



NIRB Uuktuutinga Ihivriughikhamut #125884

OPP 2.0 Baseline Shoreline Mapping 2024

Uuktuutinga Qanurittuq: New

Havaap Qanurittunia: Scientific Research

Uuktuutinga Ublua: 2/14/2024 1:50:54 PM

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

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

Havauhikhaq Ikayuqtinga: Valerie Wynja
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Canada
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QANURITTUT

Tukihinnaqtunik havaariyauyumayumik uqauhiuyun

Qablunaatitut: I have attached all project descriptions as attachments:- English, French, Inuinnaqtun, Kivallirmiutut and Qikiqtaaluk Nigiani.

Uviititut: I have attached all project descriptions as attachments:- English, French, Inuinnaqtun, Kivallirmiutut and Qikiqtaaluk Nigiani.

Inuktitut: I have attached all project descriptions as attachments:- English, French, Inuinnaqtun, Kivallirmiutut and Qikiqtaaluk Nigiani.

Personnel

Personnel on site: 2

Days on site: 25

Total Person days: 50

Operations Phase: from 2024-06-01 to 2024-09-30

Hulilukaarutit

| Inigiya | Hulilukaarut Qanurittuq | Nunannga Qanurittaakhaanik | Initurlinga qanuritpa | Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannguqtut akhuurninnga | Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtailiyainnit nuna |
|--|-------------------------|-------------------------------|-----------------------|---|---|
| Frobisher Bay Study Site | Aerial surveys | Inuit Owned Surface Lands | NA | NA | Proximity to nearest communities: Iqaluit, Apex are within the study site. Proximity to nearest protected areas: Katannilik Territorial Park, Sylvia Grinnell and Qaummaarviit Territorial Park are within the study site, Dewy Soper MBS (285 km away) |
| Frobisher Bay Study Site | Aerial surveys | Crown | NA | NA | Proximity to nearest communities: Iqaluit, Apex are within the study site. Proximity to nearest protected areas: Katannilik Territorial Park, Sylvia Grinnell and Qaummaarviit Territorial Park are within the study site, Dewy Soper MBS (285 km away) |
| Rankin Inlet, Chesterfield Inlet and Baker Lake Study Site | Aerial surveys | Inuit Owned Surface Lands | NA | NA | Proximity to nearest communities: Rankin Inlet, Chesterfield Inlet and Baker Lake are within the study site. Whale Cove and Arviat are close to the study site. Proximity to nearest protected areas: Iqalugaarjuup Nunanga Territorial Park is close to the study site. McConnel River MBS is 250 km away. |
| Rankin Inlet, Chesterfield Inlet and Baker Lake Study Site | Aerial surveys | Inuit Owned Sub-Surface Lands | NA | NA | Proximity to nearest communities: Rankin Inlet, Chesterfield Inlet and Baker Lake are within the study |

| | | | | | |
|--|----------------|-------------------------------|----|----|--|
| | | | | | <p>site. Whale Cove and Arviat are close to the study site.</p> <p>Proximity to nearest protected areas: Iqalugaarjuup Nunanga Territorial Park is close to the study site.</p> <p>McConnel River MBS is 250 km away.</p> |
| Rankin Inlet, Chesterfield Inlet and Baker Lake Study Site | Aerial surveys | Crown | NA | NA | <p>Proximity to nearest communities: Rankin Inlet, Chesterfield Inlet and Baker Lake are within the study site. Whale Cove and Arviat are close to the study site.</p> <p>Proximity to nearest protected areas: Iqalugaarjuup Nunanga Territorial Park is close to the study site.</p> <p>McConnel River MBS is 250 km away.</p> |
| Southern Bathurst Inlet Study Site | Aerial surveys | Crown | NA | NA | <p>Proximity to nearest communities: Cambridge Bay (280 km away) and Kugluktuk (340 km away) are close to the study site.</p> <p>Proximity to nearest protected areas Queen Maud Gulf MBS is 120 km away. Thelon Wildlife Sanctuary is 260 km away.</p> |
| Southern Bathurst Inlet Study Site | Aerial surveys | Inuit Owned Surface Lands | NA | NA | <p>Proximity to nearest communities: Cambridge Bay (280 km away) and Kugluktuk (340 km away) are close to the study site.</p> <p>Proximity to nearest protected areas Queen Maud Gulf MBS is 120 km away. Thelon Wildlife Sanctuary is 260 km away.</p> |
| Southern Bathurst Inlet | Aerial surveys | Inuit Owned Sub-Surface Lands | NA | NA | <p>Proximity to nearest communities:</p> |

| | | | | | |
|------------|--|--|--|--|---|
| Study Site | | | | | Cambridge Bay (280 km away) and Kugluktuk (340 km away) are close to the study site. Proximity to nearest protected areas Queen Maud Gulf MBS is 120 km away. Thelon Wildlife Sanctuary is 260 km away. |
|------------|--|--|--|--|---|

Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

| Nunauyuq | Atia | Timiuyuq | Upluani Uqaqatigiyaungmata |
|---------------|------------------------|------------------------|-------------------------------|
| Ikaluktuttiak | Ivorson Maksagak | EHTO | 2024-01-09 |
| Qamaniittuaq | Baker Lake HTO | Baker Lake HTO | 2024-02-15 |
| Igluligaaryuk | Chesterfield Inlet HTO | Chesterfield Inlet HTO | 2024-02-15 |
| Kangirliniq | Rankin Inlet HTO | Rankin Inlet HTO | 2024-02-15 |

Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

Angiuttauvaktunik

| Munariniqmut Ayuittiaqtuq | Angirutinga Qanurittuq | Tadja Qanurittaakhaanik | Ublua Tuniyauyuq/Uuktuqtuq | Umikvikhaa Ublua |
|--|--|-------------------------|----------------------------|------------------|
| Nunavunmi Ihivriuqniqmut Timiqutigiyanga | Application will be submitted for a scientific research license for conducting shoreline videography in Nunavut. This will be done following NIRB review. | Not Yet Applied | | |
| Kitikmeot Inuit Katimayiingit | Seeking permission to potentially place one fuel cache on Inuit owned lands. Fuel cache will allow the helicopter to refuel during helicopter surveys in Bathurst Inlet. | Not Yet Applied | | |
| Nunaqaqqaqhimayuliriyyikku Ukiuqtaqtumi Pivalliani Kaanata | CIRNAC - Lands administration office. Permission to potentially cache fuel on crown lands. | Not Yet Applied | | |

Project transportation types

| Transportation Type | Qanuq Atuqtauniarmangaa | Length of Use |
|---------------------|----------------------------------|---------------|
| Air | Helicopter survey over the coast | |

Project accomodation types

Nunauyuq

Alaanut,

Ihuaqutivaluin Atuqtauyukhan

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

| Hanalrutit Qanurittuq | Qaffiuyut | Aktikkulaanga – Qanurittullu | Qanuq Atuqtauniarmangaa |
|-----------------------|-----------|------------------------------|---|
| Helicopter | 1 | 20 X 8 | Use helicopter to collect key shoreline information and establish a shoreline database, low-altitude helicopter overflights (approximately 60-70 knots, 200-300 feet elevation above the water, and 300ft off the shoreline) are conducted at the study site to capture video of the shoreline characteristics. |
| Video Camera | 1 | 24 x 6 | Video camera on a gimbal to collect geotagged videos. |
| Camera | 1 | 6x4 | Digital camera to collect geotagged photos. |
| GPS | 1 | 2x3 | GPS to record our flight path. |
| Toughbook tablet | 1 | 4x6 | Toughbook tablet to display map and to record our flight path. |
| Drone | 2 | 10x12 | Potentially fly drone along the coastline to see if we can collect high resolution imagery suitable to doing a remote sensing classification. |

Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturningga

| Qanurittuq urhuqyuaq hunavaluit aturningga: | Urhuqyuaq Qanurittuq | Qaffiuyut qattaryut | Qattaryuk Aktikkulaanga | Atauttimut Qaffiuyut | Ilanga | Qanuq Atuqtauniarmangaa |
|---|----------------------|---------------------|-------------------------|----------------------|--------|--|
| Aviation fuel | fuel | 0 | 208 | 0 | Liters | Access to aviation fuel from the coastguard ship for mapping in Frobisher Bay and Rankin/Chesterfield Inlets. |
| Aviation fuel | fuel | 0 | 208 | 0 | Liters | Access to aviation fuel from the Cambridge Bay Airport with the Southern Bathurst Inlet Study Site. |
| Aviation fuel | fuel | 15 | 208 | 3120 | Liters | We have applied to the Polar Continental Shelf Program for logistical research support in the Arctic. We have proposed one a fuel cache with |

| | | | | | | |
|--|--|--|--|--|--|---|
| | | | | | | 10-15 drums at the Bathurst Inlet Lodge. Coordinates: 66 50' 14.62N; 108 00' 57.64 |
|--|--|--|--|--|--|---|

Imaqmik Aturninnga

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

Iqqakuq

Ikkakunik Munakgiyauyunik

| Havauhikhaq Hulilukaarut | Qanurittuq Iqqakut | Ihumagiyauyuq Qanuraaluktut Atuqtait | Qanuq Iqqakuurniarmangaa | Halummaqtirarnirutikhan piyutin |
|---------------------------------|---------------------------------------|--|--|------------------------------------|
| Fuel and chemical storage | Ikulalaaqtun iqqakuuvaluin | 1 fuel cache | We shall locate all fuel and other hazardous materials a minimum distance away from the high-water mark of any water body and environmentally sensitive areas as required by the appropriate authorizing agencies. The materials shall be stored in such a manner as to prevent their release into the environment. We shall use adequate secondary containment or a surface liner (e.g., self-supporting installments and fold-a-tanks) when storing barreled fuel and chemicals at all locations. We shall ensure that re-fuelling of all equipment occurs a minimum distance away from the high-water mark of any water body as required by the appropriate authorizing agencies. We shall have a Spill Contingency Plan in place at all fuel storage or transfer locations and shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available. | NA |
| Waste disposal | Other, food and domestic wastes | Minimal | We shall manage all hazardous and non-hazardous waste including food, domestic wastes and debris in such a manner to always avoid release into the environment and access to wildlife until | NA |

| | | | | |
|--|--|--|---|--|
| | | | disposed of appropriately or at an approved facility. | |
|--|--|--|---|--|

Avatiliriniqmut Ayurhautingit:

We anticipate the low-altitude helicopter overflight will have a relatively low potential impact of wildlife and the environment. Wildlife may be impacted by: Noise, sudden movements, physical contact with helicopter (unlikely). Anticipated wildlife impact may include: brief periods of alertness while maintaining activities, animals may watch the aircraft, minor changes in animals existing travel speeds, methods and routes, and no change in animal group size or movements. Some moderate impacts might include flight to escape terrain, or flocks of birds taking flights or other changes in animal behavior. Mitigation measures: - Prior to initiation, identify and map sensitive sites (such as breeding, nesting, calving, migration) so we are aware of their location. - Seasonally (mid May-mid-July) avoid caribou birthing/rearing habitats by limiting helicopter flights altitudes to a minimum of 400m above the ground. - Select particular routes, heli-pads, heli-spots for all helicopter activities to avoid caribou birthing/rearing areas. - Avoid landing sites on or near critical seasonal caribou habitats. - No circling above wildlife if spotted. - Avoid bear feeding sites, by limiting helicopter flights altitudes to a minimum of 400m above the ground and avoid general bear habitat by limiting helicopter flights altitudes to a minimum of 200m above the ground. - Limiting helicopter overflights to a minimum of 400m above the ground in areas around waterfowl and shorebirds, and no circling over wetlands and flocks of birds. - Utilizing existing airstrips or using existing disturbed areas for helicopter takeoff and landings. - Predetermine suitable flight routes to: maintain avoidance distance, visual screening and reduced frequency of flights near critical areas. - Identify suitable landing sites in advance. - Plan fieldwork outside of calving/nesting/birthing season. - Convey the mitigation measures to all staff.

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

Qanurittuq Ittunik Avatinga: Avatingalluanga

This year, our work falls outside of any Migratory Bird Sanctuaries, National Parks, and other Conservation Areas. The Sylvia Grinnell Territorial Park and Katannilik Territorial parks are within the study site's boundaries for the proposed work around Frobisher Bay. For the Frobisher Bay Study site: Proximity to nearest communities: Iqaluit, Apex are within the study site. Proximity to nearest protected areas: Katannilik Territorial Park, Sylvia Grinnell and Qaummaarviit Territorial Park are within the study site, Dewy Soper MBS (285 km away) For the Rankin Inlet study site: Proximity to nearest communities: Rankin Inlet, Chesterfield Inlet and Baker Lake are within the study site. Whale Cove and Arviat are close to the study site. Proximity to nearest protected areas: Iqalugaarjuup Nunanga Territorial Park is close to the study site. McConnel River MBS is 250 km away. For the Bathurst Inlet Study site: Proximity to nearest communities: Cambridge Bay (280 km away) and Kugluktuk (340 km away) are close to the study site. Proximity to nearest protected areas Queen Maud Gulf MBS is 120 km away. Thelon Wildlife Sanctuary is 260 km away.

Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga

This year, our work falls outside of any Migratory Bird Sanctuaries, National Parks, and other Conservation Areas. The Sylvia Grinnell Territorial Park and Katannilik Territorial parks are within the study site's boundaries for the proposed work around Frobisher Bay. The proposed project would take place within habitats of far-ranging wildlife species such as migratory and non-migratory birds, arctic fox, arctic hare and Species at Risk or Special Concern such as Polar Bears, Grizzly Bears, Wolverine, Harlequin Duck, Peregrine Falcon, Red Knot, Red-necked Phalarope, Short-eared Owl and Caribou.

Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga

This work will be taking place in several different locations a) Frobisher Bay and the nearest community is Iqaluit. We plan to fly past and map the coastline of Frobisher Bay from Iqaluit up to Ward Inlet/Eggleston Bay. B) Southern Bathurst Inlet and the nearest communities are Cambridge Bay, Kugluktuk and Gjoa Haven. We plan to fly around the inlet south of Ekalulia Island. C) Hudson Bay and the nearest communities are Rankin Inlet, Chesterfield Inlet and Baker Lake and Whale Cove. We plan to fly the coast of Rankin Inlet, Chesterfield Inlet and possibly Baker Lake if the helicopter range permits this. We anticipate that the overall impact of this work will be positive on the socioeconomic environment as it will equip communities with resources/information about the coastline to support decisions about shoreline management during an environmental emergency.

Miscellaneous Project Information

Naunaiyainiq ukuninnga Ayurhautingit unalu Piumayaat Ikiikliyuumiutinahuarutit

The helicopter makes a single pass along the shoreline and moves along the coast. We typically fly at 110km an hour, so we pass by sites fairly quickly, reducing and limiting impact to the wildlife present. We anticipate the low-altitude helicopter overflight will have a relatively low potential impact of wildlife and the environment. Wildlife may be impacted by: Noise, sudden movements, physical contact with helicopter (unlikely). Anticipated wildlife impact may include: brief periods of alertness while maintaining activities, animals may watch the aircraft, minor changes in animals existing travel speeds, methods and routes, and no change in animal group size or movements. Some moderate impacts might include flight to escape terrain, or flocks of birds taking flights or other changes in animal behavior. As we are doing a single pass in the helicopter, past the coastline, we do NOT anticipate the single flight having an impact on changes in animal activity periods, change in animal bedding and feeding areas, lower productivity or abandonment of preferred habitats. Aircraft are noisy machines that travel at high speed with the ability to approach wildlife closely. All aircraft approaches will invoke some kind of reaction from animals. It is difficult to assess the impact of short-term reaction on populations, productivity and habitat use. Helicopters are also associated with rotor downwash and brownouts: high velocity wind vortices are generated by helicopter blades when the machine is hovering above a runway or bushland. This generates blankets of airborne dust particles, reduces habitat values and exposes vegetation and wildlife to lethal wind velocities. Direct physical damage such as to hearing or vegetation being shredded by rotor downwash. Mitigation measures:-Prior to initiation, identify and map sensitive sites (such as breeding, nesting, calving, migration) so we are aware of their location.-Seasonally (mid May-mid-July) avoid caribou birthing/rearing habitats by limiting helicopter flights altitudes to a minimum of 400m above the ground. -Select particular routes, heli-pads, heli-spots for all helicopter activities to avoid caribou birthing/rearing areas. -Avoid landing sites on or near critical seasonal caribou habitats.-No circling above wildlife if spotted.-Avoid bear feeding sites, by limiting helicopter flights altitudes to a minimum of 400m above the ground and avoid general bear habitat by limiting helicopter flights altitudes to a minimum of 200m above the ground. -Limiting helicopter overflights to a minimum of 400m above the ground in areas around waterfowl and shorebirds, and no circling over wetlands and flocks of birds.-Utilizing existing airstrips or using existing disturbed areas for helicopter takeoff and landings. -Predetermine suitable flight routes to: maintain avoidance distance, visual screening and reduced frequency of flights near critical areas. -Identify suitable landing sites in advance.-Plan fieldwork outside of calving/nesting/birthing season.-Convey the mitigation measures to all staff.

Tamatkiumayunik Ihuikgutivaktunik

Disturbance for wildlife is an additive effect. While the occasional disturbance may be of limited short-term impact (such as this shoreline mapping project), each successive disturbance (other projects in the area) can escalate the impact. The duration of disturbances can be of escalating importance. Wildlife initial response to disturbance is to flee to a secure area, so the ability to have a security area available where there is no disturbance is crucial for mitigation for short-term and long-term impacts. We plan to minimize cumulative impacts by limiting the overflights to one pass.

Impacts

Ilitariyauniq Avatiliriniqmut Ayurhautingit

| | 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 |
|----------------|----------|--------------------------------|------------------|------------|-----------------------|---------------|--------------------|---|-----------------------------|---------------------------|--------------------------------|-------------|--------------|------------|------------|--|---|---|--------------------------|----------------|--|------------|--------------------|--------------------------|--------------|
| Havakvinga | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Aulapkaininnga | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aerial surveys | | - | - | - | - | - | - | - | - | - | - | M | | M | M | M | - | - | | | - | - | - | - | - |
| Piiqtauniq | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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



List of Project Geometries

| | | |
|---|---------|--|
| 1 | polygon | Frobisher Bay Study Site |
| 2 | polygon | Rankin Inlet, Chesterfield Inlet and Baker Lake Study Site |
| 3 | polygon | Southern Bathurst Inlet Study Site |