

**NUNAVUT WILDLIFE RESEARCH TRUST FUND
FINAL PROJECT REPORT
2017/2018**

NWRT PROJECT NUMBER: 3-17-04

PROJECT TITLE: Pond Inlet Arctic Char Fishery Development Research Program

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SUMMARY

The community of Pond Inlet has been trying to redevelop their Arctic Char fisheries over the past few years. The local fishers have put in great efforts to collect biological samples in accordance with their exploratory fishing licence. Data the fishers' have collected will be used in a stock assessment analysis to provide managers, the HTO and the community with a stock status update. To support the fishers' data and provide a complete and well executed stock assessment analysis fishery independent baseline biological data is required. This research aims to work with the community of Pond Inlet to collect baseline biological data from two (2) Arctic Char stocks in the Pond Inlet Area, as well as, local knowledge and fishing practices on these stocks. Collectively this information will fill knowledge gaps on Pond Inlet Arctic Char fisheries and provide managers more information to inform their future decisions.

PROJECT OBJECTIVES

The objectives of this study were to:

- 1) Continue data collection that will be used to compare current data to historical data to determine the current status of the stocks. This data will support the already existing fishers' data and not be a duplicate effort;
- 2) Continue data collection for abundance estimate analysis (e.g. CPUE and catch information); and
- 3) Continue gathering local knowledge on Arctic Char fisheries in the Pond Inlet Area (interviews and consults from past research will continue to be used as well).

MATERIALS AND METHODS

Field Data Collection:

Multi-mesh gillnets were used to collect catch-effort information and biological samples of Arctic Char at Koluktoo Bay only for 2017 near Pond Inlet, Nunavut. Due to contract issues within DFO which resulted in delayed timing of field work, we were only able to complete the data collection on one location in 2017. The sampling protocol outlined in VanGerwen-Toyne and Tallman (2011) was employed. The use of multi-mesh gillnets permits sampling of Arctic Char of all sizes and ages. Location data such as position (determined by GPS), time of year, time of day, net depth, water temperature, weather and other environmental conditions were recorded for each net set. To estimate catch effort, the net type, set time, lift time and soak time will be recorded. The fork length (mm), round weight (g), gonad weight (g), sex and maturity stage, ovaries from mature females, tissue samples, structures for determining the age and stomach contents of each fish were collected.

Local Knowledge Gathering:

Interviews of local fishers were completed in 2014 (funded by NWRT) and this information has informed this current study. To continue the collaboration of local knowledge and science within this research the Mittimatalik HTO will be consulted and fisher interviews will continue for the duration of the project. The interviews are designed to be open format with guiding questions relating to the Pond Inlet Arctic Char fisheries. All questionnaires will be approved by the Mittimatalik HTO and conducted in a face-to-face format in both Inuktitut and English. No interviews were completed this research year due to personnel limitations.

Data Analyses:

The data collected from this research along with the data collected by the local fishers (fork length, weight, and sex) will allow for the assessment of the age and length structure, growth rate, sex ratio, physical condition, age-at-maturity, egg-number-per-female (fecundity), reproductive potential, mortality rates and

abundance estimates for these Arctic Char populations. The data analysis will involve a standard stock assessment protocol with age-based parameters and catch-curve based abundance estimates being presented.

Collectively, all the components of this research along with the fishers' data will feed directly into a stock assessment analysis which should provide managers knowledge on the current stock status, document current fishing practices in the area and document local knowledge of the fisheries.

Training:

This research program hired a total of two (2) Inuit fishers to provide transportation and assist with fishing and data collection. All fishers were trained in DFO Scientific Stock Assessment Data Collection. An Inuit youth was also part of the DFO Scientific Stock Assessment Data Collection team. The youth was also afforded the opportunity to learn about general life of the land by the experienced Inuit fishers.

REPORT BY INUIT PARTICIPANTS

The Report by Inuit Participants have been handed out but not yet returned. We hope to speak with people when we are in Pond Inlet in 2019 to collect their reports and feedback to include in our final report to the NWMB and help us understand their report so we can meaningful respond to feedback with improvements to the project.

RESULTS/DISCUSSION/MANAGEMENT IMPLICATIONS

Field Data Collection:

Multi-mesh gillnets were used to collect catch-effort information and biological samples of Arctic Char at Koluktoo Bay from August 19 and 21, 2017. A total of 213 anadromous Arctic Char were sampled from Koluktoo Bay. Length and weight frequency histograms are presented for these samples (Figures 1 and 2). Initial analysis shows that we captured a different time of the run in 2017 compared to 2016.

Local Knowledge Gathering:

DFO met with the HTO in May of 2016 and again in May of 2017.

Funding year 2017-18 covered year 2 of a 5 year project so we cannot provide discussions on the results at this time.

We expect to do interviews in spring 2019 with Pond Inlet knowledge holders and then publish all local knowledge results in fall 2019. A copy of this report will be made available to the NWMB.

REPORTS TO COMMUNITIES/RESOURCE USERS

The 2017 results were reported back to the HTO via in-person meetings in 2018. DFO stayed in close contact with the HTO and community during this past summer's research by in-person visits, phone calls and emails. Following our May 2017 meeting the HTO stated that they were glad to see that we were planning to continue the work and provided DFO with multi-year support. We are planning on consulting with the HTO in spring 2019 where we will provide an in-person summary of the 2017 research specifics and discuss plans for 2019.

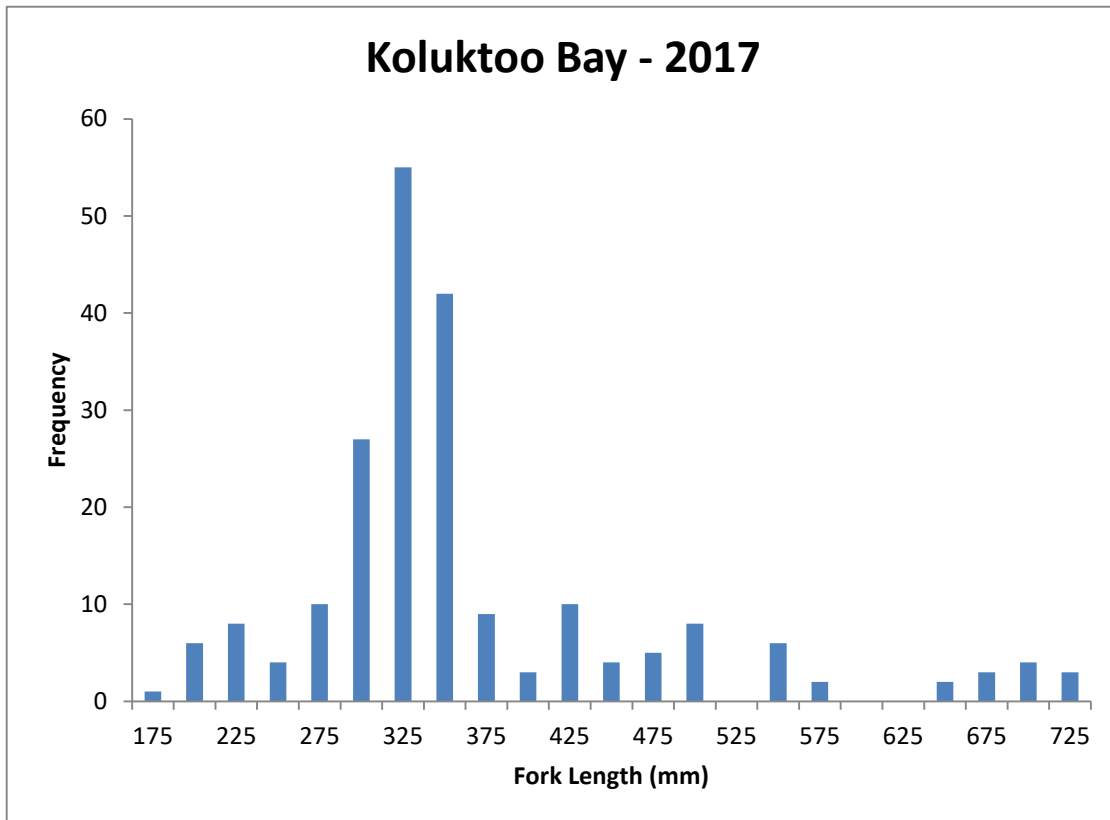


Figure 1: Length frequency histograms of Koluktoo Bay Arctic Char collected from multi-mesh gillnet surveys in August 2017.

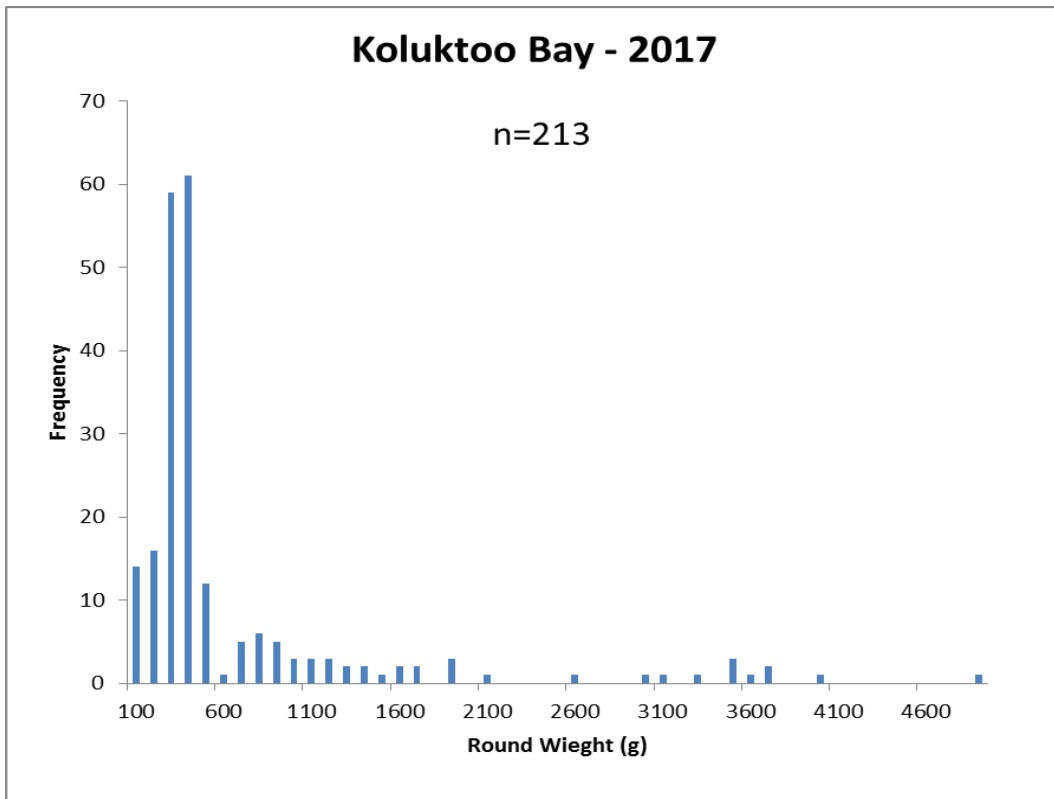


Figure 2: Length frequency histograms of Koluktoo Bay Arctic Char collected from multi-mesh gillnet surveys in August 2017.

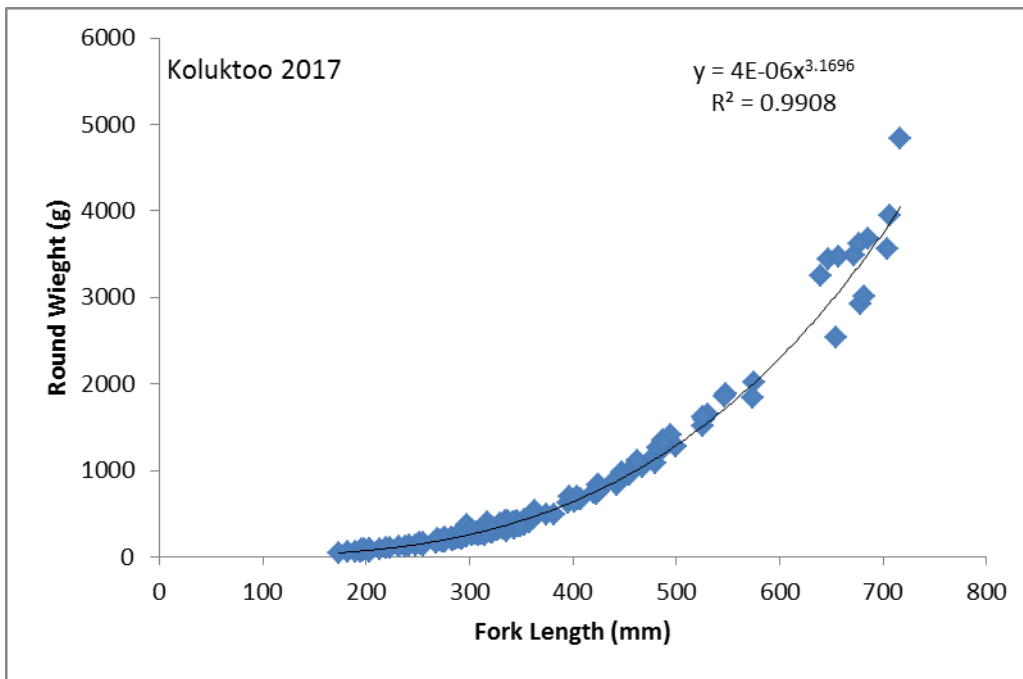


Figure 3: Length-weight regression for Kolkutoo stocks. A power trend line has been graphed.