

# 1.2 Coastal Vulnerability in a Warming Arctic

## Summary

### Project Leader(s)

Forbes, Donald  
Pollard, Wayne  
Bell, Trevor

Coastal change in the Arctic has been ongoing for thousands of years and human adaptation has been a constant imperative for Inuit occupying this region. The extent of this change can be seen in prominent raised shorelines and former human occupation sites landward of the present coast. In marginal areas of the eastern and western Canadian Arctic, former shorelines are submerged below present sea level, coastal retreat is the dominant form of change, and cultural and archaeological resources, as well as community infrastructure, are sometimes at risk of damage or loss. Coastal change processes and hazards in the Arctic are regulated by climate factors such as sea ice, storm surges and waves, and ground surface temperatures, as well as geological conditions, coastal dynamics, sediment supply, and relative sea-level change (including regional sea levels and crustal uplift or subsidence). The project objectives include (1) improved understanding and prediction of relative sea-level change and associated coastal hazards in the Arctic; (2) measurement and prediction of coastal sensitivity to a range of climate-change effects; and (3) assessment of community and habitat vulnerability to coastal change in a warming Arctic.

## People

### Network Investigators

Allard, Michel (Université Laval)  
Bell, Trevor (Memorial University of Newfoundland)  
Catto, Norm (Memorial University of Newfoundland)  
Edinger, Evan (Memorial University of Newfoundland)  
Forbes, Donald (Natural Resources Canada - Geological Survey of Canada)  
Hughes Clarke, John (University of New Brunswick)  
McBean, Gordon (University of Western Ontario)  
Pollard, Wayne (McGill University)  
Smith, Rod (Memorial University of Newfoundland)  
Stewart, Ronald (McGill University)

### Collaborators & Research Associates

Craymer, Michael (Natural Resources Canada - Geomatics Canada)  
Dyke, Art (Natural Resources Canada - Geological Survey of Canada)  
Manson, Gavin (University of Guelph - Department of Geography)  
Mate, David (Natural Resources Canada - Geological Survey of Canada)  
Solomon, Steve (Natural Resources Canada - Geological Survey of Canada)  
Taylor, Bob (Natural Resources Canada - Geological Survey of Canada)

### Post-Doctoral Fellows

Ford, James (McGill University)  
Hoque, Azharul (McGill University)  
Plets, Ruth

### PhD Students

Couture, Nicole (McGill University)  
Haltigin, Tim (McGill University)  
Lantuit, Hugues (Alfred Wegener Institute Foundation for Polar and Marine Research)  
McNicholas, Elizabeth (Memorial University of Newfoundland)  
Parewick, Kathleen (Memorial University of Newfoundland)  
St. Hilaire-Gravel, Dominique (Memorial University of Newfoundland)  
Turner, Jennifer (University of Guelph)

## **Masters Students**

Belliveau, Karissa (Memorial University of Newfoundland)  
Brown, Tanya (Royal Military College of Canada)  
De Pascale, Gregory (McGill University)  
Irvine, Melanie (Memorial University of Newfoundland)  
Lantuit, Hugues (Alfred Wegener Institute Foundation for Polar and Marine Research)  
Martin, Bryan (Memorial University of Newfoundland)  
O'Dell, Daniel (Memorial University of Newfoundland)  
Papadimitriou, Stephanie (Memorial University of Newfoundland)  
St. Hilaire-Gravel, Dominique (Memorial University of Newfoundland)  
Turner, Jennifer (University of Guelph)

## **Undergraduate Students**

Bartlett, Zachary (Memorial University of Newfoundland)  
Paradis, Jaime (McGill University)

## **Technical Staff**

De Pascale, Gregory (McGill University)

## **Project Staff**

Leblanc, Philippe (ArcticNet Inc.)

## **Partners**

International Arctic Science Committee  
Government of Nunavut  
Canadian Space Agency  
Natural Sciences and Engineering Research Council  
IPY Federal Program Office  
Global Environmental and Climate Change Centre (GEC3)  
Infrastructure Canada  
Chevron Canada Limited  
Climate Change Impacts and Adaptation Program  
Fonds québécois de recherche sur la nature et les technologies  
Natural Resources Canada - Climate Change Impacts and Adaptation Program  
Memorial University of Newfoundland  
Alfred Wegener Institute Foundation for Polar and Marine Research  
Indian and Northern Affairs Canada - Northern Scientific Training Program  
McGill University  
Natural Resources Canada - Office of Energy Research and Development  
Natural Resources Canada - Polar Continental Shelf Project  
Natural Resources Canada - Earth Sciences Sector

## **Publications**

### **Articles Published in Refereed Publications**

Lantuit, H., and Pollard, W.H., 2005, Temporal stereophotogrammetric analysis of retrogressive thaw slumps on Herschel Island, Yukon Territory, Natural Hazards and Earth System Science, 5, 413-423, Published

Lantuit, H., and Pollard, W.H., 2006, Fifty years of coastal erosion and retrogressive thaw slump activity on Herschel Island, southern Beaufort Sea, Yukon Territory, Canada., Geomorphology, 1, Accepted

Henton, J.A., Craymer, M.R., Ferland, R., Dragert, H., Mazzotti, S. and Forbes, D.L., 2006, Crustal motion and deformation monitoring of the Canadian landmass, Geomatica, v.60, no.2, 173-191, Published

Hoque, M.A. and Pollard, W.H., 2006, The analysis of block failure mechanics in unconsolidated frozen sediments along Arctic coasts, *Arctic Coasts - Circum-Polar Processes and Dynamics*, 1, Submitted

Lantuit, H., Steenhuisen, F., Graves-Gaylord, A., Ödegård, R., Atkinson, D. and Rachold, V., 2006, The Arctic Coastal Dynamics geospatial framework, *Arctic Coasts - Circum-Polar Processes and Dynamics*, 1, Submitted

Couture, N.J., Forbes, D.L., Solomon, S.M., Manson, G.K., and Pollard, W.H., 2006, The Canadian Beaufort Sea Coast, *Arctic Coasts - Circum-Polar Processes and Dynamics* (W. Pollard, N. Couture, H. Lantuit and V. Rachold, eds.), 1, Submitted

De Pascale, G., Pollard, W.H. and Williams, K., 2007, Geophysical mapping of ground ice using a combination of capacitive coupled resistivity and ground penetrating radar, NWT, Canada, *Journal of Geophysical Research*, 1, Submitted

Taylor, R.B. and Atkinson, D.E., 2007, Coastal environments of the Canadian Arctic Archipelago, *Arctic Coasts - Circum-Polar Processes and Dynamics*, 1, Accepted

Catton, N.R. and Parewick, K., 2007, Hazard and Vulnerability Assessment and Adaptive Planning: Mutual and Multi-lateral Community-researcher Communication, *Arctic Canada*, In: D. Liverman (ed), *Communicating Geoscience. Geological Society of London Series*, 1, Accepted

Ford, J., Pearce, B., Smit, B., Wandel, J., Allurut, M., Shappa, K., Ittusujurat, H. and Qrunnut, K., 2007, Reducing Vulnerability to Climate Change in the Arctic: the Case of Nunavut, *Canada, Arctic*, v.60, no.2, 150-166, Published

Manson, G.K. and Solomon, S.M., 2007, Past and Future Forcing of Beaufort Sea Coastal Change, *Atmosphere-Ocean*, v.45, no.2, 107-122, Published

De Pascale, G., Pollard, W.H. and Williams, K., 2008, Geophysical mapping of ground ice using a combination of capacitive coupled resistivity and ground penetrating radar, NWT, Canada, *Journal of Geophysical Research: Earth's Surface*, doi:10.1029/2007JF000585, Accepted

Couture, N.J., Pollard, W.H., Olynyk, D., Lantuit, H., 2008, Physical threats to cultural resources and infrastructure on Herschel Island, Yukon, Canada, *Polar Research*, 1, Submitted

Ford, J., 2008, Climate, society, and natural hazards: Changing hazard exposure in two Nunavut communities, *Northern Review*, v. 28, 51-71, Published

Ford, J., Pearce, T., Gilligan, G, Smit, B., and Oakes, J., 2008, Climate change and hazards associated with ice use in Northern Canada, *Arctic, Antarctic and Alpine Research*, 1, Accepted

Berrang Ford, L., MacLean, R., Gyorokos, T., Ford, J., and Ogden, N, 2008, Climate change and malaria in Canada: a systems approach, *Interdisciplinary Perspectives on Infectious Diseases*, 1, Accepted

Ford, J., Berrang Ford, L., Irngaut, C., and Qrunnut, K., 2008, Food insecurity in Igloolik, Nunavut: A baseline study, *Int. Journal of Circumpolar Health*, 1, Submitted

Ford, J., Laidler, G., Gough, W., and MacDonald, J., 2008, "Where's the ice gone?": Dimensions of vulnerability and adaptation in an Inuit community, *Global Environmental Change*, 1, Submitted

### **Other Refereed Contributions**

Couture, N.J., Hoque, A.Md., Pollard W.H, 2008, Modelling the erosion of ice-rich deposits along the Yukon Coastal Plain, Ninth International Conference on Permafrost, June 29-July 3, 2008, Fairbanks, Alaska, 1, Accepted

Lantuit, H., Overduin, P.P., Couture, N.J., Ødegård, R.S., 2008, Sensitivity of coastal erosion to ground ice contents: An Arctic-wide study based on the ACD classification of Arctic coasts, Ninth International Conference on Permafrost, June 29-July 3, 2008, Fairbanks, Alaska, 1, Accepted

Hoque, A.Md., and Pollard, W.H., 2008, Thermal and mechanical erosion along ice-rich Arctic coasts., Ninth International Conference on Permafrost, June 29-July 3, 2008, Fairbanks, Alaska, 1, Accepted

### **Non-Refereed Contributions**

Lantuit, H., Couture, N. and Pollard, W.H., 2004, A volumetric analysis of long-term coastal erosion on Herschel Island, Yukon Territory: Preliminary results, *Berichte zur Polar- und Meeresforschung (Reports on Polar and Marine Research)*, 482, 33-37, Published

Solomon, S.M., Forbes, D.L., and Manson, G., 2004, Geological conditions in the coastal-nearshore region of the Mackenzie Delta: implications for development., *Proceedings, 57th Canadian Geotechnical Conference*, 23-30, Published

Forbes, D.L., Craymer, M., Manson, G.K., and Solomon, S.M., 2004, Defining limits of submergence and potential for rapid coastal change in the Canadian Arctic, *Berichte zur Polar- und Meeresforschung (Reports on Polar and Marine Research)*, 482,, 196-202, Published

Pollard, W.H., 2004, Modeling Block Failure in Vertical Cliffs of Arctic Coasts Underlain by Permafrost, AGU Fall Meeting, 13-17 December, San Francisco, U.S.A., 1, Accepted

Forbes, D.L., Bell, T., Craymer, M., and Manson, G., 2005, Coastal submergence and emergence across the Canadian Arctic, *ArcticNet Annual Scientific Meeting, Program with Abstracts*, 32, Published

Belliveau, K., Brown, T., Forbes, D., Catto, N., Edinger, E., Hooper, R., 2005, Effects of climate change on coastal geomorphology and benthic biotic communities, southwestern Banks Island, *ArcticNet Annual Scientific Meeting, Program with Abstracts*, 22-23, Published

Lantuit, H., Couture, N., Pollard, W.H., Haltigin, T., De Pascale, G.P., and Budkewitsch, P., , 2005, Short-term evolution of coastal polycyclic retrogressive thaw slumps on Herschel Island, Yukon Territory, *Berichte zur Polar- und Meeresforschung (Reports on Polar and Marine Research)*, 506, 72-76, Published

Lantuit, H. and Pollard, W.H., 2005, An integrated multi-sensor approach to the geomorphological evolution of retrogressive thaw slumps on the southern Beaufort Sea coasts, *8th International Conference on Remote Sensing for Marine and Coastal Environments*, 17-19 May, Halifax, Canada, 1, Accepted

Lantuit, H. , 2005, The relationship between retrogressive thaw slumps polycyclic pattern and shoreline evolution on Herschel Island, Yukon Territory , *Shifting Lands, New Insights into Periglacial Geomorphology*, 2nd Meeting European Science Foundation Network (SEDIFLUX), 20-22 January, Clermont-Ferrand, France, 1, Accepted

Couture, N.J., Lantuit, H., Pollard, W.H., Solomon, S. , 2005, Organic carbon contents of permafrost soils along the Yukon Coastal Plain, Canada, *Eos, Transactions American Geophysical Union*, 85 (47), Fall Meeting Supplement, Abstract C13A-0265, Published

Pollard, W.H., Couture, N.J., Lantuit, H., and De Pascale, G. , 2005, Coastal erosion and permafrost sensitivity, *ArcticNet Annual Science Meeting, Program with Abstracts*, 14-15, Published

De Pascale, G.P., Lantuit, H., Pollard, W.H., 2005, An updated estimation of ground ice volume for Richard's Island in the Mackenzie Delta and an assessment of potential thaw sensitivity to climate change, *ACIA International Symposium on Climate Change in the Arctic*, 9-12 November, Reykjavik, Iceland, 1, Published

Lantuit, H., Couture, N., Pollard, W.H., Haltigin, T., De Pascale, G.P., and Budkewitsch, P. , 2005, Short-term evolution of coastal polycyclic retrogressive thaw slumps on Herschel Island, Yukon Territory, *5th Arctic Coastal Dynamics International Workshop*, 13-16 October, Montreal, Canada, 1, Published

Lantuit, H., Couture, N., Pollard, W.H. , 2005, Identification of stabilized and revegetated retrogressive thaw slumps floors on an ice-rich Arctic coast using Landsat near-infrared imagery, *5th Arctic Coastal Dynamics International Workshop*, 13-16 October, Montreal, Canada, 1, Published

Lantuit, H., Haltigin, T., Pollard, W.H. , 2005, Remote detection of ground ice in polar desert environments: A multi-sensor approach. , 55th International Astronautical Conference, 4-9 October, Vancouver, Canada, 1, Published

Lantuit, H., and Pollard, W.H. , 2005, Fifty years of coastal erosion on Herschel Island, Southern Beaufort Sea, Yukon Territory, Association Québécoise pour l'Étude du Quaternaire (AQQUA) and Canadian Geomorphology Research Group (CGRG), 14-16 May, Québec, Canada, 1, Published

Turner, J.D., Pollard, W.H., and Hoque, M.A. , 2005, Modeling of thermo-mechanical niche formation and block failure on Herschel Island, Yukon Territory, Canada, Eos, Transactions American Geophysical Union, 85 (17), Joint Assembly Supplement, Abstract OS33A-01, Published

Lantuit, H., and Pollard, W.H. , 2005, A volumetric analysis of long-term coastal erosion on Herschel Island, Yukon Territory : First results, 1st EGU (European Geosciences Union) General Assembly, 25-30 April, Nice, France, 1, Published

Forbes, D.L., 2005, Ice-bonded sediments and massive ground ice in a transgressive barrier-lagoon and delta complex, Yukon coast of Beaufort Sea, western Arctic Canada., Eos, Transactions American Geophysical Union, 85 (47), Fall Meeting Supplement, Abstract C13A-0267, Published

Manson, G.K., Forbes, D.L., Armenakis, C., and Savopol, F, 2005, Remote measurements of coastal change using QuickBird, IKONOS and aerial photography, Sachs Harbour, Northwest Territories, Canada, Proceedings, 8th International Conference on Remote Sensing for Marine and Coastal Environments, 17-19 May, Halifax, Canada, 1, Accepted

Manson, G.K., Forbes, D.L., and Solomon, S.M., 2005, Coastal morphology and processes in western Arctic communities, 2004 ArcticNet Annual Conference Proceedings, 46, Published

De Pascale, G.P., Williams, K.K., and Pollard, W.H., 2005, Preliminary geophysical mapping of a massive ground ice body using a combination of resistivity and ground penetrating radar, Western Canadian Arctic, Proceedings of 2nd European Conference on Permafrost, Potsdam, Germany, 1, Published

De Pascale, G.P., Pollard, W.H., and Solomon, S.M. , 2005, Resistivity surveys for characterization of coastal permafrost in the Western Canadian Arctic, Proceedings of the Second International Conference on Arctic Research Planning, Copenhagen, Denmark, 1, Published

De Pascale, G.P., Pollard, W.H., and Solomon, S.M., 2005, Resistivity surveys for permafrost investigations in the Western Canadian Arctic, Proceedings of the 2005 ArcticNet Annual Science Meeting, Banff, Alberta, 1, Published

Hoque, M.A., and Pollard, W.H., 2005, Block failure of Arctic coastal cliffs under the influence of wave-cut notches, Proceedings of the 12th Canadian Coastal Conference, Dartmouth, Nova Scotia, 9 pp., Published

Rachold, V., Lantuit, H., Couture, N., and Pollard, W. H. (eds.), 2005, Arctic Coastal Dynamics - report of the 5th International Workshop, McGill University, Montreal, Canada, 13-16 October 2004, Berichte zue Polar und Meeresforschung (Reports on Polar and Marine Research), 506, 131 pp., Published

Couture, N.J., Lantuit, H., Pollard, W.H., and Solomon, S, 2005, An estimate of the flux of organic carbon from permafrost soils along the Yukon Coastal Plain, Canada, Proceedings of 2nd European Conference on Permafrost, Potsdam, Germany, 1, Published

Couture, N.J., and Pollard, W.H., 2005, The sensitivity of Canada's Yukon Coastal Plain to a warming climate, Proceedings of the 2005 ArcticNet Annual Science Meeting, Banff, Alberta, 1, Published

Forbes, D.L., Lavergne, J.-C., Manson, G.K., Solomon, S.M. and Whalen, D., 2005, Airborne LiDAR: a tool and a vision of Arctic coastal mapping and hazard assessment under climate change, Second International Conference on Arctic Research Planning (ICARP-II), 3.11, Published

- Solomon, S.M., Allard, M., Couture, N., Forbes, D., Manson, G., Pollard, W. and Taylor, R.B., 2005, Monitoring processes and changes on Canada's Arctic coasts, Second International Conference on Arctic Research Planning (ICARP-II), 3.8, Published
- Forbes, D.L., Whalen, D., Solomon, S.M. and Manson, G.K., 2005, First applications of airborne LiDAR for Arctic coastal mapping: potential contributions to building community resilience under climate change, 2005 ArcticNet Annual Conference Proceedings, 53-54, Published
- Parewick, K., Catto, N.R., Forbes, D.L., Bell, T., Pollard, W., Edinger, E. and Couture, N., 2005, Integrating coastal science into regional impacts assessment and local decision-making to build community resilience in the Canadian Arctic, 2005 ArcticNet Annual Conference Proceedings, 27, Published
- Parewick, K., 2005, Things change, we change: planning for community resilience in the Canadian Arctic, 2005 ArcticNet Annual Conference Proceedings, 83, Published
- Brown, T., Edinger, E. and Hooper, R., 2005, Marine biological survey of rapidly eroding coastal environments, Sachs Harbour, NWT, 2005 ArcticNet Annual Conference Proceedings, 38-39, Published
- Belliveau, K., Catto, N. and Edinger, E., 2005, Effects of climate change on the coastal geomorphology of southwestern Banks Island, NWT, 2005 ArcticNet Annual Conference Proceedings, 36, Published
- McNicholas, E., Bell, T., Blasco, S.M., Forbes, D.L., Hughes-Clarke, J., Manson, G.K. and Solomon, S.M., 2005, Using multibeam survey systems to map the seabed and submerged coastal features in the Canadian Arctic, 2005 ArcticNet Annual Conference Proceedings, 79, Published
- St Hilaire, D., Bell, T., Forbes, D.L. and Smith, R., 2005, Application of the isolation/inundation basin approach to coastal submergence and emergence studies across the Canadian Arctic, 2005 ArcticNet Annual Conference Proceedings, 97-98, Published
- Craymer, M., Forbes, D., Henton, J., Lapelle, E., Piraszewski, M. and Solomon, S., 2005, Determining sea-level rise and coastal subsidence in the Canadian Arctic using a dense GPS velocity field for North America, Eos, Transactions American Geophysical Union, v.85, no.52, Fall Meeting Supplement, G11A-1203, Published
- Solomon, S., Manson, G. and Fraser, P., 2005, Synthetic Aperture Radar Remote Sensing of Bottom-Fast ice in the Mackenzie Delta Region, Northwest Territories, Canada, 2005 ArcticNet Annual Conference Proceedings, 96-97, Published
- Proctor, A., 2005, The Role of Inuit Qaujimagajatuqangit in Auyuittuq National Park: Cultural Politics of Park Management, 2005 ArcticNet Annual Conference Proceedings, 89, Published
- Couture, N.J. and Pollard, W., 2006, Fluxes and Fate of Organic Carbon along the Yukon Coast: A Contribution to Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, Canada, 1, Accepted
- Couture, N.J., Allard, M., Solomon, Steve M., Forbes, D.L., Pollard, W.H. , 2006, Canadian Arctic Network of Coastal Observatories – CANCO, 6th Arctic Coastal Dynamics International Workshop, 22-25 October 2006, Groningen, Netherlands, 1, Accepted
- Lantuit, H., Rachold, V., Hubberten, H.-W., Pollard, W. H., Steenhuisen, F. and Couture, N., 2006, Towards a Recalculation of Carbon Release in the Arctic Ocean by Coastal Erosion: The Influence of Coastline Fractality, 6th Arctic Coastal Dynamics International Workshop, 22-25 October 2006, Groningen, Netherlands, 1, Accepted
- Couture, N.J., Allard, M., Solomon, Steve M., Forbes, D.L., Pollard, W.H., 2006, Arctic Coastal Monitoring Sites: A Proposed Network to Monitor Impacts of Climate Change at Community, Regional, and Circum-Arctic Scales, Canadian Coastal Zone Conference, 14-18 August, 2006, Tuktoyaktuk, Canada, 1, Accepted
- Pollard, W.H. and Hoque, Md. A., 2006, Block Failure Mechanics Along Arctic Coasts: A Contribution to Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, Canada, 1, Accepted

Ford, J., Bell, T. and St-Hilaire, D., 2006, Climate change, infrastructure risks, and vulnerability of Arctic coastal communities: a case study from Arctic Bay, Canada, ArcticNet Annual Science Meeting 2006, Victoria, 52-53, Published

Forbes, D.L., 2006, Sea ice, sea-level rise, and shore-zone stability in Aulavik National Park, M'Clure Strait coast of Banks Island, western Canadian Arctic Archipelago, ArcticNet Annual Science Meeting 2006, Victoria, 52, Published

Martin, B., Bell, T., Smith, I.R. and Forbes, D.L., 2006, Sill evolution in marine inundated basins, Sachs Harbour, Banks Island, NWT, ArcticNet Annual Science Meeting 2006, Victoria, 74-75, Published

Smith, I.R., Bell, T., Forbes, D.L. and Martin, B., 2006, A hypersaline coastal marine transgressive basin with sedimentary mirabilite formation, southern Banks Island, NWT, ArcticNet Annual Science Meeting 2006, Victoria, 95, Published

Catto, N. and Papadimitriou, S., 2006, Sensitivity, exposure, and vulnerability to petroleum pollution, Gjoa Haven coastline, Nunavut: a contribution to ArcticNet Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, 37-38, Published

Belliveau, K., Catto, N., Edinger, E. and Forbes, D., 2006, Hazards and risks to community infrastructure, Sachs Harbour: a contribution to ArcticNet Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, 38-39, Published

Papadimitriou, S., Catto, N., Brown, T. and Edinger, E., 2006, Integrated biophysical hazard mapping and community impacts analysis, Gjoa Haven (Ursuqtuq), Nunavut: a contribution to ArcticNet Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, 84-85, Published

Parewick, K. and Catto, N., 2006, Things change, we change: community planning for resilience in Tuktoyaktuk: a contribution to ArcticNet Project 1.2, ArcticNet Annual Science Meeting 2006, Victoria, 85-86, Published

Pollard, W.H., 2007, The Vulnerability of Ice-rich Permafrost Coasts to Climate Change, Yukon North Slope Conference, Jan 30-Feb 1, 2007, Whitehorse, Canada, 1, Accepted

Forbes, D.L., Craymer, M., Henton, J., Herron, T., Kokelj, S., Lapelle, E., Manson, G.K., Marsh, P., Mazzotti, S., Piraszewski, M., Solomon, S.M. and Whalen, D., 2007, Combining Geological, Geodetic, and Tide-gauge Data to Estimate Coastal Subsidence and Flooding Hazards in the Mackenzie Delta, Western Arctic Canada, Eos, Fall Meeting Supplement 2007. American Geophysical Union, 1, Submitted

Mate, D., Bourgeois, J., Bell, T., Budkewitsch, P., Chen, W., Forbes, D.L., Gearheart, S., Illauq, N., Irvine, M. and Smith, R., 2007, Integrated Mapping and Environmental Change Detection for Adaptation Planning in an Arctic Coastal Community, Clyde River, Nunavut, Proceedings of Arctic Coastal Zones at Risk, Tromsø, Norway. LOICZ, 1, Accepted

Lantuit, H., Overduin, P.P., Couture, N.J., Steenhuisen, F., Ødegård, R.S., 2007, The ACD classification of Arctic coasts: An international effort and a geospatial challenge to map coastal erosion at the Arctic scale, Arctic Coastal Zones at Risk Workshop, 1-3 October 2007, Tromsø, Norway, 1, Published

Overduin, P.P., Allard, M., Couture, N.J., Grosse, G., Lantuit, H., 2007, Filling the need for a Arctic circumpolar coastal observatory network, Arctic Coastal Zones at Risk Workshop, 1-3 October 2007, Tromsø, Norway, 1, Published

Couture, N.J., Hoque, A.Md., Pollard W.H., 2007, Modelling the erosion of ice-rich deposits along the Yukon Coastal Plain, ArcticNet Annual Scientific Meeting, 11-14 December 2007, Collingwood, ON, 1, Published

Forbes, D.L., Pollard, W. and Bell, T., 2007, Coastal vulnerability in a warming Arctic, Compendium of ArcticNet Research - Phase 1 (2004-2007), 1-15, Accepted

St. Hilaire, D., Taylor, R.B., Forbes, D.L. and Bell, T., 2007, The impacts of a storm on Arctic gravel beaches, Cornwallis Island, Nunavut, Arctic Coastal Zones at Risk, Workshop Proceedings, Tromsø, Norway, 65-68, Published

Parewick, K., 2007, Things Change, We Change: Community Adaptation Dynamics, 2007 ArcticNet Annual Conference Proceedings, 28, Published

St. Hilaire, D., 2007, Arctic Coastal Dynamics Under Changing Relative Sea-Level and Environmental Forcing, Canadian Arctic Archipelago, 2007 ArcticNet Annual Conference Proceedings, 29, Published

Ford, J., Imgaut, C., Qrunnut, K., Berrang-Ford, L., 2007, Food Insecurity in Igloolik: A Baseline Study, 2007 ArcticNet Annual Conference Proceedings, 53, Published

Ford, J., Imgaut, C., Qrunnut, K., Gough, W., Laidler, G., Smit, B., 2007, Food Insecurity in Igloolik: The Role of Climate, 2007 ArcticNet Annual Conference Proceedings, 54, Published

Irvine, M., Smith, I.R., Bell, T., 2007, Community-Scale Hazard Classification in the Canadian Arctic: A Case Study of Clyde River, Nunavut, 2007 ArcticNet Annual Conference Proceedings, 63, Published

Martin, B., Bell, T., Smith, R., Forbes, D., 2007, Sill Evolution in Marine Inundated Basins, Sachs Harbour, Banks Island, NWT, 2007 ArcticNet Annual Conference Proceedings, 75, Published

St.Hilaire, D., Bell, T., Forbes, D., Taylor, R., 2007, Arctic Coastal Dynamics Under Changing Relative Sea-Level and Environmental Forcing, Canadian Arctic Archipelago, 2007 ArcticNet Annual Conference Proceedings, 90, Published

Fritz, M, Schirrmeister, L., Meyer, H., Lantuit, H., Couture, N.J., Pollard, W.H, 2008, Notes from a small island in the western Canadian Arctic – a joint approach using sedimentary and stable isotope records gives insights into postglacial permafrost history, 23rd International Polar Meeting, 10-14 March 2008, Muenster, Germany, 1, Published

Ford, J., 2008, Supporting adaptation: A priority for action on climate change for Canadian Inuit, Sustainable Development Law & Policy, 1, Submitted

### **Specialized Publications**

Ford, J., and Pearce, T., 2007, Planning for climate change in the mining sector, Canadian Mining Journal, 1, Published

Ford, J., Laidler, G., Gough, B., Irngaut, C., and Qrunnut, K., 2007, Food in Igloolik: Issues and Concerns, Report of research findings to the community of Igloolik. Inuktitut version, 1, Published

Ford, J., 2007, On the frontline of our changing climate: How Inuit in the Canadian Arctic are weathering the challenges of a warmer world, Weatherwise, 42-49, Published

Ford, J., 2007, Notes from the field - Igloolik, Nunavut, McGill Reporter, 1, Published

Ford, J., Pearce, T., Duerden, F., and Prno, J., 2008, Climate change impacts on the Canadian mining industry, Canadian Mining Journal, 1, Accepted

Ford, J., 2008, Climate change north of 60: Vulnerability and adaptation in small Inuit communities, Oxfam, UK, 1, Published

Ford, J. and Berrang Ford, L., 2008, A response to the "Gorey Truths.", Victoria Business Club, 1, Published

Ford, J., and Pearce, T., 2008, Industry planning for climate change, Plant: Canada's Industry Magazine, 1, Accepted