Preliminary assessment of the Canada geese population breeding on Long Island, NU, Canada

Research project proposal submitted to
the Eeyou Marine Region Impact Review Board

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Summary

Eeyou hunters and land users reported the decline of the number of Canada geese (*Brenta canadensis*) using Eastern James Bay (QC) as a stopover during their migrations over the past decades. They also observed that their distribution is less and less predictable with the decline of eelgrass beds and berries in the area. The current Eastern James Bay habitat use by Canada geese was recently investigated. However, gaps remain in the knowledge of geese distribution and resources selection in the area. Addressing this knowledge gaps will require to monitor subarctic-breeding geese that migrate along the Eastern coast of James Bay. These geese are likely to breed on Hudson Bay islands, but these colonies are not well known. The project hereby submitted to the Nunavik Marine Region consists in preliminary visits of Long Island (NU), an uninhabited island used and shared by both Eeyou and Inuit communities. Two short-term visits will be conducted in June and August 2023. During these visits, a team of research scientists and Eeyou land users will explore the island, count Canada geese breeding pairs in selected sections, and observe eggs in selected nests. These visits will allow to assess the size and the productivity of the breeding Canada goose colony to better anticipate a potential future monitoring and GPS-tagging program. Describing how subarctic-breeding geese currently use Eastern James Bay area for stopover is critical for Eeyou communities that have been long relying on the harvest of this population during its migration. Additionally, this work could be the premises of a new long-lasting Long Island Canada goose monitoring program. This program would allow Eeyou and Inuit communities using this population as a natural resource to track and document its trends in the future.

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Background and objective

The submitted project is a continuation of the first phase of the Comprehensive Coastal Habitat Research Project (CCHRP), which was mandated by the Eeyou Niskamoon Corporation in 2016 and focuses its effort in Eeyou Istchee. The goal of the CCHRP is to investigate the main environmental changes that occurred in the ecosystem of Eastern James Bay (QC) during the past decades, and their drivers. Canada geese (*Brenta canadensis*) is an important component of traditional subsistence hunting in Eeyou communities in Eastern James Bay. Eeyou hunters reported the decline of the number of individuals that use this area as a stopover during their migrations over the past decades, as well as a distribution that is less and less predictable with the decline of eelgrass beds and berries (Idrobo et al, to be submitted). Through the CCHRP, the current Eastern James Bay habitat use by Canada geese was investigated. This goose study generated information about the habitat use by molt migrant temperate-breeding Canada geese (*B. c. maxima*) but not by subarctic-breeding geese (*B. c. interior*) which could not be captured and GPS-tracked at this stage of the project (Sorais et al. 2022). Describing how subarctic-breeding geese currently use this area for stopover is critical for Cree communities that have been long relying on the harvest of this population during its migration, and to better understand the current ecosystem state and functioning in Eastern James Bay. This will be one of the objectives of the second phase of the CCHRP, which is currently under planification.

To reach this objective in the future, it is necessary to localize and monitor subarctic breeding Canada geese that migrate along the East coast of James Bay, between their wintering and breeding grounds. It is likely that geese from the Atlantic population breed on islands in the Hudson Bay and migrate along Eastern James Bay, but these colonies are not monitored yet. The objective of the submitted project is to perform a preliminary assessment of the Canada geese population breeding on Long Island in Hudson Bay (NU), and its potential to host a future monitoring program.

Study area

Long Island (54°52'N, 79°25'O; Figure 1) is an inhabited 50 km-long island located in Hudson Bay, east of the junction with James Bay, and at approximately 10 km north of trapline CH-7 (Eeyou tallyman: Reggie Scipio). Satellite images suggest that this island is covered by a low vegetation and numerous water ponds. This represents an ideal breeding ground for Canada geese and Cree land users have previously reported the presence of breeding geese on Long Island.

Long Island is located in the joint Inuit/Cree zone as per the Cree/Inuit Offshore Overlap agreement. The land is shared and used by both Eeyou and Inuit people. To our knowledge, there's no sensitive area identified in the surrounding area that could be impacted by the submitted project.

Figure 1. Study area. This project would take place on Long Island (NU), in the joint Inuit/Cree zone. The island would be reached by boat from Chisasibi (QC).

Team members

The project will be co-leaded by Manon Sorais and Reggie Scipio. Manon Sorais is a research scientist, she is a postdoctoral fellow at Dalhousie University (NS) and a research consultant. She has an extensive experience in working with migratory birds, especially Canada geese. She has been collaborating on the Comprehensive Coastal Habitat Research Project since 2018. She is also trained for remote field work. Her

resume is attached to this application. Reggie Scipio is an Eeyou land user, he is the tallyman of trapline CH-7 and a member of the Eeyou Marine Region Wildlife Board. He has an extensive knowledge of Long Island and the waterways to access it, as well as of the local wildlife.

The team will also include another Eeyou land user who was not identified yet, as well as Frédéric LeTourneux, research scientist with an extensive experience of remote field work and knowledge of wild geese.

Research activities

We propose to visit Long Island twice in 2023, once during incubation (mid-June), and once during molt (early-August). Each visit would require four full days, including the time for transportation by boat between Chisasibi (QC) and Long Island. Several additional days on site might be required in case of bad weather or unforeseen constrains.

The activities planned for the first visit (mid-June 2023) are:

- Exploration of the most densely colonized sections of the island.
- Inventory of breeding pairs and active nests (in selected sections).
- Marking of a sample of active nests using labeled bamboo sticks.
- Estimation of egg lay dates in a subsample of active nests (floating method).
- Assessment of Long Island as a working ground for potential subsequent monitoring programs.

The activities planned for the second visit (early-August 2023) are:

- Examination of previously marked nests (1st visit) to estimate the reproductive success of the breeding population.
- Retrieval of all nest markers.
- Observation of geese behavior during molt to determine the best method of capture for subsequent monitoring programs.

No goose will be manipulated, and no samples will be collected during these visits. We anticipate minor disturbance of breeding female geese as we will approach their nests and manipulate their eggs. The approach, the marking of the nests, and the manipulation of the eggs will be supervised by Manon Sorais, with the objective to limit the time of intervention and the stress of the animals. A full report of these research activities will be produced by the end of the second visit.

Permits and authorizations

Accessing and running this research project on Long Island also require the authorization from several authorities. Upon acceptance by the EMR, this will be submitted to the Cree Nation Government to seek access permit for non-Cree members of the research team. As for the Inuit side, an access and entry permit was recently (Apr 28th 2023) obtained from Makivik society for non-Inuit members. The project is also currently reviewed by the Nunavik Marine Region, as well as to the Department of Environment of Nunavut which must authorize wildlife research project in the federal province of Nunavut. Because the project implies marking migratory bird nests, an application for a scientific permit was submitted to the

Canadian wildlife service (decision is pending). No animal care permit is required as no animal will be captured or manipulated.

As far as the Eeyou Marine Region is concern, this is a new project that is not expected to be renewed in the future. However, it will likely result in a subsequent research project, which would be proposed in the future based on the outcome of the present project.

Logistics

For each visit, the study area will be accessed by boat from Chisasibi. The sections of the island with high nest density will be reached by boat or on foot. These sections will by visited on foot. Team member boots will be disinfected before and after the visit of each section to minimize the risk of spreading pathogens through the island. Regular gasoline will be used to fuel the two boats used for the team transportation and will be brought in sufficient quantity (45 gal per boat) to travel around the island and go back to Chisasibi. Fuel will be stored in Jerrycan type containers that will remain on the boats during our visit.

The research team (three to four trained people) will camp on site during the visits. The camp will be set according to Cree land users' habits. The camp will be temporary and will be put down at the end of each visit. All waste (mainly food packaging) will be taken out of the island, back to Chisasibi. A complete first aid kit will be brought on site, including several epinephrin auto-injectors and an emergency satellite communicator. Bear encounters are unlikely on Long Island but bears bangers and bear sprays will be brought on site. Reggie Scipio is an experimented hunter and will also come on the island with two riffles.

Very little scientific equipment will be brought on site. Marking active nests will only require labelled bamboo sticks and a GPS map. A camera will be brought to keep a visual documentation of the island and the activities. Possibly, a drone could be operated by a trained team member during the second visit, during the molting season. The drone would allow documenting images of the terrain to better anticipate capture and banding operation in the future.

Public consultation

Long Island is located in the joint Inuit/Cree zone and its use is shared by both Eeyou and Inuit people. Because this project is mandated by the Niskamoon Corporation, most of the consultation was conducted among Eeyou people. As such, the project was reviewed by members of Eeyou communities on Niskamoon board. Reggie Scipio, Eeyou tallyman and user of Long Island, is co-leading the project and will be consulted during the project planification and in the field. We submitted the project to Makivik society to seek access from the Inuit landowners, which was recently granted (Apr 28th 2023).

We anticipate no negative impact of this project on the Eeyou rights and use of natural resource on Long Island. On the contrary, these visits would be a first step toward a monitoring program of the Canada goose colony on Long Island. This program would allow Eeyou and Inuit communities using this population as a natural resource to track and document its trends in the future. Although the starting date of this project will arrive soon, we'd be happy to discuss this project with the Inuit communities if possible.

This project is a bridge between what's already been done through the CCHRP and what will follow. Because our research activities that started in Eeyou Istchee lead us now to Long Island, we wish to consult with both Eeyou and Inuit communities in the future. The visits implied in this project will allow us to assess

what can be done in terms of population monitoring within the Canada goose colony of Long Island. A full report will be written by the end of the second visit and its content will be shared with interested Eeyou and Inuit communities. We will gladly discuss in depth future research activities after completion of this project.

Opportunities for local participation

Niskamoon Corporation mandates this project and as such contribute financially and logistically. Reggie Scipio co-leads the project and is an essential part of the organization and the logistic. It is likely that a second Eeyou team member will be included in the project to assist us in the field but is not identified yet at this stage of the planification.

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