2023 Compendium of Nunavut Research

2023 ᓄᐊᑕᐅᓯᒪᔨᓂᑦ ᓄᓇᕗᑦᑎᑦ ᕿᐅᓴᐳᑎᕕᓂᖅᓂᑦ

Contents

Message from Nunavut's Science Advisor

I am very pleased to present our compendium of research projects licensed under the Nunavut *Scientists Act* in 2023. The Scientists Act applies across the entire territory of Nunavut and requires that anyone conducting research in the disciplines of health, social sciences, and natural/physical sciences first obtain a license from Nunavut Arctic College (NAC).

I encourage you to reach out directly to the research license holders for any of the projects described below to learn more about their projects.

NAC issued 154 research licenses in 2023, which is close to the average number of licenses (158) issued in years prior to the COVID-19 pandemic (Table 1). Of the 154 licenses issued in 2023, 45 were for social sciences research, 83 for physical/natural sciences, and 26 were issued to health research.

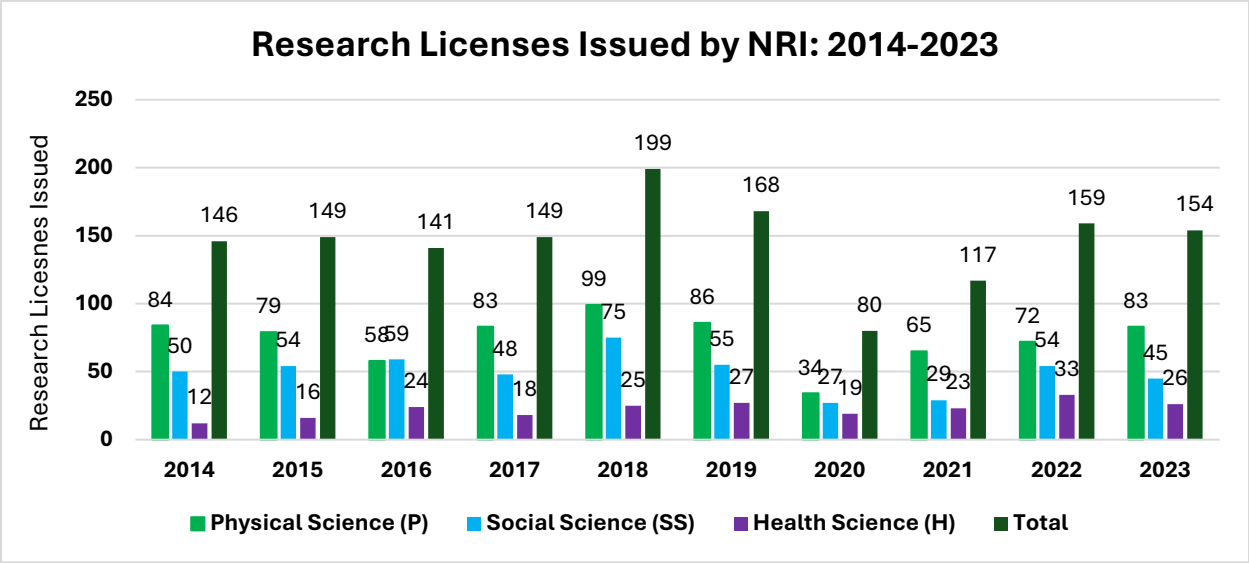


Table 1: Number of research licenses issued by NRI from 2015 to 2023 for physical science, social science and health science research projects.

We are again especially thankful to the many individuals and organizations throughout Nunavut who participate in NRI's research licensing process and who help us ensure high ethical standards for research in our territory. At NAC, we are committed to ensuring that Nunavummiut are kept informed of the research being conducted in our territory and have a say in the types of studies that are undertaken and how research is carried out. Research in Nunavut can only be effective, equitable, and sustainable if Nunavummiut are directly and meaningfully involved throughout all stages of the research process, and if their contributions are respected and acknowledged.

We would like to acknowledge the many research champions in Nunavut who planned and conducted their own research projects in 2023 to address questions important to Nunavummiut. Nunavummiut also generously provided advice, mentorship, and wisdom and shared essential expertise including interpretation, translation, outfitting, guiding, data collection, and project coordination, to ensure the safety and success of resident and visiting researchers throughout the year. Research provides valuable training and employment opportunities for Nunavummiut while also contributing essential knowledge and information to support planning and decision making to improve our lives.

If you would like to learn more about the research projects listed in our 2023 research compendium, or if you have any concerns that a research project may be causing harm or disruption in your community or in the environment, please do not hesitate to contact our office.

For more information about the NRI and our programs and services, please visit our website at www.NRI.nu.ca / www.isirvik.ca.

Jamal Shirley

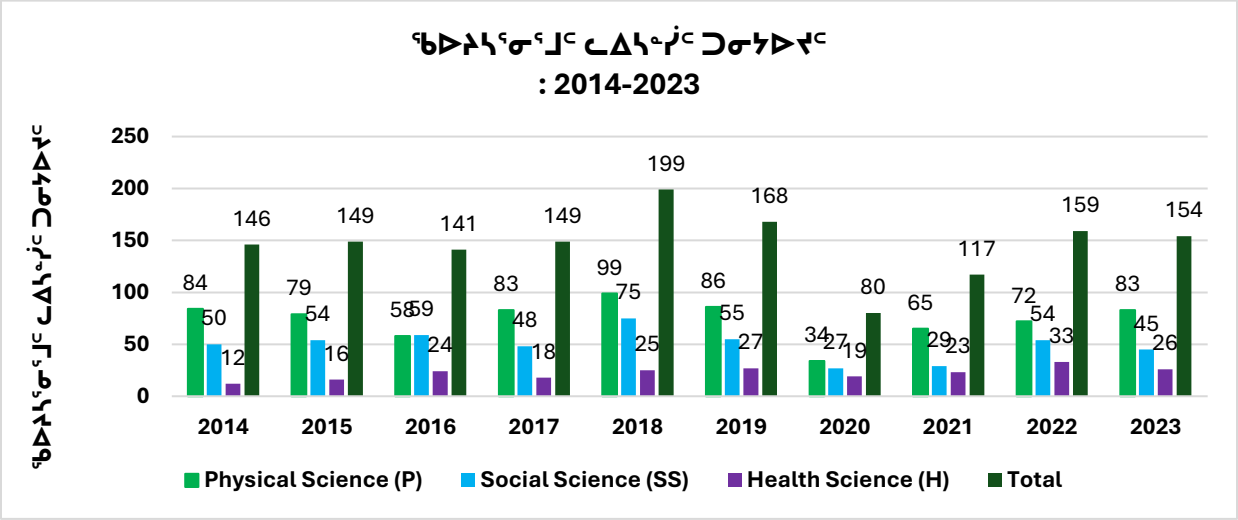
Director of Innovation and Research
Science Advisor for Nunavut
Nunavut Research Institute
Nunavut Arctic College
Jamal.shirley@arcticcollege.ca

ᑐᓴᒐᒃᓴᖅ ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᐅᖃᐅᔾᔨᒋᐊᖅᑎᒥᑦ

ᐊᓕᐊᓇᐃᒍᓱᑦᑎᐊᖅᐳᖓ ᓴᖅᑭᑦᑎᔪᓇᕋᒪ ᑲᑎᖅᓱᖅᓯᒪᔭᑦᑎᓐᓂᒃ ᖃᐅᔨᓴᖅᑕᐅᓯᒪᔪᓂᒃ ᐱᓕᕆᐊᓂᒃ ᓚᐃᓴᓐᓯᖃᖅᑎᑕᐅᔪᓂᒃ ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑎᑦ ᐱᖁᔭᖓ ᒪᓕᒃᖢᒍ 2023–ᒥ. ᖃᐅᔨᓴᖅᑎᓄᑦ ᐱᖁᔭᖅ ᐊᑐᖅᐳᖅ ᓄᓇᕘᓕᒫᒥ ᐊᒻᒪ ᑭᓇᑐᐃᓐᓇᖅ ᖃᐅᔨᓴᖅᑐᖅ ᐃᓂᖅᑎᕆᔪᓂᑦ ᐋᓐᓂᐊᖃᕐᓇᖏᑦᑐᓕᕆᓂᕐᒧᑦ, ᐃᓅᖃᑎᒌᓂᒃ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ, ᐊᒻᒪ ᓄᓇᒥᙵᖅᑐᓂᒃ/ᑎᒥᒃᑯᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒥᒃ ᓯᕗᓪᓕᖅᐹᒥ ᓚᐃᓴᓐᓯᑖᖅᑳᕐᓗᑎᒃ ᓄᓇᕗᒻᒥ ᓯᓚᑦᑐᖅᓴᕐᕕᖕᒥ.

ᑎᓕᐅᖅᐸᔅᓯ ᖃᐅᔨᒋᐊᓯᑲᐅᑎᒋᖃᑦᑕᖁᓪᓗᑎᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᓚᐃᓴᖃᖅᑎᐅᔪᓄᑦ ᓇᓕᐊᖕᓄᑐᐃᓐᓇᖅ ᐱᓕᕆᐊᖑᔪᓄᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔪᓄᑦ ᐊᑖᓂ ᐃᓕᑦᑎᒃᑲᓐᓂᕈᒪᓂᕐᒧᑦ ᐱᓕᕆᐊᕆᔭᖏᑦᑕ ᒥᒃᓵᓄᑦ.

ᓄᓇᕗᒻᒥ ᓯᓚᑦᑐᖅᓴᕐᕕᒃ ᑐᓂᓯᓚᐅᖅᑐᖅ 154-ᓂᒃ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᓚᐃᓴᓐᓯᓂᒃ 2023-ᒥ, ᖃᓂᒡᖢᓂ ᓈᓴᐅᑎᓄᑦ ᐱᔪᓐᓇᐅᑎᓄᑦ (158) ᑐᓐᓂᖅᑯᑕᐅᔪᓄᑦ ᐊᕐᕌᒍᓄᑦ ᓯᕗᓂᐊᒍᑦ ᓄᕙᒡᔪᐊᕐᓇᖅ-19 ᓄᓇᕐᔪᐊᒥ ᖃᓂᒪᒍᑕᐅᕙᓪᓕᐊᔪᖅ (ᑭᑉᐹᓇᒃᓯᓕᖅᓯᒪᔪᖅ 1). 154–ᓂᑦ ᐱᔪᓐᓇᐅᑎᓂᑦ ᑐᓐᓂᖅᑯᑕᐅᓚᐅᖅᑐᓂᑦ 2023–ᒥᑦ, 45–ᖑᔪᑦ ᐃᓄᖕᓄᑦ ᖃᐅᔨᓴᖕᓂᖕᓄᑦ, 83 ᑎᒥᒃᑯᑦ/ᓄᓇᒥᙵᖅᑐᓂᑦ ᖃᐅᔨᓴᖕᓂᖕᓄᑦ, 26–ᓗ ᑐᓂᔭᐅᓪᓗᑎᒃ ᐋᓐᓂᐊᖃᖕᓇᖏᑦᑐᓕᕆᓂᖕᒧᑦ ᖃᐅᔨᓴᖕᓂᖕᓄᑦ.



ᑎᑎᖅᑲᖅ 1: ᖃᑦᓯᐅᓂᖏᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᓚᐃᓴᓐᓯᑦ ᑐᓐᓂᖅᑯᑕᐅᔪᑦ ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔩᒃᑯᓐᓂ 2015–ᒥ 2023–ᒧᑦ ᑎᒥᒃᑯᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ, ᐃᓅᖃᑎᒌᓂᒃ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐊᒻᒪ ᐋᓐᓂᐊᖃᕐᓇᖏᑦᑐᓕᕆᓂᕐᒧᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᓂᕐᒧᑦ ᐱᓕᕆᐊᓄᑦ.

ᖁᔭᓕᒃᑲᓐᓂᖅᐳᒍᑦ ᐊᒥᓱᓄᑦ ᐃᓄᖕᓄᑦ ᑲᑐᔾᔨᖃᑎᒌᓄᓪᓗ ᓄᓇᕘᓕᒫᒥᑦ ᐃᓚᐅᕝᑐᓂᑦ ᓄᓇᕗᒻᒥᑦ ᖃᐅᔨᓴᖅᑐᓕᕆᔩᒃᑯᑦ ᖃᐅᔨᓴᖕᓂᖕᓄᑦ ᐱᔪᓐᓇᐅᑎᑖᖅᑎᑦᑎᓂᖏᓐᓂᑦ ᐃᑲᔪᖅᐸᒃᖢᑎᒡᓗ ᐱᐅᓛᓂᑦ ᐱᐅᓯᖕᓂᑦ ᖃᐅᔨᓴᖕᓂᖕᓄᑦ ᓄᓇᕗᒻᒥᑦ. ᓄᓇᕗᒻᒥ ᓯᓚᑦᑐᖅᓴᕐᕕᖕᒥ, ᐱᓕᕆᐊᒃᓴᖅᐳᒍᑦ

ᖃᐅᔨᒪᔪᒪᓪᓗᑕ ᓄᓇᕗᒥᐅᑦ ᑐᓴᐅᒪᑎᑕᐅᑦᑎᐊᖃᑦᑕᖁᓪᓗᒋᑦ ᖃᐅᔨᓴᖅᑕᐅᔪᓂᒃ ᓄᓇᕘᒥ ᐅᖃᕈᓐᓇᕐᓗᑎᒡᓗ ᖃᓄᐃᑦᑑᓂᖏᑦ ᖃᐅᔨᓴᖅᑕᐅᖃᑦᑕᖅᓯᒪᔪᑦ ᖃᓄᕐᓗ ᖃᐅᔨᓴᖅᑕᐅᓲᖑᖕᒪᖔᑕ. ᖃᐅᔨᓴᕐᓂᖅ ᓄᓇᕗᒻᒥ ᐋᑐᑎᖃᕈᓐᓇᖅᑐᖅ ᕿᓯᐊᓂ, ᐊᔾᔨᒌᑎᑦᓯᓂᕐᒥᑦ, ᑲᔪᓯᓂᖃᑦᓯᐊᖅᑐᒥᓪᓗ ᓄᓇᕗᒻᒥᐅᑦ ᑐᕋᐃᓐᓇᖅᑐᒥᑦ ᑐᑭᖃᑦᓯᐊᖅᑐᒥᓪᓗ ᐃᓚᒋᔭᐅᑉᐸᑕ ᐃᓗᓐᓇᖏᓐᓂᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᐱᓕᕆᕙᓪᓕᐊᓂᖏᓐᓄᑦ, ᐃᑲᔪᕐᓂᖏᓪᓗ ᐃᒃᐱᒋᔭᐅᑦᓯᐊᖅᐸᑕ ᐃᓕᑕᕆᔭᐅᓗᑎᓪᓗ.

ᐃᓕᓴᕆᔪᒪᕙᕗᑦ ᐊᒥᓱᑦ ᖃᐅᔨᓴᖅᑏᑦ ᐱᓕᕆᒃᑳᓗᐃᑦ ᓄᓇᕗᒻᒥᑦ ᐱᕙᕇᔭᓚᐅᖅᑐᑦ ᐱᓕᕆᐊᖃᓚᐅᖅᑐᓪᓗ ᓇᖕᒥᓂᖅ ᖃᐅᔨᓴᖕᓂᖕᒧᑦ ᐱᓕᕆᐊᓂᑦ 2023–ᒥᑦ ᐊᐱᖅᑯᑎᓂᑦ ᐱᒻᒪᕆᐅᔪᓂᑦ ᓄᓇᕗᒻᒥᐅᓄᑦ. ᓄᓇᕗᒻᒥᐅᑦᑕᐅᖅ ᐱᑎᑦᑎᑦᑎᐊᓚᐅᕆᕗᑦ ᐅᖃᐅᔾᔪᐃᓂᕐᒥᒃ, ᐊᔪᕈᓐᓃᖅᓴᖅᑎᑦᑎᓂᕐᒥᒃ, ᓯᓚᑐᓂᕐᒥᓪᓗ ᐊᒥᖅᑳᖃᑎᖃᖅᖢᑎᓪᓗ ᐱᒻᒪᕆᐊᓗᖕᓂᒃ ᐊᔪᙱᓂᖃᓪᓚᕆᖕᓂᕐᒥᒃ ᐃᓚᒋᔭᐅᓪᓗᓂ ᑐᑭᓕᐅᕆᓂᖅ, ᑐᑭᓕᐅᕆᓂᖅ, ᐊᐅᓪᓚᕈᔾᔨᓂᖅ, ᑕᓯᐅᖅᓯᓂᖅ, ᑎᑎᕋᖅᓯᒪᔪᓂᒃ ᑲᑎᖅᓱᐃᓂᖅ, ᐱᓕᕆᐊᒃᓴᓂᓪᓗ ᐊᐅᓚᑦᑎᕙᖕᓂᖅ, ᓇᓗᙱᑦᑎᐊᕈᒪᓂᕐᒧᑦ ᖁᐊᖅᓵᕐᓇᖅᑐᒦᙱᒃᑲᓗᐊᕐᒪᖔᑕ ᑲᔪᓯᓂᖃᑦᑎᐊᕋᓗᐊᕐᒪᖔᑕᓗ ᓄᓇᓕᖕᒥᐅᑦ ᑎᑭᑉᐸᒃᑐᓪᓗ ᖃᐅᔨᓴᖅᑏᑦ ᐊᕐᕌᒍᓕᒫᒥ. ᖃᐅᔨᓴᕐᓂᖅ ᐊᑐᐃᓐᓇᐅᑎᑦᓯᔪᖅ ᐱᒻᒪᕆᐅᔪᒥᑦ ᐃᓕᓐᓂᐊᑎᑦᓯᓂᕐᒥᑦ ᐃᖅᑲᓇᐃᔮᓂᓪᓗ ᐱᕕᖃᕐᓂᐅᔪᓂᑦ ᓄᓇᕗᒻᒥᐅᓄᑦ ᐃᑲᔪᕐᓂᕐᒥᓪᓗ ᐱᔭᕆᐊᖅᑐᓂᑦ ᖃᐅᔨᒪᓂᕐᒥᑦ ᑐᓴᖅᑕᐅᑎᑦᓯᔾᔪᑎᓂᓪᓗ ᐃᑲᔪᖅᑐᕐᓂᕐᒥᑦ ᐸᕐᓇᓂᕐᒥᑦ ᐃᓱᒪᓕᐅᕆᓂᕐᒥᓪᓗ ᐱᐅᓯᕚᓪᓕᑎᑦᓯᓂᕐᒥᑦ ᐃᓅᓯᑦᑎᓐᓂᑦ.

ᐃᓕᑦᑎᒃᑲᓐᓂᕈᒪᒍᕕᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᒃᓴᓂᑦ ᑎᑎᕋᖅᓯᒪᔪᓂᑦ 2023–ᒥᑦ ᖃᐅᔨᓴᕈᑎᑦᑎᓐᓂᑦ, ᐃᓱᒫᓘᑎᖃᕈᕕᓪᓘᓃᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᑦ ᐱᓕᕆᐊᖅ ᐋᓐᓂᕈᑕᐅᑐᐃᓐᓇᓂᐊᖅᑲᖕᒪᑦ ᐅᓚᕕᑕᐅᑐᐃᓐᓇᓂᐊᖅᑲᖕᒪᖔᓪᓘᓃᑦ ᓄᓇᔅᓯᓐᓂ ᐊᕙᑎᑦᑎᓐᓂᓪᓘᓃᑦ, ᑎᑎᕋᕝᕕᑦᑎᓐᓄᑦ ᖃᐅᔨᒋᐊᖅᑕᐃᓕᓂᐊᙱᓚᑎᑦ.

ᑐᑭᓯᒋᐊᒃᑲᓐᓂᕈᒪᒍᔅᓯ ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔩᒃᑯᓐᓂ ᐊᒻᒪ ᐱᓕᕆᐊᒃᓯᑦᑎᓐᓂ ᐱᔅᑎᑦᑐᐅᑎᑦᑎᓐᓂᓪᓗ, ᐃᑭᐊᖅᑭᕕᑦᑎᓐᓄᐊᕈᓐᓇᖅᐳᓯ ᐅᕗᖓ www. NRI.nu.ca / www.isirvik.ca.

ᔮᒫᓪ ᓰᓕ

ᑐᑭᒧᐊᒃᑎᑦᑎᔨ ᓄᑖᙳᖅᐸᓪᓕᐊᔪᓄᑦ ᖃᐅᔨᓴᕐᓂᕐᒧᓪᓗ
ᖃᐅᔨᓴᖅᑎ ᓄᓇᕗᒻᒧᑦ
ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔩᒃᑯᑦ
ᓄᓇᕗᒻᒥ ᓯᓚᑦᑐᖅᓴᕐᕕᒃ
Jamal.shirley@arcticcollege.ca

Health Research

Burden Ethnographic Modeling Evaluation Qaujilisaaqtuq (BEMEQ) RSV: The Nunavut and Nunavik burden study

License Number: 01 011 23R-M

Principal Investigator: Goldfarb, David

Affiliation: Medicine, Faculty of Pathology and Laboratory Medicine
University of British Columbia
Vancouver, BC, Canada
david.goldfarb@cw.bc.ca

Number in Party: 4

Research Locations: Iqaluit

SUMMARY

A very high proportion of babies in Nunavut are admitted to hospitals with respiratory infections in their first year of life. Respiratory Syncytial Virus (RSV) is a common cause of these admissions, but many are caused by other viruses. Babies admitted to hospital with these respiratory infections often require transport out of territory and intensive care. However, current estimates of this burden of illness are limited in the type and scope of the information collected. Accurate understanding of the causes and burden of respiratory tract infection in babies in Nunavut is needed to better address this health challenge, which is considered high priority by those involved in child health in the territory. We propose to identify the respiratory infection admissions at all hospitals serving Nunavummiut children under one year of age from 2010-2020.

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

License Number: 05 015 23R-M

Principal Investigator: Arbour, Laura

Affiliation: Department of Medical Genetics
Victoria General Hospital
Victoria, BC, Canada
larbour@uvic.ca

Number in Party: 5

Research Locations:

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.

Understanding the role of the CPT1A P479L variant in infant and child health outcomes in Nunavut

License Number: 05 014 23R-M

Principal Investigator: Arbour, Laura

Affiliation: UBC Department of Medical Genetics
University of Victoria
Victoria, BC, Canada
larbour@uvic.ca

Number in Party: 4

Research Locations:

SUMMARY

Study Questions: Do infants and young children with the P479L variant have an increased risk for poor health outcomes such as low blood sugar, infection, and infant mortality? Are some children with the variant more at risk than others?

Study Details: This study was a retrospective anonymized chart review of all infants born to Nunavut residents between January 1, 2010 and December 31, 2013. Prenatal, labour and delivery, and well child admissions to hospital centres were documented, immunization and lab records were reviewed and cross referenced with CPTA1 P479L genetic status (tested on stored newborn bloodspots).

Niqivut Silalu Asijjipalliajuq (NSAP): Our food and climate change

License Number: 01 018 23R-M-Amended

Principal Investigator: Caughey, Amy

Affiliation: Department of Health, Government of Nunavut, University of Alberta, University of Guelph
Iqaluit, Nunavut, Canada
acaughey@gov.nu.ca

Number in Party: 15

Research Locations: Kinngait, Clyde River, Pangnirtung, Iqaluit, Rankin Inlet, Resolute Bay

SUMMARY

The project aims to share stories of country food preparation methods and country food use for health and medicine. The program will prioritize Inuit knowledge to support food security and food sovereignty in a changing climate. This project plans to invite community knowledge holders to share stories of using all parts of the animal, country food as medicine, and preparing country food safely. These findings will be shared through audio, visual, and written ways within Nunavut to support country food as a foundational food for Nunavummiut.

Building on Strengths in Naujaat - A Youth Initiative

License Number: 03 014 23R-M

Principal Investigator: Anang, Polina

Affiliation: Department of Psychiatry
University of Manitoba
Winnipeg, Manitoba, Canada
panang@hsc.mb.ca

Number in Party: 7

Research Locations: Naujaat

SUMMARY

Youth in the Inuit community of Naujaat, Nunavut, will be consulted in the design and implementation of a mental health-promoting intervention. A Participatory Action Research (PAR) approach will be applied to engage young people of Naujaat in formulating visions for their future. This approach emphasizes collaboration in inquiry and investigation within a specific community with the goal of making systemic change in order to resolve specific problems. Outside researchers engage community members and facilitate the translation of this engagement into a self-determined path to creating new opportunities. Acknowledging tensions created by past and present western post-colonial research encounters, we are drawing on Indigenous frameworks to create respectful relationships that support local agency.

Improving Families' and Service Providers' Experiences at the Aakuluk Children's Clinic: An Evaluation Study

License Number: 01 013 23R-M

Principal Investigator: Jetty, Radha

Affiliation: Children's Hospital of Eastern Ontario
Ottawa, Ontario, Canada
rjetty@cheo.on.ca

Number in Party: 10

Research Locations: Iqaluit/Ottawa

SUMMARY

Our research team is conducting this study to understand what is working well in the Aakuluk clinic and what changes can be made to improve the services and care provided to families. We will conduct interviews with parents to ask them about their experience and where they might have challenges in the clinic. We are hoping to hear the stories of many Nunavut families, to learn about how the Aakuluk clinic can serve Nunavut families in the best possible way. We will also interview different care providers at the Aakuluk clinic to better understand their experience and identify opportunities for improvement.

Foodbook 2.0: Canadian food consumption study to support foodborne disease surveillance and outbreak response

License Number: 05 005 23R-M

Principal Investigator: Tooby, Megan

Affiliation: Outbreak Management Division
Public Health Agency of Canada
Guelph, Ontario, Canada
megan.tooby2@canada.ca

Number in Party: 9

Research Locations: All Nunavut Communities

SUMMARY

The primary objective of the Foodbook 2.0 study is to develop population-level estimates of risk factors for enteric illnesses. These risk factors include food exposures (e.g., fruits, vegetables, meats, herbs, nuts and seeds, eggs, dairy products), water exposures, and animal exposures. In addition, data will be collected about consumer food safety practices and food purchasing habits. These data will be used to inform outbreak response, public health surveillance and epidemiological studies. The study will also collect information on the incidence of acute gastroenteritis in the general population and their health care-seeking behaviours.

Finally, willing participants may opt to be included in the Enteric Control Bank (ECB). The ECB is a contact list of individuals who are willing to participate in future enteric disease outbreak investigations and Canadian enteric disease and public health research conducted by the Centre for Foodborne, Environmental and Zoonotic Infectious Diseases (CFEZID).

Not Deciding Alone: Field-testing a knowledge translation peer-support shared decision-making strategy with Inuit making health decisions and who travel to receive healthcare outside of Nunavut

License Number: 01 003 23R-M

Principal Investigator: Jull, Janet

Affiliation: Queens University
Ottawa, Ontario, Canada
janet.jull@queensu.ca

Number in Party: 4

Research Locations: All Qikiqtani Communities

SUMMARY

Shared decision-making engages people with their healthcare providers to make health decisions and is important for person-centred care. There is an urgent need to ensure Inuit can access and receive appropriate healthcare. An Inuit shared decision-making toolkit, "Not Deciding Alone", has been developed with urban-based Inuit peer support workers and consists of training and tools to enhance Inuit participation in health decisions with healthcare providers. We want to know how to support learning about Not Deciding Alone, and if it is useful in Nunavut.

Evaluating the impact of cannabis legalization in the Canadian territories

License Number: 05 012 23R-M

Principal Investigator: Hobin, Erin

Affiliation: Public Health Ontario
Toronto, Ontario, Canada
erin.hobin@oahppcanada.ca

Number in Party: 4

Research Locations: All Nunavut Communities

SUMMARY

This research will provide decision makers in northern Canada with ongoing feedback in the early stages of cannabis legalization, and evidence on the longer-term public health effects. The study has five objectives:

1. To examine prevalence and patterns of non-medical cannabis use, including use among young adults, age of initiation, and levels of dependence;
2. To examine the cannabis retail environment, including illicit versus legal sources, and the products used;
3. To assess changes in problematic use and risk behaviours, including driving after cannabis use, use in high-risk occupational settings, and co-use with other substances;
4. To examine changes in perceptions of risk and social norms; and,
5. To evaluate the effectiveness of specific regulatory policies, including marketing and education campaigns, and use in public and workplaces.

Inuit Youth and Families During COVID-19: A Strengths-Based Focus on Resources Needed to Optimize Post-Pandemic Resilience

License Number: 05 008 23R-M

Principal Investigator: Bohr, Yvonne

Affiliation: Faculty of Health
York University
Toronto, Ontario, Canada
bohry@yorku.ca

Number in Party: 11

Research Locations: All Communities

SUMMARY

The implications of COVID-19 for Inuit youth in Nunavut are not well understood. This study is designed to support Inuit youth in documenting the impact of the pandemic on their and their families' mental wellness, identifying the personal and community assets that were mobilized, and articulating the culturally specific resources that they believe could best optimize post-pandemic community resilience.

Inuit Youth Develop a Virtual Qaqqig: Using Technology and Cultural Knowledge to Support Resilience Outside the (Digital) Box

License Number: 05 007 23R-M

Principal Investigator: Bohr, Yvonne

Affiliation: Faculty of Health
York University
Toronto, Ontario, Canada
bohry@yorku.ca

Number in Party: 11

Research Locations: All Communities

SUMMARY

The purpose of the Virtual Qaggiq study is to combine cultural practices that have historically supported resilience with specific interventions for addressing stress, anxiety, and depression in Inuit youth. Together with their communities, participating youth will define their own mental wellness and develop a range of innovative, accessible, culturally informed virtual e-tools to enhance their mental health and build on their existing strengths and strategies for resilience.

Suicide Prevention Strategies in Inuit Nunangat: The Role of Inuit-Led Cultural Programming

License Number: 02 007 23R-M

Principal Investigator: Carley, Chloë

Affiliation: Carleton University
Ottawa, Ontario, Canada
Chloeehamilton@cmail.Carleton.ca

Number in Party: 2

Research Locations: Arctic Bay, Rankin Inlet

SUMMARY

In partnership with the Arctic Rose Foundation, this research aims to build an understanding of the role of Inuit/Indigenous-led youth cultural programs in improving mental health. The information collected during this research project will contribute to our understanding of the complexity of suicide and its causes, track any successes in program delivery, and provide feedback through the analysis of research to aid in improving or further developing the Arctic Rose Foundation's programs, as well as similar Indigenous-led cultural programs.

Supporting Government of Nunavut health staff following critical incidents in the workplace

License Number: 04 006 23N-A

Principal Investigator: Clarke, Robyn

Affiliation: School of Leadership Studies
Royal Roads University
Cambridge Bay, Nunavut, Canada
rclarke@gov.nu.ca

Number in Party: 6

Research Locations: Cambridge Bay, Kugluktuk, Taloyoak, Kugaaruk, Gjoa Haven

SUMMARY

The purpose of my research project is to identify how the Government of Nunavut (GN) can support the wellness needs of Health staff following critical or traumatic incidents in the health centres. The research objective is to identify what is working well now and what can be done to provide supports for the staff as identified by them through a collaborative dialogue approach utilizing focus groups and one-on-one interviews.

Advancing accessibility using Inuit Qaujimajatuqangit

License Number: 05 017 23R-M

Principal Investigator: Diakite, Nicole

Affiliation: Nunavummi Disabilities Makinnasuaqtiit Society
Iqaluit, Nunavut, Canada
nicole.diakite@nuability.ca

Number in Party: 9

Research Locations: All Communities

SUMMARY

The research project, Advancing Accessibility using Inuit Qaujimajatuqangit, is led by Nicole Diakite, the Executive Director of Nunavummi Disabilities Makinnasuaqtiit Society. This research study is seeking to explore the following questions: how is disability defined by Nunavummiut? What is the prevalence of different disabilities in Nunavut? What is needed to increase accessibility for Nunavummiut with disabilities? The research study aims to explore the unique accessibility needs that exist within the Northern context. Canada has accessibility standards in place, but these guidelines do not consider the additional perspectives, experiences, and barriers that occur within this cultural context.

Tele-optometry: Comparison of the remote visual examination with the gold standard in-person examination for remote communities

License Number: 01 001 23Registry

Principal Investigator: Hanssens, Jean-Marie

Affiliation: School of Optometry
Universite de Montreal
Montreal, QC, Canada
jean-marie.hanssens@umontreal.ca

Number in Party: 4

Research Locations: Iqaluit

SUMMARY

This project will determine if tele-optometry can be safely implemented in the context of providing healthcare to Indigenous populations living in the Canadian North. In order to collect more data on tele-optometry, 100 participants will undergo two eye exams: one performed by a remote optometrist using the Essilor/Axis tele-optometry platform and the other performed by an in-office optometrist, which is the gold standard for optometry in Canada. The concordance between the two eye exams will be tested for each participant and the remote optometrist's confidence in the results will also be compared to that of the onsite optometrist. Further analysis of subjective refraction results will also reveal whether optical prescriptions obtained remotely are as accurate as those obtained in person.

Ilagiingniq: Inuit Perinatal Health & Wellness Project in Arviat, Nunavut

License Number: 03 022 23N-M

Principal Investigator: Johnston, Patricia

Affiliation: Faculty of Social Work
University of Calgary
Edmonton, Alberta, Canada
patricia.johnston1@ucalgary.ca

Number in Party: 9

Research Locations: Arviat

SUMMARY

The objectives of this study are to:

1. Develop a holistic, family-based framework upon which a pilot program for supporting perinatal wellness will be built (with the potential for scaling up);
2. Implement a strengths-based pilot program (one year in duration) to improve Inuit perinatal wellness from a gendered perspective; and
3. Share findings and outcomes in a way that benefits the community and supports other ongoing related initiatives.

Aajiiqatigiinniq: A field-test of shared decision-making education for healthcare providers who work with Inuit

License Number: 02 045 23N-M

Principal Investigator: Jull, Janet

Affiliation: School of Rehabilitation Therapy
Queen's University
Kingston, Ontario, Canada
janet.jull@queensu.ca

Number in Party: 2

Research Locations: All Qikiqtani Communities

SUMMARY

There is an urgent need to improve opportunities for Inuit to use healthcare. Shared decision-making supports client participation in health decisions and leads to improved health outcomes. Community partners and members in our project, Not Deciding Alone, have told our team that healthcare providers need education and support for shared decision making. The research will be with people who are in Ottawa, Ontario, and in the Qikiqtani region of Nunavut. A researcher (Janet Jull) who is based in Ottawa, will conduct interviews that are expected to be 40-60 minutes in length between September 2023 and May 2024. Our team of service providers and researchers from Ontario and Nunavut will work together and will be guided by Inuit societal values. We will use interviews to understand what healthcare providers need to learn to support Inuit clients in health decisions.

Nunavut Nursing Sustainability

License Number: 04 019 23N-A

Principal Investigator: MacEachern, Juanita

Affiliation: Royal Roads University
Cambridge Bay, NU, Canada
juanita.1maceachern@royalroads.ca

Number in Party: 2

Research Locations: Cambridge Bay, Kugluktuk, Kugaaruk, Taloyoak, Gjoa Haven

SUMMARY

The purpose of this study is to research and understand long-term staffing solutions for the retention of nurses in all communities in the Kitikmeot region of Nunavut. I plan to provide recommendations to the Director of Health in the Kitikmeot that will support nursing sustainability. These recommendations will provide further clarity on retention strategies and options the organization can apply to approach nursing retention.

Adapting an Indigenous Child Health Measure for Inuit Children and Youth in Iqaluit

License Number: 01 034 23R-M

Principal Investigator: Madsen, Victoria

Affiliation: Inuusivut and Mental Health and Addictions
Department of Health
Iqaluit, Nunavut, Canada
vmadsen@gov.nu.ca

Number in Party: 6

Research Locations: Iqaluit

SUMMARY

We aim to adapt the urban Inuit version of the ACHWM (or Qanuippit) for use with Inuit children and youth in Iqaluit. This study is a joint initiative between the Government of Nunavut Department of Health and the Children's Hospital of Eastern Ontario Research Institute. The overall questions that guide the study are: 1. Is Qanuippit relevant to Inuit Children and Youth in Iqaluit? 2. What revisions are necessary to improve the fit for Inuit Youth and Children in Iqaluit? 3. Are any items missing that are essential to meet the needs of Children and Youth in Iqaluit?

Implementation Research: Community Intervention to Prevent Repeated Suicide Attempts in Nunavut Canada: Phase 2

License Number: 01 032 23N-M

Principal Investigator: Mishara, Brian

Affiliation: Centre for Research and Intervention on Suicide, Ethical Issues and End-of-Life Practices
Université du Québec à Montréal
Montreal, Quebec, Canada
mishara.brian@uqam.ca

Number in Party: 8

Research Locations: Iqaluit

SUMMARY

This application is to proceed with Phase 2 of a project approved by NRI before COVID began. We stopped the project three years ago because of COVID and are now ready to proceed with its implementation. The main objective is to help prevent people who have attempted suicide from attempting again. We want to see if a previously validated approach to prevent repeated suicide attempts can be adapted and successfully implemented in Nunavut. This is a Nunavut adaptation of the SUPRE-MISS follow-up protocol for persons who have been seen in hospital for a suicide attempt developed by the World Health Organization. It is proven to have reduced repeated suicide attempts. We want to see if we can use a similar approach in Nunavut to decrease repeat suicide attempts and deaths by suicide.

The Impact of Culture and Prejudice on the Recognition of Facial Expression of Emotions/Pain and on Perceptual Processing

License Number: 01 020 23R-M

Principal Investigator: Samson, Danielle

Affiliation: Universite du Quebec en Outaouais
Gatineau, QC, Canada
samd07@uqo.ca

Number in Party: 4

Research Locations: Iqaluit, Kimmirut, Cambridge Bay, Rankin Inlet

SUMMARY

The main objective of the project is to address cross-cultural relations and a potential gap in care by testing an aspect of the recognition of facial emotional expressions (pain and other emotions such as anger and joy) that could partly explain the perceptual underestimation biases in evaluations of pain. Our goal is to promote better assessment of pain intensity and other emotions to facilitate social interactions, so that observers adopt appropriate behavior in each situation. This research aims at improving cross-cultural relations amongst health care providers themselves, as well as between health care providers and patients.

Atopic Dermatitis in Northern Canada's Inuit Population

License Number: 02 024 23N-A

Principal Investigator: Seale, Emily

Affiliation: Faculty of Medicine
University of Ottawa
Ottawa, Ontario, Canada
eseal070@uottawa.ca

Number in Party: 4

Research Locations: Iqaluit, Kimmirut, Kinngait, Pangnirtung, Sanirajak, Qikiqtarjuaq, Igloolik, Clyde River, Arctic Bay, Pond Inlet, Grise Fiord, Resolute Bay

SUMMARY

The purpose of this study is to gain a better understanding of patients' experiences with eczema and the impact on their quality of life, social and psychological wellbeing, the barriers to care, and to establish whether there is a role for tele dermatology or other educational information by collecting patients' experiences. This information will be collected through a survey. The results of this study will be shared with physicians and the public as a publicly available published research article and as poster or oral presentations at a conference and the results will be used to help develop a tele dermatology program or educational initiatives that target the most important areas/needs identified by patients.

Welcoming the "Sacred Spirit" (Child): Connecting Indigenous and Western Ways of Knowing to Inform Future Policy Partnerships to Optimize Maternal Child Health Service Delivery Initiatives in Remote Canadian Regions

License Number: 01 008 22R-M-Amended

Principal Investigator: Thiessen, Kellie

Affiliation: College of Nursing
University of Manitoba
Winnipeg, Manitoba, Canada
kellie.thiessen@umanitoba.ca

Number in Party: 3

Research Locations: Iqaluit, Rankin Inlet

SUMMARY

This research study is being conducted to study how maternity care programs and policies effect life-giving processes for individuals and communities in Northern Canadian regions. Firstly, we will study which maternity service delivery models are the best at supporting people to maintain health and wellness in their community, and which ones are cost-efficient and culturally appropriate. In order to study this, we are conducting interviews and focus groups (sharing circles) with people involved in maternity care. We will also describe the effects of maternity programs and policies on people's health and experiences, and the accessibility of maternity programs. We will focus on Indigenous people's physical, social, emotional, and spiritual well-being. Secondly, we will identify how healthcare providers define maternal health and wellness, and compare this to how Indigenous communities define maternal health and wellness.

Cultural Safety in Maternal and Child Healthcare for Inuit

License Number: 03 019 23N-A

Principal Investigator: Vang, Zoua

Affiliation: Department of Sociology
McGill University
Montreal, Quebec, Canada
zoua.vang@mcgill.ca

Number in Party: 4

Research Locations: Arviat

SUMMARY

This study aims to address anti-Indigenous racism that is experienced by Arviarmiut women in healthcare spaces. Our goal is to co-create cultural safety strategies that focus on empowering Inuit patients, increase local capacity in Inuit-led perinatal health services, and improve overall maternal and child healthcare access and quality.

We employ a combination of participatory research and Aajiqatigiingniq principles to design a community-based participatory research project that reflects the cultural values and worldviews of Inuit. In order to better the experiences of pregnant and postpartum Arviarmiut women when seeking healthcare services for themselves and their family, our data collection methods include: focus groups, surveys, follow-up interviews, and fuzzy cognitive mapping. The data collection activities will occur at the Aqqiumavvik Society facilities (ASF) in Arviat.

Ask Us: Youth Voices to Improve Contraception Access

License Number: 01 031 23N-M

Principal Investigator: Williams, Aleyah

Affiliation: Centre for Health Evaluation and Outcomes Sciences
University of British Columbia
Vancouver, British Columbia, Canada
aleyah.williams@ubc.ca

Number in Party: 18

Research Locations: Cambridge Bay, Iqaluit

SUMMARY

There is limited published evidence about youth access to contraception in Canada; what does exist suggests that youth experience a variety of barriers to timely, effective, and affordable contraceptive options. Youth living in northern regions of the country, such as Nunavut, may face exacerbated barriers related to a lesser availability of services in the region as well as unique cultural safety needs. The Ask Us project aims to fill gaps in literature and health services that create barriers for youth with diverse lived experience from accessing good contraception care. Our research centres around the leading question: What are the contraception access experiences, beliefs, attitudes, knowledge, and needs of youth in Canada, from the perspectives of youth and youth service providers?

Modelling the impact and cost-effectiveness of novel approaches for TB control in Nunavut

License Number: 05 010 23R-M

Principal Investigator: Zwerling, Alice

Affiliation: School of Epidemiology and Public Health
University of Ottawa
Ottawa, Ontario, Canada
azwerlin@uottawa.ca

Number in Party:

Research Locations: Ottawa

SUMMARY

The goal of this work is to model the potential epidemiological impact and cost-effectiveness of novel tuberculosis (TB) screening and active case-finding programs in Nunavut. Decisions around scaling up programs for latent TB infection (LTBI) screening and active case-finding (ACF) must be based on a rational cost/benefit analysis reflecting local experience and global guidance. This study will provide the necessary Nunavut-specific evidence for local decision-makers to identify under what implementation settings LTBI screening and ACF programs may be scaled up in a cost-effective fashion, achieving the most health impact while spending the least amount of money

Natural/Physical Sciences

Arctic Carbonate Rocks, Ellesmere Island, Nunavut

License Number: 02 023 23R-M

Principal Investigator: Beauchamp, Benoit

Affiliation: Department of Geoscience
University of Calgary
Calgary, Alberta, Canada
bbeaucha@ucalgary.ca

Number in Party: 3

Research Locations: Blue Mountains, Ellesmere Island

SUMMARY

We will investigate different rock units of carbonate rocks that have recorded important interplay between large forces some 300 million years ago in the area now occupied by the Canadian Arctic. We will focus on an area of the Sverdrup Basin centered on Ellesmere Island, where this phenomenon is well displayed in outcrops of ancient reefs that responded to these forces.

Developing new technologies to access and investigate the hypersaline, subzero Devon Island Subglacial Lake System, a unique Mars and icy moon analogue

License Number: 02 031 23R-M

Principal Investigator: Whyte, Lyle

Affiliation: Dept. of Natural Resource Sciences
McGill University
St. Anne de Bellevue, Quebec, Canada
whyte@nrs.mcgill.ca

Number in Party: 5

Research Locations: Devon Ice Cap, Devon Island

SUMMARY

Recent evidence obtained through orbital radar sounding indicates the presence of subglacial lakes ~800 meters below Mars' southern ice cap. Such subsurface saline water bodies may support active microbial ecosystems. Considerable evidence has also been found in the last decade to support the existence of large cold, salty oceans under the ice covers of the icy moons, Europa, and Enceladus. The main goal of this project is to characterize a unique terrestrial analogue environment of these icy worlds: the recently discovered hypersaline lake complex under the Devon Ice Cap of Nunavut, Canada. The Devon Island subglacial lakes consist of 3 lakes lying beneath 560-740m of ice; modelling indicates temperatures of -12ºC and high salinities of ~ 15% salt. Due to their hypersaline nature, the Devon subglacial lake complex is a particularly tantalizing analogue for brine bodies inferred to exist on Europa, Enceladus, and Mars, and make it a compelling site to address fundamental questions about how life persists at terrestrial extremes of darkness, temperature, salinity, and pressure. Our 3-year CSA FAST application is the first step to access the Devon Island lakes directly by testing and optimizing an ice drilling system, collecting ice samples overlying the lakes for microbiological analyses and optimizing 2 biosignature detection prototypes, and to further constrain geomorphological parameters of the system.

Partnership for Understanding Environmental Change Impacts on Water Security and Water Quality in Iqaluit, NU

License Number: 01 019 23R-M

Principal Investigator: Richardson, Murray

Affiliation: Department of Geography
Carleton University
Ottawa, Ontario, Canada
murrayrichardson@cunet.carleton.ca

Number in Party: 8

Research Locations: Iqaluit and surrounding area

SUMMARY

This Polar Knowledge Canada funded research aims to provide the City of Iqaluit with the understanding of how water quantity and quality are responding to changing climate and permafrost dynamics in current or future source water regions, including the Niaqungut (Apex) and Lake Geraldine watersheds. The knowledge gained through this research will support water resource management and planning in anticipation of continued population growth and rapid climate change in this region. There is a critical absence of baseline information on major hydrologic pathways, water quality dynamics, and permafrost conditions and dynamics (degradation) affecting freshwater resources in Iqaluit. Such information is essential for effective medium to long-term water supply forecasting and management for Nunavut's capital city.

SuperDARN Radar Sites

License Number: 02 035 23R-M

Principal Investigator: McWilliams, Kathryn

Affiliation: Department of Physics & Engineering Physics
University of Saskatchewan
Saskatoon, SK, Canada
rls757@mail.usask.ca

Number in Party: 4

Research Locations: Clyde River, Rankin Inlet

SUMMARY

Super Dual Auroral Radar Network (SuperDARN) Canada is a network of high-frequency (HF) radars located throughout the northern hemisphere. The purpose of the SuperDARN is to study plasma in the near-Earth space system, its interaction with the Earth's atmosphere and geospace environment, its effects on the terrestrial "hard" infrastructure (e.g. communications, energy, transportation, etc…), and its role in the Sun-Earth system. SuperDARN convection/voltage maps are essential for studies of the impact of space weather on Earth. Space weather researchers rely on SuperDARN data for putting their localized observations in context. SuperDARN radars are extremely reliable, being easily accessible for repairs and upgrades. This reputation has made SuperDARN a favourite tool for space weather scientists.

Transmit Array Antenna Farm

License Number: 02 003 23R-M

Principal Investigator: Mihajlovic, Davor

Affiliation: Ottawa Research Centre
Defense Research and Development Canada
Ottawa, Ontario, Canada
davor.mihajlovic@forces.gc.ca

Number in Party: 2

Research Locations: Eureka

SUMMARY

This project will conduct measurements of the polar ionosphere. In order to do this, this project will build a 16 by 16 transmit antenna array comprised of 30-foot monopoles (Phase 3 – footprint is 120 m by 120 m). This will expand on the 8 by 8 antenna array that is already at the Eureka site (Phase 2 – footprint is 60 m by 60 m). Other than surveying the locations to set ground plates for holding the antennas, no ground preparation is required. Each antenna will be held vertically using straps connected to four 75 cm long guy anchors that are driven into the soil.

Lake Ice in the Canadian High Arctic

License Number: 02 002 23R-M

Principal Investigator: Brown, Laura

Affiliation: Department of Geography
University of Toronto Mississauga
Mississauga, Ontario, Canada
lc.brown@utoronto.ca

Number in Party: 5

Research Locations: Resolute, Polar Bear Pass

SUMMARY

Lake ice is an important part of the cryosphere and recent projections suggest a pan-arctic reduction by the end of the century in ice duration (ranging from 20 to >100 days) and thickness (ranging from 30 cm to > 1 m). Since the majority of ground-based ice observations in Canada ceased by the 1990s, recent changes in ice regimes have been primarily noted through modelling and remote sensing. Observation data, essential for validating both remote sensing and modelling research, is currently inadequate though some volunteer monitoring efforts have emerged since the decline of Canada's monitoring network and have been utilized for ice research. As changes are noted in ice regimes, we need to fully understand the implications and response in terms of water and energy balance and their effects on other areas of research (e.g. limnology, transportation). To achieve this, in situ data of lake ice in Canada is being collected across a latitudinal gradient (temperate, sub-Arctic, High Arctic). The field data will be used to improve the effects of snow cover on modelled ice thickness, as well as to isolate how the duration of the modelled ice break-up season is affected by the shape/size of the lake. Resolute and Polar Bear Pass provide ideal locations for the High Arctic portion of this study and data collection is underway.

Green Edge-Legacy Project

License Number: 02 008 23R-M

Principal Investigator: Babin, Marcel

Affiliation: Laval University
Quebec City, QC, Canada
marcel.babin@takuvik.ulaval.ca

Number in Party: 9

Research Locations: Qikiqtarjuaq

SUMMARY

This research aims to improve our knowledge about the dynamics of the phytoplankton spring bloom and its role in the Arctic Ocean of the future, including its impact on human populations. The culture, health and economic capacity of northern communities are closely linked to marine resources supported by the phytoplankton spring bloom (PSB). This project aims to improve our understanding of the processes that control the Arctic PSB as it expands northward and to determine its fate in the food web. As follow-up activities, we will go back to Qikiqtarjuaq to test updated equipment to measure light through the snow and sea ice and under the ice pack. Water samples will also be collected to measure nutrients and phytoplankton in the water column before, during and after the PSB.

Community-Driven Sea Ice and Ocean Research in the Contrasting Coastal Domains of Hudson Bay

License Number: 03 017 23R-M

Principal Investigator: Kuzyk, Zou Zou

Affiliation: University of Manitoba
Winnipeg, MB, Canada
zouzou.kuzyk@umanitoba.ca

Number in Party: 5

Research Locations: Marine environment between the communities of Chesterfield Inlet and Naujaat

SUMMARY

The objective of this project is to expand the highly successful community-driven research in eastern Hudson Bay to northwest Hudson Bay (Chesterfield Inlet and Naujaat), with a goal towards establishing comparison sites in eastern and western Hudson Bay. This comparison will support bay-wide monitoring objectives, promote inter-jurisdictional information exchange, and help test scientific hypotheses about contrasting oceanography and marine life between northwest and southeast Hudson Bay.

CANDAC-The Canadian Network for the Detection of Atmospheric Change

License Number: 02 017 23R-M

Principal Investigator: Drummond, James

Affiliation: Department of Physics & Atmospheric Science
Dalhousie University
Halifax, NS, Canada
james.drummond@dal.ca

Number in Party: 3

Research Locations: Eureka

SUMMARY

The Canadian Network for the Detection of Atmospheric Change continues to operate the Polar Environment Atmospheric Research Laboratory. Aside from the impact of the COVID-19 pandemic, our operations remain targeted at approximately 330 manned operator days per year and will continue to remotely operate as many instruments as possible. We continue to publish research papers in peer-reviewed journals and to make numerous presentations at national and international conferences and workshops and are members of multiple-nation Arctic research coordination efforts such as the Sustaining Arctic Observing Network and the International Arctic Systems of Observing the Atmosphere. CANDAC continues to offer resources for teachers available on our website as well as continuing to participate in teacher training conferences and science outreach events for students.

Permafrost Dynamics in Response to Climate Change on Victoria Island, Nunavut

License Number: 04 014 23R-M

Principal Investigator: Coulombe, Stephanie

Affiliation: Polar Knowledge Canada
Cambridge Bay, NU, Canada
stephanie.coulombe@polar.gc.ca

Number in Party: 19

Research Locations: Victoria Island

SUMMARY

In this project, we are looking at how permafrost landscapes in western Nunavut are changing in a context of climate change. This project has three specific objectives: (1) characterize the permafrost conditions; (2) monitor landscape changes and (3) assess the impacts of permafrost disturbances on aquatic ecosystems.

Ice Dynamics and Cryospheric Changes in Northern Canada

License Number: 02 004 23R-M

Principal Investigator: Copland, Luke

Affiliation: Department of Geography, Environment & Geomatics
University of Ottawa
Ottawa, Ontario, Canada
luke.copland@uottawa.ca

Number in Party: 14

Research Locations: Glaciers and ice caps of the Queen Elizabeth Islands

SUMMARY

This research program will continue work on the current characteristics and stability of the northern Ellesmere Island ice shelves and adjacent multiyear landfast sea ice. Fieldwork started at this location in 2008 and will continue for the foreseeable future. Almost all of the ice shelves in this region have experienced dramatic break-ups over the last several years, so this project aims to improve understanding of the causes of these events and the fate of the remaining ice shelves and related ice features.

Weather, Ice, Ocean, and Freshwater Measurements to Understand Greenhouse Gas Cycles and Aquatic Ecosystems

License Number: 04 007 23R-M

Principal Investigator: Else, Brent

Affiliation: Department of Geology
University of Calgary
Calgary, Alberta, Canada
belse@ucalgary.ca

Number in Party: 13

Research Locations: Cambridge Bay surrounding area

SUMMARY

A second objective of this project is to find ways to make our science useful to northern communities. We have been able to do this in the past. For example, we measure greenhouse gases at weather stations, and so we have worked with the HTO to set up weather stations at important locations. Data from those weather stations can be accessed online and used when traveling. We think our measurements of dissolved gases in freshwater and seawater might also be interesting to the community, because there may be important links to wildlife.

Arctic Freshwater Biodiversity in Cambridge Bay

License Number: 04 008 23R-M

Principal Investigator: Rautio, Milla

Affiliation: Laboratory of Aquatic Sciences
Université du Québec à Chicoutimi
Chicoutimi, Québec, Canada
milla.rautio@uqac.ca

Number in Party: 11

Research Locations: Cambridge Bay, Greiner Lake

SUMMARY

This project brings together Canadian laboratories in ecology and paleolimnology, along with northern collaborators, to develop an improved, integrated understanding of Inuit Nunangat lakes on Southern Victoria Island and their responses to climate change. Specifically, we will undertake detailed studies on processes that affect the transfer of energy, resources, and contaminants in Arctic Lake food webs. We measure nutrients, algae, and mercury, and make the link to higher trophic levels by way of studies on zooplankton and macroinvertebrate communities. We combine contemporary and paleolimnological approaches to estimate how much the lakes have changed and what is the future direction of change in different ecosystem variables. A key novelty in our research is that we extend the usual summer research focus into winter to address questions of winter resources and habitat conditions in the warming climate.

Ancient DNA in Lake Sediment

License Number: 02 040 23R-M

Principal Investigator: Miller, Gifford

Affiliation: INSTAAR & Geological Sciences
University of Colorado Boulder
Boulder, Colorado, USA
gmiller@colorado.edu

Number in Party: 7

Research Locations: Areas around Clyde River, Iqaluit, Qikiqtarjuaq and Pond Inlet

SUMMARY

This fieldwork builds on a project initiated in 2018, titled Ancient DNA in lake sediment. The primary goal of this research is to analyze ancient DNA contained in lake sediment in order to reconstruct past vegetation changes on Baffin Island over the last ~10,000 years and assess how plant communities responded to past climate change. Ancient DNA in lake sediment is a powerful new tool in paleoecology that seems to work particularly well in the Canadian Arctic because of the cold temperatures that provide favorable conditions for preservation and because DNA provides a comprehensive picture of flora growing within a lake catchment. Our goal this year is to complete the fieldwork required for the project. This requires us to sample a lake on Padloping Island south of Qikiqtarjuaq first, with the assistance of two bear guards we will hire from Qikiqtarjuaq.

Kitikmeot Sea Science Study

License Number: 04 002 23R-M

Principal Investigator: Williams, Bill

Affiliation: Institute of Ocean Sciences
Department of Fisheries and Oceans
Sidney, BC, Canada
Bill.Williams@dfo-mpo.gc.ca

Number in Party: 12

Research Locations: Coastal and marine areas around King William Island and Gjoa Haven

SUMMARY

Building on our previous years of work in this region, our research seeks to understand the general oceanography of the Kitikmeot Sea and study the effects on the marine ecosystem of both river inflow and tidally driven mixing in narrow and shallow straits. Our observations include oceanographic measurements to establish a baseline of physical, biological, and geochemical information across the region and includes focused sampling in straits and near river mouths where we anticipate enhanced biological production.

Cambridge Bay Ocean Observatory

License Number: 04 017 23R-M

Principal Investigator: Moran, Kate

Affiliation: Ocean Networks Canada
University of Victoria
Victoria, British Columbia, Canada
kmoran@uvic.ca

Number in Party: 7

Research Locations: Cambridge Bay

SUMMARY

Underwater sensors and a camera provide continuous information on seawater properties, ice thickness and marine organism activity. Data from the underwater instruments and the weather station are transmitted by a WiFi link to a server in the Nunavut Government building, where data are transmitted via satellite to our ONC data centre at the University of Victoria and made available to all. We also plan to collect seawater and mud samples in the vicinity of the platform, to calibrate our instruments. We would also need to collect specimens of seafloor life (invertebrates) around the platform, so that our experts can identify the species we are observing.

Chidliak Project Environmental Baseline Program

License Number: 01 009 23R-M

Principal Investigator: Willis, David

Affiliation: Peregrine Diamonds Ltd.
Calgary, Alberta, Canada
david.willis@debeersgroup.com

Number in Party: 6

Research Locations: Hall Peninsula

SUMMARY

The Chidliak Project is located on the Hall Peninsula of Baffin Island in the Qikiqtani Region of Nunavut. The centre of the project is 120 kilometers northeast of Iqaluit and 200 kilometers south of the Hamlet of Pangnirtung. Peregrine Diamonds Ltd. commenced the project in 2008 and in the 10 subsequent years a total of 71 kimberlite volcanos ("kimberlites") were discovered. Kimberlites are known to contain diamonds. Environmental baseline studies are required for the preparation of an environmental impact statement. In 2023 environmental baseline work will continue on the Chidliak Project.

Arctic Coastal and Drifting Ice Processes and Dynamics

License Number: 02 025 23R-M

Principal Investigator: Mueller, Derek

Affiliation: Department of Geography & Environmental Studies
Carleton University
Ottawa, Ontario, Canada
derek.mueller@cunet.carleton.ca

Number in Party: 10

Research Locations: Queen Elizabeth Islands, Baffin Island

SUMMARY

Changes in Arctic climate have profound implications for the break-up of coastal ice. In the recent past, there have been large calving events of ice shelves and glaciers that have produced many vast ice islands and icebergs that drift through Nunavut waters. Our research is focused on understanding how various types of coastal ice interact with the atmosphere above, the ocean below as well as meltwater and glacier ice from the adjacent land. In particular, we are interested in how both thick ice (ice tongues, ice shelves) and thin ice (landfast sea ice and lake ice) are melting and breaking-up in a changing climate. In addition, we study how large ice masses (icebergs and ice islands) that break away from the coast, drift and deteriorate.

Cape Bounty Arctic Hydrological Observatory (CBAWO) Melville Island, Nunavut

License Number: 02 028 23R-M

Principal Investigator: Lafreniere, Melissa

Affiliation: Department of Geography
Queens University
Kingston, Ontario, Canada
melissa.lafreniere@queensu.ca

Number in Party: 15

Research Locations: Cape Bounty

SUMMARY

Our work is intended to determine how climate change affects the land and water. Our work involves obtaining water and sediment samples from the streams and lakes at Cape Bounty and determining how vegetation changes with climate. We also study permafrost and the effects it has on water and land. This study is the longest record of changes in rivers and lakes in Nunavut and will be useful for understanding how water and the land will respond to climate and permafrost change, and the potential effects on wildlife and vegetation. We have been doing this work since 2003 and hope to continue in the future.

Barrow Strait Ocean Observation Program

License Number: 02 044 23R-M

Principal Investigator: Richards, Clark

Affiliation: Department of Fisheries & Oceans
Bedford Institute of Oceanography
Dartmouth, NS, Canada
clark.richards@dfo-mpo.gc.ca

Number in Party: 3

Research Locations: Barrow Strait

SUMMARY

The goal of this project is to provide a real time ice and ocean data delivery system that includes an ice onset and break-up prediction capability in Barrow Strait at the eastern end of the Northwest Passage. It will provide an ability to monitor and predict the evolution of the ice cover for the improved safety and efficiency of Arctic marine operations, make ice cover data and ocean measurements available to hunters and other interested parties, provide data for ice/ocean forecast models, and provide a technology that is applicable to other strategic Arctic locations.

Science and Indigenous partnerships in action: Mobilizing Indigenous knowledge and building capacity to participate in research during the implementation of an ecosystem approach to fisheries resource assessments

License Number: 01 024 23R-M

Principal Investigator: Martin, Patrick

Affiliation: Qikiqtaaluk Corporation
Iqaluit, NU, Canada
pmartin@qcorp.ca

Number in Party: 4

Research Locations: Kinngait, Sanirajak, Igloolik, Sanikiluaq

SUMMARY

During this study, the RV Ludy Pudluk, a newly constructed purpose-built fisheries research vessel owned by the Qikiqtaaluk Corporation, and community supplied support vessels from the four study communities of Kinngait, Sanikiluaq, Sanirajak, and Igloolik will work in concert in waters adjacent to each community to determine the fishery potential of marine resources. Sharing of knowledge and capacity building among Indigenous community members and researchers from the Fisheries and Marine Institute of Memorial University will occur during data collection associated with ecosystem-based resource assessments and development of a variety of fishing gears designed to meet the needs of Nunavut small boat harvesters.

Impacts of Melting Tidewater Glaciers on Marine Biogeochemical Cycles

License Number: 02 029 23R-M

Principal Investigator: Bhatia, Maya

Affiliation: Department of Earth & Atmospheric Sciences
University of Alberta
Edmonton, Alberta, Canada
mbhatia@ualberta.ca

Number in Party: 7

Research Locations: Devon Island, Ellesmere Island

SUMMARY

In this project, we propose to characterize the impact of glacial meltwater on a regionally productive marine ecosystem in the CAA that is central to the health of Indigenous communities. Our proposed field work program (2019-2024) will be completed in Jones Sound, a region surrounded by glaciers and home to the Inuit hamlet of Grise Fiord. Our work will be centered on Svedrup Glacier (Devon Island), Belcher Glacier (Devon Island), Sydkap Glacier and Jakeman Glacier (S. Ellesmere Island) and their downstream marine environment (Jones Sound, Nunavut). This project will be conducted on skidoo or by small boat to collect measurements of marine parameters (temperature, salinity, pressure, turbidity, dissolved oxygen, available sunlight, chlorophyll) and samples of glacial meltwater and seawater for chemical (e.g. nutrients, contaminants) and biological analyses. Environmental impacts are negligible, and all equipment installed will be removed at the conclusion of the project. The termini of tidewater glaciers in Jones Sound are productive waters, serving as hunting grounds for the hamlet. This project will be done in collaboration with the residents of the Hamlet of Grise Fiord, who we will consult and work with on an annual basis. Local boats and guides will be hired for this project and local students from Umimmak School will also be engaged in scientific outreach activities and hired as summer students.

Amundsen Science annual expedition onboard the Canadian research icebreaker CCGS Amundsen

License Number: 05 018 23R-M

Principal Investigator: Merzouk, Anissa

Affiliation: Amundsen Science
Quebec City, Quebec, Canada
anissa.merzouk@as.ulaval.ca

Number in Party: 46

Research Locations: Baffin Bay, Frobisher Bay, Lancaster Sound, NW Passage, Hudson Bay & Strait

SUMMARY

The objective of the annual scientific expedition of the Canadian research icebreaker CCGS Amundsen is to assess the changes occurring in the marine ecosystems of the Canadian Arctic in response to climate change. Since 2003, the Amundsen has sailed the Canadian Arctic in support of over 45 Canadian and international research programs and dozens of multidisciplinary science teams. The annual expeditions generally comprise of the following research components: 1) atmosphere and ocean climate; 2) sea ice and glaciers; 3) marine resources and environment; and 4) geology and bathymetry. The planned activities include both ship-based sampling of the marine environment and land-based sampling of rivers, shores and glaciers, and encompass all of Nunavut's marine areas, including Baffin Bay, Lancaster Sound, the Northwest Passage (including the Tallurutiup Imanga National Marine Conservation Area), Foxe Basin, Hudson Bay and Hudson Strait.

Microbial investigations of perennial springs, permafrost and ground ice in the high Arctic

License Number: 02 030 23R-M

Principal Investigator: Whyte, Lyle

Affiliation: Dept. of Natural Resource Sciences
McGill University
St. Anne de Bellevue, Quebec, Canada
whyte@nrs.mcgill.ca

Number in Party: 6

Research Locations: Axel Heiberg

SUMMARY

The microbial biodiversity in unique habitats including cold perennial salt springs and permafrost environments have not been fully explored, and molecular traits that enable microorganisms to survive and thrive in the Canadian High Arctic are unknown. My research program examines microbial biodiversity and ecology in unique polar habitats and aims to expand our knowledge of polar microbial communities.

Monitoring Seasonal Environmental Change in Rivers of the Kitikmeot Region

License Number: 04 016 23R-M

Principal Investigator: Brown, Kristina

Affiliation: Department of Fisheries and Oceans Canada
Institute of Ocean Sciences
Sidney, BC, Canada
kristina.anne.brown@gmail.com

Number in Party: 4

Research Locations: Tree River, Hood River, Burnside River, Western River

SUMMARY

Rivers directly link the land and the ocean by delivering freshwater, heat, nutrients, and carbon to the coastal system. Observing river systems is therefore key to understanding the impacts of terrestrial environmental change on Arctic ocean health. This project aims to enhance our capacity to directly observe the physical and biogeochemical characteristics of rivers across the Kitikmeot Region by developing in-situ observational systems ("river moorings") to carry out these measurements continuously. These river moorings will provide the first time series observations of river physical and biogeochemical parameters in the Kitikmeot Region, observations that are crucial to understanding and predicting the impacts of terrestrial change on the Kitikmeot marine system.

Defence Research and Development Canada (DRDC) Gascoyne Inlet #1

License Number: 02 018 23R-M

Principal Investigator: Hooper, David

Affiliation: Defense Research & Development Canada
Dartmouth, NS, Canada
david.hooper@forces.ga.ca

Number in Party: 8

Research Locations: Gascoyne Inlet, Various locations in Baffin Bay and Lancaster Sound, Arctic Bay, Qikiqtarjuaq, Pond Inlet

SUMMARY

The research objective for this experiment is the collection of directional underwater ambient noise over a one-year time. This dataset will provide background information to support future plans for underwater navigation and communications for gliders, provide data for use in RCN marine mammal mitigation strategies, and provide input to ambient noise databases and verification and validation for ambient noise modelling.

Defence Research and Development Canada (DRDC) Gascoyne Inlet #2

License Number: 02 019 23R-M

Principal Investigator: MacNeil, Erin

Affiliation: Defense Research & Development Canada
Dartmouth, NS, Canada
erin.macneil@forces.ca

Number in Party: 12

Research Locations: Gascoyne Inlet, Devon Island

SUMMARY

The DRDC Northern Watch Technology Demonstration Project (TDP) – Canadian Arctic Underwater Sentinel Experimentation (CAUSE) will demonstrate an Arctic maritime surveillance capability to the Department of National Defence and other concerned federal departments. Commencing in 2008, this multi-year undertaking is based at Gascoyne Inlet. The surveillance demonstration system is unmanned, semi-autonomous, and remotely controlled through a satellite system connection from one of the DRDC centres. Defence Construction Canada is providing the following annual report, which summarizes the activities in 2019 and outlines the planned activities for 2020. This information is being submitted on behalf of Defence Research and Development Canada (DRDC Atlantic).

Defence Research and Development Canada (DRDC) Gascoyne Inlet #3

License Number: 02 034 23R-M

Principal Investigator: MacNeil, Erin

Affiliation: Defense Research & Development Canada
Dartmouth, NS, Canada
erin.macneil@forces.ca

Number in Party: 8

Research Locations: Gascoyne Inlet, Various locations in Baffin Bay and Lancaster Sound, Arctic Bay, Qikiqtarjuaq, Pond Inlet

SUMMARY

The research project will involve four scientific activities and experiments:

1. Arctic Acoustic Recorders (AAR) trial. The AAR trial will deploy underwater acoustic recorders in three locations in Lancaster Sound and Baffin Bay (near Arctic Bay, Pond Inlet, and Qikiqtarjuaq.)
2. Maritime Autonomous and Remotely Piloted Systems (MARPS). This trial will be undertaken in shallow water near Pond Inlet, NU.
3. Towed Reelable Active/Passive Sonar (TRAPS) and Arctic Behavioural Response (ABR). Whales will be tagged with suction cup tags that can be programmed to pop off after 8 to 24 hours. A controlled exposure experiment will be performed, and behaviour of the whales will be observed.
4. Long-Range Underwater Acoustic Communication Experiment (LRAT). This experiment will take place with the participation of the HMCS GOOSE BAY (GBY) vessel that will deploy both transmitter and recorders. The trial hopes to extend the range of communications underwater. An acoustic projector will transmit at low power for 1 hour every 2-3 hours for about 18 to 20 hours per day for about 2.5 days. Sound will be recorded on stationary recorders.

Churchill Marine Observatory - Environmental Observing (CMO-EO) System

License Number: 03 010 23R-M

Principal Investigator: Mundy, CJ

Affiliation: University of Manitoba
Winnipeg, MB, Canada
cj.mundy@umanitoba.ca

Number in Party: 9

Research Locations: Shorelines of West Hudson Bay, Hudson Strait & Foxe Basin

SUMMARY

The main objective of the research is to add to existing knowledge of the Hudson Bay marine system, supported by field-based oceanographic research. The field plans for this year are: 1) Undergo sea ice and open water research within the Belcher Islands, based out of the community of Sanikiluaq and in collaboration with the Arctic Eider Society; 2) retrieve the two CMO-EO moorings along the shipping lanes in Hudson Bay, turn over the two Belcher Island moorings and carry out distributed sampling around the Islands on the RV William Kennedy; 3) retrieve small James Bay moorings via community boat from Eastmain or Wemindji; and 4) carry out a 2-day field oceanography course. As data becomes available it will be housed at U of Manitoba within the Canadian Watershed Information Network as well as on the SIKU platform.

Coastal hazard assessment in Kugluktuk and Grise Fiord (Aujuittuq), Nunavut

License Number: 04 015 23R-M

Principal Investigator: Coulombe, Stephanie

Affiliation: Polar Knowledge Canada
Cambridge Bay, NU, Canada
stephanie.coulombe@polar.gc.ca

Number in Party: 11

Research Locations: Kugluktuk, Grise Fiord

SUMMARY

The overall purpose of this project is to study and measure coastal erosion in Kugluktuk and Grise Fiord. This community-based research project has two objectives: 1) to gain new knowledge of the coastal erosion processes and permafrost degradation and 2) to provide learning and training opportunities, with an emphasis on youth. The implementation of this project will take a two-year phase, scheduled between 2021 and 2023, in order to have enough time to conduct research that will lead to a successful outcome as coastal erosion involves various causes of environmental activities related to climate change.

Atmospheric Sciences and Terrestrial Ecosystem Studies in Victoria Island

License Number: 04 010 23R-M

Principal Investigator: Jung, Ji Young

Affiliation: Arctic Research Center
Korea Polar Research Institute
Incheon, Yeongsu-gu, Republic of Korea
jyjung@kopri.re.kr

Number in Party: 14

Research Locations: Cambridge Bay, Greiner Lake

SUMMARY

Climate change will affect our lives not only in the Arctic region but also around the globe. The Arctic ecosystem is particularly sensitive to climate change. Moreover, greenhouse gases released from the enormous reservoir of soil carbon in permafrost into the atmosphere could have a profound effect on the global climate. Thus, we aim to understand 1) how much greenhouse gas is exchanged between the atmosphere and permafrost and 2) how terrestrial ecosystem structure and processes change under the future climate scenarios.

Community – Based Monitoring of Sea Ice and Eider Duck Populations Around the Belcher Islands, Nunavut

License Number: 01 002 23R-M

Principal Investigator: Heath, Joel

Affiliation: Arctic Eider Society
Sanikiluaq, NU, Canada
heath.joel@gmail.com

Number in Party: 2

Research Locations: Belcher Islands

SUMMARY

This project has been providing significant capacity building for community-driven research in Sanikiluaq addressing major long outstanding gaps related to changing wildlife populations, oceanography and sea ice. The program has helped provide the first baseline data demonstrating the large-scale impact of changing oceanography in the region providing a basis for future research and monitoring. Additionally, the project is contributing to development of a novel approach to meaningfully incorporating Inuit knowledge and observations through the SIKU platform and mobile app. The program contributes to development of long-term research and monitoring for the region that will have a lasting positive impact as the community moves forward with further development of these programs and establishing long term protection and conservation measures for the region.

Instability of permafrost landscapes from climate change and the hydrological implications to Arctic watersheds

License Number: 02 005 23R-M

Principal Investigator: Campbell-Heaton, Kethra

Affiliation: Department of Geography, Environment and Geomatics
University of Ottawa
Ottawa, Ontario, Canada
kcamp109@uottawa.ca

Number in Party: 4

Research Locations: Eureka

SUMMARY

This research project seeks to understand the effects of climate change-induced permafrost thaw in the high Arctic. Permafrost thaw has already shown to have significant impacts to northern communities, specifically relating to water resources, flooding and terrain instability. For example, residents of four Viliui Sakha communities have noticed an increase in standing surface water and flooding, forcing them to move their dwellings to higher ground. Therefore, it is more important than ever to investigate these stressors on permafrost thaw and northern water resources, especially in the High arctic. In this region, water resources are largely neglected from climate research because of their latitude and assumed 'stable' nature. Yet, modern-day permafrost studies show that Canadian high Arctic permafrost is just as vulnerable to a changing climate. For that reason, this project seeks to understand what happens to high Arctic watersheds when the ice-rich surficial permafrost begins thawing.

Impacts of Air Pollution on Terrestrial and Aquatic Ecosystems on Southern Baffin Island

License Number: 01 015 23R-M

Principal Investigator: Aherne, Julian

Affiliation: School of Environment
Trent University
Peterborough, Ontario, Canada
jaherne@trentu.ca

Number in Party: 3

Research Locations: Outskirts of Iqaluit and Kimmirut

SUMMARY

The impact of atmospheric emissions on air quality in the Arctic is expected to increase as new and expanded economic developments trigger growth in marine traffic and resource extraction. Emissions of sulphur dioxide and nitrogen oxides can contribute to ecosystem acidification and eutrophication in regions characterized by acid sensitive geology and nutrient poor soils, such as Baffin Island. This project will use a critical loads approach to quantify the assimilative capacity of arctic terrestrial and aquatic ecosystems to pollutant deposition. Lake water in the Iqaluit regions (20 study catchments) will be sampled for chemical analysis. In addition, moss and soil samples will be collected at the study sites, and vegetation surveys will be carried out to assess terrestrial ecosystem impacts.

Rapid Assessment of Tundra Plant Diversity Using Small Bits of Genetic Code Found in Soil

License Number: 04 023 23N-A

Principal Investigator: Assmann, Jakob

Affiliation: Department of Evolutionary Biology and Environmental Studies
University of Zurich
Zurich, Switzerland
jakob.assman@uzh.ch

Number in Party: 2

Research Locations: Cambridge Bay

SUMMARY

The protocol uses small fragments of the plants' genetic code found in soil that can tell us which plants are found close by. To test the protocol, we will collect soil samples from three 300 m x 300 m tundra locations around Cambridge Bay and extract the plants' genetic code in the laboratory of the Canadian High Arctic Research Station. We will also survey the plants by eye and use drones to create maps of each location. The plant surveys will help us test the quality of the protocol and the maps will show us how the samples fit into the landscape. The collected soil also holds information about nutrients and which microbes are present. In addition to testing the protocol, we will examine how soil nutrients and microbes influence the kinds of plant that can be found in an area of tundra.

Trace Element and Oxygen Isotope Distribution in Corundum and Spinel, Southern Baffin Island

License Number: 01 017 23R-M

Principal Investigator: Belley, Philippe

Affiliation: Department of Earth Sciences
Memorial University of Newfoundland
St. John's, NL, Canada
pbelley@mun.ca

Number in Party: 2

Research Locations: Kimmirut area

SUMMARY

Our goal is to improve our scientific understanding of trace element and oxygen isotope distribution in spinel and gem/non-gem corundum (sapphire). Field work will be conducted primarily (but not exclusively) at one spinel and one sapphire occurrences on the former True North Gems Property. Rock samples of interest to our research will be picked up (when loose), or extracted with hand tools. Power tools may be used where hand tools are ineffective. The quantity of samples taken from each site are expected to range from 1kg to 50kg, depending on the complexity of the rock. Additional quantities of samples may be provided by parties conducting exploration in the area.

Investigating Scott Inlet seeps with autonomous underwater vehicles

License Number: 02 014 23N-M

Principal Investigator: Bose, Neil

Affiliation: Memorial University of Newfoundland
St. John's, NL, Canada
nbose@mun.ca

Number in Party: 7

Research Locations: Scott Inlet

SUMMARY

The primary objective of this multi-year project is to develop and characterize autonomous underwater technology to enhance marine robotics capability for oil spill response operations in the ocean. This project, with collaborations from domestic (International Submarine Engineering and Fugro Canada) sector partners, will improve data collection performance and efficiency of AUVs and provide short- and long-term benefits to Canada and local communities.

Hudson Bay System Paleoceanography

License Number: 02 049 23N-M

Principal Investigator: Brembach, Kerstin

Affiliation: Laval University
Quebec City, Quebec, Canada
kerstin.brembach.1@ulaval.ca

Number in Party: 19

Research Locations: Marine Areas along Hudson Strait and Hudson Bay, Foxe Basin

SUMMARY

Our short-term objectives are to provide local stakeholders with detailed bathymetry maps produced during the research cruise, which will be made available in the near future. The same is true of the water column information from the CTD sensors showing temperature, salinity and pressure. This will contribute to the overall monitoring of the study area to improve our understanding of potential changes in Hudson Bay/Strait. The long-term goals of the project are to improve our understanding of the Hudson Bay/Strait marine water system in terms of the effects of climate change on marine and freshwater circulation, winter sea ice conditions, and C02 gas exchange with the atmosphere, and its long-term evolution in terms of glacial history, sea level changes and past climate change.

Assessment of Coastal Contamination in Trace Metals in Marine Sediments near Pond Inlet

License Number: 02 047 22N-M

Principal Investigator: Brice, Camille

Affiliation: Institut des sciences de la mer de Rimouski
Universite du Quebec a Rimouski
Rimouski, Quebec, Canada
camille.brice@uqar.ca

Number in Party: 3

Research Locations: Pond Inlet

SUMMARY

The project consists of a sampling campaign that will take place in the coastal area near Pond Inlet at the end of summer and will last 3 days, dates are flexible. During the campaign, we will collect 20 to 30 samples with a Ponar grab sampler in an area within the first 200 m from the coast. In collaboration with a local guide, sampling will be carried out using a boat. The research team will be composed of the PhD student (lead researcher), and a master's student (Pauline Firmin) from ISMER-UQAR. The sampling will have a very limited or no impact on the environment/wildlife/people. The use of a local boat and the consumption of diesels are the only possible cause for environmental perturbations. The grab sampler will be deployed by hand and will not necessitate any other instruments. Results will be stored and available on database PANGAEA and Polar Data Catalogue. Results will be presented at workshops and conferences and will result in a publication in a scientific journal.

Keewatin Glacial Dynamics

License Number: 03 027 23N-M

Principal Investigator: Brouard, Etienne

Affiliation: Geological Survey Canada
Natural Resources Canada
Ottawa, Ontario, Canada
etienne.brouard@nrcan-rncan.gc.ca

Number in Party: 5

Research Locations: 190kms West of Baker Lake

SUMMARY

The landscapes we see today in northern Canada are a product of what happened during and since ancient glaciations. Whether it is the land, the forests or the animals, everything evolved with the rhythm of growth and decay of the ice sheets. It is therefore important to understand the history of these glaciation and deglaciation cycles to provide a context for studies on climate change, archeology, geology, ecology, etc. Much is known about these glaciations in the south, but in northern Canada, extensive regions remain poorly studied because of their remoteness and hence knowledge there is limited. Therefore, the Geological Survey of Canada initiated in 2022 a 4-year research project to compile and understand the history of ancient glaciations in mainland Nunavut and Northwest Territories. The project titled “Synthesis of the glacial dynamics of the Laurentide Ice Sheet in the west-central Keewatin” and led by GSC researchers Janet Campbell and Etienne Brouard, aims to provide the age of the glacial terrains and the composition of materials that lay over bedrock. The project also aims to map the glacial landforms using satellite imagery and to model glacial history using new and published data. This knowledge will help to show how sediments were transported by ice and help to trace how glaciers disappeared.

Glacial Mass Balance Studies in the Canadian High Arctic

License Number: 02 001 23R-M

Principal Investigator: Burgess, David

Affiliation: Geological Survey of Canada
Ottawa, Ontario, Canada
david.burgess@nrcan-rncan.gc.ca

Number in Party: 3

Research Locations: Queen Elizabeth Islands

SUMMARY

Knowledge of the mass balance of ice caps and glaciers in the Canadian high Arctic provide important insight into understanding patterns of climate change and validating current estimates of global sea-level contributions from this region. Through continuation of the long-term time series (~50 years) of annual surface mass balance measurements for the Northwest Devon ice cap, Meighen ice cap, Melville ice cap, and Agassiz ice fields, this project contributes towards the fulfillment of NRCan's mandate.

The Arctic Expedition

License Number: 0501923N-A

Principal Investigator: Cherrak, Marion

Affiliation: Fondation Pacifique
Carouge, Canton de Vaud, Switzerland
marion.cherrak@pacifique.ch

Number in Party:

Research Locations: Northwest Passage

SUMMARY

The Arctic Expedition is a 5-year tour of the arctic ocean. Research in 2023 will be conducted on the Que Sera sailing boat which will transit the Northwest passage. The research team will continuously monitor environmental data: greenhouse gases (carbon dioxide and methane) and standard oceanographic parameters in surface water/water column and the polar atmosphere. The goal is to reevaluate the role of cold-water masses in the carbon cycle in the context of climate change.

GENICE II: Reimaging Natural Attenuation as an Oil Spill Response Tool in the Arctic

License Number: 03 028 23R-M

Principal Investigator: Collins, Eric

Affiliation: University of Manitoba
Winnipeg, Manitoba, Canada
eric.collins@umanitoba.ca

Number in Party: 5

Research Locations: Chesterfield Inlet

SUMMARY

GENICE2 is a project funded by Genome Canada to conduct research on the impacts of oil spills on aquatic ecosystems in the Arctic. Part of this project includes the co-development of a Community Based Monitoring (CBM) project in collaboration with community members in the Hamlet of Chesterfield Inlet. As part of this CBM project we will hold annual workshops (starting in May 2023) to determine monitoring priorities and activities, which are expected to include sampling of natural waterways in the vicinity of Chesterfield Inlet. Samples collected during CBM activities will be analyzed for the genetic and functional diversity of naturally occurring microbial populations, the presence, concentrations, and types of hydrocarbons, the concentrations of nutrients, and other determinants of water quality that may be desired by community members.

Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development

License Number: 02 009 23R-M

Principal Investigator: Coutts, Victoria

Affiliation: Advisian
Burnaby, British Columbia, Canada
victoria.coutts@advisian.com

Number in Party: 7

Research Locations: Pond Inlet

SUMMARY

The Pond Inlet Offset Plan consists of two components, the Monitoring Program and the Research Program. The goal of the Monitoring Program is to assess the habitat characteristics within the footprint of the proposed Project. In future years, after construction of the facility, this will be compared to the habitat provided by the boulders/rocks that are a component of project design for shoreline protection. Rocks provide multi-dimensional habitat where marine organisms can find refuge in the spaces between them. The goal of the Research Program is to investigate the primary prey species of arctic char in Eclipse Sound in the waters surrounding the proposed small craft harbour.

Geotechnical and Environmental Baseline Studies – Iqaluit Port Development

License Number: 01 005 23R-M

Principal Investigator: Coutts, Victoria-Burdett

Affiliation: Advisian
Burnaby, British Columbia, Canada
victoria.coutts@advisian.com

Number in Party: 8

Research Locations: Iqaluit

SUMMARY

The studies will be performed for the Government of Nunavut in two locations. One is near the municipal wharf, and the other is in the proposed deep water port area and quarry. Geotechnical and environmental baseline studies are required to support the design of upgrades proposed for the municipal wharf, and a new deepwater port.

An Ice Core on Muller Ice Cap

License Number: 02 020 23N-M

Principal Investigator: Dahl-Jensen, Dorthe

Affiliation: Centre for Earth Observation Science
University of Manitoba
Winnipeg, Manitoba, Canada
dorthe.dahl-jensen@umanitoba.ca

Number in Party: 5

Research Locations: Axel Heiberg Island

SUMMARY

We plan to drill an ice core through Müller Ice Cap on Axel Heiberg Island. This core will be 10 cm in diameter and ~600 m long and will contain information about climate in Arctic Canada thousands of years ago. This core will help answer:

1. Did sea ice conditions respond to climate during the past 20,000 years?
2. What climatic conditions did arctic ice caps experience during the past and how did they respond?
3. How old is Müller Ice Cap?
4. How fast is Müller Ice Cap changing today?

We can use new measurement techniques to address these questions before warming affects the ice cap.

Inuit Qaujisarnirmut Pilirijjutit on Arctic Shipping Risks in Inuit Nunangat

License Number: 05 020 23N-A

Principal Investigator: Dawson, Jackie

Affiliation: Department of Geography
University of Ottawa
Ottawa, Ontario, Canada
jackie.dawson@uottawa.ca

Number in Party: 18

Research Locations: Northwest Passage, Lancaster Sound

SUMMARY

We will opportunistically conduct water samples from on board ships (Amundsen, Ocean Endeavour, Fram), transiting Nunavut waters from July-September 2023 and 2024. We will also opportunistically conduct water and sediment samples at shore locations along cruise ship routes (where appropriate). Shore locations may include Dundas Harbour, Fort Ross, Gjoa Haven, Beechey Island, Resolute Bay, and Cambridge Bay. We will also conduct community-based sampling of air, water, and sediment, led by Inuit in Arviat and Pond Inlet from June – September 2023 and 2024.

Lake Sediment Geochemistry Survey

License Number: 03 026 23N-M

Principal Investigator: Day, Stephen

Affiliation: Natural Resources Canada
Geological Survey of Canada
Ottawa, Ontario, Canada
stephen.day@nrcan-rncan.gc.ca

Number in Party: 8

Research Locations: Several lake areas encompassing Rankin Inlet and Chesterfield Inlet

SUMMARY

This activity proposes to conduct a regional lake sediment and water survey in the Kivalliq region. This type of survey can improve regional understanding of naturally occurring metals to help assess mineral potential and establish the baselines of naturally occurring metals and minerals in lakes. Contractors supervised by GSC researchers would use a helicopter based in Rankin Inlet to visit lakes within the study area. A team of 3 people would collect mud from the bottom of lakes and surface water samples for analysis. Originally proposed to take place over two summers beginning in 2022, the activity was postponed and is now being proposed to take place entirely in July and August 2023.

Coastal Habitat Comprehensive Research Project (CHCRP)-Coastal Monitoring

License Number: 01 025 23N-M

Principal Investigator: Fink-Mercier, Caroline

Affiliation: University of Quebec in Rimouski
Rimouski, Quebec, Canada
caroline_fink-mercier@uqar.ca

Number in Party: 10

Research Locations: Eastern James Bay

SUMMARY

For summer 2023, researchers and lands users will team up to continue to monitor eelgrass in the 4 communities from approximately July 13 to August 15, 2023, using a sampling protocol developed in the Coastal Habitat Comprehensive Project. The team aims to visit sites to survey eelgrass condition throughout the coastline and to continue our ongoing monitoring program which includes eelgrass measurements at the bed scale, on shoots and environmental characterization. This program involves observing and making small collections of eelgrass by snorkeling or diving, collecting water and subtidal surface sediments, and measuring underwater light levels using moorings deployed in 2 traplines.

NEIGE (Northern Ellesmere Island in the Global Environment)

License Number: 02 015 23R-M

Principal Investigator: Girard, Catherine

Affiliation: Département des sciences fondamentales
Université du Québec à Chicoutimi
Chicoutimi, Quebec, Canada
catherine5_girard@uqaq.ca

Number in Party: 9

Research Locations: Northern Ellesmere Island Coast, Resolute Bay Lakes

SUMMARY

This project aims to continue monitoring and environmental measurements in Quttinirpaaq National Park's lakes, fiords and vicinity. The research will determine the diversity of microbial life in shallow water communities using state of the art molecular techniques, characterize the physical characteristics and processes within northern Ellesmere Island's meromictic lakes, and define the structure and function of microbial food webs within Lake A, C1, Ward Hunt, Disraeli Fjord and Milne Fjord using HPLC and flow cytometry analyses at Laval University. Climate stations will continue to provide long-term air and soil monitoring data for this globally important site.

Marine Acoustic Monitoring in Ninginganiq NWA

License Number: 02 042 23R-M

Principal Investigator: Hogan, Danica

Affiliation: Environment & Climate Change Canada
Canadian Wildlife Services
Yellowknife, Northwest Territories, Canada
danica.hogan@ec.gc.ca

Number in Party: 4

Research Locations: Ninginganiq NWA (Isabella Bay)

SUMMARY

The goal of this project is to address Ninginganiq NWA Management Plan monitoring priorities by deploying a passive marine acoustic recorder in Ninginganiq NWA in order to collect information about vocal marine animals and vessel noise in the NWA. We will use the results of this study to update the list of marine mammals that use the area, provide insight into timing of use of the area by bowhead whales and other marine animals, establish baseline noise levels in the NWA, and assess how noise pollution from vessel traffic may affect marine mammals in Ninginganiq NWA. This information will be used to guide permitting decisions regarding vessels in the NWA, identify areas for improvement of compliance promotion activities, and create standard permit conditions for vessels entering the NWA for tourism and other purposes.

Mary River Project

License Number: 02 012 23R-M

Principal Investigator: Hoyle, Megan-Lord

Affiliation:

Baffinland Iron Mines Corporation
Oakville, Ontario, Canada
megan.lord-hoyle@baffinland.com

Number in Party: 91

Research Locations: Steensby Port, Mary River, Milne Port/Road

SUMMARY

Environmental data collection and analysis for monitoring and management of the Mary River project as prescribed by Project Certificate No. 005 – Amendment 3 and Type “A” Water Licence No. 2AM-MRY1325 – Amendment 1.

IceBird Winter 2023

License Number: 02 011 23R-M

Principal Investigator: Krumpen, Thomas

Affiliation: Department of Sea Ice Physics
Alfred Wegener Institute for Polar and Marine Research
Bremerhaven, Germany
thomas.krumpen@awi.de

Number in Party: 4

Research Locations: Eureka

SUMMARY

As in previous IceBird campaigns, the Alfred Wegener Institute will use its DC-3 aircraft to conduct surveys through a series of planned flights. The aim of IceBird is to conduct sea ice surveys over different ice regimes when sea ice is close to its maximum and minimum extents. The project is designed to collect detailed measurements and trace the evolution of such changes from year to year. Sea ice thinning and retreat are expected to continue as a result of climate change with a major uncertainty introduced by long-term natural climate variability. Airborne observations and data will be collected while based at four different locations across the Arctic: Inuvik, Northwest Territories; Eureka, Nunavut; Station Nord, Greenland and Longyearbyen, Norway. At each location, research flights will be conducted with a range of approximately 300km.

Ensuring water security in the High Arctic: Understanding the impacts of changing permafrost and hydrology

License Number: 02 027 23R-M

Principal Investigator: Lafreniere, Melissa

Affiliation: Department of Geography
Queen's University
Kingston, Ontario, Canada
melissa.lafreniere@queensu.ca

Number in Party: 6

Research Locations: Resolute Bay area

SUMMARY

The primary goal of this research is therefore to investigate water and ecosystem sensitivities associated with climate and permafrost change near Resolute Bay. This research involves three key objectives i) to develop a water and permafrost baseline data set for the Resolute vicinity to support decision making; (ii) to characterize the levels of suspended sediment and other dissolved water quality parameters (salt, nutrients, organic matter, dissolved metals) in rivers and lakes of importance to the community of Resolute; and (iii) to determine how changing climate and permafrost conditions are likely to impact water quality and potentially impact drinking water and aquatic ecosystems.

Multidisciplinary Observation for Arctic Climate Change and Extreme Events Monitoring

License Number: 04 005 23N-M

Principal Investigator: Langlois, Alexandre

Affiliation: Department of Applied Geomatics
University of Sherbrooke
Sherbrooke, Quebec, Canada
a.langlois@usherbrooke.ca

Number in Party: 11

Research Locations: Cambridge Bay, Greiner Lake Watershed

SUMMARY

The main objective of our project is to develop a permanent multidisciplinary scientific infrastructure that enables long-term observations of Arctic climate change, bringing together experts from a wide range of expertise and institutions. The project is led by Prof. Alexandre Langlois (UdeS) and Prof. Kimberley Strong (UofT) and responds to a consensus on the lack of temporal observations that are crucial to understand feedback processes and to promote model development in the Arctic. The innovative aspect of this proposal resides in its multidisciplinary approach while enabling long-term Arctic measurements spanning several disciplines. The proposed observatory will be located at the Canadian High Arctic Research Station (CHARS) in Cambridge Bay, Nunavut, while enhancing the reach of CHARS with linkages to the Environment and Climate Change Canada supersite in Iqaluit. Our ambition is to establish the site as one of the largest instrumented high Arctic observatories dedicated to the monitoring of key indicators that drive climate change. The site will generate and enhance partnerships, not only with Canadian research centers and organizations, but also with international research partners and networks.

Towards a Better Knowledge of Coastal Fish via Environmental DNA

License Number: 01 029 23N-M

Principal Investigator: Laporte, Martin

Affiliation: Department of Biology
Laval University
Quebec City, Quebec, Canada

Number in Party: 10

Research Locations: Waterways/Coastlines of Waskaganish, Eastmain, Wemindji, Chisasibi, Whapmagoostui

SUMMARY

This project will provide spatiotemporal knowledge on the biodiversity of fish communities within the Eeyou Marine Region and is linked to CEGRIM (Centre d'Expertise en Gestion des Risques Maritimes). Its objective is to determine priority areas to be protected in the event of a maritime incident to ensure food security for local communities. To do this, the sampling team will collect environmental DNA (water) samples which can be used to detect fish species and their relative abundance through DNA from scales, feces, and mucus left in the water. For each of the five Cree communities, three sampling days during the summer of 2023 will be required to sample ten sites in the offshore area. These three days will be spaced out at equal intervals, keeping the same sites. We will provide sampling materials by post and send English subtitled training videos via the Internet. The methodology has already been tested and approved by Stephanie Varty of EMRWB. No fishing license is required since this is only water sampling and no socioeconomic or ecosystem impact will be produced. Once the sampling is done, we will perform the sequencing, bioinformatics, and statistical analysis.

Bedrock mapping from Angikuni Lake

License Number: 03 024 23N-M

Principal Investigator: Lebeau, Lorraine

Affiliation: Canada Nunavut Geoscience Office
Iqaluit, Nunavut, Canada
lorraine.lebeau@nrcan-rncan.gc.ca

Number in Party: 7

Research Locations: Angikuni Lake

SUMMARY

The geology of this area remains poorly described, visited only by the Geological Survey once by aerial survey in the 1950s. This work focuses on aspects of stratigraphy, structural geology, and age dating of the rocks to form a bedrock map and create associated scientific publications. According to western science, this area could provide critical information involving the initial assembly of North American continents and critical minerals. Therefore, the necessity of the work is to advance our understanding of the Earth's evolution, and to investigate the potential for critical minerals. We aim for the field research to tentatively commence from July 10th to the 31st. The team will collect field observations by taking notes, photographs, and rock samples by hammer. The team will be transported by foot, helicopter, and boat; with the intention being mostly by boat (inflatable Zodiak) and helicopter to a lesser extent.

Talik Mapping and Models of Sub-Permafrost Groundwater-Surface Water Connectivity

License Number: 03 023 23N-M

Principal Investigator: LeBlanc, Anne-Marie

Affiliation: Geological Survey of Canada
Natural Resources Canada
Ottawa, Ontario, Canada
anne-marie.leblanc@nrcan-rncan.gc.ca

Number in Party: 7

Research Locations: Rankin Inlet area

SUMMARY

The study will take place within the vicinity of the Rankin Inlet area (radius of 25-30 km) in 2023 and 2024. In spring 2023, 2 weeks of fieldwork will be required for water sampling, in-situ water properties measurements, and geophysical (on lake ice) measurements in deep lakes (~>2m depth). During summer 2023, 2 weeks of fieldwork will be required for water sampling, semi-permanent installation of lake bottom instruments in shallow lakes (~<2m depth) that are completely frozen in winter (via small inflatable boats), and permafrost coring. In summer 2024, fieldwork would involve follow-ups at established sites for data collection and retrieval of semi-permanent instruments.

Geological Mapping and Study of Hydrothermal Deposits and Gossans near Expedition Fiord, Axel Heiberg Island, Nunavut as Analogues for Mars

License Number: 02 033 23R-M

Principal Investigator: Lemelin, Myriam

Affiliation: Department of Applied Geomatics
University of Sherbrooke
Sherbrooke, Quebec, Canada
myriam.lemelin@usherbrooke.ca

Number in Party: 10

Research Locations: Axel Heiberg Island

SUMMARY

Gossans are surficial deposits that form through the chemical and physical weathering of bedrock. They can be preserved for thousands of years in the permafrost. In the Expedition Fiord area of Axel Heiberg Island, Nunavut, gossans are associated with ancient hydrothermal deposits that contain minerals also found on Mars. These minerals can preserve traces of microbial life but the way they formed is still unknown. Importantly, gossans in the Expedition Fiord area could be part of a network of fractures through which hydrothermal fluids have been circulating for millions of years. It is possible that these gossans have been formed through the interaction between the metal-rich bedrock and ancient deposits formed in a hydrothermal system. If such, this would have important implication in the search for life on Mars. It is highly probable that hydrothermal systems were active on Mars billions of years ago. These systems are key places to look for signs of ancient microbial life on Mars. Our main objective is to study gossans in the Expedition Fiord area as indicators of ancient hydrothermal systems on Mars at various spatial scales in the context of current and future Mars exploration missions. The specific objectives are as follows: 1. Map the Expedition Fiord area and detect gossans using satellite imagery; 2. Investigate the spectral signature, composition, and potential biosignatures in the gossans and hydrothermal deposits; and 3. Conduct detailed spectroscopic, compositional, and biological studies on the returned samples in our university laboratories.

Iqaluit Community Fishers Baseline Ocean Data Collection Program

License Number: 01 006 23N-M

Principal Investigator: Marshall, Lucianne

Affiliation: Ocean Networks Canada
University of Victoria
Victoria, BC, Canada
lucimm@uvic.ca

Number in Party: 8

Research Locations: Frobisher Bay

SUMMARY

The project aims to collect a baseline of oceanographic data such that a greater understanding of the seasonal dynamic of water exchange in Frobisher Bay can be established. This project hopes to expand to longer term monitoring such that it can begin to help understand the longer-term fluctuations and changes in the region. Baseline data is meant to be applicable to a wide range of research activities and this project is designed to support answering a number of current and future research questions that the community of Iqaluit may be interested in addressing.

Nunavut Small Craft Harbour Field Program

License Number: 03 005 23R-M

Principal Investigator: McDermid, Chris

Affiliation: Small Craft Harbours
Fisheries and Oceans Canada
Winnipeg, MB, Canada
chris.mcdermid@dfo-mpo.gc.ca

Number in Party: 8

Research Locations: Coral Harbour, Sanikiluaq, Naujaat, Chesterfield Inlet

SUMMARY

Worley Canada Services Ltd. and Ikpiaryuk Services Ltd. in joint venture, operating as Advisian-Ikpiaryuk JV, have been retained by Public Services and Procurement Canada and Fisheries and Oceans Canada – Small Craft Harbours to conduct an engineering feasibility study for the construction of small craft harbours in four communities in Nunavut: Sanikiluaq, Coral Harbour, Naujaat, and Chesterfield Inlet. To inform the engineering and environmental deliverables for the Project, a field program will be conducted during the open-water season. The field program will focus on environmental, geoscience, geophysics, and archaeological baseline studies in each location.

Community-based study of under-ice benthic assemblages in the Arctic (BenthArctic)

License Number: 01 023 23R-M

Principal Investigator: Mercier, Annie

Affiliation: Department of Ocean Sciences
Memorial University of Newfoundland
St. John's, NL, Canada
amercier@mun.ca

Number in Party: 6

Research Locations: Sanikiluaq, Grise Fiord

SUMMARY

The proposed project builds on interest expressed by Inuit communities in Nunavut to assess the status and value of their marine benthic resources and prospects for their sustainable use in the context of food security and climate change. It aims to expand our understanding of nearshore benthic assemblages, with a focus on winter-spring processes occurring at sea-ice edges and on species of relevance to commercial and subsistence fisheries. Interlinked objectives will be dedicated to fundamental research, practical knowledge transfer and community mobilization. Field work is expected to take place in the summer/fall of 2022 and the winter/spring of 2023. The approach centers on the use of a portable remotely operated vehicle (ROV) deployed through holes in the sea ice to investigate the benthic community structure and diversity in two regions (Low vs High Arctic, specifically Sanikiluaq and Grise Fiord). The ROV will have minimal environmental impact; it will capture videos of the benthos and collect a few water, sediment and biological samples for analysis. Videos will be used for scientific analyses and to create educational material; they will be shared with end users in the two localities. A complementary segment will assess methods best adapted for the collection and handling of key commercial species.

Permafrost Pathways

License Number: 02 037 23N-M

Principal Investigator: Murphy, Patrick

Affiliation: Woodwell Climate Research Center
Falmouth, MA, USA
pmurphy@woodwellclimate.org

Number in Party: 7

Research Locations: Pond Inlet, Resolute Bay

SUMMARY

Our goal is to quantify permafrost greenhouse gas fluxes across the Arctic boreal region and use these results to inform more realistic international climate policy. Currently, estimates of carbon emissions from permafrost regions are highly variable and thus, policymakers do not account for these carbon emissions when setting emissions reduction targets. We intend to measure carbon exchange where data is needed most across the Arctic boreal region using a network of monitoring stations, including in Nunavut. Over the course of five years, these stations will measure carbon dioxide and methane emissions from natural permafrost ecosystems. The monitoring stations would remain in Nunavut year-round and consist of a structure such as a metal tripod with sensors attached above and below ground. These sensors collect data about weather, environmental conditions, and associated greenhouse gas movement.

Thermal State of Permafrost

License Number: 02 041 23R-M

Principal Investigator: Nicolsky, Dmitry

Affiliation: University of Alaska Fairbanks
Fairbanks, Alaska, USA
djnicolski@alaska.edu

Number in Party: 6

Research Locations: Ellef Ringnes Island

SUMMARY

In July of 2023, three researchers plan to visit Isachsen, Ellef Ringnes Island, Nunavut for one day. The purpose of the visit is to collect data from and fix any malfunctioning scientific instrumentation at the site. Travel to and from Isachsen will be via Twin Otter and from the airstrip to the site by foot. No Indigenous knowledge is to be collected. No new structures will be erected; we will only be making repairs to an existing instrumentation tripod of two meters height and the instruments associated with it. The instrumentation at the site is currently measuring air temperature, snow depth, and soil temperatures to a depth of three meters. During the last site visit in 2016 large surface deformation was observed because of melting ice wedges. Data from this site are publicly available via our website for anyone to use. This project is strictly a monitoring effort. Collected data will be archived at the Arctic Data Portal with an appropriate metadata once quality control and assurance are completed.

Western Hudson Bay Geoscience for Infrastructure

License Number: 03 009 23R-M

Principal Investigator: Oldenborger, Greg

Affiliation: Natural Resources Canada
Ottawa, Ontario, Canada
greg.oldenborger@nrcan-rncan.gc.ca

Number in Party: 3

Research Locations: Rankin Inlet

SUMMARY

The western coast of Hudson Bay in the Kivalliq region of Nunavut is undergoing significant infrastructure development associated with natural resources, shipping and community sustainability. Permafrost and ground ice are important features of this landscape that can significantly affect land-based infrastructure through influence on ground stability and drainage patterns. Knowledge of permafrost conditions is required to characterize climate change impacts. However, there are only limited studies of permafrost and ground temperature data in the Kivalliq region. The proposed activity will provide valuable permafrost information along the western Hudson coast of Nunavut.

Impacts of Climate Change on Permafrost, Ice, and Hydrology in the Canadian High Arctic

License Number: 02 023 23R-M

Principal Investigator: Omelon, Christopher

Affiliation: Department of Geography and Planning
Queen's University
Kingston, Ontario, Canada
c.omelon@queensu.ca

Number in Party: 7

Research Locations: Expedition Fiord

SUMMARY

Our research objectives are: (1) to document changes in local climatic conditions including solar radiation, air temperature, relative humidity, winds, cloud cover, and the timing and magnitude of winter snowfall, spring snowmelt, and summer rainfall; (2) to measure seasonal active layer thickness and map the extent of permafrost, ground ice, and glaciers; (3) to assess how climate-induced changes affect the movement and quality of water; and (4) how these changes impact vegetation, soil microbiota, and associated greenhouse gas emissions. Linked to these objectives are the continued development and application of non-invasive shallow geophysical techniques and unmanned aerial vehicles (UAVs) as tools to document and monitor changes in permafrost, glaciers, surface and subsurface waters, and vegetation over time.

Western Hudson Bay Regional Bedrock Mapping

License Number: 03 025 23N-M

Principal Investigator: Perhsson, Sally

Affiliation: Natural Resources Canada
Geological Survey of Canada
Ottawa, Ontario, Canada
sally.perhsson@nrcan-rncan.gc.ca

Number in Party: 6

Research Locations: Geological zones between Whale Cove and Baker Lake

SUMMARY

This activity proposes to study the evolution of different geological zones between Baker Lake and Whale Cove. Learning how these rocks formed and moved can change our understanding of how the early Earth formed and affect interpretations of the potential presence of minerals and metals such as gold. Dr. Sally Pehrsson and her team would combine the re-examination of previously collected rock samples with analysis of new samples and GPS data gathered on the land. The proposed 2023 fieldwork would be conducted by a group of 6 researchers and a wildlife monitor over two weeks this summer. The team would collect fist-sized samples of rocks along Chesterfield Inlet. Results from this work could provide geological information within the proposed Hydro-fibre Link Corridor and propose models for gold and critical mineral movement in the area.

Geological Mapping of Boundary Structures

License Number: 03 021 23N-M

Principal Investigator: Regis, Daniele

Affiliation: Natural Resources Canada
Geological Survey of Canada
Ottawa, Ontario, Canada
daniele.regis@nrcan-rncar.gc.ca

Number in Party: 5

Research Locations: Near Rankin Inlet, Chesterfield Inlet

SUMMARY

This project involves the development of new protocols to quantify trace element and precious metal concentrations and their mobility in metamorphic rocks. The activity proposes to have a team of 5 researchers collect fist-size rock samples for two and a half weeks in July 2023 along a newly identified geological structure, the Raptor Shear Zone, about 60 km north of Rankin Inlet. The crew will set out by helicopter from Rankin Inlet and will conduct daily short hikes along the structure to collect fist-sized rock samples, take photos and measurements, and record geological observations.

Chesterfield Inlet Mobile Wind Resource Assessment Project

License Number: 03 029 23N-M

Principal Investigator: Robb, Hayley

Affiliation: Northern Energy Capital Inc.
Vancouver, British Columbia, Canada
hrobb@northernenergycapital.com

Number in Party: 6

Research Locations: Chesterfield Inlet

SUMMARY

Northern Energy Capital (NEC), on behalf of Kivalliq Alternative Energy (KAE), will conduct a preliminary renewable energy study in Chesterfield Inlet, Nunavut. The community relies on aging diesel generators to meet local electricity demand. The study will consider using wind energy and battery storage systems to offset the community's reliance on fossil fuels. Unlike diesel energy, wind energy is an unlimited resource that does not cause harmful air pollution and environmental damage. The project's scope is to collect wind data using a sonic detection and ranging (SODAR) device to assess the feasibility of a utility-scale wind energy project. NEC will install the SODAR equipment at the project site approximately 5km from the community of Chesterfield Inlet, where it will measure the wind speed, direction, and frequency for 12 months from Fall 2023-2024. The SODAR wind monitoring equipment will include a SODAR device measuring 0.5m x 0.5m x 3.0m tall, a 5.7m x 6.1m photo-voltaic power supply, a single propane tank, and a 3.0m x 3.0m tent enclosure to protect the equipment controls and wildlife. Overall, the SODAR technology is non-invasive, occupies a small footprint, and does not require extensive land displacement or alteration. NEC will contract and train two local technicians from Chesterfield Inlet to monitor and maintain the research equipment for the 12-month project period. Data digitally generated from the SODAR device is emailed to our project leads and stored locally on a USB drive. Once the project is complete, the data will be assessed and a report will be created and presented to interested parties, including the Chesterfield Hamlet council.

FMARS 2023: A Second Look at the Mars 160 Research Findings

License Number: 02 036 23R-M

Principal Investigator: Rupert, Shannon

Affiliation: The Mars Society
Lakewood, CO, USA
srupert@marssociety.org

Number in Party: 7

Research Locations: Devon Island

SUMMARY

In 2017, The Mars Society began a project called the Mars 160. We were looking at science return at two Mars analog sites, one in Utah, USA at the Mars Desert Research Station, and the other on Devon Island at the Flashline Mars Arctic Research Station (FMARS). Research included looking at patterned ground known as polygons, and documenting hypolith and endolith colonies, as well as identifying lichens. Papers written on this work have been published but other questions have come up with the polygons in particular that we would like to gather more data on in order to answer them. In addition, we would like to conduct basic environmental monitoring on radiation levels and water quality, with a particular interest in the presence/absence of microplastics in water sources closest to the two camps -- FMARS and the Haughton Mars Project -- on Devon Island. With these additional data we will be able to finish the work done in 2017 and add to the environmental data being collected on the region.

Community Geological Mapping of the Kivalliq Corridor

License Number: 03 010 23N-A

Principal Investigator: Sanborn-Barrie, Mary

Affiliation: Geological Survey of Canada
Ottawa, Ontario, Canada
mary.sanbourn-barrie@canada.ca

Number in Party: 3

Research Locations: Arviat, Whale Cove & surrounding area

SUMMARY

A proposed Churchill-Kivalliq Hydro-Fibre (CKHF) link involves construction of a 1200-km, 150-megawatt transmission line from Gillam, MB to Chesterfield Inlet, NU and west to Baker Lake to bring renewable, sustainable, reliable hydroelectricity to modernize electrical systems and advance the economy of western Hudson Bay communities. A road and upgrade to Rankin's airport are also planned. The geoscience character of the CKHF link corridor, portions of which are poorly known and under explored, should be assessed, updated, and integrated by Kivallirmiut to deliver a seamless, modern, time-calibrated, geological map. This will support activities across a region for which access will increase, and on which future land-use decisions can be soundly based. This project targets the southern half of the CKHF corridor, a hard to access, heavily drift-covered region with outdated geological mapping (1969-1978), rare obsolete (K/Ar biotite) age constraints, and no litho-geochemical knowledge with which to correlate units within, and beyond, the region.

Keewaytinook Okimakanak Bathymetric Marine Fiber Optic Cable Survey

License Number: 01 027 23N-M

Principal Investigator: Seibel, Franz

Affiliation: Keewaytinook Okimakanak
Thunder Bay, Ontario, Canada
franzseibel@lp.knet.ca

Number in Party: 3

Research Locations: Marine areas between Kuujuaraapik, Peawanuck and Fort Severn

SUMMARY

Keewaytinook Okimakanak is proposing to contract Seaforth Geological Surveys and the Arctic Research Foundation's vessel the William Kennedy to complete a bathymetric sonar survey during September and October 2023 between Kuujjuarapik, Peawanuck and Fort Severn. The survey vessel with an operational crew of 8, will be in the Sanikiluaq region for up to two days. The purpose is to determine a route for a marine fibre optic cable between the Cree Nations which, if approved, could be installed in the summer of 2025. The remote Cree Nations of Peawanuck and Fort Severn require fibre optic broadband connection for access to critical health, education and administrative services. There are no anticipated negative impacts to wildlife, environment or people. Nunavut residents are welcome to provide input into the survey routing and routing can be shared with the Sanikiluaq Hunter and Trapper Organization if requested.

Renewable Energy Microgrid Integration for Remote, Off-Grid Cabins in Nunavut

License Number: 02 032 23N-M

Principal Investigator: Shilton, Heather

Affiliation: Growler Energy
Iqaluit, Nunavut, Canada
hshilton@qccorp.ca

Number in Party: 11

Research Locations: Sylvia Grinnell River, Niaqunguk River, Resolute River, Panarctic Communications Datacenter

SUMMARY

This project will integrate Inuit values, needs and interests with renewable energy technology evaluations and deployment in Inuit Nunangat. Remedies to barriers of renewable energy adoption will be developed in accordance with Inuit Qaujimajatuqangit through coordination with the Qikiqtani Inuit Association's Inuit Qaujimajatuqangit department, the parent Inuit birthright organization of the project proponent, Nunavut Nukkiksautiit Corporation. Inuit representation is embedded in this project by the project definition and leadership, students that will contribute and advance their training, and community members that wish to participate in the project by providing paid services or community engagement with consideration. This project will contribute to Arctic energy resilience through the capacity development and de-risking of technology that will be undertaken. Training opportunities for residents of Inuit Nunangat will be available and increased demand for renewable energy technology installation, operation, and maintenance will lead to community economic development. This project will alleviate the key barriers of renewable energy deployment in Inuit Nunangat to create an easier path to follow for future proponents, regulators, and utilities.

Installation of a Meteorological Tower (MET Tower) in Resolute Bay, Nunavut

License Number: 02 043 23N-M

Principal Investigator: Shilton, Heather

Affiliation: Nunavut Nukkiksautiit Corporation
Iqaluit, Nunavut, Canada
nnc@qcorp.ca

Number in Party: 4

Research Locations: 2.5kms North of Resolute Bay

SUMMARY

The Resolute Bay MET Tower project includes an installation of a meteorological tower (MET Tower), collecting wind data for a period of 18-24 months, periodic site visits for tower maintenance, and dismantling and removing of mast and all materials/equipment from the site at the end of the project duration. Erection of the MET Tower is necessary to support the wind monitoring instruments. The purpose of this project is to collect wind data to assess the potential for wind energy generation. There is no intrusive or extensive on-site research for this project. The method for collecting wind data will be through the instrumentation supported by the MET Tower. The instruments will gather continuous data that will periodically generate and send reports via satellite. Due to the non-intrusive nature of the project, detailed mitigation plans are not required.

Installation of a Meteorological Tower (MET) in Sanirajak, Nunavut

License Number: 02 038 23N-M

Principal Investigator: Shilton, Heather

Affiliation: Nunavut Nukkuksautiit Corporation
Iqaluit, Nunavut, Canada
nnc@qcorp.ca

Number in Party: 2

Research Locations: Sanirajak

SUMMARY

The Sanirajak MET Tower project includes an installation of a meteorological tower (MET Tower), collecting wind data for a period of 18-24 months, periodic site visits for tower maintenance, and dismantling and removing of mast and all materials/equipment from the site at the end of the project duration. Erection of the MET tower is necessary to support the wind monitoring instruments. The purpose of this project is to collect wind data to assess the potential for wind energy generation. There is no intrusive or extensive on-site research for this project. The method for collecting wind data will be through the instrumentation supported on the NET Tower. The instruments will gather continuous data that will periodically generate and send reports via satellite. Due to the non-intrusive nature of this project, detailed mitigation plans are not required.

Helicopter Based Radar Survey of Devon Ice Cap

License Number: 02 026 23N-A

Principal Investigator: Skidmore, Mark

Affiliation: Department of Earth Sciences
Montana State University
Bozeman, MT, USA
skidmore@montana.edu

Number in Party: 4

Research Locations: Devon Island

SUMMARY

The helicopter-based radar survey of the Devon Ice Cap would provide information on ice thickness, the shape of the glacier bed and the location of water beneath the ice. This data would improve understanding of the way water flows beneath the ice cap and how this might relate to the speed of ice flow. The radar survey is one component of a NASA Planetary Science and Technology from Analog Research project on the Exploration of Saline Cryospheric Habitats with Europa Relevance (ESCHER). The ESCHER project seeks to characterize the extent of a potential saline subglacial water system beneath the Devon Ice Cap. If the saline subglacial water system is confirmed, then a second stage of the project would be to sample the saline subglacial outflows beneath a marine-terminating glacier of the ice cap (e.g. Sverdrup Glacier) using an autonomous underwater vehicle (AUV).

Atmospheric Monitoring Observatory in Canadian Arctic

License Number: 04 022 23N-A

Principal Investigator: Srivastava, Rohit

Affiliation: Ministry of Earth Sciences
National Centre for Polar and Ocean Research
Goa, India
rohits@ncpor.res.in

Number in Party: 2

Research Locations: Cambridge Bay

SUMMARY

The Arctic warms at a rate twice the global average and the sea-ice declines at an unprecedented rate. While the decline in sea-ice is concurrent with the atmospheric/ocean warming, the observed variability is elusive of simple relationships. Recent studies indicate the role of the phase of precipitation on sea-ice growth and decay. There is evidence that extreme events are increasing, be it ice melting, precipitation, storms, pollution etc. in which atmosphere-ocean-ice interacts at different time and spatial scales. For example, atmospheric circulation transports and disperses aerosols that contribute to the observed changes by altering the radiative forcing and may eventually lead to ice melting by changes in albedo. Sometimes unexpected consequences follow. Uncertainties in our formulations of these processes mainly arise from the paucity of observations and lead to less reliable climate projections and can take a toll on food security and human health. Therefore, there is a need to observe the ocean-atmosphere-ice system in the Arctic. We will begin by setting up atmospheric measurements in Cambridge Bay.

Canada Collaborative Croker Bay & Northern Ellesmere Island Glacial Fjord Surveys

License Number: 02 038 23R-M

Principal Investigator: Trenholm, Nicole

Affiliation: Geographic Environment Systems
University Maryland Baltimore County
Annapolis, Maryland, USA
nicolet3@umbc.edu

Number in Party: 7

Research Locations: Croker Bay, Northern Ellesmere Island, Eastern Devon Island Glacial Fiords

SUMMARY

Our project team began our studies along Devon Island in 2018 and we had plans to return for more observations in 2020. The COVID pandemic delayed our return until now. Our custom sailboat is equipped with water and seabed sampling devices that take physical samples of the marine environment. We have a single beam and multibeam sonar that we can use to map the depths of the seafloor. More observations and closer collaboration will enrich our publications. Our data will be analyzed at the University of Maryland. When the glacial fjord landfast ice is clear we will enter the fjords and conduct our observations and sampling activity minding all permit restrictions after checking into the country. Lab analyses will occur between Fall-Spring and seabed depth data and oceanic RBR CTD profiles post-processing will occur over winter to complete. Unless a better archive is identified oceanic data will be prepared for the Polar Data Catalogue. Seabed bathymetry data will be shared with the Canadian Hydrographic Office and the GEBCO IBCAO seabed model. We intend to make the data turn around quicker as we can add more researchers to the team who will benefit from the data and aid in data processing and publication. The Ocean Research Project will have the data available for those who seek the information and will submit the data to the appropriate archives.

Arctic Climate and Atmospheric Dust Variations during the late Glacial Period from Remnants of the Laurentide Ice Sheet

License Number: 02 039 23N-A

Principal Investigator: Ujvari, Gabor

Affiliation: Institute of Geological & Geochemical Research
Research Centre for Astronomy & Earth Sciences
Budapest, Hungary
ujvari.gabor@cskf.org

Number in Party: 5

Research Locations: Barnes Ice Cap

SUMMARY

This project aims to recover ancient ice from BIC to help reconstruct the history of past changes in global temperatures, winds, and continental dryness, during the last ice age. We plan to collect ice samples from BIC surface across part of its northwest margin, where the oldest layers are exposed. This will be done by a 5-person team from Canada, Hungary, Austria, Sweden, and Switzerland during a 14-day period between 17-31 August 2023. The only motorized equipment we will use is a portable generator and ice auger, and there are no plans to install long-term equipment at the study site. We will also bring a small battery-operated drone (quadcopter) to film our work, which will be later shown in outreach presentations to communities. At the end of the field work, the field party and all equipment will be evacuated. Hence our project should have a very low impact, if any, on the local environment. The ice samples will be sent to several laboratories in Canada and Europe for scientific analyses. The analyses will likely take 1-2 years to complete, and the final data will be made available to the public in databases (e.g. Pangaea repository) and scientific publications. In the meantime, we will regularly communicate our progress and findings to Nunavut communities via the Nunavut Research Institute.

Evaluation of the Geothermal Energy Potential at Cambridge Bay and Resolute

License Number: 04 012 23N-A

Principal Investigator: Unsworth, Martyn

Affiliation: Department of Physics
University of Alberta
Edmonton, Alberta, Canada
unsworth@ualberta.ca

Number in Party: 5

Research Locations: Cambridge Bay, Resolute Bay

SUMMARY

The University of Alberta is leading a major geothermal energy project that is active in many parts of Canada. The project has an emphasis on finding and creating ways to supply energy needs of northern communities. The proposed research will use geophysical measurements to look under the surface to a depth of 2 km around the communities of Cambridge Bay and Resolute. These measurements will determine (1) the type of rock present; (2) the thickness of the frozen layer; and (3) the amount and type of groundwater. Two geophysical exploration techniques will be used. The first is called magnetotellurics (MT) and uses a specialized radio receiver that measures natural radio signals coming from the atmosphere. Sensors attached to the instruments are buried in shallow holes dug with hand tools to a depth of 30 cm. The instrument is left to record data for 12-24 hours. The second technique measures the strength of gravity at each location and determines the thickness of rock layers. Measurements with both techniques will be made at a grid of points around each community.

OPP 2.0 Baseline Shoreline Mapping

License Number: 03 020 23N-M

Principal Investigator: Wynja, Valerie

Affiliation: Science & Technology Branch
Environment and Climate Change Canada
Ottawa, Ontario, Canada
valerie.wynja@ec.gc.ca

Number in Party: 3

Research Locations: Lancaster Sound, Cambridge Bay

SUMMARY

Project objectives: (1) Collect geotagged imagery of the coast around Cambridge Bay and the southern coasts of Lancaster Sound/Parry Channel in Nunavut; and (2) Analyze and interpret the imagery to develop a detailed shoreline classification database. Over the next 8 years (2023-2030), ECCC is planning to improve our coverage of shoreline mapping in the Arctic to fill in gaps for oil spill and emergency preparedness. In addition, as an alternative to helicopter mapping, we will be developing shoreline classification methodologies using a variety of remote sensing technologies. This includes high resolution satellite imagery. We would like to compare remote sensing techniques to helicopter methods to determine if remote sensing techniques will prove to be as reliable and informative as the helicopter methodology currently in use.

Impacts of wastewater at Baker Lake, Nunavut

License Number: 03 031 23 N-M

Principal Investigator: Jamieson, Rob

Affiliation: Civil and Resources Engineering
Dalhousie University
Halifax, Nova Scotia, Canada

Number in Party:

Research Locations: Baker Lake

SUMMARY

The overall objective of this research program is to understand the impacts of the Baker Lake, NU, wastewater treatment system on environmental and human health, and develop recommendations for improving wastewater management in the community. The research program will employ a holistic approach to characterize the impacts of the current wastewater treatment system on environmental and human health. Samples of water, sediment, and biota will be collected and analyzed for a suite of chemical and biological parameters.

Kivalliq Hydro-Fibre Link Baseline Research

License Number: 03 004 23 R-M

Principal Investigator: Tattuinee, Kono

Affiliation: Kivalliq Inuit Association
Rankin Inlet, Nunavut, Canada
konotattuinee@kivalliqinuit.ca

Number in Party: 13

Research Locations: Arviat, Baker Lake, Chesterfield Inlet, Rankin Inlet, Whale Cove

SUMMARY

The Kivalliq Hydro-Fibre Link is a renewable energy and broadband internet infrastructure project led by the Kivalliq Inuit Association (KIA) of Nunavut. The Project's vision is to build a 1,200km high-voltage electricity transmission line, which will connect communities of the Kivalliq region of Nunavut (Arviat, Baker Lake, Chesterfield Inlet, Rankin Inlet and Whale Cove) to the Manitoba electricity and fibreoptic grids. Field research in 2023 will focus on permafrost characterization and data collection to support the KHFL geotechnical baseline. A new socio-economic and Inuit Qaujimajatuqangit (IQ) research program will be initiated to help define the socioeconomic baseline conditions in Kivalliq communities and identify and/or confirm components of the physical, natural, and human environment that should be included in a future impact assessment.

Social Science and Inuit Qaujimajatuqangit

Monitoring the Health of Simirlik National Park through Inuit Knowledge: Pilot Project

License Number: 02 010 23R-M

Principal Investigator: Mahy, Maryse

Affiliation: Parks Canada
Iqaluit, Nunavut, Canada
maryse.mahy@canada.ca

Number in Party: 7

Research Locations: Pond Inlet, Arctic Bay

SUMMARY

The overall goal of the project is to include Inuit Knowledge in Parks Canada's assessment of the health of the park's ecosystems. The immediate objective of the project is to test a method for monitoring/studying the health of the Park's ecosystems/environment through Inuit Knowledge in the long term.

Understanding the Impacts of Increased Shipping to Mines on the ways Mammals are Prepared for Food and Clothing in Chesterfield Inlet, Nunavut

License Number: 03 006 23N-A

Principal Investigator: Maelzer, Faith

Affiliation: Department of Health Studies
McMaster University
Brampton, Ontario, Canada
maezlerf@mcmaster.ca

Number in Party: 2

Research Locations: Chesterfield Inlet

SUMMARY

The study seeks to understand how increased shipping to mines has impacted Inuit women's ability to cook country food and prepare animal hides for clothing. Questions surrounding the impacts of increased shipping to mines have focused mainly on the act of harvesting, a male-dominated activity. Since female-dominated activities of cooking country food and preparing hides for clothing have been less explored, this study will address this research gap.

Introducing the Emotional and Affective Geographies of Law: Strengthening Community Through the Practice and Feeling(s) of Inuit Law

License Number: 04 008 23R-M

Principal Investigator: Robertson, Sean

Affiliation: Faculty of Native Studies
University of Alberta
Edmonton, Alberta, Canada
sean2@ualberta.ca

Number in Party: 2

Research Locations: Kugaaruk

SUMMARY

Project objective: To better understand Inuit and legal social norms related to subsistence activities and other areas of hamlet life. To meet this goal, the Advisory Committee chose sealing and fishing. In resonance of Inuit ways of knowing that go beyond rational thinking, the project also seeks to learn more about the role of the body, emotions and "the feeling" in certain areas related to the enactment of norms. The topic includes norms pertaining to the management of resources, the settling of disputes, interactions with non-Inuit normative orders (e.g. Canadian Law), etc.

Uqshuqtuuq/Gjoa Haven: Gathering Stories from Our Elders and Community

License Number: 04 001 23R-M

Principal Investigator: Stoller, Mark

Affiliation: Trent University
Kingston, Ontario, Canada
markstoller@trentu.ca

Number in Party: 2

Research Locations: Gjoa Haven

SUMMARY

This research is an oral history and film project designed to facilitate engagement between Inuit Elders and youth, aged 18-29. The research addresses challenges experienced by Inuit youth in sharing local history and stories. The purpose of this research is to connect youth participants with their Elders in ways that celebrate traditional practices and history. The project collects history, stories and legends from Uqshuqtuuq/Gjoa Haven, and documents these with film and audio recording equipment. The interviews and research are then prepared into a digital exhibit that is to be shared with the local Nattilik Heritage Centre. This research is done in partnership with the Heritage Centre.

Ukkusiksalik National Park Marine Baseline Data Collection

License Number: 03 011 23R-M

Principal Investigator: Roberts, Hayley

Affiliation: Parks Canada
Iqaluit, Nunavut, Canada
hayley.roberts@pc.gc.ca

Number in Party: 3

Research Locations: Naujaat, Chesterfield Inlet, Rankin Inlet, Coral Harbour, Baker Lake, Arviat, Igloolik

SUMMARY

The primary goal of the project is to reflect Inuit knowledge in 3 sub projects. The results of the pilot project will contribute to best practices for the Nunavut Field Unit of Parks Canada to be able to best engage Inuit Knowledge in its monitoring program for Ukkusiksalik National Park in the future. It will also assist in continuing to protect and present the park to the public.

FISHES: Fostering Indigenous Small-scale fisheries for Health, Economy, and Food Security

License Number: 05 006 23R-M

Principal Investigator: Schott, Stephan

Affiliation: School of Public Policy & Administration
Carleton University
Ottawa, Ontario, Canada
stephan.schott@carleton.ca

Number in Party: 17

Research Locations: Cambridge Bay, Gjoa Haven, Taloyoak, Kimmirut, Qikiqtarjuaq, Naujaat

SUMMARY

The goal of this research is to understand how to sustainably harvest and manage culturally-important fish stocks in the face of climate change, socioeconomic and cultural change, and governance challenges. This research will combine biology, fisheries science, social science and Indigenous knowledge to address challenges related to food security and management of fisheries. In Nunavut research will focus on Arctic char, but related research in other northern regions will also consider other fish species.

We expect this research will provide knowledge that will help northern communities, their governments, people who consume fish in both Northern and Southern Canada, and the federal government, by increasing understanding of the role of fish in Northern Canada and the best ways to manage fisheries sustainably.

Inuit Qaujimaningit and Socioeconomic Baseline Studies for the Chidliak Project

License Number: 01 007 23R-M

Principal Investigator: Willis, David

Affiliation: Peregrine Diamonds Ltd.
Calgary, Alberta, Canada
david.willis@debeersgroup.com

Number in Party: 4

Research Locations: Iqaluit, Pangnirtung

SUMMARY

De Beers is proposing to undertake Inuit Qaujimaningit and socioeconomic baseline studies in Iqaluit and Pangnirtung in support of its Chidliak Project. The objective of this Inuit Qaujimaningit study is to incorporate traditional and contemporary knowledge and Inuit values, perspectives, and ways of knowing on a variety of topics that will inform an Environmental Impact Statement. Desktop and community-based socioeconomic research will also be undertaken concurrent with the Inuit Qaujimaningit study. This will be conducted to collect socioeconomic information and perspectives of interest from community members.

Mobilizing Inuit Qaujimajatuqangit for Sea-Ice Safety - Phase 2: Expansion to Arctic Bay, Arviat, Gjoa Haven and Qikiqtarjuaq

License Number: 05 009 23R-M

Principal Investigator: Wilson, Katherine

Affiliation: SmartICE - Sea Ice Monitoring and Information Inc.
Ottawa,Ontario, Canada
katherine@smartice.org

Number in Party: 6

Research Locations: Arctic Bay, Arviat, Gjoa Haven, Qikiqtarjuaq, Taloyoak

SUMMARY

Climate change has caused unpredictable ice travel conditions in Nunavut. This has led to more accidents and search-and-rescue incidents during the ice season. The colonization of Inuit has also resulted in generations denied the experience of learning from their Elders how to safely travel on ice. It is Inuit Qaujimajatuqangit (IQ) passed down through generations that teaches youth how to plan, prepare, identify, and test the ice for safety while traveling. Inuit want to document and share their IQ to:

1. Improve ice travel safety skills and emergency prevention for Inuit youth in their communities; and
2. Share and monitor known and changing hazardous ice locations so they can adapt and maintain community ice travel.

On the Syntactic Status of Person and Number Markers in Inuktitut

License Number: 01 021 23R-M

Principal Investigator: Compton, Richard

Affiliation: Department of Linguistics
University of Quebec at Montreal
Montreal, QC, Canada
compton.richard@uqam.ca

Number in Party: 6

Research Locations: Iqaluit, Cambridge Bay

SUMMARY

The goal of this research is to better understand the structure of Inuktitut; how words and sentences are formed, which properties differentiate Inuktitut from other languages, and which properties it shares with other languages. The larger goal of linguistic research is to expand our knowledge of human language.

Movement and habitat use of anadromous Arctic char (Salvelinus alpinus) and Dolly Varden (Salvelinus malma malma) near Kugluktuk, Nunavut

License Number: 04 004 23R-M

Principal Investigator: Weinstein, Spencer

Affiliation: Department of Biology
University of Waterloo
Waterloo, Ontario, Canada
syweinstein28@gmail.com

Number in Party: 2

Research Locations: Kugluktuk

SUMMARY

Gather Traditional Knowledge relating to the diversity of chars in the Coppermine River and recently witnessed changes in chars in the system. The Coppermine River, bordering the Hamlet of Kugluktuk, has historically supported a subsistence fishery for Arctic char. Since 2015, community members have reported a decrease in the number of char returning to the river following summer migration, and changes in fish appearance. Given these observed changes and the concerns of community members, a partnership was established in 2017 between the Kugluktuk Hunters and Trappers Organization (HTO), the University of Waterloo, and Fisheries and Oceans Canada (DFO) to study chars in the Coppermine River. As part of this project, researchers will evaluate the degree to which local descriptors correspond with variation measured using western scientific analyses.

Peary caribou, muskoxen and their predators: The value of Indigenous Knowledge in informing species recovery

License Number: 04 003 23R-M

Principal Investigator: Humphries, Murray

Affiliation: Natural Resource Sciences
McGill University
Ste-Anne-de-Bellevue, QC, Canada
murray.humphries@mcgill.ca

Number in Party: 11

Research Locations: Grise Fiord, Resolute Bay, Gjoa Haven, Cambridge Bay, Kugaaruk, Taloyoak

SUMMARY

The collaborative research initiative will document Inuit/Inuvialuit Knowledge of the impacts of climate change on the interactions between Peary caribou, muskoxen and their predators. The research will combine Inuit/Inuvialuit Knowledge and western science and create a multi-disciplinary training program to enhance local research capacity and collaboration with Arctic communities. The research questions were co-developed with community partners through an engagement process in 2020 related to the draft federal Peary caribou Recovery Strategy. The aim is to address key knowledge gaps for terrestrial habitat protection to aid with the species' recovery. Our partnership includes 12 Inuit/Inuvialuit organizations, 4 Universities and several federal and territorial agencies. Our ultimate goal is to help with a national Recovery Strategy for Peary caribou. This research will generate knowledge to inform policy on the protection of habitat deemed critical for the survival and recovery of Peary caribou. Our partners will use the knowledge to inform regional wildlife plans and management.

Comparative Beluga Health: Examining Eastern Beaufort Sea and Western Hudson Bay beluga whales

License Number: 03 008 23R-M

Principal Investigator: Sudlovenick, Enooyaq

Affiliation: Department of Wildlife & Geography
University of Manitoba
Iqaluit, Nunavut, Canada
sudlovee@mymanitoba.ca

Number in Party: 3

Research Locations: Arviat

SUMMARY

Arviat harvests many belugas whales every year as part of their subsistence hunts. Although Nunavut has some basic monitoring programs for beluga, the programs are limited, and data does not always return to the community. This project will aim to identify methods of determining beluga whale health in Arviat, and on a larger scale compare this Western Hudson Bay (WHB) population to the Eastern Beaufort Sea (EBS) population in Northwest Territories.

The main goal of this project is to enhance knowledge of the health status of the beluga whale population in the EBS and WHB.

Bridging the knowledge policy gap? Linking Arctic Community-Based Monitoring to environmental governance and decision-making

License Number: 01 014 23R-M

Principal Investigator: Wilson, Nicole

Affiliation: Department of Geography, Centre for Earth Observation Science
University of Manitoba
Winnipeg, Manitoba, Canada
nicole.j.wilson@umanitoba.ca

Number in Party: 2

Research Locations: Sanikiluaq, Chesterfield Inlet, Coral Harbour, Naujaat

SUMMARY

The purpose of this research is to examine the relationship between Arctic CBM and environmental decision-making and governance processes. The study has two objectives:

- To explore how environmental governance systems shape the development, implementation, and mobilization of CBM data in decision-making; and
- To evaluate what elements of CBM program design facilitate or constrain the use of CBM data in decision-making processes.

Qatiktalik: Nexus of Colonial Encounters

License Number: 03 007 23R-M

Principal Investigator: Zawadski, Krista

Affiliation: Carleton University
Ottawa, Ontario, Canada
krista.uluyuk@gmail.com

Number in Party: 2

Research Locations: Chesterfield Inlet, Rankin Inlet, Igloolik, Sanirajak, Naujaat

SUMMARY

My project will focus on Qatiktalik and reinterpret known history through Inuit eyes. Research publications and museum collections are out of reach for most Inuit who are directly connected to this history. It is my main goal to bring this history to modern descendants of people who were once at Qatiktalik during the time it was in operation as a whaling site and NWMP post and to engage with Inuit oral history surrounding Qatiktalik. I will do this through group discussions and documentation with elders and community members at Igluligaarjuk, Rankin Inlet, Naujaat, Iglulik and Sanirajak.

Home from the Archives

License Number: 03 001 23Registry

Principal Investigator: Ashoona, Aksaqtunguaq

Affiliation: Nunavut Arctic College
Iqaluit, NU, Canada
aksaqtunguaq.ashoona@arcticcollege.ca

Number in Party: 2

Research Locations: Chesterfield Inlet, Baker Lake, Rankin Inlet, Arviat, Whale Cove, Kinngait, Iqaluit, Pangnirtung

SUMMARY

This project will return historical and archival materials to Nunavut communities and will work with community members to collect further information (e.g., names, contexts, revisions, etc.) to enhance & revise the historical record. The project will also work with community members for guidance and direction on how to best use the materials (e.g., media projects, books, etc.) and how the materials should be accessed and shared. Activities will include public presentations and workshops. All data generated will be housed on the NAC digital archive at NRI. Where able and applicable, data will also be housed in partner communities. Nunavut residents will be conducting the preliminary research, planning, and community outreach and Nunavut residents will be contributing to discussions and future direction of projects. This project will be ongoing throughout 2022 to 2024. The first community trips took place in Chesterfield Inlet and Rankin Inlet from October 19-28, 2022.

Measuring and using the Hofstede dimension of Inuit (Nunavut) culture

License Number: 05 001 23N-M

Principal Investigator: Boyle, David Samuel

Affiliation: Athabasca University
Pond Inlet, Nunavut, Canada
dboyle2@athabasca.edu

Number in Party: 2

Research Locations: All Communities

SUMMARY

The proposed research questions are: “Is the Hofstede National Culture Scale applicable to a subnational, Indigenous (Inuit) culture?” and “What are the Hofstede Dimension Scores for Inuit (Nunavut) culture and How Are They Useful?” The research objectives are to see if the Hofstede model, typically used at the national/country level to provide insights of differences between country level cultures, is useful at the societal level to provide insights between Inuit workplace preferences and other countries in the Hofstede framework which has data for 104 cultures. All Government of Nunavut employees will be solicited to take part in the research, once approvals are obtained from direct supervisors/directors.

The sustainable livelihoods approach to recovering from the effects of covid 19: Developing a post-pandemic sustainable tourism strategy for Indigenous women entrepreneurs in Canada

License Number: 05 004 23N-M

Principal Investigator: Graci, Sonya

Affiliation: Ted Rogers School of Management
Toronto Metropolitan University
Toronto, Ontario, Canada

Number in Party: 4

Research Locations: Iqaluit, Rankin Inlet, Cambridge Bay

SUMMARY

As COVID 19 has decimated the Indigenous tourism industry in Canada, there is a need to consult on the development of solutions that inform a post-pandemic Indigenous tourism industry for female entrepreneurs that is focused on culinary, crafts, arts, adventure, hospitality and cultural tourism. The objectives of this study are to determine through interviews, visioning circles and sharing circles recommendations for training and support to increase sustainable livelihood development amongst Indigenous women in Canada's North. This research will co-create a post pandemic tourism strategy that focuses on the specific needs of Indigenous women in the North and creates a framework for identifying the benefits and barriers to entrepreneurship in Indigenous tourism.

A Multi-Community Perspective: Important Conditions and Habitat for Dolphin and Union Caribou Wellbeing

License Number: 04 013 23R-M

Principal Investigator: Hanke, Andrea

Affiliation: Department of Ecosystem and Public Health Faculty of University of Calgary
Calgary, Alberta, Canada
andrea.hanke1@ucalgary.ca

Number in Party: 2

Research Locations: Cambridge Bay, Kugluktuk

SUMMARY

The "Dolphin and Union" caribou are characteristically located on Victoria Island in the summer and the nearby mainland in the winter. Results from aerial surveys in 2018 and 2020 show a big decline in abundance, and the Nunavut Wildlife Management Board supported the implementation of a harvesting restriction in 2021 and the uplisting of this herd to Endangered under the Species at Risk Act in 2022. This research focuses on supporting co-management processes during this increasingly difficult period. The first objective is to create collective accounts of Inuit Qaujimajatuqangit around this herd from interviews in 2003 (Kugluktuk and Ekaluktutiak), 2018-2019 (Kugluktuk), and 2021-2022 (Kugluktuk, Ekaluktutiak, Ulukhaktok). A second objective is to connect Inuit Qaujimajatuqangit and conventional Western science in ways that are consistent with both ways of knowing.

Climate Change and Wellness in Canada: A National Survey

License Number: 05 003 23N-M

Principal Investigator: Harper, Sherilee

Affiliation: School of Public Health
University of Alberta
Edmonton, Alberta, Canada
sherilee.harper@ualberta.ca

Number in Party: 4

Research Locations: Edmonton

SUMMARY

Our objectives are to determine 1) the extent that climate change impacts emotional wellbeing across Canada; and 2) the proportion of the Canadian population that has experienced climate change impacts to emotional wellbeing. Although we know that climate change impacts wellbeing, we do not know how common this is in Canada. Examining national trends and differences across geographic regions and seasons will be a valuable contribution to Canadian and international research. Results of this work can inform national and international climate assessments and policy to respond to emotional wellbeing impacts of climate change.

Using Inuit Traditional Knowledge to Inform Qikiqtait Management

License Number: 01 008 23N-A

Principal Investigator: Health, Joel

Affiliation: Arctic Eider Society
Sanikiluaq, Nunavut, Canada
joelheath@arcticeider.com

Number in Party: 4

Research Locations: Sanikiluaq

SUMMARY

The primary research question that this project hopes to answer is - “What traditional rules and local management actions were historically used to manage harvesting and ensure sustainable use of natural resources, and how can these traditional rules inform the management of the proposed Qikiqtait Protected Area to be established in the Belcher Islands, Nunavut?” The research objective is to interview Sanikiluaq elders to compile their knowledge on these traditional rules and local management actions. This information is needed to develop management rules and guidelines for the Qikiqtait protected area that aligns with and respects Inuit knowledge and traditions.

The Nunavut Search and Rescue Project

License Number: 05 016 23R-M

Principal Investigator: Kikkert, Peter

Affiliation: Public Policy and Governance Program
St. Francis Xavier University
Antigonish, Nova Scotia, Canada
pkikkert@stfx.ca

Number in Party: 15

Research Locations: Iqaluit, Rankin Inlet, Gjoa Haven, Kugluktuk

SUMMARY

Guided by the Inuit first responders on our research team, the Nunavut SAR Project (2022-2025) aims to address these challenges by strengthening SAR preparedness, prevention, and response in the region. To do so, we will work with community and government responders to explore:

- SAR strengths and challenges
- SAR best practices and lessons learned
- Future requirements for SAR
- Solutions and new approaches
- Infrastructure needs

Treaty Future

License Number: 02 021 23N-A

Principal Investigator: King, Hayden

Affiliation: Yellowhead Institute
Toronto Metropolitan University
Toronto, Ontario, Canada
hayden.king@ryerson.ca

Number in Party: 4

Research Locations: Iqaluit

SUMMARY

The primary research objective of the Nunavut case study is to create a space for Inuit in Nunavut to design and generate research questions that will drive renewed discussion to better understand the implementation challenges of the Nunavut Agreement related to land and resources. Treaty Future community gatherings will host 1 in-person, 2-day gathering in Iqaluit, NU with 10 participants. The intent is to bring together representatives from Inuit organizations and the local Hunters and Trappers Association. The hope is for the gathering to occur in April 2023, pending necessary research protocol approval. Following the meetings, an editorial collective of the community researchers will be established to help guide the drafting of the Red Paper to ensure community input is represented accurately. Finally, a Zoom Accountability Workshop will bring all partners together to review the draft of the research and earn support for publication (publication will be open access). So, while the field research will be two days, Inuit and NU-based collaborators will be involved in the project for approximately four-six months. This is qualitative research conducted using semi-structured questions in an open and collaborative process. Discussion will be recorded, transcribed, and coded for themes and insights. This initial process will result in research direction and questions, to be pursued through primary document analysis and secondary research.

Colonial Diesel Structures: Energy Transitions in an Arctic Community

License Number: 01 030 23N-A

Principal Investigator: Little, Kaylia

Affiliation: School of Environment, Enterprise, and Development
University of Waterloo
Kitchener, Ontario, Canada
laylia.little@uwaterloo.ca

Number in Party: 2

Research Locations: Iqaluit

SUMMARY

The main research objective of this project is to collect stories of the introduction of diesel to Iqaluit (Frobisher Bay). This will be done by interviews with community members. The reason why this research is needed is to understand the first energy transition in Nunavut (the introduction of diesel) and how it was influenced by colonization. There is no research exploring the connection between colonization, forced settlement, and diesel energy. Currently, there are many programs and incentives to move towards renewable energy but if we do not understand what the first transition meant in terms of social impacts then we cannot ensure that the next transition is better.

Inuit Knowledge on the Health of Auyuittuq National Park's Ecosystems/Environment: Climate Change Vulnerability Assessment and Pilot Project for Ongoing Monitoring

License Number: 02 016 23R-M

Principal Investigator: Mahy, Maryse

Affiliation: Parks Canada
Iqaluit, Nunavut, Canada
maryse.mahy@pc.gc.ca

Number in Party: 2

Research Locations: Pangnirtung, Qikiqtarjuaq

SUMMARY

The overall goal of the project is to include Inuit knowledge in Parks Canada's assessment of the health of the park's ecosystems. The immediate objectives of the project are as follows: To collect Inuit knowledge for a climate change vulnerability assessment project for the park, and to test a method for monitoring/studying the health of the park's ecosystems/environment through Inuit knowledge in the long term.

Infrastructure in Whale Cove, Nunavut: Challenges and Hopes for the Future

License Number: 03 032 23N-M

Principal Investigator: Makin, Alexander

Affiliation: Queen's University
Perth Road, ON, Canada
makin.alexander@queensu.ca

Number in Party: 2

Research Locations: Whale Cove

SUMMARY

The purpose of the research project is to determine the barriers and pathways to advancing a collective Inuit vision of the future through infrastructure development in Whale Cove, Nunavut as a smaller community. An understanding of the relationship between food prices and food sovereignty and infrastructure, along with how the community has responded would be helpful to identify how a collective Inuit vision of the future might be best supported further.

Youth Perspectives of Climate Change Communication: Building Youth Engagement in Nunavut – Interview Study

License Number: 01 012 23N-A

Principal Investigator: Martos, Zoe

Affiliation: Department of Population Medicine
University of Guelph
Ottawa, Ontario, Canada
maros@uguelph.ca

Number in Party: 2

Research Locations: Iqaluit

SUMMARY

The main research goal is to examine the factors that contribute to effective climate change communication in Nunavut and build youth capacity on climate change. This research project will address the following research objectives: to examine preferred communication methods of Nunavut youth, understand perceptions around climate change, and to look at factors that are needed for effective communications.

ᓄᓇᕗᑦ - Our Land: On Policies and Guidelines Regarding Sustainable Community Design and Inuit-Self Determination in Nunavut

License Number: 04 011 23N-A

Principal Investigator: Nikolaeva, Arina

Affiliation: University Centre of Westfjords
Cambridge Bay, Nunavut, Canada
arina21@uw.is

Number in Party: 3

Research Locations: Cambridge Bay

SUMMARY

The short-term objectives for the project are to gain more knowledge of the planning policies and documents concerning community planning in Nunavut through the completion of a literature review for the Master's thesis, while also using the information to inform the interview questions which would be asked to participants. The long-term objectives for this project are to complete the research in Cambridge Bay, develop next steps and further research opportunities for continuation of the project as a PhD opportunity, disseminate the research to the participants, community, and interested organizations as one pagers with infographs and short reports, and present completed work at meetings and conferences with fellow knowledge folders.

Inuit Educators for Inuit Schools: An Investigation of the Factors Associated with Rewarding Teaching Careers in Inuit Nunangat

License Number: 05 011 23N-A

Principal Investigator: O'Gorman, Melanie

Affiliation: Department of Economics
University of Winnipeg
Winnipeg, MB, Canada
m.ogorman@uwinnipeg.ca

Number in Party: 3

Research Locations: All Communities

SUMMARY

The short-term objectives of the research are to identify factors contributing to Inuit teacher resilience and retention based on analysis of an online survey of Inuit educators and teacher education students. We will develop policy recommendations based on the survey findings to support Inuit teacher education, ongoing professional development and ultimately Inuit teacher recruitment and retention. The long-term objective of the project is that such policies will positively impact the educational progression and well-being of Inuit students across Inuit Nunangat. This project is part of a larger project entitled "Effective teachers for successful students: An investigation of the preparation and resiliency of Northern educators" which is aiming to generate evidence of promising practices in Inuit-specific teacher education and in the ongoing support for Inuit teachers to transition into education leadership. This project has Principal Investigators Ruth Kane and Kathy Snow and is governed by an Inuit Education Advisory Committee which consists of Holly Carpenter, Nancy Etok, Elisapee Karetak and Sarah Townley.

Thinking Historically: Portraits of Professional Practice

License Number: 03 016 23N-A

Principal Investigator: Peck, Carla

Affiliation: Faculty of Education
University of Alberta
Edmonton, Alberta, Canada
peck1@ualberta.ca

Number in Party: 10

Research Locations: Rankin Inlet, Baker Lake

SUMMARY

The purpose of the Thinking Historically: Portraits of Professional Practice (PPP) research project is to investigate different contexts of history education in Canada to better understand the range of educators' experiences across the country. In November 2021, the Thinking Historically for Canada's Future research project launched a large-scale pan-Canadian teachers survey to better understand the state of history teaching and learning in Canada. Researchers designed a bilingual online questionnaire that includes closed- and open-ended questions about the nature of history, and the pedagogies of learning teaching history. It also asks specific questions about the three central themes for this project: historical thinking, Indigenous Knowledge, and civic engagement. An online, pan-Canadian student survey is currently being developed. The PPP research project aims to provide more insight, depth, and texture to the teacher and student survey data by investigating how educators' context shapes their teaching practice. The main objective of this research is to deepen our understanding of how history is being taught in different places in Canada. This research focuses on one main research question and two sub-questions. How is history being taught in different places in Canada? How does the context where history is taught shape educators' practices? What unique opportunities and challenges do educators experience teaching history in their context?

A Journey Exploring Inunnguiniq-Making a Capable Human Being

License Number: 03 030 23N-M

Principal Investigator: Prusky, Elaine-Uppahuak

Affiliation: Royal Roads University
Iqaluit, Nunavut, Canada
elaine.uppahuakprusky@royalroads.ca

Number in Party: 3

Research Locations: Arviat, Ennadai Lake

SUMMARY

To gather community members' ideas, the first research method I will use is participatory action research: by using ujjiqturniq method (observation) and Uqaqatigiuauyuq method (one-on-one interview); these methods will be used to guide and formalize my research questions by the participation of an Inuk elder. The second method is amihuungitut katilutit uqaqatigiiktut (small focus group conversation), which will be workshop style for half a day with a health break included. The one-on-one method will give participants more anonymity and freedom to express their ideas. Any participants who may be uncomfortable saying certain things in a group method may want to share their thoughts and feelings more privately in a one-on-one interview. The small group method will be conducted after the one-on-one interviews and will consist of eight to ten Inuit youth (nineteen years old and older) maximum. If there are more than ten participants for the small group session, the facilitator will conduct another small group session with a minimum of three and maximum of ten participants. The one-on-one method will take two to four hours each day for five to seven days. The small focus group method will likely take one morning. You are welcome to speak in Inuktitut anytime during this study.

The Impact of Starlink and Oneweb Constellations on Nunavut's Digital Organization

License Number: 01 033 23N-M

Principal Investigator: Rabouam, Celestine

Affiliation: French Institute of Geopolitics
University Paris 8
Paris, France
rabouamcelestine989@gmail.com

Number in Party: 1

Research Locations: Iqaluit

SUMMARY

The field study in Iqaluit is part of a geopolitical thesis about the digital development of the American Arctic, and aims to collect qualitative data by doing semi-directive interviews of stakeholders involved in digital projects in order to learn about the dynamics of digital spatialization of the territory. It will help validate, or not, the hypothesis that there is geopolitical growing interest from private actors for digital projects in the Arctic. This work will also allow me to verify whether the strategies deployed by these actors are beneficial for the populations.

Country Food Cargo: Transport Infrastructure and Imagined Futures on Baffin Island, Nunavut

License Number: 01 010 23R-M-Amended

Principal Investigator: Schmid, Katrin

Affiliation: University of Vienna
Vienna, Austria
katrin.schmid@univie.ac.at

Number in Party: 2

Research Locations: Iqaluit, Pond Inlet, Kimmirut, Resolute Bay, Grise Fiord

SUMMARY

Currently, much of the infrastructure built in Nunavut prioritizes extractive industries over daily necessities like access to clean water, food, housing, and a regular income. This proposed research examines the ways residents of Iqaluit and Pond Inlet think about the futures of their communities and how that relates to the transport infrastructure being built and planned today. My research question is: How do local residents' imagined futures and the development of transport infrastructure in Nunavut co-constitute each other?

Making it Work? Inuit Workers and Trade Unions in Nunavut

License Number: 01 022 23N-M

Principal Investigator: Slowey, Gabrielle

Affiliation: Department of Politics
York University
Toronto, Ontario, Canada
gaslowey@yorku.ca

Number in Party: 1

Research Locations: Iqaluit, Pond Inlet, Clyde River, Baffinland (Mine Site)

SUMMARY

Labour in the Arctic has not experienced union organization in the past. This is changing and the mining and construction industries in Nunavut and northern Ontario in particular have been busy providing skills training and long-term employment to Inuit workers. After half a decade of organization this project seeks to ask: what has the Inuit experience been like? How/has working with unions and industry benefitted (or not benefitted) their labour experiences? Clearly there are massive infrastructural, energy, and resource extraction investments planned or underway in northern Indigenous territories that will continue to draw contractors and unions to the region. Hence a study of experiences, barriers, and benefits, is warranted at this time.

Effective Teachers for Successful Students: An Investigation of the Preparation and resiliency of Northern Educators

License Number: 05 13 23N-M

Principal Investigator: Snow, Kathy

Affiliation: Faculty of Education
University of Prince Edward Island
Charlottetown, PEI, Canada
ksnow@upei.ca

Number in Party: 2

Research Locations: All Communities

SUMMARY

The aim of this project is to respond to the needs identified by the National Inuit Committee on Education (NICE) related to Inuit education. Building on research and educational reform work currently being done in Inuit Nunangat, this project will generate evidence of promising practices in Inuit-specific teacher education and in the ongoing support for Inuit teachers to transition into education leadership. In partnership with the four Inuit regions we will investigate what brings Inuit into the education profession, how Inuit teachers are trained and what supports and professional learning are and/or need to be accessible, to ensure resiliency, retention and the progression of Inuit teachers into educational leaders in schools.

Access to Safe, Sustainable, & Healthy Housing in Cambridge Bay, Nunavut

License Number: 04 009 23R-M

Principal Investigator: Song, Gloria

Affiliation: Faculty of Law
University of Ottawa
Ottawa, Ontario, Canada
gsong028@uottawa.ca

Number in Party: 2

Research Locations: Cambridge Bay

SUMMARY

The purpose of this project is to conduct an institutional ethnography to understand people's experiences of the housing shortage in Cambridge Bay, Nunavut, with the objective of understanding how housing-related processes (such as public housing applications, landlord-tenant disputes, and other matters relating to securing sustainable housing) play out in reality, as people experience them, compared to the way such processes have been prescribed in institutional texts and legal frameworks. Understanding how these processes work and what disconnections there may be between institutional/legal frameworks and reality will in turn inform broader questions about what access to justice means in Nunavut. This project's approach will also be informed by Inuit Qaujimajatuqangit, and will incorporate guidance provided by Inuit for conducting research ethically and respectfully in Inuit Nunangat. In conceptualizing access to justice in Nunavut by using institutional ethnography as the research methodology, informed by Inuit Qaujimajatuqangit, this proposed research will also provide a unique opportunity to analyze the practical compatibility between the three conceptual frameworks of access to justice, institutional ethnography, and Inuit Qaujimajatuqangit.

A New Portrait of Social Economy Organizations in Northern Canada

License Number: 01 016 23N-A

Principal Investigator: Southcott, Chris

Affiliation: Department of Sociology
Lakehead University
Thunder Bay, Ontario, Canada
chris.southcott@lakeheadu.ca

Number in Party: 2

Research Locations: Iqaluit

SUMMARY

Starting in 2006, a northern-based research network, the Social Economy Research Network for Northern Canada (SERNNoCa) was created to find out how social economy organizations in Canada's North could better help northern communities deal with the various social and economic problems they faced. This organization was active from 2006 until 2013 when a lack of funding resulted in reduced activities. The federal government is now planning on supporting social economy organizations (which they refer to as social purpose organizations) so they can be more effective in helping communities deal with the challenges they face. They have therefore given us funding to update the findings of the SERNNoCa project. We believe these organizations are important to the future development of Northern communities. Our research intends to find ways to help these organizations grow. Building on the earlier work of SERNNoCa, a new portraiture project will be undertaken in 2023 to find out more information about what social economy organizations currently exist in the region, their characteristics, and what are the challenges that they face.

Assessment of the Viability of Goose Harvesting as a Response to Food Sovereignty in Arviat

License Number: 03 013 23N-M

Principal Investigator: Tagalik, Shirley

Affiliation: Aqqiumavvik Society
Arviat, Nunavut, Canada
arviatwellness@gmail.com

Number in Party: 10

Research Locations: Arviat

SUMMARY

Our overarching research objective is to investigate the viability of an increased harvest of geese and eggs to contribute to food security in Arviat in the context of climate change. Our work is poised to make significant impacts in efforts to: i) restore Inuit relationships with geese; ii) address food sovereignty issues and legislation impacting goose harvests; iii) promote climate change awareness and action in Arviat; iv) restore nutritionally rich diet options within the community; and v) develop a model of community monitoring/sustainable harvesting for other communities. Our work in this first stage of the research will focus on engaging Arviarmiut in considering how to collectively build knowledge around geese within an Inuit food system. Over the course of 4 years we will monitor actual goose health and environmental indicators as per our activities outlined earlier.

Learning from One Another: A Comparative Analysis of Labour Market Needs and Corresponding Skills in Yukon, Nunavut and Northern Ontario

License Number: 01 004 023R-M

Principal Investigator: Thompson, Amanda

Affiliation: Conference Board of Canada
Ottawa, Ontario, Canada
thompson@conferenceboard.ca

Number in Party: 2

Research Locations: Iqaluit

SUMMARY

The Conference Board of Canada and its partners are conducting research to better understand the evolving labour market needs of three distinct Northern regions – Yukon, Nunavut and Northern Ontario. We will map the findings of this needs assessment against existing skills within these regions to determine corresponding employment gaps and opportunities. The project will also highlight leading practices in skills development that can be used to meet emerging labour market demands and identify opportunities for developing new approaches to skills development.

Implementation and Transformation of a traditional kindergarten to an Inuit Qaujimajatuqangit Montessori Kindergarten

License Number: 03 021 22Registry-Amended

Principal Investigator: Tulugak, Ashley

Affiliation: University of Prince Edward Island
Rankin Inlet, Nunavut, Canada
astulugak@upei.ca

Number in Party: 2

Research Locations: Rankin Inlet

SUMMARY

My research on the implementation and transformation of a traditional kindergarten to an Inuit Qaujimajatuqangit Montessori Kindergarten aims to provide a framework for educators in Nunavut and Inuit Nunangat of a culturally relevant, play-based, child-centered, trauma sensitive and inclusive learning environment. The Inuit Qaujimajatuqangit Montessori Kindergarten model is inspired by the award-winning Inuit Qaujimajatuqangit Preschool program by Pirurvik Preschool. Effective teaching methods that are meaningful to Nunavummiut are greatly needed to support students cognitively, emotionally, and culturally. The Inuit Qaujimajatuqangit Montessori approach is an extraordinary model that students have been greatly benefitting from.

Inuksiutit: Food Sovereignty in Nunavut and the co-production of country food knowledge (IFSNu)

License Number: 03 018 23R-M

Principal Investigator: Wachowich, Nancy

Affiliation: Department of Anthropology
University of Aberdeen
Aberdeen, Scotland, UK
n.wachowich@abdn.ac.uk

Number in Party: 18

Research Locations: Pond Inlet, Arviat, Kinngait

SUMMARY

Our community-based research project responds to challenges identified in the Inuit Tapiriit Kanatami (ITK) Food Security Strategy, ITK Climate Change Strategy, and National Inuit Strategy on Research (NISR). This Inuit-led project seeks to record and share knowledge of Inuit country food systems and food preparation. The research project will advance goals of achieving food sovereignty in Inuit Nunangat by sharing knowledge about ways of preparing and preserving country food and asserting the importance of country food to Inuit culture and health. This research will also help to support public health decision-making, and support communities to continue to keep country food safe.

An Early Childhood Education Diploma Program for Inuit Women in Nunavut, Canada

License Number: 020 13 23R-M

Principal Investigator: Wasalik, Tin Zoo (Tina)

Affiliation: Faculty of Secondary Education
University of Alberta
Edmonton, Alberta, Canada
wasalik@ualberta.ca

Number in Party: 2

Research Locations: Pond Inlet

SUMMARY

My main objective is to promote blended educational approaches as an effective means of instruction and learning in Arctic education. I will achieve this objective by interviewing participants about their educational and employment experiences following the 2015 - 2017 ECE Diploma Program. In addition to a written dissertation, I plan on turning my research findings into a report which will be presented to the Government of Nunavut. By completing this academic research, I hope that the Government of Nunavut will recognize the benefits of this Diploma Program for Arctic communities and allocate funds for future programs across the Territory.

Exploring Reading Comprehension in Elementary Classrooms in Nunavut

License Number: 03 012 23N-A

Principal Investigator: Wells, JuneEllen

Affiliation: Faculty of Education
Memorial University of Newfoundland
Arviat, Nunavut, Canada
jwell@gov.nu.ca

Number in Party: 2

Research Locations: Arviat

SUMMARY

The implementation of an effective, culturally relevant, evidence-based curriculum is paramount to the educational success of Nunavut youth. This is particularly important for reading instruction. Since 1999, Nunavut has adopted much of the curricula and resources from other provinces and territories. However, often these resources do not reflect the culture or interests of Nunavut children and as such, teachers often struggle to provide effective, culturally relevant and engaging instructional reading practices to students. Children of Nunavut deserve the best education that is available. A lack of culturally relevant and educationally effective resources hinders the development of strong literacy learning in both Inuktitut and English. A key tenet of culturally relevant teaching is providing all students with highly effective instruction through evidence-based, culturally relevant teaching practices. The purpose of this research is to explore literacy instruction in Nunavut elementary classrooms and examine how they may impact the development of strong reading comprehension skills that are necessary for academic success. This study will potentially provide the impetus for more in-depth literacy research in Nunavut that will provide insights for program and policy makers to implement change to better support reading development for Nunavut youth. This research will examine the question "What theories of reading development and instruction underpin Nunavut elementary school teachers' literacy teaching practices as evidenced by classroom observations and interviews with teachers?"

GENICE II: Reimagining Monitored Natural Attenuation as an Oil Spill Response Tool in the Arctic

License Number: 03 015 23N-M

Principal Investigator: Wilson, Nicole

Affiliation: Centre for Earth Observation Science
University of Manitoba
Winnipeg, MB, Canada
nicole.j.wilson@umanitoba.ca

Number in Party: 8

Research Locations: Chesterfield Inlet

SUMMARY

GENICE II is a large-scale project which looks at how spilled oil gets broken down by microorganisms in arctic water, and how knowledge on this process can be integrated into decision-making around spill prevention and response. The objective of this component of the project (activity 2 & 3) is to co-develop Community-Based Monitoring and Policy Analysis related to oil spills to support Inuit self-determination. We will conduct the research between January 2023 to December 2026. At a minimum, it will involve annual trips to the Kivalliq Region of Nunavut. We have partnered with Chesterfield Inlet, NU with support from the Aqigiq HTO and the Hamlet Office. Additional communities may be added as we develop partnerships. Trip lengths will range from three to two weeks, depending on the research activity.

Climate Change and Adaptation Strategies for Local Mobilities and Marine Shipping in Arctic Canada

License Number: 02 048 23N-M

Principal Investigator: Yaremko, Jeffrey

Affiliation: Institute of the Environment
University of Ottawa
Ottawa, Ontario, Canada
jyare082@uottawa.ca

Number in Party: 3

Research Locations: Pond Inlet

SUMMARY

The aim of this research project, which has been established in direct partnership with a community organization in Pond Inlet (Ikaarvik), is to understand community perspectives on climate change impacts (current) and risks (future) and adaptation options for marine-based and land-based transportation in and around Pond Inlet, Nunavut. The specific objectives include to: 1) inventory and rank community perspectives on the range, likelihood, and risk of potential (a) marine shipping and (b) local transportation (boat, ATV, snowmobile, dogsled, other) accidents; 2) identify community perspectives on how well prepared the community feels for dealing with shipping accidents and incidents; and 3) assess the feasibility and effectiveness of adaptation strategies that may reduce the impact and risk of climate-change induced risks to local transportation.

Indigenous Clothing Ensembles: Indigenous Knowledge & Performance Evaluations to Enhance Northern Safe Practices

License Number: 03 008 22N-A-Amended

Principal Investigator: Barker, Anne

Affiliation: National Research Council of Canada
Ottawa, Ontario, Canada
anne.barker@nrc-cnrc.gc.ca

Number in Party: 4

Research Locations: Arviat, Pangnirtung, Rankin Inlet

SUMMARY

The goal of this project is to investigate how Indigenous clothing can, as part of harsh weather personal protective equipment, lead to increased personal safety and security in Arctic environments. The study is needed for two reasons. Indigenous Knowledge provides leadership when it comes to protecting people from the elements in northern, often harsh, environments, with hundreds of years of successful development of clothing to protect people from the environment. Garments have been developed with natural items, through observations that the materials have properties that promote water resistance, wicking, and heat retention; all properties required for northern operations. However, there has been little research on the thermal protection offered by such clothing. Because of this, it can be difficult for crafters to promote their clothing compared to large-scale, commercially available clothing that typically has undergone such testing. Secondly, Government departments with operational requirements in the Arctic have commented that the typical clothing worn by their personnel are a limiting factor for successful operations in the north. Frostbite, hypothermia, and challenges with basic usability of equipment with bulky outerwear, are all example problems faced by staff.