Proposal Status: Conformity Determination Issued

Overview Documents
Project Overview

Type of application: New

Proponent name:

David Babb

Proponent company:

University of Manitoba

Project Description:

Our group at the University of Manitoba are focused on understanding how climate change has affected the marine environment across the Canadian Arctic. Our group is led by Dr. Dorthe Dahl-Jensen, who holds a Canada Excellence Research Chair in Arctic Ice, Freshwater-Marine Coupling and Climate Change at the University of Manitoba. We are an experienced group of oceanographers and climate scientists who have worked throughout the Arctic and collaborate with several academic, government and indigenous groups to provide a comprehensive understanding of the processes and changes occurring in the Canadian Arctic. For this program we are focused on the oceanography of the northern Canadian Arctic. Our study area includes Eureka Sound, Nansen Sound, Greely Fiord, d'Iberville Fiord and Antoinette Bay, which together form the northernmost oceanographic passageway from the Arctic Ocean into the Canadian Arctic. This area is projected to be home to the last ice and as such is protected under the Tuvaijuittuq Marine Protected Area. However, due to the northern geography and near year-round ice cover the area has been understudied since the original oceanographic surveys in the 1960s and 1970s and as a result the full extent of the changes in the oceanography are not understood. The primary objective of this program is to provide an updated view of the oceanographic conditions in the northern Canadian Arctic. Our observations will be contrasted against those collected over 50 years ago to understand how this area has responded to climate change. We also wish to examine how the ocean interacts with the surrounding marine terminating glaciers and influences the seasonal landfast ice cover. To address these objectives, we have proposed a scientific program with four separate legs. Proposed sampling locations are outlined in the map below. The first and fourth legs will take place aboard the Coast Guard vessel Des Groseilliers during its annual re-supply trip to Eureka during summer 2024 and

2025. From the ship we will periodically deploy a CTD to collect a profile of the temperature, salinity and other variables used to characterize the properties of the water. The second and third legs will take place out of Eureka during winter and spring. The winter trip will be brief and focus on deploying sampling equipment on the ice in Eureka Sound to continuously monitor the oceanographic and sea ice conditions in the area throughout winter. During spring we plan to expand the CTD sampling across the study area and complement these profiles with physical samples of water and ice and observations of ice-ocean interactions at the terminus of nearby glaciers. This program offers a unique opportunity to provide new insight into the oceanographic conditions of the northern Canadian Arctic, an area that has been understudied but has undergone a notable change since the last oceanographic surveys were conducted over 50 years ago. We have proposed a sampling plan but would be open to adapting the program to address any concerns or interests from the local communities.

Project Schedule

Start Date:

2024-08-07

End Date:

2025-08-31

Project Map

List of project geometries:

Id Geometry Location Name

12513

polygon

Eureka Sound, Nansen Sound, d'Iberville Fiord, Greely Fiord and Antoinette Bay.

NPC Planning regions:

North Baffin

Project Land Use and Authorizations

Project Land Use:

Scientific Research

Licensing Agencies:

Nunavut Research Institute

Nunavut Impact Review Board

Material Use

Equipment:

Type	Quantity	Type	Use
Snowmobiles	4	200 x 100 x 80 cm	Access to sampling sites around the study area during winter and spring field programs on the landfast ice.
Coast Guard Ice Breaker	1	Large	We plan to work from the CCGS Des Groseilliers during its annual re-supply to Eureka. We are not expanding the travel of the ship but rather operating during its planned voyage.
Helicopter	1	Large	Access to sampling sites during spring, particularly near the glacier termini. This will be coordinated with PCSP.
Ice Augers	1	100 x 50 x 50 cm	Ice Augers will be used during winter and spring to both sample the ice and sample the underlying ocean. WE use ION electric augers to avoid the use of gasoline.

Fuel Use:

Type	Container	Capacity	Use
Aviation fuel	4	200	Use for fuelling helicopters during the spring program. Will be arranged with PCSP.
Gasoline	5	200	Use for fuelling snowmobiles during the winter and spring programs.

Hazardous Material and Chemical Use:

Type
Container
Capacity
Use

No data found

Water Consumption:

Daily Amount (m^2)
Retrieval Method
Retrieval Location

0

approximately 30 sampling sites scattered across the study area.

Niskin bottle for water sampling

Waste and Impacts

Environmental Impacts:

This project will lead to very minimal environmental impacts. We are operating onboard the CCGS Des Groseilliers during summer ad from Eureka during winter/spring and will follow their lead on disposing of waste. Really the only risk stems from refuelling snowmobiles, but care is taken during this procedure and an appropriate spill kit will be readily available should a small amount of fuel spill.

Waste Management:

Waste Type
Quantity Generated
Treatement Method
Disposal Method

Non-Combustible wastes

Minimal (< 0.5 m^3)

NA

Non combustible waste will be taken back south onboard the CCGS Des Grosiellers of flown south from Eureka with our team. We take great care to limit the amount of waste that we produce and make sure we handle it correctly.

Sewage (human waste)

Minimal

NA

Sewage will be handled in accordance with the systems used onboard the CCGS Des Groseilliers and at the Eureka Weather Station