

**NUNAVUT WILDLIFE RESEARCH TRUST FUND  
FINAL PROJECT REPORT  
2020/2021**

**NWRT PROJECT NUMBER:** 3-20-11

**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 MHTO 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).

Update on objectives:

1) Execution of objectives was severely affected by measures to protect against the COVID-19 virus. During the summer DFO staff had arranged for community based sampling but it did not occur, likely due to the additional difficulties of working within a COVID-19 environment. Most objectives that would have been achieved in the summer have been delayed but we are working on communicating with the Mittimatalik Hunters and Trappers Organization (MHTO) to undertake useful work to the end of fiscal year 20-21. The chair of the MHTO has written a letter concerned with the effect of the Mary River mine project and its impact on Arctic Char stocks, in particular Saatut.

Our new objectives for the remainder of 20-21 are:

- 1) Collaborate with the Mittimatalik Hunters and Trappers Organization (MHTO) to execute a **winter** research plan. We will likely require the community members to handle the field collection on their own. If restrictions allow Adam O'Dell from the Iqaluit office will visit Pond Inlet prior to collection and train community members to sample Arctic Char. A contract for this work is being prepared.
- 2) We hope to carry out much the same research activities in the winter as described above. The survey results will not replace the summer sampling but could provide needed information against the concerns expressed by the MHTO.

## MATERIALS AND METHODS

### *Field Data Collection:*

Multi-mesh gillnets will be used to collect catch-effort information and biological samples of Arctic Char at Koluktoo Bay and Saatut in the winter of 2021 near Pond Inlet, Nunavut. The sampling protocol outlined in VanGerwen-Toyne and

Tallman (2011) will be 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 be recorded for each net set. To estimate catch effort, the net type, set time, lift time, and soak time will be recorded. Samples will be shipped to the DFO area office in Iqaluit where 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 will be 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 MHTO 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 Pond Inlet Arctic Char fisheries. All questionnaires will be approved by the MHTO and conducted in a face-to-face format in both Inuktitut and English.

*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 will hire between 2 and 4 Inuit fishers to undertake fishing and data collection. All fishers will be trained in DFO Scientific Stock Assessment Data Collection. As well, it is hoped that an Inuit youth will also be part of the Data Collection team. The youth will be 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 will be handed out. We hope to speak with people when we are in Pond Inlet 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.

## **PROJECT SCHEDULE**

Summer sampling at Koluktoo Bay (2020) and Saatut was not accomplished due to restrictions due to the COVID-19. We are planning to complete Koluktoo Bay and Saatut research in 2021 and 2023, respectively. We are moving forward with plans to propose and develop a Mixed-Stock Fishery Analysis which is essential to have when all Stock Assessment Research is complete. With the Stock Assessment Research, Traditional Knowledge and the Mixed-Stock Fishery Analysis we aim to provide a complete picture of the fishery as it currently stands.

## **RESULTS/DISCUSSION/MANAGEMENT IMPLICATIONS**

### *Field Data Collection:*

As noted, data collection was not possible this year. Our intention will be to use multi-mesh gillnets to collect catch-effort information and biological samples of Arctic Char at Koluktoo Bay and Saatut. These samples will be used to report length frequency histograms and maximum, minimum and average size.

### *Community Based Winter Sampling at Koluktoo*

A contract was arranged with the HTO for community members to sample Koluktoo. Sampling occurred in March 2021. The DFO provided multi-mesh nets, fuel and money for food for the field crew. Three members of the community travelled to the lake ( 2 technicians and a youth). 20 Arctic Charr were captured and sent to Jenn Kilabuk at DFO Iqaluit. These fish will be processed in 2021-2022 and the results reported.

### *Local Knowledge Gathering:*

DFO met with the MHTO in May of 2016 and again in May of 2017. The MHTO was happy with our research plans and asked that we keep them updated by email. They were not interested in annual meetings; they have enough meetings at the moment and are happy with this research project. We have been in contact with the MHTO by email on an almost monthly basis and in person when field work is being conducted. We plan to meet with the MHTO and the community in the next funding year.

Funding year 2020-2021 covered year 4 of a 5 year project so we cannot provide discussions on the results at this time.

## **REPORTS TO COMMUNITIES/RESOURCE USERS**

Results for 2020-2021 will be reported back to the MHTO via in-person or on-line meetings in 2021. Our goal will be to stay in close contact with the MHTO and community by in-person visits, phone calls and emails. Following our May 2018

meeting the MHTO stated that they were glad to see that we were planning to continue the work and provided DFO with multi-year support.

Note: results from 2019 are listed below:

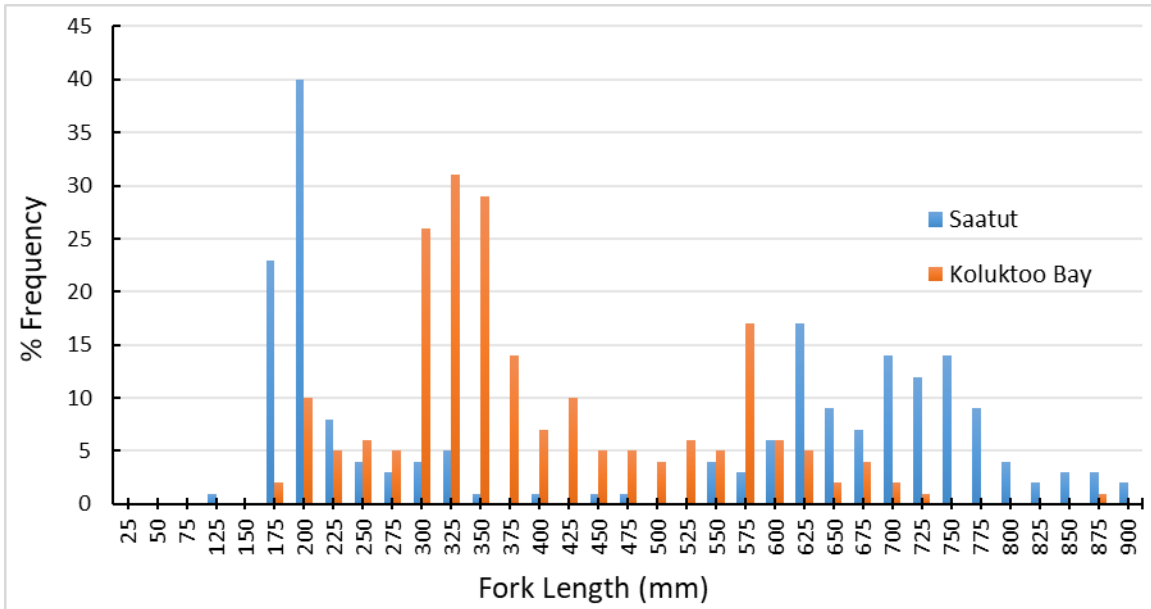


Figure 1. Length frequency distribution of Arctic Char caught at Koluktoo Bay and Saatut fishing locations in 2019.

Table 1. Maximum, minimum, and average lengths of Arctic Char caught in the 2019 fishing locations

	<u>Maximum Fork Length</u>		<u>Minimum Fork Length</u>		<u>Average Fork Length</u>	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
Saatut	35.1	892	4.8	122	18.5	470
Koluktoo	33.7	856	6.5	165	15.2	387

Table 2. Maximum, minimum, and average weights of Arctic Char caught in the 2019 fishing locations

	<u>Maximum Round Weight</u>		<u>Minimum Round Weight</u>		<u>Average Round Weight</u>	
	(lbs)	(g)	(lbs)	(g)	(lbs)	(g)
Saatut	15.7	7112	0.1	39	4.6	2064
Koluktoo	12.6	5693	0.1	48	2.0	929