

NWSF #2021-007  
Enooyaq Sudlovenick  
204-979-3226  
[sudlovee@myumanitoba.ca](mailto:sudlovee@myumanitoba.ca)  
University of Manitoba

## **Interim Project Report: Beluga Health and Inuit Qaujimajatuqangit in Arviat (NWSF Project #NWSF-2021-007)**

### **Summary**

Arviat harvests many beluga whales every year as part of their traditional subsistence hunts. Although Nunavut has some basic monitoring programs for beluga, the programs are limited and data does not always return to the community. This project will aim to identify methods of determining beluga whale health in Arviat, and on a larger scale compare this Western Hudson Bay (WHB) population to the Eastern Beaufort Sea (EBS) population in Northwest Territories.

The general objective of this project is to enhance knowledge of the current health status of the beluga whale population in the EBS and WHB, through close collaboration between project investigators and members of Arviat, NU, specifically between Aqqiumavik Society and University of Manitoba. The project will also engage with the community to gather perceptions about beluga consumption and to share data around beluga health and the implications of making beluga a central part of community diet. This stage of the project aimed to connect with the community, Arviat HTO, and Aqqiumavik Society in person to gauge interest, identify concerns on potential research methods and identify local concerns on beluga health.

### **Project Objectives & progress to date**

This project has three objectives:

- 1) **Identify local concerns about beluga health.** This includes examining previous beluga work, identifying existing gaps, and developing a project to answer these questions. Local interviews will be explored to complement the western methods in hopes of providing guidance on practical methodologies and tools to monitor beluga health.
- 2) **Determine likelihood of exposure to disease in beluga.** While disease is part of the natural environment, there is little baseline data, which will make future monitoring projects difficult. Monitoring for diseases include Toxoplasma, trichinella and Brucella.
- 3) **Determine levels of some heavy metals in beluga whale tissue (skin, blubber, muscle) and their toxicity.** Recent literature determined mercury threshold levels that when reached, reduce the immune system of marine mammals. These levels could be compared to beluga immune indicators to explore these defined thresholds, ultimately being used to measure beluga health. This information will be shared with the community and the implications of the resulting data will be discussed in terms of dietary practices.

Each of the three objectives have been proceeding, and to date the third objective is nearly complete. For the first objective, the community interviews are expected to take place in June nad July 2022. These interviews will be with hunters and elders who have local knowledge about beluga health. The approvals for the interviews have been granted form the Nunavut Research Institute, and are still pending from the University of Manitoba.

The second objective is currently underway, and there has been some analysis for *Toxoplasma gondii* in the 2020 whales. *Toxoplasma gondii* is a protozoan of interest, and has been identified in other beluga populations. To date, all harvested whales have been negative. More lab work will be conducted for the 2021 and 2022 whales for *Toxoplasma gondii* this fall.

For the third objective, the analysis of historical samples in combination with new samples (from 2020 and 2021) have been analyzed for Arviat and a scientific report and publication are being written. The anticipated completion of this report is projected to be in Fall 2022.

### **Materials and Methods**

There was a field season in 2021, where Mrs Sudlovenick was invited into the community of Arviat to train the local research assistant in sampling beluga whales, sub-sampling tissues, and use of all the scientific equipment, including centrifuge & serum extraction, sample preservation in RNAlater, and care for the cryoshipper (dry ice cooler). Another field season is planned fro June/JUly 2022 where samples and interviews will be conducted.

### **Reporting to communities / resource user**

Since this is a multi-year project, there are no formal concluding results to report to date. There are ongoing communications between partners (Aqqiumavvik Society) and the Arviat HTO to continue the project.

We did provide some training to the research coordinator as well as a few of the Young Hunters. All training was provided through in-person in summer 2021. The Aqqiumavvik Society and Young Hunters Program continue to advise the research team on travel, sampling dates, and communications with the HTO and facilitate conversation with the hunters in the community. No decisions are made without HTO and Aqqiumavvik's input and support.