

Total Person days: 1400

Operations Phase: from 2023-08-15 to 2023-09-20

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Foxe Basin Trough	Marine Based Activities	Marine	Marine area, research on glacial history has been carried out in the past, e.g.: Ch.R. Stokes. Deglaciation of the Laurentide Ice Sheet from the Last Glacial Maximum. 2017, 43 (2), 377–428 DOI: 10.18172/cig.3237.	N/A	The nearest communities are Coral Harbor (ca. 57 nm), Cape Dorset (65 nm), Repulse Bay (ca. 90 nm) and Hall Beach (ca. 125 nm).
Western Hudson Strait	Marine Based Activities	Marine	Marine area, research on glacial history has been carried out in the past, e.g.: Laymon, C. A. Glacial Geology of Western Hudson Strait, Canada, with Reference to Laurentide Ice Sheet Dynamics. Geological Society of America Bulletin 1992, 104 (9), 1169–1177 DOI: 10.1130/0016-7606(1992)104<1169:GGOWHS>2.3.CO;2.ROSS, M. A. R. T. I. N.; LAJEUNESSE, P. A. T. R. I. C. K.; KOSAR, K. E. V. I. N. G. A. The Subglacial Record of Northern Hudson Bay: Insights into the Hudson Strait Ice Stream Catchment.	N/A	The nearest communities are Cape Dorset (ca. 30 nm) and Kimmirut (ca. 40 nm) in Nunavut and Ivujivk (ca. 65 nm), Salluit (ca. 50 nm) and Kangiqsuaq (ca. 37 nm) in Nunavik.
Coats and Mansel Fan	Marine Based Activities	Marine	Marine research on glacial history has been carried out in the past, e.g.:Josenhans, H. W.; Zevenhuizen, J. Dynamics of the Laurentide Ice Sheet in Hudson Bay, Canada. Marine Geology 1990, 92 (1), 1–26 DOI: 10.1016/0025-3227(90)90024-E.	N/A	The nearest communities are Coral Harbor (ca. 80 nm) and Cape Dorset (ca. 85 nm) in Nunavut and Ivujivik (ca. 43 nm), Akulivik (ca. 98 nm) in Nunavik.
Winisk Trough	Marine Based Activities	Marine	Marine research on glacial history has been carried out in the past, e.g.:Josenhans, H. W.; Zevenhuizen, J. Dynamics of the Laurentide Ice Sheet in Hudson Bay, Canada. Marine Geology 1990, 92 (1), 1–26 DOI: 10.1016/0025-3227(90)90024-E.	N/A	The nearest communities are Inukjuak (ca. 190 nm) and Umiujaq (ca. 215 nm) in Nunavik.
Central Hudson Bay	Marine Based Activities	Marine	Marine research on glacial history has been carried out in the past, e.g.:Josenhans, H. W.; Zevenhuizen, J. Dynamics of the Laurentide Ice Sheet in Hudson Bay, Canada. Marine Geology 1990, 92 (1), 1–26 DOI: 10.1016/0025-3227(90)90024-E.	N/A	The nearest communities are Akulivik (ca. 190 nm) and Puvirnituq (ca. 220 nm) in Nunavik.
Labrador Sea	Marine Based Activities	Marine	Similar activities have been previously undertaken by the CCGS Amundsen using the same instrumentation, i.e. coring and hydroacoustic profiling (current mapping coverage available from these operations: http://www.omg.unb.ca/projects/Arctic/google/), Rashid, H.; Piper, D. J. W.; Drapeau, J.; Marin, C.; Smith, M. E. Sedimentology and History of Sediment Sources to the Nw Labrador Sea during the Past Glacial Cycle. Quaternary Science Reviews 2019, 221 DOI: 10.1016/j.quascirev.2019.105880.	N/A	More than 200 nm to the nearest community (e.g. Kimmirut, Kangiqsuaq).
Labrador Shelf	Marine Based Activities	Marine	Acoustic survey conducted previously: Kostylev, V. E.; Geological Survey of Canada. Ccgs Louis S. St. Laurent 2019 Expedition : Multibeam Mapping and Sub-Bottom Profiling of the Northeast Newfoundland Slope, Labrador Sea; Open File, 8841; Geological Survey of Canada: Dartmouth, Nova Scotia, 2021.	N/A	The nearest communities are Nain (ca. 50 nm), Natuashish (ca. 45 nm), Hopedale (ca. 42 nm), Postville (ca. 55 nm), Makkovik (ca. 35 nm) and Rigolet (ca. 65 nm).
Belcher Islands	Marine Based Activities	Marine	Marine research on glacial history has been carried out in the past, e.g.:Josenhans, H. W.; Zevenhuizen, J. Dynamics of the Laurentide Ice Sheet in Hudson Bay, Canada. Marine Geology 1990, 92 (1), 1–26 DOI: 10.1016/0025-3227(90)90024-E.	N/A	The nearest communities are Sanikiluaq (ca. 55 nm), Umiujaq (ca. 200 nm), Kuujuarapik/Whapmagoostui (ca. 115 nm).

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
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Cape Dorset	Jutai Toonoo Jr.	Community Liaison Officer	2023-08-03
Sanikiluaq	Sani	Hunters and Trappers Organization	2023-08-03
Kimmirut	Perry Ikkidluak	Community Liaison Officer	2023-08-03

Authorizations

Indicate the areas in which the project is located:

Transboundary
Kivalliq
South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Fisheries and Oceans Canada	Based on the information provided, we have found that the proposed works, undertakings or activities are of no concern. Consequently, no further review pursuant to the Fisheries Act, the Aquatic Invasive Species Regulations or the Species at Risk Act, as listed above, is required.	Active	2023-05-03	

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	The RV Maria S. Merian will depart from the port of St. John's, Newfoundland, on August 15th 2023 and will end in Nuuk, Greenland, on September 20th 2023. She will enter Hudson Strait, then navigate to southern Foxe Basin and to southeastern Hudson Bay. All the participants will remain onboard for the duration of the research cruise.	

Project accomodation types

Other,

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
ADCP current profiler	1	1	Measurement of water velocity
Multibeam echosounder	1	1	seafloor mapping
Sub-bottom profiler Parasound P70	1	1	Sub-bottom sediment mapping
Meteorological Sensors	1	1	Measurement of meteorological parameters (wind, temperature, pressure)
CTD/Rosette water sampler	1	2.5x2.5m	samples of water and plankton, geochemistry and isotope measurements
Gravity corer	1	24m	Retrieval of sediment cores
Multi-(Frahm-)Corer	1	2x2m	Retrieval of sediment cores
Ship pump systems	1	1x1	Permanent surface water sampling / analysis (incl. Thermosalinograph)

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Diesel	fuel	18	7402	133236	Cubic Meters	240

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
Marine Based Activities	Greywater	180 - 210 m ³	3 grey water tanks (collecting tanks) total capacity 17,8 M ³ , treatment: Biological Sewage Plant (Capacity : 8 M ³ /day) after treatment collected in 1 clean ship tank - Total capacity 41,0 M ³ , If necessary treated water is disposed into sea according MARPOL regulations	treatment: Biological Sewage Plant (Capacity : 8 M ³ /day) after treatment collected in 1 clean ship tank - Total capacity 41,0 M ³
Marine Based Activities	Other, sewage-sludge	3 m ³	Sewage-sludge from Biological Sewage Plant plant is collected in sludge tank max capacity 10,0 M ³ , disposal of sludge in port to port facilities	N/A
Marine Based Activities	Other, Oil/fuel residues (Sludge)	4-5 m ³	collected in 3 tanks, total capacity: 31,1 M ³ , disposal in port to port facilities	N/A

Environmental Impacts:

We are not aware of any major environmental impacts. The biggest potential impact will be noise from vessel movements and hydro-acoustic surveys. In addition, we conduct benthic research and therefore take samples from the seafloor as well as long (> 10m) sediment cores, which ultimately affects the local benthic environment. In the case of noise, we will pay attention to endangered species (bird watchers on board) and we will stop all research activities if endangered species are sighted or if species show signs of distress. In addition, we will not enter protected areas and will consult with local communities if there are harvesting areas or areas of concern (such as in area H).

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

See file Vessel_Use

SECTION H2: Disposal At Sea

We will not dispose waste at sea.

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

The nearest known protected areas are in the Labrador Sea (Torngat National Marine Conservation Area, Hopedale Saddle Closure Area). After notification by the DPO we will not conduct any research in these areas.

Description of Existing Environment: Biological Environment

Beluga whales migrate to Hudson Bay during the summer to give birth in coastal waters. We don't plan to enter coastal waters, and we have been informed that we will not receive a permit for working area H (close to the beluga hunting grounds) in time. Therefore, our remaining working areas are outside of our known migration routes or nursery areas.

Description of Existing Environment: Socio-economic Environment

Proximity to communities is described in the Activities section. We will be conducting research offshore and do not expect to have an impact on the socio-economic environment. However, we are currently contacting the nearest communities to inform them of our research and ask about any concerns they may have.

Miscellaneous Project Information

N/A

Identification of Impacts and Proposed Mitigation Measures

The tools we use are non-invasive. We use a Parasound P70 sub-bottom profiler and a multibeam echosounder. These instruments, along with the deployment of other instruments such as sediment gravity cores and water sampling rosettes, generate underwater noise. We will have a bird observer on board who will also look out for whales. If distressed marine animals, i.e. whales, are observed, we will stop our operation.

Cumulative Effects

N/A

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	-	-	-	-	-	-	-	U	-	U	-	P	-	-	-	-	-	U	-	-	-	-	-	-	-
Decommissioning																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Project Location



List of Project Geometries

1	polygon	Foxe Basin Trough
2	polygon	Western Hudson Strait
3	polygon	Coats and Mansel Fan
4	polygon	Central Hudson Bay
5	polygon	Winisk Trough
6	polygon	Labrador Sea
7	polygon	Belcher Islands
8	polygon	Labrador Shelf

