



David Babb
University of Manitoba
125 Dysart Rd.
Winnipeg MB R3T 2N2
Canada
☎: (204) 480-1061, 📠:

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ᑭᓪᓴᑦᓴᑦᓴᑦ: 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. Dorthea 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 Tuvaqjittuq 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. Access to the Des Groseilliers will be limited to two scientists, but a larger group will conduct the winter and spring surveys from Eureka. We would like to hire someone from one of the surrounding communities with experience on the ice to join us during these two programs and have already been in contact with people in Grise Fiord about this opportunity. Additionally we have spoken to an outfitter in Grise Fiord who is guiding people in the area in 2025, we may provide equipment for him to take additional CTD's during his travels. Given the small scale of the program, the non-intrusive sampling techniques, and the fact that it is occurring in a very remote area of the Canadian Arctic the impact on the environment, wildlife and people is expected to be very minimal. Data will be analyzed and stored at the University of Manitoba and communicated through our project report to the NRI, through future meetings with nearby communities and at national conferences (ArcticNet). 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.

▷Δ&NDC: Not applicable - this project is taking place in Northern Baffin.

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Inuinnaqtun: Not applicable - this project is taking place in Northern Baffin.

Operations Phase: from 2024-07-24 to 2025-08-17

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Nansen Sound, Eureka Sound and surrounding area.	Scientific/International Polar Year Research	Marine	N/A	NA - working in the marine environment.	Grise Fiord and Resolute are the nearest communities, but are several hundred kilometres away.

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Project transportation types

Transportation Type	Transportation Assets	Length of Use
Water	Canadian Coast Guard vessel, snowmobiles and helicopters.	

Project accomodation types

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This project will lead to very minimal environmental impacts. We are operating onboard the CCGS Des Groseilliers during summer and 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.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

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Miscellaneous Project Information

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Cumulative Effects

Impacts

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1	polygon	Nansen Sound, Eureka Sound and surrounding area.
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