



Arctic Eider Society ᐃᐅᐃᑦ ᐅᐅᑦᐅᐅᐅ
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NWB Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

November 22, 2019

Dear Manager,

On behalf of the Principal Investigators of the project titled "Community-Driven Monitoring of Sea Ice and Eider Duck Populations around Belcher Islands, Nunavut", please find attached an application for water use without a license, project descriptions in both English and Inuktitut as well as the this year's NPC letter of approval. This is a long-term ongoing project with Environment and Climate Change Canada; however, please note that the Arctic Eider Society took over permit applications from 2018 forward. This work was previously covered under Nunavut Water Board License 8WLC-GBI1920 and is related to NPC renewal 149248 which was recently approved.

Please note the approval can be made out to Dr. Joel Heath. Any questions you have regarding this application can be directed to him, joelheath@arcticeider.com, 604-813-5635 or myself, Billy Nicoll, billynicoll@arcticeider.com, 519-502-1745.

Thank you very much for your consideration of this application, and please do not hesitate to contact us with any questions or concerns you may have.

Sincerely,

Billy Nicoll
Stewardship Coordinator
Arctic Eider Society

Community-Driven Monitoring of Sea Ice and Eider Duck Populations around the Belcher Islands, Nunavut

Project Description

This long-term ongoing research and monitoring project was initiated by the community of Sanikiluaq in 1998 in partnership with Environment Canada, and has been administered through the Arctic Eider Society, a Sanikiluaq-based charity, in partnership with the Sanikiluaq Hunters and Trappers Association, Environment Canada and other collaborators since 2011. It focuses on the Hudson Bay Common Eider as a key resource for the community and indicator species of environmental change in the region, while also working to more holistically and systematically document key indicators of environmental change and cumulative impacts identified by Inuit, including changing sea ice and oceanographic conditions.

The Hudson Bay eider (*Somateria mollissima sedentaria*) breeds on the east and west coasts of Hudson and James Bay, and on the Belcher, Sleeper, and Ottawa Islands. The harvest of adult Hudson Bay eiders occurs in all months by residents of the Belcher Islands, with an annual harvest of approximately 2000-5000 birds. Eiders are most important to residents during freeze-up in the fall when other bird and mammal species are often inaccessible to hunters. The Municipality of Sanikiluaq is also establishing a commercial eider down harvest. These factors make the eider one of the most economically important species to the community of Sanikiluaq.

Eiders breeding within Hudson Bay spend the winter in open water leads and polynyas near the Belcher Islands and off the west coast of Quebec. In doing so, the Hudson Bay eider is vulnerable to mass die-offs in winter when eiders are concentrated in open-water leads that freeze. In the 1990's the eider population was 70% lower than surveys from the 1980's, due to extreme sea ice conditions that caused a large starvation event. In recent years Inuit have reported changing sea ice and oceanographic conditions, including rapid freeze-ups at polynyas and floe edges that are important habitat for eider ducks and other wildlife including seals and beluga. These factors emphasize the need for sound information on the possible changes occurring in the sea ice habitats and how they influence populations of eider ducks and other wildlife. Our objective is to understand how changing sea ice and oceanographic conditions influence the marine food web as a key resource for the community of Sanikiluaq.

Methods

The community of Sanikiluaq has driven this program since its inception in 1998. This long-term effort was formalized through creation of the Arctic Eider Society as a Sanikiluaq-based community-driven charity in 2011. The program is based on priorities identified as outcomes of ongoing joint meetings with the Sanikiluaq Hunters and Trappers Association and Municipal Council of Sanikiluaq, held multiple times each year. All work is conducted independently by, or in direct collaboration with, experienced Inuit hunters and in close consultation with the local Hunters and Trappers Association, whom also rely on project outcomes for local co-management efforts. All results are made accessible to the community in near-real time through our online interactive platform which also provides long-term stewardship of the data to the community.

All research is non-invasive and observational. Inuit monitoring teams work independently or in partnership with researcher to document changes including the abundance and distribution of eider populations, other wildlife species and their sea ice habitats (e.g. size and dynamics of polynyas and floe edges) using a variety of photography, video and timelapse monitoring techniques and take additional observational notes using field notebooks or mobile devices (i.e. SIKU app). Observations take place at key habitats around the Belcher Islands identified as priority sites for monitoring by the community. Oceanographic indicators are measured using CTD casts (salinity, temperature depth profilers) and moorings (salinity/temperature probes) and aquadopp current meters to track changes over the winter and open water seasons. Ice core samples and water samples are also taken to document water characteristics over time. Salinity profiling and water sampling is conducted by local hunters deploying a CTD or water sampler (kemmerer) through a small hole in the ice, letting it sink, then immediately pulling it up.

Camp

Most work will take place as a part of day trips from the community. Infrequent overnight trips may be made to the Environment Canada research camp (55° 49.361 N, 79° 53.925 W) to facilitate travel to nearby polynyas and floe edge by snowmachine. We will have a small amount of white gas for cooking and gasoline for the snow machines. We have a spill response plan and will have a spill kit with us at all times.

Melted snow is used for drinking and washing purposes only. Human waste will be buried in a sump away from all water sources and backfilled before leaving camp. All other waste will be transported back to Sanikiluaq and disposed of properly.