

3.6 People and Environmental Change: Linking Traditional and Scientific Knowledge

Summary

Project Leader(s)

Oakes, Jill
Riewe, Rick

Purpose: To identify and model the linkages between traditional knowledge and 'western' science regarding environmental change in Hudson Bay coastal communities.

Parameters: Traditional knowledge includes local knowledge and ecological knowledge respectively. Environmental change includes climate and non-climate driven change.

Study area: Hudson Bay coastal communities

Objectives: Collect traditional knowledge and 'western' science on aspects of environmental change. Determine linkages between traditional knowledge and 'western' science. Model and analyze linkages to identify ecological problems created by environmental change. Develop possible recommendations for reducing potential ecological problems based on the insights gained by understanding the linkage between traditional knowledge and 'western' science. Include topics such as the impact of changes in environmental events, such as freeze up, break up, thermokarst activity, flora, fauna, land forms, freshwater flow, and water/snow/ice conditions on Inuit lifestyles; traditional terms for environment and environmental change, and weather phenomena; and the impact of environmental change on people's food, shelter, lifestyles, health, economy, culture, land claims, tourism (to name a few examples).

Research Projects: All research within Theme 3.6 is required to include the above purpose, parameters and objectives. The aspect of environmental change selected by individual or group researchers could range from a wide variety of people-centered topics in ecology including: social impacts, environmental health, co-management, wildlife populations, and community-based monitoring to name a few.

People

Network Investigators

Barber, David G. (University of Manitoba)
Campbell, Doug (University of Guelph)
Fast, Helen (Fisheries and Oceans Canada - Freshwater Institute)
Ferguson, Steven (University of Manitoba)
Furgal, Christopher (Trent University)
Gagné, Jacques (Université Laval)
Gilchrist, Grant (Carleton University)
Hammill, Mike (Université du Québec à Rimouski)
Ingram, Grant
Oakes, Jill (University of Manitoba)
Papakyriakou, Tim N. (University of Manitoba)
Riewe, Rick (University of Manitoba)
Stern, Gary A. (University of Manitoba)

Collaborators & Research Associates

Arragutainaq, Lucassie (Municipality of Sanikiluaq/Sanikiluaq HTA)
Brook, Ryan (University of Manitoba)
Bukowsky, Roy (Manitoba Hydro)
Campbell, Mitch (Government of Nunavut Wildlife Management Division)
Chisolm, Jane (Parks Canada - Nunavut Field Unit)

Derocher, Andrew (University of Alberta)
Doidge, Bill (Nunavik Research Center)
Fishback, LeeAnn (Churchill Northern Studies Centre)
Gilliland, Scott (Environment Canada)
Gosselin, Jean-François (Fisheries and Oceans Canada - Maurice Lamontagne)
Jamieson, Sarah (Simon Fraser University)
Lewis, Adam (University of Waterloo)
Peacock, Elizabeth (Government of Nunavut)
Peristy, Dennis (Manitoba Hydro)
Tremblay, Martin (Kativik Regional Government)
Tuckatuck, Alec (Sakkuq Land Holding Corporation)
Ydenberg, Ron (Simon Fraser University)

Post-Doctoral Fellows

Heath, Joel (Simon Fraser University)

PhD Students

Blakney, Sherrie (University of Manitoba)
Heath, Joel (Simon Fraser University)
Sahanatien, Vicki (University of Alberta)

Masters Students

Arnold, Ginger (University of Manitoba)
Barber, Lucette (University of Manitoba)
Chow, Linda (University of Manitoba)
Clifford-Pena, Jadie (University of Manitoba)
Edye-Rowntree, Joel (University of Manitoba)
Franke, Alastair (University of Alberta)
Gilligan, Justin (University of Manitoba)
Gislason, Robin (University of Manitoba)
Imrie, Devin (University of Manitoba)
Lajeunesse, Aiyana
Westdal, Kristin (Fisheries and Oceans Canada - Freshwater Institute)

Undergraduate Students

Chow, Linda (University of Manitoba)
Clifford-Pena, Jadie (University of Manitoba)
Gilligan, Justin (University of Manitoba)
Gislason, Robin (University of Manitoba)
Green, Tyler (University of Manitoba)
Hopkins, Jon (University of Manitoba)
Rogala, Amanda (University of Manitoba)
Young, Ian (University of Manitoba)

Technical Staff

Bjorklund, Caroline
deMeulles, Myrtle
Fleming, Miriam
Goodyear, Mike (Churchill Northern Studies Centre)
Hamilton, Andrew (University of British Columbia)
Kavik, Simeonie (Municipality of Sanikiluaq/Sanikiluaq HTA)
Lundie, Greg (Parks Canada)
Mossdrop, David (University of Manitoba)
Oquatuk, Elijah (Municipality of Sanikiluaq/Sanikiluaq HTA)

Project Staff

Aliyak, Andy (Government of Nunavut Wildlife Management Division)
Barber, Lucette (University of Manitoba)

Collins, Trevor (Duke of Malborough School)
Court, Gordon (Government of Alberta - Department of Fish and Wildlife)
Fitzpatrick, Parker (Frontier School Division)
M'Lot, Maria (Churchill Northern Studies Centre)
Settingington, Mike (Government of Nunavut Wildlife Management Division)

Partners

Indian and Northern Affairs Canada - Northern Scientific Training Program
The Northern Village of Kuujjuarapik
Flowing Rhythms
Sakkuq Land Holding Corporation
National Film Board of Canada
The Northern Village of Umiujaq
Mitiq Co-op Association Ltd.
Manitoba Conservation
Natural Resources Canada - Polar Continental Shelf Project
Air Inuit
Simon Fraser University
Harbortronics
Environment Canada - Canadian Wildlife Service - Northern Conservation Division
Manitoba Hydro
Mountain Equipment Co-op
British Broadcasting Corporation
Aboriginal Issues Press
Municipality of Sanikiluaq/Sanikiluaq HTA
Nunavut Wildlife Management Board
Government of Alberta - Department of Fish and Wildlife
Kivalliq Wildlife Board
Government of Nunavut Wildlife Management Division
Alberta Falconry Association
University of Saskatchewan - Western College of Veterinary Medicine
Aqiggiaq Hunters and Trappers Organization
Coral Harbor Hunters and Trappers Association
University of Alberta - Department of Renewable Resources
Fisheries and Oceans Canada - Freshwater Institute

Publications

Articles Published in Refereed Publications

Campbell, M.W. and Mulders, R.L., 2005, The Biology Of an Expanding Barren-Ground Caribou Populstation (Rangifer tarandus groenlandicus) with implications for long-term Subsistence and Commercial Harvests., Can. Field Nat. (October, 2005)., 1, Submitted

Heath, J.P., Gilchrist, H.G., Ydenberg, R.C. ., 2005, Regulation of stroke patterns and swim speed across a range of current velocities: diving by common eiders wintering in polynyas in the Canadian arctic, Journal of Experimental Biology, 1, Submitted

Blakney, S. and Suluk, T. , 2006, Environmental change and the socio-economic implications for Inuit health and wellbeing, People and Environmental Change in the Hudson Bay Region: The next step. Jill Oakes and Rick Reiwe, eds., 1, Accepted

Gilchrist, H.G., Heath, J.P., Arragutainaq, L., Robertson, G.J., Allard, K., Gilliland, S. and Mallory, M., 2006, Studies of Common Eider Ducks Wintering in Hudson Bay: Applying Complimentary Methods of Scientific

Research and Local Ecological Knowledge, People and Environmental Change in the Hudson Bay Region: the next step, 1, Accepted

Arnold, G., 2006, Environmental change as seen by youth, hunters and local scientists in Churchill Manitoba, In J. Oakes & R. Riewe (Eds), People and Environmental Change: the Next Step, 1, Submitted

Gilligan, J., Clifford-Pena, J., Edye-Rowntree, J., Johansson, K., Gislason, R., Green, T. and Arnold, G., 2006, The value of human perspectives, experience and knowledge on environmental research in Hudson Bay, In J. Oakes & R. Riewe (Eds), People and Environmental Change: The Next Step, 3-17, Published

Heath, J.P., Gilchrist, H.G. and Ydenberg, R.C., 2006, Regulation of stroke patterns and swim speed across a range of current velocities: diving by common eiders wintering in polynyas in the Canadian Arctic, Journal of Experimental Biology, 209, 3964-3983, Published

Heath, J.P., 2006, Arctic Eider and the People's Feather: poster presentation, ArcticNet AGM, 1, Published

Heath, J.P., 2006, Counter intuitive foraging behaviour of Common Eiders wintering in the Canadian Arctic: the role of constraints acting at multiple time scales, Oral presentation, North American Ornithological Congress, Veracruz, Mexico, 1, Published

Mallory, M., H. G. Gilchrist, and J. Akearok, 2006, Can we establish baseline local ecological knowledge on wildlife populations, In, J. Oakes & R. Riewe (eds) Climate change: linking traditional and scientific knowledge, 21-28, Published

Mallory, M., J. Akearok, and H. G. Gilchrist, 2006, Local ecological knowledge of the Sleeper and Split Islands, In, J R. Riewe & J. Oakes (eds) Climate change: linking traditional and scientific knowledge, 203-208, Published

Heath, J.P., Gilchrist, H.G. and Ydenberg, R.C., 2007, Can dive cycle models predict patterns of foraging behaviour? Diving by common eiders in an arctic polynya, Animal Behaviour v.73, 877-884, Published

Smith, P. A., H. G. Gilchrist, and V. Johnston, 2007, Shorebird declines and climate change in Hudson Bay, In, J R. Riewe & J. Oakes (eds) Climate change: linking traditional and scientific knowledge, 223-232, Published

Ford, J., Pearce, T., Gilligan, J., Smit, B. and Oakes, J., 2007, Changing Exposure to Hazards Associated with Sea-ice use by Inuit in the Canadian Arctic, Arctic, Antarctic and Alpine Research, 1, Accepted

Other Refereed Contributions

Arnold, G., 2005, Environmental education: linking knowledge on adaptations to environmental change from youth, elders, scientists and locals in the Hudson Bay region, Poster presented at the ArcticNet conference, Banff, AB, 1, Published

Blakney, S., 2005, Connections to the Land: Changing Relationships in Arviat Nunavut, Presentation to Congress of the Humanities and Social Sciences. Winnipeg, MB. June 5, 1, Accepted

Blakney, S., 2005, Evaluation and Assessment of Oceans Management Activities in Hudson Bay: 2000-2004, Report submitted to Freshwater Institute, Fisheries and Oceans, Canada., 1, Accepted

Blakney, S., 2005, Connections to the Land: Elder and Senior Hunter Conceptions of Health and Wellbeing in Arviat, Nunavut, Proceedings ArcticNet 2004 Annual Scientific Meeting, Laval University, Quebec City, 24, Accepted

Cobb, D. and Fast, H., 2005, The Tariaq (Ocean) and Sea Ice and Snow Community-Based Monitoring Programs: Approaches for Enhancing Scientific Research in the Canadian Arctic, Proceedings ArcticNet 2004 Annual Scientific Meeting, 27, Accepted

Blakney, S. and Suluk, T., 2005, Health, Well-being and Resistance to Ocean Management in Western Hudson Bay, Presentation to Oceans Management Research Network, Ottawa Conference Centre, Sept. 30, 1, Accepted

Heath, J.P., 2005, Complex behavioural patterns of Common Eiders wintering in the Canadian Arctic: the role of abiotic and physiological rhythms, Joint meeting of the Ecological Society of America and International Congress of Ecology, Montreal, Canada, 1, Published

Heath, J.P., 2005, Complexity in behavioural patterns of Common Eiders wintering in the Canadian Arctic, Oral presentation at the SFU/UBC/UVIC Ecology and Evolution Retreat, Squamish, BC, Canada, 1, Published

Heath, J.P., 2005, Foraging ecology of Common Eiders wintering in the Canadian Arctic, Oral presentation at the Second North American Sea Duck Conference, Annapolis, MA, 1, Published

Bradley, M., Court, G., Johnstone, R. Duncan, T., Settingington, M. and Franke A., 2005, Climate change - what could it mean for arctic-nesting Peregrine Falcons?, Poster; 2005 ArcticNet Annual Conference Proceedings, Banff, AB, 1, Published

Franke, A., Court, G.S., Bradley, M., Johnstone, R. Settingington, M., Abernethy, D. and Aliyak, A., 2005, Body weight, wing cord, and tail measurements of *F.p.tundrius* captured in Rankin Inlet, Nunavut, Poster; Raptor Research Foundation Conference, Green Bay, Wisconsin, 1, Published

Franke, A., Court, G.S., Bradley, M., Johnstone, R. Settingington, M., and Abernethy, D., 2005, Survivorship of adult male and female peregrine falcons (*F.p. tundrius*) at Rankin Inlet, Nunavut, Talk; Raptor Research Foundation Conference, Green Bay, Wisconsin, 1, Published

Blakney, S., 2006, Connections to the Land: Elder and Senior Hunter Conceptions of Health and Wellbeing in Arviat, NU". Poster. ArcticNet 1st Annual Scientific Meeting. Laval University, Quebec City. Dec 5-8., 2004 ArcticNet Annual Conference Proceedings, 1, Accepted

Blakney, S., 2006, Connections to the Land: the politics of health and wellbeing in Arviat, NU, Ph.D. thesis. University of Manitoba. Submitted Sept, 2006. , 1, Submitted

Arnold, G., 2006, Youth perspectives on environmental change in Churchill Manitoba, Oral presentation at Canada's North: Whose North? Interdisciplinary perspectives. Graduate student colloquium, Canadian Studies Dept., University of Manitoba, 1, Published

Westdal, K., Richard, P.R., Riewe, R..R., 2006, Movement and diving of Northern Hudson Bay narwhal: relevance to stock assessment and hunt co-management, 2006 ArcticNet Annual Conference Proceedings, 1, Published

Edye-Rowntree, J., Ayotte, B., Bazlik, E., Bilenduke, M., Brandson, L., Bukowsky, R., Bussell, M., Campbell, C., Chartier, B., Daley, D., Fitzpatrick, P., Hickes, G., Hunter, D., Ingebrigtsen, M., Lawrie, G., Macri, M., McEwan, G., Morand, M., Paddock, C., Spence, Welburn, E., M., Bukowsky, R., Goodyear, M., M'Lot, M., Oakes, J. and Riewe, R., 2006, Residents' Perspectives on the Churchill River, Residents' Perspectives on the Churchill River, 1, Published

Gilligan, J. and Gislason, R., 2007, ArcticNet Training Fund: Wildlife and ethnoecology of the Manitoba coastal region: ArcticNet Training Fund recipients' experiences, ArcticNet Student Association Newsletter, 3-4, Published

Gilligan, J., 2008, Community Book, Changing Landscapes, Changing Livelihoods, 1, Accepted

Non-Refereed Contributions

Campbell, M.C. , 2004, A Population Survey Of Southampton Island Caribou, Kivalliq Wildlife Research Update, Vol. 4, No. 1., Pages 1-2, Published

- VanderKlippe, N., 2005, Aged walrus part of Arctic researcher's fare: PhD student learns different way of living in study of Inuit relationships with the land, *The Edmonton Journal*, Page: A3, Published
- Blakney, S., 2005, Connections to the Land: future obscured, *Natural Resources Newsletter*, Page 7, Published
- Blakney, S., 2005, Connections to the Land: Bringing home caribou, *ArcticNet Newsletter*, Page 1, Submitted
- Blakney, S., 2005, Connections to the Land: The Implications for Resource Management, Presentation to Fisheries and Oceans Canada, Freshwater Institute, Winnipeg MB., 1, Accepted
- Blakney, S., 2005, Connections to the Land: Community Health and Wellness in Arviat NU, A presentation for HBOWG workshop: ArcticNet Meets its Northern Partners. Rankin Inlet, Nunavut. Mar. 30-31., 1, Accepted
- Campbell, M., 2005, Disease and Scientific Training in Nunavut, Presented to The Hudson Bay Working Group , 1, Accepted
- Campbell, M., 2005, Community based training in the Kivalliq, A presentation given to the Kivalliq Wildlife Board and The Coral Harbour Hunters and Trappers Organization , 1, Accepted
- Campbell, M.W., 2005, Monitoring Condition, Feeding Habits and Demographic Parameters of island Bound Barren -Ground Caribou (*Rangifer tarandus groenlandicus*) Southampton, Island, Nunavut., Status Report to the Nunavut Wildlife Management Board, 9 pp, Accepted
- Settingington, M., 2005, Rankin inlet Peregrine Falcon Status Report, Submitted to Rankin Inlet HTO. 4pp, Status report, 4pp, Accepted
- Campbell, M. C., 2005, The ArcticNet Program in the Kivalliq, *Kivalliq Wildlife Research Update*, Vol. 4, No. 1, Pages 9-10, Published
- Campbell, M.C. , 2005, Monitoring Condition, Feeding Habits and Demographic Parameters of Island Bound Caribou (*Rangifer tarandus groenlandicus*) Southampton Island Nunavut, Status Report No.3, Pages 1-9, Published
- Heath, J.P., 2005, Ecology of Inuit, Eiders and Ice during winter in the Canadian Arctic, Oral and Video presentation, Bamfield Marine Sciences Centre Seminar Series, 1, Published
- Edye-Rowntree, J., 2005, Churchill Residents' Use of the Churchill River from the Early 1970s to the Present Time, 2005 ArcticNet Annual Conference Proceedings, 1, Accepted
- Franke, A and Settingington, M.A., 2005, The Rankin Inlet Peregrine Falcon Project 1982-2005, Status Report Government of Nunavut, File Report n. 05-000, 1, Submitted
- Arnold, G., 2005, Climate change and its global impacts, Youth conference on climate change. Hosted by the Climate Change Connection and Resource Conservation Manitoba. University of Winnipeg, MB., 1, Published
- Arnold, G., 2005, People and Environmental Change, (Organizer/Facilitator) Community workshop in Churchill, MB, 1, Published
- Arnold, G. and Oakes, J., 2005, Climate Change in the Eastern Arctic, The Next Step, 2005 ArcticNet Annual Conference Proceedings, 34, Published
- Franke, A., Court, G., Bradley, M., Settingington, M., Johnstone, R., Abernathy, D. and Duncan, T., 2005, Climate Change - What It Could Mean for Arctic Nesting Peregrines?, 2005 ArcticNet Annual Conference Proceedings, 55, Published

Arnold, G., 2006, Environmental education and the role of youth: communicating traditional, local and scientific knowledge on environmental change, Arctic Climate Change Youth Forum, Grant Park High School, Winnipeg, MB, 1, Published

Gilligan, J., Gislason, R., Clifford-Pena, J., Johanson, K., Green, T. and Edey-Rowntree, J., 2006, Arctic Climate Change Youth Forum, Hosted by Grant Park High School and Lucette Barber (Schools on Board), Winnipeg, MB, 1, Published

Hall, L., Johansson, K., Chow, L., McCreary, J., and Gilligan, J., 2006, From the Classroom to the Tundra: The 2006 Experience, *The Manitoban*, v. 94, no. 8, 17, Published

Edey-Rowntree, J. and Oakes, J., 2006, Churchill Residents' Perspectives on the Lower Churchill River from 1970-2006, 2006 ArcticNet Annual Conference Proceedings, 1, Accepted

Gilligan, J., 2006, Environmental change and transportation in Churchill, Manitoba [Abstract], ArcticNet Annual Scientific Meeting 2006 Programme, 57, Accepted

Rogala, A., 2006, The impacts of climate change on tourism in Churchill, Manitoba, 2006 ArcticNet Annual Scientific Meeting, 96, Accepted

Gislason, R., 2006, Inuit perspectives on beluga co-management in Nunavik, Elizabeth Dafoe Library Graduate Student Lecture Series, 1, Accepted

Gislason, R., 2006, Inuit perspectives on beluga co-management in Nunavik, 2006 ArcticNet Annual Conference Proceedings, 1, Accepted

Gilligan, J., Gislason, R. and Chow, L., 2006, Wildlife and ethnoecology of the Manitoba coastal region [Abstract], ArcticNet Annual Scientific Meeting 2006 Programme, 57, Accepted

Gilligan, J. and Gislason, R., 2006, A holistic research model [Abstract], ArcticNet Annual Scientific Meeting 2006 Programme, 10, Accepted

Gilligan, J., 2006, Environmental change and transportation in Churchill, Manitoba [Oral presentation], Dafoe Library Graduate Students Lecture Series, 1, Published

Gilligan, J., 2006, Changes in off-road travel caused by environmental change: Churchill harvesters' observations [Oral presentation], Third Annual Churchill Northern Studies Centre Research Symposium, 1, Published

Gilligan, J. and Gislason, R., 2006, A holistic research model [Oral presentation], ArcticNet Annual Scientific Meeting 2006, 1, Accepted

Gilligan, J., 2006, Environmental change and transportation in Churchill, Manitoba, Poster and pamphlet circulated in Churchill, Manitoba, 1, Published

Edey-Rowntree, J., 2006, Churchill Residents' Perspectives on the Churchill River, Third Annual Churchill Northern Studies Centre Research Symposium, 1, Accepted

Gilligan, J., 2007, Climate change and off-road travel in your community, Oral presentation given to Duke of Marlborough High School Grade 11 Biology Class, Churchill, Manitoba, 1, Published

Heath, J.P., 2007, Inuit, Eiders and Ice (brief introduction to: a novel concept of variability: because the world is not 'normal', Memorial University of Newfoundland Biology/Psychology Colloquium, 1, Published

Heath, J.P., 2007, Eiders, Inuit and Ice: monitoring ecology and environmental change, Sanikiluaq community environmental monitoring workshop, 1, Published

Heath, J.P., 2007, Eiders and the community of Sanikiluaq, Public presentation, Sanikiluaq, Nunavut, 1, Published

Edye-Rowntree, J., 2007, An Analysis of Residents' Perspectives on the Churchill River, Elizabeth Dafoe Library Graduate Student Seminar Series, 1, Accepted

Gislason, R., 2007, Beluga co-management: Perspectives from Kuujjuarapik and Uminjaq, Nunavik., Thesis, Masters of Environment, 1, Published

Edye-Rowntree, J., 2007, Churchill Residents' Use of the Lower Churchill River in Manitoba, Thesis, Masters of Environment, 1, Accepted

Edye-Rowntree, J., 2007, Churchill Residents' Use of the Lower Churchill River in Manitoba, Fourth Annual Churchill Northern Studies Centre Research Symposium, 1, Accepted

Heath, J.P., 2007, Behavioural dynamics of arctic wintering eider ducks, Mathematical Biology Seminar, University of British Columbia, 1, Published

Chow, L., 2007, Youth environmental Awareness: Perspective on Intergenerational Knowledge Transfer on Environmental Change in Churchill, Manitoba, 2007 ArcticNet Annual Conference Proceedings, 40, Published

Clifford-Pena, J., 2007, Inuit Perceptions, Comprehension and Awareness of Contaminants in Sanikiluaq, 2007 ArcticNet Annual Conference Proceedings, 42, Published

Fishback, L., Basler, C., 2007, Churchill Northern Studies Centre Research in Action, 2007 ArcticNet Annual Conference Proceedings, 51, Published

Heath, J., 2007, The People of a Feather Film Project: Combining Inuit and Scientific Knowledge for Education and Outreach, 2007 ArcticNet Annual Conference Proceedings, 61, Published

Imrie, D., 2007, Traditional Knowledge on Sea Ice Change in Sanikiluaq: Impacts on Inuit Hunters, 2007 ArcticNet Annual Conference Proceedings, 63, Published

Westdal, K., Richard, P.R. and Riewe, R.R., 2007, Movement and Diving of Northern Hudson Bay Narwhal: Relevance to Stock Assessment and Hunt Co-Management, 2007 ArcticNet Annual Conference Proceedings, 96, Published

Gilligan, J., 2008, Environmental Change and Off-road Transportation in Churchill, MB, Guest Speaker, January 2008 Meeting of the Society for Applied Anthropology in Manitoba, 1, Accepted

Specialized Publications

Heath, J.P., 2005, Arctic Eider: Winter Survivor: Fundraising Trailer, DVD, 1, Published

Heath, J.P., 2005, Arctic Eider: Winter Survivor: Film Site, <http://www.sfu.ca/arcticeider/>, 1, Published

Heath, J.P., 2007, Arctic Eider: in production sequences. English/Inuktituk broadcast, Sanikiluaq Community Television, 1, Published

Gilligan, J., 2007, Environmental Change and Off-road Transportation in Churchill, MB, Master of Arts Thesis, 1, Accepted