



NIRB Application for Screening #125741

Iqaluit Community Fishers - DFO OPP

Application Type: New

Project Type: Scientific Research

Application Date: 10/17/2022 3:36:05 PM

Period of operation: from 0001-01-01 to 0001-01-01

Proposed Authorization: from 0001-01-01 to 0001-01-01

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DETAILS

Non-technical project proposal description

English: Iqaluit “Community Fishers” Baseline Ocean Data Collection Program. The project aims to collect a baseline of oceanographic data such that a greater understanding of the seasonal dynamic of water exchange in Frobisher Bay can be established. This project hopes to expand to longer term monitoring such that it can begin to help understand the longer-term fluctuations and changes in the region. Baseline data is meant to be applicable to a wide range of research activities and this project is designed to support answering a number of current and future research questions that the community of Iqaluit may be interested in addressing. A multi-parameter oceanographic instrument (“sonde”) is equipped with sensors that are considered the foundational data to study oceanography. The sonde measures temperature, conductivity (salinity), and pressure (depth), and is also known as a conductivity-temperature-depth instrument or “CTD”. Water profiles are collected through “casts” where the sonde is lowered through the water column and records digital measurements of the water properties. Additionally, this sonde is equipped with sensors that measure oxygen, chlorophyll fluorescence, turbidity, and either Coloured Dissolved Organic Matter (CDOM) or crude oil fluorescence; crude oil fluorescence is a new parameter being measured as of 2022. These additional parameters can offer insight into the biological activity (e.g. phytoplankton using oxygen and chlorophyll fluorescence) or riverine runoff (Turbidity/CDOM) and can increase understanding of the seasonal oceanographic fluctuations. With more samples over time, the data can be used to assess changes in the system in reference to a baseline of data. Alongside the use of the sonde, sea-ice thickness will be measured too. No physical samples are collected as part of this project and no hardware or infrastructure is left in place. Community members travel to the established locations, take measurements, and bring all equipment and digital/hand-written data home at the end of the day. Community members are key to this project in that they identified the initial questions and concerns that the data is meant to address, they provide ongoing leadership and guidance on how to work within the community and where and how to collect data, and are directly responsible for all data collection activities. The Community members are directly involved in the station and location planning and continue to be consulted on sampling plans. Ocean Networks Canada provides a University accredited, two-day course to all community members before they take part as part of the field team (see <https://www.oceannetworks.ca/get-involved/training/> for more details); this builds capacity within the community by helping to enable community members to conduct high-quality training in a safe and consistent way. Training also provides an initial insight into interpreting oceanographic data and Ocean Networks Canada aims to continue to foster this capability by holding workshops that will further improve the community’s ability to access and use the data. Data from this project along with previously collected baseline data will be incorporated into an oceanographic overview of Frobisher Bay in the sampling region. Results will be presented in data fact sheets in English and Inuktitut along with a concluding community co-produced workshop to disseminate results from the Community Fishers project to the community, and to discuss how findings may be integrated with local Indigenous knowledge and other projects being conducted in the area. This will also be a chance to discuss ways to improve information dissemination and what might be possible for future research. A final report of data and workshop input will be created and shared in both Inuktitut and English (See attached doc for more info).

French: Le projet vise à recueillir une base de données océanographiques permettant d'établir une meilleure compréhension de la dynamique saisonnière des échanges d'eau dans la baie Frobisher. Ce projet espère s'étendre à une surveillance à plus long terme afin de commencer à aider à comprendre les fluctuations et les changements à plus long terme dans la région. Les données de base sont censées être applicables à une large gamme d'activités de recherche et ce projet est conçu pour aider à répondre à un certain nombre de questions de recherche actuelles et futures auxquelles la communauté d'Iqaluit pourrait être intéressée à répondre. Un instrument océanographique multiparamètre («sonde») est équipé de capteurs qui sont considérés comme des données fondamentales pour étudier l'océanographie. La sonde mesure la température, la conductivité (salinité) et la pression (profondeur), et est également connue sous le nom d'instrument conductivité-température-profondeur, ou «CTD». Les profils d'eau sont collectés à travers des «jets» où la sonde est abaissée à travers la colonne d'eau et enregistre les mesures numériques des propriétés de l'eau. De plus, cette sonde est équipée de capteurs qui mesurent l'oxygène, la fluorescence de la chlorophylle, la turbidité et la matière organique dissoute colorée (CDOM) ou la fluorescence du pétrole brut ; la fluorescence du pétrole brut est un nouveau paramètre mesuré à partir de 2022. Ces paramètres supplémentaires peuvent donner un aperçu de l'activité biologique (par exemple, le phytoplancton utilisant la fluorescence de l'oxygène et de la chlorophylle) ou du ruissellement fluvial (turbidité/CDOM) et peuvent améliorer la compréhension des fluctuations océanographiques saisonnières. Avec plus d'échantillons au fil du temps, les données peuvent être utilisées pour évaluer les changements dans le système en référence à une base de données. Parallèlement à l'utilisation de la sonde, l'épaisseur de la banquise sera également mesurée. Aucun échantillon physique n'est prélevé dans le cadre de ce projet et aucun matériel ou infrastructure n'est laissé en place. Les membres de la communauté se rendent aux emplacements établis, prennent des mesures et ramènent tous les équipements et les données numériques/écrites chez eux à la fin de la journée. Les membres de la communauté sont essentiels à ce projet car ils ont

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Designated stations within Frobisher Bay and Ward Inlet will be visited for sampling. The primary focus is in the head of Frobisher Inlet near Iqaluit town, See project description/map. We can provide specific coordinates too if desired	Marine Based Activities	Marine	Some sites overlap with historical and present DFO and Nunavut government sampling sites, others are areas of interest identified by community members	NA - data collection only occurs in the water column and does not disturb sea floor or extract physical samples	Between 3.5 - 80 km from Iqaluit Township
Station IQA1	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	2.5 km
Station IQA2	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	2.6
Station IQA3	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	4
Station IQA4	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQA5	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5.5 km
Station IQB1	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQB2	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQB3	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQB4	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQB5	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological /	5 km

				paleontological value	
Station IQC1	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	5 km
Station IQWFB01	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	6 km
Station IQWFB02	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	6 km
Station IQC2	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	4 km
Station IQC3	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	4 km
Station IQWFB03	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	4 km
Station IQWFB04	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	6 km
Station IQWFB05	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	6 km
Station IQWFB06	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	6.5 km
Station IQWFB07	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	7.5 km
Station IQWFB08	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	8 km
Station IQWFB09	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	9.5 km
Station IQD1	Marine Based Activities	Marine	No known site history	No known archeological / paleontological value	19 km
Station IQ2A	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	30 km

Station IQ2B	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	30 km
Station IQ2C	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	30 km
Station IQD3	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	35 km
Station IQD4	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	40 km
Station IQD5	Marine Based Activities	Marine	No known history	No known archeological / paleontological value	45 km
Station IQW11 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	31 km
Station IQW12 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	40 km
Station IQW14 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	45 km
Station IQW15 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	50 km
Station IQW16 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	55 km
Station IQW17 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	60 km
Station IQW18 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	60 km
Station IQW19 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	70 km
Station IQW110 - station of opportunity	Marine Based Activities	Marine	No known History and only sampling here when an opportunity occurs	No known archeological / paleontological value	60 km
Station IQW112 - station of	Marine Based Activities	Marine	No known History and only sampling here	No known archeological /	78m km

opportunity			when an opportunity occurs	paleontological value	
Station FB001	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	11 km
Station FB002	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	16.5 km
Station FB003	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	21 km
Station FB004	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	22 km
Station FB008	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	35 km
Station FB012	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	45 km
Station FB013	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	50 km
Station FBZP5	Marine Based Activities	Marine	DFO sampling station	No known archeological / paleontological value	14 km
Station FBZP6	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	15 km
Station FBZP7	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	11 km
Station FBZP8	Marine Based Activities	Marine	Was a DFO sampling station	No known archeological / paleontological value	10 km
Station FB021	Marine Based Activities	Marine	Government of Nunavut sample site	No known archeological / paleontological value	52 km
Station FB022	Marine Based Activities	Marine	Previous Government of Nunavut sample site	No known archeological / paleontological value	50 km
Station FB023	Marine Based Activities	Marine	Previous Government of Nunavut sampling site	No known archeological / paleontological value	55 km

Station FB024	Marine Based Activities	Marine	Previous Government of Nunavut sample site	No known archeological / paleontological value	49 km
Station FB025	Marine Based Activities	Marine	Previous Government of Nunavut sampling site	No known archeological / paleontological value	40 km
Station FB026	Marine Based Activities	Marine	Previous Government of Nunavut Sampling Site	No known archeological / paleontological value	32 km
Station FB027	Marine Based Activities	Marine	Previous DFO/ Government of Nunavut sampling site	No known archeological / paleontological value	28 km
Station FB028	Marine Based Activities	Marine	previous DFO/Government of Nunavut sampling site	No known archeological / paleontological value	25 km
Station FB029	Marine Based Activities	Marine	Previous DFO/Government of Nunavut sampling site	No known archeological / paleontological value	18 km
Station FB030	Marine Based Activities	Marine	Previous DFO/ Government of Government sample site	No known archeological / paleontological value	22 km
Station FB031	Marine Based Activities	Marine	Previous DFO/ Government of Nunavut sample site	No known archeological / paleontological value	20 km
Station FB 32	Marine Based Activities	Marine	Previous DFO/ Government of Nunavut sample site	No known archeological / paleontological value	20 km

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Iqaluit	Alex Flaherty	Polar Outfitting	2020-03-17
Iqaluit	Harley Veevee	Polar Outfitting	2020-03-16
Iqaluit	Noah Alookie	HTO	2020-03-16
Iqaluit	Imoona Karpik	Polar Outfitting	2020-03-16
Iqaluit	Kevin Kullualik	Polar Outfitting	2021-01-01
Iqaluit	Kenny Merkosak	Polar Outfitting	2021-01-01

Authorizations

Indicate the areas in which the project is located:

South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Fisheries and Oceans Canada	Funded project through DFO - no licence required due to nature of data collection being optical.	Active	2022-07-25	2023-03-31
Hunters and Trappers Associations/Organizations	HTA were approached with the project details and they signed approval for the data collection in the area.	Active	2022-05-26	2023-03-31
Nunavut Research Institute	Nunavut Research Institute are awaiting the outcome of the application we made to the Nunavut Planning Commission, which was then forwarded for NIRB approval.	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Local community members use own vessels/snow machines and are compensated for use	

Project accomodation types

Community

Other,

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Multi-parameter Sonde	1	100 cm H, 20 cm W	A multi-parameter oceanographic instrument ("sonde") is equipped with sensors that are considered the foundational data to study oceanography. The sonde measures temperature, conductivity (salinity), and pressure (depth), and is also known as a conductivity-temperature-depth instrument or "CTD". Water profiles are collected through "casts" where the sonde is lowered through the water column and records digital measurements of the water properties.
Tablet computer	1	30 cm x 20 cm	Used to operate the multi-parameter sonde
Snowmobiles	3	2 m x 0.75 m	To access sites on sea-ice
Boat	1	20 ft	If we are able to get in the water before freeze up it would be by boat access
ice auger	1	10 diameter	Ice auger that drills holes 8-10 ' in diameter to sample through

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	1	100	100	Liters	I am not 100% sure whether the boat is gas or diesel based. But if we use the boat as it is late in the season it would only be 1-5 times, depending on when our licence comes through (with or not at all)
Gasoline	fuel	1	500	500	Liters	To fuel snowmobile travel. Community members are responsible and compensated for their fuel

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0		

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Information is not available				

Environmental Impacts:

Documented in Additional info: - Noise from vessels and snowmobiles - mitigation is to try and be as efficient in data collection as possible to reduce the days in environment so as not to disturb wildlife frequently and or have more than needed carbon emissions - Sea-ice drilling (8 inch diameter hole) - holes are spread out as sample locations are distributed across the bay. The holes are as small as possible for the instrument to fit through into the water and reduce light penetration).

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

This project is primarily in Frobisher Bay, but community members will transit to the sea-ice/ocean from Iqaluit community. The data collection is conducted in Frobisher Bay and falls within areas of hunting and fishing by the community, along with marine/sea-ice transit routes. The community members who are conducting the data collection live in Iqaluit and have advised the station locations and will not disrupt peoples hunting or travel while data collecting. The noise of the vessel and snow mobiles are one of the few physical impacts of this project, as these are community owned vehicles they would be used in the area normally, so the additional impact is the times they will be used for project specific work, which will be approximately 20-30 days of work. A second consideration for impact on the physical conditions is during the sea-ice period. To access the water column and lower an instrument through the water, community members will need to drill a hole in the ice (~8 inches in diameter), due to the dynamic nature of the tides and sea-ice these holes will more likely than not close within a 24hr period.

Description of Existing Environment: Biological Environment

This project will have little to no direct impact on the biological environment as no physical sampling or extraction is occurring. However, it does occur in areas that are local marine habitats and likely are close to or overlap spawning regions (e.g. Arctic Cod and Char). Further the study area overlaps areas of cultural, environmental and archeological significance: traditional hunting and fishing regions, along with the data collection proximity to Qaummaarvitt Territorial Park near Peterhead Inlet. The disruption will be limited to the presence of the sampling crew (3 people) and their boat or snowmobiles in the area (along with sea-ice drilling in the sea-ice season). Each data collection event will take 10-30 minutes at the location.

Description of Existing Environment: Socio-economic Environment

This projects is embedded within the community of Iqaluit in that community members play a vital role in both defining research objectives and stations, and in conducting data collection activities. This project contributes positively to the economic welfare of community members and to their collective role in, and understanding, the intended research. It also includes a concluding workshop to share data collected and information with community members over this project and other OPP aspects

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Employment will be positively impacted in that local community members in Iqaluit are paid to collect all of the oceanographic data. This is facilitated through a local contractor and through support from the Hunters and Trappers Association. · Noise levels will be negatively impacted but in an extremely minimal way. Community members are expected to travel to data collection sites by small vessel during the open water season and by snow machines when the

sea-ice is safe to travel on. The mitigation is that this project relies on these standard, local means of transportation as opposed to other projects, which commonly use larger research or fishing vessels (that generate more noise and waste). Noise generation is therefore within the normal levels expected of community members. Activities are periodic and not sustained so will only generate noise for a few hours in a single day, one to four times per month. As this is not a construction project and does not alter the physical or biological environment, overall impact on the environment is negligible. Data collection consists of digital recordings of instrument measurements of water properties (i.e. temperature, salinity, pressure, etc.) and of observational data of community members (e.g. weather and ice conditions); no physical samples are collected.

Cumulative Effects

Positive cumulative effects include an increased capacity within the community to support future data collection activities and increased employment opportunities (both immediate and long-term) for community members. This is due to the fact that a substantial portion of the funding is set aside to pay community members and that the role of Ocean Networks Canada is to provide post-secondary education/training to community members in order to support their ability to participate in this project and others. Potential negative cumulative effects include fuel consumption and noise generation from small vehicle use. Neither of these effects are sustained nor are they serious in nature as they are within what is typical of community members traveling in their local region.

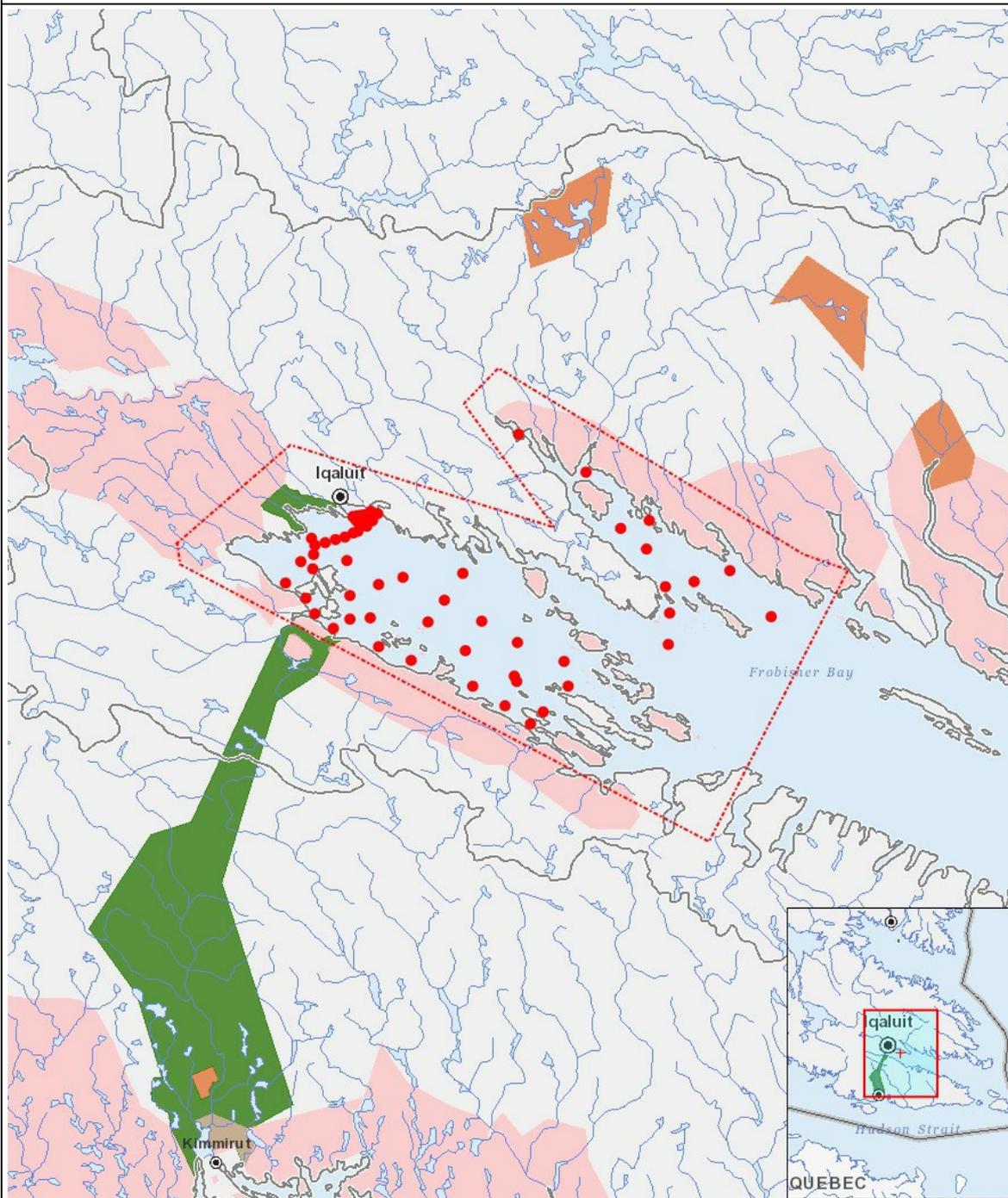
Impacts

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																									
Marine Based Activities	-	-	-	-	-	-	-	-	-	-	-	-	N	-	-	-	-	-	-	-	P	-	-	-	-
Decommissioning																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Project Location



List of Project Geometries

- | | | |
|----|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | polyline | Designated stations within Frobisher Bay and Ward Inlet will be visited for sampling. The primary focus is in the head of Frobisher Inlet near Iqaluit town, See project description/map. We can provide specific coordinates too if desired |
| 2 | point | Station IQB1 |
| 3 | point | Station IQB2 |
| 4 | point | Station IQB3 |
| 5 | point | Station IQB4 |
| 6 | point | Station IQB5 |
| 7 | point | Station IQC1 |
| 8 | point | Station IQC2 |
| 9 | point | Station IQC3 |
| 10 | point | Station IQWFB01 |
| 11 | point | Station IQWFB02 |

12 point	Station IQWFB03
13 point	Station IQWFB04
14 point	Station IQWFB05
15 point	Station IQWFB06
16 point	Station IQWFB07
17 point	Station IQWFB08
18 point	Station IQWFB09
19 point	Station IQD1
20 point	Station IQ2A
21 point	Station IQ2B
22 point	Station IQ2C
23 point	Station IQD3
24 point	Station IQD4
25 point	Station IQD5
26 point	Station IQWI1 - station of opportunity
27 point	Station IQWI2 - station of opportunity
28 point	Station IQWI4 - station of opportunity
29 point	Station IQWI5 - station of opportunity
30 point	Station IQWI6 - station of opportunity
31 point	Station IQWI7 - station of opportunity
32 point	Station IQWI8 - station of opportunity
33 point	Station IQWI9 - station of opportunity
34 point	Station IQWI10 - station of opportunity
35 point	Station IQWI11 - station of opportunity
36 point	Station IQWI12 - station of opportunity
37 point	Station FB001
38 point	Station FB002
39 point	Station FB003
40 point	Station FB004
41 point	Station FB008
42 point	Station FB012
43 point	Station FB013
44 point	Station FBZP5
45 point	Station FBZP6
46 point	Station FBZP7
47 point	Station FBZP8
48 point	Station FB021
49 point	Station FB022
50 point	Station FB023
51 point	Station FB024
52 point	Station FB025
53 point	Station FB026
54 point	Station FB027
55 point	Station FB028
56 point	Station FB029

57 point	Station FB030
58 point	Station FB031
59 point	Station FB 32
60 point	Station IQA1
61 point	Station IQA2
62 point	Station IQA3
63 point	Station IQA4
64 point	Station IQA5