

Stikine River Chinook and Coho Salmon Coded Wire Tagging Augmentation, 2015.

(A study funded by the Northern Fund under the auspices of the Pacific Salmon Commission)

March 2016

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Executive Summary

In 2015 funding was received from the Northern Fund (N/F) under the umbrella of the Pacific Salmon Commission to augment an existing Stikine River Chinook and coho coded wire tagging program. This year's funding was the eighth time over the past nine years that the N/F has provided financial support to shore up staffing, operation, and maintenance monies. The existing program originated in 2000 and has operated every year since its inception date. Prior to additional support funding provided by the 2006 Northern Fund grant, the original tagging goals of 20,000-25,000 chinook and 25,000 coho salmon smolts were seldom met. (*Note: In response to the relatively low recovery rates of tagged Stikine River Chinook and coho salmon from the 2000 to 2005 tagging projects, the Chinook tagging goal was increased to 40,000 smolts and later reduced to 32,000 and the coho goal was increased to 25,000 to 30,000 fish in January 2006. Smith et al, 2010, however, recommended that the coho tagging goal be reduced to 10,000 fish because of the fundamental change in the coho study objective which focused on marine interception by area and gear only, and not on overall coho smolt survival.*) In 2015, the Chinook tagging goal was not achieved whereas the coho tagging goal was just shy of being met. The success of achieving the Chinook goal in 2014 was due, in a large part, to the increase fishing effort as provided by the largess of the N/F. The failure to reach the coho goal may be attributed to poor smolt production in the contributing cycle (spawning) years.

This year's funding covered the costs of three additional field staff and associated support cost. The additional staff served as a third crew to setup and maintain a smolt trap line and to seine net for smolts as required. In addition to the two fisheries field technicians, funding was provided to hire a camp cook in order to provide the field crew with a more comfortable and efficient base camp.

A total of 20,216 chinook smolts were tagged, which did not meet the tagging goal of 32,000 fish, and was below the overall average of 29,674 chinook smolts. In concert with the release of capture and tagging Chinook smolts, a total of 9,503 coho smolts were tagged, which is slightly below the tagging goal of 10,000 fish, and above the overall average catch of 7,846 fish since 2010.

It appears evident that without the N/F support for this project that in all likelihood the tagging goals will not be met. It is recommended that the Stikine Chinook and coho augmentation project be continued in 2016 through to 2017.

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1.0 Introduction

The Stikine River drainage covers approximately 52,000 km² (Bigelow et al. 1995), much of which is inaccessible to anadromous fish because of natural barriers. Principal tributaries include the Tahltan, Chutine, Scud, Porcupine, Tanzilla, Iskut, and Tuya rivers. The lower river and most tributaries are glacially occluded (e.g., Chutine, Scud, Porcupine, and Iskut rivers). Only 2% of the drainage is in Alaska (Beak Consultants Limited 1981). The upper drainage of the Stikine is accessible via the Telegraph Creek Road and the Stewart Cassiar Highway.

All seven North American species of the genus *Oncorhynchus* are present in the Stikine River (Scott and Crossman 1985). Sockeye salmon (*O. nerka*) is the most abundant, followed by Chinook salmon (*O. tshawytscha*). Coho salmon (*O. kisutch*) ranks third in hierarchy of abundance. There are relatively minor numbers of pink salmon (*O. gorbuscha*), chum salmon (*O. keta*), and steelhead trout (*O. mykiss*), a portion of which are resident species and are not anadromous. Cutthroat trout (*O. clarki*) appear to be relatively abundant throughout the lower reaches of the river and some may be anadromous.

Stikine River salmon are harvested by U.S. commercial gillnet, troll, subsistence, and sport fisheries in Alaskan Districts 106 and 108. Stikine River salmon are also harvest in the US portion of the Stikine River by fishers licensed under a subsistence fishery. Additional catches of unknown quantity are taken in U.S. troll and seine fisheries in marine waters beyond Districts 106 and 108. In Canada, Stikine River salmon are harvested in two commercial gillnet fisheries located in the lower and upper Stikine River, and by a Canadian aboriginal fishery in the upper portion of the river (Figure 1). In addition, Canadian terminal area sockeye fisheries are operated in the lower Tuya River and/or at Tahltan Lake when escapements are estimated to include excess salmon to spawning requirements (ESSR). A minor Chinook salmon recreational fishery also exists in the Canadian sections of the Stikine River drainage. There is very little recreational fishing targeting coho salmon in the Canadian section of the Stikine River.

Because the Stikine River is a transboundary river (TBR) which originates in British Columbia, Canada, and flows to the sea near Wrangell, Alaska (Figure 1) the harvest of its salmon resources are governed by the principles and specifics (annexes) outlined in the Pacific Salmon Treaty (PST 1985). Generally, the catch sharing of Stikine River sockeye and coho was negotiated at the outset of the PST and successfully renegotiated at the expiration of the annexes. Catch sharing arrangements of Stikine River Chinook salmon, however, were deferred until such time that both Canada and the US determined that the population had rebounded from low numbers observed in the 1970's and 1980's. It was further agreed to under Annex IV, chapter 1, paragraph 2 of the PST that abundance based management regimes for Stikine Chinook, sockeye and coho salmon be developed and implement by 2004.

Based on the analyses from the information garnered from a suite of Stikine Chinook assessment activities including: aerial surveys (1975-1999), Little Tahltan weir counts (1985-1999), and an in-river mark-recapture projects (1995-1999), Bernard et al (2000) concluded that the Chinook run had rebounded from the its formerly depressed state and that escapements were above the optimum escapement of goal of 17,400 large fish since 1985 (excluding 1995). Based on the results of these stock assessment studies and after discussions and negotiations between the Canadian and US sections of the Pacific Salmon Treaty's transboundary river panel , directed commercial fisheries were sanctioned by the Pacific Salmon Commission, under the authority of

the Pacific Salmon Treaty (PST) in February 2005.

In order to properly prosecute this new directed Chinook fishery and adhere to the principle of abundance based management, the stock assessment studies conducted preceding the new fishery were maintained, namely: the in-river mark recapture project, select aerials surveys, and the Little Tahltan River Chinook weir. The coded wire tagging (cwt) project was also maintained and was one of the recommendations listed by Bernard et al, (2000) who recommended that a coded wire tagging program be reinstated with the objective of providing both freshwater and marine survivorships estimates of Stikine Chinook salmon and to further provide a measure of catch accounting of this population.

Canada and the US acted on this recommendation to coded wire tag Chinook salmon in the spring of 2000. Canada's recommendation to capitalize on the Chinook cwt study infrastructure and include the tagging of coho salmon was adopted by ADF&G. The state of knowledge of Stikine coho salmon is not at the level of Stikine Chinook or sockeye where abundance based management regimes are in effect. It is widely believed by fisheries managers that the information and necessary Stikine River coho management tools will require a substantial amount of time and resources to collect and implement. The coho cwt study is a start at better developing the state of knowledge that will lead to affective abundance based management.

Since the inception of the Stikine cwt program through till 2006 the tagging goals of 20-25k Chinook smolts and 25k coho smolts have seldom been met, Table 1. Further, it had become apparent in January 2006 that our tagging fraction of Chinook salmon smolts was inadequate to properly assess smolt run size and outside fishery interception rates. A new tagging goal of 40k Chinook was adopted and later reduced in 2009 to 32,000 smolts. The new coho tagging goal of 25k-30k was adopted in 2006, but based on the recommendation from Smith, et al. (2010) the tagging goal was reduced to 10,000 coho smolts.

In order to meet the cwt tagging goals it was apparent that an increase in staff and support monies was required. To that end an application entitled "*Stikine River CWT Augmentation*" was submitted to and approved by the Northern Fund Committee in January 2006. An application to conduct the project for three consecutive years (2007-2009) was approved; however, the 2009 component was not funded due to the poor returns of the N/F's investments. The 2009 project was "rolled over" to 2010 through to 2014. The 2015 project was funded as an ongoing project. The following report summarizes the 2015 project and contrasts the results with past year's cwt project results.

2.0 Methods

Three field staff, including a camp cook, was hired in late March and started their employ in mid-April. One staff member was deployed to Wrangell, Alaska, via the Alaska State Ferry system; while one staff accessed the camp via Dease Lake, B.C. through a fixed wing air charter. Other staff accessed the camp via a commercial boat charter originating from Telegraph Creek, B.C. From Wrangell, staff, equipment and supplies were boated using both government and charter vessels to the Department of Fisheries and Oceans field camp located on the banks of the Stikine River approximately 50 km. upstream from its mouth. Camp supplies and equipment were purchased in mid-April through to the end of the project.

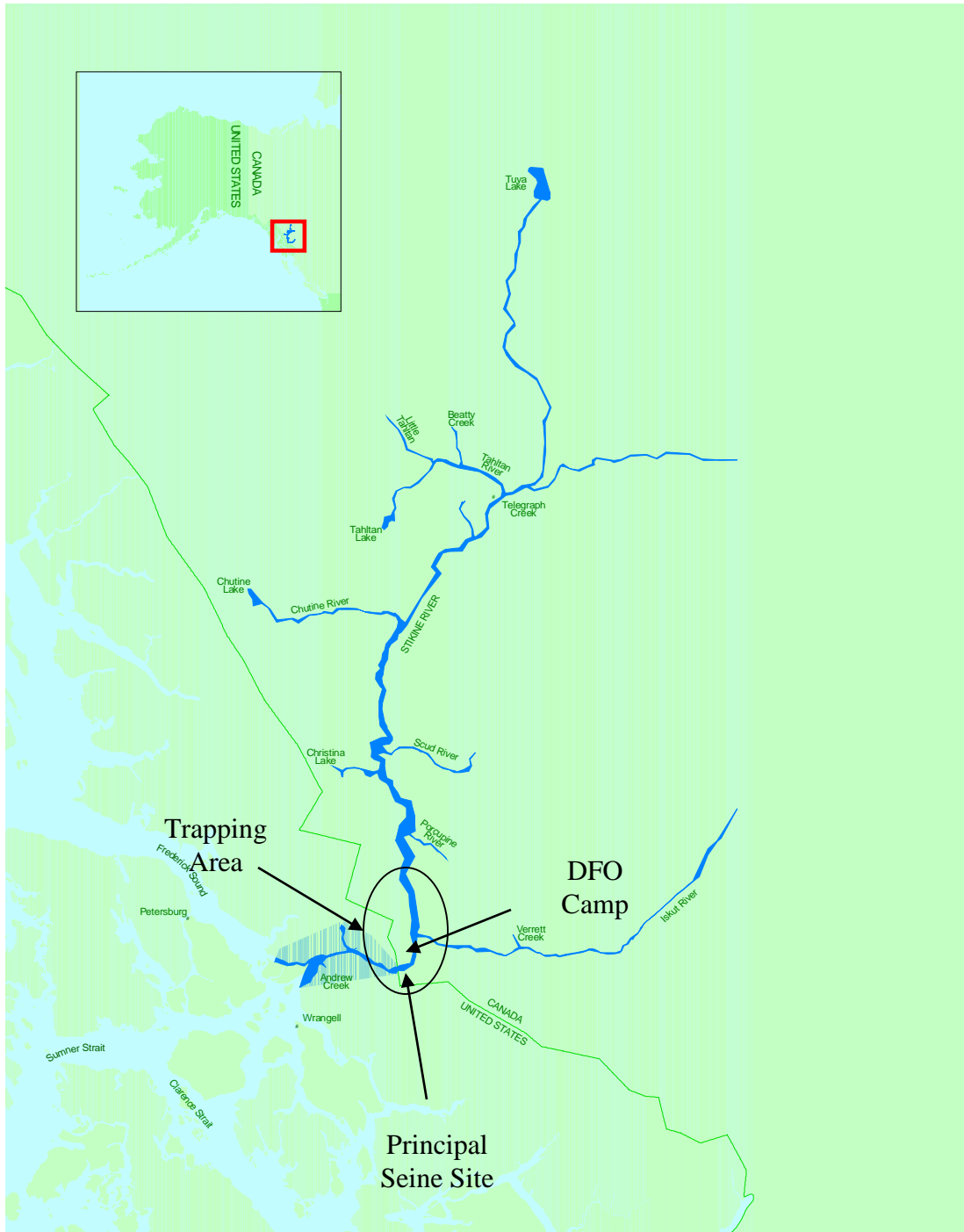
The two field technicians and camp cook hired through N/F funding were fitted into the base crew of six souls for a total of eight field workers. On occasion nine to twelve field workers were on site. These extra bodies consisted of managerial staff from the Department of Fisheries and Oceans (DFO) and Alaska Department of Fish and Game (ADF&F).

Chinook and coho salmon smolts were captured with beach seines and baited minnow traps in the mainstem Stikine River from the Canada/US boundary upstream approximately 20 km, and within the Iskut River (Figure 1). Approximately 175 Gee minnow traps, baited with salmon eggs collected from adult Stikine salmon were fished and checked daily beginning on 21 April. At the outset of the project most of the capture effort was focused on the deployment of Gee minnow traps. Seine net captured in concert with Gee minnow trap trapping commenced in early May when it was evident that the Chinook smolts were starting their out migration in earnest. All staff participated as required in both the trapping and tagging components of the project. When the out migration commenced in early May, beach seining effort was increased, while Gee trapping abated substantially.

All healthy Chinook salmon smolt ≥ 50 mm fork length (FL) and coho salmon ≥ 70 mm FL were tranquilized with a buffered MS 222 solution, injected with a CWT, and had their adipose fin removed. Each CWT is formed by cutting a 1.1 mm section of coded wire from a spool, which is stamped with a unique code and contains enough wire for approximately 10,000 tags. All marked (CWT') salmon smolts were released approximately 3 km downstream of the DFO camp. A sub sample of 100 tagged fish from the tagged fish holding in the pens was checked for tag retention after a 12 hours period of post tagging captivity. If tag retention was less than 98 per cent, the whole tagging group for the current day was re-tagged. Daily mortalities were assessed and documented.

Three flat bottom river boats (4.9-5.5 meter's) powered with jet drive outboards (30-60 hp) were used for Gee minnow trapping. One 4.9 metre boat complete with a 40 hp was on site for back up. Staff accessed the seine sites with the same equipment; however, seining was conducted without the aid of the boats. The crew 'walked' the seine net down specific river bars and pursed the seine onto the bank of the river. Fish were then hand dipped from within the bight of the seine, enumerated, and placed into a water-filled 22 litre bucket. A water filled, 100 litre tub, aerated tote was used for transport from the capture site to the tagging site located near the DFO camp (Figure 1). Depending on the quantity of fish available for tagging, fish were tagged either during the evening after the daily trapping concluded or the fish were tagged by an assigned tagging crew throughout the course of the day. Seldom were fish held overnight before tagging operations commenced; seldom were fish held for longer than 48 hrs.

Figure 1 Map showing most of the Stikine River drainage and all of the Chinook and coho salmon coded wire tagging study area.



3.0 Results and Discussion

Field operations commenced on 19 April; tagging commenced on the 21 April. The project concluded on 23 May. A total of 20,215 and 9,502 chinook and coho were tagged respectively, Table 1. A below average number of Chinook were captured and tagged in 2015. Less than 1 per cent of the chinook smolts were captured in Gee minnow traps; the balance were taken in beach seines predominantly at sites located in the mainstem Stikine River extending from the USA/Canada boundary upstream approximately 20 km., Figure 1. The majority of the coho smolts were taken in Gee minnow traps located throughout the study area.

The total Chinook tagged in 2015 was 37 percent below the tagging goal of 32,000 fish. The sum of coho tagged in 2015 was 5 percent below the tagging goal of 10,000 smolts.

Table 1 Total coded wire tags applied to Stikine River Chinook and coho salmon smolts, 2000-15.

Year	chinook		coho	
	# applied	goal	# applied	goal
2000	14,565	20,000	17,456	25,000
2001	5,194	20,000	22,267	25,000
2002	17,406	20,000	14,714	25,000
2003	19,928	22,000	8,757	25,000
2004	25,797	22,000	13,852	25,000
2005	22,167	25,000	13,098	25,000
2006	47,249	40,000	31,183	25,000
2007	23,755	40,000	18,850	25,000
2008	44,024	40,000	26,032	25,000
2009	42,056	32,000	6,588	25,000
2010	35,012	32,000	11,008	10,000
2011	32,164	32,000	10,153	10,000
2012	34,799	32,000	11,085	10,000
2013	49,361	32,000	8,665	10,000
2014	41,998	32,000	4,104	10,000
2015	20,215	32,000	9,502	10,000
chinook				
avg. 2009-14	39,232			
coho				
avg. 2010-14			9,003	

The peak Chinook catch of 2,777 fish occurred on 13 May, while the peak coho catch of 633 fish was taken on 10 May, Figures 2 & 3.

Timing of Chinook smolts, based solely on catch performance (CPUE), appeared to be close to normal, Figure 4. Figure 5 depicting the weekly cpue of coho, is inconclusive in assessing run timing in that coho fishing effort typically wanes in early May in order to direct more effort at catching Chinook smolts.

Fishing conditions are typically affected at the outset of the field season by variations in snow levels and ice conditions. High water levels serve to diminish fishing efficiency and usually occur in late May and early June. Hence late or early springs may result in a varied catch level independent of smolt abundance. The relatively early high water which commenced on 10 May and ended on 9 June more than likely adversely affected catch performance of minnow traps but more so for seine net fishing activities which is the main method for catching Chinook smolts.

Figure 2 Daily catch of Chinook salmon smolts against daily Stikine River water temperatures (degrees Celsius).

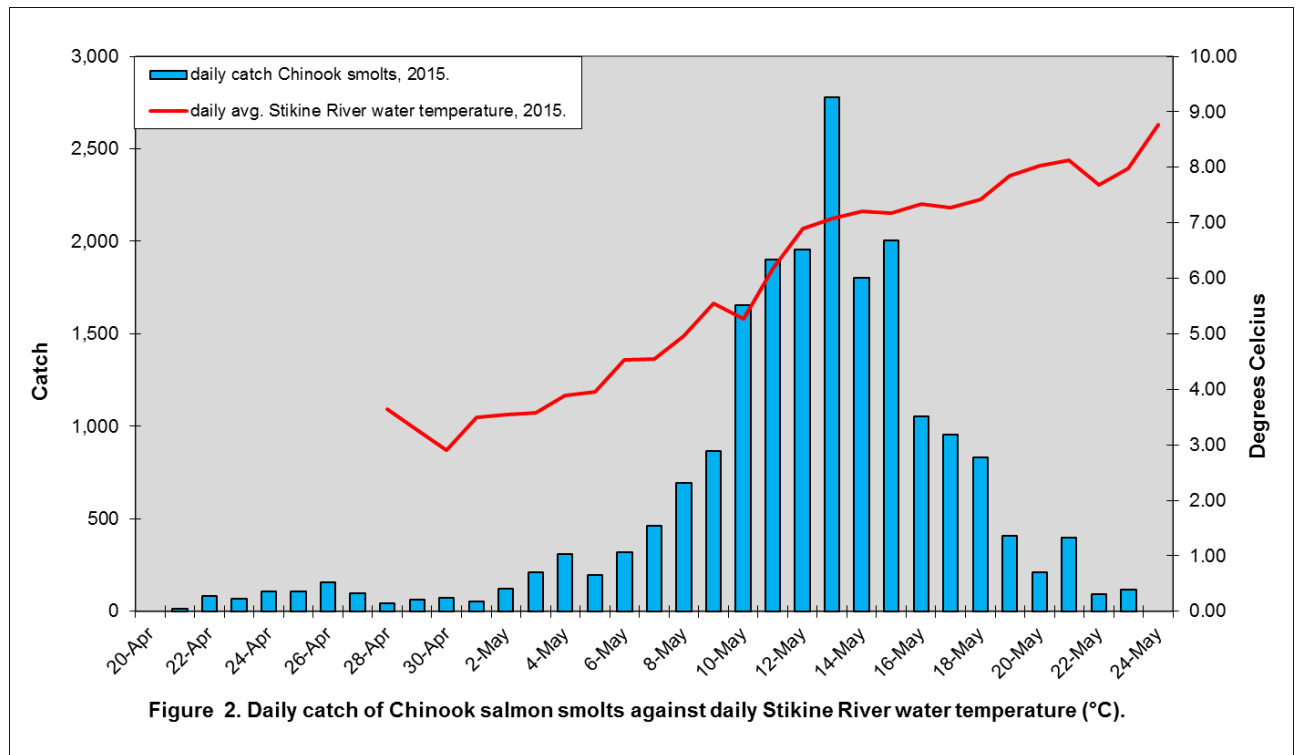


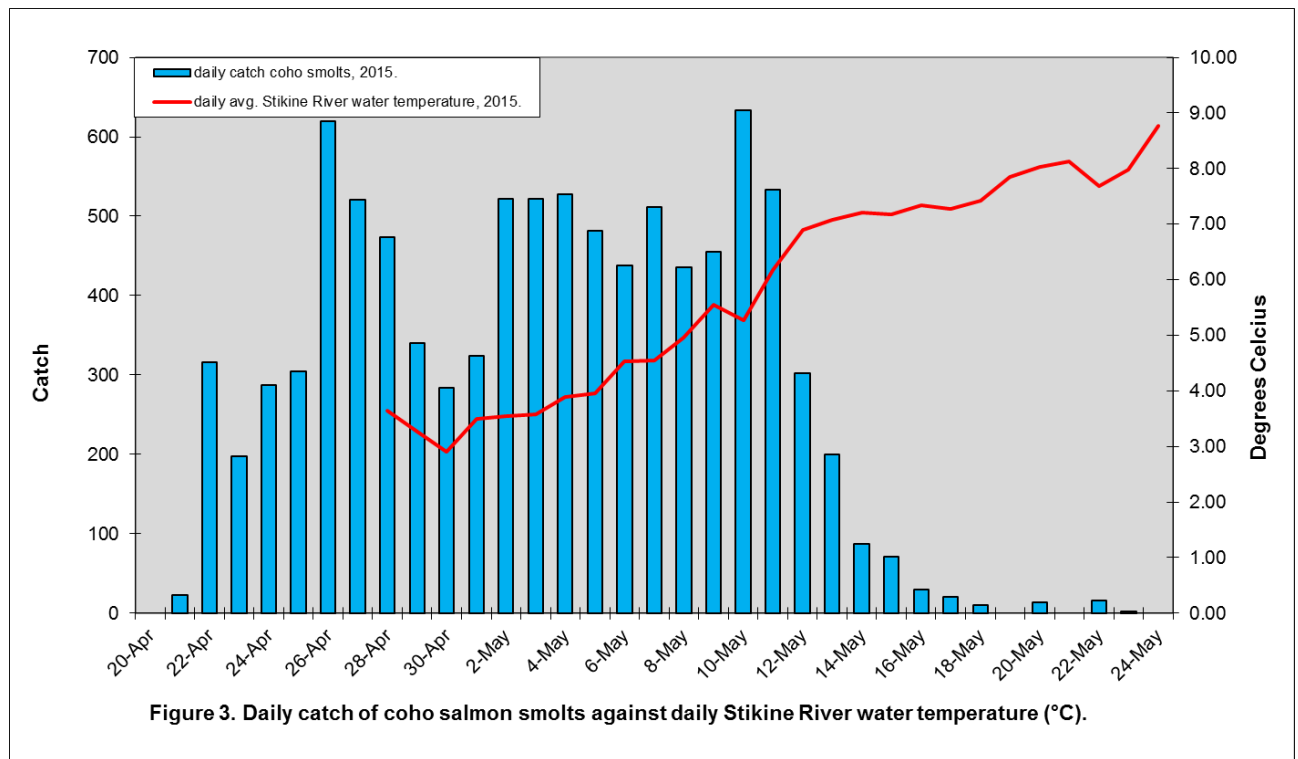
Figure 2. Daily catch of Chinook salmon smolts against daily Stikine River water temperature (°C).

Stikine River water temperatures in 2015 were close to the 2000-14 average for the early part of the project, but were 1.0 – 1.5 degrees Celsius above average for the remainder of the project period, Figure 6. The behavior response of juvenile Chinook and coho to water temperatures is uncertain; however, Sandercock (1991) indicated that year to year variations in timing are related to annual environment variation. Druker (1972) showed that Karluk River, Alaska coho smolts migrate between 5 and 13.3 degree Celsius. Figure 3 shows that 75 per cent of the 2015 Stikine River coho smolts migrated below this range of temperatures. Further, McHenry (1981) indicate that few coho smolts migrate in water temperatures below 3.9 degrees Celsius in Bear Creek, Alaska. Healy (1991) indicates that there has been no systematic study of the factors that trigger migration, yet Bell (1958) related peak smolt migration to spring floods and increasing temperatures. A causative factor for peak migration whether it be hypothesized to be water temperatures or water level was somewhat evident in the 2015 coded wire tagging project, Figures

3,4,6,7. The peak catches of chinook smolts occurred when the water level (figure 7) started to rise. It must be reiterated that smolt catches serve as a proxy for migration timing in Figures 2 & 3. The appropriateness for this proxy is very much suspect. At best the catches over time serve as general qualitative measure of run timing, especially in light of the physical challenges of catching migrating smolts during high water periods.

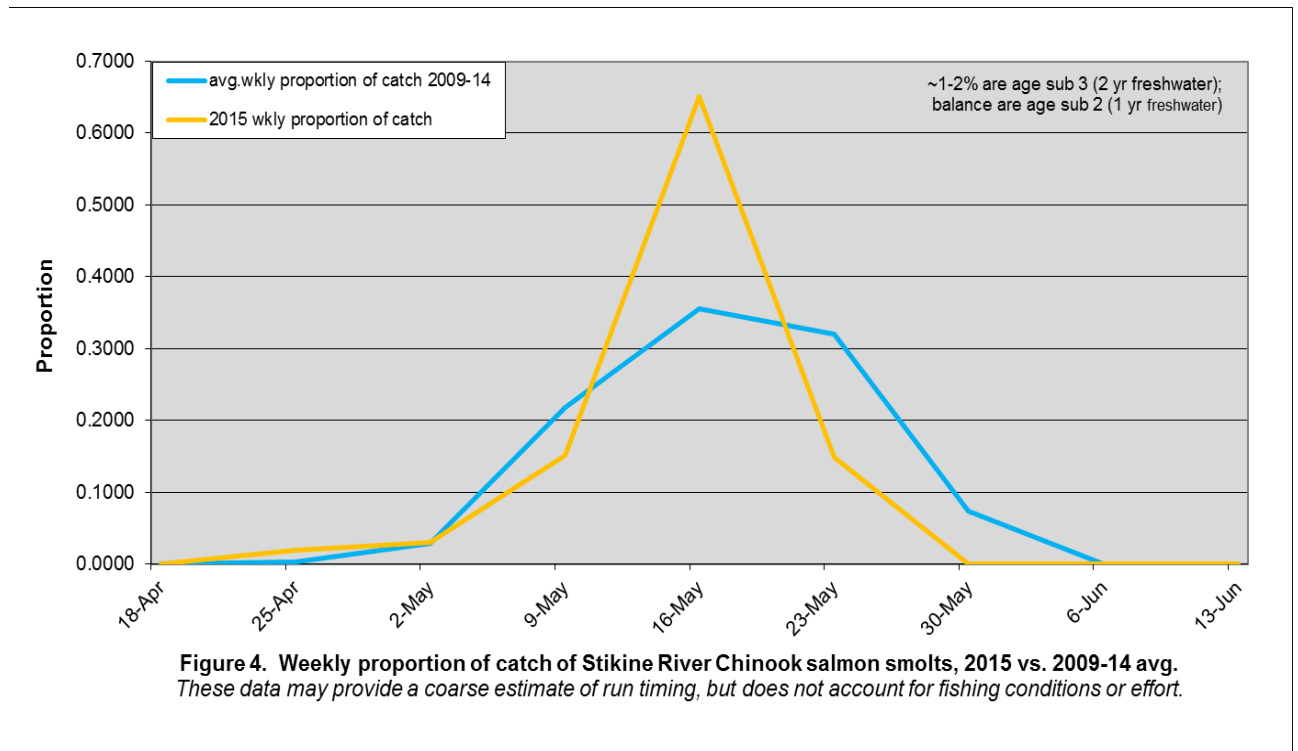
In 2006 through till 2008 it was found that chinook smolts had a propensity to migrate during darkness. A three person crew, on occasion a two person crew, fished a 70 metre seine net between the approximately hours of 2100 and 0200 hrs. The nocturnal nature of the migrating Chinook was clearly evident in 2006-08, as daytime seining yielded a relatively low catch rate of smolts. This nocturnal behaviour was not evident with coho smolts. It's interesting to note that Meehann and Sniffin (1962) found no evidence of nocturnal migration in their study of Taku River salmonid smolts. (The Taku River is located approximately 200 km north of the Stikine River.) In 2009 through till 2014 the night time seining was severely curtailed due to the logistic challenges (overtime and employee health/ morale) associated with it.

Figure 3 Daily catch of coho salmon smolts against Stikine River water temperatures (degrees Celsius).



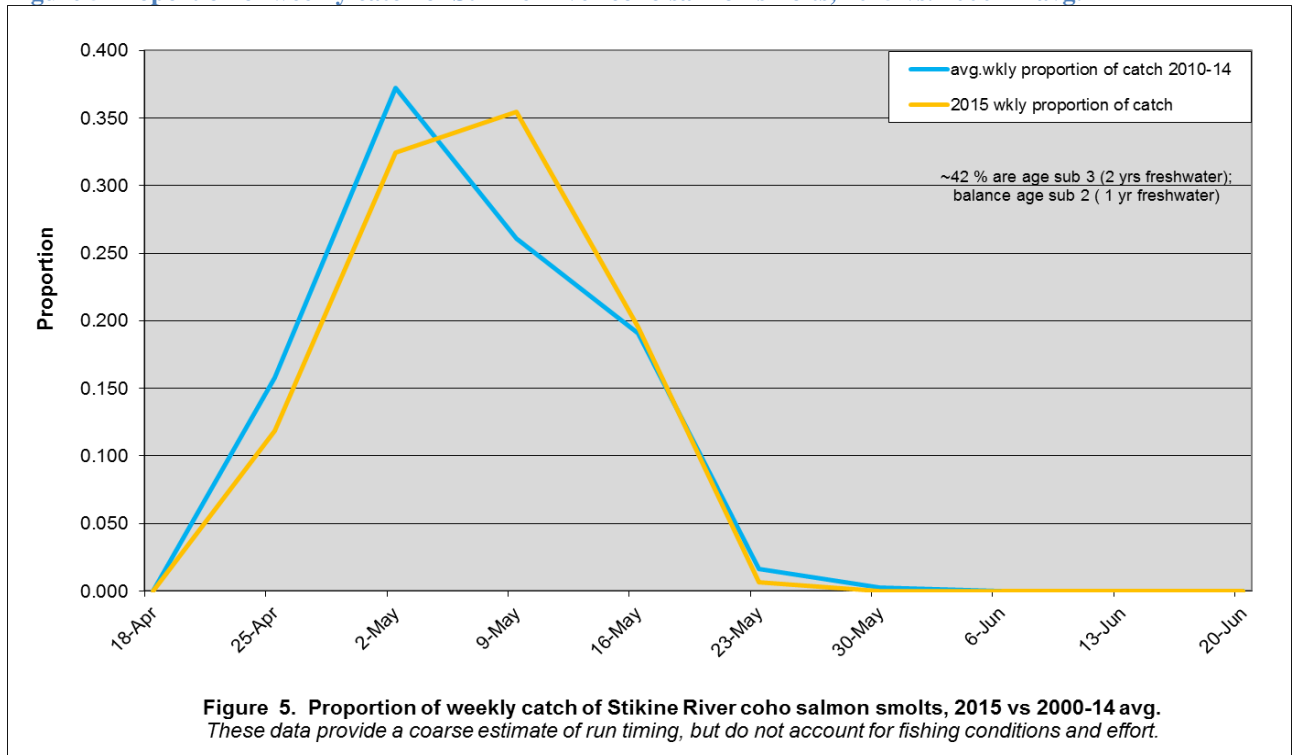
Total daily catches by taken by Gee minnow traps and by seine nets were recorded and transcribed into electronic files within a Microsoft excel file.

Figure 4 Weekly proportion of catch of Stikine River Chinook Salmon Smolts, 2015 vs. 2009-14 avg.



Tag codes germane to the 2015 tagged Chinook and coho salmon were inputted into the Alaska Department of Fish and Game’s coded wire tag website (www.taglab.org). Once this data set is verified, it will be forward to and inputted into Regional Mark Processing Centre website (www.rmpc.com).

Figure 5 Proportion of weekly catch of Stikine River coho salmon smolts, 2015 vs. 2000-14 avg.



Returning marked fish from this year's project will be intercepted in 2019 through to 2021 by marine gillnet, troll and sport approach water fisheries, primarily in Alaska, and in inriver Stikine ,commercial, aboriginal and sport fisheries.

Figure 6 Stikine River water temperatures (degrees Celsius), 2015 vs. 2000-14 avg.

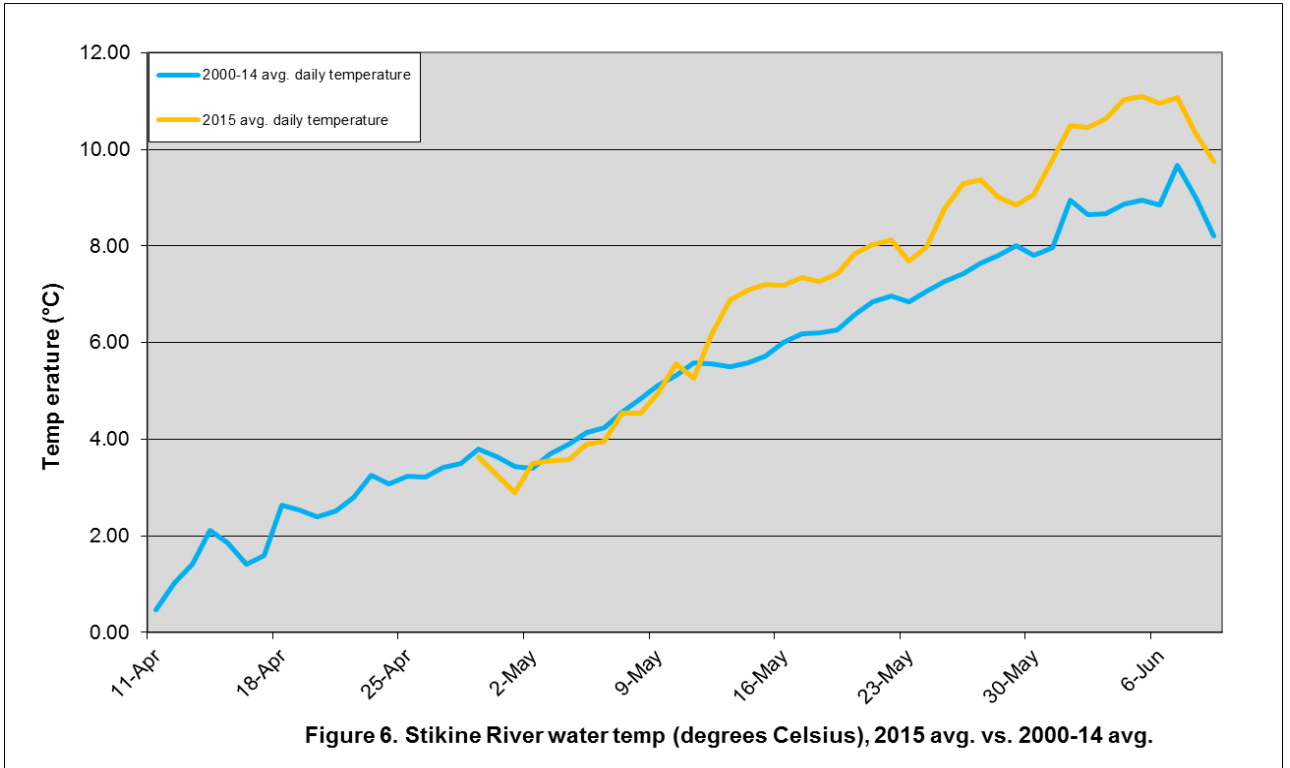
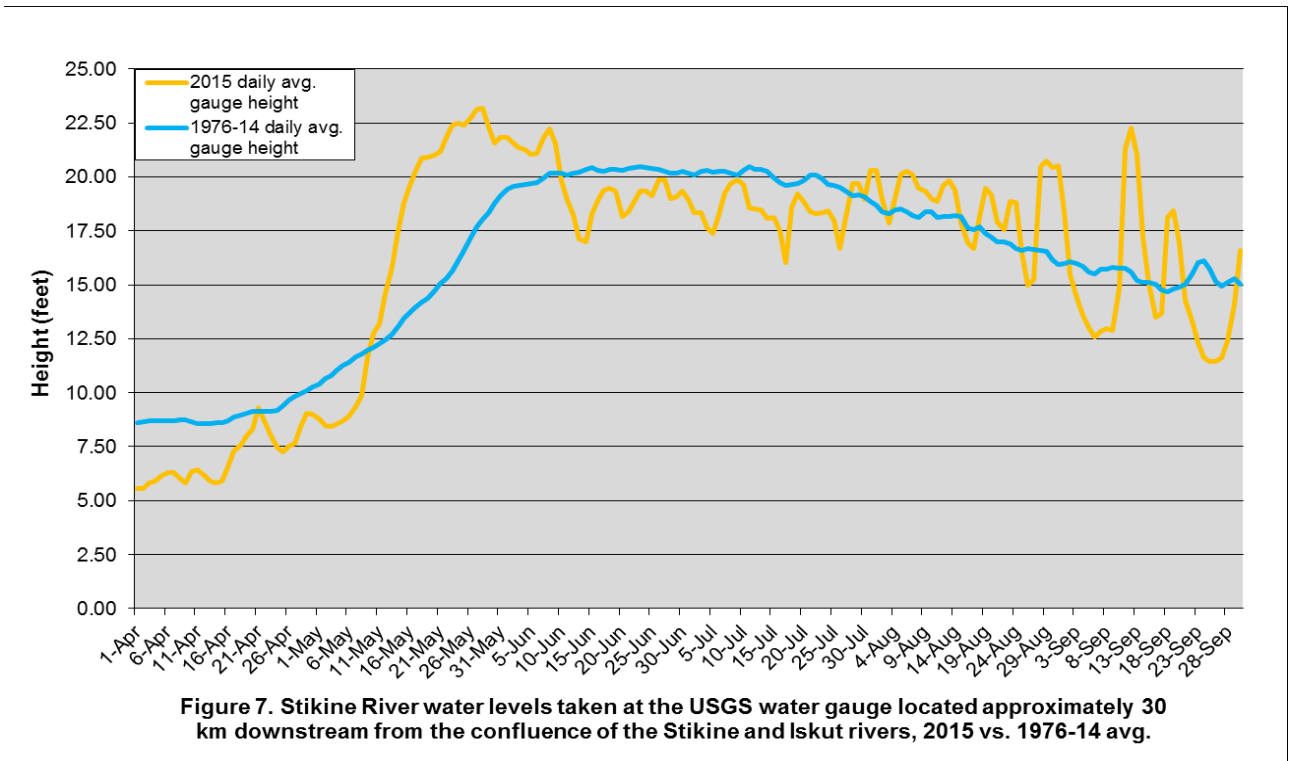


Figure 7 Stikine River water levels taken at the USGS water gauge, 2015 vs. 1976-14 avg.



3.1 Budget and Project Operations

As presented in Appendix 3, the expenditures of Northern Funds amounted to \$90,903.33 which was slightly under the budgeted amount of \$91,040.00. The 10% holdback of \$9,104.00 - \$136.67 = \$8,967.33 is anticipated once the final project report is accepted by the Pacific Salmon Commission. A summary of Fund expenditures in relation to budgeted amounts is as follows:

Description	Budget (PSC)	Expenditure	Balance
Salary	18,000.00	17,542.09	457.91
Salary EPB @ 20%	3,600.00	3,508.42	91.58
Tahltan First Nation	34,800.00	31,071.57	3,728.43
Travel	10,800.00	10,989.81	-189.81
Small Tools & Equipment	2,400.00	2,218.52	181.48
Fuel & Fuel Delivery	12,000.00	13,904.41	-1,904.41
Groceries	6,000.00	9,397.07	-3,397.07
Work & Safety Gear	1,300.00	572.15	727.85
Repairs & Maintenance	2,500.00	1,699.29	800.71
Grand Total	91,040.00	90,903.33	136.67

4.0 Conclusion and Recommendations

The project objectives were partially met. The Chinook salmon smolt tagging goal of 32,000 was not met with a catch of 20,215 and is most likely due to high water conditions given most Chinook smolts are caught by the beach seining method. The coho tagging goal of 10,000 smolts was almost met with a catch of 9,502. The relative success of the overall project was due to the funding provided by the northern fund.

It is recommended that the Stikine Chinook and coho augmentation project be continued in 2016 through till 2018 in order to achieve the current tagging objectives for Stikine Chinook and coho salmon smolts.

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Appendix 1 Daily releases of coded wire tagged Stikine River Chinook salmon smolts, 2000-15.

Appendix Table 1. Daily release of coded wire tagged (cwt) Stikine River Chinook salmon, 2000-15.

Note: 32,000 Chinook smolt catch goal since 2009.

Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2000-14 Avg.	2009-14 Avg.
9-Apr																		
10-Apr																		
11-Apr																		
12-Apr		59															59	
13-Apr		0				127											64	
14-Apr	13	74				0	119										52	
15-Apr	14	0				0	61										19	
16-Apr	53	55				278	59										111	
17-Apr	0	0				0	60										15	
18-Apr	0	82				266	154										126	
19-Apr	0	0				0	0		44								9	
20-Apr	244	124				176	277		0	63							147	63
21-Apr	121	85				0	144		69	89				9		14	74	49
22-Apr	0	83				0	227		211	111				41		83	96	76
23-Apr	305	85		94	1059	122	438		130	82				43		67	262	63
24-Apr	145	0		72	0	0	413		215	25				55	38	106	96	39
25-Apr	83	0		0	0	0	503		0	115				34	68	106	80	72
26-Apr	352	113	170	0	1114	162	0	182	460	96	0			16	76	159	211	47
27-Apr	553	111	0	0	0	0	1174	76	159	42	27	67		6	65	100	163	41
28-Apr	562	0	183	0	545	1356	401	118	360	73	24	29	25	28	44	265	36	
29-Apr	404	0	0	0	0	0	479	62	0	48	46	29	94	86	65	89	61	
30-Apr	391	91	237	0	314	2469	402	123	419	131	10	21	381	74	74	362	123	
1-May	0	118	0	0	0	0	343	197	233	75	0	45	26	244	95	54	92	81
2-May	972	0	83	0	0	1320	287	262	0	0	0	50	0	483	83	124	236	103
3-May	668	0	0	0	708	0	736	123	579	168	1207	36	671	631	87	211	374	467
4-May	558	149	0	0	404	0	0	290	245	0	1285	36	1083	1584	468	311	407	743
5-May	362	0	0	0	1448	981	1024	117	447	444	997	160	692	962	1255	195	593	752
6-May	776	0	32	348	0	0	827	222	784	0	1327	687	1867	1773	1593	320	682	1208
7-May	731	174	20	0	0	813	904	297	2387	1446	1420	434	946	2475	2012	463	937	1456
8-May	671	0	0	265	0	0	2620	394	3557	3059	1535	311	491	3151	2786	693	1256	1889
9-May	591	202	119	0	0	2074	2684	422	2512	3064	871	228	352	3343	4455	865	1394	2052
10-May	312	0	0	547	0	1023	2693	107	2104	3568	907	1048	929	4631	4342	1655	1481	2571
11-May	512	229	159	0	5758	0	2967	771	2620	4614	857	1603	1256	4336	5268	1902	2063	2989
12-May	545	0	675	542	0	1929	2216	628	2882	3181	886	1427	1627	3216	3767	1954	1568	2351
13-May	266	0	0	0	0	1695	2394	327	2640	2805	831	1196	1489	3092	3340	2777	1338	2126
14-May	0	311	0	879	2075	0	1421	260	3552	2867	794	1297	718	3266	2400	1801	1323	1890
15-May	424	0	773	825	0	1516	1751	722	3139	2862	1109	1827	1487	1618	2689	2004	1383	1932
16-May	248	502	0	958	0	0	1658	193	1067	1932	1797	2817	1567	3060	2505	1056	1220	2280
17-May	0	0	410	951	6937	683	2831	508	1204	1533	713	2648	979	1933	945	954	1485	1459
18-May	530	0	0	639	0	0	3267	758	1375	189	2389	3523	1388	660	0	834	981	1358
19-May	0	307	0	491	1284	1049	1915	1207	928	1683	1907	5022	1605	1191	851	407	1296	2043
20-May	304	0	274	961	0	0	3061	2122	3085	1911	3348	3192	1187	1500	639	210	1439	1963
21-May	0	696	0	412	1107	903		1123	2756	1480	3386	1758	1038	1251	313	399	1159	1538
22-May	353	707	0	520	0	0		1260	1239	1038	2116	1270	1225	1053	8	91	771	1118
23-May	0	0	290	0	0	816	3176	1384	0	1493	0	988	1993	930	0	117	738	901
24-May	545	0	0	1106	2044	0	624	2944	2043	1553	2164	355	3129	891	731		1209	1471
25-May	0	807	2184	538	0	0	653	1941	577	1091	761		3711	942	695		993	1440
26-May	0	0	831	0	0	855	1177	1675	0		1035	99	1015	441	236		526	565
27-May	806	0	916	1123	1000	1117		2442	0		495		935				883	715
28-May	0	0	1468	0	0	0	606	498	2				741				368	741
29-May	386	0	707	1392	0	0							321				468	321
30-May	0	0	626	602	347	449							185				316	185
31-May	0	30	1435	458	0	54											330	
1-Jun	547	0	0	717	90												339	
2-Jun	0	0	1683	1439													1041	
3-Jun	0	0	0	907													302	
4-Jun	132	0	0	954													362	
5-Jun	0	0	1039	0													346	
6-Jun	0	0	699	838													512	
7-Jun	67	0	0	755													274	
8-Jun	0	0	945	595													513	
9-Jun	0	0	0	0													0	
10-Jun	18	0	972	0													495	
11-Jun	0	0	0	0													0	
12-Jun	1	0	476	0													239	
Total	14565	5194	17406	19928	25797	22167	47249	23755	44024	42056	35012	32164	34799	49361	41998	20215	36029	41374

Appendix 2 Daily releases of coded wire tagged Stikine River coho salmon smolts, 2000-15.

Appendix 2. Daily release of coded wire tagged (cwt) Stikine River coho salmon smolts, 2000-15.

Note: 10,000 coho smolt catch goal since 2010.

Date	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011 ^a	2012	2013	2014	2015	2000-14 Avg.	2010-14 [*] Avg.
9-Apr		183															183	
10-Apr		0															0	
11-Apr		0															0	
12-Apr		789															789	
13-Apr		0				1276											638	
14-Apr	389	786				0	441										404	
15-Apr	280	0				0	151										108	
16-Apr	428	992				1193	315										732	
17-Apr	0	0				0	302										76	
18-Apr	0	860				1114	450										606	
19-Apr	0	0			1329	0	0		643								329	
20-Apr	729	1298			1010	1522	1033		0		679						896	679
21-Apr	842	1179			0	0	603		565		1294			288		23	596	791
22-Apr	0	1076		455	1879	0	764		1057		1137			641		316	779	889
23-Apr	1516	939		0	908	1536	1311		1130		772			674		197	976	723
24-Apr	792	0		576	948	0	1209		1056		488			754	145	287	597	462
25-Apr	428	0		0	905	0	1327		0		1060			330	118	304	417	503
26-Apr	578	1594	1857	0	740	1392	0	1060	1962		1602	514		184	134	620	894	609
27-Apr	627	1207	0	0	794	0	2740	428	1029		867	504	956	72	158	521	670	511
28-Apr	568	0	1204	0	860	1004	1162	1303	1504		1098	504	982	150	154	473	750	578
29-Apr	141	0	0	0	0	0	1478	291	1002		768	735	643	228	296	340	399	534
30-Apr	681	1068	1921	0	1125	503	1262	736	1368		1243	509	533	458	301	284	836	609
1-May	0	940	0	0	898	0	1019	1168	995	723		735	566	482	378	324	565	540
2-May	559	0	937	0	282	523	1093	711	0	0		808	0	375	112	522	386	324
3-May	779	0	0	0	0	0	1353	121	2175	881		586	666	329	10	522	493	398
4-May	392	1436	444	0	177	0	0	798	1270	0		970	396	277	157	528	451	450
5-May	359	0	0	0	0	1563	1723	540	497	1073		776	307	286	266	482	528	409
6-May	412	0	0	639	164	0	1367	754	1230	0		480	285	320	210	438	419	324
7-May	331	1054	492	0	40	716	1548	681	710	716		739	361	253	216	511	561	392
8-May	340	0	668	894	106	0	991	605	1566	1163		503	204	588	165	436	557	365
9-May	318	1086	688	0	120	913	779	725	348	262		281	158	293	144	455	437	219
10-May	254	0	0	889	306	393	779	107	628	0		442	164	0	265	633	302	218
11-May	582	1311	827	0	0	0	693	1025	816	0		576	368	342	247	533	485	383
12-May	416	0	1672	722	302	454	870	930	870	0		491	598	250	205	302	556	386
13-May	409	0	0	0	257	147	895	820	800	413			549	120	139	200	350	269
14-May	0	887	0	117	138	0	49	496	632	399		63	235	76	109	87	229	140
15-May	416	0	738	259	87	172	634	795	155	0		42	492	43	48	71	277	194
16-May	205	911	0	384	326	0	784	212	466	266		78	438	62	27	30	297	176
17-May	0	0	803	324	0	179	344	713	328	0		131	386	97	13	21	237	165
18-May	393	0	0	305	42	0	487	711	57	56		41	398	64	0	10	182	154
19-May	0	613	0	341	0	239	657	896	96	439		8	396	90	10	0	270	165
20-May	408	0	897	276	17	0	440	454	184	0		5	346	54	14	14	221	138
21-May	0	449	0	202	29	161	0	295	89	0		8	262	51	0	0	110	104
22-May	457	371	0	182	24	0	0	356	11	197		6	269	46	5	16	137	107
23-May	0	0	709	0	0	136	121	341	0	197		1	127	141	0	2	127	89
24-May	354	0	0	275	0	0	9	367	230	427		0		129	18		139	74
25-May	0	526	282	35	7	168		209	48	475		7		94	33		157	64
26-May	0	0	140	0	20	0		109	0	475				24	7		70	16
27-May	310	0	108	137	0	263		88	0	475							153	
28-May	0	0	202	270	12	0		5	392	867							194	
29-May	249	650	21	312		0			0	867							300	
30-May	0	0	13	0		1			123	990							161	
31-May	0	62	0	286		0											70	
1-Jun	353		18	190		11											143	
2-Jun	0		8	328													112	
3-Jun	0		0	182													61	
4-Jun	323		0	111													145	
5-Jun	0		17	0													6	
6-Jun	0		31	39													23	
7-Jun	443		0	16													153	
8-Jun	0		10	11													7	
9-Jun	0		0														0	
10-Jun	285		7														146	
11-Jun	0																0	
12-Jun	110																110	

Total	17456	22267	14714	8757	13852	15579	31183	18850	26032	11361	11008	10153	11085	8665	4104	9502	21999	13150
												^a fish caught post 12/05 not tagged, n= 390 2011 10543						

Appendix 3 Financial Summary

Project Budget Form										
Name of Project: Stikine River Coded Wire Tagging Augmentation, 2015.										Page 1 of 2
ELIGIBLE COSTS										
Labour										
Wages & Salaries										
Position	# of crew	# of work days	hrs per day	rate per hour	Total (In-kind & Cash & PSC Amount)	In-Kind & Cash	PSC	Spent (PSC)	Variance (+/-)	
DFO Field Technician					22,000.00	4,000.00	18,000.00	17,542.09	457.91	
Overtime					1,000.00	1,000.00				
Administrative Assistance					6,000.00	6,000.00				
Person Days (# of crew x w work days)		-			sub total	29,000.00	11,000.00	18,000.00	17,542.09	457.91
Labour - Employer Costs (percent of wages subtotal amount)										
	rate	20%			sub total	5,800.00	2,200.00	3,600.00	3,508.42	91.58
Subcontractors & Consultants										
Subcontractors & Consultants	# of crew	# of work days	hrs per day	rate per hour	Total (In-kind & Cash & PSC Amount)	In-Kind & Cash	PSC	Spent (PSC)	Variance (+/-)	
Tahitan First Nation (TFN)	3	58	8	25	34,800.00	0.00	34,800.00	31,071.57	3,728.43	
Insurance if applicable	rate	0%			sub total	34,800.00	0.00	34,800.00	31,071.57	3,728.43
Volunteer Labour										
Volunteer Labour	# of crew	# of work days	hrs per day	rate per hour	Total (In-kind & Cash & PSC Amount)	In-Kind & Cash	PSC	Spent (PSC)	Variance (+/-)	
Skilled										
Un-skilled										
Insurance if applicable	rate	0%			sub total					
					Total Labour Costs	69,600.00	13,200.00	56,400.00	52,122.08	4,277.92
Site / Project Costs										
Travel (do not include to & from w ork)	Terrace-Whse-Dease Lk - Field camp for 4 staff				12,800.00	2,000.00	10,800.00	10,989.81	-189.81	
Small Tools & Equipment	Water Pumps, Totes, Gee Traps, Fish Eggs				2,400.00	0.00	2,400.00	2,218.52	181.48	
Fuel & fuel delivery	~ 3,000 L fuel plus del. cost from tow n to camp				12,000.00	0.00	12,000.00	13,904.41	-1,904.41	
Groceries	Staff ~ 198 per/ day @ ~ \$30.00 each				6,000.00	0.00	6,000.00	9,397.07	-3,397.07	
Work & Safety Gear	Gloves, Waders				1,300.00	0.00	1,300.00	572.15	727.85	
Repairs & Maintenance	Boat/ Generator Maintenance				2,500.00	0.00	2,500.00	1,699.29	800.71	
Permits										
Technical Monitoring										
Other site costs										
					Total Site / Project Costs	37,000.00	2,000.00	35,000.00	38,781.25	-3,781.25

Project Budget Form

Training (e.g. Swift water, bear aware, electrofishing, etc.).					Total (In-kind & Cash & PSC Amount)	In-Kind & Cash	PSC	Spent (PSC)	Variance (+/-)
Name of course	# of crew	# of work days	Cost Per Person						
Total Training Costs					0.00	0.00	0.00	0.00	0.00

Overhead / Indirect Costs								
Office space; including utilities, etc.								
Insurance								
Office supplies								
Telephone & long Distance								
Photocopies & printing								
Other overhead costs								
Total Overhead Costs					0.00	0.00	0.00	0.00

Capital Costs / Assets									
Assets are things of value that have an initial cost of \$250 or more and which can be readily misappropriated for personal use or gain or which are not, or will not be, fully consumed during the term of the project.									
Total Capital Costs					0.00	0.00	0.00	0.00	
Project Total Costs					106,600.00	15,200.00	91,400.00	90,903.33	496.67

Budget Summary	Total Budget Costs	Budget (PSC)	Actual Spent (PSC)	Variance (+/-)
Total Labour Costs (Includes in kind cost)	69,600.00	56,400.00	52,122.08	4,277.92
Total Site / Project Costs	37,000.00	35,000.00	38,781.25	-3,781.25
Total Training Costs (In kind cost)	0.00	0.00	0.00	0.00
Total Overhead Costs (In kind cost)	0.00	0.00	0.00	0.00
Total Capital Costs	0.00	0.00	0.00	0.00
Project Total	106,600.00	91,040.00	90,903.33	136.67