



NIRB Application for Screening #125895

Biogeochemical characterization of saline and glacial systems on Axel Heiberg Island

Application Type: New

Project Type: Scientific Research

Application Date: 3/15/2024 3:20:07 AM

Period of operation: from 2024-03-27 to 2024-06-01

Project Proponent: Mark Skidmore
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Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Fieldwork location - Whitsunday Bay	Scientific/International Polar Year Research	Crown	Previously visited for research by Wayne Pollard in 2012/2013	N/A	310 km from Grise Fiord and 525 km from Resolute Bay
Fieldwork location - Skaare Fiord	Scientific/International Polar Year Research	Crown	Previously visited for research by Wayne Pollard in 2004	N/A	310 km from Grise Fiord and 500 km from Resolute Bay

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Resolute Bay	Nancy Amarualik	Resolute Bay HTA	2024-03-15
Resolute Bay	Ian Dudla	Hamlet of Resolute Bay	2024-03-15
Grise Fiord	Marty Kuluguqtuq	Hamlet of Grise Fiord	2024-03-15
Grise Fiord	Jimmie Qaapik	Arctic College	2024-03-15
Grise Fiord	Grise Fiord HTA	Grise Fiord HTA	2024-03-15

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Research Institute	Will be submitting an application to NRI shortly	Not Yet Applied		
Nunavut Water Board	Will be submitting an application to NWB shortly	Not Yet Applied		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Twin Otter from Resolute Bay to each field site, Whitsunday Bay and Skaare Fiord	
Land	By foot or by snowmobile from the field camp to the field sampling site	

Project accomodation types

Temporary Camp

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Snowmobile	2	300 cc	Transport at the field research site from the field camp to sampling sites
Twin Otter	1	Aircraft	Transfer from Polar Continental Shelf Program facility in Resolute Bay to fieldwork locations and return to Resolute Bay
Generator	2	2kW	To provide electrical power for the field camp

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Propane	fuel	6	20	120	Lbs	Cooking and heating in the field camp
Gasoline	fuel	5	20	100	Liters	Fuel for the snowmobiles and generators

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	Snowpack or glacier ice melt	Adjacent to the field camp locations in Whitsunday Bay and Skaare Fiord

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Scientific/International Polar Year Research	Greywater	20 liters per day, 400 liters total	Greywater would be strained into a sump/pit and solids added to the non-combustible waste.	N/A
Scientific/International Polar Year Research	Non-Combustible wastes	2kg per day, 40 kg total	Non-combustible waste will be stored in (sealed) buckets and returned to PCSP in Resolute Bay for disposal.	N/A
Scientific/International Polar Year Research	Sewage (human waste)	3kg per day, 60kg total	Sewage will be stored in (sealed) buckets and returned to PCSP in Resolute Bay for disposal.	N/A

Environmental Impacts:

The temporary field camps are small but may result in some localized minor compaction of the soil and possibly vegetation beneath tent sites. This impact would be limited due to the relatively short duration of the camps. We will have a fuel spill kit on site in case of any minor fuel spills from refueling snowmobiles or generators. All food will be stored in sealed containers to prevent access by wildlife. We will generate sewage, waste water from cooking, and a small amount of non-combustible waste. Sewage will be stored in (sealed) buckets and returned to PCSP in Resolute Bay for disposal. Cooking water will be strained, solids added to the non-combustible waste and strained water put into a sump. The non-combustible waste will be stored in sealed buckets and returned to PCSP in Resolute Bay for disposal.

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

Description of Existing Environment: Physical Environment

Both field locations are in terrain that has been glaciated. However, there is currently no glacier at the Whitsunday Bay location.

Description of Existing Environment: Biological Environment

There is minimal vegetation at the two field locations, and any vegetation will be under snow cover/not growing given the timeframe of the fieldwork.

Description of Existing Environment: Socio-economic Environment

The field locations are more than 300 km from Grise Fiord and 500 km from Resolute Bay.

Miscellaneous Project Information

Not applicable

Identification of Impacts and Proposed Mitigation Measures

The temporary field camps are small but may result in some localized minor compaction of the soil and possibly vegetation beneath tent sites. This impact would be limited due to the relatively short duration of the camps.

Cumulative Effects

No cumulative effects are anticipated.

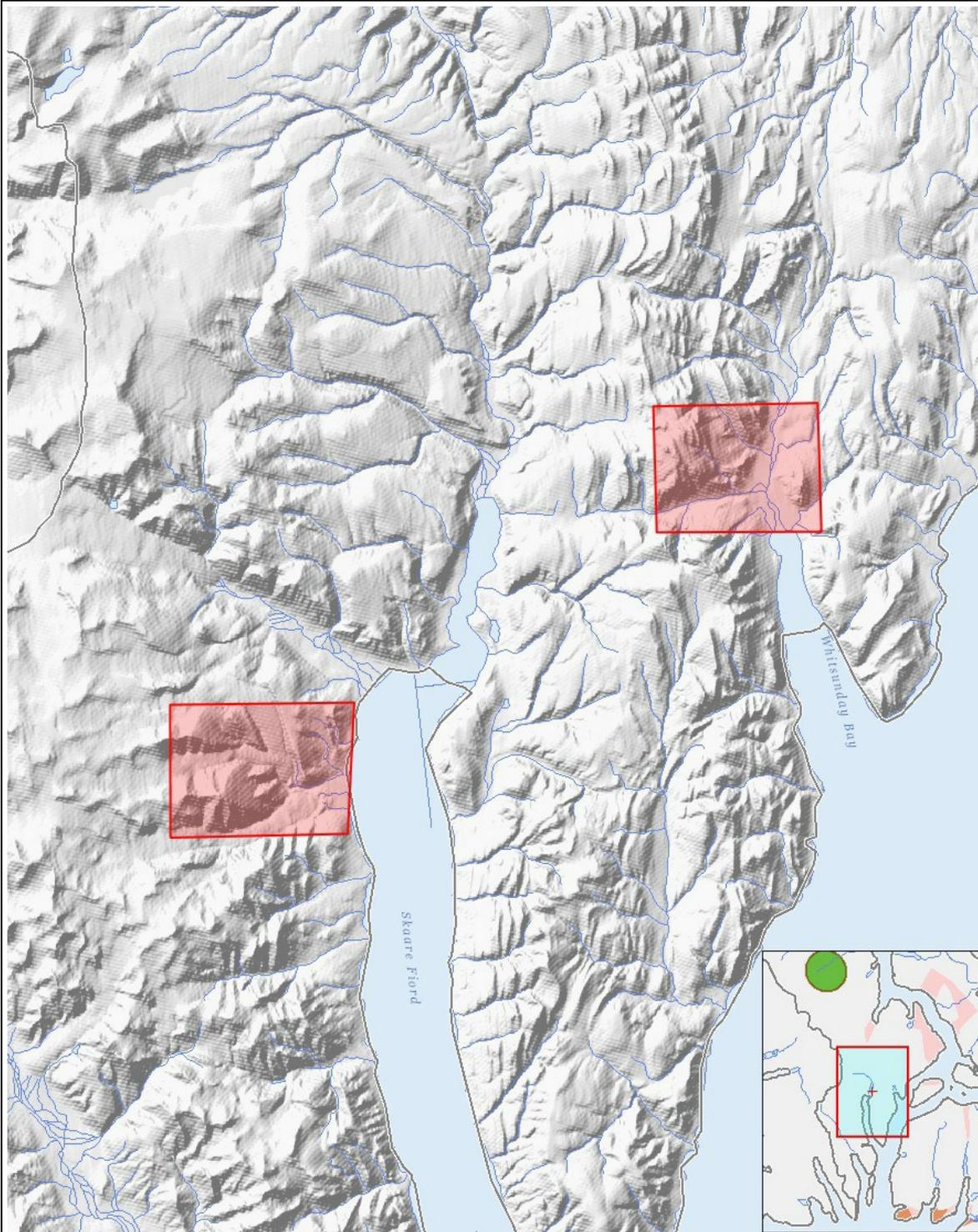
Impacts

Identification of Environmental Impacts

	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Operation																									
Scientific/International Polar Year Research		-	-	-	-	-	-	-	-	-	M	-	-	-	M	-	-	-	-	-	-	-	-	-	-
Decommissioning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

- | | | |
|---|---------|-------------------------------------|
| 1 | polygon | Fieldwork location - Whitsunday Bay |
| 2 | polygon | Fieldwork location - Skaare Fiord |