

$\gamma_b \Delta^c \dot{\gamma} \cap \sigma^b \quad \wedge c_n \nabla^{\gamma_b} \sigma \nabla n \nabla^{\alpha} L^a \sigma^b$

ᑭᓪᓂᓄᓐ: Our project examines the conservation biology of common eiders in the Eastern coastal areas in Western Hudson Bay among the Belcher Island Archipelago, including the Sleeper Islands. Eiders are particularly vulnerable to disturbance during the breeding season and we are concerned that they are experiencing rapid ecological changes that could result in population declines. Increased shipping activity, outbreaks of new avian disease, and cascading impacts of climate change all represent possible threats to these species. Our primary goal is survey the colonies of eiders in this area given that little is known about their current populations which have not been assessed since the 1990's. Based on the 2020 census results, we will be able to compare population trends and investigate the possible impacts of climate and industry-based issues in order to predict the severity and extent of potential population impacts. This will also be an important first step in informing the development of a Marine Protected Area within the region.

▷ΔΛ∩∁: This research will not be conducted in a region in which people commonly speak French.

[illegible]

Inuinnaqtun: This research will not be conducted in a region in which people commonly speak Inuinnaqtun.

Personnel

Personnel on site: 10

Days on site: 28

Total Person days: 280

Operations Phase: from 2020-06-20 to 2022-08-30

$\Lambda \subset \mathbb{N} \triangleleft \mathbb{N} \xrightarrow{\sigma} \mathbb{Q}^{\aleph_0}$

ᐱᓯ	ᖃᓄᐃᑦᑐᓯᑦ ᐱᑕᓚᐋᖃᖅᐋᖃᑦᐸ	ᑭᑦᐃᑦ ᓄᐱᖅᐆᑦ	ᑐᐋᐃᒪᓴᖃᑦ ᓄᐱᐃᑦ ᖃᓄᖃᑦ ᐋᑐᒪᐃᑦᐃᖃᑦ ᓯᒪᓴᓚᐋᖃᑦᓂᖃ	ᐃᑦᐋᖅᑕᖃᖅᐱᐃᑦᑕᐃᖃᑦᐸ ᐃᓄᖃᓄᑦ ᐱᖅᐈᑦᑕᐃᖃᖅᑕᖅᑕᖅᐆᑦᐃᑦᑐᑦ ᑕᐃᑦᓯᒪᓂᑐᖃᐃᑦᑕᖃᑦᑐᖃᑦ	ᖃᓂᖃᓂᖃᑦᐸᖃᑦ ᓄᐱᑕᓯᓴᐃᖅᐈᖃᑦ ᐋᒪᒫᑐᑦ ᐋᔭᒪᓯᖅᓯᐱᐃᑦᑕᑦ ᓯᓄᓄᑦ
Study area for common eider nest surveys	Scientific/International Polar Year Research	Inuit Owned Surface Lands	The islands that we will survey will include ones that were conducted in a historical survey back in the 1990's. Any other history will be informed by the community members of Sanikiluaq to ensure important sites are not disturbed.	Uncertain and dependent on the island. We will have local Inuit from Sanikiluaq aid in site selection and on our crew to help identify areas archaeological or palentological value to ensure we do not disturb them. If new sites are found, they will be reported back to the community, the NPC and NIRB.	The closest community is Sanikiluaq. Given that we will be surveying islands across a wide area, the distance to Sanikiluaq will vary from outside town to roughly 125 km away.
Study area for common eider nest surveys	Camp	Inuit Owned Surface Lands	The sites for camps are only to facilitate research at sites that are too far to boat from Sanikiluaq each day. We will consult with the community members of Sanikiluaq to make sure we to not disturb and sites of historical importance.	We will select the camp sites based on the recommendations of the Hunter and Trappers Organization and the Inuit from Sanikiluaq that will be hired as crew members. They will help to ensure we do not disturb any sites of archaeological or paleontological value. Any newly detected sites will be reported.	We will have two camps which we will operate out of. One will be roughly 100 km south of Sanikiluaq, the second will be in the Sleeper Islands.

[illegible]

ᓄᓇᑦᑭᓂᓐ	ᐱᓃᑦ	ᓴᕈᖅᐸᐱᓐᑭᓂᓐ	ᓐᓴᓂᓚ ᕈᓴᓐᑭᑕᐅᓗᐅᓚᐱᓐᑭᓐᓂᓐ
ᓴᓂᑭᐱᓐ	Lucassie Arragutainaq	Sanikiluaq Hunters and Trappers Organization	2020-02-12
ᓴᓂᑭᐱᓐ	Lucassie Arragutainaq	Sanikiluaq Hunters and Trappers Organization - 3 day meeting	2020-01-14

[illegible][illegible]

Transboundary

South Baffin

[illegible]

ᐱᓕᐸᓂᓄᓇᐸᓂᓄᓇ ᑲᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ
ᐸᓂᓄᓇᐸᓂᓄᓇ	Scientific Research Permit application	Applied, Decision Pending		
ᐸᓂᓄᓇᐸᓂᓄᓇ, ᐸᓂᓄᓇᐸᓂᓄᓇ	Wildlife Research Permit Application	Applied, Decision Pending		
ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	Application to be submitted once screening is completed. NWB will not conduct review until screening is approved or exempt.	Not Yet Applied		
ᐸᓂᓄᓇᐸᓂᓄᓇ ᐸᓂᓄᓇᐸᓂᓄᓇ	Access to Inuit Owned Lands to conduct surveys, permit applied.	Applied, Decision Pending		

Project transportation types

Transportation Type	ᐱᓇᑦ ᐃᑲᑲᐅᓂᐳᐸᐱᓴᐸ	Length of Use
Water	We will boat from Sanikiluaq to our short term camps and among the islands we plan to survey.	
Land	We will only be walking on the land and will not be using an vehicles.	

Project accomodation types

Temporary Camp

◀▷↳◀⁹⁶▷⁹⁶

Λ⁹δ^c Δ⁶ρ²ζ^{5b} Δ^{5b}CΔσ²Δ⁴ζ^{5b} Δ^cζ^bρ²Δ³ρ^c Δ²Δ^cΔ^c, Γ^cΔ²ρ²Δ^c, ζ^bζ^{5b}CΔ²ζ^{5b}, ρ^cρ²Δ^c Δ²ρ²ρ^cΔ

ᐃᓕᑦᑲ ᐱᓂᑦ ᐃᑐᒐᐅᓂᐃᓕᑐᓕᓕ ᓕᓄᐃᑦᑐᓂᓕᓕ	ᓕᑦᑲᑦᑲᑦ	ᐃᓕᑦᓂᓕᑦᑲᑦ - >ᓕᑦᑐᓂᓕᑦᑲᑦ	ᑲᓇᑦᑲ ᐃᑐᒐᐅᓂᐃᓕᑐᓕᑦ
Boats	3	20-25 ft	Transport crew to campsites and colonies and conduct surveys
Generator	2	1000 Watts	Electricity

$\Pi \Pi^{\epsilon} D^{\gamma} \Gamma_{\alpha} \omega J$ $D^{\epsilon} \Gamma^{\beta} \Delta^{\epsilon}$ $\Delta^{\epsilon} C_{\alpha} \omega^{\beta} \omega^{\epsilon} C^{\epsilon}_{\alpha}$ $\Delta^{\epsilon} \omega^{\beta} C D^{\sigma} \Delta^{\epsilon} \sigma^{\alpha} \Gamma^{\epsilon}$

ፖሊሮ ፕፕላስቲክ ፋኒልዎቶሊኒየም	ፕሮፖጋንድ ፕፕላስቲክ	ፕሮፖጋንድ ፕፕላስቲክ	ፕሮፖጋንድ ፕፕላስቲክ	ፕሮፖጋንድ ፕፕላስቲክ	ፕሮፖጋንድ ፕፕላስቲክ	ፕሮፖጋንድ ፕፕላስቲክ
Gasoline	fuel	10	20	200	Liters	Fuel for boat motors/Gerry cans and generators
Other	fuel	5	4	20	Liters	White gas; fuel for camp stoves.

Δ L^{9b} Δ D^{9b} C D L^{9b} D^{9b}

ᐅᓕᓐ ᑕᐱᓐ ᐱᐅᓐ ᑕᐅᓐ ᐱᓐ ᑕᓐ	ᓐᓐ ᐱᓐ ᐱᓐ ᑕᓐ ᑕᓐ ᑕᓐ ᑕᓐ	ᐱᓐ ᐱᓐ ᐱᓐ ᑕᓐ ᑕᓐ ᑕᓐ ᑕᓐ
1	We will bring out drinking water from Sanikiluaq with us, but when needed we will collect freshwater from streams using buckets or pots. Buckets or pots will be used to collect dish water.	These locations will vary by camp, but we will follow the recommendations of our experienced Inuit guides on the crew, especially collection of fresh drinking water.

$\triangleleft^b C d^c$
$$\Delta^b C d_c n_\sigma \Delta^q \sigma^q b$$

Inuktitut	Inuktitut	Inuktitut	Inuktitut
ᐱᓕᑲᐸᑦᐅᑭᑯᑦ ᐱᓕᑲᐸᑥᑦᐅᓂᐳᑦ	ᖃᓄᐴᑐᖃ ᐳᑦᐵᑦᐅᑦ	ᖃᓄᑎᒋ ᐳᑦᐵᑦ ᖃᖅᑭᐳᓂᐳᑦᐅᑆᑶᑦ	ᖃᓄᓄᖃ ᐳᑦᐵᑦᐅᓂᐳᑦ
Camp	ᐴᐴᑦ ᐳᑦᐵᑦᐅᑆᑶᑦᐳᑦᐳᑦ	<0.1 cubic meters per day	Grey water will be disposed of in a sump located at least 100m away from any water sources.
Camp	ᐳᑦᐵᑦᐅᑦ ᐴᐳᐳᑦᐅᑆᑶᑦᐳᑦᐳᑦ	< 1 cubic meter	These wastes will be kept with the crew and brought back to Sanikiluaq.
Camp	ᖃᖅᐵᓕᑲᓄᖃ	< 0.05 cubic meters per day	We will have a sump located at least 100m away from nearby water sources and informed by our Inuit crew members to ensure nothing is disturbed.

4907D0^c 4^b0^{9b}CD^cFL^c

We attempt to minimize the impact our project has on the land, water, and wildlife. We store food and gear appropriately to avoid contaminating the surrounding areas. We will not camp near areas that are frequently used by wildlife. We transport all garbage and solid waste back to the municipal landfill in Sanikiluaq. We dispose of grey water in sumps that are back-filled to match the contours of the landscape. We have an Emergency Spill Kit and Spill Contingency Plan, including a Nunavut Spill Report Form and MSDS for the fuels used at each camp. Fuel is stored in a sump to localize any potential spills. We will camp at campsites recommended by our local guides to reduce our impacts on the land. We will not be camping for long at each camp site, so the effects of long-term site occupancy will be avoided.

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 11: Municipal Development

[illegible]

We will not be in protected or conservation areas. We will be on Inuit Owned Lands which we have applied for. We do not plan on disturbing the current physical environments we will be in.

ᐱᓪᓇ ᐱᑦᐅᐅᑦ ᑭᓪᓂᐱᑦᐅᑦ ᑕᓪᓂᐅᑦᓂᐱᑦ: ᐅᐱᑭᑦᐅᑦ ᑭᓪᓂᐱᑦ

We aim to ensure that we do not affect the biological environments in which we work. Camp sites will be away from frequently used areas by wildlife. Water will be collected in a way that will not disturb and fish or other organisms present in the water. We will likely flush some birds from nests while conducting our surveys, however we have planned our surveys to be as quick as possible to vacate the area (see Mitigation Measures below), allowing the birds to quickly return to their nests.

ᐱᓐᓇ ᐱᑦᑎᐅᑦ ᑦᑲᓂᐱᑦᐅᑦ ᑕᐅᐅᓂᓐᓴᑦ ᐱᓂᑕᐅᓂᑦ ᐱᓐᓴᑦ-ᐱᑦᑕᐱᑦᑕᐅᓂᑦ ᐱᓐᓴᑦ

We are hoping to hire between 4-8 Inuit guides out of Sanikiluaq. The range in hiring will depend on the number of people available, but we aim to have half of our crew be locally hired community members.

Miscellaneous Project Information

We have a spill contingency plan which is attached to this application. We will have gasoline to run our boats and generators and white gas for camp stoves. We will keep these items altogether, near the spill kit, to ensure that any spills can be contained immediately.

[illegible]

We are aiming to minimally impact the environment while conducting our research out of short term camps. Our camps will be short term to minimize the impacts of our tents and walking on any possible vegetation and to keep the size of sumps small. Our research activities are also meant to reduce disturbance of any wildlife on the islands we will survey. After ensuring that there are no polar bears on the island, we will disembark, and survey islands for nests. Depending on island size 4-6 people will walk the island spaced 10 m apart to ensure nests are not missed and we can conduct the survey quickly, allowing any nesting birds to quickly return to their nests.

Cumulative Effects

The last time these surveys were conducted were nearly 30 years ago and we only plan to survey these islands once. We therefore anticipate that cumulative effects from this research and previous research should be minimal, especially given the short period of time that the surveys require (often less than one hour). We will also rely on our Inuit guides to help us select camp sites that will reduce any cumulative effects we may have on the land.

Impacts

$\underline{e} \rightarrow e \Delta^{96} C D \sigma^{96} r^C$ $\nabla \nabla \cap \Gamma \triangleright C \dot{\sigma}^C \triangleright^C$ $\nabla^b \triangleright^{96} C D r L \downarrow^C$

[illegible]
$$(P = \langle b \rangle \Delta \langle p \rangle \cap \langle a \rangle \langle b \rangle^c, N = \langle b \rangle \langle p \rangle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \rangle, M = \langle b \rangle \langle p \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \rangle, U = \langle b \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \langle \langle \langle \langle \langle a \rangle \langle b \rangle^c \rangle \rangle \rangle \rangle \rangle)$$

1	polygon	Study area for common eider nest surveys
2	polygon	Study area for common eider nest surveys

- | | | |
|---|---------|--|
| 1 | polygon | Study area for common eider nest surveys |
| 2 | polygon | Study area for common eider nest surveys |