NUNAVUT WILDLIFE RESEARCH TRUST FUND
FINAL PROJECT REPORT
2018/2019

NWRT PROJECT NUMBER: 3-18-02

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).

Update on objectives:

1) We collaborated again with the Mittimattalik Hunters and Trappers Organization (MHTO) to execute the summer research plan. We successfully sampled the two (2) proposed locations for all catch and biological data with a team of local field assistants, knowledge holders and biologists.
2) We collected all CPUE and catch information from the summer research as proposed; and
3) We have applied the local Traditional Knowledge collected a few years ago to this research plan as suggested and supported by the MHTO.

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 and Saatut in 2018 near Pond Inlet, Nunavut. Koluktoo Bay was fully sampled (n = 213) while Saatut was not as successfully sampled (n = 33). 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 be 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 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

The current project is on schedule to complete Koluktoo Bay on time (2021) but due to contracting issues last funding cycle, we are one year behind for completing of the data collection for Saatut. We are planning to complete Saatut research in 2024, as we are facing issues collecting sufficient samples every year. We are moving forward with plans to develop and propose a mixed-stock fishery analysis that will essential information 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 in the coming years.

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 1 to 10, 2018 and Saatut from August 12 to 18, 2018. A total of 213 anadromous Arctic Char were sampled from Koluktoo Bay. A total of 33 anadromous Arctic Char were sampled from Saatut. Length frequency histograms and length graphs 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. 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 was being conducted. We plan to meet with the MHTO and the community in the next funding year.

Funding year 2018-19 covered year 3 of a 5 year project so we cannot provide discussions on the results at this time.

REPORTS TO COMMUNITIES/RESOURCE USERS

The 2018 results will be reported back to the HTO via in-person meetings in 2019. 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.

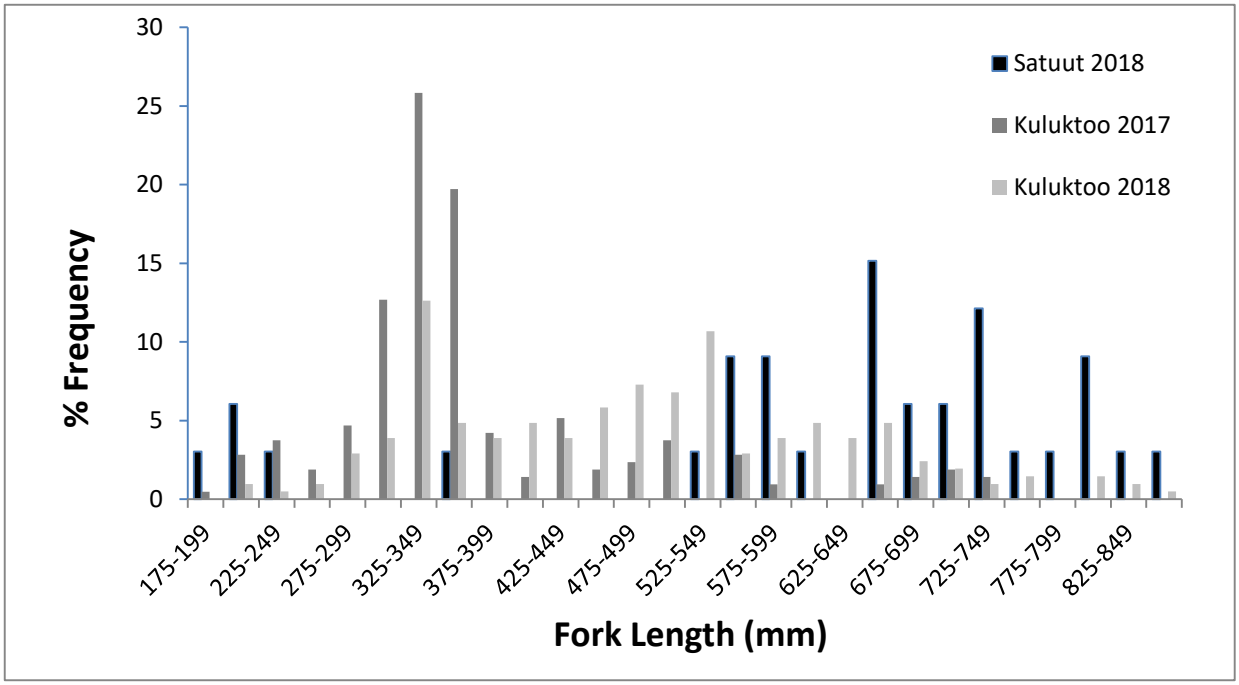

Figure 1: Length frequency histogram of Koluktoo Bay and Saatut Arctic Char collected from multi-mesh gillnet surveys in August 2017 and 2018.

Table 1. Maximum, minimum, and average lengths of Char caught in the 2017 and 2018 fishing locations

	Maximum of Fork Length		Minimum of Fork Length		Average of Fork Length	
	(in)	(mm)	(in)	(mm)	(in)	(mm)
Satuut 2018	34.4	874	7.6	193	24.5	623
Koluktoo 2017	28.2	717	6.9	174	13.9	353
Koluktoo 2018	33.2	844	7.1	180	18.4	469

Table 2. Maximum, minimum, and average weights of Char caught in the 2017 and 2018 fishing locations

	Maximum of Round Weight		Minimum of Round Weight		Average of Round Weight	
	(lbs)	(g)	(lbs)	(g)	(lbs)	(g)
Satuut 2018	15.8	7158	0.1	59	6.6	2998
Koluktoo 2017	10.7	4837	0.1	49	1.3	606
Koluktoo 2018	11.3	5115	0.1	53	3.0	1365