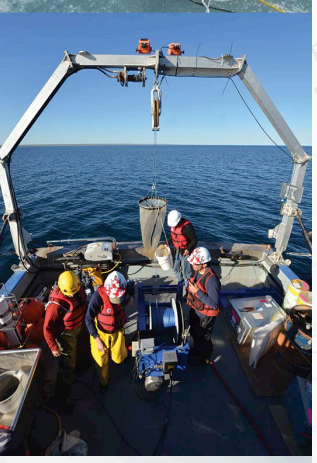
# Projects funded by Polar Knowledge Canada



## SCIENCE AND TECHNOLOGY

### STRATEGIC PRIORITY: Baseline information to prepare for northern sustainability

| PROJECT | DETAILS | CONTACT |
|---|---|---|
| Monitoring of small mammals and their predators in the Canadian Arctic | Using small mammals and their predators to track vital ecosystem components and evaluate the effects of factors like changing snow conditions or local resource development. | Gilles Gauthier, Departement de biologie et Centre d'études Nordiques, Universite Laval |
| Baker Lake Aquatic Cumulative Effects Monitoring Program - Phase 1 Methods Development | Establishing the methods for long-term watershed monitoring in Baker Lake, Nunavut, to gauge the cumulative effects of further mining activities combined with potential effects of climate change. | Luis Manzo, Kivalliq Inuit Association |
| Health of Fisheries Resources (Arctic Char) in the Lower Coppermine River | Collecting life history data from Arctic char, collecting biological samples for analyses of heavy-metal contaminants collecting water quality samples from the Lower Coppermine River. | Cam Stevens and Barb Adjun, Golder Associates Ltd. and Angonatit Niovikuia Ltd. (Kugluktuk) |
| Enabling Community Well-Being, Self-Monitoring for Yukon First Nations | Using social determinants of health to assess the impact of a potential mining project in the Dawson Range (Yukon) on Little Salmon/Carmacks First Nation and nearby communities. | Ben Bradshaw, Department of Geography, University of Guelph |
| Shrub Monitoring in Canada's Arctic | Improving methods for monitoring and analysing changes in shrub cover in the Mackenzie Delta, and in the area affected by the Inuvik to Tuktoyaktuk Highway. | Joe Acorn, Environmental Management – Stantec |
| Monitoring Land Surface and Permafrost Conditions along the Inuvik-Tuktoyaktuk Highway Corridor | Developing baseline maps of the corridor and monitoring the changes of land cover and drainage conditions using satellite images, aerial photos, and field observations. | Yu Zhang, Canada Centre for Remote Sensing, Natural Resources Canada |
| Geoscience Tools for Supporting Environmental Risk Assessment of Metal Mining | Assessing the cumulative effects of natural and human-driven changes, on the transport and fate of metals and health of regional ecosystems in areas of high resource potential in the Canadian North. | Jennifer Galloway, Geological Survey of Canada |
| Bathurst Caribou Range Plan | Using traditional, local and scientific knowledge to develop a Bathurst Caribou Range Plan, working collaboratively with Territorial Governments, Aboriginal Governments and Organizations, the industrial sector and public organizations. | Karin Clark, Wildlife Division, Department of Environment and Natural Resources, Government of the Northwest Territories |
| Community-based monitoring for aquatic invasive species in the Canadian Arctic—preparing for increased shipping | Developing community-based monitoring that will allow for early detection of aquatic invasive species (AIS) and characterization of baseline coastal marine biodiversity. | Kimberley Howland, Department of Fisheries and Oceans, Central and Arctic Region |
| Resource development, marine shipping and Arctic wildlife: a model of public-private partnership to address potential environmental impacts | To inventory and predict seabird and fish use of marine sites relevant to proposed shipping routes in Hudson Strait and north Baffin Island. | Grant Gilchrist, National Wildlife Research Centre, Environment and Climate Change Canada. |

| PROJECT | DETAILS | CONTACT |
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| Biological indicators to monitor aquatic ecosystem health in NWT communities | Using biofilms and zooplankton to assess the impacts of resource development, municipal wastewater, and climate change on freshwater environments near NWT communities. | Erin Kelly, Environment and Natural Resources, Government of the Northwest Territories |
| Fire in the Arctic: The interactive effects of landscape, hydrology, and permafrost change on aquatic ecosystem health | Tracking the effects of fire, a natural process increasing in the north, on aquatic ecosystems. The work is work will be based from two established NWT monitoring sites. | Suzanne Tank, Department of Biological Sciences, University of Alberta |
| Cryosphere, vegetation, and freshwater monitoring in the western Canadian Arctic | Documenting the state of the cryosphere, vegetation, and freshwater using field observations from long term research and remote sensing. | Philip Marsh, Department of Geography and Environmental Studies, Wilfrid Laurier University |
| Community-Based Monitoring Projects to Contribute to Terrestrial Biodiversity Monitoring Assessments | Using community-based monitoring and traditional knowledge to produce baseline information for evaluating and tracking impacts of climate change on human and ecological systems. | Eva Kruemmel, Inuit Circumpolar Council Canada |
| Community-Led Environment & Health Surveillance for Adaptation | Developing a community-based environment-health surveillance and response system in Rigolet, Nunatsiavut; and a systematic and standardized survey on environment health outcomes. | Sherilee Harper, Department of Population Medicine, Ontario Veterinary College, University of Guelph |
| Tłı̨chǫ Aquatic Ecosystem Monitoring Program | Conducting community-based contaminants-related research, including the collection of fish, water, and sediment samples, and observations using both Tłı̨chǫ and scientific knowledge to address the question: "Are the fish safe to eat and is the water safe to drink?" | Jody Pellissey, Wek'èezhìı Renewable Resources Board, Yellowknife NT |
| Consolidating the State of Knowledge on Caribou Health to Enable Tracking of Trends in a World Under Change | Baseline research on pathogen prevalence and stress levels in order to track changes overtime and evaluate impacts of environmental change on caribou health. | Susan Kutz, Faculty of Veterinary Medicine, University of Calgary |
| Nearshore Ecological Survey (NES) | Documenting different nearshore ecosystems, habitats and marine life around Cambridge Bay, and generating a report that will serve as the beginnings of a marine ecosystem catalogue. | Jeremy Heywood, Vancouver Aquarium Marine Science Centre |
| Kitikmeot Region Marine Science Study | Multi-disciplinary, integrated oceanographic exploration of Coronation Gulf, Queen Maud Gulf and Chantrey Inlet area to provide a baseline description of its geochemistry, biology and physical oceanography. | Adrian Schimnowski, Arctic Research Foundation |
| Churchill Marine Observatory | Collection of ecological data at a variety of near-shore locations and shipping lanes in the Churchill River estuary, Hudson Bay and Hudson Strait. | David Barber, Faculty of Environment, Earth, and Resources, University of Manitoba |

### STRATEGIC PRIORITY: Predicting the impacts of changing ice, permafrost, and snow on shipping, infrastructure and communities

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| Environmental Monitoring Through Science Outreach | Training northern students to monitor water quality and sea ice break-up. | Rick Armstrong, Nunavut Research Institute |
| Safe Passage: Sea-Ice Research for Arctic Resource Development and Northern Communities | Improving understanding of coastal sea-ice processes critical to Arctic transportation using existing coastal observation and modelling programs. The data and model improvements will be linked to the Canadian Ice Service for broad access. | Richard Dewey, Ocean Networks Canada |
| SmartICE Pond Inlet: a sea ice information service to support local decision-making | Improving sea-ice information and improved forecasting services for Pond Inlet. It builds on a prototype monitoring system developed for coastal Labrador communities. The project deploys in-situ and mobile sea-ice thickness sensors in areas where Inuit travel and the ice is known to be dangerous. | Trevor Bell, Geography Department, Memorial University of Newfoundland |
| Hydrological and water quality monitoring, research and training in the Apex River watershed, Iqaluit, Nunavut | Understanding and predicting of the freshwater supply in the Apex River, under consideration as a supplementary source of drinking water for Iqaluit. | Murray Richardson, Department of Geography and Environmental Studies, Carleton University |

### STRATEGIC PRIORITY: Alternative and renewable energy for the north

| PROJECT | DETAILS | CONTACT |
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| Whati Biomass District Heating System | Biomass District Heating System, which will provide wood pellet heat to four community buildings, reducing the community's heating oil consumption and carbon footprint. | Lisa Nitsiza, Community Government of Whati |
| Sanikiluaq Wind Energy Project | Wind monitoring tower to assess the local wind resource prior to future wind farm development on the site. | Sheldon Nimchuk, Qikitaaluk Business Development Corporation and Sanikiluaq Development Corporation |
| Inuvialuit Regional Corporate Centre Renewable Energy Project | Wind monitoring tower to assess the local wind resource prior to future wind farm development on the site. | Jiri Raska, Inuvialuit Regional Corporation |
| Inuvialuit Community Economic Development Organization Renewable Energy Project | Solar demonstration project on the community freezer that includes a training program to enable Inuvialuit to learn about solar installation for off-grid camps. | Jiri Raska, Inuvialuit Community Economic Development Organisation |

Photos: SmartICE; Arctic Research Foundation

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