

# Adaptation in a Changing Arctic: Ecosystem Services, Communities and Policy

## Summary

### Project Leader(s)

Smit, Barry

This project documents the changing physical, biological and socio-economic conditions that are affecting people in the Arctic and identifies policies and strategies to assist communities in dealing with these changes. The project builds on previous work on the vulnerabilities of Arctic communities, and it is feasible because of established collaborations with northern people and organizations. The project includes case studies in all four of the ArcticNet IRIS regions. One main focus of the project involves integrating scientific and traditional knowledge of ice, permafrost, coastal dynamics and wildlife with information about community use of these ecosystem services. The other main thrust is to identify the opportunities in existing policies and co-management arrangements for adaptation strategies to help communities deal with changing conditions.

## People

### Network Investigators

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### Collaborators & Research Associates

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### Post-Doctoral Fellows

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 Patton, Eva - University of Manitoba  
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### **Partners**

Aurora Research Institute  
 Fisheries Joint Management Committee (FJMC)  
 Garfield Weston Foundation  
 IPY Federal Program Office  
 Natural Resources Canada - Earth Sciences Sector  
 Nunatsiavut Government  
 University of Guelph - Department of Geography

## Publications

### Articles Published in Refereed Publications

- Andrachuk, M. and Pearce, T., 2010, Vulnerability and adaptation in two communities in the Inuvialuit Settlement Region, Community Vulnerability and Adaptation in Arctic Regions, 1, Accepted
- Armitage, D., 2011, Social-Ecological Change in Canada's Arctic: Coping, Adapting and Learning for an Uncertain Future, (forthcoming 2011). *Climate Change and the Coastal Zone*, , Accepted
- Armitage, D., F. Berkes, A. Dale, E. Kocho-Schellenberg and E. Patton., 2010, Co-management and the co-production of knowledge: learning to adapt in Canada's Arctic., *Global Environmental Change*, 1-10, Submitted
- Beaumier, M. and Ford, J., 2010, Food insecurity among Inuit females exacerbated by socio-economic stresses and climate change, *Canadian Journal of Public Health*, 1, Accepted
- Beaumier, M., and Ford, J., 2010, Food insecurity among Inuit females exacerbated by socio-economic stresses and climate change, *Journal of Public Health*, 101, 196-201, Published
- Berkes, F. and Armitage, D., 2010, Co-management institutions, knowledge and learning: adapting to change in the Arctic, *Etudes/Inuit Studies*, v.31, n.1, 1, Accepted
- Berkes, F. and D. Armitage, 2010, Co-management institutions, knowledge and learning: adapting to change in the Arctic., *Etudes/Inuit/Studies*, v. 34, no.1., 109-131, Published
- Dale, A. and D. Armitage., 2010, Marine mammal co-management in Canada's Arctic: Knowledge co-production for learning and adaptive capacity, *Marine Policy* (available online December 2010)., 1, Published
- Fleming, L., DeSantis, R. and Smit, B., 2009, Adapting to climate change in Hopedale, Nunatsiavut, Settlement, Subsistence & Change Among Inuit of Nunatsiavut, Labrador, 1, Accepted
- Ford J, Keskitalo C, Smith T, Pearce T, Berrang-Ford L and Smit B, 2010, Case study and analogue methodologies in climate change vulnerability research, *Wiley Interdisciplinary Reviews*, doi: 10.1002/wcc.48, Published
- Ford, J, Pearce T, Duerden F, Furgal C and Smit B., 2010, Climate change policy responses for Canada's Inuit population: The importance of and opportunities for adaptation, *Global Environmental Change* 20(1), 177-191, Published
- Ford, J., 2008, Supporting adaptation: a priority for action on climate change for Canadian Inuit, *Sustainable Development Law & Policy*, v.8, no.3, 25-31, Published
- Ford, J., 2009, Vulnerability of Inuit food systems to food insecurity as a consequence of climate change: A case study from Igloodik, Nunavut, *Regional Environmental Change*, 83-100, Published
- Ford, J., 2010, Vulnerability of Aboriginal health systems in Canada to climate change, *Global Environmental Change*, 20, 668-680, Published
- Ford, J., 2010, Dangerous climate change and the importance of adaptation for the Arctic's Inuit population, *Environmental Research Letters*, 4, 1-9, Published
- Ford, J. & T. Pearce., 2010, What we know, do know know, and need to know about climate change vulnerability in the western Canadian Arctic: A systematic literature review., *Environmental Research Letters*, doi: 10.1088/1748-9326/5/1/014008, Published
- Ford, J. and Pearce, T., 2010, What we know, do not know, and need to know about climate change vulnerability in the western Canadian Arctic: a systematic literature review, *Environmental Research Letters*, 1-9, Published
- Ford, J., and Berrang-Ford, L., 2009, Food insecurity in Igloodik, Nunavut: an exploratory study, *Polar Record*, v.45, n.3, 255-236, Published



- Berkes, F., Armitage, D., Kocho-Schellenberg, E. and Patton, A., 2010, Adapting to Change in the Arctic: Co-Management Institutions and Processes for Adaptation, IASC North American Regional Meeting, Arizona State University, Presentation, Accepted
- Bradshaw, B., and Siebenmorgen, P., 2008, Assessing Community Vulnerabilities in Light of Climate Change: To What End?, Arctic Change 2008 Conference Proceedings, 56-57, Published
- Fleming, L., 2010, Climate, Change and the Future: Adapting in Nunatsiavut, Presentation at the ArcticNet Annual Scientific Meeting, Ottawa, ON., December 2010, Accepted
- Fleming, L., Smit, B. and R. DeSantis., 2010, Adapting to Change in Hopedale, Nunatsiavut, Presentation in Settlement, Subsistence and Change Among Nunatsiavummut. Session at the 17th Inuit Studies Conference, Val D'or, QC, October 2010, Accepted
- Fleming, L., Boase, S., Flowers, T., and Lane, K., 2008, Changing Governance and the Governance of Change: Facilitating Adaptation Across Multi-level Institutions in Hopedale, Nunatsiavut, Labrador, Arctic Change 2008 Conference Proceedings, 76, Published
- Ford, J., 2008, Opportunities for Policy to Support Inuit Adaptation to Climate Change, Arctic Change 2008 Conference Proceedings, 79-80, Published
- Ford, J. and Furgal, C., 2009, Foreword to the special issue: climate change impacts, adaptations and vulnerability in the Arctic, Polar Research, v.28, n.1, 1-9, Published
- Fresque, J. and D. Armitage., 2010, EXPLORING THE RELATIONSHIP BETWEEN SENSE OF PLACE AND ADAPTATION AND VULNERABILITY IN NORTHERN CANADA WITH RESPECT TO CHANGING WATERSCAPES, Presentation at the Oslo Science Conference, Norway, June 2010, Accepted
- Furgal, C., Fletcher, C., and Dickson, C., 2008, Methods and Approaches to Linking Inuit Science and Knowledge for the Understanding of Climate Change in Arctic Regions, Arctic Change 2008 Conference Proceedings, 81, Published
- Goldhar, C., Bell, T., and Wolf, J., 2010, Water Ways: community relations with freshwater and freshwater systems on the Labrador North Coast, and resilience to environmental change, ArcticNet Annual Scientific Meeting, December 2010, Accepted
- Pearce T, Notaina R, Wright H, Kudlak A, Ford J and Smit B, 2010, Transmission of environmental knowledge and land skills in adaptation planning for climate change in the Arctic, Meridian (Spring/Summer 2010), 6-11, Published
- Riedlsperger, R., Wood, B., Wolf, J., and Bell, T, 2010, "Where the arctic verge drives so far south": Illuminating the challenges of climate change adaptation in Labrador, ArcticNet Annual Scientific Meeting, December 2010, Accepted
- Smit, B., 2008, Adaptation in the Arctic, Tiempo, issue 68, 3-6, Published
- Wolf, J. and T. Bell., 2010, "It's no use fighting the weather": Adaptation to climate change in aboriginal communities in Labrador., Resilience Conference 2011, March 16-17, Accepted
- Wolf, J., Bell, T., and Alice, I., 2010, "Stuck in slush": Values and cultural identity in adaptation to climate change in two Labrador communities. Annual Science Meeting,, ArcticNet Annual Scientific Meeting, December 2010, Accepted