

SUBMISSION TO THE NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information: X

Decision:

Issue: Update on DFO Science Arctic Char Program in the Qikiqtaaluk, 2021-22.

Background:

In the past, Fisheries and Oceans Canada (DFO) Science provided an update on the Emerging Fisheries Program and other Science programs currently operating in Nunavut (e.g. Narwhal Aerial Survey, Offshore Trawling Survey). The NWMB Board stated that they appreciated these updates in this format. For this meeting we are providing information on our current Stock Assessment Arctic Char Programs in the Qikiqtaaluk.

Current Situation:

General:

All Arctic char Stock Assessment research is completed in collaboration with local HTOs and fishers. We have been successful at creating research projects that are beneficial to local communities, local fishers and DFO by collaborating on research from development and through all aspects of the project. We generally hold annual face-to-face meeting with HTOs and communities, however COVID-19 restrictions have made this difficult. However, email and phone communication remain an even more important aspect of our day to day work environment and in-person meeting are held when possible.

We have a history of hiring and training local people to assist with all our field programs, and with the outcomes of COVID-19, this has become a more pressing need in order for us to meet our assessment goals and remain active with new projects in new communities. We are in discussions with QIA to provide training on Arctic char sampling techniques and data collection to Nauttiqsuqtiit (Tallurutiup Imanga NMCA stewards as developed through the IIBA) in the five TINMCA communities and then expand to all communities in the Qikiqtaaluk. It is our goal that each community will have trained individuals who are proficient with our stock assessment sampling procedure and could assist with future community-base sampling programs.

In 2021-22 and 2022-23 we have begun work to build on existing relationships and create new ones with collaborative HTO Arctic char research and proposed

community-based sampling programs in Clyde River, Resolute Bay and Grise Fiord. These projects have not been finalized or have experienced delays due to COVID-19, but we hope to expand our focus to these new communities in the near future and work on issues that are relevant to locals.

Cumberland Sound 2021:

DFO Science has provided Science Advice on nine stock in Cumberland sound. We are currently in the reporting phase for one stock (Nauliniavik) and are working to finalize data collection for Anaktuajuit. This data collection will be performed by local fishers and scheduled to be completed in 2022 or 2023.

In 2021 we began a new program in Cumberland Sound to provide an updated abundance estimate which will be used to calibrate population models for Cumberland Sound Arctic char. The program is using mark-recapture of Arctic char at Iqalugaarjuit (PG027; Figure 1) to calculate the abundance of this stock. Tagging began in 2021 with Floy tags applied to 300 fish, and our next tagging event is planned for summer 2022. Effort to recapture marked fish will coincide with future tagging events, as well as through the Pangnirtung commercial and domestic Arctic char fisheries at this waterbody. Fishers are compensated for tag and data returns, and the HTO is contracted to manage this data collection. During this program we are opportunistically collecting fin clips for use in a pilot project that will use a novel genetic mark-recapture process. Results of this and our traditional mark-recapture program that is presently operational will be compared for effectiveness of use on a Nunavut Arctic char stock.



Figure 1. Location of Iqalugaarjuit (PG027), Cumberland Sound, Nunavut, waterbody for Arctic char mark-recapture program.

Pond Inlet 2021:

Currently there is Stock Assessment research happening in Pond Inlet to support newly developing Arctic Char fisheries. In 2021, we completed year 5 of 5 of data collection at Koluktoo Bay. Analyses of samples and data for Koluktoo Bay Arctic char are ongoing and Science advice on this stock will be formalized in the next couple of years. We continue to monitor Koluktoo Bay Arctic char through community sampling through the ice, as this stock is in close proximity to the Baffinland port and the Mittimatalik HTO has raised concerns over this stock in recent years. Due to COVID-19 limitations our field efforts at Sattuut have been on hold, but sampling at this location is planned for summer 2022, as well as at a new location to be determined by the Mittimatalik HTO.

Fisheries in these areas are known to be mixed-stock fisheries, with the target stock of Arctic char not known when fishing the marine environment. To help address this, baseline data on genetic stock differentiation has begun in a series of rivers and lakes in the area. Due to COVID-19, completion of the juvenile sampling program has been delayed, but we are planning to complete this work in summer 2022. Results of this program will allow for future genetic analysis of harvested mixed-stock Arctic char to assign the appropriate stock, and therefore allow for proper stock-based management of Arctic char.

Sylvia Grinnell 2021:

The Sylvia Grinnell Arctic Char research program completed the fifth and final year of biological and migration (Dual-Frequency Identification Sonar (DIDSON)) data collection in 2019, and initial analysis of DIDSON data was completed in 2021. A local knowledge workshop is planned for winter 2022 (if/when COVID-19 restrictions allow) to gather biological and fishing information and data, both current and historic, on Sylvia Grinnell Arctic char. Updated Science Advice on this stock is scheduled to be completed by 2024.

In 2020, the Sylvia Grinnell Arctic Char Stock Origin project was initiated, with collaboration of the Amaruq HTA. This project is looking at genetic signatures of two stock of Arctic char, Sylvia Grinnell River and Nunngarut, by analysing tissue samples of Arctic char from these rivers and other nearby rivers. Results of this project can indicate the occurrence of fish from these two stocks in Inner Frobisher Bay and help understand the amount of mixing between them. To date, tissue samples from juvenile Arctic char have been collected from three of our five targeted areas – Sylvia Grinnell River, Peterhead Inlet and the two rivers at Nunngarut. Effort to capture fish at Burton River and Foul Inlet have not been successful, but will be attempted again during summer 2022.

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