



NIRB Application for Screening #125579

Contaminants in seabirds in the Baffin Bay - Davis Strait region

Application Type: New

Project Type: Scientific Research

Application Date: 2/10/2021 5:26:21 PM

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

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

Project Proponent: Jennifer Provencher
Environment and Climate Change Canada
NWRC C/O Carleton University, 1125 Colonel By Drive
Ottawa ON K1A 0H3
Canada
Phone Number:: 8199551399, Fax Number::

DETAILS

Non-technical project proposal description

English: Why – Collections of murres and fulmars during the 2007/08 (International Polar Year) breeding seasons were used to examine the diet of these species in across Nunavut in relation to climate change. These studies showed that the murres and fulmars in the region were still mostly eating cold-water species (Arctic cod), but were eating some warm water species (capelin). We also found that 80% of the fulmars and 10% of the murres in 2007/08 had ingested marine plastics in their guts. We are working with partners at McGill University and Acadia University to update this work, and assess the current status of how climate change is potentially affecting seabirds in the region in relation to prey and plastics. Currently in the Canadian Arctic there are low levels of shipping and oil exploration related activities as compared to many other regions. As offshore oil and gas activities might proceed in Baffin Bay and Davis Strait, there is a need to assess the current levels of oil-related contaminants exposure in marine species, and the potential effects. The Strategic Environmental Assessment in the Baffin Bay-Davis Strait will consider possible types of oil and gas related development activities that could one day be proposed within the Canadian waters of Baffin Bay and Davis Strait outside of the Nunavut Settlement Area. This includes the associated adverse effects, benefits, and management strategies. What we want to do – We would like to work with local hunters that can collect approximately 30 murres, 30 fulmars, 30 guillemots, 30 kittiwakes and 30 eiders in the both the Qikiqtarjuaq and Pond Inlet regions near the colonies. Ideally we would do these collections in locations as consulted by the community. These birds will be frozen and shipped to Iqaluit to be dissected by the Nunavut Arctic College students. They will be assessed for their diet to follow up on work done over 10 years earlier. We will also use these birds to assess ingested plastics, which were also found during the 2007/08 studies. Hunters and researchers collected 4 species of bird around Qikiqtarjuaq in 2018. The birds and mussels were tested for chemicals known to be associated with oil. All birds were then dissected by students at the Nunavut Arctic College in Iqaluit. For each bird fresh tissue sample was collected and stored at -80°C in order to preserve the genetic material. For each species a tool (called a ToxChip) will be developed that will target parts of the genes that are known to be sensitive to exposure to oil-related contaminants. Levels of gene activity will be compared to the oil-related contaminant concentrations. This information will be used to assess how different species may be affected by oil-related contaminants.

French: Pourquoi - Des collections de guillemots et de fulmars pendant les saisons de reproduction 2007-2008 (Année polaire internationale) ont été utilisées pour examiner le régime alimentaire de ces espèces dans tout le Nunavut par rapport aux changements climatiques. Ces études ont montré que les marmettes et les fulmars de la région se nourrissaient encore principalement d'espèces d'eaux froides (morue arctique), mais mangeaient certaines espèces d'eaux chaudes (capelan). Nous avons également constaté que 80% des fulmars et 10% des marmettes en 2007/08 avaient ingéré des plastiques marins dans leurs intestins. Nous travaillons avec des partenaires de l'Université McGill et de l'Université Acadia pour mettre à jour ce travail et évaluer l'état actuel de la façon dont les changements climatiques affectent potentiellement les oiseaux de mer dans la région par rapport aux proies et aux plastiques. À l'heure actuelle, dans l'Arctique canadien, les niveaux d'activités liées à la navigation et à l'exploration pétrolière sont faibles par rapport à de nombreuses autres régions. Étant donné que les activités pétrolières et gazières extracôtières pourraient se poursuivre dans la baie de Baffin et le détroit de Davis, il est nécessaire d'évaluer les niveaux actuels d'exposition aux contaminants pétroliers chez les espèces marines et les effets potentiels. L'évaluation environnementale stratégique dans la baie de Baffin et le détroit de Davis examinera les types possibles d'activités de développement liées au pétrole et au gaz qui pourraient un jour être proposées dans les eaux canadiennes de la baie de Baffin et du détroit de Davis à l'extérieur de la région du règlement du Nunavut. Cela comprend les effets indésirables, les avantages et les stratégies de gestion associés. Ce que nous voulons faire - Nous aimerions travailler avec des chasseurs locaux qui peuvent récolter environ 30 murres, 30 fulmars, 30 guillemots, 30 kittiwakes et 30 eiders dans les régions de Qikiqtarjuaq et de Pond Inlet près des colonies. Idéalement, nous ferions ces collectes dans des lieux consultés par la communauté. Ces oiseaux seront congelés et expédiés à Iqaluit pour être disséqués par les étudiants du Nunavut Arctic College. Ils seront évalués pour leur régime alimentaire afin de suivre les travaux effectués plus de 10 ans plus tôt. Nous utiliserons également ces oiseaux pour évaluer les plastiques ingérés, qui ont également été trouvés lors des études de 2007/08. Les chasseurs et les chercheurs ont recueilli 4 espèces d'oiseaux autour de Qikiqtarjuaq en 2018. Les oiseaux et les moules ont été testés pour des produits chimiques connus pour être associés au pétrole. Tous les oiseaux ont ensuite été disséqués par des étudiants du Collège de l'Arctique du Nunavut à Iqaluit. Pour chaque oiseau, un échantillon de tissu frais a été prélevé et conservé à -80 ° C afin de préserver le matériel génétique. Pour chaque espèce, un outil (appelé ToxChip) sera développé qui ciblera les parties des gènes qui sont connues pour être sensibles à l'exposition aux contaminants liés au pétrole. Les niveaux d'activité génique seront comparés aux concentrations de contaminants liés au pétrole. Ces informations seront utilisées pour évaluer comment différentes espèces peuvent être affectées par les contaminants liés au pétrole.

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Operations Phase: from 2021-06-01 to 2021-09-30

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Pond Inlet area	Marine Based Activities	Marine	NA	NA	Hunters will be based out of Pond Inlet. Hunting will occur within 200km of town
Qikiqtarjuaq	Marine Based Activities	Marine	NA	Na	Hunters will be based out of Qikiqtarjuaq. Hunting will occur within 200km of town

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Qikiqtarjuaq	Susanne Emond - Jeannie Baker	Sululiit Area Co-management Committee	2021-03-04
Qikiqtarjuaq	Alison Kopalie	Nattivak HTO	2021-02-09
Pond Inlet	Mr. Ootovak	Mittimatalik Hunter and Trappers Organization	2021-02-24

Authorizations

Indicate the areas in which the project is located:

North Baffin
South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Canadian Wildlife Service	Research permit for migratory birds	Applied, Decision Pending		
Canadian Wildlife Service	Protected areas permit	Applied, Decision Pending		
Government of Nunavut, Department of Environment	Wildlife research	Not Yet Applied		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Small hunting boats will be used	

Project accomodation types

Community

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
small local boats	3	~15 feet	Up to 3 local boats and captains will be hired to collect seabirds around their home communities.

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	4	10	40	Liters	Use in small local boats

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	Non-Combustible wastes	11	All waste will be taken back to town and disposed of properly.	NA

Environmental Impacts:

Five seabird species will be sampled by local hunters. All of the species are locally abundant and common. The proposed 30 individuals from each species, from each site, is well within the sample size that would result in an impact at the population level. Importantly, these sample sizes are set in consultation with communities and in-line with sample sizes needed to assess contaminants in a meaningful way.

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

Two small boats in each region (Pond Inlet and Qikiqtarjuaq) will be used.

SECTION H2: Disposal At Sea

No disposal at sea will occur.

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

We will be sampling birds while they are foraging or travel over the water.

Description of Existing Environment: Biological Environment

The birds will be collected by local hunters

Description of Existing Environment: Socio-economic Environment

Local hunters will be hired to complete this work, funding application pending.

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

NA

Cumulative Effects

The bird collections proposed are part of a cumulative effects study on seabirds, including plastic pollution, legacy contaminants, and oil-related contaminants.

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																										
Marine Based Activities		-	-	-	-	-	-	-	-	-	-	-	-	-		-	N	N	-	-		-	-	-	-	-
Decommissioning																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

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

Project Location



List of Project Geometries

1	polygon	Pond Inlet area
2	polygon	Qikiqtarjuaq