease and migration patterns, the geographical variation of lipid profiles, as well as a Halton, Ontario study on BMI and the built environment. Simms' research also has an international component: he played an important role in the mapping of residences and water sources in Bhopal, India, a city affected by a devastating pollution outbreak. Future projects and proposals include research on the influence of demographic and socioeconomic determinants on the location of health care centres and services, environmental health, water quality, the spatial and temporal diffusion of tuberculosis and building a healthy food environment in NL. Simms' ongoing collaboration has also resulted in the development of graduate course material (two graduate courses in medical geography) and the soon to be finalized Master's program in Medical Geography, a programme that will be managed by Geography and Community Health and Humanities.

Source: Hayes, M.V, Foster, L and H.D. Foster (Editors) Community, Environment and Health: Geographic Perspectives, Western Geographical Series, University of Victoria, BC, Volume 27, 1992.



THE CONTINUE THE CONTINUE EMERGENCE OF OLD AND NEW DISEASES EMPHASIZES THE NEED FOR AN INTERDISCIPLINARY APPROACH

0.0

Communities • Non-Fishing

Legend

Labour Supply Road Distance Limit

CLARENML(E



TALENT

FROM LEFT TO RIGHT: CHLOE POITEVIN, MIRELLA DE OLIVEIRA LEIS AND VICTORIA ROGERS

TOO BIG TO IGNORE (TBTI)

is a research network and knowledge mobi- My research examines

lization partnership based out of Memorial's Department of Geography, led by Ratana Chuenpagdee. Three of Ratana's masters students are partaking in varied and exciting research, locally and internationally, to contribute to the mission of the project: to elevate the profile of small-scale fisheries.

CHLOE POITEVIN

My MA thesis, Fish as Food: Examining a Place for Fish in Newfoundland's Alternative Food Networks, contributes to a better understanding of local markets for locally and sustainably caught fish in Newfoundland. Alternative food networks have been developed to challenge the conventional globalized food system by emphasizing localized and alternate ways of producing, distributing, consuming, and thinking about food. This study examines the opportunities and challenges in developing alternative food networks in Newfoundland fisheries, and strengthening food security. I'm looking at seafood traceability in Port aux Basques, the promotion of locally caught and sustainable fish by retailers in St. John's, and stewardship and conservation education in Petty Harbour.

My research examines the challenges and opportunities to the implementation of Marine Protected Areas (MPAs) through the lens of the interactive governance framework. My study focuses on the case of the newly designated Marine National Park of Currais Islands in Southern Brazil, where it applies a methodology involving a survey and a mapping exercise conducted with small-scale fishers as key resource users. Findings from this study aim at offering suggestions for the

MIRELLA DE OLIVEIRA LEIS

management plan towards implementation of this MPA, and elsewhere.

VICTORIA ROGERS

My research focuses on the social complexity of multiple-use coastal areas—specifically among tourism, fisheries, and conservation operations. This study emphasizes the importance of existing capacity found within social systems that is often overlooked when it comes to management plans. Through the analysis of relationships and related factors, I explore the potential for synergies among stakeholders that are conducive to stewardship and governance of coastal resources. Koh Chang, an island in the Gulf of Thailand, was selected as a case study.



EMILIE NOVACEK

I work with Fisheries and Oceans Canada on a project that combines tracked fish movements, high resolution multibeam sonar, underwater video and sediment samples to model Atlantic Wolfish habitat and population distribution. The Atlantic Wolffish is listed as a species of "special concern" by Canada's Species at Risk Act. Experts estimate that over 60% of adult fish were lost by the early 1990s and the reduced population remains extremely vulnerable to threats like fisheries by-catch, habitat degradation and climate change. My research will provide maps and predictive tools for identifying Atlantic Wolffish habitat for conservation planning.



ROBERT DEERING

My research involves developing a better understanding of submarine mass failures in the fjords of Baffin Island. These events have the destructive power to damage or destroy seabed infrastructure, as well as the potential to generate tsunami waves that can inundate communities. Through seabed mapping and coring we will gain knowledge about the seabed settings and causes of these events in the region. Greater knowledge of these events will allow for better informed hazard assessments, safer and more sustainable northern communities, and better practices for planning and design in the coastal regions of the Canadian Arctic.

VICTORIA BAILEY

My current research explores how differing conceptions of quality in seafood markets influence production along the Global Value Chain for Newfoundland and Labrador's inshore Northern Shrimp industry. The project extends an already detailed discussion of industrialization and globalization in food production into wild seafood products. I have physically followed the shrimp from fishing boats off Newfoundland, to the headquarters of large European seafood suppliers and marketing bodies, conducting indepth interviews along the way. Utilizing these recordings, I am also experimenting with audio documentary production as a means of meaningfully engaging industry participants in the final outcomes of the research.

CHRISTOPHER BAIRD

My research project, *Swimming Inventories Lost and Catching the Released: Experiences of Salmon Anglers Catching Escaped Farmed Salmonids*, deals with one of the most controversial issues facing the province today, salmon aquaculture. At any given time in Newfoundland, millions of farmed salmonids, such as Atlantics and steelhead, are held in pens in close proximity to wild populations of salmon. Occasionally, during a storm or major tidal event, the farmed salmonids escape and make the precarious journey into the rivers of Newfoundland. It is there that they are caught by both aboriginal and non-aboriginal salmon anglers. I wish to understand how these domesticated escapees are impacting the experience of salmon angling for Newfoundlanders.

GRACE AKESE

The key international regulation governing the trade of electronic waste (e-waste), the Basel Convention, is premised on prohibiting trade flows from "developed" to "developing" countries. However, recent research has shown that the global e-waste trade is dominated by trade between developing countries (South-South trade). My research, which examines the e-waste trade between China and Ghana, challenges this 'blindspot' of the Basel Convention and explores whether a system of South-South e-waste trade premised on 'ethical trade' is an alternative way to trade e-waste sustainably and equitably.



REGIONAL ANALYTICS IN GEOGRAPHY

RESEARCH NOTABLES

THE WINNING SAKKIJÂNGINNATUK NUNALIK TEAM: TREVOR BELL IS THIRD FROM LEFT AND CHRISTINA GOLDHAR IS FAR RIGHT, BOTH IN BACK ROW.

INSPIRATIONAL GEOGRAPHERS

Geographers Trevor Bell (Professor) and Christina Goldhar (MA 2011) were members of the winning SakKijânginnatuk Nunalik (Sustainable Communities Initiative) team that shared the Arctic Inspiration Prize, announced at a gala event in Halifax in December. Their winning project - Healthy homes in thriving Nunatsiavut communities - received \$350,000 for their Knowledge-to-Action plan to build and monitor Nunatsiavut's first sustainable, multi-unit, residential dwelling and establish a prototype for northern housing development that addresses the changing climate, infrastructure requirements and Inuit housing needs and preferences.

"For the past decade or so I have worked closely with northern communities and regions on co-designed research projects that address the challenges of climate change and promote and evaluate adaptation actions," said Dr. Bell after the ceremony. "Working with the Sustainable Communities team and Nunatsiavummuit has been the most rewarding and transformative of my academic career. Our action-oriented research is affecting meaningful change in a remote area of our province that has experienced rapid political, socio-economic, climatic and environmental changes in recent decades. Winning the Arctic Inspiration Prize is wonderful recognition of the value of applied and engaged research, especially research that directly affects quality of life in communities. I hope it inspires our early career researchers at Memorial to engage communities and regions with their knowledge and expertise."

FROM LEFT: ALVIN SIMMS AND JAMIE WARD

A trend in regional planning and development programs is the move to evidence based methods. Regional analytics methodology is an example of evidence based methods as they use quantitative data to generate solutions for policy challenges at a range of spatial scales. In other words, these regional analytics methodologies allow us to develop real world solutions to regional development challenges. The recent availability of relevant data has provided the impetus for a research group at Memorial to develop an innovative suite of regional analytical methods to assess the impacts-and to analyze the dynamics-of the interconnectedness of demography, socio-economic factors, industries and occupations.

Simms and his research partners Dr. David Freshwater and Jamie Ward (MSc Geography) along with the Harris Centre are engaged in funded regional analytics projects involving:

 Analysis of industry-to-occupation and industry-toindustry dependencies and linkages to assess present and future labour force supply issues in Atlantic Canada,
 An investigation into the transportation supply chain on the Island of Newfoundland and assess the impact of shipment delays on region economies,
[3] Identification of functional economic regions for economic development in Atlantic Canada,
[4] Regional economic impact analysis and identification of industry supply chains for pulp-and paper, aquaculture and iron mining in Newfoundland and Labrador
[5] Analysis and forecasting of demographic change on the Burin Peninsula and its impact on regional industries and labour markets and
[6] Forecasting of population change and housing

requirements for the NE Avalon.

The data collected through the group's research provides the basis for interpreting the impact of local, provincial, national and global events at various geographical scales. Within the context of policy these forecast models provide the framework for development strategies as well as information on potential impact of existing opportunities and stresses that can enhance or impede regional growth. A major component of this research is the engagement of stakeholders at all levels of government as well as local development associations. The outcomes of the research are being mobilized through public forums and town meetings.

DEPARTMENT OF GEOGRAPHY RESEARCH REPORT 13/14