



## **NIRB Uuktuutinga Ihivriughikhamut #125844**

### **Hudson Bay System Paleoceanography**

**Uuktuutinga Qanurittuq:** New

**Havaap Qanurittunia:** Marine Based Activities

**Uuktuutinga Ublua:** 8/2/2023 1:15:52 PM

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

**Piumayaat Angirutinga:** from 0001-01-01 to 0001-01-01

**Havauhikhaq Ikayuqtinga:** Patrick Lajeunesse  
Université Laval  
Departement de geographie  
Québec Quebec G1V 0A6  
Canada  
Hivayautit Nampanga.: 4185720331, Kayumiktukkut Nampanga.:



## Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunangga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannuqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtaiiyainnit nuna
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 Ivujivik (ca. 65 nm), Salluit (ca. 50 nm) and Kangiqsujaq (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 Puvimittuq (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: <a href="http://www.omg.unb.ca/projects/Arctic/google/">http://www.omg.unb.ca/projects/Arctic/google/</a> ), 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, Kangiqsujujaq).
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), Kuujjuarapik/Whapmagoostui (ca. 115 nm).

### Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Kinngait	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

## Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

Transboundary  
Kivalliq  
South Baffin

### Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Iqalukhiurniqmut Tariuqmilu Kaanata	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	Qanuq Atuqtauniarmangaa	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 accommodation types

Alaanut,

## Ihvaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
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)

### Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturninnga

Qanurittuq urhuqyuaq hunavaluit aturninnga:	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atauttimut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa
Diesel	fuel	18	7402	133236	Cubic Meters	240

### Imaqmik Aturninnga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqittagaani qanuq	Atulirumayain imavaluin utiqittagani humi
0		

## Iqqakuq

### Ikkakunik Munakgiyayunik

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

#### Avatiliriniqmut Ayurhauingit:

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**

### **Qanurittuq Ittunik Avatinga: Avatingalluanga**

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.

### **Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga**

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.

### **Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga**

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

### **Naunaiyainiq ukuninna Ayurhautingit unalu Piumayaat Ikikliyuumiutinahuarutit**

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.

### **Tamatkiumayunik Ihuikgutivaktunik**

N/A

# Impacts

## Iitariyauniq Avatiliriniqmut Ayurhauingit

	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
<b>Havakvinga</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Aulapkaininnga</b>																									
Marine Based Activities		-	-	-	-	-	-	U	-	U	-	P			-	-	-	U	-		-	-	-	-	-
<b>Piiqtauniq</b>																									
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyayuq)

Havaariyauyukhamut Nayugaa



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

