
Nakina Creel Survey -2016



Final Report

March, 2017

Prepared by:



ACKNOWLEDGEMENTS

This project was funded through the Northern Fund (NF) of the Pacific Salmon Commission (PSC) and implemented by Taku River Tlingit (TRT) Fisheries.

The following; groups or individuals should be recognized for their help with this project: Mark Connor (TRT Fisheries Manager); Richard Erhardt (TRT Fisheries Biologist); Henry Jack (TRT Fisheries Technician); Phil Williams Sr. (TRT Lands Guardian); Trevor Williams (TRT Lands Guardian); Jason Williams (TRT Fisheries Coordinator); Ed Jones (ADF&G); Anglers and Guides on the Nakina River who participated in the project; Angus Mackay and Victor Keong (PSC NF); and Discovery and Tundra Helicopter services (in Atlin, BC).

TABLE OF CONTENTS

- INTRODUCTION 1
 - Background:..... 1
 - Objectives and scope: 1
- METHODS..... 1
 - Logistics: 1
 - Sampling: 2
 - Creel surveys: 3
 - Angling regulations: 4
- RESULTS 4
 - Sampling: 4
 - Creel surveys: 5
 - Alternative exit survey feasibility:..... 5
- CONCLUSIONS..... 6
 - Discussion: 6
 - Recommendations: 7
- PROJECT PERFORMANCE REVIEW 8

LIST OF FIGURES:

Figure 1: General location of the project site 2
Figure 2: Creel survey form 3

LIST OF TABLES:

Table 1: Sampling methods 3
Table 2: Summary of sampling results 5
Table 3: Summary of creel survey results (all sizes classes) 5
Table 4: Creel survey comparison 6

INTRODUCTION

Background:

The Nakina River has been a long-standing area for collecting Taku Chinook data. Projects such as the Nakina Carcass weir and aerial survey counts have been ongoing. However, in recent years there has been difficulties in effectively calculating run-size and escapement estimates for Taku Chinook. Part of this challenge has been in not being able to recover enough tags during the mark / re-capture program.

The Canadian Taku Chinook sport fishery is concentrated on the Nakina River, where there is opportunity to collect additional biological samples and tag recovery information to supplement the overall Chinook stock assessment program.

Objectives and scope:

The main intent of this project was to augment information for the Taku Chinook mark/re-capture program. This additional effort, in the form of a creel survey focused on collecting Chinook samples from the lower Nakina River during the Canadian sport fishery. As a secondary objective, on-site information relating to harvest was collected, and the feasibility of a future alternative methodology to estimate such was explored.

The main objectives for the project were:

1. Providing additional data to augment the Taku Chinook stock assessment program.
2. Sampling of Chinook on the lower Nakina River during all or most of the Canadian sport fishery.
3. Assessing the feasibility for a future on-going methodology based on an exit survey in Atlin to estimate harvest and angler effort.
4. Collaboration with the PSC TBR Technical Committee regarding this initiative.
5. Submission of a final written report which includes project methods and results.

METHODS

Logistics:

The project site is located approximately 70km SSE of the community of Atlin, BC and 110km NE of Juneau Alaska. (See Figure 1 below.) The associated UTM coordinates are 08 606025E / 6542190N. The sport fishery is concentrated in this area, from the junction of the Sloko River and upstream from there on the Nakina River.

The TRT Fisheries Manager and a Field Technician proceeded to the lower Nakina River by helicopter on June 15th, 2016. A temporary satellite camp was set up on the left bank of the Nakina / Sloko junction. Two TRT Land Guardians assisted with the project from June 26th

to 30th, after which the TRT Biologist replaced the Manager as crew leader. A TRT Fisheries crew of at least 2 people was maintained throughout the project, which demobilized on July 12th, 2015. Inflatable kayaks were used to safely cross the Nakina River in order to deliver and pick up creel survey forms.

Figure 1: General location of the project site



Sampling:

The TRT Fisheries crew used heavy angling gear to capture and biologically sample Chinook salmon. As well, Chinook salmon captured by sport fishers in the area were opportunistically sampled. The primary sampling objective was to inspect for spaghetti tags or tag loss, i.e. fish inspected by the TRT crew were utilized to inform the tagged / untagged ratio. A secondary mark (in the form of a dorsal fin hole punch) was applied to all sampled fish that are released to avoid sampling the same fish again.

A priority was given to demonstrating careful live release techniques and timely sampling for any fish released alive. In this regard, sampling varied depending on whether the Chinook

was released or retained as per Table 1 below. To note, some matching fork lengths were taken this year as a potential means converting those recorded on the survey forms into MEF lengths.

Table 1: Sampling methods

Angling Circumstance	Lengths (to the nearest 5mm)			Sex	Age	Record tags	Tag loss
	FL	MEF	POH	M or F	5 Scales	spaghetti, CWT or radio	2ndary marks or tag scar
Released Chinook	√	√		√		√	√
Retained Chinook	√	√	√	√	√	√	√



For adipose clipped Chinook (CWT’s) observed, heads were not retained due to the lack of freezing capability and logistics of transport.

Spaghetti or radio tags were left on any fish released alive. (Attempted removal of radio tags from fish to be released would have been harmful.) If spaghetti tagged fish were retained by other anglers (when the TRT crew was not around), they were asked to keep the tag and later show it to the TRT crew, so that the tag number could be recorded. Notices explaining agency research and associated Chinook tags were posted at the main fishing sites throughout the area.

Creel surveys:

As a secondary objective, information regarding the number of retained Chinook, along with the number of fishers and fishing effort was collected as a means of estimating site specific harvest.

Figure 2: Creel survey form

 Taku River Tlingit Fisheries  Nakina River Creel survey form - 2016				
Name:				Length(s) of kept Chinook Record each length from the tip of nose to the fork (center) of the tail, to the nearest cm.
Date	# of hours angled	# of Chinook released	# of Chinook kept	

The TRT Fisheries crew provided survey forms to arriving anglers and endeavored to collect such prior to their departure. The survey form utilized is shown in Figure 2 above. In some instances, the crew also opportunistically sampled the catch of other anglers, as an alternative to the survey forms. The TRT crew recorded and reported any First Nation food fish catches taking place in the project vicinity. Also, the opportunity to obtain harvest records from commercial sport fishing guide outfitters on the Nakina River was pursued.

A daily head count of the total number of active anglers in the area was also recorded.

An information brochure was created and distributed to anglers on the Nakina as part of this project. Such included material regarding the following: background and methods of the project; tagged salmon; fishing regulations; proper catch and release methods; bear awareness; and Taku River Tlingit First Nation history.

The feasibility for an alternative on-going methodology to estimate angler effort in the future, based on an exit-survey in Atlin was also explored and discussed during the project.

Angling regulations:

The Canadian angling regulations in 2016 for Nakina Chinook salmon were as follows:

- No fishing for Chinook from July 20th to August 15th.
- All retained Chinook must measure 300mm or more (in fork length).
- An adult Chinook is defined as being over 650mm (in fork length).
- All Chinook retained must immediately be recorded on your angling license.
- **The daily quotas were reduced by DFO on June 19th to zero retention of Chinook salmon over 650mm and 2 Chinook 650mm or less.**
- Possession limit is twice the daily limit.
- Annual limit is 10 adult Chinook from all freshwaters.
- Mandatory use of single barbless hooks.

The daily quota reductions were deemed necessary to ensure that escapement objectives for Taku Chinook salmon were achieved.

RESULTS

Sampling:

A summary of the sampling results is shown in Table 2 below. A total of 162 Chinook salmon were inspected and sampled, of which 60 were large Chinook (i.e. greater than 659mm mid eye to fork length.) Within the sample there were 35 females and 117 males, for a 21.6% female ratio. There were 9 spaghetti tags recorded from those fish within the sample, 1 CWT and no radio tags were recovered. No spaghetti tag losses were observed. A total of 20 Chinook were sampled for age.

Table 2: Summary of sampling results

Chinook Sampled				Sex ratio F's	Spag. tags	CWT	Radio tags
Large	Medium	Small	Total				
60	75	27	162	21.6%	9	1	0

Creel surveys:

Results of the creel survey are summarized in Table 3 below. Based upon survey forms, recorded observations and direct catches there were a total of 181 Chinook released and 32 Chinook retained. (These include all size classes and excludes the TRTFN food harvest of 50.) The expanded estimate of all retained Chinook is 38. This was estimated from a total of 77 sport angler days (based upon daily head counts), multiplied by an average harvest per day per person of 0.5, plus the TRT Fisheries harvest of 1 fish. The expanded estimate of all Chinook released is 181. Average reported angling hours per day per person was 3.8 and the average number of Chinook released per day per person was 0.9.

Table 3: Summary of creel survey results (all sizes classes)

Source	# CH released	# CH retained	Expanded estimate # CH retained
Survey forms	34	17	Based on 77 total angler days x average harvest per day per person (0.5) + TRT Fisheries harvest (1)
Observed	34	14	
TRT Fisheries (direct)	113	1	
Totals	181	32	38

To note, inclusive of the above there were only 12 large Chinook recorded as being retained, and an expanded estimate was not made due to the regulation change on June 19th which stated zero retention of large Chinook salmon.

Alternative exit survey feasibility:

The concept of considering a future on-going methodology, based on an exit survey in Atlin to estimate harvest and angler effort was considered again this year. Essentially, nothing has changed, and although it would be possible, the resulting merits of such appear to be limited for the following reasons:

1. Similar creel survey forms could be provided, however there would be a complete reliance on anglers to efficiently fill out and return them. (In 2015 and 2016, almost all forms were collected by the TRT project staff.)
2. Total angler effort in the form of daily head counts would be difficult to obtain, without being permanently at the site.
3. Sampling of Chinook and inspection for tags would not be conducted, which was the principal goal of this project.
4. The total number of Nakina Chinook retained appears to be relatively consistent across years, reducing the necessity of formally tracking it every year.

CONCLUSIONS

Discussion:

The primary objective of this project was to sample Chinook from the Nakina River, inclusive of inspecting for tags or tag loss. In 2016 there was a total number of 162 Chinook sampled, 60 of which were large, and 9 spaghetti tag recoveries. The majority of Chinook samples were obtained thru angling efforts by TRT Fisheries, as opposed to other anglers. In this regard, it was usually more productive for the crew to angle and sample themselves, rather than wait for other sport anglers to catch a Chinook salmon. Water conditions were very low this year, which limited suitable fishing spots. As well, abundance was low and it seemed fewer large Chinook were present.

Table 4: Creel survey comparison

Year(s)	Angler days	Expanded estimates	
		# CH released	# CH retained
2016	77	181	38
2105	151	479	118
1993-98 average	158	958	133

A comparison of the 2016 Nakina Creel survey to those conducted in 2015 and from 1993-1998 (using averages) is shown in Table 4 above. The number of angler days and resulting Chinook salmon caught dropped significantly in 2016. In this regard, it was obvious that once the regulation change was announced due to the poor forecast for Taku Chinook returns, many anglers chose not to make the trip to Nakina to fish.

Recommendations:

In consideration of the experience and results from this project in the last 2 years, it is suggested that it would be advantageous to conduct the project again in the future. In this regard, the following recommendations are provided:

1. General methods successfully utilized in 2016 should be repeated.
2. The size class of retained Chinook should be delineated on the creel survey forms. Anglers should again be asked to provide a length measurement on all retained Chinook. This would provide more certainty on how many were large Chinook, which is the size class used for management. It is further suggested that such sizes could be reported as a total length, as per the regulations. The TRT Fisheries crew could also take total lengths, in order to calculate the conversion towards mid-eye to fork length.
3. If feasible, TRT Fisheries should consider continuing to provide (in-kind) extra crew members during the peak fishing period of late June to early July.
4. A portable propane freezer should be purchased for the project. Such would allow for the appropriate storage of food or samples and would also provide a means of making ice. This could in turn reduce the necessity of supply flights to the project site.
5. The electric fence utilized in 2016 to deter bears from gaining access to food at the camp seemed to work well and is recommended for future use.
6. Building a cabin at the site would greatly improve field facilities in this important area.
7. The information brochure handed out to anglers at the site appeared to be advantageous and should be continued.
8. To avoid head sample storage, a CWT detector could be provided to the crew to allow them to recover CWT's from any adipose clipped fish.
9. As requested, consideration was given to developing a future / alternative methodology, based on an exit survey in Atlin to estimate harvest and angler effort. However, such is considered to be of limited merit or necessity, for the reasons described previously at the end of the results section of this report.

PROJECT PERFORMANCE REVIEW

Below is a list of the measures for project success from the original proposal. After each is a brief review of post-project performance.

1. The main criteria for project success was the number of Chinook inspected and sampled. The number of associated tag recoveries will also contribute to performance of this initiative.
 - With a total number of 162 Chinook inspected and sampled, along with 9 tag recoveries within such, the project was considered to be successful.
2. Given that other factors beyond the scope of this project could influence the number of Chinook available to sample, a measure of creel survey effort could be considered as a secondary performance indicator.
 - Taku Chinook abundance was quite low this year, which influenced the number of samples available. Consistent daily efforts were necessary in order to obtain an adequate number of samples.
3. Other supplemental measures of project performance will include: generating an estimate of harvest in the CAN Chinook sport fishery; and reporting out on the feasibility of a future alternative means of estimating harvest and effort.
 - A data based estimate of harvest in the CAN Chinook sport fishery was generated. The feasibility and benefits of an alternative means of estimating harvest and effort was considered and explained in this report.