



SUBMISSION TO THE NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information: X

Decision:

Issue

Information on the updated stock structure of Belcher Islands – Eastern Hudson Bay beluga following the 2023 genetic reanalysis.

Background

Belugas from the Hudson Bay-Strait complex have been harvested by Inuit for millennia. Beluga are of profound cultural significance and an important source of food security for northern residents.

Previous studies have suggested that some beluga populations undertake seasonal migrations, demonstrating a strong tendency to return to their natal summering areas every year, while other populations can be considered as resident, remaining in one area year-round. Knowledge of summering grounds and migratory routes are understood to be transmitted from older individuals to juveniles, and from mothers to their offspring, resulting in genetic structures among beluga populations defined by their summering location. There has been compelling evidence that beluga tend not to recolonize suitable summering habitat that was previously used as aggregation areas once they are abandoned or the local population is extirpated. Multiple populations mix at different times of the year, for example, during spring-fall migrations, or they may share overlapping wintering areas.

Beluga sampling programs have been in place in the Hudson Bay-Strait complex since the 1980s. The mitochondrial DNA (mtDNA) in the samples is analyzed to estimate the contribution of each population to the harvest outside of summering grounds and from fall to spring. Analysis of short sequences (234 base pairs haplotypes) from the mtDNA have allowed for the identification of four distinct populations in the Hudson Bay-Strait complex: Western Hudson Bay (WHB); Eastern Hudson Bay (EHB); James Bay (JAM); and Cumberland Sound beluga (CSB). Based on short haplotype analysis, most beluga harvested in Sanikiluaq were considered to be WHB animals. A 2023 reanalysis using longer mtDNA sequences (615 base pairs haplotypes) from the mtDNA identified a fifth distinct population in the Hudson Bay-Strait complex, which is harvested year-round by Sanikiluaq residents and was therefore named the Belcher Islands (BEL) beluga population (TAB 1). This newly identified BEL population summers within the geographic summer distribution area of EHB beluga. The spatial overlap between BEL and EHB beluga prevents estimating the abundance of these two populations separately. Therefore,

Fisheries and Oceans Canada (DFO) considers beluga summering between the eastern coast of Hudson Bay and up to 60 km west of the Belcher Islands to be a mixed BEL-EHB stock.

The last BEL-EHB stock assessment, carried out in 2021, suggests the stock has declined from 3,600-3,900 individuals in 2015 to 2,900-3,200 individuals in 2021 (i.e., ~3% per year), and that the decline is primarily attributed to unsustainable harvest levels throughout the BEL-EHB stock range (Tab 2).

Since the mid-1980s, harvesting restrictions have been in place to ease pressures on the Eastern Hudson Bay (EHB) beluga, which has been assessed as Threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). BEL-EHB beluga are present in multiple jurisdictions. Management measures in the Nunavik Marine Region (NMR) and the shared zone with the Eeyou Marine Region (EMR) are detailed in the 2021-26 Nunavik Beluga Management System and include a total allowable take (TAT) of 20 beluga in the Eastern Hudson Bay Arc management zone and non-quota limitations in the rest of the NMR. The management system aims to ensure a 50% probability that the EHB stock remains stable at 2015 levels (the 2021 population abundance was not available at the time) after 5 years and recommends total annual removals of EHB not exceed 58 individuals. A voluntary summer closure between July 15 and September 30 has been in effect in Sanikiluaq since 2014 with the goal of reducing harvesting pressure on EHB beluga.

Implications

The 2023 genetic reanalysis indicates that a significant portion of beluga harvests previously assigned to the WHB population are instead from the BEL population. As such, the number of annual removals from the joint BEL-EHB stock has been underestimated. The identification of the BEL stock and the reanalysis of previous genetic samples has significant impacts on the harvest proportions in the Hudson Strait during the spring and fall migrations and around the Belcher Islands throughout the year (TAB 3). The genetic reanalysis suggests total removals by Nunavik and Nunavut harvesters of BEL-EHB across their range has been underestimated by over 80% between 1996 and 2022.

Consultations

An updated stock structure has been presented to the Sanikiluaq Hunters and Trappers Organization, the Nunavik Marine Region Wildlife Board (NMRWB), the Nunavik Anguvigaq, Makivvik, and the five Hudson Bay communities in Nunavik. DFO staff are planning a public meeting in Sanikiluaq to present the stock structure to the community, respond to questions, and gather feedback and concerns.

Recommendation

The NWMB may wish to consider scheduling a joint decision making process with the Nunavik Marine Region Wildlife Board (NMRWB) and the Eeyou Marine Region Wildlife Board (EMRWB) on the management of the shared BEL-EHB beluga stock.

Prepared by: Michael Hale – Fisheries Management - Fisheries and Oceans Canada – Arctic Region

Date: December 11, 2024

Attachments:

TAB 1 - [Re-examining populations of beluga in the Hudson Bay-Strait Complex and assessing the impact on harvests in Nunavik and Sanikiluaq management units](#)

TAB 2 - [Recovery Potential Assessment for Beluga \(*Delphinapterus leucas*\) Stocks in Nunavik \(Northern Quebec\)](#)

TAB 3 - ANNEX A – Graphs and tables (attached)