

# Compendium of research undertaken in Nunavut 2008



Nunavut Research Institute

**FORWARD**

The Nunavut Research Institute was created in 1995 when the Science Institute of the NWT was divided into eastern and western operations. In the eastern arctic, the re-named institute was amalgamated with the Nunavut Arctic College.

The Nunavut Research Institute focuses on supporting scientific research and the development of technology across a broad spectrum of issues and concerns. The Institute's interpretation of research is broad, incorporating Inuit Qaujimanituqangit, social sciences, and natural sciences. The following mission statement guides the activities and services provided by the Institute:

*The mission of the Nunavut Research Institute is to provide leadership in the development, facilitation and promotion of Inuit Qaujimanituqangit, science, research and technology as a resource for the well being of the people of Nunavut.*

Institute services are guided by the core values of Nunavut Arctic College – strong communities, cultural appropriateness, partnerships, quality, access, responsiveness and life-long research, which is linked to community needs, and making greater use of the Inuit Qaujimanituqangit in research projects.

This compendium of research has been produced as part of the Institute's effort to communicate information about research projects recently undertaken in Nunavut under the authority of the Nunavut Scientists Act.

## **FOR MORE INFORMATION**

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**PROJECT TITLE: Northern Ellesmere ice shelves, ecosystems and climate impacts**

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**Research Location:** North Baffin

## **SUMMARY**

Over the last five years, we have noticed substantial climate-related impacts along the northern coast of Ellesmere Island. Ice shelves that have been attached to the shore for thousands of years have been breaking up, leading to the drainage of massive bodies of fresh water and the creation of new ice islands.

Thousands of square kilometres of 50- to 70-year-old land-fast sea ice has also broken away from the coast, suggesting that the ice shelves which used to occupy this coastline will not regenerate in the foreseeable future. These physical changes are also causing major transformations in polar ecosystems that are associated with ice. These ecosystems are composed mostly of micro-organisms and are poorly understood, so it is not yet clear how they will adapt to current and projected climate change.

The aim of this research program is to provide a comprehensive survey of the current Characteristics and stability of the northern Ellesmere Island ice shelves and multi-year land-fast sea ice. This will focus on measurements of ice thickness and internal structure using ice-penetrating radar transects and shallow ice cores. We will take salinity profiles in the fiords and bays along the coast as well as establish and measure surface melt rates using stakes drilled into the ice surface. We plan to install a semi-permanent automated climate station (on a small tripod) that will provide temperature data in the vicinity of Serson Ice Shelf. This data will be uploaded daily via a satellite connection, and made publicly available on the internet. Samples will be taken for water quality and DNA analysis to examine the microbial ecosystems and habitats in freshwater fiords and bays, and on the surface of the ice shelves.

In recognition of the International Polar Year (IPY), our science program has been integrated into the Canadian Rangers' Sovereignty Patrol, Operation Nunavut 2008 (run by Joint Task Force North, Department of National Defence). We will travel with the Rangers, who will support our scientific fieldwork by snowmobile, with air support from DND Twin Otters.

This proposed scientific/sovereignty patrol will contribute to Canadian IPY projects such as "Variability and Change in the Canadian Cryosphere" and "Microbiological and Ecological Responses to Global Environmental Change in the Polar Regions (MERGE-Canada)."

This collaboration represents an unprecedented synergy between DND, Nunavummiut, university researchers, Canadian government departments and the international science community.

Our scientific results will be shared immediately with the Rangers on the patrol and members of the press, and will be presented later in scientific articles. If logistics permit, we will visit schools in Grise Fiord or Resolute Bay to explain our work and its significance.

**PROJECT TITLE: Earth**

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**Research Location:** North Baffin

**SUMMARY**

Some 251 million years ago, 95 per cent of living creatures that secreted a carbonate skeleton became extinct. This was the largest such mass extinction in Earth history. There are many hypotheses to explain the extinction. Some suggest a rapid cataclysmic scenario, such a meteorite impact or massive volcanic eruption. Others believe that it was a slow but irreversible deterioration of the terrestrial and marine environments that caused the devastation. Among such slowly-changing factors was a well-documented increase in greenhouse gases in the atmosphere and accompanying global warming. This research project will be the basis of a Master of Science thesis at the University of Calgary. It will examine in detail the sedimentary succession recorded in three locations north of Greely Fiord, west of Tanquary Fiord and south of McKinley Bay, on northwest Ellesmere Island. Two additional localities from eastern Axel Heiberg Island near Eureka will also be examined. Small fly camps will be set up at each locality. Air transportation is to be provided by the Polar Continental Shelf Project.

A student and field assistant will be accompanied by their advisors, Dr. Benoit Beauchamp of the University of Calgary and Dr. Steve Grasby of the Geological Survey of Canada. The graduate student will measure five different sections at the five localities. He will record the thickness of individual beds, make observations about the rock composition and collect rock samples for carbon and sulphur isotope analyses.

In the lab, he will examine the collected samples under the microscope. Carbon and sulphur isotopes will be measured at the University of Calgary.

The data and the knowledge acquired through this study will be entirely available to Nunavut communities that wish to have access to it. The interpretations will be published in peer-reviewed journals.

**PROJECT TITLE: Measuring soil nitrogen cycling rates in Arctic soils**

**Principle Investigator:** Bedard-Haughn, Angela

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**Research Location:** North Baffin

**SUMMARY**

Soil nitrogen cycling in Arctic soils is important because nitrogen is a limiting nutrient important for regulating plant productivity. However, nitrogen cycling is also potentially an important control on greenhouse gas emissions from Arctic soils, particularly under a changing climate.

We will be working as part of Dr. Steven Siciliano's research team, which will be measuring soil biological and chemical properties and greenhouse gas release from Arctic soils. We will also be measuring the rate at which soil nitrogen is converted from the organic form (which is the dominant form in soils) to the inorganic form (which has greater potential for being lost via greenhouse gas emissions) and vice versa. (This is called mineralization and immobilization, respectively.)

We will then determine whether there is a direct link between nitrogen cycling rates and greenhouse gas emissions in Arctic soils.

## **PROJECT TITLE: The ecology of Nunavut aquatic systems**

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**Research Location:** Nunavut

### **SUMMARY**

It is anticipated that recent climate warming will strongly impact the ponds, lakes and rivers of Canada's Arctic. These anticipated impacts include changes in the flow and nutrient regimes of fresh waters and alterations in aquatic insect populations, which are important food sources for fish and migratory birds.

Relatively little research on the larval stages of aquatic insect communities has been conducted in central Nunavut compared to the Northwest Territories, Yukon and High Arctic regions. During the summer of 2008, we propose to sample the soft sediments of ponds, lakes and rivers inland from the communities of Arviat, Baker Lake, Kugluktuk, Repulse Bay, Iqaluit and Clyde River. We hope our research in the area will provide valuable new information on recent changes in water flow, pond chemistry and the status of aquatic insect populations.

We will collect water quality data, moss, algal samples and aquatic insect samples during approximately 40 days (June - August, 2008) from ponds, lakes and rivers within several hours of overland travel. (This will be done via ATV access along established trails or short portage from waterways accessed via boat.) Mid-lake sampling areas will be accessed via collapsible canoe and boat.

Our sampling methods utilize a soft sediment gravity corer that samples mud from the center of lakes and ponds. We also collect benthic invertebrate samples from river systems in order to construct reference collections of invertebrate diversity across multiple regions within Nunavut.

Sets of chained temperature monitors deployed in Baker Lake will also be collected, to retrieve water temperature data that has been recorded since July 2007.

We will be based within each of the communities, with sampling trips consisting of day trips out of the communities. We will remove a small sample of water (less than one litre) from each sampling site, as well as a small volume of mud (less than several cubic centimetres) for analysis of indicators of environmental change.

We do not collect any fish or disturb any wildlife during our sampling. No sampling will take place within areas of cultural importance or protected status.

Sediment and invertebrate samples collected will be analyzed at York University. Water quality data is processed at the Canadian Center for Inland Waters in Burlington, Ontario. These data will be published both in graduate student theses and peer-reviewed science journals.

We often hire local Inuit guides, and contribute to the local communities during our research. If the opportunity arises, we anticipate communicating our research efforts and results via media such as *Nunavut News/North*.

## **PROJECT TITLE: Glacier mass balance and pollution**

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**Research Location:** North Baffin

### **SUMMARY**

The intent of this research project is:

- To measure the mass balance of the glaciers to show if the ice is getting thinner or thicker due to climate change.
- To collect snow samples which contain contaminants coming into the ice caps to record changes in the health of the environment.

We work out of the local hotel in Grise Fiord, from small huts on Meighen and Melville ice caps and out of a small tent elsewhere. We are flown in to each ice cap by Polar Continental Shelf Project Twin Otter and from there we use a skidoo and sled as transport between the various sites on each ice cap.

Mass balance is measured from the annual changes in the lengths of several poles drilled into the ice, and also changes in the elevation using precision GPS which indicate whether the ice is getting thinner or thicker.

Contaminant trends are followed by collecting snow samples each year at all ice caps and analyzing them in our Ottawa laboratories.

Beginning in early April 2007, Burgess and Koerner will re-measure the mass balance of the ice caps. Repeat GPS measurements will be performed in conjunction with ground penetrating radar (GPR) surveys to measure ice surface elevation and ice thickness.

Weather stations will be downloaded and reset. Snow samples will be collected (including at the North Pole) as part of our pollution monitoring programme and an associated International Polar Year program.



## **PROJECT TITLE: Alpha Ridge test appurtenance**

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**Number in Party:** 33

**License Number:** 0200808N-A

**Research Location:** North Baffin

### **SUMMARY**

Canada ratified the United Nations International Convention on the Law of the Sea (UNCLOS) on Nov. 6, 2003. It has a time-limited (2013) opportunity to acquire territory beyond the 200 nautical mile limit.

Article 76 of UNCLOS specifies a mechanism for defining the continental margins beyond the 200 nautical mile limit. These rights include powers over mineral and biological resources on and below the seabed and jurisdiction in matters related to environment and conservation.

Bathymetry, gravity and seismic data are needed to substantiate the claim. The data are not being collected to assess the potential for petroleum prospecting in the region.

Acquisition of wide-angle seismic reflection/refraction data is planned to present strong arguments to the international board that decided on the validity of the claim.

Explosives are required as the seismic energy source due to the restrictions imposed by the sea ice. To have sufficient information to make the case that the Alpha Ridge off Ellesmere Island has a similar velocity structure as the polar margin, 11 shots per line need to be fired. We will use explosives, Primacord and detonators, suspended 100 m underneath the ice. The sizes are 350 and 175 kg in weight. The sound is recorded on 150 instruments (digital seismometers) on the sea ice. The recorders are small, weigh less than 5 kg, and are removed at the end of the experiment.

Operations will be based in Eureka, Nunavut, with 10 to 13 people, and 20 at a temporary camp on the ice. The camp is required due to the distance from Eureka to the Alpha Ridge study area. Helicopters will transport personnel and scientific instruments, supplies and other necessary field supplies/equipment to the on ice study area from the base camp at Eureka.

There are 3 main project activities:

- Start-up/arrival at ice site (ca. 7 days)
- Execution of experiment (ca. 46 days)
- Cleanup and departure (ca. 7 days)

The field program is scheduled from mid-March through to mid-May 2008. When completed, project reports/publications will be made available to interested parties. Under Section 5 of the Canadian Environmental Assessment Act (CEAA) an Environmental Assessment (EA) is required for this project because Natural Resources Canada is the proponent of the program and is providing funding. Further, through the CEAA process with federal departments as proponents, other federal or territorial departments, such as the Department of Fisheries and Oceans and Nunavut Research Institute, the Government of Nunavut for example, will be contacted for their input with respect to authorizations, permits regulations, guidelines required for the ARTA program.

## **PROJECT TITLE: Carbon and water cycles in tundra**

**Principle Investigator:** Poissant, Laurier

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**Number in Party:** 2

**License Number:** 0203508N-M

**Research Location:** North Baffin

### **SUMMARY**

Wetlands are known for their great biodiversity and the important carbon reservoir that they represent. Moreover, in the global warming context, these ecosystems represent net sources or sinks for different greenhouse gases depending on their conditions.

**Objectives:**

This study plans to assess the impact of temperature and precipitation fluctuations of Arctic tundra wetlands and to study their impact on hydrogen, carbon monoxide, methane and carbon dioxide tropospheric concentrations and fluxes. Knowledge of these dynamics should provide indications about the possible effects of the decreasing or increasing temperature and water level associated with the global warming on the production or consumption of these trace gases. The specific objectives are:

- To study the concentration variations of these chemicals resulting from the inhibition of the processes responsible for their consumption or the activation of the processes accountable for their production.
- To study the impact of the temperature and precipitation's increase on methanogenesis and inhibition of tropospheric CO and CH<sub>4</sub> consumptions by a reduction of the diffusion of these chemicals into the soil.
- To study the impact on the water fluctuation on the soil's aerobic micro-organisms which might produce more carbon dioxide than the quantity used by mosses and other Arctic plants during photosynthesis.

**Methodology:**

Water and carbon dioxide fluxes will be obtained with a Bowen ratio micrometeorological station including a high frequency single infrared gas analyser. Hydrogen, carbon monoxide and methane fluxes will be estimated with the modified Bowen method, their vertical concentration gradients (1.5 metres) will be measured over the tundra wetlands at various sites (south–north transect) in the Arctic tundra, namely in Kuujuarapik and Bylot Island. The turbulent transfer coefficient (k) obtained every 20

minutes will be assumed equal for heat, water vapour and trace gases. Hence, fluxes calculations will be done by the multiplication of the turbulent transfer coefficients with the vertical concentration gradients of hydrogen, carbon monoxide and methane. The instrument used to detect hydrogen, carbon monoxide and methane is a RGA5. This analyser has two detectors: the reductive gas detector (RGD) for hydrogen and carbon monoxide and a flame ionisation detector (FID) for methane. The RGD contains an HgO bed wherein oxygen reacts with reductive gases resulting in Hg<sup>0</sup> releases detectable by differential UV absorbance. Chemicals will be detected continuously in 10-minute cycles with an analytical reproducibility of  $\pm 0.2$ , 0.3 and 2 per cent for hydrogen, carbon monoxide and methane.

Short term and long term use of data:

- PhD thesis and papers (reporting)
- Modelling and archiving

Reporting:

Data will be presented during International Polar Year workshops, conferences and seminars.

## **PROJECT TITLE: Global Atmospheric Watch Program at Alert, Nunavut**

**Principle Investigator:** Puckett, Keith

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**Number in Party:** 4

**License Number:** 0202608N-M

**Research Location:** North Baffin

### **SUMMARY**

Alert, Nunavut, is the location of the Global Atmospheric Watch Research Station. Changes in the atmosphere are monitored here, providing a significant Canadian scientific presence in the North and contributing to Canadian and global environmental issues. Our work here leverages significant international science to meet Canada's interests in providing guidance to understanding the impacts of future development and increased transportation activities in the north.

Observations started in 1975 as Canada's obligation to support the United Nations Environment Program (UNEP) following the 1972 Stockholm Conference on the Human Environment. It is now one of three premier remote sites in the United Nations World Meteorological Organization Global Atmosphere Watch Program, having joined the program in 1986.

The atmospheric measurements collected by Environment Canada and international collaborators support prediction of future earth-atmosphere behaviour in the context of global and regional air quality and climate change. This provides an ongoing scientific foundation, upon which periodic intensive international studies, such as International Polar Year, build upon.

There are three main types of data collection:

- In situ analysers: instruments collect air through sampling tubes and measure the concentration of a particular species in real time.
- Flask Sampling: air samples are taken in glass or steel canisters and shipped back to the originating laboratory for further analysis.
- Filter sampling: air is drawn through a paper filter for a specified period of time. Upon completion, the filter is sent to the originating laboratory for further analysis.

## **PROJECT TITLE: Codes and standards and climate change adaptation in the Canadian North**

**Principle Investigator:** Braiter, Mark

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**Number in Party:** 4

**License Number:** 0100108-Reg Amended

**Research Location:** South Baffin

### **SUMMARY**

The research/consultation project has three sections:

- Disaster management policy and climate change adaptation in the Canadian North - the research will investigate options for creating better-adapted and more resilient human communities and sectors through improvements in our disaster prevention, preparedness, response and recovery capacities.
- Codes and standards and climate change adaptation in the Canadian North - the project will address how the timely and rigorous development, renewal, application and enforcement of relevant codes and standards might be facilitated.
- Understanding the significance of insurance, alternative risk-spreading mechanisms and related public policy for the risk management of physical infrastructure in the face of climate change (Canada-wide) - the goal of the recommended policy options will be to improve the risk management of Canada's physical infrastructure in respect of climate change.

A case study based approach will be central to these projects, but a literature review, nine or 10 workshops along with community participation will also be an integral part of these projects.

On the basis of these projects the NRTEE (National Round Table on the Environment and the Economy) should be in a position to advise governments and other stakeholders on a suite of options for the advancement of policy and measures in order to better safeguard and protect human populations, economic interests and the environment in the Canadian North, and to ensure that infrastructure is and remains safe, reliable, effective and efficient in the face of the changing climate.

## **PROJECT TITLE: Community-based monitoring (CBM) on sea ice climate variability and change**

**Principle Investigator:** Barber, David

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**Number in Party:** 3

**License Number:** 0101008N-M

**Research Location:** South Baffin

### **SUMMARY**

This project is a cooperative endeavour between the community of Sanikiluaq and the University of Manitoba. A part of the ArcticNet project, the intent is to collect multi-year wintertime climate, ice and snow cover data on the ice of Hudson Bay.

The project is driven by environmental changes noted by community hunters since the 1970s, the need for long-term baseline data to evaluate the impact of climate change and by the logistical difficulties in conducting research in Arctic marine environments.

The community-based monitoring program, now entering its fourth year of operation, involves members of the community of Sanikiluaq in gathering information for research. This program will be looking specifically at sea ice to identify what the changes are and to better understand why they are occurring.

Specific objectives of the program are:

- To develop long-term monitoring of physical climatic variables over sea ice within Hudson Bay
- To promote interaction between youth and monitors within a community using the focus of climate variability and change

A two-metre meteorological instrument tripod will be set up on the site at the first visit in early 2008. The meteorological instruments will be recovered in the spring (May or early June) and stored over the summer at Sanikiluaq.

An automatic weather station, set up on a flat, open area of sea ice near the community, will collect meteorological and solar radiation data. The site will be visited on a regular basis (approximately every two weeks) by two trained community-based monitors who will perform maintenance and collect measurements of snow depth and ice thickness.

The automatic weather station collects data at 15-minute intervals and stores the information in its internal memory. Periodically, a radio attached to the instrument platform transmits the data to an antenna and computer in the community.

Measurements of ice thickness and the character of the snow pack are collected by the monitors, entered into the project computer and forwarded to the University of Winnipeg by fax or email.

Sanikiluaq's central location makes it an excellent base from which to acquire a representative climatology of ice, snow and weather over Hudson Bay. This project also enjoys excellent support from the community.

In the short term, data are available for use within the community by way of the computer attached to the radio receiver. In the long term, the data will be used to assess changes that might be occurring as a result of climate changes, or changes due to hydro (hydroelectric) and other development on the mainland.

Data may be incorporated into climate models for prediction of impacts.



**PROJECT TITLE: Hydrology of extensive low gradient High Arctic wetlands: an examination of sustainability**

**Principle Investigator:** Young, Kathy

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**Number in Party:** 5

**License Number:** 0200108R-M

**Research Location:** North Baffin

**SUMMARY**

Project objectives:

- Examine the hydrology and sustainability of isolated, linked, dying and desiccated wetland types (like ponds and wet meadows) within extensive low-gradient wetlands located in two diverse regional climate settings: polar oasis (Eastwind Lake, Ellesmere Island) and polar desert (Creswell Bay, Somerset Island)
- Assess the role and importance of geomorphological settings - like glacial moraine ground, bedrock, coastal zones (for example Creswell Bay) and marine ice rich sediments (for example Eastwind Lake) - in the hydrologic functioning of these wetland types.
- Utilizing a water balance framework at the plot, catchment and landscape scale assess the mechanisms for water inputs/losses and storage of these wetland systems over space and time.
- Employing hydrologic information and understanding garnered at Eastwind and Creswell, examine the hydrology of a low-gradient wetland at the regional scale (like Polar Bear Pass, Bathurst Island) so its temporal and spatial response to water inputs (melt water, rainfall) and losses (evaporation and drainage) can be determined.

This will then permit an evaluation of the future sustainability of this critical ecological site in context of varying climatic conditions and perhaps future climatic changes.

**PROJECT TITLE: Baseline environmental field study for the Mary River project**

**Principle Investigator:** Cook, Richard

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**Number in Party:** 10

**License Number:** 0202008R-M

**Research Location:** North Baffin

**SUMMARY**

Baffinland Iron Mines Corporation is currently conducting an advanced exploration program at the Mary River Project, located approximately 160 kilometres south of Pond Inlet. Current exploration activities in the area commenced in 2004 and are ongoing seasonally. Baseline environmental data collection will commence in the spring of 2005 and will continue until 2007. This will generate information to contribute to the development of an Environmental Impact Assessment for the project area.

There will be three field visits this season between May and October. We expect to continue the baseline studies for three years until October 2007.

Areas of study are the anticipated mine site location, Nuluujaak Mountain and the potential transportation corridors - northeast to Milne Inlet (one option) or southerly to Steensby Inlet (two options).

Activities that will take place to conduct baseline monitoring are:

- Set up a meteorological station for monitoring temperature, rainfall, wind direction and speed
- Establish water quality and flow sampling locations (ground water and surface water)
- Fly two potential transportation corridors (the abandoned road from Nuluujaak Mountain to Milne Inlet) and a second potential route south to Steensby Inlet
- Sound monitoring
- Wildlife survey (observations only)
- Benthic and fish sampling
- Soil and sediment sampling.
- Marine survey (observations only)
- Archaeology (observations only)

## **PROJECT TITLE: Paleoenvironments and Thule social change on Melville Peninsula**

**Principle Investigator:** Finkelstein, Dr. Sarah

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**Number in Party:** 4

**License Number:** 0200908N-A

**Research Location:** North Baffin

### **SUMMARY**

The archaeological record indicates that significant cultural changes took place in the Eastern Arctic during the past 1,000 years. Major climatic changes, notably the Medieval Warm Period and the Little Ice Age, also took place during this time. This project forms part of a larger International Polar Year (IPY) project titled "Dynamic Inuit social strategies in changing environments." The purpose of this sub-project is to produce the first reconstructions of climatic change for the past 1,000 years on Melville Peninsula and to provide a climatic context for the archaeological work.

**Goals and objectives:**

Lake sediments will be used to study the Medieval Warm Period and the Little Ice Age and the impacts of these climatic changes on aquatic and terrestrial ecosystems. IPY project collaborators are studying Thule houses near Hall Beach. Data on timing of site occupation and resource procurement will be compared to the reconstructed climate to understand how climatic change could have impacted the economy of the houses' inhabitants.

**Method of transportation:**

A twin-otter will drop off and pick up the field party at Sarcpa Lake using the abandoned airstrip. At Sarcpa Lake, we will move around on foot. For our work around Hall Beach, we will use truck or ATV.

**Structures:**

We will make a small camp (four-person) at Sarcpa Lake. The camp will consist of four sleeping tents and one cook/lab tent. No permanent structures will be erected. For our work at Hall Beach, no structures will be erected as we will stay in the hamlet.

**Restoration/Abandonment:**

We use a minimal impact camping approach. No structures, devices or garbage are ever left on the land.

**Methodology:**

We collect sediment core samples from small or medium-sized lakes (about 10 m deep) using a hollow tube of 5-cm diameter (hand powered). These cores are taken for analysis to the laboratory where we study their physical properties and the microscopic biological remains preserved in them, including algae and pollen grains. When examined under the microscope, these are useful indicators of long-term environmental changes. This region was selected for our research because of its archaeological importance.

**Data:**

The data will enable two graduate students to complete theses and produce paleoclimatic reconstructions for this region. The data will be published in scientific journals and made publicly available via our laboratory website (see below) for unrestricted use.

**Reporting:**

The results of our research will be communicated back to interested communities and individuals through the NRI reporting process, through publications, and through the website of our research lab ([www.geog.utoronto.ca/info/facweb/finkelstein/data.html](http://www.geog.utoronto.ca/info/facweb/finkelstein/data.html)). This project is part of a collaboration with the Government of Nunavut (Dept. of Culture, Language, Elders and Youth), and the Inuit Heritage Trust.

The project has its own website in development, where we will also post field reports, data and summaries.

**PROJECT TITLE: Permafrost hydrology and environmental significance of perennial springs in the Expedition Fiord area, Axel Heiberg Island**

**Principle Investigator:** Pollard, Wayne

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**Number in Party:** 7

**License Number:** 0200408R-M

**Research Location:** North Baffin

**SUMMARY**

This research involves the investigation of cold perennial springs on Axel Heiberg Island in the Canadian High Arctic. This is an integrated study of the biophysical and chemical processes associated with cold saline groundwater.

The aims of this research are:

- to understand and explain processes related to the interaction between water and frozen ground unique to cold environments
- to describe the characteristics of microbial communities associated with springs, lakes and permafrost in cold polar deserts

This is the only research in the Canadian Arctic concerned with perennial springs and microbiology. These efforts have contributed to a better understanding about the limits of life in cold climates and about unique physical processes that are occurring in the Arctic. This is the only research on cold perennial springs being conducted in the High Arctic. These springs have no commercial value and our research is driven entirely by science.

**PROJECT TITLE: An investigation of the sensitivity of High Arctic permafrost to climate change**

**Principle Investigator:** Pollard, Wayne

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**Number in Party:** 10

**License Number:** 0200508R-M

**Research Location:** North Baffin

**SUMMARY**

This research is concerned with the impacts of climate change on High Arctic landscapes, in particular the thawing of ice-rich permafrost. The aims of this project are:

- to detect and assess landscape changes associated with warming and melting permafrost
- to investigate changing microclimate conditions.

The data collected in this study will improve our understanding about the interaction between climate and permafrost, and help predict how landscapes will respond to climate warming.

This study will also add much-needed information on High Arctic permafrost and ground ice conditions, its sensitivity to climate change and baseline data upon which landscape changes can be documented.

A second component of this project looks at how rock surfaces are being weathered and eroded.

**PROJECT TITLE: Transport of organic contaminants via migrations of sea-run Arctic char**

**Principle Investigator:** Swanson, Heidi

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**Number in Party:** 2

**License Number:** 0400108R-M

**Research Location:** Kitikmeot

**SUMMARY**

Scientists have shown that migrating sockeye salmon contribute high levels of some pollutants (like DDT, PCBs) to Alaskan lakes. They have also shown that Arctic grayling living in lakes with migrating salmon have higher pollutant levels than those living in lakes without migrating salmon. This is because migrating fish can transport pollutants from the ocean into lakes.

This project will investigate whether sea-run Arctic char transport pollutants from the ocean into lakes through their annual migrations. In summers 2006, 2007 and 2008, six lakes (three with sea-run char, three without) located near Hope Bay (2006 and 2007) and Nayauk Lake (2008) will be sampled for fish and insects that represent whole food webs. Pollutants in fish will be compared between systems that do and do not support sea-run char.

The results will help us understand how levels of pollutants vary among fishing locations and be useful for predicting how pollutant levels respond to climate change (because migration will also be affected by climate change).

**PROJECT TITLE: Storm Studies in the Arctic (STAR) and aircraft research**

**Principle Investigator:** Hanesiak, John

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**Number in Party:** 21

**License Number:** 0100608R-M

**Research Location:** South Baffin

**SUMMARY**

Between Oct. 1 and Dec. 15, 2007, we are planning a major field experiment based out of Iqaluit to provide a better understanding of the physical features of Arctic storms and their hazards, the processes controlling them and our predictive capabilities for them. A smaller February 2008 blowing snow project based out of Iqaluit is also planned. A variety of instruments will be deployed in the Environment Canada compound at Iqaluit airport and portable/removable automatic weather stations placed in outer southern Baffin Island locations.

A portable Doppler radar will be installed near the Natural Resources Canada facility in Iqaluit, a research aircraft (based out of Iqaluit) will fly into the storms and a research ice-breaker will sample ice and weather in the Hudson Strait region.

We will launch approximately 80 weather balloons from the Environment Canada facility at Iqaluit airport and possibly in Pangnirtung during storm events.



**PROJECT TITLE: Calibration and validation of the cryosat radar altimeter: field studies on Devon ice cap, Nunavut**

**Principle Investigator:** Sharp, Martin

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**Number in Party:** 6

**License Number:** 0200708R-M

**Research Location:** North Baffin

**SUMMARY**

The two main objectives are:

- to differentiate seasonal elevation changes and long term changes in ice cap thickness
- to determine the relationship between surface elevation and changes in ice mass.

Long-term ice cap thickness will be calculated as the difference between stake movement and average accumulation rates. The rate of the transformation of ice to snow at each site will be estimated by measuring changes in the length of the cable attached to the bottom of a 20-metre borehole and to the ice surface.

The change in the length between 2004 and 2006 will indicate the magnitude of elevation change that is caused by firn compaction and not related to changes in ice mass.

## **PROJECT TITLE: Geology and geochemistry of Borup Fiord Pass and surrounding area**

**Principle Investigator:** Beauchamp, Benoit

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**Number in Party:** 4

**License Number:** 0201008R-M

**Research Location:** North Baffin

### **SUMMARY**

Borup Fiord Pass on northern Ellesmere Island – the low-lying narrow valley linking the head of Esayoo Bay to the head of Hare Fiord – hosts unique sulphur-rich springs that emerge through and onto glacial ice.

This site is thought to be the best terrestrial analogue for Jupiter's ice moon Europa. This ice moon is a high priority for future space exploration, as its probable subsurface ocean represents a possible habitat for microbial life.

To better understand geological features which may be influencing the origin of the spring systems at Borup Fiord Pass, local geologic mapping will be conducted. Mapping will include walking out stratigraphic sections and mapping their spatial distribution within the region.

A maximum of 40 hand samples, no more than 10 cm in diameter, will be collected to help in rock type identifications.

The modern spring system will also be examined.

After initial reconnaissance of the site, a sampling strategy will be developed to characterize the geochemistry of all sites with active discharge. In addition, other water bodies will be sampled including glacial discharge, melt water streams, and nearby lakes. Sampling procedures for spring and glacial melt waters will follow standard protocols for inorganic and stable isotope analyses.

For chemical analyses, water samples will be filtered and stored in the dark in bottles until analyzed, and samples will be kept in coolers until transferred to laboratory refrigerators.

**PROJECT TITLE: Geology of ancient reefs**

**Principle Investigator:** Beauchamp, Benoit

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**License Number:** 0201108R-M

**Research Location:** North Baffin

**SUMMARY**

This project will investigate an abrupt climate change event that occurred about 280 million years in the area now occupied by Ellesmere Island. The event led to a rapid and irreversible cooling of the area, at a time when the rest of the world was getting warmer possibly due to an increase in carbon dioxide.

The climate change event was recorded in several reefs. Ancient reefs, and rocks in between them, are rich in ecological information. Their study can yield insights into the environmental conditions that accompanied their growth. For instance, modern reefs are rapidly declining in numbers and diversity and several factors have been invoked to explain their demise. One such factor is global warming.

**PROJECT TITLE: Biophysical baseline study program for the Izok to High Lake road project**

**Principle Investigator:** Mougeot, Charlotte

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**Number in Party:** 4

**License Number:** 0400408R-M

**Research Location:** Kitikmeot

**SUMMARY**

Zinifex (formerly Wolfden Resources Inc.) is undertaking feasibility studies for a potential road in the Kitikmeot Region of Nunavut called the Izok to High Lake road project.

The proposed road alignment for the project runs north-south and extends between the High Lake property and a point 10 kilometres west of the Lupin mine site. The southern end of the road (near Lupin) is located approximately 360 kilometres north of Yellowknife.

The closest Nunavut communities include Kugluktuk and Umingmaktok.

## **PROJECT TITLE: Biophysical baseline study program for Izok Mine development project**

**Principle Investigator:** Fratton, Glenda

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**Number in Party:** 12

**License Number:** 0400508R-M

**Research Location:** Kitikmeot

### **SUMMARY**

Zinifex is currently in the early stages of planning a potential mine in Nunavut called the Izok Lake Mine Development Project. The Izok property, known to contain zinc, copper and lead ore deposits, is located approximately 360 km north of Yellowknife and 90 km west of the Lupin mine site in the Kitikmeot region of Nunavut. The closest communities include Kugluktuk and Umingmaktok.

The potential Izok project includes a mine site and an access road between Izok Lake and Lupin mine site.

Zinifex has retained Gartner Lee Limited to undertake baseline field programs. The overall objective of the baseline field programs is to gather information that can help Zinifex understand and document the potential environmental effects of the project. This information can also be used to develop mitigation measures and plans for the project. The planned field studies are scheduled to begin in late July 2007 and continue to June 2008. The field program includes studies in hydrology, water and sediment quality, aquatic organisms (fish and benthic organisms) and climate.

The following field studies are proposed under the Scientific Research Licence application submitted to NRI:

- Water sampling in streams and rivers, including up to two site visits to the streams and rivers along the potential road corridor
- Stream flow and water level measurements, including the set up of data-logger and gauging stations with subsequent site visits to collect water measurements

The appropriate permits for conducting wildlife surveys, vegetation surveys, and fisheries surveys are being obtained from the Government of Nunavut and Department of Fisheries and Oceans.

Transportation to the mine site happen using fixed wing aircraft departing from Yellowknife. While onsite, field crews will use snowmobiles, helicopters, small fixed wing aircraft and small boats to complete. All field staff will be accommodated at the existing Hamm Camp.

## **PROJECT TITLE: Heat effects and energy potential of salt domes in Axel Heiberg Island, Nunavut**

**Principle Investigator:** Zentilli, Marcos

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**Number in Party:** 7

**License Number:** 0201508R-M

**Research Location:** North Baffin

### **SUMMARY**

In Axel Heiberg Island, Nunavut, there are many columnar rock structures called "salt domes." These are composed mainly of the minerals gypsum, anhydrite and rock salt, and some include volcanic rocks. These materials are better conductors of heat than surrounding rocks, and therefore salt domes bring heat from deep in the Earth. In some areas they have melted the permafrost, generating year-round springs where salty water comes out at about 5 C summer and winter.

Because these springs are warm they contain live bacteria and other life forms. They therefore are considered possible analogs to places where life could have flourished in the now frozen planet Mars.

We study the long-term effects of the heating from the salt domes, such as changing the potential for petroleum, and possible links with intense volcanic activity that took place there 100 million years ago.

We also study the possible application of heat-exchanging technology to utilize the localized Earth heat for heating homes or research stations, such as the McGill Arctic Research Station at Expedition Fiord.

And we study the possibility that some salt domes may be actively growing by several centimetres a year, and also their capacity to provide an inexhaustible source of gypsum and anhydrite alabaster, which would be mined as an alternative carving stone for Nunavut.

The work in the field will consist of making better maps so that the salt domes appear in more detail, collecting hand-size samples of rocks within and around salt domes to be studied by various methods in the laboratory, and taking measurements that enable us to estimate the movement of salt domes along faults that also cut volcanic rocks. Surveying and satellite technology, combined with our field results, will allow us to estimate the rate of growth of the salt structures with better precision.

**PROJECT TITLE: Impact of melt ponds on energy and momentum fluxes between atmosphere and sea ice (acronym: MELTEX)**

**Principle Investigator:** Birnbaum, Gerit

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**Number in Party:** 8

**License Number:** 0202508N-A

**Research Location:** North Baffin

**SUMMARY**

Summer sea ice extent in the Arctic Ocean has been changing dramatically during the last decade. The project MELTEX aims to help determine the role of so-called melt ponds in this process.

Melt water ponds form from May to August at the surface of Arctic sea ice. They are supposed to have a strong impact on the energy exchange between atmosphere, sea ice, and ocean, and thus on sea ice melting. They enhance absorption of solar radiation, and evaporation from melt ponds influences the formation of fog and clouds. Quantitatively, however, the impact of melt ponds on radiation, moisture, heat, and momentum fluxes over Arctic sea ice is still not well understood and has to be investigated further.

Within the project MELTEX, atmosphere and sea ice data will be collected using a research aircraft of type Basler BT 67. The Beaufort Sea is an ideal region for such studies because it is covered with sea ice of different age and level of deformation. It will therefore allow us to draw general conclusions about the role of melt ponds in the Arctic climate system.

Part of the measurement program will be conducted in the Lincoln Sea using Eureka, Nunavut, as operation base. There, the most thick and most rough sea ice in the entire Arctic Ocean can be found.

**PROJECT TITLE: High Arctic Ground Temperature Monitoring**

**Principle Investigator:** Walker, Anne

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**Number in Party:** 2

**License Number:** 0201608R-M

**Research Location:** North Baffin

**SUMMARY**

For the past 20 years, the Climate Research Division (Climate Processes Section) of Environment Canada has maintained a number of automated climate/permafrost stations at sites in northern Canada to support cold climate research activities within the division. This has included the development and validation of climate models. Meteorological and ground temperature data sets collected at these sites have also been provided to Dr. Sharon Smith of the Geological Survey of Canada (Natural Resources Canada) to support the Natural Resources Canada led permafrost monitoring network.

One of these sites is located at Hot Weather Creek, near Eureka, on Ellesmere Island. This station has been in operation since approximately 1990. Maintenance of instruments and retrieval data sets from this site has been facilitated through collaboration with university researchers who carry out research activities in the Hot Weather Creek area. These researchers include Dr. Greg Henry (University of British Columbia) and Dr. Antony Lewkowicz (University of Ottawa).



**PROJECT TITLE: Roche Bay magnetite project -  
environmental/archaeological baseline studies**

**Principle Investigator:** Hoos, Richard

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**Number in Party:** 7

**License Number:** 0201708R-M

**Research Location:** North Baffin

**SUMMARY**

Roche-Bay PLC has retained EBA Engineering Consultants Ltd. (EBA) to initiate baseline environmental and archaeological studies at their proposed magnetite (iron ore) project, located approximately 60 km south of Hall Beach, Nunavut.

The proposed baseline study program will involve the following key field studies:

- vegetation classification
- surface water quality sampling
- hydrology
- aquatic resources study
- terrestrial wildlife study
- marine wildlife study
- species of special concern and their habitats
- archaeological resources

A helicopter will be used to transport field personnel to remote sampling sites. A helicopter or small fixed-wing aircraft will be used for aerial transect surveys. A small boat will be used for marine wildlife surveys. The existing exploration camp and infrastructure at Roche Bay will be used for accommodation and services.

## **PROJECT TITLE: The PolarDARN radar for Rankin Inlet (Kangiqliq)**

**Principle Investigator:** Sofko, George

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**Number in Party:** 3

**License Number:** 0300408R-M

**Research Location:** Kivalliq

### **SUMMARY**

A group of international scientists has joined to use radars to study high-altitude weather systems and their effects upon the low-altitude weather we experience at the ground. The SuperDARN (Super Dual Auroral Radar Network) community has funding and/or participation from 12 countries (Canada, US, Great Britain, France, Italy, Finland, Norway, Iceland, Japan, Australia, New Zealand and South Africa). It has constructed nine radars in the northern hemisphere and seven in the southern hemisphere (including four in Antarctica).

All 16 SuperDARN radars are located to examine the "auroral zone" (the zone of northern or southern lights) at high latitudes in the northern and southern regions of Earth. However, there is a gap in the coverage over the polar regions. The north magnetic pole lies near Eureka, Nunavut. Only two radars, to be called the PolarDARN radars, are needed to view the entire "north polar cap" region centered around the magnetic pole. The first radar would be installed in Rankin Inlet, the second in Inuvik. We already take part in science projects at two sites in Rankin Inlet at a small hut in which a camera and a radio insonde operate.

The PolarDARN radars will be portable, easy to install and remove, with no environmental damage. They measure the high altitude "weather maps" (which are voltage maps, because high-altitude winds are motions of electrically charged particles driven by electrical voltages). These maps are available on the Internet with only a few minutes delay. Such information is important for all satellites, because satellites fly in this high altitude weather. Satellites are extremely important to the North because they transmit most communications signals (telephone, TV, internet, etc). Recently, scientists have found that the high-altitude weather is connected to the low-altitude weather, and the PolarDARN radar observations will help us to understand these connections. PolarDARN can measure part of the energy from the Sun to the Earth, namely the energy that comes from the "solar wind." This energy goes most directly to the polar regions, so these are very important regions to study.

**PROJECT TITLE: Landscape processes at Cape Bounty,  
Melville Island and North Lake, Cornwallis Island**

**Principle Investigator:** Lamoureux, Scott

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**Number in Party:** 10

**License Number:** 0201808R-M

**Research Location:** North Baffin

**SUMMARY**

Our work is intended to develop a long record of past weather and river conditions using lake sediments and to determine the amount of carbon stored and released from the watershed by plants and erosion.

Our work will involve obtaining sediment and water samples from the lakes and streams at Cape Bounty. We have chosen these lakes because the rivers appear to supply abundant sediment and deep lakes are needed to preserve the sediments for our research. We have been doing this work since 2003 and hope to continue for several years.

**PROJECT TITLE: Coastal dynamics under changing relative sea-level and environmental forcing**

**Principle Investigator:** St-Hilaire, Dominique

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**Number in Party:** 6

**License Number:** 0204408R-M

**Research Location:** North Baffin

**SUMMARY**

The primary goal of this research is to better understand the sensitivity and potential responses of Arctic coasts to changing marine conditions in the context of climate change.

Land-based work is proposed using the following methods: multi-temporal analysis and mapping of modern and ancient (raised) coastal landforms using air photos, satellite imagery, and Global Positioning Systems. This work will build on ongoing monitoring programs.

Camps consisting of one longhouse tent and several smaller sleeping tents are needed at Cape Charles Yorke and on Griffith Island for short periods (four to five days) to conduct necessary surveys.

Air transportation, provided by Polar Continental Shelf Project (PCSP), will use helicopter and Twin Otter.

Sites on Bylot and Lowther Islands and at Guys Bight will be visited for a very short time (a few hours to a full day per site) and transportation will mostly be by helicopter.

Lodging for extended stays in Resolute Bay (five days) and Pond Inlet (four to five days) will be provided by PCSP and local lodging facilities, respectively.

Study sites located in the Eastern Baffin Island region will be visited in a similar fashion in 2008.

**PROJECT TITLE: Contaminants in snow from Arctic icecaps and in lake sediments**

**Principle Investigator:** Muir, Derek

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**Number in Party:** 5

**License Number:** 0202208N-A

**Research Location:** North Baffin

**SUMMARY**

Contaminants have been measured have been in the liver and fat of Arctic species, including seals and polar bears. Amounts of some chemicals such as PCBs and DDT are declining in seals and seabirds because their use has now been banned. However, others such as fluorinated stain repellents and brominated flame retardants, which are used on carpets, clothing, furniture, computers and other consumer products, have been recently found to be increasing in wildlife.

To find out how much of these new chemicals are entering the environment of Nunavut, and where they may be coming from by collecting snow samples from the ice caps on Devon Island and sediment from the bottom of lakes on Cornwallis Island

**PROJECT TITLE: CASE 11-Pearya**

**Principle Investigator:** Piepjohn, Karsten

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**Number in Party:** 18

**License Number:** 0202708N-A

**Research Location:** Northern Ellesmere Island

**SUMMARY**

In the 2008 summer field season, the German Federal Institute for Geosciences and Natural Resources (BGR) is planning the geoscientific expedition “CASE11 Pearya” to the northernmost part of the Canadian Arctic (“Pearya”) at the north coast of Ellesmere Island.

The field work will probably start by the beginning of June and will be terminated by mid-August 2008. The field work during CASE 11 will be divided in an airborne aeromagnetic survey and helicopter-supported structural geology.

The first (aeromagnetic) part of the expedition will operate from June 1 to July 1, 2005, with approximately 10 members.

The second (geological) part will operate from the June 26 to August 15, 2005, with approximately 18 participants.

The geological study area is located between Wootton Peninsula in the west, Arthur Laing Peninsula in the east, the north coast of Ellesmere Island and the British Empire Range in the south. The geophysical survey will be carried out outside the northern part of the Quttinirpaaq National Park and will also include an up to 50-kilometre wide strip off the north coast of Ellesmere Island.

**PROJECT TITLE: Mass balance of White and Baby glaciers,  
Axel Heiberg Island, Nunavut**

**Principle Investigator:** Ecclestone, Miles

**Affiliation:** Department of Geography  
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**Number in Party:** 3

**License Number:**

**Research Location:** North Baffin

**SUMMARY**

Our research objective is to continue monitoring the mass balance of White and Baby glaciers. Present computer models suggest that the Arctic regions will get warmer first and will provide the first definitive proof of global warming. Monitoring these glaciers and improving our measurement techniques may provide firsthand evidence of any such warming.

Essentially the mass balance of a glacier is determined by measuring the amount of snow that falls and accumulates on the upper parts of the glacier. Depending on which is bigger, accumulation or melt, the glacier gains or loses mass. We need a very long record of annual measurements of accumulation and melt to be able to distinguish whether the glacier is reacting to normal weather variations or because the climate is changing.

**PROJECT TITLE: Silurian brachiopods and graptolites of central Arctic Islands, Canada; implications for biostratigraphy and paleoenvironment**

**Principle Investigator:** Jin, Jisuo

**Affiliation:** Department of Earth Sciences  
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**Number in Party:** 3

**License Number:** 0401108N-A

**Research Location:** North Baffin

**SUMMARY**

The Silurian (415 to 445 million years ago) rocks of Arctic Canada contain rich and diverse faunas of planktonic/nektic (such as graptolites) and benthic shelly (brachiopods) marine organisms.

The brachiopod faunas, repeatedly inter-layered with graptolite faunas, are reliable indicators for water depth, water chemistry and other environmental conditions. Meanwhile, the associated graptolites are used as global standard for accurate age-dating, as well as indicators of oxygen and nutrient levels in the marine water mass.

In the proposed project, a team of brachiopod and graptolite workers will work jointly to collect brachiopods, graptolites and rock samples from the same sections in Cornwallis and Baillie Hamilton islands. This will provide critical data for studying the effects fluctuating greenhouse-icehouse episodes on changes in sea level and biodiversity through about 15 million years of geological time, and improving our knowledge of periodic mass extinction events in life history.

The study will also refine the regional stratigraphy and geological mapping, which form



**PROJECT TITLE: Limnology and paleoecology of lakes and ponds from South Baffin and Resolute Bay, Cornwallis Island.**

**Principle Investigator:** Douglas, Marianne

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**Number in Party:** 4

**License Number:** 0102408R-M

**Research Location:** North Baffin and South Baffin

**SUMMARY**

We study lakes and ponds as they are sensitive archives of environmental conditions.

From these, it is possible to determine if environmental conditions are changing.

We (J.P. Smol and M.S.V. Douglas) have been monitoring lakes and ponds throughout the Arctic islands for close to 25 years. We propose to continue these measurements on ponds and lakes from South Baffin Island in 2008.

In collaboration with Dr. Patricia Sutherland from the Canadian Museum of Civilization, we will sample sites in the proximity of Dorset and Thule sites in order to reconstruct past climatic and environmental conditions. From these data it may be possible to determine if shifting environmental conditions affected these older societies and were responsible for the change in Dorset to Thule cultures.

This is part of an International Polar Year-endorsed project. At each site we collect present-day water quality data and algal samples. Our methods are very simple and do not disturb any wildlife or fish. We remove a small sample of water (less than two litres) from each pond, as well as a sediment core for analyses of indicators of environmental change. These samples are brought back to the lab for processing and water samples are sent to the National Water Research Institute in Burlington, Ont., and the algal and sediment samples are analyzed in our labs using microscopes.

Our second region of study will be on Cornwallis Island. While based at Polar Continental Shelf Program (Resolute), we sample about 10 ponds and lakes as part of our long-term water quality assessments. This includes sampling Meretta Lake, which once received raw sewage from the North Base. Our data now show that water quality in such lakes will recover to near pre-impact conditions, once nutrient additions cease.

## **PROJECT TITLE: Measurements of second-year and multi-year ice**

**Principle Investigator:** Johnston, Michelle

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**Number in Party:** 1

**License Number:** 0201908R-M

**Research Location:** North Baffin

### **SUMMARY**

During the summers of 2000 to 2002, we measured the seasonal decrease in strength of first-year ice around Resolute. In 2003, using the Canadian Coast Guard ship Louis S. St-Laurent as a platform, we measured the properties of several multi-year ice floes and second-year ice around Cornwallis Island. Our measurements have been used by Canadian Ice Service, Transport Canada and by industry. Using these measurements, we are gaining information about first-year, second-year and multi-year ice during one of the most important times of the year: summer, when shipping is most active.

Last year we did not require a licence from NRI because we conducted field work on first-year ice off the Labrador coast. Our work in Labrador will continue next year. This year, we will again examine second-year and multi-year ice because it is of concern to both moving and stationary structures, such as ships and offshore platforms.

Presently, we are able to give only an approximate area (the most-likely region) in which measurements will be conducted, since we do not yet know where the old ice will be most easily accessed, nor do we know the Coast Guard's plans. As a result, we are also submitting an application to the Aurora Research Institute.

Since our work this year concerns resource exploration in Beaufort Sea, we hope that the Western Arctic will have the necessary amount of old ice. If old ice in the Beaufort Sea is not within our reach, we will shift our efforts to the central Arctic. Regardless of where the field program is conducted, it will consist of the same type of measurements as those made in past years. The research will involve measuring the ice thickness with an auger, extracting several ice cores with a mechanical coring device and then measuring the ice strength with a borehole jack. Some of the ice cores will be transported to Ottawa for analysis whereas others will not be removed from the site (they will be placed back into the holes from which they came). No structures will be erected during the testing. The test sites will be left as we found them, minus several 10 cm diameter ice cores. The work will require a total of two weeks, and we will use the Coast Guard helicopter to access the ice from our base operations in the ship.

## **PROJECT TITLE: Hope Bay Gold Project environmental baseline collection and monitoring**

**Principle Investigator:** Ash, Gary

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**Number in Party:** 13

**License Number:** 0400608R-M

**Research Location:** Kitikmeot

### **SUMMARY**

The program for 2008 is an extension of the aquatic baseline work that has been conducted in the area since 1995.

The objectives of the 2008 aquatic field program are to address data collection commitments of:

- the fisheries “No-Net-Loss Plan”
- monitoring and sampling requirements of the Water Licence
- the water management plan for the proposed development
- fish and habitat assessments for stream crossings for a proposed all-weather road
- collection of additional baseline information for possible future expansion projects.

The 2008 field program will include hydrology, water quality and fish population assessments, as well as detailed evaluation of lower trophic levels in selected lakes. Wildlife research components will be conducted under a separate Nunavut Wildlife Act license.

Data collection will be conducted within the watersheds of the Hope Bay Belt and will include Roberts, Little Roberts, Pelvic, Ogama, Tail, Doris, Glenn, Patch, Wolverine, Windy, Aimaokatalok, Fickle Duck, Reference and Stickleback lakes and their inflow and outflow streams.

Sampling will also be conducted in the Koignuk River and the marine environments of Roberts Bay and Hope Bay.

**PROJECT TITLE: Organohalogen bioaccumulation in Canadian ringed seal (*Phoca hispida*) food-webs**

**Principle Investigator:** Morris, Adam

**Affiliation:**

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**Number in Party:** 4

**License Number:**

**Research Location:** North Baffin, Kitikmeot

**SUMMARY**

This work is to determine the concentrations of bromine-containing chemicals and a variety of pesticides in seawater, algae, plankton, Arctic cod and ringed seals. The bromine-based chemicals are used in the South to stop fires in clothing, upholstery and electronics, and are delivered to the North through ocean and air currents. Some of these have never been measured in Arctic water, so current concentrations are unknown. We want to see if these chemicals increase up the food-chain. If so, we want to determine if they are within safe concentrations for humans to eat.

The objectives are to:

- sample the ringed seal food web in Gjoa Haven and Resolute, Nunavut
- find the concentration of brominated chemicals and pesticides in the food-web
- compare the concentrations of the chemicals at each step of the food-web and see if they are changing
- ensure chemicals in seals are in a safe range for humans to eat

## **PROJECT TITLE: Microbial investigations of perennial springs, permafrost and ground ice in the High Arctic**

**Principle Investigator:** Whyte, Lyle

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McGill University  
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**Number in Party:** 6

**License Number:** 0202108R-M

**Research Location:** North Baffin

### **SUMMARY**

There are relatively few reports describing the ecology and biodiversity of microbial communities in the Canadian High Arctic (which contains unique habitats like cold perennial salt springs, glacial ice and sub glacial soil, permafrost and ground ice and cryptoedoliths). Therefore I am developing and expanding a research program focused on Arctic microbial biodiversity and ecology studies in these habitats.

This will serve to:

- expand our basic knowledge of Arctic microbial communities
- determine the utility of these unique environments as analogs to those which may exist or have existed on Mars
- in the longer term, determine the potential biotechnological applications of cold-adapted micro-organisms (like antifreeze proteins and polyunsaturated fatty acids)

In 2003, small representative samples (less than 2 kilograms of soil/ permafrost or 2 to 4 litres of water) of the microbial populations will be obtained from the Eureka and Axel Heiberg sites.

Microbial biodiversity research will be conducted in my lab at McGill University on the collected samples. This data will provide information on the microbial populations associated with these sites, the physiological types that are involved in biogeochemical processes and hopefully establish which organisms become fossilized or preserved in the system.

The study will be conducted at Axel Heiberg Island, Eureka, Fosheim Peninsula, Ellesmere Island between April 23, 2008, and May 02, 2008.

**PROJECT TITLE: Helicopter electromagnetic measurements of the sea ice mass balance**

**Principle Investigator:** Haas, Christian

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**Number in Party:** 3

**License Number:** 0203008N-A

**Research Location:** North Baffin

**SUMMARY**

The planned work will study changes of the sea ice mass balance as a result of variations of the thermodynamic and dynamic boundary conditions for ice growth, melt and deformation, including the role of the snow cover.

The focus of my research is the establishment of long-term, systematic ice mass balance observations of thick multi-year ice in the Arctic Ocean between the coast of Canada and the North Pole. These observations will include biennial airborne electromagnetic measurements of the seasonal and inter-annual ice thickness variability, as well as observations of ice deformation and snow properties.

In-situ measurements will be complemented by satellite remote sensing and modelling work, and will contribute to the validation of new satellite products and model results.

The research is significant as the arial coverage of Arctic sea ice is rapidly decreasing, at a pace much faster than predicted by any climate model. This demonstrates our limited understanding of climate processes and feedbacks in the Arctic. The disagreement can partially be explained by a misrepresentation of the sea ice mass balance in existing climate models, which is largely due to a general lack of systematic ice thickness observations in the Arctic Ocean.

# **PROJECT TITLE: Baseline environmental studies in support of the Comaplex Minerals Corporation - Meliadine West Gold Project**

**Principle Investigator:** De La Mare, Corey

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**Number in Party:** 12

**License Number:** 0301008N-A

**Research Location:** Kivalliq

## **SUMMARY**

All research activities will operate from the Comaplex Minerals West Gold Project exploration camp which has been permitted for use. Please refer to Land Use Permit No.: N2005Q0001 and NIRB File No.: 07EN044 for more detail.

The following baseline environmental studies will be conducted in support of the Comaplex Minerals West Gold Project along the proposed all-weather road from Rankin Inlet to the project site:

- Collect wildlife data and document wildlife habitat. This includes aerial surveys for caribou (less than six per year), caribou trails, waterfowl, upland songbirds and shorebirds, and raptors.
- Vegetation field surveys. Vegetation inventory to delineate the common plant communities and a helicopter flyover of site to confirm interpretation of satellite imagery.
- Rare plant surveys and identifying rare plant potential.
- Aquatic field surveys. Detailed habitat mapping to describe and quantify fish habitat.
- Watercourse crossing studies to identify and verify potential Arctic grayling spawning sites.
- Water quality and sediment quality surveys.
- Snow course survey and hydrometric monitoring.
- Heritage resources survey (a permit application for this work will be made with the Department of Culture, Language, Elders, and Youth).

The project is located in the Kivalliq Region, and the nearest communities are Rankin Inlet (30 km) and Chesterfield Inlet (60 km).

**PROJECT TITLE: Continuity and change in Inuit women's knowledge: the context of Kivalliq area from 1940 to today**

**Principle Investigator:** Rodrigue, Julie

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**Number in Party:** 2

**License Number:** 0301508N-M

**Research Location:** Kivalliq

**SUMMARY**

My general research objective is to document the role of Inuit women in religious activities. I want to learn more about the various religious experiences of Inuit women and how they pass on their knowledge to the younger generations.

This research is conducted within the Social Sciences and Humanities Research Council/Community-University Research Alliance (SSHRC-CURA) project titled "Memory and History in Nunavut." It is a partnership between the Groupe d'études Inuit et circumpolaires (GETIC) of Laval University, the Nunavut Arctic College and Iqaluit Elders Society.

I plan to interview and record life histories mainly of Inuit women of different generations and observe, as much as I can, their activities in their families, in schools and at various religious celebrations and festivals.

I want to focus on women's experiences because after reviewing the anthropological literature on this topic, I noticed that the men were generally solicited more than women. I thus thought it would be relevant and interesting to try and supplement their data with testimonies coming from Inuit women.

The oral data will be kept in a locked drawer in the GETIC laboratory for the duration of its potential use, as decided upon with the communities I will work with. The information obtained will be used for writing a PhD thesis, in the publication of articles in scientific journals and for presentations in conferences.

At the end of my PhD I will send a copy of each audio and video tape to the communities, the Nunavut Arctic College and also to the participants who have asked for a copy. I will erase the tapes of those who have asked to stay anonymous.



**PROJECT TITLE: AREVA Kiggavik-Sissons Project aquatic baseline program**

**Principle Investigator:** Hamilton, David

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**Number in Party:** 9

**License Number:** 0300608R-M

**Research Location:** Kivalliq

**SUMMARY**

AREVA Resources Canada Inc. (AREVA) proposes to construct and operate a uranium mine in the Kivalliq region of Nunavut, southeast of the Thelon River. The Kiggavik-Sissons Project is at the surface exploration phase. The project is made of two large groups of mining leases and mineral claims subdivided into Kiggavik to the north and Sissons to the south. Field personnel will be transported to camp by helicopter. Lakes and streams will be accessed by boat and helicopter.

## **PROJECT TITLE: DRDC Northern Watch Technology Demonstration Project**

**Principle Investigator:** McCoy, Nelson

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**Number in Party:** 20

**License Number:** 0203708N-M

**Research Location:** North Baffin

### **SUMMARY**

With the prospect of an open sea route through Canada's Arctic, the federal government has stated that Arctic sovereignty is a priority. The Northern Watch Technology Demonstration (NWT D) project was initiated to identify and characterize combinations of sensors and systems for cost-effective surveillance of the unique maritime environment of the Canadian Arctic. Such surveillance is required for an effective understanding of activities and events in the North that could affect Canada's security, safety, economy and/or environment.

To achieve the objective, three annual trials and experiments will be carried out in Barrow Strait, Nunavut, during late August and early September. These tests involve both underwater and land-based sensors.

The underwater portion involves deploying four bottom-mounted arrays that include acoustic magnetic and electric field sensors with a 10 kilometre long sub sea cable to the old defence research camp at Gascoyne Inlet, which will be expanded by one or two shelters.

Land-based sensors include a marine navigation radar, an Electro-Optical (EO) system, an Electronic Intelligence (ELINT) receiver and an Automatic Identification System (AIS). The land-based portion will be housed in a portable structure on top of Cape Liddon and a very low-power HF beacon will be mounted on the Brodeur Peninsula.

## **PROJECT TITLE: Planetary analogue research**

**Principle Investigator:** Williamson, Marie-Claude

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**Number in Party:** 5

**License Number:** 0204108N-A

**Research Location:** North Baffin

### **SUMMARY**

The field work will take place in July and August 2008 on Axel Heiberg Island, Nunavut. The 2008 field season represents the first instalment in a three-year collaborative effort between the Canadian Space Agency (CSA) and the Department of Earth Sciences at Carleton University, and has long-term geoscientific and technical objectives.

At the start of the field season in July, the Principal Investigator (P.I.), Dr. Marie-Claude Williamson, will carry out geoscientific surveys with field assistants at the McGill Arctic Research Station, near Expedition Fiord. This part of the field program is sponsored by the CSA's Space Awareness and Learning Program to bring northern geoscience into the classroom, and will directly benefit high-school students and educators in Nunavut.

Two other research projects will take place during the month of August. The scientific objectives at the first location near Lightfoot River are to:

- produce a more detailed geological map of the area
- better understand the volcanic and structural history of the region
- test out field methods and geophysical instruments that could be used in future exploration missions to the Moon.

The scientific objectives at the second location near East Fiord, on western Axel Heiberg Island, are to:

- produce a detailed map of sulphide chimneys located in salt domes and discovered during the 2004 field season
- better understand the volcanic and structural history of the region
- test out field methods and geophysical instruments that could be used in future exploration missions to Mars.

These geological projects build upon research that was accomplished by the P.I. while at the Geological Survey of Canada (GSC) in 2003 and 2004, in collaboration with Dalhousie University.

The GSC projects were reported in scientific publications, an outdoor magazine and in *Nunatsiaq News*. The same type of reporting will be done for the 2008 projects.

## **PROJECT TITLE: Identifying critical remediation targets for northern brownfields**

**Principle Investigator:** Siciliano, Steven

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**Number in Party:** 3

**License Number:** 0102508N-M

**Research Location:** South Baffin

### **SUMMARY**

Extensive soil contamination in Iqaluit, Nunavut, was discovered during the installation of underground water and sewage lines. However, it is not yet clear what remediation strategy, if any, is required to clean-up the soil contamination. This research will assist in conducting human health risk assessment of the soil contamination to aid in the development of a remediation strategy.

We intend to collect suspended air particles from several locations in Iqaluit from August 2008 to September 2009. In addition, we will ask permission of Iqaluit residents to conduct hand-washing tests to identify the characteristics and concentration of metals and hydrocarbons (like diesel fuel) on soil particles that adhere to skin.

Three students from the University of Saskatchewan will travel to Iqaluit in July 2008 to operate a booth outside of the NRI for the collection of hand-washing samples from Iqaluit residents.

No permanent structures will be erected for this research and, due to the negligible environmental impact, we do not believe any restoration plans will be required.

## **PROJECT TITLE: Cold springs as habitats for life on Mars: exploration of an Arctic analogue**

**Principle Investigator:** Osinski, Gordon

**Affiliation:** Earth Sciences  
University of Western Ontario  
London  
Ont., Canada  
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**Number in Party:** 3

**License Number:** 0203608N-M

**Research Location:** North Baffin

### **SUMMARY**

The search for life on Mars is inescapably linked with the presence or absence of water. Mars today is a cold, dry planet. Liquid water is unstable on the surface under current atmospheric conditions but substantial deposits of ground ice are thought to occur within one metre of the surface soil in northern latitudes. The purpose of this project is to study a terrestrial analogue in the form of Arctic perennial springs (for example, springs that flow year round), to help us better understand hydrological process which may be taking place on Mars. The region surrounding the McGill Arctic Research Station (MARS) on Axel Heiberg Island, Canadian High Arctic, offers an excellent opportunity to study such spring systems.

Several sets of springs have been documented in the region surrounding MARS. These springs represent the highest latitude perennial springs and they flow through 600 metres of permafrost and are not associated with any volcanic heat sources. Only the Gypsum Hill and Colour Peak springs have been studied in any detail. Over the past few years, several other sets of springs have been recognized on Axel Heiberg Island. These springs have received only preliminary examination and substantial further work is required in order to assess the mineralogy and geochemistry of the spring deposits, the origin of the fluids, and the structural controls determining the location of the springs. The objectives of this study are to:

- compare the present-day springs and fossil mineralization at various sites to discern whether the latter represent paleospring deposits.
- study the mineralization at a recently discovered site at East Fiord.
- synthesize the field and laboratory observations to develop a model for the formation of the present-day and fossil springs

**PROJECT TITLE: Mercury and other contaminants in Arctic char from lakes near Resolute Bay (Cornwallis Island)**

**Principle Investigator:** Muir, Derek

**Affiliation:**

Environment Canada  
Burlington  
Ont., Canada  
derek.muir@ec.gc.ca

**Number in Party:** 6

**License Number:** 0203808R-M

**Research Location:** North Baffin

**SUMMARY**

The purpose of this project is to study changes in amounts of contaminants over time in lakes in the Canadian Arctic.

We have been studying contaminants in fish and water quality in selected lakes, including Amituk, Char Lake and Resolute Lake, since 1997 with the help of the Community of Qausuittuq (Resolute Bay) and support from the Polar Continental Shelf Project (PCSP). We are trying to understand how contaminants such as mercury and PCBs move through the food web and how they end up in landlocked char in nearby lakes.

We are also determining trends over time for mercury and other contaminants by combining results of measurements for the current year with those from earlier years. We are also interested in links to climate warming, because it may lead to more contaminants (like mercury) in the lakes.

**PROJECT TITLE: Baseline assessment of surface hydrological conditions (Kiggavik-Sissons Project)**

**Principle Investigator:** Topp, Brent

**Affiliation:**

Golder Associates Ltd.  
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Sask., Canada  
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**Number in Party:** 2

**License Number:** 0300908N-A

**Research Location:** Kivalliq

**SUMMARY**

The focus of this hydrological assessment is to gather baseline stream flow and lake water level information from drainage areas in the Kiggavik-Sissons area.

The Kiggavik-Sissons Project is a uranium surface exploration project located approximately 80 kilometres west of Baker Lake. The project is made of two large groups of mining leases and mineral claims, subdivided into Kiggavik to the north and Sissons to the south.

The Kiggavik camp was first established in 1977 and it was occupied for drill programs until 1997. Exploration drilling has not taken place at the project since the end of the 1997 field season.

## **PROJECT TITLE: Hackett River baseline program**

**Principle Investigator:** Muggli, Deborah

**Affiliation:** Rescan Environmental Services Ltd.  
Sabina Silver Corporation  
Vancouver  
B.C., Canada  
dmuggli@rescan.com

**Number in Party:** 24

**License Number:** 0700908R-M

**Research Location:** Kitikmeot

### **SUMMARY**

Sabina Silver Corporation is exploring a significant metal deposit located near the Hackett River in Nunavut. The majority of the sampling will be restricted to the mine footprint, although samples will be taken along a proposed access route, along an alternative access route and from reference areas removed from the mine site.

The proposed research includes:

- characterizing the aquatic biology and water quality of the site
- characterizing terrestrial vegetation and soils
- collecting baseline information on wildlife in the area
- determining water drainage patterns
- monitoring the permafrost in the area
- characterizing the local climate
- assessing the potential for metal leaching or acid rock drainage

This work is being done to provide baseline characterization in the area to support future Environmental Impact Assessment.

Data collected in 2007 will also be used to help plan future project infrastructure.



## **PROJECT TITLE: Northern Ellesmere Island in the Global Environment (NEIGE)**

**Principle Investigator:** Vincent, Warwick

**Affiliation:** Departement de Biologie  
Universite Laval  
Quebec  
Que., Canada  
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**Number in Party:** 8

**License Number:** 0203108R-M

**Research Location:** North Baffin

### **SUMMARY**

Ecosystems along the northern coast of Ellesmere Island are responding to accelerated climatic change. These changes can occur gradually over decades, yet they can also be suddenly disruptive. Our aim is to monitor trends over the longer term, to evaluate the ecological responses to the crossing of the thresholds, and to define the structure, biodiversity and functioning of these northern-most ecosystems.

Field research will involve profiling lakes and fiords to monitor changes in salinity as well as sampling small amounts of sediments and micro-organisms that are found on the surface of ice shelves.

During the field season, we will stay in Quttinirpaaq National Park. Transportation out of the park to sample areas will be by helicopter, Twin Otter or snowmobile.

## **PROJECT TITLE: Iqaluit hydroelectric environmental baseline studies**

**Principle Investigator:** Flaherty, Jamie

**Affiliation:** Qulliq Energy Corporation  
Iqaluit  
Nunavut, Canada  
jflaherty@npc.nu.ca

**Number in Party:** 6

**License Number:** 0101708R-M

**Research Location:** South Baffin

### **SUMMARY**

Qulliq Energy Corporation (QEC) is currently evaluating the potential to provide hydroelectric power to the City of Iqaluit.

A study carried out by Knight Piesold Ltd. in late 2005 identified five watercourses within 50 to 100 kilometres of Iqaluit where the development of hydroelectric power may be feasible. Additional environmental information is required at the locations before decisions can be made with respect to advancing any of the projects to a detailed feasibility study.

Five candidate watercourses will be studied: Armshow River, Jaynes Inlet, Cantley Bay, Anna Maria Port and McKeand River

Research activities include stream flow measurements, fisheries and aquatic surveys and raptor surveys.

**PROJECT TITLE: Quantify paleoclimate from high resolution lacustrine sequences in the Canadian Arctic**

**Principle Investigator:** Francus, Pierre

**Affiliation:** Centre Eau, Terre et Environnement  
Institut national de la recherche scientifique  
Quebec  
PQ, CA  
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**Number in Party:** 8

**License Number:** 0202508R-M

**Research Location:** North Baffin

**SUMMARY**

The project is a study of river flow and sediment transport into South Sawtooth Lake, located 80 kilometres south of Eureka in the Sawtooth Range, Fosheim Peninsula, Ellesmere Island.

The goal of this research is to understand how weather and climate have varied over a long period of time, long before humans were influencing the climate. This program should contribute to understand how much the recent global warming is influencing the Arctic environments.

This work will involve measuring the streams and lakes through the summer, collecting water and sediment samples and measuring weather on the land. Additionally, we plan to collect sediment cores from the lakes to determine how weather and climate has changed in this area during the last thousand years.

We will operate a small, clean camp if necessary. The maximum number of people present simultaneously at the camp will be three.

We will install instruments in the water column at the beginning of the season and will collect them at the end of the season by Zodiac boat. At that time, we will measure precisely and extensively the depth of the lake with an echo sounder. We will remove all equipment when we are finished with this project. Data and sample collected will mainly be used for the theses of PhD students.

**PROJECT TITLE: Arctic ocean climate change project**

**Principle Investigator:** Hamilton, Jim

**Affiliation:** Ocean Sciences Division  
DFO, Bedford Institute of Oceanography  
Dartmouth  
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**Number in Party:** 4

**License Number:** 0204508R-M

**Research Location:** North Baffin

**SUMMARY**

An oceanographic study in the eastern end of Barrow Strait has provided continuous measurements of water current, temperature and salinity from August 1998 to present, under successive NRI Research Licenses.

The objective of the work is to quantify and understand the variability of the heat and fresh water movement between the Arctic Ocean and the Northwest Atlantic to better understand global warming impacts.

Measurements, combined with modeling studies, are being used to determine how the interactions between these oceans affect the local, regional and global climate systems.

The data collected also provide information for improving on the safety and efficiency of sea transportation and resources development in the high Arctic.

A continuation of this program has been funded through a combination of sources including Department of Fisheries and Oceans' International Polar Year funding, to provide an extended continuous time series of data that can be examined for trends linked to climate change.

**PROJECT TITLE: Reconstructing climate and river fluctuations at Pelly Bay, Nunavut**

**Principle Investigator:** Lamoureux, Scott

**Affiliation:** Department of Geography  
Queens University  
Kingston  
Ont., Canada  
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**Number in Party:** 2

**License Number:** 0401508N-M

**Research Location:** Kitikmeot

**SUMMARY**

The goal of this project is to investigate past climate changes and river fluctuations using sediment cores collected from Pelly Bay and lakes in the Kugaaruk region.

The amount and type of sediments that rivers deliver into bays and lakes depends on the local weather. Because of this the mud provides a record of the past climate. Observing the modern conditions will help to determine how weather controls which rivers are providing the mud, how much mud there is, where that mud goes in the bay and when different types of mud are deposited.

We hope to be able to evaluate both large (the Arrowsmith and Kellet Rivers) and small lakes to determine how they contribute to the sediment record and how they reflect changes in the climate.

## **PROJECT TITLE: Monitoring carbon dioxide exchange on the Arctic tundra**

**Principle Investigator:** Lafleur, Peter

**Affiliation:** Geography  
Trent University  
Peterborough  
Ont., Canada  
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**Number in Party:** 4

**License Number:** 0102108N-A

**Research Location:** South Baffin

### **SUMMARY**

The purpose of this project is to measure carbon dioxide (CO<sub>2</sub>) and water vapour exchanges between Arctic tundra and the atmosphere. The overall goal is to determine the source-sink strength of Canadian Arctic tundra for atmospheric CO<sub>2</sub> and to explore the potential impacts of global warming on this important exchange. To do this, we will erect a monitoring station near Iqaluit (with assistance from Nunavut Research Institute (NRI) staff) that will measure continuously these exchanges over representative tundra for the tundra growing period (summer), nominally June to late August or early September.

The equipment is self-powered by batteries and solar panels, non-destructive and compact (one small tripod and mounts for the solar panels). Weekly visits to the site are needed to retrieve data and make manual observations of vegetation and other variables. Although not selected as yet, we hope the exact research site will be within driving distance of Iqaluit, followed by a short hike to reach an undisturbed tundra site. Rick Armstrong of NRI has already suggested potential sites to the northwest of town; we will need to visit the area to choose the exact site.

The equipment will be on site for the duration of the project and completely dismantled at the end of the study. The most severe environmental impact anticipated will be from walking to the site on a regular basis. Depending upon collaboration with the NRI staff some small sampling of vegetation may also take place, but this is contained to a few small (less than 0.5-metre-square) plots.

The data are collected by electronic equipment, wind sensors, gas sampling devices, temperature sensors and radiometers. They are stored on flash media devices, which are regularly replaced. These data are then archived at Trent and Carleton universities and after quality checking and cleaning, they will be archived in national archives. The data are then available to the public and other research groups.

Reporting will take place through scientific reports and International Polar Year reports. Our group is always happy to give public presentations to local groups on our research.

## **PROJECT TITLE: Haughton-Mars Project**

**Principle Investigator:** Lee, Pascal Clayton-Clyde

**Affiliation:** Mars Institute  
NASA Ames Research Center  
Moffet Field  
Calif., USA  
pascal.lee@marsinstitute.net

**Number in Party:** 26 team plus additional collaborators, assistants and students

**License Number:** 0203208R-M

**Research Location:** North Baffin

### **SUMMARY**

The Haughton-Mars Project (HMP) is an international field research project centered on the scientific study of the Haughton meteorite impact crater and surrounding terrain on Devon Island, Nunavut.

This site is viewed as similar in many ways to Mars. The HMP is managed and operated by the Mars Institute and is currently supported by the Canadian Space Agency and by NASA. (The HMP is separate from the more recent activity at the same site involving the Mars Society.)

The HMP Exploration Program in 2008 includes:

- Investigations of the geology and microbiology of the Haughton Crater area, with focus on ground-ice, impact crater geology, ancient hydrothermal sites, glacial history and climate evolution
- Field measurements of human biology data (cadence) during 10-kilometre “moonwalks”
- Field simulations of long-range moon rover traverses using HMP’s Humvee rover
- Field tests of long range communication systems for remote field teams and the Moon
- Further work on the Mars Greenhouse in preparation for one year of autonomous (robotic) operation
- Telescopic search for small bodies near the Sun during total solar eclipse (August)

These activities will be carried out with continued employment and educational opportunities for students and adults from the communities of Grise Fiord and Resolute Bay in a spirit of community partnership and international collaboration. Also, the HMP Research Station will continue to undergo a modest level of maintenance and upgrading at its present site.

**PROJECT TITLE: 2008-2009 marine wildlife baseline studies for AREVA Resources Canada Inc.'s proposed Kiggavik Mine Project**

**Principle Investigator:** Beckett, Janine

**Affiliation:**

Nunami Jacques Whitford  
Burnaby  
B.C., Canada  
janine.beckett@jacqueswhitford.com

**Number in Party:** 4

**License Number:** 0301608N-M

**Research Location:** Kivalliq

**SUMMARY**

Nunami Jacques Whitford has been hired to complete marine wildlife baseline studies to support future environmental permitting and environmental management of AREVA Resources Canada Inc.'s (AREVA) proposed Kiggavik Mine Project.

The project will collect information on marine mammals along the proposed shipping route from Baker Lake, Nunavut, to Churchill, Manitoba, and fish and fish habitat, aquatic invertebrate, and water and sediment quality data around proposed dock sites in Baker Lake.



**PROJECT TITLE: Provenance of clastic sediments in the Sverdrup basin**

**Principle Investigator:** Scott, Robert

**Affiliation:**

Cambridge Arctic Shelf Programme (CASP)  
Cambridge, United Kingdom  
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**Number in Party:** 6

**License Number:** 0203308N-A

**Research Location:** North Baffin

**SUMMARY**

The 2008 field program aims to study further the geology of the northern part of the Canadian Arctic Archipelago to build on existing published information and develop 2007 field season ideas.

The main aim is to characterise the nature and provenance of sediment within the Sverdrup Basin at Lake Hazen and Slidre Fiord, both on Ellesmere Island. We will study stratigraphic sections and undertake a detailed sampling program for sediment provenance, with a complementary palaeontological sampling program to allow biostratigraphic correlation across the basin.

Other objectives are to compare the stratigraphic succession on the northern and southern margins of the Sverdrup Basin, to test the existing sequence stratigraphic interpretation and facies models, and to collect a sample set with which to quantify the uplift and burial history of the Mesozoic and Cenozoic successions.

**PROJECT TITLE: Conduct a screening level Environmental Risk Assessment (ERA) for the Cullation Lake site.**

**Principle Investigator:** Palmer, Rick

**Affiliation:**

Gartner Lee Limited  
Burnaby  
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**Number in Party:** 4

**License Number:** 0301408N-A

**Research Location:** Kivalliq

**SUMMARY**

The objective of the project is to determine the level of risk associated with the historical mine site and return the property to the Government of Nunavut.

There are two objectives for 2008:

- develop a screening level risk assessment based on locations which have the potential to impact the aquatic environment: the tailings pond, the access road and the Shear Lake waste rock dump
- provide input into developing mitigation options for the property to ensure the objectives of the Final A&R plan are satisfied so Barrick can return the surface and mining leases back to the Crown

## **PROJECT TITLE: Genome size and climate**

**Principle Investigator:** Brummell, Martin

**Affiliation:** Science Complex  
University of Guelph  
Guelph  
Ont., Canada  
mbrummel@uoguelph.ca

**Number in Party:** 4

**License Number:** 0204208N-A

**Research Location:** North Baffin

### **SUMMARY**

This project will provide information about northern biodiversity and how it may respond to climate change. The animals to be studied form the basis of northern food webs, providing food for animals that the people of the North depend upon. Changes in this biodiversity driven by climate change could therefore have strong impacts on northern food webs and the ability of northern environments to support continued human habitation. There is a clear need for greater knowledge of the invertebrate animals in northern Canada.

This project will investigate the interactions between genome size (the amount of DNA per haploid cell) and climate through evolution, by comparing the genome sizes of Arctic animals with their relatives from subarctic and temperate regions. This will allow us to distinguish between the two competing hypotheses of local adaptation and exclusion. Under local adaptation, animals arriving in the North after the retreat of the glaciers adapted their genome sizes to conform to local conditions. Under exclusion, only those species that already had suitable genome sizes were able to persist and thrive in the North.

The primary goal of this project is to collect specimens of 50 species of invertebrate animals from around Resolute Bay, Nunavut. Measurements of the genome sizes of these animals will be compared to those of related species from other parts of North America, to infer patterns of genome size evolution and links to climate.

The research team will work at the Polar Continental Shelf Project (PCSP) in Resolute Bay, and this facility will handle waste disposal and other potential impacts of the project.

Two one-day trips to nearby areas (northeast Cornwallis Island and Devon Island) are planned by helicopter. Shorter trips in the vicinity of Resolute Bay are also planned by ATV. No structures are to be constructed during the course of this project, nor are there any plans for abandonment or restoration of sites, since minimal disturbance will occur.

## **PROJECT TITLE: Paleoclimates of the Foxe Basin and surrounding regions**

**Principle Investigator:** Pienitz, Reinhard

**Affiliation:** Centre d'etudes nordiques  
University Laval  
Quebec  
Quebec, CA  
reinhard.pienitz@cen.ulaval.ca

**Number in Party:** 3

**License Number:** 0102908N-M

**Research Location:** South Baffin

### **SUMMARY**

The purpose of our research is to collect information on past climates from a series of lakes in the Foxe Basin region. Using biological and physical data extracted from lake sediment records, we will explore the potential responses of northern lakes and their watersheds to past climate changes, in order to predict future impacts of climate change on these freshwater ecosystems.

Our research team will be transported to and from Cape Dorset by regular flights from Iqaluit. A helicopter will be chartered to explore the study area and to reach the appropriate study sites. For on-the-ground exploration of potential study sites in the immediate vicinity of Cape Dorset, transportation will be provided by ATVs, hired from the community.

No structure will be erected, and the impacts of our lake sediment sampling on the environment will be minimal. The sediment and water samples represent a very small amount of material relative to the entire lake ecosystem. The echo sounder used has no harmful effects on aquatic organisms. All our equipments are made of resistant and inert materials that neither decompose in water nor pollute the water.

No fuels or hazardous materials will be used in the field. Our logistic bases will be within local communities, so that we do not have to camp in the field. Activities in the field will be conducted so as to minimize any disturbance of the environment. Any wastes (plastic bags, papers) will be collected and transported to appropriate places designated for the disposal of wastes.

**PROJECT TITLE: Drilling of boreholes for the establishment of community-based permafrost monitoring sites in Nunavut**

**Principle Investigator:** Ednie, Mark

**Affiliation:** Natural Resources Canada  
Ottawa  
Ont., Canada  
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**Number in Party:** 5

**License Number:** 0501308N-M

**Research Location:** Nunavut

**SUMMARY**

The purpose of this project is to establish new borehole based permafrost monitoring sites in communities across Nunavut.

Boreholes will be drilled within hamlet boundaries and instrumented to measure ground temperature. Vital baseline permafrost knowledge will be provided to community planners and engineers. This information is essential to facilitate the development of adaptation strategies to deal with the impacts of climate change on community infrastructure and lifestyles.

The drills are located in each community and are owned and operated by local suppliers (like Canadrill Ltd. in the Baffin Region). Transportation within the hamlet will be by light vehicle.

Small ABS pipes three feet high and three inches in circumference will be installed at each borehole location. This installation will protect the data recording device and the top of the borehole.

The permafrost monitoring sites will be kept active over a long time. These sites cause little disturbance to surrounding terrain therefore no restoration plans are required. If the need arises to shut down the monitoring station, the protector will be removed, the top of the borehole casing will be cut below ground level and the remaining borehole casing will be buried.

**PROJECT TITLE: Ferguson Lake environmental baseline studies, 2008-2010**

**Principle Investigator:** Landry, Francois

**Affiliation:**

Rescan Environmental Services Ltd  
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B.C., Canada  
flandry@rescan.com

**Number in Party:** 7

**License Number:** 0301308N-M

**Research Location:** Kivalliq

**SUMMARY**

Starfield Resources Inc. is exploring a significant metals deposit located in an area of Inuit-owned land at Ferguson Lake in Nunavut.

The proposed baseline study under the current Nunavut Research Institute scientific research license includes:

- characterizing the local water flow patterns, aquatic biology and water quality of the site
- monitoring local climate, snow and groundwater and dustfall conditions
- characterisation of the local ecosystems, plant species, landforms and soils

This work is being done to provide baseline characterization of the area associated with mine development and will compliment data previously collected in 1999, 2005, 2006 and 2007.

**PROJECT TITLE: Integrated assessment of climate change impacts and adaptation options in Nunavut communities activity**

**Principle Investigator:** Mate, David

**Affiliation:** Earth Sciences Sector  
Natural Resources Canada  
Sidney  
B.C., Canada  
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**Number in Party:** 21

**License Number:** 0102808R-M

**Research Location:** South Baffin and North Baffin

**SUMMARY**

The Government of Nunavut and the Earth Sciences Sector of Natural Resources Canada propose to develop an adaptation to climate change study in the communities of Clyde River, Iqaluit and Hall Beach. This will be done in collaboration with in collaboration with the Canadian Institute of Planners, Canada Nunavut Geoscience Office and Memorial University.

The aim of this project is to build on the Adaptation Action in Arctic Communities workshop coordinated by the Government of Nunavut (December 2006), and contribute to the development of a Nunavut Adaptation Plan.

It strives to integrate traditional knowledge and scientific research on climate change impacts to improve community planning capacity. The intent is to work with community decision-makers and the community at large, particularly in Clyde River, Iqaluit and Hall Beach.

**PROJECT TITLE: Offshore geological investigations of Baffin Bay, Lancaster Sound and adjacent areas**

**Principle Investigator:** Sonnichsen, Gary

**Affiliation:**

Natural Resources Canada  
Dartmouth  
N.S., Canada  
gsonic@nrcan.gc.ca

**Number in Party:** 59

**License Number:** 0204308N-A

**Research Location:** North Baffin

**SUMMARY**

The purpose of this research project is to improve the understanding of the seabed conditions, surficial geology, and paleoceanography (ocean and sea ice conditions in the past) in Baffin Bay, Lancaster Sound and adjacent areas.

This information will help provide sustainable and effective management of the Northwest Passage. It will help protect the environment during potential economic development of marine resources (like oil and gas exploration, mineral exploration, shipping routes) by providing information for policy regulation and engineering design. Understanding the sea ice extent, ocean water temperatures and ocean productivity for the past 10,000 years in the Baffin Bay area will contribute to our understanding of present day climate change.

The project will take place in Baffin Bay, northern Labrador Sea, Davis Strait, Disko Bugt (Greenland), Lancaster Sound and the North Water polynya. All of the research will be conducted onboard the Canadian Coast Guard vessel Hudson which is based out of Dartmouth, Nova Scotia.



**PROJECT TITLE: ArcticNet 2008 expedition: integrated regional impact study of the Canadian High Arctic**

**Principle Investigator:** Fortier, Martin

**Affiliation:** ArcticNet Inc.  
Universite Laval  
Quebec  
Que., Canada  
martin.fortier@arcticnet.ulaval.ca

**Number in Party:** 82

**License Number:** 0501408R-M

**Research Location:** Nunavut

**SUMMARY**

The main objective of the proposed research project is to assess the changes occurring in the Eastern Canadian Arctic's coastal marine ecosystem in response to climate warming. Mooring and sampling operations in the Nunavut region are planned to take place using the Canadian research icebreaker CCGS Amundsen to access the vast expanses of the coastal Canadian Arctic in September.

Mooring operations in northern Baffin Bay will consist in recovering two moorings that have been deployed since 2006. Each mooring includes instruments that gather continuous records of currents, temperature, salinity, turbidity, dissolved oxygen and the vertical flux of carbon and contaminants. Some moorings are also equipped with autonomous hydrophones to record the acoustic background and the vocalizations of marine mammals.

In addition to work conducted at the mooring stations, shipboard sampling will be carried out along the ship track and at designated sampling stations in Lancaster Sound, northern Baffin Bay and Hudson Strait. Shipboard operations will include bottom mapping, meteorological measurements and the sampling of seawater, sediment, sea ice, plankton and juvenile fish.

## **PROJECT TITLE: 2007 Hackett River baseline program**

**Principle Investigator:** Muggli, Deborah

**Affiliation:** Rescan Environmental Services Ltd.  
Sabina Silver Corporation  
Vancouver  
B.C., Canada  
dmuggli@rescan.com

**Number in Party:** 24

**License Number:** 0700908R-M AMENDED

**Research Location:** Kitikmeot

### **SUMMARY**

Sabina Silver Corporation is exploring a significant metal deposit located near the Hackett River in Nunavut. The majority of the sampling will be restricted to the mine footprint, although samples will be taken along a proposed access route, along an alternative access route, and from reference areas removed from the mine site.

Additional baseline studies will be conducted near the Bathurst Inlet port and Road (BIPR) port site, along portions of the BIPR road and possibly within Bathurst Inlet.

The proposed research includes:

- characterizing the aquatic biology and water quality of the site
- characterizing terrestrial vegetation and soils
- collecting baseline information on wildlife in the area
- determining water drainage patterns
- monitoring the permafrost in the area
- characterizing the local climate
- assessing the potential for metal leaching or acid rock drainage

This work is being done to provide baseline characterization in the area to support future Environmental Impact Assessment. Data collected in 2007 will also be used to help plan future project infrastructure.

**PROJECT TITLE: The Southampton Island integrated geoscience project**

**Principle Investigator:** Chakungal, Joyia

**Affiliation:** Canada-Nunavut Geoscience Office  
P.O. Box 2319  
Iqaluit, Nunavut  
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867 979-3539 ext. 28

**Number in Party:** 2

**License Number:** 0300907N-A AMENDED

**Research Location:** Southampton Island

**SUMMARY**

The Canada-Nunavut Geoscience Office (CNGO) and the Geological Survey of Canada (GSC) propose to conduct an integrated geoscience project on eastern and central Southampton Island, Nunavut. The primary objective of the Southampton Island Integrated Geoscience project (SIIG) is to increase the level of mineral exploration and reduce investment risk by exploration companies in this relatively under-explored region of Nunavut. The hamlet of Coral Harbour would benefit directly from mineral and energy exploration activity and related sustainable development opportunities on Southampton Island.

To meet these objectives, the project will make publicly accessible all geoscience knowledge that is gathered from the integrated bedrock and surficial mapping that is to be carried out this summer. This joint CNGO - GSC mapping initiative will be co-lead by Joyia Chakungal from the CNGO and a research scientist from the GSC. The field work will cover parts of NTS map sheets 45N-P, 46A-C, 46F and G. Ground-based activities will commence following completion of a detailed aeromagnetic survey that will be flown over eastern and central Southampton Island in the spring of this year. The current level of basic geoscience available for the Southampton region is inadequate to meet current exploration demands.

(Data collection dates on license amended by NRI in 2008 to June 25, 2007 to Sept. 30, 2008.)

**PROJECT TITLE: Flora of the Canadian Arctic: diversity and change**

**Principle Investigator:** Gillespie, Lynn

**Affiliation:**

Canadian Museum of Nature  
Box 3443, Station D  
Ottawa, Ont.  
K1P 6P4 Canada  
613-364-4074

**Number in Party:** 5

**License Number:** 0401308N-A

**Research Location:** Kitikmeot and South Baffin

**SUMMARY**

This project focuses on the diversity, distribution and evolution of Canadian Arctic plants. Our goals are to document knowledge of Arctic plants and understand how climate change may impact them. The research builds on our previous extensive studies on the arctic flora, including our 2007 publication *Flora of the Canadian Arctic Archipelago*.

Our long term goal is to produce a complete guide to plants of the Canadian Arctic. We aim to:

- document plants, including information concerning new species, range extensions, conservation status, ecology, distribution, and population variation
- explore areas that are botanically unknown or poorly known
- obtain complete plant inventories of selected areas for long term monitoring

Our second study focuses on the systematics and evolution of Arctic grasses. Alkali grasses and bluegrasses are the largest Arctic grass genera and are ecologically important as a major food of herbivores (geese, etc) and as primary colonizers in remediation projects. Our objectives are to use DNA data and morphology to define species boundaries, identify and describe new species, and trace the origin and evolution of Arctic grass species.

Transportation to field camps and study sites will be provided by Polar Continental Shelf Program (twin otter and helicopter); transportation in the vicinity of camp will be by foot. We plan to have three camps, each for a period of about one week. Additional sites will be visited for less than one day. Accommodation will be in small backpacking tents. No permanent or large temporary structures will be erected, thus impact will be minimal. All items associated with the project will be removed at the end of each camp stay.

**PROJECT TITLE: Scientific investigations supporting the Resolution Island cleanup project**

**Principle Investigator:** Rutter, Allison

**Affiliation:**

Analytical Services Unit, School of Environmental Studies  
Queen's University  
Kingston, ON  
K7L 3N6 CA  
613 533-2642

**Number in Party:** 5

**License Number:** 0102208R-M

**Research Location:** Cape Warwick, Resolution Island

**SUMMARY**

The Analytical Services Unit, Queen's University will have a team on site at Resolution Island again this year. Our work is currently focused on monitoring now that the major cleanup undertaken by the Qikiqtaaluk Corporation for Indian and Northern Affairs Canada is complete.

The majority of the work will involve sampling and analysis of plants, soils and water from monitoring wells. The three permanent barriers will be monitored, repaired, tested and if necessary modified. Further monitoring will be conducted with respect to hydrocarbon contamination remediation. The experimental in-situ land farm established in 2005 and the large land farm established in 2004 will be monitored and maintained.

**PROJECT TITLE: The dynamic response of Arctic glaciers to global warming: a Canadian contribution to International Polar Year project Glaciodyn (IPY30)**

**Principle Investigator:** Martin Sharp

**Affiliation:**

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Department of Earth and Atmospheric Sciences  
1-26 Earth Science Building  
Edmonton, AB  
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780-492-5249

**Number in Party:** 13

**License Number:** 0200608R-M

**Research Location:** Devon Island

**SUMMARY**

The purpose of this project is to provide a better understanding of the mechanisms that control the flow rates of the Belcher Glacier. Identification of these factors should allow us to model how this glacier will respond to future climate warming and determine the impact that these changes will have on the mass balance of the ice cap as a whole.

## **PROJECT TITLE: Astronomical Site Testing on Ellesmere Island**

**Principle Investigator:** Eric Steinbring

**Affiliation:**

National Research Council  
Herzberg Institute of Astrophysics  
Victoria, BC  
V9E 2E7 CA  
250 363-3452

**Number in Party:** 4

**License Number:** 0203408R-M

**Research Location:** Ellesmere Island

### **SUMMARY**

Astronomy requires clear, dry, cold skies. Not surprisingly, telescopes have been built on some of the most remote mountains on Earth, to get above the clouds and away from the pollution of cities. It is thought that the best views of the cosmos may come from mountaintops in the Canadian High Arctic. Four in the Yelverton Bay area seem to be particularly good. Satellite images confirm this. But that needs to be verified by measurements from the mountain peaks themselves.

We propose placing small robotic weather stations on three of these. The station also has a camera which would make pictures available on the internet via satellite. Everything is wind powered. Each station is about the size of a person, and in some sense is like an inuksuk. It acts as a path-finder, pointing to a good place to see the stars.

To minimize environmental impact, we would place the stations by helicopter, setting up camp on the bay for 10 days or less. We would fly in and out by Twin Otter: one scientist, one technician, and two students, one of whom would also be a local guide. Over the winter the students would use the pictures to decide if the skies are clear enough. If they are not, the stations would be removed, possibly as soon as next summer. If conditions are good we would hope to continue for at least another season, to see if it makes sense to place a telescope on one of the mountains. At the moment there are no plans for this. Any plan for a large research telescope would take many years to develop, allowing for ongoing consultation with local communities. But if realized, it could bring forefront technology to Nunavut, enhance educational opportunities and provide construction activity, all within a project that wants to preserve the pristine and unique environment of the region.

**PROJECT TITLE: American and Inuit Whalers in  
Cumberland Sound, 1850-1918**

**Principle Investigator:** Routledge, Karen

**Affiliation:** Department of History  
Rutgers University  
Hopewell  
New Jersey, USA  
kirimsa@gmail.com

**Number in Party:** 1

**License Number:** 0103008N-M

**Research Location:** South Baffin

**SUMMARY**

This research will be conducted in Pangnirtung in order to learn more Inuit stories about the whaling days.

My PhD dissertation is about Americans and Inuit living in each other's homelands in the late 1800s and early 1900s. Two chapters are about whaling in Cumberland Sound.

I have read a lot of records written by qallunaat whalers, but these don't tell me much about the Inuit who helped the Americans and worked with them.

I am especially interested in learning about the Cumberland Sound environment and seasons, how Inuit lived off the land, how they hunted whales, how they interacted with the qallunaat whalers, and any stories about Inuit who visited the United States on whaling ships.



## **PROJECT TITLE: Socio-economic studies in support of the Izok Project**

**Principle Investigator:** Klein, Heidi

**Affiliation:**

Gartner Lee Limited  
Calgary  
Alta, Canada  
hklein@gartnerlee.com

**Number in Party:** 12

**License Number:** 0400708N-M

**Research Location:** Kitikmeot

### **SUMMARY**

Zinifex Canada Inc. (Zinifex) plans to construct and operate a base metal mine at the Izok Lake site. This is located in the Kitikmeot region, approximately 350 km north of the City of Yellowknife, and about 70 km west of the Lupin mine.

It is proposed that ore will be mined by open pit and underground methods, and will be processed in a mill at the Izok site. Ore concentrate (zinc, copper, lead, silver) will be transported to an Arctic port by an all-season road. The locations of the port and all-season road have not yet been confirmed.

The closest Kitikmeot communities include Kugluktuk and Bathurst Inlet.

Zinifex has retained Gartner Lee Limited (GLL) to undertake socio-economic studies in relation to the Izok Project. The objective of these studies is to collect and analyze information relating to the potential socio-economic impacts of the Izok Project. Where applicable, the information will be used to better understand how changes to the environment may affect residents of the Kitikmeot, as well as how the project may change the lives of Kitikmeot residents directly (through things like employment).

The socio-economic program will begin by collecting and reviewing existing socio-economic information about the seven Kitikmeot communities through previous environmental assessment reports (like High Lake), Statistics Canada, community economic reports and other sources. Once the existing baseline data is compiled, it is proposed that researchers will meet with community residents, leaders and Nunavut organizations to confirm and update findings and discuss potential impacts from the project. If required, there may be some one-on-one meetings.

GLL will contact community officials prior to entering the communities. Community visits in relation to the socio-economic studies are scheduled to begin in the first quarter of 2008.

## **PROJECT TITLE: Inuit Qaujimajatuqangit study in support of the Izok Project**

**Principle Investigator:** Klein, Heidi

**Affiliation:**

Gartner Lee Limited  
Calgary  
Alta., Canada  
hklein@gartnerlee.com

**Number in Party:** 13

**License Number:** 0400808N-M

**Research Location:** Kitikmeot

### **SUMMARY**

Zinifex Canada Inc. (Zinifex) plans to construct and operate a base metal mine at the Izok Lake site. This is located in the Kitikmeot region, approximately 350 km north of the City of Yellowknife, and about 70 km west of the Lupin mine.

It is proposed that ore will be mined by open pit and underground methods, and will be processed in a mill at the Izok site. Ore concentrate (zinc, copper, lead, silver) will be transported to an Arctic port by an all-season road. The locations of the port and all-season road have not yet been confirmed.

The closest Kitikmeot communities include Kugluktuk and Bathurst Inlet.

Zinifex has retained Gartner Lee Limited (GLL) to undertake an Inuit Qaujimajatuqangit (IQ) study in the Kitikmeot region in support of an Environmental Impact Statement, which Zinifex plans to submit to the Nunavut Impact Review Board (NIRB). The overall objective of the study is to gather information that can help Zinifex understand and document the potential effects of the project - in particular, potential fishing, harvesting and shipping impacts. The IQ will help “flesh out” the picture of the existing natural environment.

When engaging IQ holders, the participant’s consent must be freely given either through written or verbal means, and a witness must be present to be considered fully informed consent. IQ will be reported back to the communities in draft form for review and validation prior to inclusion into any reporting documents.

The media for reporting may include documents, maps and video. Zinifex plans to negotiate an agreement with the Kitikmeot Inuit Association (KIA) that addresses matters of data storage, use, ownership, access, intellectual property rights, participant consent and reporting protocol.

The 2008 IQ study will include the following methods and activities:

- collection and review of IQ already in the public domain, such as previous environmental assessment reports, various West Kitikmeot Slave Study reports, original field maps from the Inuit Land Use and Occupancy Study (1974) and

information held by the Arctic Institute of North America at the University of Calgary and available in KIA IQ databases

- meetings and workshops tentatively starting in March 2008 to share and receive information about the Izok Project
- one-on-one interviews with selected IQ holders
- a visit to the Izok Project site.

GLL will contact community officials prior to entering each community. Community visits in relation to the IQ study are anticipated to begin in the first quarter of 2008.

**PROJECT TITLE: Authority, identity and power:  
anthropological approach to the contemporary Inuit  
discourse in the Canadian Arctic.**

**Principle Investigator:** Cancel, Carole

**Affiliation:**

De-Koninck Universite Laval  
Quebec  
Que., Canada  
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**Number in Party:** 3

**License Number:** 0100408N-M

**Research Location:** South Baffin

**SUMMARY**

This application concerns the next and final step of a research project that began in Iqaluit in 2005-2006 under research licence # 0102205N-A.

The research project is meant to analyse the roles of neologisms (new words or expressions) in the Inuit context and especially in the political discourse in order to understand matters of authority and identity. It involves a semantic analysis of Inuit formal and informal discourses with a focus on neologisms. Through this project I will develop a glossary with a semantic analysis of Inuktitut political terms (comparative analysis).

In practical terms, the fieldwork project will include meetings with:

- language professionals who are involved in the terminology development process
- local and territorial political representatives as well as Inuit organisations, since they are the ones who handle the political discourse and make use of neologisms
- individuals from various backgrounds and age groups in order to understand the perception of the public's opinion on politics and language, especially elders, who are keepers of ancient terms and who are increasingly involved in the terminology development process

Interviews will be collected by either face to face (audio and video) or telephone interviews.

Pictures of the participants may be taken only with their approval.

An interpreter will be hired to facilitate communication, translate the interviews and help by reflecting upon data, especially when meeting with elders.

The community of Iqaluit was selected because it includes Inuktitut language specialists as well as government bodies.

Short term use of the data will provide information to put together a glossary. Long term use of the data will pave the way for anthropological reflection with a focus on authority and identity.

After analysing data, the applicant will draft a report stating the research results. It will be communicated to each participant (individuals and organizations) and to the community of Iqaluit.

The data will be shared in a PhD thesis but also in publications and conferences in Europe and North America.

## **PROJECT TITLE: Conservation hunting and community livelihood in Nunavut**

**Principle Investigator:** Shannon, Kerrie Ann

**Affiliation:**

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Fairbanks  
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**Number in Party:** 1

**License Number:** 0300108N-A

**Research Location:** Kivalliq

### **SUMMARY**

This project will examine the economic and cultural benefits and costs of polar bear sports hunting to the people of Coral Harbour, Nunavut, Canada.

Research is currently being conducted in many communities in Nunavut, and data from Coral Harbour can contribute to a greater understanding of conservation hunting in Nunavut.

The term conservation hunting is applied to sport or recreational hunting, resulting in conservation and direct social/cultural benefits. A group of northern partners and researchers have been organized through the Canadian Circumpolar Institute regarding this topic. (See the project website at [www.ualberta.ca/polar/conservationhunting](http://www.ualberta.ca/polar/conservationhunting).) Current climatic conditions have prompted changes to the regulations regarding polar bear hunting.

My research will assess the social and economic costs and benefits of conservation hunting. I will focus on the community-wide implications by examining exchanges of goods and services connected with conservation hunting. For example, conservation hunting is commonly discussed in terms of male hunting activities, yet women are often key participants by providing and repairing fur clothing for hunters or preparing hides after successful hunts. A second example is the Inuit Qaujimajatuqangit used in tracking the bears. As guides use dog teams, further subsistence activities are necessary to support dog teams. The income generated from conservation hunting can be an important factor in local economies and a mechanism for households to maintain subsistence activities.

#### **Methodology:**

Upon arrival in Coral Harbour I hope to conduct a radio call-in show on this topic. The radio call-in show may be useful for the following reasons:

- to let the community as a whole understand the project
- residents may be informed about types of questions they may be asked if they were to participate in an interview

- provide an open format for community residents to comment on this topic and thereby also help me formulate pertinent questions for follow-up.

I also will interview individuals such as outfitters or guides for sports hunters, dog team owners, and family members of outfitters.

**Results:**

All interviews and field notes will be confidential and used by the researcher alone.

**Data:**

Will be kept by myself, Kerrie Ann Shannon, and remain confidential. I will use data in writing of technical journal articles or book chapters as well as non-academic reporting.

**Reporting:**

The results will be made available in non-academic form to the hamlet of Coral Harbour, Coral Harbour HTO, the Nunavut Wildlife Management Board, and Nunavut Tunngavik Incorporated. I will contribute one chapter to a book on polar bear conservation hunting planned for 2009. I plan on writing at least one journal article on the topic.

Copies of all published material will be made available to the above Inuit organisations.

## **PROJECT TITLE: Dundee Precious Metals Inc.'s Back River Project socio-economic**

**Principle Investigator:** Klein, Heidi

**Affiliation:**

Gartner Lee  
Calgary  
Alberta, Canada  
hklein@gartnerlee.com

**Number in Party:** 12

**License Number:** 0400208N-M

**Research Location:** Kitikmeot

### **SUMMARY**

Dundee Precious Metals Inc. (DPMI) is a mining company that is exploring the Goose Lake and George Lake properties for gold. DPMI has been doing geology and diamond drill work on these properties for three years and has found a large amount of gold. DPMI has a 75-person tent-frame camp at Goose Lake and 10-person emergency camp at George Lake.

DPMI believes that there could be enough gold to start an underground mine and is having research studies conducted to evaluate the possibilities. DPMI is currently studying the possibility that the mine could operate for more than 10 years.

Gartner Lee Limited is the consulting company hired by DPMI to carry out land, water, social science and traditional knowledge research in 2008. Overall, these studies will be carried out for several years.

The purpose of this program is to collect socio-economic information in relation to the potential impacts of the proposed gold mine. This information will then be used with other study results (including land, water and traditional knowledge) to help design the mining project in a way that does not harm the environment.

The socio-economic information will be used to better understand how changes to the environment will affect residents of the Kitikmeot, and how the project will change the lives of Kitikmeot residents directly (like through employment). This would be discussed in a future Environmental Assessment of the project.



**PROJECT TITLE: Dundee Precious Metals Inc. Back River  
Project traditional knowledge**

**Principle Investigator:** Klein, Heidi

**Affiliation:**

Gartner Lee  
Calgary  
Alta, Canada  
hklein@gartnerlee.com

**Number in Party:** 12

**License Number:** 0400308N-M

**Research Location:** Kitikmeot

**SUMMARY**

Dundee Precious Metals Inc. (DPMI) is a mining company that is exploring the Goose Lake and George Lake properties for gold. DPMI has been doing geology and diamond drill work on these properties for three years and has found a large amount of gold. DPMI has a 75-person tent-frame camp at Goose Lake and 10-person emergency camp at George Lake.

DPMI believes that there could be enough gold to start an underground mine and is having research studies conducted to evaluate the possibilities. DPMI is currently studying the possibility that the mine could operate for more than 10 years.

Gartner Lee Limited is the consulting company hired by DPMI to carry out land, water, social science and traditional knowledge research in 2008. Overall, these studies will be carried out for several years.

The purpose of this research project is to collect Inuit Qaujimajatuqangit (IQ) or Inuit traditional knowledge in the Kitikmeot region, where the proposed Back River Project is located. This information will then be used with other study results (including land, water and socio-economic) to help design the mining project in a way that does not harm the environment. Where applicable, the IQ will help “flesh-out” the picture of the biophysical environment by providing long-term data to the four-year scientific work being done.

Another purpose of the program is to assist in the process of preserving and sustaining traditional knowledge for Inuit elders in the potentially affected communities.

**PROJECT TITLE: Sea ice use and its relationship to Nunavut national parks**

**Principle Investigator:** Manseau, Micheline

**Affiliation:** The Natural Resources Institute  
University of Manitoba  
Winnipeg  
Man., Canada  
micheline.manseau@pc.gc.ca

**Number in Party:** 10

**License Number:** 0200208R-M

**Research Location:** North Baffin

**SUMMARY**

The overall goal of this project is to find ways to document Inuit Knowledge in culturally appropriate ways, by building relationships and capacity with interested local and regional Inuit organizations.

We are working with local Inuit researchers and community working groups made up of local Inuit elders, hunters and youth members.

This type of project, where research questions, methods and analysis are carried out in collaboration with remote and multiple Arctic communities, requires a substantial investment in time.

This project was designed from the outset as a multi-year project and has secure multi-year funding.

## **PROJECT TITLE: Inuit Qaujimajatuqangit and social studies for the Mary River Project**

**Principle Investigator:** Cook, Richard

**Affiliation:** Knight Piesold Ltd  
Baffinland Iron Mines Corporation  
North Bay  
Ont., Canada  
rcook@knightpiesold.com

**Number in Party:** 4

**License Number:** 0200308R-M Amended

**Research Location:** North Baffin

### **SUMMARY**

Baffinland Iron Mines Corporation (Baffinland) is carrying out advanced exploration of the Mary River Iron Ore Project. Environmental and engineering studies have also started and will continue over the next couple of years with the intention of completing a feasibility study to bring the iron ore deposits into production.

The environmental studies will document the existing condition of the land and wildlife in the region. The engineering studies will document the existing condition of the land and wildlife in the region. The engineering studies will determine the economical, environmental, socio-economic and technical factors that need to be identified and met to determine how iron ore at the project site could be mined.

If these studies determine that the iron ore deposit can be mined economically, Baffinland would require an environmental assessment to determine how to eventually construct and operate a mine that maximizes benefits while minimizing impacts to both the environment and the local communities.

Environmental studies are being carried out by Knight Piesold Ltd. With the assistance of the community, Knight Piesold is planning an Inuit Qaujimajatuqangit (IQ) study in Pond Inlet. A community working group (IQ organization) will provide overall direction to the study and identify interviewees and holders of IQ. The IQ organization will also help decide what questions to ask people about how they used the land in the past and how they use the land today, about the movements of fish and wildlife, and about culturally significant areas.

The community will also help determine priorities for what kinds of IQ they would like to collect.

**PROJECT TITLE: Traditional knowledge on sea ice change in Sanikiluaq - impacts on Inuit hunters**

**Principle Investigator:** Imrie, Devin

**Affiliation:**

University of Manitoba  
Falcon Lake  
Man., Canada  
devimirie@yahoo.ca

**Number in Party:**

**License Number:** 0100208R-M

**Research Location:** South Baffin

**SUMMARY**

The purpose of this project will be to document local observations on traditional knowledge on sea ice change and variability. This is to provide a holistic view of how changing sea ice conditions are affecting Inuit harvesting and travel in the vicinity of Sanikiluaq, Nunavut.

The objectives of the project are:

- document local and traditional knowledge, insights and perspectives on how and why sea ice conditions have changed in recent years
- assess the perceived impacts of sea ice change on hunting practices, harvest success and safety
- look for similarities between local knowledge and scientific data to provide a holistic assessment of sea ice changes in and around the Belcher Islands
- to work cooperatively with local people so as to accurately and respectfully record their knowledge, ideas and perspectives in the research
- present to the findings of the research back to the community in the form of posters and a book, to aid in the transfer of knowledge from elders and hunters to the youth in Sanikiluaq

## **PROJECT TITLE: Mount Royal College Baffin Island Field School - 2008**

**Principle Investigator:** Sherrington, Ian

**Affiliation:** Physical Education and Recreation Studies  
Mount Royal College  
Calgary  
Alta, Canada  
isherrington@mtroyal.ca

**Number in Party:** 13

**License Number:** 0100908N-A

**Research Location:** Qikiqtaaluk

### **SUMMARY**

The 11 Ecotourism and Outdoor Leadership students will conduct research projects during the three-week field school.

Working in groups of two, they are responsible for formulating a research question that they will attempt to have answered during the field school through various methodologies. The research and the research findings completed by the students is for teaching and learning objectives only and the intent is not to publish findings. The main avenues of inquiry adhere to the framework of social research with methodologies such as questionnaires, interviews and candid observations. Each group will submit a research proposal to the lead instructor prior to the commencement of the field school which will be reviewed for the appropriateness of the planned research methods.

All data will be compiled and written up by each student group as a final assignment for the field school. Again, this data will not be published and will be returned to the students following the grading process. Finally, if student findings may be of interest or help to those who participated in each study, then the option certainly exists to share those findings with them.

## **PROJECT TITLE: Appropriate Arctic architecture**

**Principle Investigator:** Ip, Morgan

**Affiliation:** School of Architecture  
Carleton University  
Ottawa  
Ont., Canada  
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**Number in Party:** 3

**License Number:** 0101508N-A

**Research Location:** Qikiqtaaluk

### **SUMMARY**

The purpose of this study is to rethink the way that buildings are built in the Canadian Arctic. Whether it is a house or a community building, the spaces people use should reflect their culture and their environment. As the climate and society itself changes, the built environment should respond to these changes and adapt accordingly.

To better understand how to build the most appropriate buildings in the North, an understanding of the problems and advantages of current building is needed, and this can only be done by working with the people that live, learn, work and play in them.

The particular building chosen to design is a centre for healing. The notions of healing are important in this study, and can refer to the healing of the body, spirit or essence, environment, relationships or society. The metaphor of healing can be translated into the building and offers a strong starting point for design that is intended to reconnect with culture and place.

The resultant Master of Architecture thesis will be presented back to the community for further discussion. The building may or may not proceed beyond theoretical stages, but the ensuing discussion will benefit the community and may lead to fresh building ideas within.

The design charrette will commence with a description of the project and a discussion on what a healing centre is and how it may start to be designed. The design portion will follow in which the participants will design, collectively, what they think a healing centre should be. There will be an information portion after the charrette in which I will present the work and designs that I have already done. Feedback and a discussion of what I have considered to date on the healing centre would immediately follow. A feedback and discussion session would then ensue. The workshop would then come to a close.

The charrette will be conducted in English and Inuktitut, in the presence of an interpreter. I may document the design charrette by taking photographs.

**PROJECT TITLE: Water and sewage management in Nunavut: now and then**

**Principle Investigator:** Legault McGill, Ryan

**Affiliation:**

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Ottawa  
Ont., Canada  
Imagine.ryan@gmail.com

**Number in Party:** 3

**License Number:** 01-00708-Registration

**Research Location:** Qikiqtaaluk

**SUMMARY**

The research project is a profile of water and sewage management in pre-settlement times and current management in Iqaluit. The project aims to compare and contrast information that includes technical issues, distribution issues, relative value, myths, decision-making processes and inclusion of traditional ecological knowledge and Inuit Qaujimagatuqangit. The project aims to identify continuity between traditional water and waste-water management practices and contemporary practices. In doing so, it will create a publication to assist resource managers in better understanding how Inuit traditions and culture may relate to contemporary resource management.

The objective of the study is not to identify Inuit traditional knowledge. The study respects traditional knowledge to be intrinsic to a complex system of values, beliefs and taboos that are not easily translated into Western systems. As such, traditional knowledge will be accepted by the researcher as knowledge identified as being traditional by participants and the literature.

## **PROJECT TITLE: Inuit hunters in a changing environment**

**Principle Investigator:** Groeneveld, Matthijs

**Affiliation:**

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Groningen, Netherlands  
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**Number in Party:** 3

**License Number:** 0300508N-A

**Research Location:** Kivalliq

### **SUMMARY**

This research project focuses on the effects that possible climate change has on the subsistence hunting of Inuit in the community of Arviat, Nunavut.

The changing environment includes the physical as well as the social environment. Therefore the interest lies not only on the effects of climate change, but on social processes like globalization too.

A first aim is to analyse what environmental changes are experienced by the Inuit. The theoretical background of this research consists of western scientific research, but the main interest is in the more personal and local experiences and perceptions of the Inuit. A second aim of this project is to gain insight in the changes which can be observed regarding the subsistence hunting of the Inuit. Subsistence hunting means hunting as a way to make a living. This includes all hunting activities which are implemented to feed the family.

A third aim of this research is to become aware of the effects that these changes have on the gender-relations in the community.

The related research question is: What are the consequences of a possible changing environment on subsistence-hunting for both Inuit men and women in the community of Arviat?

The focus of this research lies on the changes from about the 1950s up to the present. This period reaches from the beginning of the permanent settlement up to the present. The methods used in this research will consist of a combination of different techniques. A literature review, interviews and participant observation will be done to collect the relevant data for this research.

Part of the data will be collected during a period of fieldwork in Arviat, Nunavut, in May 2008. During this fieldwork 14 interviews in total will be conducted, spread out over different age groups and based on difference in gender. There will be three interviews with elders, two with women between the age of 35 and 55 and two with women under the age of 35. For men there will be the same number of peoples and categories. Exact questions for the interviews are under construction. These interviews will be done to get a good overview from the different age groups and gender.



Participant observation methods will be used to get a better insight for the researchers on what they are researching and to provide the researchers with adequate picture material for the final report.

The data will be used for the Masters thesis of Claudia Westermann and Matthijs Groeneveld. The final report will be sent to regional and Nunavut organizations. A summary of the results in English and Inuktitut will be send to the participants of the research.

## **PROJECT TITLE: Iqaluit's plateau development: A vision for sustainable city planning in Canada's Eastern Arctic**

**Principle Investigator:** Sabin, Jerald

**Affiliation:** Public Policy and Administration  
Carleton University  
Ottawa  
Ont., Canada  
jsabin@connect.carleton.ca

**Number in Party:** 2

**License Number:** 0101408N-A

**Research Location:** Qikiqtaaluk

### **SUMMARY**

This is an exploratory research project, with a view to producing a case study on the Plateau development in Iqaluit, Nunavut. The Plateau is the first eastern Arctic subdivision to be built using sustainable planning and design principles.

Data will be gathered using open-ended audio-recorded interviews obtained from participants in the following categories:

- public servants, including employees of the City of Iqaluit and the Canada Mortgage and Housing Corporation
- private sector actors, including developers of the Plateau subdivision and consultants who have completed reports on the project
- third sector actors, including representatives of the Iqaluit Homeowners Association and the Federation of Canadian Municipalities
- residents of the Plateau subdivision

As a whole, all of these potential participants represent interested stakeholders in the development and success of the Plateau.

Recordings and transcripts of data will be kept in principal researcher's office in a locked drawer. No data will be saved to a computer hard drive. It will be stored on a removable memory device, which will also be stored in a locked drawer. Interview transcripts and other information will be kept by the researcher indefinitely.

Results from this research will be made available to participants in the form of a journal article and selected presentations. Notice to each participant will also be made to inform them of preliminary results.

**PROJECT TITLE: Inuit relocations in the Eastern Canadian Arctic and in Greenland: Local perceptions and long-term outcomes**

**Principle Investigator:** Csonka, Yvon

**Affiliation:** Ilisimatusarfik  
University of Greenland  
Nuuk, Greenland  
yvcs@ks.uni.gl

**Number in Party:** 1

**License Number:** 0101108N-A

**Research Location:** Clyde River

**SUMMARY**

This project is part of “Moved by the State: Perspectives on Relocation and Resettlement in the Circumpolar North (MOVE)” ([www.alaska.edu/boreas/move/](http://www.alaska.edu/boreas/move/)). It is a collaborative research project within the EUROCORES BOREAS program of the European Science Foundation ([www.esf.org/activities/eurocores/programmes/boreas.html](http://www.esf.org/activities/eurocores/programmes/boreas.html)). MOVE has been endorsed as an International Polar Year project (IPY project database #436).

Purpose, goals and objectives:

State-induced relocations of indigenous people were a salient feature of 20th century history throughout the circumpolar North. Despite widely differing national political and ideological regimes in Canada, Alaska, Greenland and the former Soviet Union, the reasons for relocating and concentrating people, the methods used and the consequences were in many ways similar. MOVE aims to document the history, local perceptions and consequences of such relocations from a circumpolar perspective.

The sub-project to be carried out in Greenland and in the Eastern Canadian Arctic (Nunavut, Nunavik, Nunatsiavut) aims to gather data to shed light on local perspectives, and to understand the consequences of relocations and concentrations over time up to the present day.

Methods:

Part of the project consists of historical research based on earlier publications, documents and archives. However, the main research instrument consists of interviews to be conducted with residents of several northern communities. The conversations will be carried out as semi-open interviews (no fixed questionnaire), whenever possible with more than one respondent. I am keen on conducting the research in cooperation with

local historical societies or their equivalent. The project is designed in such a way that the results should benefit the local communities involved as much as the world at large.

I chose the community of Kangiqtugaapik partly because the community represents one of the less spectacular though very widespread cases of relocation, and partly because of the interest and enthusiasm of the community's Ittaq Heritage and Research Centre's to participate in the project.

Kangiqtugaapik provides a good contrast to the history of the Ahiarmiut of Kivalliq, with whom I am in close contact since 1986 (I conducted fieldwork in Arviat since that time).

**PROJECT TITLE: The dynamics of human-sea ice relationships: Comparing changing environments in Alaska, Nunavut and Greenland (Siku-Inuit-Hila Project)**

**Principle Investigator:** Gearheard, Shari

**Affiliation:**

University of Colorado  
Clyde River  
Nunavut, Canada  
sharig@qiniq.com

**Number in Party:** 12

**License Number:** 0101208R-M

**Research Location:** North Baffin

**SUMMARY**

The purpose of this project is to create a collaborative research project where Inuit from Baffin, Inupiat from Alaska, and Inuit from Greenland can share observations, knowledge and experiences with each other and with scientists related to sea ice, sea ice use and sea ice change.

**PROJECT TITLE: Iglulik: One Inuit community's cultural preservation history and initiatives**

**Principle Investigator:** Gunderson, Sonia

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Fairfield  
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**Number in Party:**

**License Number:** 0201308R-M

**Research Location:** North Baffin

**SUMMARY**

Despite the disruptive changes to Inuit culture brought about by modernization, the community of Iglulik has earned a reputation as the 'cultural hub' of Nunavut. This project will attempt to identify the environmental, historical, social and cultural factors that support this reputation.

While in Iglulik, the proponent will conduct research using the extensive archives of the Oral History Project, view relevant videos and films produced by local media, interview elders and other members of the community, attend cultural programs and events, and read literature related to the topic.

The proponent will also study Inuktitut.

Interviews will be conducted following standard protocol and will use participant consent forms.

**PROJECT TITLE: Movement and diving of northern Hudson Bay narwhal: relevance to stock assessment and hunt co-management**

**Principle Investigator:** Westdal, Kristin

**Affiliation:**

University of Manitoba  
Winnipeg  
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**Number in Party:**

**License Number:** 0300208R-M

**Research Location:** Kivalliq

**SUMMARY**

The purpose of this research project is to improve population estimates of narwhal summering near Repulse Bay, to determine if this stock is geographically separate from other narwhal populations and to identify summer movement in the Repulse Bay area. The further objective of this research project is to determine distribution of narwhal in August near Repulse Bay in relation to past aerial surveys and future survey design, to create a correction factor for diving animals not seen by aerial surveys using dive data, to determine wintering areas and migration routes and to create a wider knowledge base of the narwhal by linking scientific literature and data with Traditional Ecological Knowledge.

This will be done by:

- satellite tagging of narwhal near Repulse Bay in August 2007 (Department of Fisheries and Oceans Project)
- workshops or interviews with members of the Hunters and Trappers Association and local community members
- summarizing and interpretation of results (both from satellite tags and TEK)
- community follow-up to confirm information gathered in workshops and or interviews
- community presentation and distribution of results

**PROJECT TITLE: Traditional knowledge of northwestern Hudson Bay polar bears: Distribution, habitats, food and behaviour**

**Principle Investigator:** Sahanatien, Vicki Ann Marie

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University of Alberta  
Edmonton  
Alta., Canada  
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**Number in Party:** 5

**License Number:** 0300308R-M

**Research Location:** Repulse Bay, Coral Harbour, Chesterfield Inlet, Rankin Inlet, Baker Lake

**SUMMARY**

The polar bears of Northwestern Hudson Bay and the Foxe Basin region are not well known to researchers and wildlife managers. The most recent polar bear studies occurred in the 1980s. The only biological data collected since that time are harvest and defense kill information. This gap in information is an important opportunity to tap into and explore approaches for incorporating traditional ecological knowledge into scientific research.

My study area is in Northwestern Hudson Bay. This is also referred to as the Foxe Basin polar bear population. The focus of my research is polar bear habitat selection (small and large scale), the effects on climate change on available polar bear habitat (sea ice), polar bear movements and behaviour.

The existing oral history collections, reports and published literature of Inuit knowledge of polar bears were reviewed. New information will be collected using interviews and focus groups with knowledgeable Inuit and non-Inuit from communities in the study area. All sources of information will be combined into a database that can be used for research, management and public education.



## **PROJECT TITLE: Inuit Knowledge of Foxe Basin Polar Bear Habitat and Movements**

**Principle Investigator:** Sahanatien, Vicki Ann Marie

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University of Alberta  
Edmonton  
Alta., Canada  
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**Number in Party:** 5

**License Number:** 0103208N-M

**Research Location:** Igloolik, Hall Beach, Cape Dorset, Kimmirut

### **SUMMARY**

The polar bears of the Foxe Basin region are not well known to researchers and wildlife managers. The most recent polar bear studies occurred in the 1980s. The only biological data collected since that time is harvest and defense kill information. This gap in information is an important opportunity to tap into and explore approaches for incorporating traditional ecological knowledge into scientific research.

My study area includes the coastline and ocean of northern Hudson Bay, Hudson Strait and Foxe Basin. This is also known as the Foxe Basin polar bear population area. The focus of my research is polar bear habitat, the effects on climate change on available polar bear habitat (sea ice), polar bear movements and behavior.

The existing oral history collections, reports and published literature of Inuit knowledge of polar bears were reviewed. New information will be collected using interviews and focus groups with knowledgeable Inuit and non-Inuit from communities in the study area. All sources of information will be combined into a database that can be used for research, management and public education.

**PROJECT TITLE: Impacts of a changing Arctic tree line:  
photos and plants through time**

**Principle Investigator:** Doubleday, Nancy

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Carleton University  
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**Number in Party:** 8

**License Number:** 0500708R-M

**Research Location:** South Baffin, Kivalliq

**SUMMARY**

To develop deeper knowledge of the impacts of a changing Arctic treeline on the health and well-being of northerners by using qualitative methods to document changing landscape and land use using photographs and plant materials and by including local people in the research process.

Data collection dates: August 2007 to August 2010.

Locations of data collection: Sanikiluaq, Cape Dorset, Baker Lake, Arviat, Iqaluit and Kimmirut.

**PROJECT TITLE: Swimming against the mainstream:  
Aquatic programming in Pangnirtung**

**Principle Investigator:** Giles, Audrey

**Affiliation:**

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Ottawa  
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**Number in Party:** 2

**License Number:** 0101608N-A

**Research Location:** South Baffin

**SUMMARY**

The goal of this project is to help to improve water safety and prevent drownings by incorporating local knowledge.

The purpose of this language study is to learn more about the history of the NWT Aquatics Program (which used to include Nunavut) and the ways that cultural knowledge influences participation in swimming and aquatics activities.

The data will be collected by semi-structured interviews, unstructured interviews and archival research.

The data will be used for community-based resources, publication in academic journals, for contributions to swimming pool resources for Nunavut, in academic presentations and a presentation to the community.

**PROJECT TITLE: Contemporary Inuit drawing in Nunavut: A multidisciplinary approach to the artistic discourse and mind-set configuration in the Canadian Arctic**

**Principle Investigator:** Maire, Aurelie

**Affiliation:**

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Verdun  
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**Number in Party:** 3

**License Number:** 0102308N-A

**Research Location:** Baffin

**SUMMARY**

This is a multidisciplinary research project on the artistic sphere of Nunavut which aims to increase knowledge of Inuit artistic practices. It proposes an analysis of both artistic discourse and practices that revolve around the graphic art domains, with a focus on the notions of art, power and identity.

Fieldwork conducted in Nunavut is based on a tight collaboration with interviewed Inuktitut speakers who belong to the public and artistic spheres. Research ethics adopted in this program positions partnership with Inuit at the core of the study, including the stages of data interpretation and results discussion.

This ongoing research consists of examining graphic art works and discourses collected in situ among artists of local graphic experience sphere, according to a methodology derived from art history, anthropology and ethnolinguistics.

The interviews will be used as data in a PhD thesis defended in both France and Canada.

**PROJECT TITLE: Socio-economic and traditional knowledge studies in relation to the Kiggavik Project Environmental Impact Assessment, Kivalliq Region**

**Principle Investigator:** Ross, Susan

**Affiliation:**

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**Number in Party:** 4

**License Number:** 0301208N-M

**Research Location:** Kivalliq

**SUMMARY**

The purpose of the research project is to collect socio-economic and traditional knowledge information sufficient to understand community interests in the Kiggavik Project. This will provide input to an environmental impact assessment for Kiggavik Project permitting.

The Kiggavik Project is a uranium project in the Kivalliq region. The objective of the socio-economic and traditional knowledge studies is to collect baseline data to enhance AREVA's understanding of conditions in communities potentially affected by the Kiggavik Project.

The information will be used to assess potential and residual impacts of the Kiggavik Project on socio-economic conditions and resource use, and to frame impact mitigation and benefit enhancement measures to be implemented by AREVA as conditions for Kiggavik Project approvals.

**PROJECT TITLE: Weather and air traffic in Arviat, Nunavut**

**Principle Investigator:** van den Scott, Lisa-Jo

**Affiliation:**

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Nunavut, Canada  
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**Number in Party:** 2

**License Number:** 0300808N-A Reg

**Research Location:** Kivalliq

**SUMMARY**

This project intends to generate information for use as a chapter in *ROUTES LESS TRAVELED: THE CULTURES OF ALTERNATIVE MOBILITIES*, an edited book proposal by Phillip Vannini, Royal Roads University.

The researcher will be contributing to a chapter under the heading “TECHNOLOGIES OF MOBILITY AND RELATIVE IMMOBILITIES.”

A series of face-to-face interviews are to be conducted in Arviat, Nunavut, between June and November of 2008. These will focus on travel stories and will remain confidential. The interviews will be recorded, but will not be made available to anyone other than the researcher without explicit written permission from the interviewee.

Chapter description:

Air travel has often been considered a jumping board for discussions about globalization, the growing speed of postmodern everyday life, and the deep interconnectedness of the globe’s cultures and societies. Similarly, airports have been hailed as non-places, as the epitome of global villages, and as one of the prime signifiers of hypermodernity. But not all that flies is fast, goes far or shines. Regional air travel is a much understudied phenomenon, and yet a concrete mundane reality for many people across the world. This chapter focuses precisely on that important manifestation of air travel by looking at the arctic community of Arviat and its airplane.

Arviat is a remote Inuit hamlet located along the Hudson’s Bay in Nunavut, Canada. It is hundreds of kilometres from any other community and its citizens rely entirely on air travel to get in and out. There is a small, dirt runway which accommodates flights twice a day during the week, once a day on the weekends.

Mail, food, friends, and family all are dependent on this airplane. They are also dependent on the weather as, with no radar, any amount of fog or low ceiling will result in cancelation of flights. This chapter examines, from a symbolic interactionist perspective, the relationship and interaction between the community of Arviat and its sole link to the outside world, its airplane.

## **PROJECT TITLE: Inuit Qaujimajatuqangit and land use studies for the Iqaluit hydroelectric project**

**Principle Investigator:** Flaherty, Jamie

**Affiliation:** Qulliq Energy Corporation  
Iqaluit  
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**Number in Party:** 32

**License Number:** 0101808R-M

**Research Location:** South Baffin

### **SUMMARY**

Qulliq Energy Corporation (QEC) is currently evaluating the potential to provide hydroelectric power to the City of Iqaluit. A study carried out by Knight Piesold Ltd. in late 2005 identified five watercourses within 50 to 100 km of Iqaluit where the development of hydroelectric power may be feasible.

Additional environmental information is required at the four locations before decisions can be made with respect to advancing any of the projects to a detailed feasibility study. This includes collection of land use information to understand the present and historic use of the candidate sites, as well as the collection of Inuit Qaujimajatuqangit (IQ) on fish and wildlife ecology and movements.

A land use and IQ study is proposed that includes two main components:

- a review and summary of existing land use information and IQ
- collection of information on contemporary land use and IQ from knowledgeable elders and land users (IQ Consultants, or Qaujimajitaq)

The review of existing information will evaluate and summarize land use and IQ information contained in the both the Inuit Land Use and Occupancy Project (Milton Freeman Research Ltd, 1976) and the Nunavut Wildlife Harvest Study (Nunavut Wildlife Management Board, 2004). The Inuit Heritage Trust Incorporated and the Department of Culture, Language, Elders and Youth (CLEY) will also be contacted to obtain any relevant historical or archaeological information.

## **PROJECT TITLE: Mapping the social economy in Northern Canada - Nunavut project**

**Principle Investigator:** Southcott, Chris

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Lakehead University  
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**Number in Party:** 5

**License Number:** 0501108R-M

**Research Location:** Nunavut

### **SUMMARY**

The Social Economy Research Network of Northern Canada is part of a national research suite with six regional networks and a coordinating hub funded through the Social Sciences and Humanities Research Council of Canada. The Northern Node is built around the three northern territorial colleges and their respective research institutions. It links researchers working in the North with northern students, community organizations and educational institutions.

The Node has proposed four research themes to be addressed. This project deals with Theme 1, to develop a profile of the social economy in Northern Canada. This will be achieved through establishing a categorization and inventory of the existing social economy organizations.

The research is an important initial task of this group as it will assist the program with developing further research projects that address the needs and priorities of northern communities and organizations.



**PROJECT TITLE: Monitoring of the effects of shipping on narwhal behaviour in Milne Inlet**

**Principle Investigator:** Marcoux, Marianne

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**Number in Party:** 4

**License Number:** 0204008N-A

**Research Location:** North Baffin

**SUMMARY**

Narwhal is a major food for Inuit of Pond Inlet. Shipping traffic is predicted to increase over the narwhal range due to the opening of a mine in Mary River, with the shipping of bulk samples planned to start in the summer of 2008. The main goal of this project is to establish a monitoring program for the narwhal population in Koluktoo Bay, initiated and led by the local Inuit community, to assess the effects of shipping traffic on narwhals. The majority of this project consists of gathering biological data about the narwhals for monitoring the population. However, in order to maximize the success of the monitoring program and the involvement of the local community, we want to investigate the perspective of the community about the narwhal population, its monitoring and conservation.

## **PROJECT TITLE: Inuit Sea Ice Use and Occupancy Project (ISIUOP)**

**Principle Investigator:** Aporta, Claudio

**Affiliation:** Department of Anthropology and Sociology  
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**Number in Party:** 6

**License Number:** 0102008R-M

**Research Location:** South Baffin

### **SUMMARY**

This project builds on research that has been undertaken with several Baffin Island communities over the past four to six years. We are now continuing this work as part of the International Polar Year (IPY) 2007-2008.

This project consists of two sub-projects, Mapping Inuit Sea Ice Knowledge and Use (SIKU) in Cape Dorset, Igloolik, and Pangnirtung, and Igliniit in Clyde River. SIKU will focus on innovative ways of representing Inuit knowledge to develop educational materials that can be used by a variety of audiences, and on evaluating the utility of the Floe Edge Service (satellite imagery of sea ice conditions) in each community.

Igliniit is a pilot project to test new Global Positioning System (GPS) technology that can be mounted on a snowmobile and used to track sea ice travel routes, features, changes, wildlife, harvesting areas, etc.

The Canadian IPY program is funding this project for next five years (until March 2011). Normal maps show a lot of detail about the land, but ocean and water areas are often left blank. We wish to keep working closely with community members and local organizations to develop a new type of map that shows the dynamic nature and uses of sea ice according to the local experts on sea ice, to help others learn about the detailed Inuit understanding of this environment.

A combination of maps, oral descriptions, pictures, and video, will be used to achieve project objectives.

These objectives are to:

- document and map sea ice conditions, uses, and hazards
- evaluate sea ice changes (and local impacts of change) over time
- develop educational materials for Inuit youth, researchers, and governments

Information will be gathered through sea ice trips, focus groups, and interviews. This will allow for discussion- and experience-based research whereby community collaboration and input is essential to the success of the project.

Sea ice trips, focus groups and interviews will be recorded with audio, video, photographs, maps and GPS (where consent has been provided). Information that is collected as part of the project, as well as interim and final results, will be stored at the Geomatics and Cartographic Research Centre (GCRC) at Carleton University (with Aporta and Laidler) as well as in each community at a locally agreed-upon location. Information will be kept after it is complete, and will only be used afterwards according to consent specified by the community members involved.

**PROJECT TITLE: Aboriginal ecotourism, environmental and economic changes, livelihood and traditional knowledge: a comparative analysis between the caribou Inuit of Baker Lake in Nunavut and the Sami reindeer herders of Övre Soppero in Northern Sweden**

**Principle Investigator:** Blangy, Sylvie

**Affiliation:** Geography Department  
Montellier University  
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**Number in Party:** 3

**License Number:** 0301108N-M

**Research Location:** Kivalliq

**SUMMARY**

This project aims at understanding how aboriginal tourism can contribute to the well-being of northern communities, preserve and enhance their traditional cultures, sustain their natural resources, and help community members face the challenges of climate change and economic dependency.

It is based on the hypothesis that northern communities in different geographic regions face comparable challenges, and that a comparative analysis between such communities will provide new insights on the possible ways to face them.

For this, we selected two communities, the Inuit Inland Caribou from Baker Lake in Nunavut and the Sami Reindeer Herder of Övre Soppero of Northern Sweden. These share a traditional livelihood based on the same species - Rangifer tarandus - and similar challenges, despite the differences in their ecological and socio economic context. Collaborative research and social action tools will be used to bridge scientific- and community-based knowledge to explore future scenarios and models and nurture an Arctic aboriginal ecotourism network of practitioners.

**PROJECT TITLE: Climate change impacts on berry ecology in the Canadian Arctic tundra (CICAT)**

**Principle Investigator:** Gerin-Lajoie, Jose

**Affiliation:** Chemistry/Biology  
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**Number in Party:** 3

**License Number:** 0102708N-M

**Research Location:** South Baffin

**SUMMARY**

The main goal of this project is to improve our knowledge of the ecology of berry-producing species, and to monitor berry productivity (biomass/m<sup>2</sup>) in relation to environmental change, including increased erect shrub growth.

It is part of the International Polar Year initiative CiCAT (Climate Change Impacts on Canadian Arctic Tundra Ecosystems: Interdisciplinary and Multi-scale Assessments). Another important objective of this project is to link local and traditional ecological knowledge (LTEK) with scientific data on variations in annual productivity of commonly used berries:

- Kimminaq (Mountain cranberry, *Vaccinium vitis-idaea*)
- Paurngaq (Crowberry, *Empetrum nigrum*)
- Kigutangirnaq (Blueberry, *Vaccinium uliginosum*)
- Arpiq (Cloudberry, *Rubus chamaemorus*)

Finally, we are collaborating with schools to develop our monitoring protocols.

**PROJECT TITLE: Consultation and updating oral history research for Grise Fiord Interpretive Display, Quttinirpaaq National Park of Canada**

**Principle Investigator:** Frampton, Kristy

**Affiliation:** Nunavut Field Unit  
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Nunavut, Canada  
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**Number in Party:** 3

**License Number:** 0203908N-A AMENDED

**Research Location:** North Baffin, South Baffin

**SUMMARY**

The applicants propose to consult with the designated community representatives in Grise Fiord, Nunavut, regarding the concept for an interpretive display. The display has been proposed by Parks Canada for Grise Fiord and has been supported in principle by the Joint Management Committee for Quttinirpaaq National Park of Canada.

It is proposed that Ms. Frampton and Mr. Dick will travel to Grise Fiord in August 2008 to consult with designated representatives regarding the proposed project. If approved, they will proceed to carry out the interviews with designated community members for this project.

## **PROJECT TITLE: Inuit Life and Death in Contemporary and Historical Contexts**

**Principle Investigator:** Stevenson, Lisa

**Affiliation:**

McGill University  
Montreal  
Que., Canada  
398-7476

**Number in Party:** 2

**License Number:** 0102608N-M

**Research Location:** South Baffin

### **SUMMARY**

Part One: Conceptions of Life and Death.

The objective of this part of the project is to investigate ideas about life and death in Inuit communities. I am especially interested in:

- collecting stories from people who remember their own births
- collecting more information/ stories on naming practices among contemporary Inuit and collecting stories from people who have had dreams of the dead

Part Two: Oral Histories of Tuberculosis.

The objective of this part of the research is to investigate the way the Canadian government dealt with the tuberculosis epidemic in the Canadian Arctic during the 1950s and 60s, and to document the Inuit experience of being sent to southern sanatoria.

As a result of research in the archives of sanatoria in southern Canada and in the National Archives of Canada, I have hundreds of unidentified photographs of Inuit who spent time in the Sanatorium.

I will hold community meetings to display these photographs and attempt to collect names and dates for the photographs. I also have digitized a 1961 reel-to-reel audio tape that contains messages from Inuit in the North their family members in the South. This summer I will try to find the families of the people who are speaking on the tape and give them an audio copy of the message. In addition I intend to collect stories from people who were in southern sanatoria or had family members there.

The researcher proposes to focus on the communities of Iqaluit, Ikpiarjuk and Kimmirut.

**PROJECT TITLE: Arctic Voice Expedition 2007-2009**

**Principle Investigator:** Morris, Glenn

**Affiliation:** Royal Geographical Society  
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**Number in Party:** 6

**License Number:** 0401208N-M

**Research Location:** Kitikmeot, North Baffin

**SUMMARY**

The Arctic is undergoing vast and dramatic changes. These are linked to climate change as well as to economic and social issues. It is our belief that the majority of people in the world's industrialized and wealthy nations have, to a large degree, lost touch with their environment and, more importantly, how their actions affect people and species in other parts of the world.

The aim of this Arctic expedition by sea kayak and dogsled is to bring back to the UK an understanding of the environment and social changes that are occurring in the North and our relationship to those changes.



**PROJECT TITLE: Assessing potable water needs in small communities - challenges and opportunities in Nunavut**

**Principle Investigator:** Kot, Megan

**Affiliation:**

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**Number in Party:** 3

**License Number:** 0301708N-M

**Research Location:** Kivalliq

**SUMMARY**

The primary goal of this research is to identify how drinking water is ultimately acquired by community members in Nunavut.

This will be done using interviews with key informants, focus groups and operators (specialists) in field of drinking water management.

Acquisition refers to how the safe drinking water arrives in the hands of community members, whether by traditional gathering methods, from municipally-provided tap water or by purchasing water in bottles from the store.

## **PROJECT TITLE: The Common Experience Payment (CEP) and healing**

**Principle Investigator:** Dewar, Jonathan

**Affiliation:** Director of Research  
Aboriginal Healing Foundation (AHF)  
Ottawa  
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**Number in Party:** 5

**License Number:** 0501508N-A

**Research Location:** Kitikmeot, Kivalliq, South Baffin

### **SUMMARY**

The goal of The Common Experience Payment and Healing research project is to provide information with respect to the impacts of the payment on individuals and communities after the payments have been received.

The purpose of this study is to gather recipient and stakeholder insights regarding the role of CEP payments within survivors' healing journeys.

Considering the sensitivity of this topic of study, high regard must be given to implementation strategies that are both ethical and respectful.

The main research questions relate to two themes:

- Has the CEP experience, as part of the larger Settlement Agreement (SA), impacted individuals' healing journeys? What is the nature of those impacts, if any?
- What services and/or supports have been valuable to individuals since receipt of CEP?

**PROJECT TITLE: Assessing Igloolik's vulnerability to sea ice change**

**Principle Investigator:** Ford, James

**Affiliation:** Department of Geography  
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**Number in Party:**

**License Number:** 0103308N-M

**Research Location:** South Baffin

**SUMMARY**

I have been working with people in Igloolik since 2002, looking at how climate change is affecting hunting and other activities, and identifying ways to help people deal with these changes.

During this time I worked primarily with three local people (Kevin Qrunnut, Celina Irngaut, and Harry Ittusardjuat), interviewed approximately 100 Iglulingmiut and made six main trips (one every year). I have also produced a number of reports for the community documenting the findings of the research, spoken with interviewees about the findings from previous trips and involved local people as authors on scientific reports. The goal of the research I am proposing here is to continue this research, building upon problems and needs identified in previous work.

Specifically, the project will examine in further depth the problems facing local people when they hunt and travel. More importantly, the project will build upon local concerns about the access and availability of country and store foods, and the difficulty in obtaining food with rising prices and changes in the animals and sea ice.

It will document the strategies being employed by local people to manage difficulties in getting food, identify who is helping local people get food, identify ways to improve food access, and assess how future climate and other changes might affect access to food in Igloolik.

**PROJECT TITLE: Youth migration from the circumpolar North**

**Principle Investigator:** De Roover, Jean-Paul

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Lakehead University  
Thunder Bay  
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**Number in Party:**

**License Number:** 0103108N-M

**Research Location:** South Baffin

**SUMMARY**

This research will look at Inuit youth migration in Iqaluit and Ottawa. It is linked to the Boreas Project, whose goal is to develop a better understanding of the patterns, causes and consequences of migration in the Circumpolar North. This is done through interdisciplinary, comparative research while analyzing different Arctic indigenous populations in North America, Greenland, Sweden and Russia.

**PROJECT TITLE: The influence of aging, social structure and money on subsistence hunting**

**Principle Investigator:** Wenzel, George

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McGill University  
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Que., Canada  
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**Number in Party:** 3

**License Number:** 0204708N-M

**Research Location:** North Baffin

**SUMMARY**

Arctic communities provide a unique opportunity for research because the experience of modernization in the North, unlike Europe, Canada and the United States, has been compressed into only a few generations of Inuit. Our long-term research goals are to better understand the response of the Inuit social system to the rapid social, economic and environmental changes that have occurred in the North during this time.

More immediate goals involve understanding the interplay between aging relationships and subsistence economics in the communities of Holman since 1972. The specific objectives of the application are to measure the factors that influence the subsistence involvement of adult men in these communities.

Our central hypothesis is that adult men's subsistence activity is largely determined by the health and well-being of their parents and in-laws, and their ability to find and secure steady employment. This hypothesis has been formulated based on a preliminary analysis of economic data collected from young adult Inuit (born between 1955-1970) in Holman and Clyde River in 1992-1993 and subsequent research trips to Holman in 1997, 2001, and 2002 and Clyde River.

Data collected on subsistence activities of this same cohort of Inuit men will allow comparisons with the 1992 data. The proposed research will allow for the construction of a detailed model of the interplay between aging, economics and subsistence and the secular change in the community.

**PROJECT TITLE: Silalirijiit Project: Linking Inuit knowledge and local-scale environmental modeling to evaluate the impacts of changing weather on human activities at Clyde River, Nunavut**

**Principle Investigator:** Gearheard, Shari

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**Number in Party:** 10

**License Number:** 0204608N-M

**Research Location:** North Baffin

**SUMMARY**

This project brings together Inuit and scientists to study weather patterns at Clyde River. The objective is to better understand local weather and improve weather forecasting for the community.

The project will install two to three new weather stations in the region at locations chosen in consultation with local experts. The project will hire local people to maintain the stations and form a working group of five local experts who have knowledge about weather patterns. It will include an exchange program where project scientists will visit the community, and the five local experts (and interpreter) will travel to Colorado to see how the scientists work.

If this project is successful, the methods and tools used will be useful for other communities who want to study their own weather and make better weather forecasts in their area.

**PROJECT TITLE: Traditional local ecological knowledge to examine historical occurrence, geographic spread and population impact of Avian Cholera among northern Common Eider ducks nesting in Nunavut**

**Principle Investigator:** Gilchrist, Grant

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**Number in Party:**

**License Number:** 0103408R-M

**Research Location:** South Baffin

**SUMMARY**

Common Eider ducks are an important source of food, eggs and down for subsistence hunters in Nunavut, Canada, and west Greenland. Eiders concentrate in large numbers, are long-lived birds and have low rates of annual reproduction. These factors make eider populations vulnerable to anything that contributes to the death of adult breeding birds, and makes it difficult for eiders to recover from population declines.

Many hundred Common Eider ducks died of avian cholera at nesting colonies in northern Hudson Bay and west Hudson Strait in July and August 2004-2005. This was first detected by local residents hunting in the area near Ivujivik, northern Quebec.

In the summer of 2006, cholera was again detected at eider colonies along the northern coasts of Quebec in Nunavik, and at East Bay, Southampton Island, Nunavut. At East Bay over 3,500 eiders (that is more than 75 per cent of nesting females) were killed between late June and early August. Small numbers of Herring Gulls, Glaucous Gulls, Canada Geese and Brant Geese were also killed by the disease.

The rapid spread of the disease in Nunavut and the severity of the mortality it caused among eider ducks nesting at the East Bay colony is of great concern. This has prompted the development of a collaborative research team of field biologists from Environment Canada, specialists in avian disease, research laboratories and graduate students who plan to assess the magnitude, spread and impact of the disease among Common Eider ducks of Nunavut.

This proposal reflects this initiative.

**PROJECT TITLE: Training, documentation and communication of traditional and research knowledge on Arctic char: Coronation Gulf area**

**Principle Investigator:** Taptuna, Peter

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**Number in Party:** 8

**License Number:** 0401408N-A

**Research Location:** Kitikmeot

**SUMMARY**

The community of Kugluktuk is seeking to engage its youth and provide job training within the context of an Inuit Qaujimagatuqangit (IQ) and science research project. Objectives of the project are to assess status and potential for remediation of the Arctic char population in the Nulahugyuk Creek-Hingittok Lake system, to link western science training with IQ knowledge for Inuit youth and to document the IQ knowledge and ecology education on film.

Angoniatit Niovikvia Ltd., the Kugluktuk Hunters and Trappers Association and Golder Associates Limited are planning educational and training programs at Bernard Harbour in the areas of fisheries science and traditional knowledge over the next three years, beginning June 2008. The group has applied for funding under International Polar Year (IPY), and alternate funding is secure for the program's first year.

The project is based on priorities identified by the community through the Kugluktuk HTO and is designed to meet their goals for training, communication, documentation and capacity building.

Community members will be planning and implementing the IQ program and scientific study in collaboration with select southern partners. This partnership will be maintained throughout all stages of the project.



**PROJECT TITLE: The Mountain Sanatorium patients of Pangnirtung photograph research project**

**Principle Investigator:** Cowall, Emily

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**Number in Party:** 6

**License Number:** 0103608N-M

**Research Location:** Pangnirtung

**SUMMARY**

The Mountain Sanatorium Patients of Pangnirtung Photograph Research Study is a collaborative community based participatory research (CBPR) project. The CBPR is run by the Inuit of Pangnirtung and facilitated by researcher Emily Cowall.

The project uses the Mountain Sanatorium Inuit Patient Photographic Collection (Accession 1995.24), which is located in the Archives of the Hamilton Health Sciences and the Faculty of Health Sciences, McMaster University.

The purpose of the project is to identify and name Panniqtuumiut tubercular patients photographs among those contained in the collection, conduct oral history interviews with former Hamilton sanatorium patients and publish a book that contains the photographs and selected stories.

The goal of this research is to engage the community in a meaningful project that will result in a book that enriches the understanding of the experience of the Panniqtuumiut tuberculosis patients.

Data collection dates: Nov. 2008 to Oct. 2009.

**PROJECT TITLE: Ecology of killer whales in the eastern Canadian Arctic**

**Principle Investigator:** Ferguson, Steven

**Affiliation:**

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**Number in Party:** 2

**License Number:** 0500808N-M

**Research Location:** Igloolik, Hall Beach, Cape Dorset, Kimmirut, Rankin Inlet Arviat and Pangnirtung

**SUMMARY**

The purpose of this project is to collect baseline data on killer whale distribution, abundance and ecology in the Canadian eastern Arctic. In order to collect this data, interviews will be conducted with hunters and elders in various communities around Nunavut.

Collecting observations and traditional knowledge from local people is an important step in gaining a better understanding of killer whales in Nunavut.

Data collection: April 2008 to March 2010.

## **PROJECT TITLE: Natural Hazards in Iqaluit**

**Principle Investigator:** Ford, James

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**Number in Party:** 2

**License Number:** 0102807 N-M

**Research Location:** Iqaluit, Qikiqtaaluk

### **SUMMARY**

Inuit and non-Inuit in Iqaluit spend significant time travelling and hunting on the land. Natural hazards including thin ice, strong winds, storms, rough seas and deep snow occasionally claim lives and exact significant financial cost due to lost and damaged equipment. For example, between January 2000 and October 2006 there were seven deaths associated with land-based activities and numerous accidents in Iqaluit, according to the Office of the Chief Coroner in Nunavut, in Iqaluit Tragedies of this nature are increasingly common, with the young particularly at high risk. Many Inuit and scientists believe the dangers are increasing with climate change and will continue to do so. The work plan being proposed will bring together scientists, Inuit and non-Inuit in Iqaluit to:

- identify and characterize natural hazards affecting local people
- document if and how these hazards are changing
- assess how people are affected by hazards and how they manage them
- find out who is at greatest risk.

The ultimate aim of the research is to identify ways to reduce vulnerability to natural hazards, especially hazards that might worsen with climate change. To this end the project will document the recommendations of local people and those responsible for hazard management, and will identify practical ways in which the community can reduce the danger.

The research will be conducted by a research team composing locally employed Iqaluit residents and university researchers. The local research team will be involved at all stages of the research process from project design to designing a dissemination package for the community. Specific methods to be used include interviews and focus groups with Iqaluit residents, surveys, hazard monitoring throughout the year, and collection of satellite and meteorological station data on climatic and sea ice conditions.

The collection of knowledge from Iqaluit residents will follow standard procedure for working in Nunavut. All participants will be required to sign a bilingual consent form, they will have the option of remaining anonymous, the interviews will be taped and

deposited in the community for safe keeping if the permission is granted, and participants will be paid according to local guidelines.

Reports will be produced for Nunavut institutions and others with an interest in seeing the project findings and recommendations. And as with previous research conducted by Dr Ford (<http://www.arcticnorth.com/JamesPersonalWebsite/>), newspaper and popular magazine articles will be produced, along with academic articles jointly authored with the local team. Data collection: Fall 2007 to fall 2009

## **PROJECT TITLE: Nunavut Social Attitudes Survey**

**Principle Investigator:** Henderson, Ailsa

**Affiliation:**

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416-978-3343

**Number in Party:**

**License Number:** 0500608N-M

**Research Location:** Grise Fiord, Resolute Bay, Arctic Bay, Pond Inlet, Clyde River, Broughton Island, Pangnirtuuq, Iqaluit, Kimmirut

### **SUMMARY**

There is limited information available about social attitudes and behaviours of northern Canadians, and Nunavummiut in particular. Although the 2001 Aboriginal People's Survey conducted by Statistics Canada is a good data resource, it contains only a few questions about social attitudes and beliefs, and none related to political thoughts and behaviours reflective of Nunavummiut. Completing the NSAS is important for Inuit organizations and Nunavummiut to better understand the thoughts and needs of all people living in the territory, and will be a valuable tool for decision making and policy initiatives.

In winter 2008 interviewers will be coming door-to-door to ask questions about life in Nunavut. The interviewers will be Community Liaison Officers (CLOs) from the regional Inuit associations. Not every individual will be asked to participate. The interviewers will be randomly selecting houses from each community, and within each house one individual will be randomly selected to participate in the survey. The survey will contain a number of questions about things that are important to you. This will include things like the relationship between elders and youth, the role of Inuit culture in Nunavut, your views of the government and your hopes for the future.

The survey is a collaborative initiative among three partners: Nunavut Tunngavik Incorporated (NTI) the Qikiqtanit Inuit Association (QIA) and Ailsa Henderson, a survey specialist at the University of Toronto.

## **PROJECT TITLE: Understanding Inuit child beliefs and values regarding child well-being and development**

**Principle Investigator:** Duvette, Simone

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**Number in Party:** 4

**License Number:** 0100508 N-M

**Research Location:** Iqaluit, Arctic Bay, Resolute Bay, Qikiqtarjuaq, Hall Beach, Kimmirut

### **SUMMARY**

The earliest years of child development are important to well-being throughout life. In order for programs to support the well-being of Inuit children and their families, they need to respect and address Inuit values and beliefs regarding child development and well-being. Thus, it is essential to learn about these values and beliefs from Inuit people. This study seeks to understand the Inuit core values and beliefs regarding the early stages of child well-being and development. The knowledge gained will be used to inform services, such as occupational therapy, being provided to Inuit children and their families. This research project has 3 phases. The first phase entails asking the Nunavut Research Institute (NRI), elders and the Culture Language Elders and Youth (CLEY) to identify elders and community representatives in Iqaluit to give us feedback regarding our research plan so that it is best designed to conduct in Inuit communities. In phase two, community group meetings will be held in Iqaluit and two other communities that the occupational therapists involved in the study will be visiting between the fall of 2007 and late spring of 2008. These other communities include Qikiqtarjuaq, Kimmirut, Arctic Bay, Resolute Bay or Hall Beach. The groups will take place in community locations where a group of people can gather, such as a community centre or gym. We will invite any Inuit person 15 years of age or older, who is presently or has had previous experience of parenting or caring for Inuit children. Participation in these groups is voluntary. Each community will have one meeting in English and one in Inuktitut. To help start the conversation, people attending will be asked questions about how people in the Inuit community view child development and well-being, what they see as important to support children, and what makes it difficult to support children. All these meetings will be audio-recorded. Participants will be told the purpose of the study, how information is being collected and organized and will have the freedom to only answer questions if they want. There will be no questionnaires or forms to fill out, and no names will be written down. A general description of people at the meeting, such as age and gender, will be taken. Informants only have to answer questions if they want to. The

researchers will summarize and categorize what was discussed in the meetings, making sure that any names mentioned are removed from the information.

In phase three, two more meetings will be held in Iqaluit, one in English and one in Inuktitut. The researchers will share their results of the research project, get feedback from the community and give people the chance to ask questions.

A summary of the discussions and results will be made available to each participating community, and findings will be presented and published so they are available to health professionals and researchers.

**PROJECT TITLE: Nunavut child welfare policy: exploring social workers' experiences**

**Principle Investigator:** Johnston, Patricia

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**Number in Party:** two team members listed

**License Number:** 0500408-Reg Renewal

**Research Location:** Nunavut Wide

**SUMMARY**

This research aims to explore social workers' experiences working with Nunavut's child welfare policies.

The research questions will be tailored to ensure the research participants provide a general description of what types of situations they have experienced that fall beyond the typical application of child welfare policy, but this does not require community-specific details. There will be a thorough editing out of information that describes unique events or incidents, particular references to locations or location-specific aspects of the participant's work and experiences. This thorough editing will not compromise the quality of the data as the goal of the research is to gain a general understanding of social worker's experiences of how the participants work and practice in Nunavut, and not necessarily what specifically they have done, with whom or in which community. Interviews will be held via telephone in English. Provisions will not be made for social workers to participate in languages other than English. However, the consent form can be provided in Inuktitut.



**PROJECT TITLE: Qanuipitali? What about us, how are we?  
Nunavut Inuit Health Survey.**

**Principle Investigator:** Egeland, Grace

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**Number in Party:**

**License Number:** 0500208R-M

**Research Location:** Nunavut Wide

**SUMMARY**

The Inuit Health Survey was developed to better understand the factors contributing to Inuit health and the Inuit spirit of thriving in the face of changes. Inuit want health information and health research that is Inuit-specific and of practical relevance so that informed decisions can help minimize the negative consequences of the rapid transitions that continue to occur in Arctic communities.

Nunavutmiut have expressed a need for "Timikut Qaujsaqsiatauniq," that is, to have their health looked after and cared for. Also, upon learning of the Nunavik Health Survey named "Qanuippitaa" (how are we), Nunavutmiut partners responded, "Qanuipitali" (what about us, how are we?).

The Inuit health survey involves an adult health survey, child health survey and household survey.

**PROJECT TITLE: Should newborn screening be initiated in Nunavut for mild CPT1 (Carnitine Palmitoyl Transferase - 1) deficiency?**

**Principle Investigator:** Arbour, Laura

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**Number in Party:** 4

**License Number:** 0500308R-M

**Research Location:** Nunavut Wide

**SUMMARY**

CPT1 deficiency is caused by a genetic change (mutation) in the Carnitine Palmitoyl Transferase-1 gene. This gene normally produces a protein that is involved in producing energy from the fats we eat. We all have two copies of this gene (all of our genes come in pairs) as we inherited one copy from our mother and one copy from our father. People who have a mutation in both copies of their CPT1 gene produce a protein that does not work properly. These individuals have trouble producing energy from fats. The mutations do not usually affect people in day to day life, because we get most of the energy we need by breaking down sugars from our food rather than fats. However, when we get sick or are not eating enough food for other reasons our bodies start to break down our fat stores for energy. Thus, individuals (particularly infants) who have CPT1 mutations in both copies of the gene can run into health problems during periods of illness or fasting because they cannot produce enough energy from fats. The result may be low blood sugar (hypoglycemia) and seizures or, in the worst-case scenario, unexpected sudden infant death.

Our goals for 2008 are as follows:

- All bloodspots for the study will be retrieved from the newborn screening labs in Winnipeg, Edmonton, and Quebec City.
- Genetic testing for CPT1 Deficiency will be completed by Dr. Cheryl Greenberg's lab in Winnipeg.
- We will begin analyzing the genetic test results.

**PROJECT TITLE: Negotiating pathways to adulthood: social change and indigenous culture in four circumpolar communities**

**Principle Investigator:** Kral, Michael

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**Number in Party:** 9

**License Number:** 0204808N-M

**Research Location:** North Baffin

**SUMMARY**

Contemporary aspects of rapid social change have dramatically affected the political, cultural and economic systems of circumpolar Indigenous peoples. The study will explore community responses to the social transition through the experiences of Inuit youth who are genealogically linked across the North and share a common language group. Youth in the circumpolar North are experiencing a very high suicide rate, reflecting some of the very negative effects of this change. Rather than learning more about problems, this study will focus on strengths among youth, what is called resilience, as they navigate their way toward adulthood. We need to learn more about how youth and their families are coping positively, so that this information can be shared across Northern communities to help with suicide prevention and youth wellness

**PROJECT TITLE: Intervention for a Chronic Disease Epidemic: Community Health Initiatives and Promotion Strategies for Diabetes Prevention (ICE CHIPS) in Native North Americans, Healthy Foods North in the communities**

**Principle Investigator:** Sharma, Sangita

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**Number in Party:** 7

**License Number:** 0401008N-M

**Research Location:** Kitikmeot

**SUMMARY**

This project will use a community-based and community-driven approach to reduce risk for obesity and chronic disease. This will be done by working in partnership with Inuit communities to develop, implement and evaluate culturally appropriate intervention programs aimed at improving diet, increasing physical activity and providing education concerning healthy lifestyle choices in adults.

Despite the known benefits of behavioural modification in reducing risk of chronic disease, there have been no intervention programs specifically targeting Inuit populations. Based on formative research and using a community participatory process, we will develop a multilevel intervention program that will function at the community, institutional, household and individual levels, and will be implemented in food stores, schools, the local media and health and social services agencies.

Through the multi-institutional partnerships with existing health programs at the community level, Healthy Foods North will use culturally relevant nutrition and health education sessions to improve overall health knowledge which will result in positive changes in diet and physical activity that lead to decreases in risk factors for chronic disease particularly diabetes.

The study will take place in three communities in Nunavut – Cambridge Bay and Taloyoak and one year later in Gjoa Haven. Healthy Foods North aims to:

- develop and implement a multi-institutional diabetes prevention intervention program based on formative research and using a community participatory process.
- work with food retailers to increase the availability of healthier foods and promote them at the point of purchase.

- evaluate the impact of the program between intervention and comparison communities by measuring and comparing pre- to post-intervention change in dietary intake and food related psychosocial factors.
- assess the level of success in implementing the program with a detailed process evaluation.
- disseminate the approach and experience to community, government, not-for-profit groups in preparation for a larger intervention study.

Building on existing work completed for the Healthy Foods North project, this study will utilize Quantitative Food Frequency Questionnaires (QFFQ), Adult Impact Questionnaires (AIQ) and International Physical Activity Questionnaire (IPAQ) which includes height and weight to measure the effectiveness of the Healthy Foods North intervention program. Community members will be trained to administer questionnaires in their communities.

Throughout the development and implementation process, results will be presented to communities and communities will therefore be provided with the opportunity to influence the development of the intervention program.

**PROJECT TITLE: Building a community practice in health promotion and disease prevention for community health nurses working across health sectors**

**Principle Investigator:** Diem, Elizabeth

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**Number in Party:** 4

**License Number:** 0500908N-M

**Research Location:** Nunavut Wide

**SUMMARY**

Three nurse researchers are working together to study a community of practice (CoP) to support a change of practice.

The purpose of the study is to determine the utility of a community of practice in increasing collaboration across health sectors and developing skills in program planning. We invite public health, home health and community health nurses to participate in this study as representatives of your organization.

The benefits of the study for participants will be the opportunity to further develop leadership and planning skills and contribute to the knowledge on effective learning methods for health professionals.

Participation in the study will involve:

- a three hour workshop in February 2008 and 2009 including the completion of a consultation form
- participation in eleven, one and a half hour teleconferences over the 18 months of the study
- two interviews of 30 minutes between February 2008 and June 2009

The consultation forms involve questions on the use and usefulness of procedures and resources from the community of practice for your professional development. The workshops and teleconferences will be conducted in English.

Liz Diem is the principal investigator and an assistant professor at School of Nursing, University of Ottawa; Alwyn Moyer is an adjunct professor at School of Nursing, University of Ottawa; Marjorie MacDonald is an associate professor at the University of Victoria.

The study has been funded by the Community Health Nurses Association of Canada.

**PROJECT TITLE: Qaujivallianiq Inuusirijauvalauqtunik  
suicide follow-back study**

**Principle Investigator:** Hicks, Jack

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**Number in Party:** 3

**License Number:** 0500108R-M

**Research Location:** Nunavut Wide

**SUMMARY**

The Qaujivallianiq inuusirijauvalauqtunik (Learning from lives that have been lived) suicide follow-back study is being conducted by the McGill Group for Suicide Studies (MGSS) based out of the Douglas Hospital Research Centre in Montreal ([www.douglasrecherche.qc.ca/suicide/](http://www.douglasrecherche.qc.ca/suicide/)).

The study seeks to describe in detail the lives of 100 or more Nunavut Inuit who died by suicide in the four-year period 2003 to 2006: their family structure, childhood experiences, school history, work history, relationship history, history of alcohol and drug use, medical history, psychological history and other factors which may have played a role in his/her death.

Two interviews are usually conducted for each person: one with a parent or other family member, and a second with a partner or friend – someone who knew the person well in the last year of his/her life. Families are also asked to consent to a review of their loved one's medical records.

The study is funded until 2010.

The proposal was supported by the Government of Nunavut, the Chief Coroner of Nunavut, the Royal Canadian Mounted Police, the organization which evolved into the Isaksimagit Inuusirmi Katujjiqatigiit, Nunavut Tunngavik Inc., the churches, and more.

## **PROJECT TITLE: Factors affecting food choices of adolescent Inuit youth**

**Principle Investigator:** McClinton, Kathleen

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**Number in Party:** 5

**License Number:** 0300708N-A Registry

**Research Location:** Kivalliq

### **SUMMARY**

The purpose of the research project is to gain a better understanding of what Inuit youth feel are factors that affect their food choices and eating habits. In turn, study findings can be used to better create nutrition and health programs for this population.

With the support of the J.A. Hildes Northern Medical Unit, Tusarvik School and Carol Gregson, Sue Hamilton and Maria Fraser of the Government of Nunavut, the researchers hope to complete a series of food choice awareness activities and a focus group to discuss the participants' opinions and experiences.

The research method includes awareness activities and final focus groups with Grade 7 students at Tusarvik School in Repulse Bay, Nunavut. Five activities designed to raise awareness of these factors will be carried out with the youth to help them think about food choices. With parental consent, sessions will occur inside and outside of school hours. These include:

- Session 1: Meet the facilitators and talk about the Nunavut Food Guide
- Session 2: Field Trip - fishing with an elder
- Session 3: Cooking class and label reading
- Session 4: Movie night and discussion
- Session 5: Grocery store activity and label reading

After completing these activities, audio-taped focus groups of five to 10 students will be held for one hour during school hours. Each participant will be asked to complete a 24-hour food diary. Topics during the focus group searches the types of foods the participants eat, where they eat and with whom they eat. Other questions will include why youth picked certain foods over others.



**PROJECT TITLE: How Inuit and Greenlandic nurses and nursing students experience and negotiate their roles in western education and healthcare settings**

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**Number in Party:** 1

**License Number:** 0100308R-M Amendment

**Research Location:** South Baffin, Kivalliq

**SUMMARY**

The purpose of this anthropological research project is to examine how Canadian and Greenlandic Inuit nursing students and practicing nurses experience and describe the pedagogy, ways of knowing and world views that exists within their places of education and practice. Also, how they negotiate their roles in educational and health systems developed and governed by Danes or Euro-Canadian, according to Danish and Euro-Canadian doctrine and culture, where the teaching language is Danish/English.

**PROJECT TITLE: Access to healthy foods in Nunavut: understanding gendered dynamics among culture, economic and environmental factors**

**Principle Investigator:** Donaldson, Shawn

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**Number in Party:** 7

**License Number:** 0101308R-M

**Research Location:** South Baffin

**SUMMARY**

In Nunavut, many Inuit lacked food once or twice per month during the previous 12 months (Statistics Canada, 1993). Lawn (1995) found that 80 per cent of Inuit women reported running out of money to purchase food between two and four times per month. The objective of this research project is to improve the present understanding of the gender-specific way that economic, environment and cultural factors influence access to the food that people wish to eat in Nunavut. This understanding will be achieved through a comparative analysis of Nunavut communities including Iqaluit, Cape Dorset and Kimmirut.

The results of this research will support health promotion strategies aimed at increasing food that is culturally acceptable. Northern health professionals must have access to the best available data, presented in an understandable and accessible manner, in order to make informed decisions and provide the best public health advice.

**PROJECT TITLE: How long can pregnant women stay in their home communities before giving birth? A project on the use of fetal fibronectin testing at term**

**Principle Investigator:** Kornelsen, Jude

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**Number in Party:** 5

**License Number:** 0101908N-M

**Research Location:** South Baffin

**SUMMARY**

Many pregnant women living in rural and remote communities across Canada have to leave their home communities to give birth due to a lack of local maternity services. This can create negative health outcomes and significant social stress for rural women and their families. This is an issue in Nunavut due to its isolation and extreme physical environment. Although infrastructure for local delivery in every community in Nunavut would help reduce negative health outcomes, it is not feasible due to financial and health service delivery challenges.

A reasonable strategy, however, is to reduce time spent in referral communities by pregnant women, allowing women to stay in their home community for longer. The use of the Fetal Fibronectin Test for pregnant women at term (the end of a normal pregnancy between 37 and 42 weeks) may be the way to do this.

We are interested in learning about whether or not the Fetal Fibronectin Test can be used to predict when, close to her due date, a woman will go into labour. If it can, the test can be used to safely allow women in remote communities to stay at home longer before leaving for Iqaluit or Rankin Inlet to give birth.

This pilot study will be conducted at the Baffin Region.

**PROJECT TITLE: Human health impacts of climate change in the four Inuit regions of Canada (Nunavik, Nunatsiavut and the Inuvialuit Settlement Region)**

**Principle Investigator:** Pardhan, Aliya

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**Number in Party:** 3

**License Number:** 0501208-REG

**Research Location:** Nunavut Wide

**SUMMARY**

The extent of the impact that climate change may have on food-borne infections is uncertain and dependent on multiple interrelated variables as well as the condition of the public health infrastructure. Thus, given the cost and complexities of addressing environmental health in the Arctic, there is a need for cooperation and integration between the North and South.

This study will address several strategies to recognize and monitor climate impacts on food-borne pathogens, build on regional and community systems to prepare for and cope with food-borne infections and determine the best methods to build capacity and inform communities of the importance of the effects of climate on food safety.

**PROJECT TITLE: Smoking and cessation among pregnant women in Nunavut**

**Principle Investigator:** Reid, Robert

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**Number in Party:** 5

**License Number:** 0103508N-M

**Research Location:** South Baffin

**SUMMARY**

Little is known about the experience of pregnant smokers in Nunavut concerning quitting smoking or the kinds of advice they receive from their health care providers. This pilot project will create a better description and explanation of smoking behaviour among pregnant smokers in the Baffin Region of Nunavut. Participation from pregnant women and health care providers in this study will help create relevant smoking cessation strategies.

**PROJECT TITLE: Phase 2: Strengthening the quality of community health nursing practice: a pan-Canadian survey of community health nurses' continuing education needs**

**Principle Investigator:** Valaitis, Ruta

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**License Number:** 0501708-M-Reg

**Research Location:** Nunavut Wide

**SUMMARY**

The purpose of this second phase of the study is to use the tested and refined questionnaire from Phase 1 to identify the current practice activities of community health nurses across Canada to measure their continuing education needs in relation to the Canadian Community Health Nursing Standards of Practice (CCHN Standards). The results from this study will answer the question: What are the current practice activities and continuing education needs of CHNs across Canada ?

**PROJECT TITLE: The Viral Hepatitis Northern Network: A platform for addressing viral hepatitis in the Canadian North**

**Principle Investigator:** Minuk, Gerald Y.

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**Number in Party:** 0

**License Number:** 0502009N-M

**Research Location:** Nunavut wide

**SUMMARY**

Viral hepatitis is a common health problem in the Canadian north. This study consists of three parts.

In part 1, the investigators will develop and distribute computer-based medical software programs that will enable health care providers throughout the North to identify and manage subjects with chronic viral hepatitis. The same programs will serve as the basis for a National Northern Database from which trends in viral hepatitis will be identified and monitored.

Part 2 consists of analyzing the most common form of the hepatitis B virus in the Canadian North and comparing the results with analysis of the virus present in Alaska. This work will help to determine why cirrhosis and liver cancer are more common in hepatitis B infected individuals from Alaska compared to Northern Canada.

In Part 3 the investigators will contact and assess individuals who were found infected with the hepatitis B virus in the late 1970s and early 1980s. They will determine whether their infection is still present and whether it has resulted in any health problems, specifically liver disease, over the intervening 25-30 years. In order to accomplish this, subjects will undergo a complete history and physical examination (including an ultrasound of the liver) and blood testing for signs of advanced liver disease and liver cancer.

Overall, this project will improve the quality of care provided to subjects with chronic hepatitis B and offer important insights into our understandings of this common health problem. The only field work required will be investigator visits to two to three northern communities to perform patient assessments.

Although the project will continue from 2007 to 2011, the field work and training of northern health care providers will be accomplished within one year (April 1, 2008 to April 1, 2009).

## **PROJECT TITLE: Inuit Oral Health Survey (IOHS)**

**Principle Investigator:** Ames, Harry

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**License Number:** 0501608N-M

**Research Location:** Nunavut

### **SUMMARY**

The Inuit Oral Health Survey was developed to collect national level oral health information for the Canadian Inuit population, in order to establish the oral health status of the average Inuk. This will directly be comparable to the oral health status of the average Canadian.

Statistics Canada is currently conducting the Canadian Health Measures Survey (CHMS) to determine the health status of Canadians, however, the people living in the North, First Nations people living on reserves, the Canadian Armed Forces Bases and people living in institutions were excluded from that survey. The CHMS is in the last year of data collection and will wrap up in March 2009. The IOHS is timed to coincide with the CHMS completion.

The methodology was developed by a statistician, based on age groups and the prevalence of the diseases to be measured, who determined that 1,265 individuals divided among six communities would be necessary to provide reliable, nationally representative oral health information. The communities have been selected using a combination of random selection and selection with certainty.

The IOHS will be a one visit survey with two components:

- Interview component of approximately 15 minutes in length
- Clinical dental examination of approximately 10 minutes in length
- Administration time of approximately 20 minutes

The total estimated time commitment to participate in the IOHS is approximately 45 minutes.

This interview process will take place in a facility that the community will judge appropriate to conduct the survey.



# **PROJECT TITLE: Surveillance and cost analysis for respiratory syncytial virus hospital admissions in Arctic communities in Canada**

**Principle Investigator:** Banerji, Anna

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**Number in Party:**

**License Number:** 0501708N-M

**Research Location:** Nunavut wide

## **SUMMARY**

Canadian Inuit children have very high rates of lower respiratory tract infections (lung infections) compared to the South. The purpose of this study is to find out what viruses are causing infants less than one year of age to be admitted to the hospitals and what are the costs associated with these hospital admissions.

We will observe infants admitted to regional hospitals in Nunavut, Nunavik and Northwest Territories, or transferred to children's hospitals in the South over a one-year period.

We are especially interested in a virus called Respiratory Syncytial Virus or RSV. RSV is the major cause of hospital admissions around the world, and there is a vaccine (called palivizumab) that can greatly reduce the number of admissions to hospital caused by RSV. The vaccine is very expensive, and currently is given only to children who are higher risk for admissions for RSV such as premature children or children with underlying heart or lung disease. If we find that RSV is a major cause of hospital admission for in Northern Canada and that these admissions are very expensive, then it might be possible to increase the number of babies who are eligible for this vaccine in the North. This has the potential to greatly reduce the number of admissions to the hospital for RSV.

As this is an observational study where we are just collecting information and testing leftover nasal fluids, there will be no impact on the baby.

We have discussed the study with health representatives the support of Inuit Tapiriit Kanatami (ITK) and Nunavut Tunngavik Incorporated (NTI) and have their support. As in previous studies we will keep the Northern community informed of the progress of the study through the CBC.

**PROJECT TITLE: Assessment of contaminant and dietary nutrient interactions in Inuit Health Survey: Nunavut, Nunatsiavut and Inuvialuit**

**Principle Investigator:** Chan, Laurie

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**Number in Party:**

**License Number:** 0500508 N-M

**Research Location:** Chesterfield Inlet, Coral Harbour, Iqaluit and Cambridge Bay

**SUMMARY**

This application is to request licensure for the collection of already harvested country foods from two to three Nunavut communities for contaminant testing. The collection of these samples will allow for the creation of an up-to-date country food contaminant database for Nunavut. This database will then be utilized to study the relationship between dietary intake, body burden of contaminants and the health status of participants in the Inuit Health Survey.

Approximately 50 frozen samples, of 200 to 500 grams each, including but not limited to landlocked and sea run char, beluga, narwhal, caribou, ringed seal, walrus and other available country foods, will be collected from two to three Nunavut communities, who have available supplies of these foods. The food samples will be purchased at rates negotiated with the community agencies or individuals that supply the samples. The frozen country food samples will be packaged by the sample provider and shipped frozen to the University of Northern British Columbia and tested for persistent organic pollutants and heavy metals in Dr. Laurie Chan's laboratory.

## **PROJECT TITLE: Violence and Violence Prevention among Inuit in Nunavut (East Canadian Arctic)**

**Principle Investigator:** Diesel, Torsten

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**Number in Party:** 1

**License Number:** 0100808N-M

**Research Location:** Iqaluit, Igloolik, Kugluktuk

### **SUMMARY**

The research is part of a dissertation thesis and consists of three crucial steps.

Firstly, this research shall help to give a current topic overview.

Furthermore, by combining both the sampled data and the existing literature, the scientific theory concerning that topic shall be further developed.

Finally, as a third step, new appropriate models of violence prevention and crime reduction may be developed for Nunavut communities.

The research is supposed to be a case study that shall cover as many aspects as possible dealing with violence, its roots and effects on Nunavut communities.

Consequently, many angles will be included in this study. This includes the Nunavut court and justice system, the work of the RCMP, the situation of imprisoned Inuit inside and outside of Nunavut; the work of social workers, issues of victims services, drug, alcohol and suicide prevention strategies; the engagement of political organizations such as Pauktuutit, DIAND, and various departments of the Legislative Assembly of Nunavut; and how the community deals with offenders of violence and their victims.

Furthermore, there shall be an analyses of the question if or how much historical circumstances (like colonization, (re-)settlement in villages) may have contributed to the high degree of violence in Inuit communities.

The last aspect of the research shall include a look at how Inuit traditional knowledge (Inuit Qaujimagatuqangit) may be helpful by working on violence prevention strategies, anger management and healing.