2021 Compendium of Nunavut Research
2021 ᓄᐊᑕᐅᓯᒪᔭᖅᓯᓪᓗ ᓄᓇᕗᒻᒥᓪᓗ ᖃᐅᔨᓴᐃᖅᑎᑕᐃᓐᓇᓯᓪᓗ

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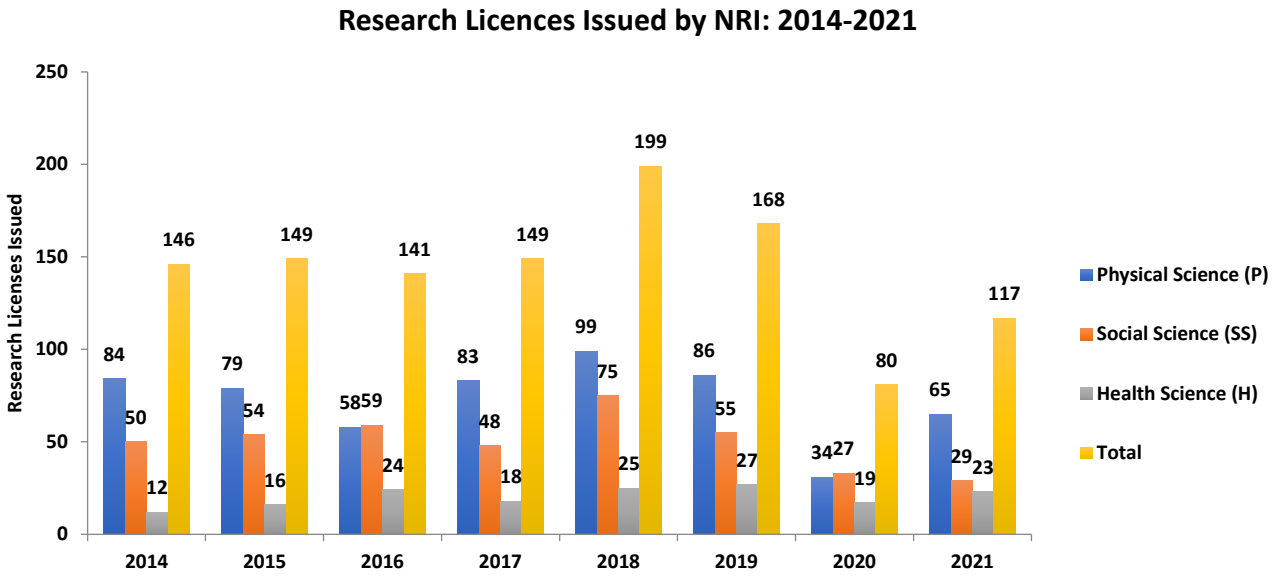
Message from the Senior Research Officer

After much delay, I am pleased to present our compendium of research projects licensed under Nunavut's *Scientists Act* in 2021. I encourage you to reach out directly to the research license holders to learn more about their projects.

The ongoing COVID-19 pandemic continued to impact research in Nunavut in 2021, and much like 2020, a significant number of licensed of projects had to cancel or defer fieldwork for the entire season. Many non-resident researchers continued to work remotely (e.g. using internet and phone surveys instead of in-person visits). Nunavummiut again played a critical role in planning and conducting important scientific activities (e.g. collecting and processing samples, deploying and servicing field instruments, etc.) on behalf of non-resident researchers unable to travel to Nunavut.

The easing of public health restrictions in Nunavut in 2021 did result in a noticeable increase in the amount of research compared to 2020. The NRI issued 117 research licenses in 2021, which is about 32% more licenses than we issued in 2020 (80). Still, this number is significantly lower than the average of licenses (158) issued in years prior to the pandemic.

Of the 117 licenses issued in 2021, 29 were for social sciences research, 65 for physical/natural sciences, and 23 were issued to health research.



I applaud the many research leaders and champions in our communities. Nunavut Arctic College is committed to building research capacity in Nunavut and to fostering opportunities for Nunavummiut to participate in, learn from, and most importantly, to lead and direct science that addresses the needs of our communities. Science in our territory can only be resilient, equitable, and sustainable if Nunavummiut are directly and meaningfully involved throughout all stages of research.

We are 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 the territory. I again want to acknowledge the many Nunavummiut who designed and led their own research projects, and who provided interpretation, translation, outfitting, guiding, data collection, and other essential expertise to ensure the safety and success of research in 2021.

If you would like to learn more about how to get involved in a research project, 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.

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ᑐᓴᕐᓴᖅ ᐊᖏᕈᓴᖅᑲᖏᓐᓄᓕᒃ ᖃᐅᔨᓴᖅᑎᑎ

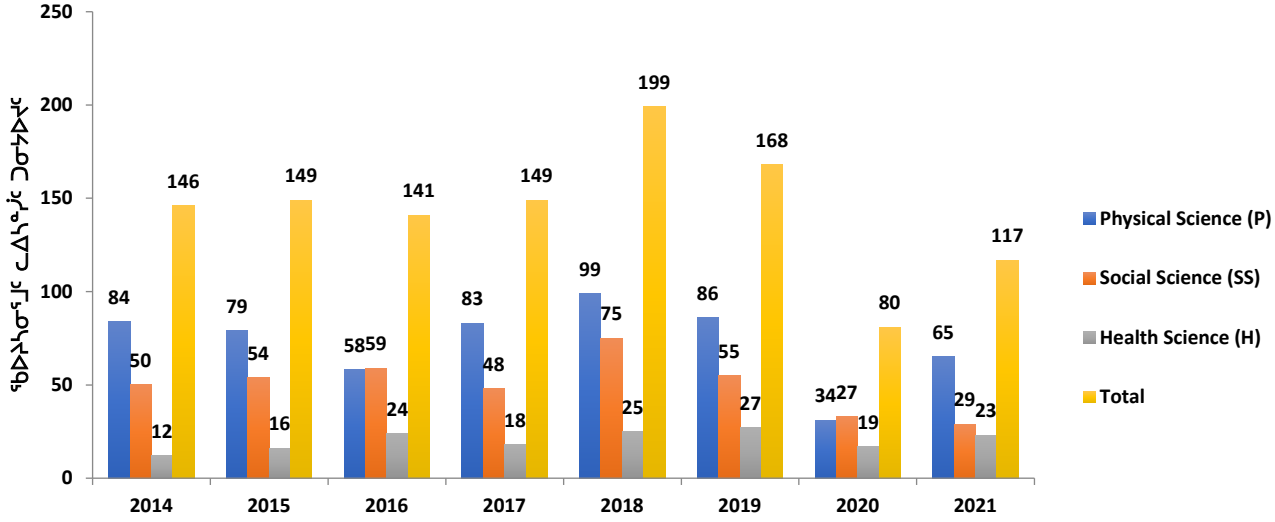
ᑭᖓᔪᖅᓯᒪᓕᕆᓂᕐᑕᑐᓄ, ᖃᐅᐹᐊᓱᑐᖓᓄ ᑐᑎᓯᑐᖓᓄ ᑲᑎᖅᑐᖅᓯᒪᔨᒋᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᒍ ᐱᒋᕆᐊᒋᑦ ᑕᐃᓴᖏᓪᓗ ᐊᒋᑦ ᓄᓇᕗᓴᒥ *ᖃᐅᔨᓴᖅᑎᑲᓂᕐ ᐱᖓᓱᖅ* 2020ᒥᑦ. ᐃᒋᖏᓪᒋᑦ ᖃᐅᔨᓴᐅᐊᖓᔪᓂᖏᓐᓄᓕᒃ ᖃᐅᔨᓴᖅᑎᓪᓗᒍ ᑕᐃᓴᖏᓪᓗᓯᒋᑦ ᑎᑐᒪᐊᖅᑎᒋᑦ ᖃᐅᔨᓴᐅᐊᕆᔭᖅᑐᑦᑕᒪᔭᐃᓕᑦ ᐱᒋᕆᐊᖏᓪᒋᑦ.

ᑲᔪᓯᒋᒋᐊᖏᓪᓇᖅᑐᖅ ᓄᓯᕐᔪᐊᖓᓇᖅ-19 ᐋᖏᓪᒋᐊᖓᓇᖅ ᐊᑐᐃᐃᓂᖅᑎᑎᑲᓪᓚᖅᑐᖅ ᖃᐅᔨᓴᖅᑎᓪᓗᒍ ᓄᓇᕗᓴᒥ 2021, ᐊᒻᒪ ᐊᐳᔨᖏᑎᑐᒋ 2020, ᐊᒥᓱᓕᕐᐃᑦ ᑕᐃᓴᖏᓪᓗᖅᑐᖅᑐᒋ ᐱᒋᕆᐊᒍᑦ ᓄᖅᑲᖅᑎᑕᐅᔭᕆᐊᖃᕐᓂᖅᑐᖅᑐᒋ ᐅᖃᖅᑐᓂᓗ ᐅᓂᒃᑳᓂᓗ ᐅᐱᒍᓐᓇᖅᑐᓂᓗ ᖃᐅᔨᓴᖅᑎᑎᒋᑦ ᐊᖓᔪᖅᑐᑦ. ᐊᒥᓱᓕ ᓄᓇᕗᒻᒥᐅᑕᐅᖏᓐᓂᒋᑦ ᖃᐅᔨᓴᖅᑎᖅᑲᓂ ᐃᓅᖅᑲᐅᑎᓕᒃ (ᓱᓕᓗ, ᐊᑐᖅᑐᑎᑦ ᐊᒻᒪ ᐅᖃᖅᑐᖅᑕᐅᔭᕆᐊᖃᕐᓂᖅᑐᖅᑐᒋ ᐊᑐᐃᓐᓇᖅᑐᑦ). ᓄᓇᕗᒻᒥᐅᑦ ᐱᓪᓚᕆᐅᔨᒥᑦ ᐱᒋᕆᐊᓕᕐᓂᖅᑐᖅᑐᒋ ᐸᖅᓯᐅᓂᖅᑐᑦ ᐊᒻᒪ ᐱᒋᕆᐊᓕᕐᓂᑦ ᐱᓪᓚᕆᐅᔨᔪᑦ ᐱᒋᕆᐊᒍᑦ ᐊᓯᖏᓪᓕᕆᓂᖅᑐᖅᑐᒋ ᐱᓪᓚᕆᐅᔨᔪᑦ ᐱᒋᕆᐊᒍᑦ (ᓱᓕᓗ, ᓄᐊᖓᑎᓪᓗᒋᑦᓄᓇᓕᒃ ᐊᒻᒪ ᖃᐅᔨᓴᖅᑎᓪᓗᖅᑐᖅᑐᒋ, ᐊᑦᑐᕐᓯᓂᓪᓗᒋᑦᓄᓇᓕᒃ ᐊᒻᒪ ᐱᓕᕆᖃᓪᓗᒋᑦᓄᓇᓕᒃ ᖃᐅᔨᓴᖅᑎᑎᒋᑦ, ᐊᓱᖏᑦᑕᓗ) ᑭᓱᑐᖅᑐᑎᑦ ᓄᓇᕗᒻᒥᐅᑕᐅᖏᓐᓂᒋᑦ ᖃᐅᔨᓴᖅᑎᖅᑲᓂ ᐊᐅᓚᑦᓯᐊᓕᐅᖏᓐᓂᒋᑦ ᓄᓇᕗᒻᒥᑦ.

ᖃᐅᔨᐊᖅᑎᑕᐅᓂᖏᓐᓂ ᐃᓄᓐᓄᑦ ᐋᖏᓪᒋᐊᖅᑐᑕᓪᓚᓪᓗᒋᑦ ᑭᓚᓪᖅᑐᖅᑎᑕᐅᔪᑦ ᓄᓇᕗᒻᒥᑦ 2021-ᒥ ᓴᖅᑭᑎᑎᓕᐅᖅᑐᖅᑐᒋ ᖃᐅᔨᔪᖓᓴᐅᔪᓂᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᐊᐳᔨᑎᓐᖓᐃᐊᖅᑐᖅᑐᓄ ᓴᓂᒥ 2020. ᓄᓇᕗᒻᒥᑦ ᖃᐅᔨᓴᖅᑐᑕᓪᓚᓕᒃᑯᑦ ᑐᓂᓯᓕᐅᖅᑐᖅᑐᒋ 117 ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᕿᐅᔨᖏᓪᓂᑦ 2021-ᒥᑦ, ᖃᐅᓂᒃᖠᓂᕐᑐᒋ 32% ᕿᐃᓴᖏᓪᓕᕆᓂᖅᑐᖅᑐᒋ ᑐᓂᓗᐅᕿᐅᖅᑐᖅᑐᒋ ᓴᓂᐊᓂ 2020 (80). ᓯᑕ, ᐊᒥᓯᓂᖏᓐᓂ ᐊᒋᑎᓂᖅᑎᑦᓯᐊᓕᒃ ᕿᐃᓴᖏᓪᓕᕆᓂᖅᑐᖅᑐᒋ (158) ᑐᓂᓗᐅᑦᓯᐊᓕᐅᖅᑐᖅᑐᒋ ᐊᑦᑕᒍᒥ ᐊᒋᐅᓯᒥᑦ ᓯᓚᐅᑎᓂᖅᑐᖅᑐᒋ ᐊᑦᑕᒍᖏᓐᓂᒃ ᐋᖏᓪᒋᐊᓕᕐᓇᓕᒍᑦ.

ᐅᑯᓇᓂ 117 ᕿᐃᓴᖏᓯᒋᑦ ᑐᓂᓗᐅᔨᓂᑦ 2021ᒥᒃ, 29 ᐃᓅᓴᖅᑎᑦᓯᐊᓪᓗᒋᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᐅᔨᔪᑦ, 65 ᓄᓇᖓᓄ/ᖃᓄᐃᑕᖓᓄᖓᓕᕆᓂᖅᑐᖅᑐᒋ ᖃᐅᔨᓴᖅᑎᓪᓗᐅᔨᔪᓕᖅᑲᒃ, ᐊᒻᒪ 23 ᑐᓂᓗᐅᕿᐅᖅᑐᖅᑐᒋ ᐋᖏᓪᒋᐊᖅᑐᑕᓪᓚᓪᓗᒋᑦ ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ.

ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᕿᐃᓴᖏᓯᒋᑦ ᑐᓂᓗᐅᔨᔪᑦ ᓄᓇᕗᒻᒥᑦ ᖃᐅᔨᓴᖅᑐᑕᓪᓚᓕᒃᑯᓂᖅ: 2014-2021



ᐅᐱᑎᔭᒃᑲ ᐊᒥᓱᓂ ᖃᐅᔨᓴᖅᑎᓪᓗᒋᑦ ᓯᓚᑦᓴᖅᑐᑦ ᐊᒻᒪ ᐱᓕᕆᐅᓪᓚᕆᔨᒃᑯᑦ ᓄᓇᕗᑦᑎᓐᓂᑦ. ᓄᓇᕗᒻᒥᑦ ᓯᕗᓪᒋᑐᓴᖅᓯᒪᔪᑦ ᑲᑎᖅᑐᖅᑐᓴᐅᓚᖅᑐᖅᑐᒋ ᓄᓇᕗᒻᒥᑦ ᐊᒥᓱᓯᖏᓪᓕᕆᓂᖅᑐᖅᑐᒋ ᐱᓕᕆᐅᓪᓚᕆᔨᒃᑯᑦ ᓄᓇᕗᒻᒥᐅᓄ, ᐃᓕᓴᕐᓂᖅᑐᖅᑐᒋ, ᐊᒻᒪ ᐱᓪᓚᕆᐅᓪᓚᕆᔨᒃᑯᑦ ᓄᓇᕗᑦᑎᓐᓂᑦ, ᓯᓚᑦᓴᖅᑐᖅᑐᒋ ᐊᒻᒪ ᑐᓂᓗᐅᕿᐅᖅᑐᖅᑐᒋ ᐱᓕᕆᐅᓪᓚᕆᔨᒃᑯᑦ ᓄᓇᕗᑦᑎᓐᓂᑦ. ᖃᐅᔨᓴᖅᑎᓪᓗᖅ

ᓄᓇᕗᒻᒥ ᓴᓐᖏᔫᒍᓐᓇᖅᑐᖅ, ᐊᔾᔨᒌᓐᓂᖅᑲᕐᓗᓂ, ᐊᒻᒪ ᒪᑭᒪᑎᑕᔅᓴᐅᓗᓂ ᓄᓇᕗᒻᒥᐅᑕᐃᑦ ᑕᕝᕗᖓᑦᑕᐅᑎᒋ ᐊᒻᒪ ᑐᑭᖅᑲᑦᑎᐊᖅᑐᒥᑦ ᐃᓚᒋᔭᐅᓗᑎ ᐊᑕᖏᖅᑐᒋᑦ ᖃᐅᔨᓴᕐᓂᓕᒫᖓᔪᓂᑦ ᐊᑐᖅᑕᐅᔪᓂᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ.

ᖁᔭᓕᓗᐊᖅᑕᕗᑦ ᐊᒥᓱᑦ ᐃᓄᐃᑦ ᐊᒻᒪ ᑲᑐᔾᔨᖅᑲᑎᒌᑦ ᓄᓇᕗᓕᒫᒥ ᐃᓚᒋᒋᔭᐅᖅᑲᑕᐅᓚᐅᖅᑐᑦ ᓄᓴᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ ᓚᐃᓴᓐᓯᖅᑲᖅᑎᑦᑎᓂᕐᒧᑦ ᐊᒻᒪ ᐅᕙᑦᑎᓐᓂ ᐃᑲᔪᓚᐅᖅᑐᑦ ᖁᕝᕙᓯᑦᑐᓂ ᐱᐅᔫᓪᓗᑎ ᐊᑐᐊᒐᐃᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ ᓄᓇᕗᒻᒥ. ᐃᓕᓴᖅᓯᑲᓐᓂᕈᒪᔪᖓ ᐊᒥᓱᓂᑦ ᓄᓇᕗᒻᒥᐅᓂᑦ ᐱᒻᒪᕆᐅᔪᓂᑦ ᐃᑲᔪᓚᐅᖅᑐᑦ ᓲᕐᓗ ᑐᓵᔨᐅᓂᕐᒧᑦ, ᑐᑭᓯᓇᖅᓯᑎᑦᑎᓂᕐᒧᑦ, ᐊᐅᓪᓚᕈᔾᔨᓂᐅᓂᕐᒧᑦ, ᐊᐅᓪᓚᕈᔾᔨᓂᕐᒧᑦ, ᑐᑭᓯᒋᐊᕈᑏᑦ ᓄᐊᑕᐅᓂᖏᓐᓄᑦ, ᐊᒻᒪ ᐊᓯᖏᓐᓄᑦ ᐱᔾᔪᑎᖅᑕᐅᔪᓄᑦ ᐊᒻᒪ ᖃᐅᔨᒪᓂᖏᓐᓄᑦ ᐊᑦᑕᓇᖏᑦᑐᒥ ᐊᒻᒪ ᑲᔪᓯᑦᑎᐊᖅᑐᒥ ᖃᐅᔨᓴᓂᕐᒧᑦ 2021ᒥᑦ.

ᖃᐅᔨᒋᐊᒃᑲᓐᓂᕈᒪᒍᕕᑦ ᖃᓄᖅ ᐃᓚᒋᔭᐅᖅᑲᑕᐅᔪᓐᓇᓂᖓᓄᑦ, ᐅᕙᓐᓄᑦ ᐃᓱᒫᓘᑎᖅᑲᕈᕕᑦ ᖃᐅᔨᓴᓂᕐᒧᑦ ᐱᓕᕆᐊᖅ ᐊᑦᑕᓇᖅᑎᑦᑎᒍᓂ ᐅᕝᕙᓃᒃ ᐸᕕᓴᐃᓗᓂ ᐃᕝᕕᑦ ᓄᓇᓕᖓᓂ ᐅᕝᕙᓃᒃ ᐊᕙᑎᖓᓂ, ᖃᐅᔨᒋᐊᕐᕕᒋᓂᐊᖅᑲᑦ ᐊᓪᓚᕕᕗᑦ.

ᑐᑭᓯᒋᐊᒃᑲᓐᓂᕈᒪᒍᕕᑦ ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ ᒥᔅᓴᓄᑦ ᐊᒻᒪ ᐱᓕᕆᐊᑦᑎᓐᓂᑦ ᐊᒻᒪ ᐱᔾᔪᑎᖅᑕᑎᓐᓂᑦ, ᖃᐅᔨᒋᐊᕐᕕᒋᒍᒃ ᖃᕋᓴᐅᔭᒃᑯᑦ ᐅᕙᓂ www.NRI.nu.ca.

ᔭᒥᐅᓪ ᓲᕐᓕ
ᑐᑭᒧᐊᖅᑎᑦᑎᔨ ᐃᓱᒪᒋᔭᖅᑲᓘᔭᓂᕐᒧᑦ ᐊᒻᒪ ᖃᐅᔨᓴᓂᕐᒧᑦ
ᓄᓇᕗᒻᒥ ᖃᐅᔨᓴᖅᑐᓕᕆᔨᒃᑯᑦ
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Jamal.shirley@arcticcollege.ca

Health

Implementation of a Maternal Pertussis Immunization Program: Improving Coverage Among Inuit Women

License Number: 01 004 21R-M

Principal Investigator: Halperin, Donna

Affiliation: St. Francis Xavier University
Antigonish, NS, Canada
dhalperi@stfx.ca

Number in Party: 16

Research Locations: Arviat, Iqaluit

SUMMARY

We are conducting a three-year study during which time we aim to determine the knowledge, attitudes, beliefs, values and behaviours of community Elders, healthcare providers, and pregnant women about maternal immunization. We hope to explore the usefulness of the Tdap and influenza vaccine programs, and to look at what barriers, facilitators, and factors influence a woman's decision to be vaccinated. This will be achieved through a research approach that includes individual narrative collection with community experts, sharing circles with pregnant women and healthcare providers, and surveys of pregnant women. Researchers from the Canadian Center for Vaccinology have been working in close partnerships with our Northern community counterparts and other key stakeholders throughout the development of this research project, using Indigenous and more specifically Inuit frameworks of thought to guide the process.

Capturing the anticipated/unanticipated consequences of COVID-19 among Indigenous peoples in Arctic communities

License Number: 05 014 21N-M

Principal Investigator: Sharma, Sangeeta

Affiliation: Li Ka Shing Centre for Health Research Innovation
University of Alberta
Edmonton, Alberta, Canada
gita.sharma@ualberta.ca

Number in Party: 17

Research Locations: Cambridge Bay, Kugaaruk, Iqaluit, Pangnirtung, Rankin Inlet

SUMMARY

Starting in March 2020, Nunavut put in place a number of measures to prevent the virus from spreading, including travel bans and closing schools and businesses. Although some of these measures have been relaxed over time, we do not know what the effect of these measures has been on the lives of people living in Nunavut communities. For these reasons, using Indigenous methods to understand the impacts of the pandemic as well as the measures to prevent the virus from spreading amongst Nunavut communities, is crucial. This project will help to understand how people in Nunavut communities are being affected by the pandemic. We will ask people in 6 Nunavut communities for personal experiences during the pandemic and how it is affecting daily life. We will also talk to healthcare workers and members of the government about how it has been to try to prevent the virus from spreading in Nunavut, as well as how it has been to treat people with the virus. We are partnering with Aqqiumavvik Arviat Wellness Society who will hire local community members to interview people in each community. The interviews will be done over the phone or using Zoom. The local staff will find people to interview through social media, community bulletin boards, and by telephoning people in the community.

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

License Number: 05 003 21N-M

Principal Investigator: Zwerling, Alice

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

Number in Party: 3

Research Locations: Ottawa

SUMMARY

The goal of this study is to create computer-based models to help predict the impact and cost-effectiveness of new tuberculosis (TB) screening programs to actively find persons at risk of developing TB throughout Nunavut. This study will provide Nunavut-specific information for local decision makers to better understand how TB programs can be changed to improve the health of communities while spending the least amount of money (i.e. cost-effective manner).

Implementation and Outcomes of Active Case Finding for Tuberculosis (TB) in Children <= 15 years old in Three Community-Wide Screening Clinics in Nunavut, Canada

License Number: 03 002 21N-M

Principal Investigator: Dwilow, Rachel Ann

Affiliation: Pediatric Infectious Diseases
University of Manitoba
Winnipeg, Manitoba, Canada
rachel.dwilow@umanitoba.ca

Number in Party: 4

Research Locations: Winnipeg (Remote research)

SUMMARY

In 2018/2019 the Nunavut TB program ran TB clinics in Qikiqtarjuaq, Whale Cove, and Kinngait. Everyone in these communities was invited to come and get checked for TB. The goal was to find and treat everyone with TB to prevent it from spreading and making more people sick. People were asked questions about their health and if they felt sick. Everyone had a chest x-ray, TB skin test, and coughed into a container. This project will look at the data collected in all the children <= 15 years old that came to one of these clinics. We will look at what the caregivers told us about their children and what their tests showed. We check for similarities in the children that were screened and then see if there are similarities in the children who were treated for TB.

Using natural language processing to determine prevalence of pre- or asymptomatic COVID-19 in patients undergoing chest CT for non COVID indications within Eastern Ontario and Nunavut - a collaborative multicenter observational study

License Number: 05 008 20N-M-Amended

Principal Investigator: Aviv, Richard

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Number in Party: 3

Research Locations: Ottawa

SUMMARY

This is a multi-center observational study which comprises both a retrospective (January 1 - April 30, 2020) and a prospective (May 1, 2020 - January 1, 2021) component. The current proposal draws upon a collaboration between Eastern Ontario (Queensway Carleton, Cornwall, Montfort, Pembroke, Winchester, Renfrew, and CHEO) and Qikiqtani, Nunavut to critically evaluate CT chest studies being performed for clinical indications other than suspected COVID-19 and determine the frequency of CT findings that could be attributable to COVID-19. The proposal builds a collaborative network of community and academic radiologists and represents an opportunity to promote a regional approach to innovation in healthcare solutions. Identifying the prevalence of key CT chest report phrases could offer an essentially free technique for monitoring the prevalence of pre- and asymptomatic COVID cases in real time as they evolve in response to changes in policy, screening, and treatment.

The Impact of the COVID-19 Pandemic on Food Sovereignty and Food Security in Nunavut Communities

License Number: 01 010 21R-M

Principal Investigator: Horlick, Sidney

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Number in Party: 2

Research Locations: Arviat, Iqaluit

SUMMARY

This research project has several inter-related objectives:

1. Describe the actions taken to mitigate impacts of COVID-19 in Nunavut;
2. Determine how the COVID-19 pandemic policy response in Nunavut has impacted food security, including food sovereignty, in Nunavut communities;
3. Identify specific actions that mitigated or exacerbated impacts of the pandemic policy response on community food security and sovereignty; and
4. Work with local community organizations to understand how community members perceive the impact of the pandemic on food security and sovereignty in their communities.

Meeting Survivors' Needs: Gender-Based Violence and the Criminal Justice System in Inuit Nunangat

License Number: 01 013 21R-M

Principal Investigator: Kashi, Somayeh (Raha) Ravasian

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Number in Party: 2

Research Locations: Kinngait, Cambridge Bay

SUMMARY

Gender-based violence—physical and sexual assaults against women—is a serious issue. The criminal justice system has been given a key role in responding to this violence. Pauktuutit is conducting a research project to study the criminal justice response to gender-based violence in Inuit Nunangat in order to increase awareness and understanding of the needs, challenges, and service gaps that face Inuit women. The primary research question is: How can the criminal justice system be made more responsive to the needs of Inuit women who experience gender-based violence? The goal is to advance effective criminal justice strategies to alleviate gender-based violence and prevent re-victimization, with a focus on the needs and safety of Inuit women.

Making SPARX Fly in Nunavut

License Number: 05 002 21R-M

Principal Investigator: Bohr, Yvonne

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Number in Party: 18

Research Locations: All Baffin and Kitikmeot Communities

SUMMARY

The proposed research evaluates a holistic, multi-generational intervention designed to enhance resilience and increase mattering. It seeks to integrate Cognitive Behavior Therapy (CBT), an evidence-based approach to preventing depression and suicide, with Indigenous cultural practices that have historically been shown to support resilience in youth. The intervention builds on a recent pilot study that established the usefulness of the SPARX e-intervention in providing CBT strategies to 22 youth at risk for depression in 11 Nunavummiut communities. The proposed, expanded intervention will build on feedback from pilot study participants, namely that: a) SPARX is an effective tool for teaching emotion regulation (ER) and CBT strategies; b) SPARX reduces hopelessness, self-blame, rumination and catastrophizing; and c) SPARX should be adapted to provide a repertoire of culturally valid, constructive cognitive strategies for problem-solving for optimal effectiveness.

Nunavut Housing for All Ages

License Number: 01 009 21N-M

Principal Investigator: Sheppard, Lola

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Number in Party: 2

Research Locations: Arviat, Iqaluit

SUMMARY

"Housing Nunavut for all Ages" (HNA) involves a multidisciplinary academic team, Inuit housing activists, community members, and community researchers, working collaboratively to investigate current needs and to design culturally and demographically-appropriate housing to meet the aspirations of Nunavummiut today and in the future. Through historical research, anthropological perspectives of home, community-based qualitative needs assessment, and collaborative design approaches, HNA examines the potential of more culturally reflective housing types—including Elder, transitional, and multi-generational housing types—as well as new models of ownership and governance. Informed by Nunavut Housing Corporation's "Blueprint for Action", HNA will supplement existing quantitative housing research with a holistic social, policy, and design approach.

COMPASS: Cohort Study Evaluating how changes in School Programs, Policies, and Resources impact Youth Health Behaviours

License Number: 05 006 21R-M

Principal Investigator: Leatherdale, Scott

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Number in Party: 3

Research Locations: Arctic Bay, Pond Inlet, Kimmirut, Resolute Bay, Rankin Inlet, Baker Lake, Kinngait, Iqaluit, Coral Harbour, Pangnirtung

SUMMARY

COMPASS is a Canadian Institutes of Health Research and Health Canada-funded longitudinal study designed to follow a cohort of high school students attending a sample of secondary schools for up to five years to understand how changes in school environment characteristics (policies, programs, built environment) are associated with changes in youth health behaviours. COMPASS originated to provide school stakeholders with the evidence to guide and evaluate school-based interventions related to obesity, healthy eating, tobacco use, alcohol and marijuana use, physical activity, sedentary behaviour, school connectedness, bullying, and academic achievement (a mental health module will be introduced starting in the 2017-18 school year).

Participatory Action for Inuit-Led Research on Food Production and Nutrition in Inuit Nunangat

License Number: 04 012 21N-M

Principal Investigator: Herve, Caroline

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Number in Party: 5

Research Locations: Cambridge Bay

SUMMARY

In Inuit Nunangat, a matter of concern is food security, which is particularly pressured by issues of climate and remoteness. Inuit rely on their adaptative capabilities and traditional knowledge, and on new technologies and collaboration with researchers to face these challenges successfully. The project was developed with the Cambridge Bay community and other partners (GN Department of Health - Kitikmeot region, Nunavut Food Security Coalition, Kitikmeot Inuit Association) and will promote community engagement in favor of local plant food production at a pilot scale. The objective is to support the participatory implementation of a local food production system, creating a training ground to foster the emergence of research conducted by Inuit on technology adoption.

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

License Number: 01 017 21N-M

Principal Investigator: Caughey, Amy

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University of Alberta
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Number in Party: 15

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

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: 03 007 21R-M

Principal Investigator: Anang, Polina

Affiliation: Department of Psychiatry
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Number in Party: 6

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.

Evaluating the impact of cannabis legalization in the Canadian territories

License Number: 05 013 21N-M

Principal Investigator: Hobin, Erin

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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.

To explore the challenges and experiences of healthcare simulation in community health within the Canadian Arctic according to Community health nurses in Nunavut

License Number: 01 020 21N-M

Principal Investigator: Conroy, David

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Number in Party: 2

Research Locations: Sanikiluaq

SUMMARY

My experience in community health prompted my interest in this area after realising the many challenges experienced clinically within the unique environment of Nunavut. As a nurse-led primary care model, it was evident improvements were necessary. Some were related to clinical aspects, including lack of continuing professional development, staffing turnover, lack of training facilities and the apprehension of working in such remote settings. In addition to the context of location, Nunavut encompasses a very sparse geographical landscape, with 25 isolated fly-in communities, limited resources and increasing patient complexities. My interest focused on the broader topic of healthcare simulation and its perceived benefits to community clinical practice. My aim is to review healthcare simulation in more detail and examine the experiences of community health centers in Nunavut.

Unpacking Rehabilitation for Children: Learning from Inuit Perspectives

License Number: 02 035 21R-M

Principal Investigator: MacLachlan, Janna

Affiliation: Dalla Lana School of Public Health
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Number in Party: 4

Research Locations: Iqaluit, Clyde River, Igloolik, Kinngait, Pangnirtung, Qikiqtarjuaq, Pond Inlet

SUMMARY

In mainstream Canada, there is a belief that children who are not able to perform certain skills should be seen by rehabilitation services (occupational therapy, physiotherapy and speech-language pathology) in order to help them catch up with other children their age. There is very little written information about Inuit Qaujimajatuqangit perspectives on rehabilitation for children with differing abilities. Knowing more about this would help rehabilitation professionals to improve their services for Inuit children and families and support Inuit access to self-determination (rights to Inuit knowledge and choice) in their participation with rehabilitation services.

Exploring the effects of cannabis on adults with FASD

License Number: 05 017 21N-M

Principal Investigator: Mansfield, Mela

Affiliation: Department of Psychiatry
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Number in Party: 8

Research Locations: All Nunavut Communities

SUMMARY

Our project aims to examine cannabis use among individuals with Fetal Alcohol Spectrum Disorder (FASD). Our community partner for the project is the Family Advisory Committee (FAC) from the Canada FASD Research Network. The FAC approached our Principal Investigator requesting research to be done on cannabis and FASD, because members of the FASD community, such as caregivers and frontline staff were observing both positive and negative impacts of cannabis use in individuals with FASD. We will gather experiences of adults with FASD with cannabis use and whether there were positive or negative impacts. We will also gather experiences from caregivers and frontline staff who care for individuals with FASD.

The project will use a mixed-methods approach that combines collection of both quantitative and qualitative data. Quantitative data will be gathered using surveys of 100 adults with FASD, as well as 100 caregivers and front line staff, from across Canada. The survey will ask about past cannabis use in individuals with FASD and whether there were any benefits or side effects from cannabis. The survey will also measure health-related quality of life.

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

License Number: 01 024 21N-M

Principal Investigator: Jetty, Radha

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Number in Party: 7

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.

Characterizing the medical and social complexity of Inuit children, youth, and their families from Nunavut who access care at the Children's Hospital of Eastern Ontario (CHEO) – A retrospective chart review of an Inuit Child Health Clinic

License Number: 05 009 20N-A-Amended

Principal Investigator: Ge, Yipeng

Affiliation: Children's Hospital of Eastern Ontario (CHEO)
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Number in Party: 4

Research Locations: Ottawa (Remote research)

SUMMARY

The purpose of this research is to study and characterize the complexities that families cared for by the Inuit Child Health Clinic experience in navigating the health and community environments to identify gaps that exist within their care and understand how we can better support their unique needs. Through this retrospective chart review study we intend to: (1) describe the demographics of the Inuit children and youth being cared for by the Inuit Child Health Clinic; (2) characterize their medical complexity; and (3) characterize their social complexity.

Unintended outcomes of the public health measures associated with the COVID-19 pandemic in Nunavut: Public Health Learnings

License Number: 05 016 21Registry

Principal Investigator: Healey-Akearok, Gwen

Affiliation: Qaujigiartiit Health Research Centre
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Number in Party: 5

Research Locations: All Communities

SUMMARY

The goal of this project is to implement an ecological mixed methods study using primary and secondary data to develop an understanding of both the positive and negative societal outcomes that are a result of the public health measures associated with the COVID-19 pandemic in Nunavut. Primary data analysis involves a researcher using information that they have collected through their own efforts. Secondary data analysis involves a researcher using the information that someone else has gathered for his or her own purposes or that which is collected for surveillance purposes.

Recurrent Tuberculosis in Canada - Translating Whole Genome Sequence Insights into Best Public Health Practice

License Number: 05 018 21R-M

Principal Investigator: Wobeser, Wendy

Affiliation: Queens University
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Number in Party: 3

Research Locations: All Communities

SUMMARY

Objective 1: Establish the relative contribution of reinfection to recurrent TB in four Canadian jurisdictions (Nunavut, Ontario, Alberta and Saskatchewan).

Objective 2: Using an integrated knowledge translation (iKT) approach respectful of Indigenous ways of knowing, develop and share public health knowledge, procedures and guidelines for managing reinfection TB.

Our overall goal is to make a positive contribution to current public health practice and to contribute to the next update of the TB standards. We are seeking strong community engagement to ensure that we develop the public health tools in a way most meaningful and useful to communities, regions and the federal government.

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: 01 026 21N-M

Principal Investigator: Jull, Janet

Affiliation: Queens University
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Number in Party: TBD

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.

Arctic Community Perspectives on Covid-19 and Public Health: A Multi-Site Case Study

License Number: 01 001 21Registry

Principal Investigator: Healey Akearok, Gwen

Affiliation: Qaujigiartiit Health Research Centre
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Number in Party: 4

Research Locations: Iqaluit

SUMMARY

The purpose of this project is to implement a three-phase multi-site case study in each Member State to assess the positive and negative societal outcomes associated with the COVID-19 pandemic in Arctic communities. Specifically, it will assess the impact of public health measures associated with COVID-19. This work will identify community-driven models and evidence-based promising practices and recommendations that can help inform cohesive and coordinated public health responses and protocols related to future public health emergencies in the Arctic.

Physical/Natural Sciences

Testing the Orosirian carbon cycle: Long Island Sound, Nunavut

License Number: 01 003 021N-A

Principal Investigator: Hodgkiss, Malcolm

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Number in Party: 2

Research Locations: Long Island Sound

SUMMARY

The purpose of this scientific research project is to understand the history of the Earth recorded in the geology of Long Island Sound, during the interval approximately 2.0 – 1.8 billion years ago. To achieve this, a geological map for Long Island Sound will be made, by visiting the islands in the area and defining geological units. Small rock samples (~50 to 500 grams) will be collected in the field, and returned to Stanford University for chemical analyses. This project will establish a geological framework for the area, and in the long term, will contribute to a better understanding of the ancient Earth and the environmental conditions that prevailed approximately 2.0 to 1.8 billion years ago.

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

License Number: 02 005 21R-M

Principal Investigator: Mahy, Maryse

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Number in Party: 4

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.

The Arctic Observing Network: Renewing Observations at the Davis Strait Gateway

License Number: 01 022 21N-A

Principal Investigator: Lee, Craig

Affiliation: Applied Physics Laboratory
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Number in Party: 25

Research Locations: Davis Strait, Cape Dyer

SUMMARY

The Davis Strait observing system matches ongoing collections at Bering Strait, Utqiagvik, Alaska, and Fram Strait to extend the time series of concurrent measurements across the major Arctic Gateways, to allow the analysis of several important science questions. In 2021, scientific moorings will be installed in the Davis Strait with support from the Greenlandic R/V Sanna to:

1. Quantify change in Arctic freshwater and heat balances;
2. Understand the interactions between Arctic change and global climate;
3. Document changes in Arctic Ocean acidification and potential impacts on subpolar oceans; and
4. Establish a sustained, international integrated Arctic Observing Network.

Peat Expansion in Arctic Tundra (Baffin Island) - Pattern, Process, and the Implication for the Carbon Cycle

License Number: 01 011 21R-M

Principal Investigator: Camil, Philip

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Number in Party: 4

Research Locations: Kinngait, Iqaluit, Kimmirut (and surrounding area), North Nettilling Lake, North of Amadjuak Lake

SUMMARY

As climate warms, landscapes will increasingly become vegetated, and this will lead to greater storage of carbon in soils. To the extent that arctic landscapes sequester more carbon, this may serve as a carbon sink that could possibly slow the rise in atmospheric greenhouse gases. Scientists refer to this process generally as a greening of the arctic. We are particularly interested in wetland soils, or peat patches, dominated by peatmosses from the genus Sphagnum because they store the most carbon in arctic landscapes. There is evidence from Alaska and elsewhere in the arctic that these peat patches may have expanded in size over the past few decades with warming. The overall goals of our research include: (1) sample soils to measure the amount of carbon stored; (2) relate the soil carbon storage to the types of vegetation present; (3) map the spatial area of vegetation types; and (4) measure potential environmental controls that might be affecting the area of peat patches, including air and soil temperatures, soil moisture, and topography.

Glacial Mass Balance Studies in the Canadian High Arctic

License Number: 02 001 21R-M

Principal Investigator: Burgess, David

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Number in Party: 4

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 and ESS strategic outcomes through activities in the ESS Climate Change Geoscience Programme (CCG) – Essential Climate Variables (ECV).

Investigating the Devon Ice Cap Subglacial Lakes

License Number: 02 008 21R-M

Principal Investigator: Criscitiello, Alison

Affiliation: Department of Earth and Atmospheric Sciences
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Number in Party: 6

Research Locations: Devon Ice Cap, Resolute Bay

SUMMARY

A recent study revealed the first evidence for a hypersaline subglacial lake complex beneath the Devon Ice Cap in the Canadian Arctic using airborne geophysical survey methods. These lakes are salty enough that they can exist at temperatures of -10.50C where freshwater would rapidly freeze. As such, the lakes are globally unique and may represent a microbial habitat, which makes them compelling targets to ask fundamental questions about the existence, evolution and diversity of life in extreme environments on Earth and on other icy planetary bodies in the Solar System. The airborne geophysical data collected to date is highly effective at locating the upper surface of the lakes; however, the airborne geophysical signals cannot penetrate through the lake. Therefore, to map the lake thickness, properties (e.g. salinity) and investigate the structure beneath the lake, multiple surface-based geophysical methods must be used.

SuperDARN Radar Sites

License Number: 02 003 21R-M

Principal Investigator: McWilliams, Kathryn

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Number in Party: 5

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 at 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.

Studying Fog and the Chemistry of the Air in Iqaluit

License Number: 01 014 21N-M

Principal Investigator: Chang, Rachel

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Number in Party: 9

Research Locations: Iqaluit

SUMMARY

The objectives of this project are to study the chemistry of the atmosphere in Iqaluit, especially the interactions between ocean and human emissions in a clean background, as well as the properties of any fog events that occur and their relationship to the aerosol particles. These observations can then be used to constrain air quality models, such as GEM-MACH operated by Environment and Climate Change Canada (ECCC), and would also be relevant for human exposure and climate studies.

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

License Number: 02 007 21R-M

Principal Investigator: Coutts, Victoria Burdett

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Number in Party: 8

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.

Transmit Array Antenna Farm

License Number: 02 009 21R-M

Principal Investigator: Foley, Holly

Affiliation: Defense Research and Development Canada
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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.

Geotechnical and Environmental Baseline Studies – Iqaluit Port Development

License Number: 01 005 21R-M

Principal Investigator: Coutts, Victoria-Burdett

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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 deepwater 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.

Lake Ice in the Canadian High Arctic

License Number: 02 012 21R-M

Principal Investigator: Brown, Laura

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Number in Party: 6

Research Locations: Resolute Bay, 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.

Fisheries and Oceans Canada – Small Craft Harbours – Four-Harbour Feasibility Study Field Program

License Number: 02 011 21R-M

Principal Investigator: McEwan, Eleanor

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Number in Party: 10

Research Locations: Arctic Bay

SUMMARY

Advisian has been retained by Fisheries and Oceans Canada - Small Craft Harbours (DFO-SCH) for the Arctic Bay Harbour Development, which is for the design and construction of a small craft harbour. To execute this, it is essential to understand the exisiting site conditions to support the engineering design. The existing NPC permit (NPC File No. 149402) and NIRB screening was approved in 2019 for the feasibility studies of four small craft harbours in Arctic Bay, Clyde River, Resolute Bay, and Grise Fiord. The scope of this work included field studies of marine, wildlife, vegetation, geoscience, geophysics, and archaeology. It was then extended in 2020 for an additional marine field program. In the spring of 2021, a geotechnical drilling program is intended to build on the information that was gathered during the previous two field programs.

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

License Number: 03 004 21R-M

Principal Investigator: Kuzyk, Zou Zou

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

Number in Party: 2

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.

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

License Number: 01 007 21R-M

Principal Investigator: Heath, Joel

Affiliation: Arctic Eider Society
St. Johns, NL, Canada
heath.joel@gmail.com

Number in Party: 3

Research Locations: Belcher Islands

SUMMARY

This project has been ongoing for the last 15 years to address community priorities for documenting environmental change and informing wildlife co-management. Our focus is on understanding changing sea ice and oceanographic conditions and relationships with changing wildlife populations, with an emphasis on eider ducks as a key indicator species and resource for the community. Baseline data from the last 10 years is ongoing through non-invasive observations including photography, time-lapse photography, water and ice sampling, and video monitoring of eiders and other wildlife. The SIKU app is allowing additional community participation to share observations of wildlife species during harvesting/land use activities. This is providing expanded capacity for baseline data and resource assessment as a part of the planning process for the Qikiqtait protected area that will provide long-term stewardship for the region as a whole.

MAP (Multidisciplinary Arctic Program) - Last Ice

License Number: 02 015 21R-M

Principal Investigator: Michel, Christine

Affiliation: Freshwater Institute
Department of Fisheries and Oceans
Winnipeg, Manitoba, Canada
christine.michel@dfo-mpo.gc.ca

Number in Party: 5

Research Locations: Offshore Alert, Lincoln Sea

SUMMARY

The general objective of this project is to better understand the sea ice ecosystem in the northern Canadian Archipelago, in particular the old multiyear ice. We will use snowmobiles to go to a station on the sea ice where ice conditions are safe. We will have a temporary shelter tent on the ice, which will be used to process sea ice and water samples. At the station, we will collect sea ice cores and cut them in sections for analysis of the ice conditions. We will also collect water samples using sampling bottles and measure salinity and biological conditions. We will use oceanographic instruments to measure the properties (temperature, salinity) of the water column. We also plan to install instrumentation to measure meteorological conditions, ocean currents, and zooplankton during the spring.

NEIGE (Northern Ellesmere Island in the Global Environment)

License Number: 02 016 21R-M

Principal Investigator: Vincent, Warwick

Affiliation: Department of Biology
Laval University
Quebec City, Quebec, Canada
warwick.vincent@bio.ulaval.ca

Number in Party: 15

Research Locations: Northern Ellesmere Island coast, Resolute Bay lakes

SUMMARY

This is a follow-on of our work in the program NEIGE, to continue monitoring and environmental measurements in Quttinirpaaq National Park's lakes, fiords and vicinity. We 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. Our climate stations will continue to provide long-term air and soil monitoring data for this globally important site.

Western Hudson Bay Geoscience for Infrastructure

License Number: 03 005 21R-M

Principal Investigator: Oldenborger, Greg

Affiliation: Natural Resources Canada
Ottawa, Ontario, Canada
greg.oldenborger@canada.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.

Climate Change Effects of a Changing Cryosphere on Northern Lakes

License Number: 02 017 21R-M

Principal Investigator: Dibike, Yonas

Affiliation: Hydrologic Modelling & Hydro-Climate Analysis and Impact Studies
Environment and Climate Change Canada
Victoria, BC, Canada
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Number in Party: 2

Research Locations: Lake Hazen, Lower Dumbell Lake

SUMMARY

Climate change is projected to cause significant change to arctic aquatic ecosystems. Changes in the thickness and composition of arctic lake ice covers will produce second order impacts on lake biological productivity and ecology. The most important effects are likely to result from changes in temperature (ice growth) and precipitation (ice cover composition). While a number of models have been developed to model these changes, their validation has been stalled by lack of relevant field data. Relevant field data has been gathered annually since 2009. For 2021, ice-composition surveys may be repeated, depending on time and resource availability, at the above noted lakes with the assistance of local contractors or agencies. If undertaken, the proposed completion dates for the surveys at the lake sites will be between March 1 and July 30, 2021. Specific dates will be determined based on agency/contractor availability.

CANDAC - The Canadian Network for the Detection of Atmospheric Change

License Number: 02 018 21R-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

Our research program continues to be highly relevant to international partnerships and our collaborators in various global efforts. The Total Carbon Column Observing Network (TCCON), the Network for the Detection of Atmospheric Composition Change (NDACC) and the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) are continuing their interest in our data and science products. PEARL continues to be an important site for satellite validation, and the Canadian Space Agency (CSA) continues to support our operations by contributing to the infrastructure costs and have committed to continued support for 0PAL and SAFIRE power, as well as two more years of support (2020-2021) for the springtime Canadian Arctic ACE/OSIRIS Validation campaigns. We continue to invest in our infrastructure through the upgrading of the local network that links the various sites.

Deployment of Environmental Instrumentation in Greiner Lake, Cambridge Bay

License Number: 04 005 21R-M

Principal Investigator: McLennan, Donald

Affiliation: Polar Knowlegde Canada
Ottawa, Ontario, Canada
donald.mclennan@polar.gc.ca

Number in Party: 9

Research Locations: Greiner Lake Watershed, Cambridge Bay

SUMMARY

For 2021, we would like to do the installation and maintenance activities that were proposed for 2020 but could not be performed due to the pandemic-related lockdown. Please note that these activities can be performed by CHARS staff permanently residing in Cambridge Bay, therefore they can be carried out even if external partners and researchers will not be allowed to come to Cambridge Bay.

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

License Number: 04 006 21R-M

Principal Investigator: Coulombe, Stephanie

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

Number in Party: 11

Research Locations: Victoria Island

SUMMARY

Permafrost (frozen ground) is very vulnerable to rapid changes in climate and has the potential to affect many aspects of life for the people that live there. However, very little information exists on the permafrost conditions in the Central Canadian Arctic. The objective of the project is to gather baseline information on the current permafrost conditions in this part of the Arctic. As a first step, our fieldwork activities will focus on the Cambridge Bay area. This project has three specific objectives: (1) Characterize the permafrost conditions; (2) Monitor changes in permafrost landscapes; and (3) Assess the impacts of permafrost disturbances on the ecosystems.

Ulu Gold Project: Environmental Baseline Program

License Number: 04 007 21N-M

Principal Investigator: Lindsay, Darren

Affiliation: Blue Star Gold Corp.
Vancouver, B.C., Canada
d.lindsay@bluestargold.ca

Number in Party: 60

Research Locations: Hood River Gold Project Study Area

SUMMARY

Blue Star Gold Corp. (Blue Star) owns the Ulu Gold Project (Ulu) in the Kitikmeot Region of Nunavut. Ulu is approximately 220 km southeast of Kugluktuk. Ulu was built in the 1990s as a remote part of the Lupin Gold Mine. It is currently undergoing progressive reclamation and mineral exploration, conducted by Blue Star. Alongside its exploration program, Blue Star wishes to commence baseline environmental studies to inform a possible future impact assessment for a gold mine. Blue Star's activities, including baseline environmental studies, have been screened by the Nunavut Impact Review Board (NIRB) for Ulu (20EN001), as well as its adjacent mineral exploration areas of interest (Hood River; 19EA019). All work undertaken will be based out of the camp at Ulu. Ulu is situated in the Hood River watershed; Blue Star's 2021 field program will occur within this watershed area.

National Glaciology Project - Queen Elizabeth Islands

License Number: 02 019 21R-M

Principal Investigator: Burgess, David

Affiliation: National Glacier Project
Natural Resources Canada
Ottawa, Ontario, Canada
david.burgess@canada.ca

Number in Party: 3

Research Locations: Queen Elizabeth Islands

SUMMARY

This multi-year project involves site visitation and measurements of glacier mass balance and related glacier-climate metrics over three ice caps and one glacier in Nunavut. Methodology has been consistent since the project began in 1959, whereby snow accumulation and ice melt are measured annually against aluminum poles drilled into the ice cap or glacier, and snow density is measured by weighing known volumes (~4 cubic cm) of snow collected from each site. Since 1994, automatic weather stations deployed at each site have collected hourly measurements of air temperature and snow/ice thickness. Transport to each site is via Polar Continental Shelf Project charter air flights on twin-otter aircraft, and movements on the ground are via snowmobile. The field team stays in tents at all sites except Grise Fiord where accommodation is in the Grise Fiord hotel. The average stay at each site is 4 days. Results from this project support Government priorities through science contributions to NRCan Programs, Government departments, National and International assessments pertaining to climate change and contributions to sea-level from Canada's Arctic glaciers and Northern communities.

Ice Dynamics and Cryospheric Changes in Northern Canada

License Number: 02 020 21R-M

Principal Investigator: Copland, Luke

Affiliation: Department of Geography, Environment & Geomatics
University of Ottawa
Ottawa, Ontario, Canada
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Number in Party: 9

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: 04 008 21R-M

Principal Investigator: Else, Brent

Affiliation: Department of Geology
University of Calgary
Calgary, Alberta, Canada
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Number in Party: 12

Research Locations: Cambridge Bay Surrounding Area

SUMMARY

Over the past two years, our team at the University of Calgary has set up three weather stations near Cambridge Bay, Nunavut. The weather stations have scientific objectives to study sea ice melt and air-sea CO_2 exchange. But they also have practical objectives to provide real-time weather information along important travel routes for residents of Cambridge Bay. The stations have been set up in collaboration with the Ekaluktutiak (Cambridge Bay) Hunters and Trappers Organization, and two of the stations have been placed at the HTO's request at important hunting and fishing locations. The weather stations are permitted under an existing NRI multi-year license that covers a wide range of natural science activities.

Arctic Freshwater Biodiversity in Cambridge Bay

License Number: 04 010 21R-M

Principal Investigator: Rautio, Milla

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

Number in Party: 6

Research Locations: Cambridge Bay, Greiner Lake

SUMMARY

In 2021 we plan to sample lakes in the Greiner Lake watershed in spring summer, fall and winter. Some of this work will be carried out by our northern collaborators who are residents of Cambridge Bay. If travel to Nunavut is granted by NRI, Department of Health and approved by the Hamlet, a team of researchers and their students will also go to Cambridge Bay to carry out more demanding sampling and to ensure student training. By more demanding sampling we mean samples that require immediate treatment by procedures that involve training our northern collaborators have not received, e.g. separation of plankton species under a microcope for species-specific analyses. Some samples also need to be stored at -80°C and analysed within a short time period after sampling, requiring someone carries them to our southern labs soon after the sampling.

Polar Knowledge Canada (POLAR) Camp on Greiner Lake, Cambridge Bay

License Number: 04 011 21R-M

Principal Investigator: McLennan, Donald

Affiliation: Polar Knowledge Canada
Ottawa, Ontario, Canada
donald.mclennan@polar.ca

Number in Party: 5

Research Locations: Cambridge Bay, Greiner Lake

SUMMARY

In the winter months of early 2021, the two structures of the POLAR camp will serve as emergency shelters for both POLAR staff, and Cambridge Bay community members. Depending on COVID-19-related guidelines and restrictions, starting in May 2021, the POLAR camp will be prepared for the start of the summer field season by checking and fixing the possible damage to the existing structures that may have occurred during the winter. In June 2021, the summer field season activities will start in the camp. All-season individual tents will be installed in the camp. POLAR will continue a range of field research activities, and if allowed to Nunavut, a number of visiting research scientists and their graduate students, as well as northern students, will come to Cambridge Bay to conduct this research. Most of these research activities, as well as the deployed scientific instrumentation, are on the northern shore of Greiner Lake in the IMA.

For safety and convenience, some researchers will be stationed in the camp near these research and monitoring sites. Measures will be taken to mitigate the risk presented by barren-ground grizzly bears in the camp, such as keeping food and garbage away from camp, and erecting bear fences. The POLAR research projects include: tundra ecosystem description and mapping, arthropod monitoring, freshwater lake surveys, as well as maintenance and deployment of research instruments such as a weather station, frost tubes and thermistor arrays, river gauging stations, and eddy covariance towers. Researchers will come and go over the summer; there will be no more than 10 people in camp at any one time. Normal occupancy will be 4–5 people.

An Investigation of the Sensitivity of High Arctic Permafrost to Climate Change

License Number: 02 021 21R-M

Principal Investigator: Pollard, Wayne

Affiliation: Department of Geography
McGill University
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Number in Party: 9

Research Locations: Ellesmere Island, Axel Heiberg Island

SUMMARY

The timeline for this corresponds to the current cycle of my NSERC funding awarded for this research. My long-term project aims have been as follows: (1) to identify and measure changes (and rates of change) occurring in tundra and polar desert landscapes related to increased active layer thickness and thermokarst, (2) to determine ground ice and permafrost characteristics and assess their vulnerability to climate change, and (3) to assess local climate variability. Linked to these aims has also been the development of non-invasive shallow geophysical techniques, dGPS and UAVs as tools to detect and monitor changing permafrost conditions. The importance of this research is highlighted by the dramatic increase in thawing permafrost observed in the unusually warm summers in 2011 and 2012. The information collected in this study will improve our understanding of how climate and permafrost interact, and the potential resiliency of permafrost systems to changing summer conditions, both of which will allow for the better prediction of future changes. This research also has a significant training component involving students on several levels.

Ancient DNA in Lake Sediment

License Number: 02 022 21R-M

Principal Investigator: Miller, Gifford

Affiliation: INSTAAR & Geological Sciences
University of Colorado Boulder
Boulder, Colorado, USA
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Number in Party: 9

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

SUMMARY

The Arctic is currently warming twice as fast as the global average with summer temperatures predicted to be 4 to 6°C above late 20th Century averages by 2100 CE. Amplified warming in the Arctic is expected to result in a northward shift in plant ranges. We proposed to sample Baffin Island lake sediment that preserves ancient DNA from the current warm times (the last 10,000 years) and the much warmer previous warm time about 125,000 years ago. Ancient DNA will document how different plants were in those earlier warm times, and organic molecules allow us to estimate how much warmer the summers were then. By combining these data with modern vegetation studies and climate monitoring, an ecosystem-climate model will be developed to predict the likely evolution of Arctic ecosystems by 2100 CE.

Mary River Project

License Number: 02 023 21R-M

Principal Investigator: Hoyle, Megan-Lord

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

Number in Party: 66

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

SUMMARY

Data collection and analysis for environmental monitoring and management of the Mary River project to assess Project impacts in relation to the approved environmental impact assessment; Compliance to NIRB Certificate No. 005, Amended Type "A" Water License 2AM-MRY1325 and further baseline and operating conditions analysis for future permitting.

Kitikmeot Sea Science Study

License Number: 04 013 21R-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: 11

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

SUMMARY

If travel to Nunavut is permitted in the summer of 2021, we aim to focus our sampling aboard the R/V Martin Bergmann in the Finlayson Islands, Coronation Gulf, Bathurst Inlet, Queen Maud Gulf, and Icebreaker Channel, and if time allows, travelling into Chantry Inlet (St. Roch and Rasmussen Basins). While conducting oceanographic work in these regions, we also plan to sample the Tree River, Hood River, Burnside River, and Western River using the small aluminum support boat on the R/V Martin Bergmann to sample from the river mouth and into the tidal estuary. The Coppermine River and estuary will also be sampled with the support of local platforms in Kugluktuk. We plan to conduct focused studies of tidal straits in Icebreaker Channel, around the Finlayson Islands, and within Bathurst Inlet. Our focus for 2021 will be the continuation of work carried out from 2017-2019, and as such, our planned sampling, instruments, and techniques are the same as in our original permit.

Cambridge Bay Ocean Observatory

License Number: 04 014 21R-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.

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

License Number: 02 037 21N-M

Principal Investigator: Heaton, Kethra-Campbell

Affiliation: Department of Geography, Environment and Geomatics
University of Ottawa
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Number in Party: 3

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 been 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? Field studies will be conducted in Eureka, Nunavut and take place during the summer (May-August) over 4 consecutive years, beginning this year.

Clyde River Small Craft Harbour Development

License Number: 02 024 21R-M

Principal Investigator: Hardwick, Loretta

Affiliation: Canadrill-CBCL
Halifax, NC, Canada
lhardwick@cbcl.ca

Number in Party: 11

Research Locations: Clyde River

SUMMARY

CBCL-Canadrill has been retained by Fisheries and Oceans Canada - Small Craft Harbours (DFO-SCH) for the Clyde River Harbour Development, which is for the design and construction of a small craft harbour. To execute this, it's essential to understand the existing site conditions to support the engineering design. The existing NPC permit (NPC File No. 149159) and NIRB screening was approved in 2019 for the feasibility studies of four small craft harbours in Arctic Bay, Clyde River, Resolute Bay, and Grise Fiord; the scope of this work included field studies of marine, wildlife, vegetation, geoscience, geophysics, and archaeology. It was then extended in 2020 for an additional marine field program. In the spring of 2021, a geotechnical drilling program and environmental assessment sampling program is intended to build on the information that was gathered during the previous two field programs. There are no anticipated changes to the potential effects (marine or terrestrial) in the upcoming program. The study areas will include the future harbour basin and near-shore area.

Inuit Qaujimaningit and Socioeconomic Baseline Studies for the Chidliak Project

License Number: 01 015 21R-M

Principal Investigator: Willis, David

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

Number in Party: 8

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.

Chidliak Project Environmental Baseline Program

License Number: 01 016 21R-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

Research Licence 01-006-20R-M was granted for a three-year term commencing on December 20, 2018 and terminating on December 31, 2020. The research licence was obtained by Peregrine Diamonds Ltd., a wholly-owned subsidiary of De Beers Group. Field plans for 2021 will likely be tied to COVID restrictions in place for the year. Under ideal circumstances field work will resume to collect additional ground data in the project area. If activities are permissible they will be based out of Iqaluit and/or established field camps. Remote sensing studies will continue and follow pandemic protocols. Due to the shutdown of research in 2020 we request that the term of the research licence be extended to December 31, 2021.

Arctic Coastal and Drifting Ice Processes and Dynamics

License Number: 02 025 21R-M

Principal Investigator: Mueller, Derek

Affiliation: Department of Geography & Environmental Studies
Carleton University
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Number in Party: 6

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: 02 026 21R-M

Principal Investigator: Lamoureux, Scott

Affiliation: Department of Geography & Planning
Queens University
Kingston, Ontario, Canada
scott.lamoureux@queensu.ca

Number in Party: 3

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.

Barnes Ice Cap Disappearing

License Number: 02 027 21R-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: Barnes Ice Cap

SUMMARY

The Barnes Ice Cap is the final remnant of the giant Laurentide Ice Sheet that covered most of Canada during the last Ice Age. It has been stable for the past 3000 years but is now melting at all elevations in the face of increasing summer warmth. Even with no additional warmth, we project its disappearance within a few hundred years. The goal of our research is to determine whether the Barnes Ice Cap disappeared during earlier interglacials, or whether its disappearance is unprecedented in more than two million years. To address this question, we will take small rock cores of bedrock at the margin of the current ice cap and analyze those rock cores for unusual nuclides that would have been created if the ice cap had disappeared in the past.

Barrow Strait Ocean Observation Program

License Number: 02 028 21R-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: 01 021 21N-M

Principal Investigator: Jawanda, Jesslene

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

Number in Party: 4

Research Locations: Kinngait, Sanirajak, Igloolik, Sanikiluaq

SUMMARY

During this study, the R/V 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: 02 030 21R-M

Principal Investigator: Bhatia, Maya

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

Number in Party: 10

Research Locations: Devon Island, Ellesmere Island

SUMMARY

This project began with an inaugural field campaign in 2019. The results of these efforts have resulted in two recently submitted scientific publications, and have formed the basis of two graduate student projects. We have also made three videos that have been shared with the community summarizing our findings to date. In 2020, due to the COVID-19 global pandemic, the majority of our field activities were suspended though the S/Y Vagabond and crew were able to conduct a limited field season for us – this represents invaluable data collected during a year in which most Arctic work was suspended. In 2021, we are hoping to achieve many of our original plans for 2020, particularly with regards to working out of the Hamlet of Grise Fiord and hiring local boats and students. We hope that if successful this year, the hiring of local boats will become a long-term component of our project for which we can annually apply to external funding sources to support.

Past climate reconstruction using annually-layered carbonate buildups on the Nunavut shallow seafloor

License Number: 02 031 21R-M

Principal Investigator: Halfar, Jochen

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Number in Party: 3

Research Locations: North Baffin Island, South Ellesmere Island

SUMMARY

Climate data in the Canadian Arctic prior to the beginning of instrumental observations in the 20th century is sparse. Hence, at present we do not have a good understanding of ocean temperature and sea ice evolution during the past centuries. During our cruise we will collect small carbonate (limestone) mounds on the shallow seafloor of Arctic Bay, Nunavut. These mounds contain annual bands and can form on the seafloor for hundreds of years, allowing a reconstruction of Arctic climate several centuries back. Using the small vessel Vagabond we will collect mounds using SCUBA at water depths of 15-20m along SE Ellesmere Island. Mounds are generally 3-8 centimeters in diameter, up to 3 centimeters high, and can be removed from rocky seafloor using a small hammer and chisel. At each site we plan to remove 20 mounds, which are structures made up entirely of inorganic calcium carbonate that were originally formed by an underwater alga. The mounds will be analyzed for their amount of yearly growth and element composition in the laboratory, which will provide data for long time series of sea surface temperature and past sea ice reconstructions. Ultimately the published results are expected to be integrated into climate models.

Connecting Snow Melt to River Discharge in the Kitikmeot Region and Northwest Territories

License Number: 04 015 21R-M

Principal Investigator: Brown, Kristina

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Number in Party: 2

Research Locations: Cambridge Bay, Kugluktuk

SUMMARY

An increase in temperatures, increased frequency of extreme weather events, and shifts in the timing of freeze-thaw conditions will directly impact the Arctic hydrological cycle. In particular, changes to the timing of snow accumulation and subsequent melt on land will influence the delivery of freshwater to river systems and, ultimately, to the ocean. This project is motivated by a need to better characterize and quantify the impacts of changing snow conditions on river discharge within the Kitikmeot Region and Northwest Territories in order to better understand freshwater contributions to the ocean under a changing climate.

Underwater Noise Baseline Pilot Project – Tallurutiup Imanga NMCA

License Number: 02 032 21N-M

Principal Investigator: Kines, Clare

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Number in Party: 3

Research Locations: Admiralty Inlet

SUMMARY

This proposal is a three-year pilot research project designed to begin establishing baseline data on underwater noise, within Tallurutiup Imanga National Marine Conservation Area (TINMCA). TINMCA is currently in the establishment phase but has been operating since the signing of an Inuit Impact Benefit Agreement in August 2019. The pilot project will involve deploying four hydrophones in strategic spots within TINMCA in the area of Arctic Bay. This work would contribute to a better understanding of human- generated noise and its effects on marine life and ocean health within the NMCA. This pilot underwater noise study is consistent with similar studies done in the Arctic (e.g. around Pond Inlet) and in Canada. It is expected that the result of this study would contribute to the overall understanding of human-generated noise on marine wildlife. Once the data is analyzed, the results will be shared with the Hunters and Trappers Organization of Arctic Bay, the Hamlet, and the community at large.

ArcticNet 2021 Expedition: Integrated Regional Impact Study of the Canadian Arctic

License Number: 05 010 21R-M

Principal Investigator: Merzouk, Anissa

Affiliation: University of Laval
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Number in Party: 30

Research Locations: Baffin Bay, Frobisher Bay, Lancaster Sound, NW Passage

SUMMARY

The Arctic Ocean and its peripheral seas have experienced unprecedented change over the past 15 to 20 years associated with climate variability and change. In particular, sea ice is now observed to form later, break up earlier, and at its minimum to cover a progressively smaller area of the Arctic Ocean. Our understanding of the impacts of these changes on the physical, biological and geochemical processes in the Canadian Arctic Ocean is progressing but still wanting. Since 2004, ArcticNet researchers have been conducting extensive multidisciplinary sampling programs in the Canadian Arctic. The goal of the ArcticNet marine-based research program is to study on a long-term basis how climate induced changes are impacting the marine ecosystem, contaminant transport, biogeochemical fluxes, and exchange processes across the ocean-sea ice-atmosphere interface in the Canadian Arctic Ocean.

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

License Number: 02 033 21R-M

Principal Investigator: Whyte, Lyle

Affiliation: Dept. of Natural Resource Sciences
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Number in Party: 5

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.

Evaluation of Natural Bioremediation Potential of Arctic Beaches

License Number: 02 034 21R-M

Principal Investigator: Whyte, Lyle

Affiliation: Dept. of Natural Resource Sciences
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Number in Party: 4

Research Locations: Cornwallis Island

SUMMARY

The warming Arctic climate results in annual reductions of sea-ice. With a decrease in Northwest passage ice cover, the amount of shipping traffic is increasing. Unfortunately, a consequence of more shipping is an increased risk that shipping fuel will be accidentally released into the vulnerable Arctic environment. In southern latitudes, naturally occurring bacteria in the environment can consume shipping fuels as food sources. However, it is unknown if naturally occurring bacteria living in Arctic beaches can do this in the colder Arctic conditions. The objective of this research is to determine if naturally occurring Arctic bacteria have the ability to degrade shipping fuels under Arctic conditions. It is important to know this so that in the event of a future accidental shipping fuel spill in the Arctic, we will know exactly how to respond to minimize negative environmental impacts.

Monitoring Seasonal Environmental Change in Rivers of the Kitikmeot Region

License Number: 04 016 21R-M

Principal Investigator: Brown, Kristina

Affiliation: Department of Fisheries and Oceans Canada
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Number in Party: 3

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

License Number: 02 036 21R-M

Principal Investigator: MacNeil, Erin

Affiliation: Defense Research & Development Canada
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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.

Acoustic Monitoring for Community Empowerment at Clyde River, Nunavut

License Number: 02 041 21N-M

Principal Investigator: Fox, Shari

Affiliation: Ittaq Heritage & Research centre
Clyde River, Nunavut, Canada
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Number in Party: 4

Research Locations: Scott Fiord, McBeth Fiord

SUMMARY

As the marine environment faces increasing changes and impacts from development, shipping, climate change and more, the community has a great interest in monitoring the ocean and underwater noise. In this project, which was initiated at the request of our Mayor, Clyde River seeks to start an acoustic monitoring program, to gain a baseline understanding of our ocean sounds in order to track changes over time. Combined with Inuit Qaujimajatuqangit, data from acoustic monitoring can provide the community and community leadership with important information and evidence to ensure that the environment stays healthy and flag when there are changes to be concerned about. This information will not only be important and useful to Clyde River, but to neighbouring communities in the region, researchers, and others. The new acoustic monitoring program will empower the community not only through its data and results, but also through training in new technology, access to new information, and ability to draw on evidence to support local engagement in environmental observation/assessment activities and decision making.

HEALY 2021 NWP TRANSIT

License Number: 04 020 21N-A

Principal Investigator: Mayer, Larry

Affiliation: Centre for Coastal and Ocean Mapping
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Number in Party: 18

Research Locations: Northwest Passage

SUMMARY

This is a multi-disciplinary research project that will take advantage of the Healy transiting the Northwest Passage (NWP) from Alaska to Baffin Bay and collect underway data that will contribute to our understanding of the depth of the seafloor and make measurements that will help us better understand climate change and changes in productivity throughout the NWP and the Arctic. All measurements will be made while vessel is underway. No samples of the seafloor will be taken.

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

License Number: 03 009 21R-M

Principal Investigator: Mundy, CJ

Affiliation: University of Manitoba
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Number in Party: 14

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

SUMMARY

The scientific cruise will include 7 full stations, distributed CTD casts, and deployment of 5 moorings, which includes mooring CMO D to be deployed in north-east James Bay and 4 additional moorings. The additional moorings will be very similar to that of the CMO mooring, but without the AZFP instrument. A typical full station will include: (1) deployment of one of the ship's two zodiacs to undertake near-shore kelp and estuary sampling, (2) 1-2 rosette (water sampler) casts and an extra conductivity, temperature and depth (CTD) cast for physical oceanography, biogeochemistry and phytoplankton sampling, (3) vertical and oblique net tows for zooplankton sampling, (4) bottom grab, box core, and gravity core collections for sediment sampling, and (5) a benthic trawl while leaving the station for benthic biota sampling. While transiting between stations, samples will be collected via a constantly flowing intake line from the ship bottom for physical oceanography, biogeochemistry and phytoplankton sampling.

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

License Number: 04 018 21N-M

Principal Investigator: Coulombe, Stephanie

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Number in Party: 8

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.

Healy Baffin Bay Survey

License Number: 02 043 21N-A

Principal Investigator: Pickart, Robert

Affiliation: Woods Hole Oceanographic Institution
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Number in Party: 14

Research Locations: Baffin Bay

SUMMARY

The project addresses the pathways and fate of the freshwater and heat carried by the boundary current system of Baffin Bay. We will conduct a shipboard survey on the US Coast Guard Cutter Healy, occupying transects extending from Baffin Island to West Greenland, including transects along some of the channels leading to West Greenland's glacial fjords. Physical and chemical measurements of the water column will be collected at roughly 300 sites using an instrument package lowered over the side of the ship, and also from sensors on the ship while it is steaming. Seafloor mapping and sub-bottom profiling will be done in designated areas adjacent to Baffin Island. An autonomous vehicle will be deployed in the vicinity of Jakobshavn Glacier, West Greenland, to collect detailed physical measurements there.

Qikiqtani Marine Renewable Energy Resource Assessment

License Number: 02 039 21N-M

Principal Investigator: Shilton, Heather

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Number in Party: 3

Research Locations: Kimmirut, Sanirajak, Igloolik, Resolute Bay, Kinngait

SUMMARY

The physical data collection component of the project includes the use/deployment of temporary equipment in open water areas. The equipment includes marine vessels, acoustic doppler current profilers (ADCP), vessel mounted ADCPs and other equipment (echo sounder and global positioning unit) to perform transect measurements. For the first phase of the physical data collection program, vessel mounted ADCPs and other equipment will be used to perform transect measurements in five communities to determine the flow characteristics and MRE potential. This will allow the project team to determine the two locations with the highest potential to be further investigated in the second phase. The second phase of the physical data collection program will deploy bottom-mounted ADCPs in two of the highest potential areas to collect additional ocean/river current data over a longer time period. At the end of the data collection period, the equipment will be recovered.

Paallavvik Joint research/expedition between Wild Blue Media, Red Bull, University of Glasgow

License Number: 01 019 21N-A

Principal Investigator: Gaisford, Thomas

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Number in Party: 3

Research Locations: Durban Island, Paallavvik

SUMMARY

A collaborative research and filming trip to Paallavvik between Wild Blue Media, University of Glasgow and Red Bull. The proposed project is a geological research trip to obtain small rock samples from Paallavvik that can prove where the Earth's water came from. The samples are on cliffs, which will require expert climbers to access. Will Gadd, a Canadian Red Bull climber and Dr. Lydia Hallis, the leading expert geologist on this question, have teamed up to make this research possible. The research expedition will be filmed for international broadcast by Red Bull.

Kivalliq Hydro-Fibre Link Baseline Research

License Number: 03 011 21N-M

Principal Investigator: Tattuinee, Kono

Affiliation: Kivalliq Inuit Association
Rankin Inlet, Nunavut, Canada
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Number in Party: 8

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 1,200 km high-voltage electricity transmission line, which will connect to over 370 km of lower voltage 'feeder' lines to link five communities in Nunavut. The Project 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. The Project will be rated at 150 megawatts (MW) of capacity and have a fibreoptic bandwidth capacity of at least 1,200 gigabits per second (Gbps). This will be Nunavut's first infrastructure link to southern Canada and will provide enough power and fibreoptic internet capacity for the Kivalliq region for generations to come. Importantly, the Project will also provide renewable energy and fibreoptic internet to the mining industry in Nunavut allowing for more sustainable operations.

2021 Back River Project - Ongoing Baseline Data Collection & Monitoring

License Number: 04 019 21R-M

Principal Investigator: Keefe, Merle

Affiliation: Sabina Gold and Silver Corporation
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Number in Party: 9

Research Locations: Back River-Goose Camp, George Camp, MLA Camp

SUMMARY

Sabina Gold & Silver Corp. (Sabina) is in the process of permitting the proposed Back River Project (the Project), located in the West Kitikmeot region of Nunavut. Sabina leads coordinating research activities for the project and engages multiple specialists to support research acquisition. The proposed ongoing baseline program would be conducted starting on January 1, 2021 and could continue until December 31, 2021. However, the same baseline and scientific studies may continue in subsequent years.

Stream Occupancy of Young-of-Year Arctic Grayling (*Thymallus arcticus*) and the Associated Impact from the Wastewater Treatment Facility in Baker Lake

License Number: 03 010 21R-M

Principal Investigator: Ellenor, Jared

Affiliation: University of Waterloo
Waterloo, Ontario, Canada
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Number in Party: 4

Research Locations: Baker Lake

SUMMARY

Stream occupancy of young-of-year arctic grayling *Thymallus arcticus* and the associated impact from the wastewater treatment facility in Baker Laker, Nunavut. Currently, the Hamlet of Baker Lake uses a passive wastewater treatment system, where wastewater is released through a series of tundra ponds/lakes and into Baker Lake. This type of system, which is common in Northern communities, takes advantage of natural biological processes and is only capable of providing primary treatment. As a result, relatively high levels of nutrients are released into the system, which can ultimately affect fish and fish habitat. Based on significant positive feedback from the community, an upgraded wastewater treatment facility is anticipated to be constructed in Baker Lake in 2020.

Evolution of postglacial landscaped and hydrological gateways in the Foxe Basin-Nettilling Lake region

License Number: 02 040 21R-M

Principal Investigator: Pienitz, Reinhard

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Laval University
Quebec City, Quebec, Canada
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Number in Party: 3

Research Locations: Nettilling Fiord

SUMMARY

The proposed research program is the logical continuation of my studies completed in Nunavut over the past 27 years. It aims to place instrumental climate records into a longer-term perspective and fill long-standing knowledge gaps on climate and environmental change in one of the most inaccessible regions of Nunavut. Using many different indicators (microfossils) for the reconstructions of past temperature and other environmental variables, my research team will study the sediment records of lakes in areas surrounding the northern part of the Foxe Basin. We will analyse these sediment core data to allow for regional comparisons with ice core data from Baffin Island and Greenland. Surficial landforms will be mapped and dated to determine the position and timing of past glacier retreat and sea- and lake-levels. The insights gained from my research will improve our ability to forecast future changes and impacts due to climate warming and help Inuit communities to adapt to rapidly changing landscapes and environments.

Atmospheric Sciences and Terrestrial Ecosystem Studies in Victoria Island

License Number: 04 021 21R-M

Principal Investigator: Jung, Ji Young

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Korea Polar Research Institute
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Number in Party: 13

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.

Evaluation of Simulated Snow Properties Across the Arctic

License Number: 04 022 21R-M

Principal Investigator: Langlois, Alexandre

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Sherbrooke, Quebec, Canada
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Number in Party: 11

Research Locations: Cambridge Bay, Greiner Lake

SUMMARY

The project is motivated by the increase in extreme weather events in the Arctic such as rain-on-snow (ROS) events. ROS are known to be the consequence of global warming, and given the anticipated increase in arctic temperatures, more events are likely to occur. Those events lead to the formation of ice layers that affect transportation and travel on the land while having direct consequences on permafrost melt. ROS events also affect caribou grazing conditions, and several events killed many animals, not only in Canada but also in other parts of the Arctic.

Access to Safe Drinking Water in a Changing Arctic

License Number: 02 022 21N-M

Principal Investigator: Comte, Jerome

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Number in Party: 3

Research Locations: Pond Inlet, Cambridge Bay

SUMMARY

Global warming is causing large-scale transformations in the Arctic, including rapid reduction in the extent of permafrost, which can threaten drinking water supplies. Increasing transfers of dissolved organic matter (DOM) from permafrost to surface waters results in the 'browning' of water, which can indirectly contribute to the prevalence of cyanobacteria, changes in the nutritional quality of aquatic food resources, and toxin production. Furthermore, contaminants and pathogens trapped in thawing soils are now released to water sources. To ensure drinking water safety, chlorine is typically used to inactivate pathogens. However, the practice of chlorinating water has both biomedical and belief-based problems; it can generate unwanted disinfection by-products (DBPs) when DOM is elevated in water, and northern communities have differing understandings of how to ensure purity of water. This transdisciplinary project aims to investigate and measure emerging risks from compounds and microorganisms released from permafrost thawing using a community-based participatory water quality sampling program.

Social Sciences

Young Canadians in a Wireless World, (YWCC) Phase IV

License Number: 01 001 21N-M

Principal Investigator: Brisson-Boivin, Kara

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Number in Party: 3

Research Locations: Kinngait, Iqaluit

SUMMARY

The objective of Phase IV is to revisit the online and digital landscape from the previous three phases and assess how young people's patterns of use and attitudes have changed. Additionally, we will follow up on the themes that emerged from focus groups held with youth and their parents in 2019. Phase IV also begins with a name change to the project – Young Canadians in a Wireless World. This change in language from 'wired' to 'wireless' speaks to shifts in digital technology and to the online world (since 2000) that presents new opportunities and challenges for youth, parents, educators, policymakers, and the technological sector.

The role of project-based environmental assessment in considering the impacts of resource development related Arctic shipping

License Number: 03 013 20N-M

Principal Investigator: Dueck, Simon

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Number in Party: 2

Research Locations: Rankin Inlet

SUMMARY

This research project will consider the potential impacts that increases in Arctic shipping may have, and how these impacts have been, or could be addressed through environmental assessment (EA) of resource development projects. The purpose of this research is to explore the potential of Nunavut's EA framework to meaningfully identify and address issues associated with project-related shipping, including the increased risk of spills.

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

License Number: 04 003 21R-M

Principal Investigator: Hanke, Andrea

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Faculty of Veterinary Medicine
University of Calgary
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Number in Party: 2

Research Locations: Kugluktuk, Cambridge Bay

SUMMARY

The purpose of this study is to document Traditional knowledge from Elders to better understand important conditions and habitat for Dolphin and Union (DU) caribou wellbeing. This study is one component of a PhD thesis focused broadly on Traditional knowledge of DU caribou, and it is part of a larger caribou and muskoxen health monitoring program that incorporates Traditional knowledge, Western scientific information, and regional hunter-harvested samples in NWT and NU. This project is an expansion of Andrea Hanke's work "Developing best practices for community engagement in, and co-management of, Dolphin and Union caribou health in coastal regions of Nunavut" (NRI #04 038 20R-M).

Strengthening Community-Based SAR and Emergency Response in the Kitikmeot

License Number: 04 001 21R-M

Principal Investigator: Kikkert, Peter

Affiliation: St. Francis Xavier University
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Number in Party: 6

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

SUMMARY

In the North, community-based groups such as the Canadian Coast Guard Auxiliary, Ground Search and Rescue, Marine SAR Societies, CASARA, and the Canadian Rangers play an essential role in SAR and emergency response (ER). Our goal is to bring the groups and individuals involved in SAR and emergency response in a community together to identify the skills, knowledge, equipment, and strengths they possess. Often, this information is not tracked and/or shared by the municipal, territorial, and federal agencies involved in SAR and ER, which can affect operations and coordination / cooperation. Next, we will work with community groups to determine if a community has the capabilities it requires to respond to the potential SAR and emergency tasks it might face. Together, these activities will help to identify areas for capacity building. Ultimately, we anticipate that improvements to local capability will heighten the effectiveness and efficiency of SAR and emergency response practices in these communities, contributing to community well-being and the safety of those travelling, hunting, trapping, and fishing on the land, water, and ice.

Kitikmeot Inuit Employment Strategy

License Number: 04 002 21N-A

Principal Investigator: Collier, Keith

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Number in Party: 6

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

SUMMARY

Aglu Consulting and Training Inc. and Stratos Inc., a consulting partnership with experience related to socio-economic matters in Nunavut, have been engaged by KC to gather information from local employers and stakeholders that will inform the development of the Strategy. The objective of this research is to identify barriers and opportunities to enhance Kitikmeot Inuit employment and career advancement, with a focus on employment at industrial work sites. Ultimately this research will identify implementation priorities and actions that could be advanced through the Strategy.

Governance Options for Low Impact Shipping Corridors

License Number: 01 002 21R-M

Principal Investigator: Carter, Natalie

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Number in Party: 2

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

SUMMARY

Over the past four years, the Arctic Corridors and Northern Voices (ACNV) project has focused on identifying local concerns with Arctic shipping increases and identifying geographic areas of concern. We have completed this work in 7 Nunavut communities. One of our findings was the need to further examine governance and policy strategies that respond to the concerns about shipping. To achieve our project objectives (i.e. examine governance options for low impact shipping corridors that respond directly to the local concerns about increases in shipping) we will use a policy Delphi method that involves three questionnaires - each one building on the one before it. The purpose of this research is to (1) identify potential strategies for Inuit and Northern involvement in Low Impact Shipping Corridors governance, and (2) evaluate those potential strategies.

Lessons learned from the Nunavut Baffin Bay/Davis Strait Strategic Environmental Assessment

License Number: 04 004 21N-A

Principal Investigator: Fusco, Leah

Affiliation: Department of Geography
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Number in Party: 1

Research Locations: Cambridge Bay, Iqaluit

SUMMARY

The purpose of this project is to examine and better understand the strategic environmental assessment for Baffin Bay and Davis Strait that was conducted by the Nunavut Impact Review Board on behalf of the federal government (finalized in 2019). The strategic environmental assessment looked at potential scenarios for developing oil in the region, including risks and benefits. It involved extensive public consultation and the gathering of Indigenous knowledge. It resulted in recommendations to the federal government that will be used to inform future decisions about developing in the region. In particular, they will be used to inform the federal government’s upcoming decision (in 2021) about whether to maintain the current moratorium on Arctic offshore drilling.

Silalirijiit Project

License Number: 02 002 21R-M

Principal Investigator: Fox, Shari

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Number in Party: 5

Research Locations: Clyde River

SUMMARY

The Silalirijiit Project has been running in Clyde River since 2009. It builds on previous research and collaboration to gain a better understanding of weather patterns and weather information needs for the community and to provide improved weather information. The project runs a small weather station network, with information available to the public. The project also supports a hunter apprenticeship program, where experienced hunters take youth on the land with a focus on learning weather-related knowledge and safe travel and hunting skills. Inuit knowledge about weather and the environment is documented through the apprenticeship program and helps to link Inuit knowledge and visiting science about local and regional weather patterns.

Assessing the change in coastal ecosystem biodiversity over time and space through local knowledge

License Number: 01 012 21N-M

Principal Investigator: Christie, Laurissa

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Number in Party: 7

Research Locations: Kinngait, Igloolik

SUMMARY

Climate change is altering habitats, fish distributions, and ecosystems in the Canadian Arctic. Of particular relevance are changes affecting coastal ecosystems - areas preferentially used by Indigenous peoples for subsistence. The goal of this research is to document biodiversity and environmental conditions of coastal ecosystems in the Hudson Bay Complex and understand how those have changed over time. To this end, local community-led coastal scientific research conducted was initiated in January 2020 in Kinngait and Igloolik. Our objective here is to collaborate with the two communities to document local knowledge regarding biodiversity and environmental conditions near Kinngait and Igloolik and build upon the ongoing community-led research. Together, this knowledge will provide a broader understanding of the coastal ecosystem and will help to monitor rapid coastal change and assist the communities in preparing for a future Arctic.

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

License Number: 02 004 21R-M

Principal Investigator: Mahy, Maryse

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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.

Assessment of the Current State of Coastal Restoration Needs in Nunavut

License Number: 05 005 21R-M

Principal Investigator: Owen, Jade

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Number in Party: 4

Research Locations: Rankin Inlet, Clyde River, Chesterfield Inlet, Coral Harbour, Arviat, Whale Cove, Naujaat, Igloolik, Sanirajak, Resolute Bay, Grise Fiord, Sanikiluaq

SUMMARY

The objective of the research project is to engage each of Nunavut's 25 communities to identify and address the stressors impacting fish, marine mammals, and aquatic habitats. Seeking input from all communities, the project will implement at least three restoration projects over a five-year period based on local knowledge and science. The project also aims to build capacity at the local level via community-based monitoring; to document Inuit Qaujimajatuqangit (IQ); and to support each community in environmental restoration and stewardship initiatives.

Oral Histories of Auyuittuq National Park

License Number: 02 013 21R-M

Principal Investigator: Routledge, Karen

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Number in Party: 3

Research Locations: Pangnritung, Qikiqtarjuaq

SUMMARY

Parks Canada is collecting oral histories about the area that is now Auyuittuq National Park. These stories will mainly be used to help Parks Canada staff, residents of Pangnirtung and Qikiqtarjuaq, and visitors understand the history of Auyuittuq National Park.

Shipwrecks in Cumberland Sound

License Number: 02 014 21R-M

Principal Investigator: Routledge, Karen

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Number in Party: 5

Research Locations: Pangnirtung, Cumberland Sound

SUMMARY

We want to work with knowledge holders in Pangnirtung as part of Parks Canada's underwater archaeology project about whaling shipwrecks in Cumberland Sound. Our goals are (1) Community members will share knowledge of whaling-era shipwrecks in Cumberland Sound and (2) Parks Canada will share information from its archaeological work in ways that are relevant and useful for the community.

Indigenous Dog Sledding in the Western Arctic

License Number: 04 009 21R-M

Principal Investigator: Losey, Robert

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Number in Party: 3

Research Locations: Cambridge Bay

SUMMARY

The goal of the study is to better understand the long-term history of Inuit dog sledding in the western Arctic, here ranging from western Alaska through the central Canadian Arctic. This includes how the earliest people in the Arctic conducted sledding, and how it was done during recent times. We aim to understand how very old sledding technology worked, and we hope that knowledge keepers can help in this by looking at some archaeological objects thought to be related to dog sledding. More importantly, we are interested in how dog sledding was carried out most recently, how dogs were cared for, and how and why sleds and harnesses were designed in particular ways. To conduct the study, 10-15 Cambridge Bay residents will be interviewed.

The Environmental Engagement of Indigenous Women of the Circumpolar North: The Case of Inuit Women and Sámi Women

License Number: 05 008 21N-M

Principal Investigator: Marc, Laëtitia

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Number in Party: 2

Research Locations: Cambridge Bay, Kugluktuk, Iqaluit, Igloolik, Pangnirtung, Arctic Bay, Qikiqtarjuaq, Baker Lake

SUMMARY

The purpose of the research is to study the environmental engagement of Inuit and Sámi women in order to document their path, their relationship to the environment, their perspectives on climate change and to understand why Indigenous women of the circumpolar North seem so involved for the environment. The researcher will conduct ethnographic interviews with Sámi and Inuit women who advocate at a professional or personal level for the environment (advocacy as understood here can go from advocating at a community level to an international one; and can take different forms such as: political advocacy, artistic advocacy). Inuit women activists do not live in the same community but all over Nunavut. As a result, I selected some communities in which I know some are living in.

A Collaborative Research Project with Inuit Youth, Families and their Communities about Informal Education Practices, Community-Driven Science Research and Life-Long Learning with Important Implications for Inuit Education and Perserverance

License Number: 05 007 21R-M

Principal Investigator: Rahm, Jrene

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Number in Party: 6

Research Locations: Arviat, Sanikiluaq, Pond Inlet

SUMMARY

The purpose of the collaborative community project is the description and documentation of Inuit ways of learning with Inuit youth, families and their communities. The three-year collaborative community project is also closely aligned with the research priorities of the National Strategy of Inuit Education. We initiated collaborations with four programs in three communuties in Nunavut to pursue our goal of describing life-long learning and a holistic model of Inuit education.

Ukkusiksalik National Park Marine Baseline Data Collection

License Number: 03 006 21R-M

Principal Investigator: Lafortune, Aurelie Chagnon

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Number in Party: 5

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 three 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: 05 012 21N-M

Principal Investigator: Schott, Stephan

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Number in Party: 10

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.

Mobilizing Inuit Qaujimajatuqangit for Sea-Ice Safety: A Sikumiut case study to support Inuit Self-Determination in Research

License Number: 02 029 21R-M

Principal Investigator: Wilson, Katherine

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Number in Party: 3

Research Locations: Pond Inlet

SUMMARY

The purpose of this project is to support Inuit self-determination in research through a case study in Mittimatalik (Pond Inlet), Nunavut. The goals of the project are to advance Inuit research leadership, decision-making, knowledge, approaches and capacity building. Sikumiut (people of the sea ice) is the 12-person management committee in Mittimatalik that governs the SmartICE community-based sea-ice monitoring program. At a recent meeting, Sikumiut identified the need to document their Inuit Qaujimajatuqangit (IQ) of sea-ice to support safe sea-ice travel, assess the impacts of climate change and resource development, and to share this knowledge with the community and future generations.

Understanding Inuit Community Uses and Needs for Weather, Water, Ice and Climate Information and Services

License Number: 05 009 21R-M

Principal Investigator: Ljubicic, Gita

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Number in Party: 17

Research Locations: Arviat, Cambridge Bay, Clyde River, Coral Harbour, Igloolik, Iqaluit, Gjoa Haven, Pond Inlet, Sanikiluaq

SUMMARY

The goal of our project is to learn from Nunavummiut about what kinds of environmental information or services they rely on to decide when and where to travel on the land. We want to learn what kinds of weather, water, and ice information is used in different communities to assess travel safety. We also want to know what Nunavummiut think is missing, and what could be improved. To do this, we have developed a survey to get feedback from community members. Input from across Nunavut will provide valuable guidance for service providers and decision-makers who are trying to make services more relevant to arctic travel.

JUSTNORTH – Toward Just, Ethical and Sustainable Arctic Economies, Environments and Societies

License Number: 04 017 21N-M

Principal Investigator: Wood-Donnelly, Corrine

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Number in Party: 4

Research Locations: Cambridge Bay, Iqaluit, Kugluktuk, Rankin Inlet, Pangnirtung

SUMMARY

JUSTNORTH is exploring if different value systems can be used in decision-making for Arctic sustainable development. Our goal is to enable just evaluation of proposed economic activities in the Arctic using these values. Research in Nunavut will examine three sectors - scientific research stations, cruise tourism, and search and rescue (SAR) operations, to identify stakeholder values required if these economic activities are to be developed in a just and sustainable way. We will assess these from different stakeholder perspectives of justice to gain insights on the activities' positive and negative impacts, risks, and benefits. The outcomes of this research will: (1) inform policymakers; (2) contribute to a negotiation tool for use between stakeholders of Arctic economic development; and (3) produce a project documentary film.

Collection of Oral Histories

License Number: 02 038 21N-M

Principal Investigator: Llopis, Geraldine

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Number in Party: 11

Research Locations: Arctic Bay

SUMMARY

The key objectives of collecting oral histories about Sinaasiurvik will be:

1. To document and preserve cultural history by developing an oral history report;
2. To share Inuit knowledge;
3. To gather information for future interpretative material; and
4. To work in partnership with Arctic Bay by promoting cooperation.

In the near future, these stories will allow Parks Canada and other stakeholders:

1. To investigate ways to meaningfully share and present Inuit culture, stories and knowledge;
2. To develop a site plan for both Inuit site users and other visitors, and to create education and community engagement opportunities within the park or in adjacent communities;
3. To develop cultural guide training specific to the site and initiate more focus on this site to help promote local tourism, culture and heritage; and
4. To give access to the Nauttiqsuqtiit (Inuit Stewards) and Arctic Bay tourism operators to the content and use it to offer community-led interpretative programs.

Mining, Social Justice, Culture and Environmental Risk in the Kivalliq Region, Nunavut: Women's Approaches and Perspectives to Fairness

License Number: 03 008 21R-M

Principal Investigator: Fransala, Jasmiini

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Number in Party: 2

Research Locations: Rankin Inlet

SUMMARY

The impacts of resource extraction – from exploration to actual mining operations and remediation after mine closure – are connected to many social and environmental issues in the North, particularly in the Kivalliq communities. Past developments and experiences influence today's realities. The history of the North Rankin Nickle Mine and Meadowbank, Amaruq and Meliadine mines tells us that Rankin Inlet is a place where mining, social justice, culture and environment all seem somehow interconnected. This research looks more closely into those connections.

An Organizational and Performance Assessment of Territorial Municipalities Safety Management System

License Number: 01 018 21R-M

Principal Investigator: Carolan, Paul

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Number in Party: 2

Research Locations: Iqaluit

SUMMARY

To assess the perceptions of senior management on the organizational performance in relation to workplace health, safety and wellness. The research cohort is restricted to the Chief / Senior Administrative Officers in the Territorial Municipalities / Hamlets / Communities (MHC) to self-assess their performance against peer-reviewed instruments (online survey) previously used in other Canadian Municipalities and provide additional feedback via one-on-one interviews. This new research will provide a baseline for individual MHC's to consider steps to improve their performance. It will also provide the opportunity for territorial representative bodies (such as the Local Government Administrators Association in Nunavut – LGAAN) to prepare funding submissions to improve their workplace health, safety and wellness programs within an approved safety management system.

Towards Co-Production for Designing and Developing a Geographic Information System: A Case in Clyde River, Nunavut

License Number: 02 042 21N-A

Principal Investigator: Conzon, Julia

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Number in Party: 3

Research Locations: Clyde River

SUMMARY

The researcher will work closely with the Ittaq Heritage and Research Centre (Ittaq) to design and develop useful maps and diagrams for their Clyde River Knowledge Atlas website. For example, one of the maps to be developed will be a tool for people to see ocean wave heights within Clyde River inlet to facilitate travel planning. This is a product that was requested by hunters working with Ittaq. The products from this research are intended for Clyde River use and benefit, but a research thesis and publication will also be produced so that others can learn about this work and how it was done.

BEARWATCH: Monitoring Impacts of Arctic Climate Change Using Polar Bears, Genomics and Traditional Ecological Knowledge

License Number: 05 015 21R-M

Principal Investigator: Lougheed, Stephen

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Number in Party: 12

Research Locations: Gjoa Haven, Coral Harbour

SUMMARY

Research will integrate/map polar bear knowledge and translate findings into a scat community-based monitoring protocol that will track polar bear population responses to environmental change. Research questions include: (1) Are polar bear science data, IQ, and historical records from wildlife archives comparable? (2) What do the three polar bear knowledge sets tell us about demographic changes in polar bears? (3) How can our results add to existing polar bear management through new knowledge for use in decision-making? and (4) Can polar bear community-based monitoring contribute to understanding bear population trends and climate change?

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

License Number: 05 019 21N-M

Principal Investigator: Wilson, Katherine

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Number in Party: 6

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

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: 01 023 21R-M

Principal Investigator: Compton, Richard

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Number in Party: 3

Research Locations: Iqaluit

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.

Mittimatalingmiut Experiences and Knowledge from 2020 & 2021

License Number: 01 025 21N-A

Principal Investigator: Westdal, Kristin

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Number in Party: 3

Research Locations: Pond Inlet

SUMMARY

Hunters from Mittimatalik have clearly said that there have been noticeable changes in narwhals in the region since the spring of 2020. Our goal is to record the experience of Mittimatalingmuit hunters and their observations on the number and condition of narwhals in locations where they have been hunting in 2020 and 2021. The interviews will start as soon as possible (early to mid October) and be completed by the end of October/early November. Interviewees will be asked to tell their stories and experiences of hunting this past year and the year before, and how it compares with other years. There will be no list of set questions to be answered. The length of the interview will depend on how much each participant has to say. A report and short video from the interviews, based on Inuit qaujimajatuqangit, will be put together. We intend to have a written record that can be filed with the Nunavut Impact Review Board that clearly reports hunters' experiences and concerns related to increased shipping proposed with the expansion of the Baffinland Iron Mine. The final report will also be shared with the community and a copy will be provided to each participant.