



Nunavik Marine Region  
Impact Review Board

## **NMRIRB Application for Screening #125658**

### **Towards a better knowledge of coastal fish biodiversity via environmental DNA**

**Application Type:** New

**Project Type:** Scientific Research

**Application Date:** 6/8/2023 5:02:49 PM

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

**Proposed Authorization:** from 0001-01-01 to 0001-01-01

**Project Proponent:** Martin Laporte  
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# DETAILS

## Non-technical project proposal description

English: This project will provide spatiotemporal knowledge on the biodiversity of fish communities within the Eeyou Marine Region and is linked to CEGRIM (Centre d'Expertise en Gestion des Risques Maritimes). Its objective is to determine priority areas to be protected in the event of a maritime incident to ensure food security for local communities. To do this, the sampling team will collect environmental DNA (water) samples which can be used to detect fish species and their relative abundance through DNA from scales, feces, and mucus left in the water. For each of the five Cree communities, three sampling days during the summer of 2023 will be required to sample ten sites in the offshore area. These three days will be spaced out at equal intervals, keeping the same sites (the choice of sites and the time interval will be determined according to the common needs of the communities). We will provide sampling materials by post and send English subtitled training videos via the Internet. The methodology has already been tested and approved by Stephanie Varty of EMRWB. No fishing license is required since this is only water sampling and no socioeconomic or ecosystem impact will be produced. Once the sampling is done, we will perform the sequencing, bioinformatics, and statistical analyzes. This data will be shared with the EMRWB and the involved communities (raw and in the form of graphs).

French: Ce projet permettra d'obtenir des connaissances spatio-temporelles sur les communautés de poissons le long de la côte maritime crie et est en lien avec le CEGRIM (Centre d'Expertise en Gestion des Risques Maritimes). Il a pour objectif de déterminer les zones prioritaires à protéger en cas d'incident maritime afin d'assurer la sécurité alimentaire des communautés locales. Pour chacune des cinq communautés crie, trois journées d'échantillonnage pendant l'été 2023 seront requises afin d'échantillonner dix sites près d'elles. Ces trois journées devront être espacées à période égale en conservant les mêmes sites (le choix des sites et de l'intervalle de temps sera à déterminer en fonction des besoins communs des communautés). Nous fournirons le matériel d'échantillonnage par la poste et enverrons par Internet des vidéos sous-titrées en anglais permettant une formation. La méthodologie a déjà été testée et approuvée par Stephanie Varty de l'EMRWB. Aucun permis de pêche n'est nécessaire puisqu'il s'agit que d'échantillonnage d'eau et qu'aucun impact socio-économique ou écosystémique ne sera produit. Au total, 15 jours seront nécessaires à l'échantillonnage et aucune journée d'accès à l'EMR zone n'est nécessaire. Une fois l'échantillonnage effectué, nous effectuerons le séquençage et les analyses bio-informatiques et statistiques et partagerons les données avec l'EMRWB (brutes et sous forme de graphiques).

Inuktitut:

2023 ( )

### Personnel

Personnel on site: 2

Days on site: 6

Total Person days: 12

Operations Phase: from 2023-08-15 to 2024-10-30

## Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
chisasibi (note here that shapefile cannot be upload for a reason that I dont understand)	Sampling sites	Marine	unknow	unknow	chisasibi
whapmagoostui	Sampling sites	Marine	unknow	unknow	whapmagoostui

## Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Kuujjuarapik	Robert E, Fireman	CTA-EMR Local Officer Whapmagoostui Cree Trappers Association	2023-06-19
Chisasibi	John Lameboy	CTA-EMR Local Officer Chisasibi Cree Trappers Association	2023-06-19
Chisasibi	Stephanie Varty	EMRWB Biologist	2023-01-01
Kuujjuarapik	Stephanie Varty	EMRWB Biologist	2023-01-01

## Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Government of Nunavut, Nunavut Research Institute	A document will be send to obtain the permit in order to sample along the coast after we obtain NMRIRB and EMRIRB authorizations.	Not Yet Applied		

## Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	motorize boat to take sample	

## Project accomodation types

Other,

## Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
local land user boat	1	26	Local land user boats will be used for traveling to sampling sites and taking water samples from the boats

### Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	1	100	100	Liters	motor boat

### Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	only 250 ml of marine water are sampled and are mechanically filtered. The water is put back in wild, no chemical are use, we only kept the filter.	9 to 10 sampling sites will be choose by the CTA members for each communities. These sampling site will be sampled 3 times during the summer/start of august.

# Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Information is not available				

### Environmental Impacts:

No environmental impact. The environmental DNA sample consists of 1L of filtered water to retain only residual DNA in the environment. All water is returned to the environment and no pollution or contamination can be produced. The information from the studies will however have some positive impact at biological level.

# **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**

9-10 sampling site in marine environment per community - only filtering water to get DNA molecule and study environmental DNA

**Description of Existing Environment: Biological Environment**

9-10 sampling site in marine environment per community - only filtering water to get DNA molecule and study environmental DNA

**Description of Existing Environment: Socio-economic Environment**

Near each of the 5 Cree communities, chosen by Cree communities.

**Miscellaneous Project Information**

none

**Identification of Impacts and Proposed Mitigation Measures**

No impact, only filtering 250ml of water

**Cumulative Effects**

no cumulative effect

# 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
<b>Construction</b>																									
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Operation</b>																									
Sampling sites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	P	-	-	-	-	-	-	-
<b>Decommissioning</b>																									
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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