



New

## Scientific Research

Tuesday, June 10, 2025

from 2026-04-01 to 2028-12-31

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**ᐅᓇᑦᓴᑦᓴᑦ:** Food insecurity is a debilitating problem in Northern Canada. Increased shipping, tourism, and mining exploration and development pose serious risks for northern aquatic biodiversity and the fisheries it supports. Moreover, climate-induced changes in the geographic distribution and abundance of fish threaten the economic livelihoods of northern communities, their traditional harvesting practices as well as their ability to feed themselves and maintain access to healthy food. Consequently, reducing the potentially negative impacts of these threats on northern fisheries is crucial for communities who are tied to fish for their food security and culture. For these fisheries, the identification of regions important for subsistence and commercial harvesting and whether they comprise genetically distinct groups of populations is a key step towards a sustainable harvest. The project FISHES will develop and apply genomic approaches in concert with Traditional Ecological Knowledge (TEK) to address critical challenges and opportunities related to food security and Commercial, Recreational, and Subsistence (CRS) fisheries of northern Indigenous Peoples in Canada (Inuit, Cree and Dené communities). We will develop genomic resources for seven species important to northern communities and use these resources to identify genetically distinct populations, assess their vulnerability to future climatic conditions, quantify their contribution to mixed-population harvests, and measure the contribution of fish from developing hatchery programs to subsistence harvests. Using a novel knowledge co-evolution framework, we will braid and bridge scientific information with TEK in support of sustainable harvests of CRS fisheries.

▷Δ&NDC: L'insécurité alimentaire est un grave problème dans le Canada Nordique. L'augmentation du transport, du tourisme, de l'exploration minière et du développement en général pose de sérieux risque pour la biodiversité aquatique nordique ainsi que les pêches qu'elle supporte. De plus, les changements environnementaux et leur influence sur la répartition géographique et l'abondance des communautés de poissons menace la viabilité des communautés nordiques, leurs pratiques de récolte traditionnelles et leur capacité à se procurer des aliments de qualité. Conséquemment, réduire les impacts négatifs potentiels de ces menaces sur les pêcheries nordiques sera crucial pour les communautés qui ne dépendent. Pour ces pêcheries, l'identification de régions d'importance pour les récoltes de subsistance et commerciale, ainsi que la détermination de la composition génétique des populations qui y sont récoltées, seront cruciaux pour leur gestion durable. Le projet FISHERS vise à développer et appliquer des outils génomiques de concert avec des Connaissances Écologiques Traditionnelles pour répondre à des défis critiques et des opportunités liées à la sécurité alimentaire et les pêcheries commerciales, récréationnelles et de subsistance (CRS) des peuples du Nord du Canada (Communautés Inuit, Cris et Dené). Nous allons développer ces outils génomiques pour sept espèces d'importance pour les communautés nordiques et utiliser ces ressources pour identifier les populations distinctes, évaluer leur vulnérabilité aux conditions climatiques futures, quantifier leur contribution aux pêcheries de stock mixtes et mesurer la contribution de poissons issus d'écloserie dans les pêcheries de subsistance. En utilisant un cadre de travail innovant alliant données scientifiques et connaissances écologiques traditionnelles, nous visons à supporter le développement durable des pêcheries CRS.

[illegible]

Personnel on site: 1

Days on site: 14

Total Person days: 14

Operations Phase: from 2025-04-01 to 2026-03-31

Operations Phase: from 2026-04-01 to 2028-12-31

Post-Closure Phase: from to

Λ Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω

Area	Sampling sites	Marine	N/A	N/A	N/A
7 Polygon - South Main Land Murchison, Hayes River, Back River	Sampling sites	Marine	N/A	N/A	N/A
1 Polygon - Boothia North - Potential Commercial Fishing - 200 Samples	Sampling sites	Marine	N/A	N/A	N/A
2 Polygon - Boothia East Coast - 100 Samples	Sampling sites	Marine	N/A	N/A	N/A
4. Polygon - Boothia West Coast - 100 Samples	Sampling sites	Marine	N/A	N/A	N/A
Polygon 6 Gjoa Haven Bay - Murchison Bay 100 Samples	Sampling sites	Marine	N/A	N/A	N/A
5 Polygon King William Island -100 samples	Sampling sites	Marine	N/A	N/A	N/A
3. Polygon Boothia Center-Taloyoak 150 samples	Sampling sites	Marine	N/A	N/A	N/A

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ᑭᑭᑦᑎᑦᑎᑦ	ᑭᑦᑎᑦ	ᑭᑭᑦᑎᑦᑎᑦᑎᑦᑎᑦ	ᑭᑦᑎᑦ ᑭᑦᑎᑦᑎᑦᑎᑦᑎᑦᑎᑦ
ᑭᑦᑎᑦᑎᑦ	Anthony Anguttitauruq	Gjoa Haven Hunters & Trappers Association	2025-02-11
ᑭᑦᑎᑦᑎᑦ	Jimmy Ullikatalik	Taloyoak Umarulirigut Association	2025-02-11



$\mathbb{C} \Delta^{\mathfrak{a}} \mathbb{J}^{\mathfrak{c}} \wedge \mathbb{J}^{\mathfrak{a}} \mathbb{Q} \triangleright \dot{\mathbb{N}} \triangleleft^{\mathfrak{a}} \mathbb{P}^{\mathfrak{b}} \mathbb{C} \triangleright \mathbb{P} \mathbb{L} \mathbb{Z}^{\mathfrak{c}}$

## Project transportation types

### Project accomodation types

9575



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$$\Delta^b C d r n \sigma \Delta^c \sigma^c$$

<b>ᐱᓕᓂᐳᓂᔭᐅᖃᒪᖃᑦ ᐱᓕᓂᐳᓂᔭᐅᓄᐳᑦᑐᓂᐳᑦ</b>	<b>ᖃᓄᐳᑦᑐᓂᐳᑦ ᐳᑦᑐᓂᐳᑦ</b>	<b>ᖃᓄᓂᓂ ᐳᑦᑐᓂᐳᑦ ᓴᓂᐸᐳᓄᐳᑦᑐᓂᔭᐅᓗᓂᐳᑦ</b>	<b>ᖃᓄᓂᐳᑦ ᐳᑦᑐᓂᐳᓄᐳᑦᑐᓂᐳᑦ</b>	<b>ᓴᓗᒪ ᓂᐳᓂᔭᐅᓂᐳᓂᐳᓄᐳᑦᑐᓂᐳᑦ</b>
Scientific/International Polar Year Research	Other, Fish carcasses	100 fish	The fish caught will be kept by local harvesters for consumption. The carcasses will be disposed of by them.	Non applicable

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Environmental impacts should be minimal, and the project should have no further influence on the environment than the existent subsistence fisheries already have (e.g. some bycatch of untargeted species, which are often used as dog food).



# **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**

### **ᐱᓪᓇ ᐱᓇᐅᓄᓪᓗ ᓂᓄᐱᓪᓗᓕᓕᓂᓄᓪᓗ: ᓄᓇᓄᓪᓗ ᓂᓄᐱᓪᓗᓕᓕᓂᓄᓪᓗ**

The main goal of this proposal is to provide continued support to the communities of Gjoa Haven and Taloyoak for the ongoing application for a commercial fishing license. There are currently no designated commercial fishing zones in the region.

### **ᐱᓪᓇ ᐱᓇᐅᓄᓪᓗ ᓂᓄᐱᓪᓗᓕᓕᓂᓄᓪᓗ: ᐅᐱᓴᓂᓕᓂᓄᓪᓗ**

This project mainly involves Arctic char fisheries. Arctic char is an anadromous species that migrates from its spawning sites in freshwater to its feeding sites at sea in the spring, and comes back from the sea in the fall to overwinter and/or spawn. Arctic char is an abundant species in Arctic aquatic environments and can be found throughout the Arctic Ocean.

### **ᐱᓪᓇ ᐱᓇᐅᓄᓪᓗ ᓂᓄᐱᓪᓗᓕᓕᓂᓄᓪᓗ: ᐱᓄᓕᓂᓄᓪᓗᓕᓕᓂᓄᓪᓗ-ᐱᓄᓕᓂᓄᓪᓗᓕᓕᓂᓄᓪᓗ**

This project will involve the communities' subsistence fisheries for arctic char, which mainly happens in the spring and in the fall, when the fish are running between their feeding and spawning sites. Subsistence fisheries for Arctic char are an important activity both culturally, nutritionally and economically. In the proposed project, we collaborate with subsistence fishers to obtain samples from their catch, which we then use to generate high-quality data to assist the fisheries management and support the communities with their commercial fisheries application.

## **Miscellaneous Project Information**

### **ᓇᓄᓇᓂᓄᓪᓗᓕᓕᓂᓄᓪᓗ ᐱᓄᓄᓄᓄᓪᓗᓕᓕᓂᓄᓪᓗ ᓂᓄᐱᓪᓗᓕᓕᓂᓄᓪᓗ ᓕᓂᓄᓄᓄᓪᓗᓕᓕᓂᓄᓪᓗ**

The proposed procedure reduces considerably the impact of our sampling activities, since we do not cause any further handling and/or mortality of Arctic char than what the already existing subsistence fisheries already cause. This is a net positive impact for our research activities, as opposed to a scenario where we would need to catch fish solely for sampling purposes. The proposed collaborative approach, involving local fishers in the sampling activities has yielded high success, as they know which spots to go to to catch fish. This is a net positive as it has drastically reduced the time and resources required to obtain the required number of samples.

## **Cumulative Effects**

The long term goals of this project involve both communities getting a commercial fishing license, which would create jobs and provide regular income for the communities. In the meantime, the data and

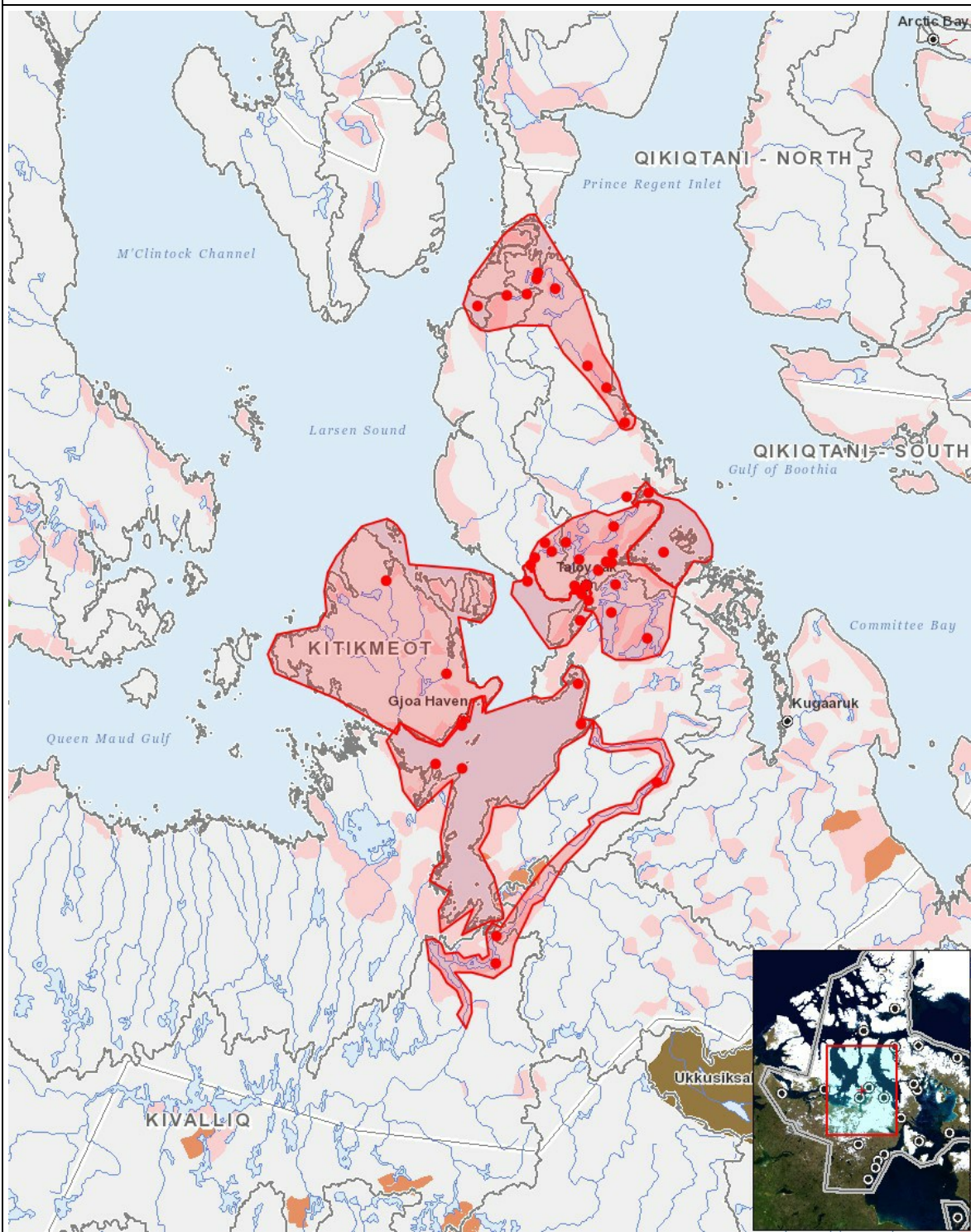
management tools generated by our research activities would provide guidance for the durable management of the fish stocks and related harvesting activities by the communities, reinforcing their stewardship over this important resource.

## Impacts

[illegible]

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												

$$(P = \langle b \rangle_{\dot{a} p n^a q^c}, N = \langle b \rangle_{\dot{a} n^a r^c} \langle \dot{c} \rangle_{\dot{d} p n^a q^c} \langle \dot{c} \rangle_{\dot{d} n^a r^c}, M = \langle b \rangle_{\dot{a} n^a r^c} \langle \dot{c} \rangle_{\dot{d} p n^a q^c} \langle \dot{c} \rangle_{\dot{d} n^a r^c}, U = \langle b \rangle_{\dot{a} l^a q^c} \langle \dot{c} \rangle_{\dot{d} p n^a q^c})$$



### List of Project Geometries

- 1 polygon 7 Polygon - South Main Land Murchison, Hayes River, Back River
- 2 polygon 1 Polygon - Boothia North - Potential Commercial Fishing - 200 Samples
- 3 polygon 2 Polygon - Boothia East Coast - 100 Samples
- 4 polygon 4. Polygon - Boothia West Coast - 100 Samples
- 5 polygon Polygon 6 Gjoa Haven Bay - Murchison Bay 100 Samples
- 6 polygon 5 Polygon King William Island -100 samples
- 7 polygon 3. Polygon Boothia Center- Taloyoak 150 samples
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- 9 point Aqviqtunnuap Tasia - ᐱᓕᓕᓐᓂᓐ ᐱᓕᓕᓐᓂᓐ
- 10 point Aitsauqtungiaq - ᐱᓕᓕᓐᓂᓐ ᐱᓕᓕᓐᓂᓐ

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