NIRB Application for Screening #126003

Mapping nearshore coastal habitats and associated macroflora and fauna in the Qikiqtarjuaq area

Application Type: New

Project Type: Scientific Research

Application Date: 9/24/2024 2:23:23 PM

Period of operation: from 2024-08-07 to 2027-10-23

Project Proponent:

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Canada
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DETAILS

Non-technical project proposal description

English: The nearshore (<50 m) area of Qikiqtarjuaq will be mapped using time lapse photography in areas previously identified of interest to community members. High resolution images of the seafloor using a drop camera frame with lighting will be used to characterize and map benthic habitats and associated organisms. The main objectives of the project are to 1) classify benthic habitats, characterize associated flora and fauna and create distribution maps of benthic habitat types and organisms. 2) define habitat specific biological communities and functional attributes of those communities based on relationships between benthic habitat types and organism characteristics.Establishing this baseline will provide a benchmark to track future change to the habitats and organisms found in this area. The resulting distribution maps will help inform future Integrated Coastal Zone Management activities (e.g. port construction and areas that are important for local harvesting interests) in the region of Qikiqtarjuaq. Methods used to conduct this research include creating a georeferenced grid (200 x 200 m/cell) to indicate where sampling will take place. A drop camera frame with lighting will be lowered to the seafloor to capture time lapse images at each site. Complementary water quality profiles will be collected at each site by deploying a CTD attached to the camera frame. Images will then be downloaded and analysed for bottom type, the occurrence, type and percent cover of algae and identity and abundance (counts) of organisms. Results will be communicated through creation of annual plain-language reports/newsletter on results from habitat mapping surveys, summaries of biodiversity patterns based on sample identifications, oral presentations and discussion of results with the local HTA and community members (open house), and through other avenues such as local radio.

French: Le présent projet a pour objectif global de cartographier la région côtière de Qikiqtarjuaq en utilisant une caméra en mode prise en vue a réglage intermédiaire a des sites d'intérêt particulier aux membres de la communauté. Des images à haute résolution du fond de l'océan en utilisant une caméra tenue en place sur une charpente, seront utiliser pour caractériser et cartographier les habitats benthiques et les organismes dument présent. Les deux buts principale sont 1) de classifier les habitats benthiques, caractériser la flore et la faune et créer une carte de distribution des habitats benthiques et d'organismes pertinents. 2) définir les communautés biologiques spécifiques aux habitats identifier ainsi que les attributs pratique de ces communautés baser sur la relation entre l'habitat benthiques et les caractéristiques des organismes. L'établissement de cet ensemble de données servira de point de référence pour la détection de changements futures des habitats et organises dans la région de Qikiqtarjuaq. Les cartes de distribution vont fournir des informations indispensables pour des activités de gestion de zone côtières intégrer (par exemple la construction de port et la gestions d'endroits d'importance pour des chasseurs locaux) dans la région de Qikiqtarjuaq. Les méthodes de recherches pour ce projet comprenne entre autre, la création d'une grille géoréférencé (200m x 200m par carrée de grille) utiliser pour déterminer l'emplacement des échantillonnages. Une charpente a camera munie de lumière sera déployer au fond de la mer à partir d'un bateau afin de prendre des photos en mode prise en vue de réglage intermédiaire à chaque site d'échantillonnage. De façon complémentaire, des profile de qualité d'eau seront prise à chaque site à l'aide d'un instrument CTD accrocher à la charpente à caméra. Les images seront télécharger afin d'analyser le type de fond, la présence, le type et la quantité d'algues, le nombre de différents organismes, leurs identités et leur abondance pour les différents habitats. Les résultats du projet seront communiquer à la communauté de Qikiqtarjuaq en fournissant un rapport annuel en langage commun des retrouvailles du projet. Celui-ci comprendra les résultats de l'enquête cartographique, et un résumer des patrons de biodiversité selon les organismes et habitats identifier pendant l'enquête. Des présentations orales, des portes ouvertes et des entrevus à la radios seront également explorer afin de communiquer les résultats du projet et fournir un espace de discussions ouverte avec les organisations clés de la communauté.

Inuktitut: ᑕᒪᓐᓇ ᓯᓪᔭᖅᐸᓯᒃᑐᖅ ᑕᕆᐅᖅ (<50 ᒦᑕ) ᐃᓂᒋᔭᖕᒐ ᕿᑭᖅᑕᕐᔪᐊᑉ ᓄᓇᖖᒍᐋᓕᐅᕆᔭᐅᓂᐊᖅᑐᖅ ᐃᖅᑲᖕᒐ ᐊᑐᓪᓗᑕ ᐊᔾᔨᓕᐅᕆᑦᑕᖅᑐᒍᑦ ᖃᔅᓯᑦ ᒥᓂᑦᓰᑦ ᐊᓂᒍᕌᖕᒐᑦ ᐃᓂᒋᔭᖕᒋᑕ ᓄᓇᓕᒻᒥᐅᓄᑦ ᓇᓗᓇᐃᖅᑕᐅᓯᒪᔪᓂᒃ ᕿᒥᕐᕈᕐᑯᔭᐅᓪᓗᑎᒃ. ᑕᑯᒃᓴᐅᑦᑎᐋᓪᓚᓇᒃᑐᓂᒃ ᐊᔾᔨᓕᐅᕆᓪᓗᑕ ᐃᖅᑲᖕᒐᓂᒃ ᐊᑐᖅᓗᒍ ᑭᕙᑦᑕᖅᑎᑕᖅ ᐊᔾᔨᓕᐅᕈᑦ ᐊᕙᓗᐊᒍᑦ ᖃᐅᒻᒪᖅᑯᑎᓕᒃ ᐊᑐᖅᑕᐅᓂᐊᖅᓗᓂ ᐃᓕᖅᑯᓯᖅᓱᐃᑎᓪᓗᑕ ᓄᓇᖖᒍᐊᓕᐊᖅᖅᑎᓪᓗᑕ ᐃᖅᑲᒻᒥᐅᑕᖕᒋᑕ ᓇᔪᒐᕆᓲᖕᒋᑦ ᐊᒃᑐᐊᔭᖃᖅᑐᓪᓗ ᐆᒪᔪᑦ ᐊᕙᑖᒍᑦ. ᑖᒃᑯᐊ ᑕᑯᒃᓴᕈᖁᓯᓪᓗᐊᑕᖅᑕᕗᑦ ᐱᓕᕆᐊᒥ ᐅᑯᐊᖕᒍᔪᑦ 1) ᑭᒡᓕᓯᓂᐊᕆᓗᑎᒍᑦ ᐃᖅᑲᒻᒥᐅᑕᑦ ᓇᔪᒐᕆᓲᖕᒋᑦ, ᐃᓕᖅᑯᓯᖕᒋᒍᑦ ᓇᓗᓇᐃᓪᓗᒋᑦ ᐊᒃᑐᐊᔭᖕᒋᑦ ᐱᕈᖅᑐᑦ ᐆᒪᔪᓪᓗ ᓴᖅᑮᕙᓪᓕᐊᓕᓪᓗᑕ ᐊᕕᒃᑐᖅᓯᒪᓂᖕᒋᑕ ᓄᓇᖖᒍᐊᖕᒋᓂᒃ ᐃᖅᑲᒻᒥᐅᑦ ᓇᔪᖅᑕᐅᓲᖕᒋᓂᒃ ᐊᒻᒪᑦᑕᐅᖅ ᐆᒪᔪᖕᒋᑦ ᓇᔪᖅᓯᓲᑦ. 2) ᓇᓗᓇᐃᑦᑎᐊᓪᓗᒋᑦ ᓇᔪᒐᐅᓲᑦ ᐃᓚᖕᒋᑕ ᐆᒪᔪᑦ ᑲᑎᖅᓱᖕᒐᕝᕕᒋᓲᖕᒋᑦ ᖃᓄᓪᓗ ᐊᐅᓚᓂᖃᓲᖑᒻᒪᖔᑕ ᑖᒃᑯᐊ ᑲᑎᖅᑲᑎᒌᖕᒍᔪᑦ ᑐᙵᕕᒋᓗᒋᑦ ᐊᒃᑐᐊᖅᑲᑎᒌᓐᓂᖕᒋᑦ ᐊᑯᓐᓂᐊᑕ ᐃᖅᑲᖕᒐᑕ ᓇᔪᖅᑕᐅᓲᑉ ᐃᓕᖅᑯᓯᐊᓄᑦ ᐊᒻᒪᑦᑕᐅᖅ ᐆᒪᔪᖕᒋᑕ ᐃᓕᖅᑯᓯᑎᔭᖕᒋᓄᑦ. ᓴᖅᑮᓂᐊᕈᑦᑕ ᑐᙵᕕᒃᓴᐅᔪᒥᒃ ᑖᓐᓇ ᑐᑦᑕᕝᕕᒋᔭᐅᓂᐊᖅᑐᖅ ᕿᓂᓕᕈᑎᒃ

ᓯᕗᓂᑦᑎᒍᑦ ᐊᓯᔾᔨᕈᑎᐅᔪᓄᑦ ᓇᔪᒐᐅᔪᓄᑦ ᐆᒪᔪᖏᓪᓗ ᓇᓂᔭᒃᓴᐅᓲᑦ ᐃᓂᒋᔭᖏᒍᑦ. ᑕᒪᓐᓇ ᓴᖅᑭᑕᕗᑦ ᐊᒡᒍᖅᓯᒪᓂᖏᓄᑦ ᐆᒪᔪᑦ ᓄᓇᙳᐊᒥ ᐃᑲᔪᖅᓱᐃᒐᔭᓇᕗᖅ ᑐᑭᓯᐅᒪᔾᔪᑕᐅᒻᒥᓗᑎᒃ ᓯᕗᓂᑦᑎᒍᑦ ᑲᑎᖅᓱᒐᐅᔪᑦ ᓯᒡᔭᖅᐸᓯᒃᑑᑉ ᑭᒡᓕᓯᓂᐊᓚᖓᑕ ᐊᐅᓚᑦᑎᔨᓄᑦ ᐱᓕᕆᐊᒃᓴᑦ (ᓲᕐᓗ, ᐅᒥᐊᔾᔪᐊᑉ ᐃᐱᖅᓯᒪᕝᕕᐊᑕ ᓴᓇᔭᐅᓂᖓ ᐊᒻᒪᓗ ᐃᓂᒋᔭᑦ ᐊᑑᑎᓖᑦ ᓄᓇᓖᑦ ᐊᖑᓇᓱᒃᑎᖏᓄᑦ ᐱᓯᒪᔪᒪᔭᐅᔪᑦ) ᐃᒪᓇᔭᖏᑕ ᕿᑭᖅᑕᔾᔪᐊᑉ. ᐃᓕᖅᑯᓯᓇᔭᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᑦ ᖃᐅᔨᓵᓇᔭᑦᑎᓐᓄᑦ ᐃᓚᖃᖅᐳᑦ ᖁᒻᒧᒃᑎᓯᒪᔪᒃᑯᑦ ᓈᐃᓴᐅᓯᓇᔾᔪᒻᒧᑦ ᐊᒡᒍᖅᓯᒪᔪᖅ ᑭᑉᐹᓇᖓᔪᓄᑦ (200 x 200 ᒦᑕ/ᐊᕕᒃᑐᕈᑖ) ᓇᓗᓇᐃᖅᓯᔾᔪᑎᒋᓗᒍ ᓇᐅᒃᑯᓪᓗᐊᖅ ᖃᐅᔨᓵᒃᓴᓂᒃ ᐱᓇᓱᓐᓂᐊᒻᒪᖕᒌᑦᑕ. ᑭᕕᑎᓯᒪᔪᒥᒃ ᐊᔾᔨᓕᐅᕈᒻᒥᒃ ᖃᐅᒻᒧᖅᑯᑎᓕᒻᒥᒃ ᐃᖅᑲᖓᓅᖅᓯᓂᐊᖅᑐᒍᑦ ᐊᔾᔨᓕᐅᓇᓲᖅ ᓇᓪᓕᕿᖓ ᒥᓂᑦᓯᖏᑦ ᐊᑐᓂ ᐃᓂᐅᔪᓂᒃ ᖃᐅᔨᓵᖑᓂᐊᖅᑐᓂᒃ. ᐃᑲᔫᑎᒃᓴᐃᑦ ᐃᒪᐅᑉ ᐃᒥᑦᑎᐊᕙᐅᓂᖓᓄᑦ ᖃᐅᔨᓵᓇᔭᕗᑦ ᓇᓗᓇᐃᓐᓂᐊᒥᔭᕗᑦ ᐊᑐᓂ ᖃᐅᔨᓵᖑᔪᒥᒃ ᐊᑐᓪᓗᑎᒍᑦ ᑖᓐᓇ ᐅᐃᒍᖓ CTD ᐊᔾᔨᓕᐅᕈᑎᐅᑉ ᐊᕙᓗᐊᓄᑦ. ᐊᔾᔨᓕᐅᖅᑕᑦ ᐊᓱᐃᓛᒃ ᑕᕝᕗᖓ ᑐᖅᑯᖅᑕᐅᓗᑎᒃ ᕿᒥᕐᕈᔭᒃᓴᐅᓕᓪᓗᑎᒃ ᐃᖅᑲᖓᑕ ᖃᓄᐃᑦᑑᓂᐊ, ᐱᑕᖃᓐᓂᓇᔭᖏᑦ, ᖃᓄᐃᑦᑑᓂᖏᑦ ᖃᓄᑎᒋᓗ ᐳᓴᓐᑎᒃᑯᑦ ᖄᒥᓯᒪᒻᒪᖔᑦ ᖁᐊᐃᔭᐅᑎᓄᑦ ᓇᓗᓇᐃᓪᓗᒋᓪᓗ ᐊᒻᒪ ᐊᒥᓲᓂᖏᓐᓂᒃ (ᓈᐃᓴᓪᓗᒋᑦ) ᐆᒪᔪᓇᔭᖏᑦ. ᓴᖅᑭᑎᖅᑐᑦ ᐅᓂᒃᑳᓇᔭᐅᓂᐊᖅᑐᑦ ᓴᓇᔭᐅᓗᑎᒃ ᐊᖅᑮᒍᓯᐅᑎᒧᑦ ᐅᖃᐅᓯᖅᑐᖏᑦᑐᑦ ᐅᓂᒃᑳᓕᐊᕗᑦ/ ᐅᖃᓕᒫᒐᑦ ᓴᖅᑭᓯᒪᔪᓄᑦ ᓇᔪᒐᐅᓲᑦ ᓄᓇᙳᐊᓕᐊᖑᑎᓪᓗᒋᑦ ᖃᐅᔨᓵᓇᓪᓗᑎᒍᑦ, ᐅᓂᒃᑳᓇᔭᖏᑦ ᖃᓄᑎᒋ ᐆᒪᔪᓂᒃ ᐊᔾᔨᒌᖏᑦᑐᑎᓂᒃ ᓇᔪᖅᑕᐅᒻᒪᖔᑦ ᑐᙵᕕᖃᓪᓗᑕ ᖃᐅᔨᓴᖅᑕᑦᑕ ᓇᓗᓇᐃᕈᑎᖏᓂᒃ, ᐅᖃᐅᓯᒃᑯᑦ ᐅᓂᒃᑳᓪᓗᑎᒃ ᐊᒻᒪᓗ ᐅᖃᖃᑎᖃᓪᓗᑕ ᓴᖅᑭᓯᒪᔪᓂᒃ ᓄᓇᓕᐅᑉ ᐊᖑᓇᓱᒃᑐᓕᕆᔨᖏᓂᒃ ᓄᓇᓕᒻᒥᐅᑐᐃᓐᓇᓪᓗ (ᒪᑐᐃᖓᔪᒥᒃ ᐃᓄᓕᒫᖅᑎᑦᑎᓂᖅ), ᐊᓯᖏᒍᓪᓗ ᑐᓴᖅᑎᑦᑎᔾᔪᑎᒃᑯᑦ ᓲᕐᓗ ᓄᓇᓖᑦ ᓈᓚᐅᑎᖏᑦ ᐅᖃᓪᓚᕝᕕᑦ.

Personnel

Personnel on site: 3
Days on site: 15
Total Person days: 45
Operations Phase: from 2024-08-07 to 2027-10-23

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Qikiqtarjuaq OPP 2024 sampling area	Baseline data	Marine	2023 was the first year of field research related to the overarching OPP project in Qikiqtarjuaq in which several researchers took part in baseline data collection. No other historical information known	not known	within 15 km of Qikiqtarjuaq, NU

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Qikiqtarjuaq	Billy Arnaquq	Nunavut Experience Outfitting	2024-04-28
Qikiqtarjuaq	Board members	Qikiqtarjuaq Hamlet	2024-08-24
Qikiqtarjuaq	Board members	Qikiqtarjuaq Hunters and Trappers Association	2024-08-18
Qikiqtarjuaq	Saki Arnaquq	Nunavut Experience Outfitting	2024-04-28
Qikiqtarjuaq	Raymond	Nunavut Experience Outfitting	2024-08-15

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Fisheries and Oceans Canada	License to Fish for scientific purposes - DFOLicense number: S-24/25-1055-NU	Active	2024-08-07	2025-03-31

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Boat rented from Nunavut Experience Outfitting	

Project accomodation types

Community

Other,

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
boat	1	28 foot	The boat will be rented from a local community member and will be used to get from town to each of the selected sites to perform field work (capture photos)

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	10	25	250	Liters	As much fuel as needed for the boat over a period of 10-12 sampling days. This will depend on the distance travelled and weather conditions.

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	Other, gasoline fumes	depends on volume of gassoline used	Consequence of travelling by boat - no disposal methods in place for gasoline fumes.	NA

Environmental Impacts:

Despite mitigating risks, there is still a chance that equipment be lost during sampling and that there be potential damage to sea floor habitats due to inclement weather or equipment failure. These will be minimized as much as possible at all times throughout the project. Mitigation measures were used in previous work and showed to be very efficient.

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 work will provide maps describing where potentially sensitive marine environments are located for use in future research and by the community for relevant activities and archival of knowledge.

Description of Existing Environment: Biological Environment

There is limited information on what the underwater biological environment is like around Qikiqtarjuaq and this project aims to generate a better knowledge of this.

Description of Existing Environment: Socio-economic Environment

We already have a good relationship with the Qikiqtarjuaq Hamlet and MHTO, and have been encouraged by these organizations in doing this work to be able to provide the community with habitat maps as well as continue to generate employment over the duration of the project.

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Potential impacts for this project are minimal since no waste is generated however there is always a chance that equipment is lost during sampling due to unforeseen circumstances such as snags underwater, etc. that could damage aquatic life, human error such as not tying equipment on tight enough or even equipment failure such as hardware breaking, housings holding cameras falling off the frame, etc. this will be minimized by always working slowly and checking attachment points for gear, avoiding dragging the camera frame on the sea floor to avoid snags and damaging aquatic life, and only working in good/safe weather conditions to minimize potential for dragging (allowing boat captain to keep boat steady).

Cumulative Effects

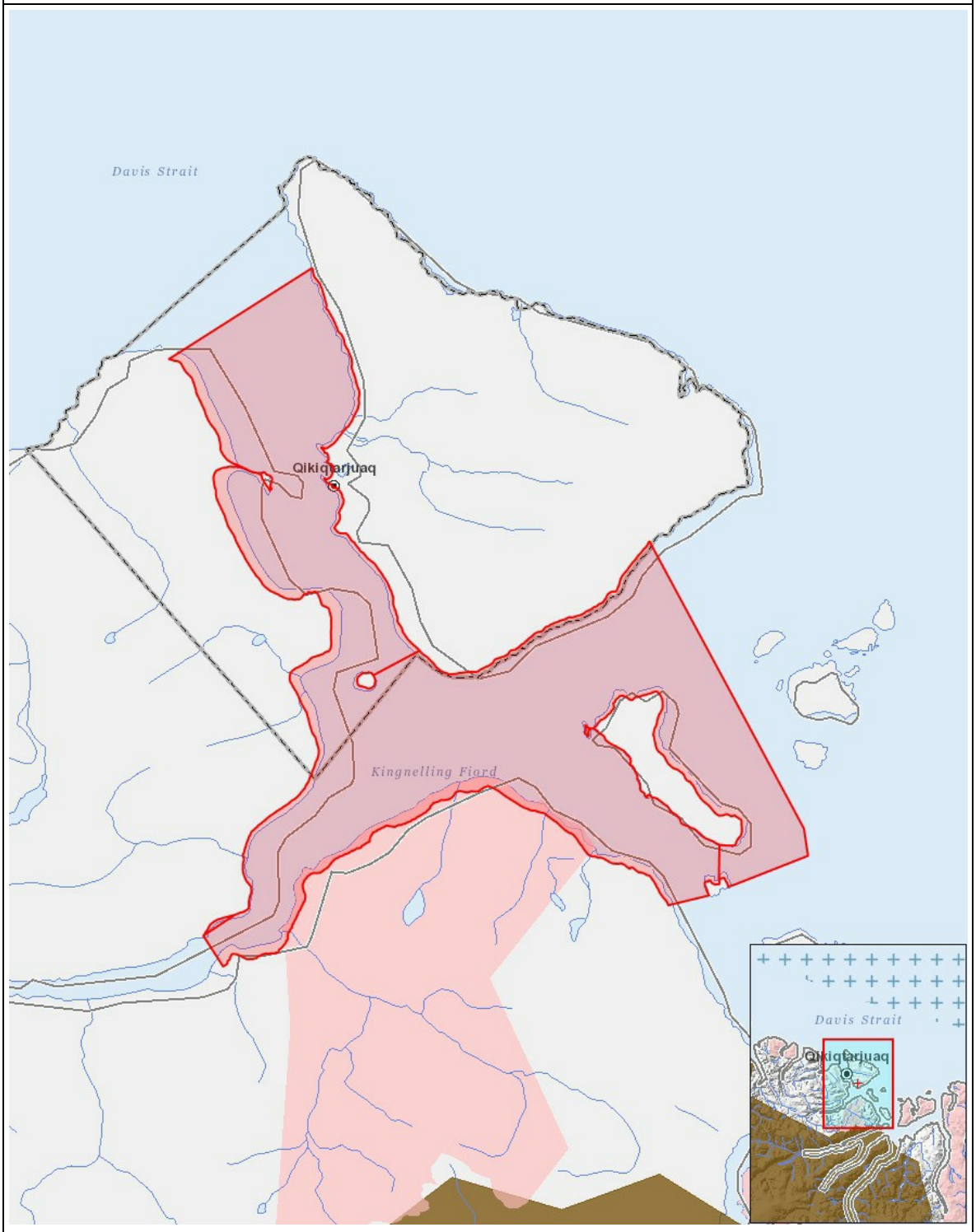
Impacts

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																									
Baseline data		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	M	-		-	P	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

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

Project Location



List of Project Geometries

1	polygon	Qikiqtarjuaq OPP 2024 sampling area