

**ABUNDANCE OF THE SOCKEYE SALMON
ESCAPEMENT IN THE STIKINE RIVER DRAINAGE, 2006**

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ABSTRACT

Abundance of sockeye salmon (*Oncorhynchus nerka*) returning to spawn in the Stikine River in 2006 was estimated by means of a mark-recapture study conducted by Fisheries & Oceans Canada (DFO), the Alaska Department of Fish and Game (ADF&G), and the Tahltan First Nation (TFN). Age, sex and length compositions for the sockeye captured at the tagging site and on the spawning grounds were estimated. A total of 923 sockeye salmon was captured in set gillnets located 18 kilometers upstream from the mouth of the Stikine River and of these, 889 were spaghetti tagged. A total of 250 tags were recovered in the Lower Stikine commercial and test fisheries.

Using the adjusted Petersen estimator ($M = 589$, $C = 95,116$ $R = 250$), the total in-river run (excluding U.S. commercial catches) up to August 06 was estimated to be 223,581. To include the portion of the run that migrated after August 06 the Peterson Estimate was expanded for a total of 235,847.

The lower Stikine commercial fisheries harvested 95,791 sockeye salmon, the lower Stikine test fishery captured 928 sockeye, the upper Stikine food fishery harvested 5,094 sockeye, and the upper Stikine commercial fishery harvested 520 sockeye salmon leaving a spawning escapement of 133,514. The Tahltan Lake count 2006 was 53,855 which represented 40% of the Stikine spawning population (Table 3). The sockeye salmon migration peaked during statistical week 28 (week ending July 15) through the tagging site located at Goat Creek.

INTRODUCTION

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 harvested 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, seine, and subsistence 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). The introduction of an ESSR fishery is heavily influenced by the economics of getting the sockeye to market. Sockeye prices determine success or failure in this venture. 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 (TBR) river 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 were negotiated in 2005 as both parties agreed that Chinook stocks on the Stikine have been rebuilt to levels sufficient to support commercial exploitation. 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. In addition to the catch share arrangements between Canada and the U.S., an enhancement program was agreed to with the intent of producing up to 100,000 harvestable sockeye salmon. This has been largely attempted by collecting sockeye eggs at Tahltan Lake and incubating them in Port Snettisham, Alaska and releasing the resulting fry into Tahltan and Tuya lakes.

The Stikine Management Model (SMM) is used to manage the sockeye harvest in both the Canadian and US commercial gillnet fisheries. In-season sockeye management is based on three distinct components of the sockeye run. These are: the Tahltan stock (wild and enhanced), the enhanced Tuya stock, and the remaining mainstem stocks. The model is based on catch per unit effort (CPUE) information inputted from the commercial catches in District 108, the Canadian in-river commercial fishery, and the Canadian in-river test fishery. This data is compared to historical CPUE values observed in the above fisheries and linear regression, based on the historical relationships, is used to generate weekly run size estimates and allowable catch guidelines.

The Tahltan Lake sockeye weir count is used to estimate the Tuya and mainstem components by computing the ratio of Tahltan to mainstem and Tuya in the total in-river sockeye run. Stock identification information (egg diameters and thermal marks) in the Canadian in-river fisheries are used to determine the stock composition ratios and these are then applied to the estimated in-river Tahltan run size to generate a total Stikine sockeye in-river run estimate. Escapements are estimated by subtracting the in-river catches from the in-river run estimate.

In 2000, a mark-recapture program was initiated to develop an alternative method of determining the in-river sockeye run size and improve the current abundance-based management regime. This project continued, jointly with DFO, ADF&G, and the TFN, in 2001 through to 2005. In 2006, the project was funded through the Northern Fund of the Pacific Salmon Commission and this report will summarize the results of this work.

STUDY AREA

The Stikine River drainage (Figure 1) covers approximately 52,000 km² (Pahlke and Etherton et al. 1999), 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

METHODS

The number of sockeye salmon in the Stikine River escapement was estimated from a single season two-event mark-recapture study (Ricker 1975). Fish captured by set gillnet in the lower river at Goat Creek and marked were included in event one. Those captured upstream migrating to or near their spawning grounds represents event two of the mark-recapture study.

TAG APPLICATION

In the first event, a set gillnet 92 feet (~28 metres) long with 5" mesh hung at a 4:1 ratio was fished daily from June 15th to June 30th for approximately 6 hours per day; a set gillnet 100 feet (~31 metres) long with 5" and 5^{3/8}" mesh hung at a 4:1 ratio was fished daily from July 1st to September 7th for approximately 6 hours per day, and a set gillnet 110 feet (~34 metres) long with 5^{1/2}" mesh hung at a 4:1 ratio was fished daily from September 8th to October 16th for approximately 6 hours per day. The Goat Creek tagging site was located 26.5 kilometres upriver from the mouth. The net was monitored continuously by a crew of 3 persons from shore during periods of low fish activity and with the net attached to the boat during busy times. When a fish was detected in the net ("cork-bob"), the crew removed the fish from the net immediately. Daily fishing effort was to remain constant throughout the sockeye migration period.

Captured sockeye were removed from the net quickly by untangling or cutting the mesh. The salmon were then placed in a large, water filled plastic tote and tagged. Two scales were removed, a fork-length was taken (to the nearest half centimetre), the sex was recorded, the condition was recorded, and the presence of sea lice (*Lepeophtherius sp.*) was noted. The sockeye were released immediately without being tagged or sampled if the fish showed signs of severe injury or stress (injury was noted). Each fish deemed to be in good condition was marked with a uniquely numbered spaghetti tag, consisting of a 6cm (2^{1/2}") section of Floy tubing shrunk onto a 38 mm (1.5") piece of 37 kg (80 lbs.) monofilament fishing line (as per Pahlke et. al. 2000). The monofilament was inserted through the musculature of the fish approximately 2-3 cm below the posterior end of the dorsal fin with a cannula (hollow) needle and secured by crimping both ends of the tag in a line crimp. Excess monofilament was removed to minimize the chance of snagging the tag while the fish was in transit to the spawning grounds. Each fish was also marked with a 6.3 mm (1/4") hole applied with a paper punch in the upper portion of the left operculum, and by the amputation of the left axillary appendage (as per Pahlke et al. 2000).

TAG RECOVERY

In the second event, sockeye salmon were caught and examined for tags in the lower Stikine River commercial fishery and test fishery which took place immediately above the U.S.-Canada border. Total catch of both fisheries was reported to DFO personnel located on the lower Stikine River. A cash reward was offered for tags recovered in both the commercial and test fisheries to ensure that all tags recovered were returned. It was assumed that all catch in both fisheries were examined for marks. Weekly sampling goals were established to collect age, size, and stock ID information.

ABUNDANCE

The number of marked fish on the spawning grounds was estimated by subtracting the number of marked fish removed in the Alaska fisheries from the number of tagged fish in event one. Handling and tagging can cause a downstream movement and/or a delay in continuing upstream migration of marked salmon (Pahlke and Etherton et al: 1999). This behaviour puts some marked fish at greater risk of capture in the commercial, subsistence, and sport fisheries located immediately downstream from the tagging site. Censoring marked sockeye salmon harvested in these fisheries limits bias in estimates of abundance.

This censoring also makes estimates relevant to the number of spawning fish, not to the number passing by the Stikine River. (Pahlke et al. 2000). The tagging program was publicized and a high proportion of the Alaskan catch was inspected for tags. Because of a reward of (5 \$ Canadian per spaghetti tag) for each tag returned from the in-river Canadian recreational and aboriginal fisheries, tags from all marked fish caught in these fisheries were considered recovered.

The application of the mark-recapture experiment requires that several assumptions be met, including (Ricker 1975):

- 1) All fish have an equal probability to be marked;
- 2) The marked fish are as vulnerable to recovery as the unmarked fish;
- 3) The marked fish suffer the same mortality as the unmarked;
- 4) The marked fish do not lose their mark;
- 5) The marked fish become randomly mixed with the unmarked;
- 6) All marks are recognized and reported upon recovery;
- 7) Recruitment and emigration do not occur between sampling events.

The first assumption was addressed by spatial and temporal standards during event one. This assumes that individual stocks migrate at random and do not tend to favour an in-river migration that may avoid or conversely render the fish more likely to be caught in the tagging net. The second assumption was met by ensuring that all sockeye salmon to be marked were handled with care and the handling time was kept to a minimum. Fish deemed to be in poor condition when removed from the net were not tagged. To honour assumption three, sockeye salmon were tagged with a small orange "spaghetti" type tag designed to reduce the likelihood that the marked fish would be targeted by predators or by sampling crews. Due to the inability to sample sockeye spawners throughout the drainage, not all spawners had an equal probability of recovery, but because the tagging event was random, assumption one was still honoured. The fourth assumption was addressed by marking the tagged fish with a hole punch through the upper left operculum and by severing the left axillary appendage. To ensure that the marked fish were mixed with the unmarked fish, tagging effort was kept constant to ensure all sockeye stocks were targeted. Because of the distance and time to the potential tag recovery sites, it was assumed that the tagged fish would adequately mix with their untagged cohorts (assumption 5). A comparison of the tagged to untagged ratios for the spawning ground recoveries would indicate if the tagging and recovery effort was random. Assumption 6 was honoured based on the fact that all fish captured on the spawning grounds were examined for tags and secondary marks, and double sampling was prevented by applying an additional hole punched in the lower left operculum. Furthermore, a tag reward of \$5.00 CAD ensured that all marked fish were reported. The final assumption was met because the sockeye salmon returning to the Stikine River to spawn were considered a closed population. Adjustments were made to the number of marked fish estimated to have made it to the spawning grounds to offset the bias resulting from tagged fish migrating below the tagging site and subsequently, being captured in the Alaskan

commercial fishery or exiting the Stikine River permanently. To estimate the abundance of sockeye salmon spawning in the Stikine River, the Adjusted Petersen Estimate was used (Ricker 1975).

$$N = \frac{(M+1)(C+1)}{(R+1)} - 1$$

Where:

- N = estimated abundance of sockeye salmon on the spawning grounds;
- M = estimated number of marked sockeye on the spawning grounds;
- C = number of adults inspected on the spawning grounds;
- R = number of marks found in the spawning ground sample.

AGE, SEX, AND LENGTH COMPOSITION

All sockeye captured for marking were sampled for scales, length, sex, and condition. Two scales were removed from the preferred area of each fish and mounted on gum cards for aging purposes. Sockeye sampled in the lower Stikine commercial and test fisheries were sampled for scales, sex, length, and condition; additionally, a sub-set was sampled for stock ID information (egg-diameters and otoliths). All scale samples were processed at the DFO aging lab in Nanaimo, British Columbia. All otolith samples were processed at the aging lab in Whitehorse, Yukon Territory. Age and sex composition of the two events were compared to determine if the sockeye caught and tagged at Goat Creek were representative of the sockeye escapement. Estimates of mean length for each age class were determined, as well as a maximum, minimum, and standard deviation.

MIGRATORY RATES/TIMING

Migration rates were calculated for tagged sockeye salmon recovered in the Lower Stikine Test fishery and the Lower Stikine Commercial fishery.

$$\text{Migration} = (\text{distance travelled}) / (\text{elapsed time})$$

RESULTS

TAG APPLICATION

Between June 15th and October 16th, 923 sockeye salmon were captured in the lower Stikine River and 889 of these were tagged. Sockeye tagged up to August 6th (less 5% to account for tags which dropped out due to the behavioural effects of tagging) became the marked component of the mark-recapture study, even though tagging continued into October, due to the major reduction in commercial fishing effort; therefore tag recovery effort, after August 6th (Table 1). Set gillnet effort was maintained at approximately six hours per day, although one day was lost to outboard motor problems, another was lost due to high water, and two days were not fished to allow for net repair (Figure 2). Catch per unit effort ranged from 0 to 0.177 fish/ hour/linear foot of net and peaked on July 2nd (Figure 3). The date of 50% cumulative catch was July 16th. By August 15th, 90% of the sockeye had been caught.

TAG RECOVERY

The lower Stikine test fishery caught and sampled 928 sockeye salmon of which 4 fish were marked with spaghetti tags. The lower Stikine commercial fishery caught 95,791 sockeye salmon of which 265 fish were tagged (Table 2)(Appendix 1). A single tag recovered in the US commercial fishery was censored from the study (Appendix 2).

ABUNDANCE

The expanded in-river run estimate (Petersen estimate/proportion of the run through by August 6th) above the US fishery using the recoveries from the lower Stikine commercial fishery and the lower Stikine test fishery was 235,847 sockeye salmon. Adding the total catch of 81,401 Stikine sockeye taken in US commercial fishery districts 106 & 108 yields a total run size of 317,248. The total in-river spawning escapement was 129,711 (235,847 – 102,333 catch/ harvest, - 3,803 samples/ brood stock) (Table 3).

AGE, SEX, AND LENGTH COMPOSITION

Sockeye salmon tagged in the lower Stikine River were comprised of 53% 4(2) aged fish, the lower Stikine River test fishery sample contained 14% 4(2), and the lower Stikine River commercial fishery contained 47% 4(2). The 5(2) age class was the next prominent and made up 38% 5(2) of the sockeye tagged, the lower Stikine River test fishery contained 73% 5(2), and the lower Stikine River commercial fishery was comprised of 33% 5(2) (Table).

A chi square test (Appendix 3) was applied to the age composition obtained during the tagging event at Goat Creek (critical value of 21.03 for $df = 12$ at a 95% precision level) versus those recovered in the lower test and lower commercial fisheries. The age composition in the lower test fishery ($\chi^2 = 165.31$, $df = 12$, $P = .000$) was found to be statistically significant. The age composition in the lower commercial fishery ($\chi^2 = 10.03$ (NS), $df = 12$, $P = .613$) was found to be not significant.

Average lengths for the various age classes and sexes can be found in Table .

A chi square test (Appendix 4) was applied to a summary of the mean of the post-orbital hypural (POHL) lengths in Table . The chi square test compared the values from the tagging event at Goat Creek (critical value of 9.49 for $df = 12$ at a 95% precision level) versus the values observed at the lower test and lower commercial fisheries. The mean POHL at the lower test fishery ($\chi^2 = 75.74$, $df = 4$, $P = 1E-15$) was found to be statistically significant. The mean POHL at the lower commercial fishery ($\chi^2 = 826.88$, $df = 4$, $P = 1E-177$) was found to be statistically significant.

The sex composition of sockeye salmon caught in the 5" set net for statistical weeks 25-33 was skewed towards females (492 females & 344 males). The sex composition of sockeye salmon caught in the combined 5" and 5 3/8" set nets for statistical week 34 was skewed towards females (24 females & 8 males). The sex composition of sockeye salmon caught in the 5 3/8" set net for statistical weeks 35-36 was almost even (10 females & 11 males). Overall the sex composition was skewed towards females (526 (59.2%) females & 336 (40.8%) males) which indicates that females were most likely to be caught in the smaller mesh size of 5" which was used for the majority of the mark-recapture program from statistical weeks 25-33; secondary causes may be that the crews were unable to differentiate between the sexes due to the lack of sexual dimorphism early in the run (Table 4).

MIGRATORY RATES/ TIMING

Marked sockeye salmon took an average of 5.3 days to migrate from the tagging site at Goat Creek to the lower Stikine River test drift/ set net site. The minimum number of days in transit was one kilometre per day and the maximum was 17. On average, the tagged sockeye salmon recovered in the test fishery migrated 3.8 kilometres per day. Marked sockeye salmon took an average of 6.4 days to migrate from the tagging site at Goat Creek to the lower Stikine River commercial (Iskut Down) site. The minimum number of days in transit was one kilometre per day and the maximum was 29. On average, the tagged sockeye salmon recovered in the test fishery migrated 4.5 kilometres per day. Marked sockeye salmon took an average of 6.6 days to migrate from the tagging site at Goat Creek to the lower Stikine River commercial (Above Iskut) site. The minimum number of days in transit was one kilometre per day and the maximum was 14. On average, the tagged sockeye salmon recovered in the test fishery migrated 5.6 kilometres per day. Marked sockeye salmon took an average of 11.7 days to migrate from the tagging site at Goat Creek to the lower Stikine River test drift/ set net site. The minimum number of days in transit was five

kilometres per day and the maximum was 21. On average, the tagged sockeye salmon recovered in the test fishery migrated 7.4 kilometres per day (Table 5).

ACKNOWLEDGEMENTS

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LITERATURE CITED

Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Bulletin of the Fisheries Research of Canada No. 191.

Scott, W.B. and E.J. Crossman. 1985. Freshwater Fishes of Canada. Fisheries Research Board of Canada, Ottawa. 966 pp.

Pahlke, K. P. and P. Etherton. Abundance of the chinook salmon escapement on the Alsek River, 1999. Alaska Department of Fish and Game, Fishery Data Series, No. 01-11, Anchorage.

Pahlke, Keith A., and Peter Etherton. 2000. Abundance of the chinook salmon escapement on the Alsek River, 1999. Alaska Department of Fish and Game, Fishery Data Series No. 00-11. Anchorage.

FIGURES

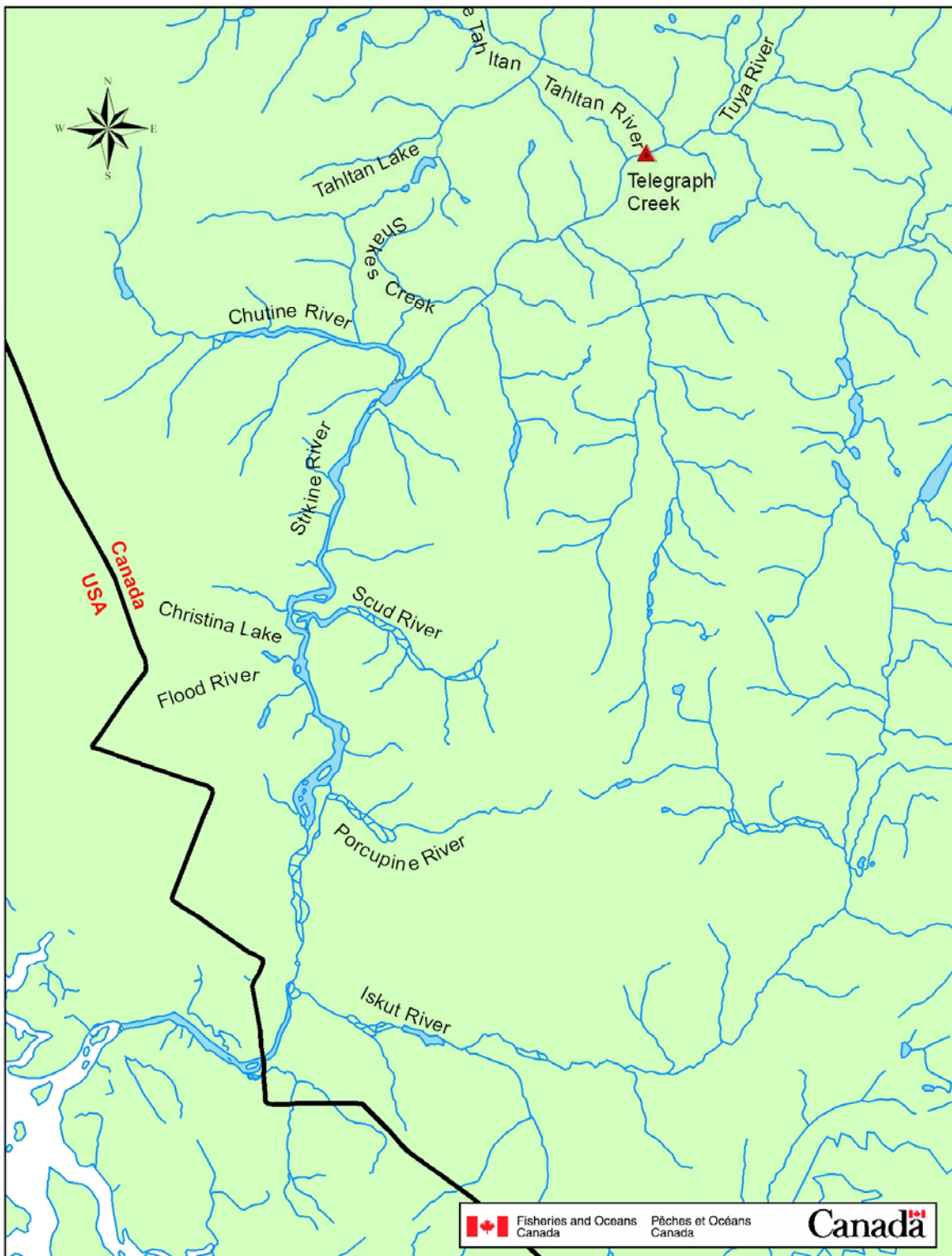


Figure 1. Map of the Stikine River drainage and its major tributaries.

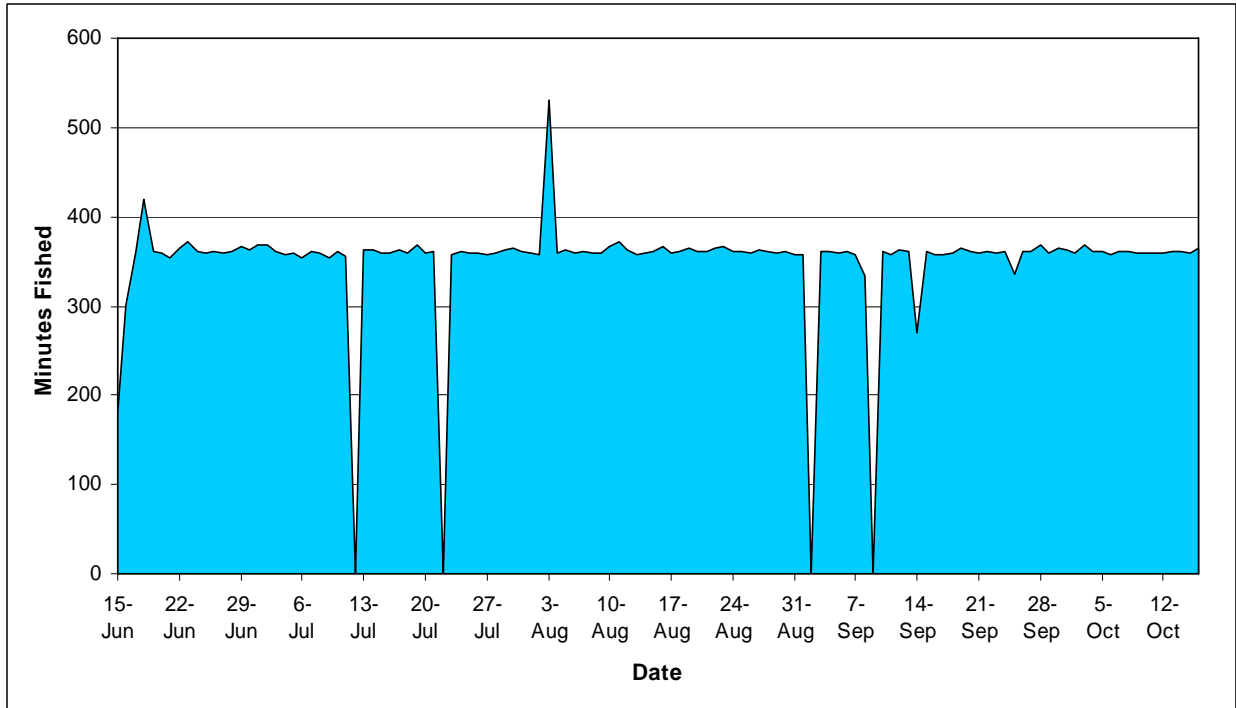


Figure 2. Daily fishing effort during the Stikine River sockeye salmon mark-recapture program, 2006.

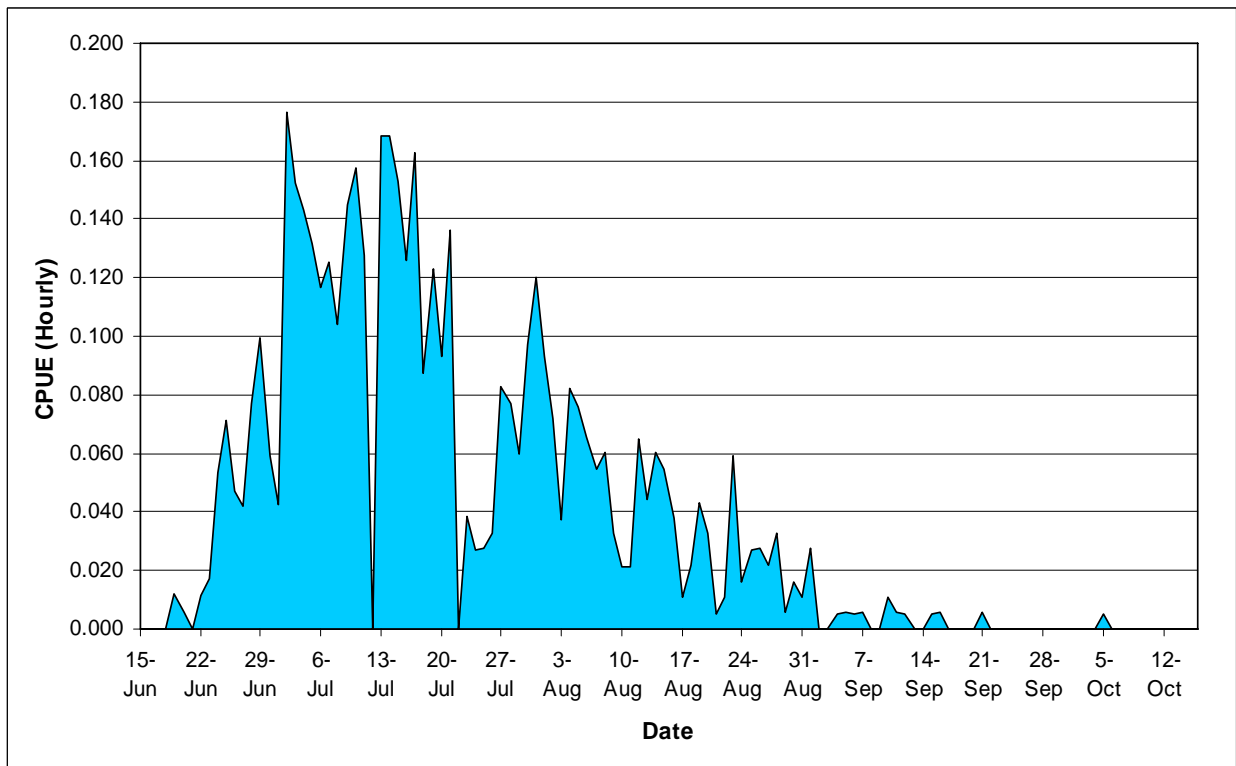


Figure 3. Sockeye salmon catch per hour per linear meter of net fished during the Stikine River sockeye mark-recapture program, 2006.

TABLES

Table 1. Summary of sockeye caught and tags applied; Goat Creek/ Rock Island Stikine River sockeye salmon mark-recapture program, 2006.

Stat. Week	Week Ending	Net Size	Effort Fished (Hours)	# Caught	# Tagged	Tags Wkly. % Applied	Tags Cum. % Applied
24	17-Jun	5"	14.0	0	0	0%	0%
25	24-Jun	5"	43.2	17	17	2%	2%
26	1-Jul	5"	42.3	83	82	9%	11%
27	8-Jul	5"	42.0	174	167	19%	30%
28	15-Jul	5"	36.0	168	163	18%	48%
29	22-Jul	5"	36.2	134	131	15%	63%
30	29-Jul	5"	42.0	63	61	7%	70%
31	5-Aug	5"	44.9	109	108	12%	82%
32	12-Aug	5"	42.4	59	58	7%	89%
33	19-Aug	5"	42.2	50	49	6%	94%
34	26-Aug	5" & 5 3/8"	42.3	33	32	4%	98%
35	2-Sep	5 3/8"	36.0	21	19	2%	100%
36	9-Sep	5 3/8"	35.6	4	2	0%	100%
37	16-Sep	5 3/8"	40.6	6	0	0%	100%
38	23-Sep	5 3/8"	42.1	1	0	0%	100%
39	30-Sep	5 3/8"	41.9	0	0	0%	100%
40	7-Oct	5" & 5 3/8"	42.2	1	0	0%	100%
41	14-Oct	5 1/2"	42.1	0	0	0%	100%
42	21-Oct	5 1/2"	12.1	0	0	0%	100%
Total			719.9	923	889	100%	

Table 2. Tag ratios from the lower test and commercial fisheries; Stikine River sockeye salmon, 2006.

Site	Observed # Marked	# Examined	Tag to Untagged Ratio
Lower Stikine Commercial Fishery	265	95,791	1:361
Lower Stikine Test Fishery	4	928	1:232

Table 3. Stikine River sockeye salmon catch and Tahltan Lake spawning escapements, 1972 - 2006.

Year	Lower Stikine Test	Lower Stikine Commercial	Upper Stikine Commercial	Aboriginal Food Fishery	Combined Catch/Harvest	Tahltan Lake Weir	Tahltan Lake ESSR & Samples	Tahltan Lake Brood	Tahltan Lake Spawning Escapement
1972				4,373	4,373	52,454			52,454
1973				3,670	3,670	2,864			2,864
1974				3,500	3,500	8,101			8,101
1975			270	1,982	2,252	8,159			8,159
1976			733	2,911	3,644	24,111			24,111
1977			1,975	4,335	6,310	42,960			42,960
1978			1,500	3,500	5,000	22,788			22,788
1979		10,534	Added to LSC.	3,000	13,534	10,211			10,211
1980		18,119	700	2,100	20,919	11,018			11,018
1981		21,551	769	4,697	27,017	50,790			50,790
1982		15,397	195	4,948	20,540	28,257			28,257
1983		15,857	614	4,649	21,120	21,255			21,255
1984		No Commercial Fishery in 1984.		5,327	5,327	32,777			32,777
1985	1,340	17,093	1,084	7,287	26,804	67,326			67,326
1986	412	12,411	815	4,208	17,846	20,280			20,280
1987	1,668	6,138	498	2,979	11,283	6,958			6,958
1988	1,247	12,766	348	2,177	16,538	2,536			2,536
1989	1,607	17,179	493	2,360	21,639	8,316		2,210	6,106
1990	1,940	14,530	472	3,022	19,964	14,927		3,302	11,625
1991	2,375	17,563	761	4,439	25,138	50,135		3,552	46,583
1992	2,958	21,031	822	4,431	29,242	59,907		3,694	56,213
1993	3,749	38,464	1,692	7,041	50,946	53,362	1,752	4,506	47,104
1994	1,433	38,462	2,466	4,167	46,528	46,363	6,852	3,378	36,133
1995	2,570	45,622	2,355	5,490	56,037	42,317	10,740	4,902	26,675
1996	1,312	66,262	1,101	6,918	75,593	52,500	14,339	4,402	33,759
1997	245	56,995	2,199	6,365	65,804	12,483	378	2,294	9,811
1998	190	37,310	907	5,586	43,993	12,658	390	3,099	9,169
1999	5,896	32,556	625	4,874	43,951	10,748	429	2,870	7,449
2000	2,378	20,472	889	6,107	29,846	6,076	406	1,717	3,953
2001	3,281	19,872	487	5,241	28,881	14,811	50	2,386	12,375
2002	4,412	10,420	484	6,390	21,706	17,740	400	3,051	14,289
2003	3,356	51,735	454	6,595	62,140	53,933	400	3,946	49,587
2004	1,338	77,530	626	6,862	86,356	63,372	420	4,243	58,709
2005	1,651	79,952	605	5,333	87,541	43,446	400	3,320	39,726
2006	928	95,791	520	5,094	102,333	53,855	400	3,403	50,052

Catches in 1979 for Upper Stikine Commercial were included in the Lower Stikine Commercial catches.
There was no Lower Stikine Commercial fishery in 1984.

Table 4. Age summary for the sockeye captured in the Goat Creek set gillnet and the sockeye recovered in the lower Stikine test and commercial fisheries, 2006. Note: The summary's for the lower Stikine commercial & test used the data sets that did not examine the otoliths.

		Age Class												Totals	
		3(1)	3(2)	4(1)	4(2)	4(3)	5(1)	5(2)	5(3)	6(2)	6(3)	6(4)	7(4)		7(5)
Goat Creek Tagging															
Male	N	3	0	2	101	0	0	102	7	0	7	0	2	1	225
	Percent	0.57%	0.00%	0.38%	19.31%	0.00%	0.00%	19.50%	1.34%	0.00%	1.34%	0.00%	0.38%	0.19%	43.02%
Female	N	0	0	1	176	0	0	98	7	0	12	0	0	4	298
	Percent	0.00%	0.00%	0.19%	33.65%	0.00%	0.00%	18.74%	1.34%	0.00%	2.29%	0.00%	0.00%	0.76%	56.98%
	sum	0.57%	0.00%	0.57%	52.96%	0.00%	0.00%	38.24%	2.68%	0.00%	3.63%	0.00%	0.38%	0.96%	
Lower Stikine Test															
Male	N	0	0	4	8	0	0	46	0	1	3	0	0	0	62
	Percent	0.00%	0.00%	3.08%	6.15%	0.00%	0.00%	35.38%	0.00%	0.77%	2.31%	0.00%	0.00%	0.00%	47.69%
Female	N	2	0	3	10	0	0	49	1	0	2	1	0	0	68
	Percent	1.54%	0.00%	2.31%	7.69%	0.00%	0.00%	37.69%	0.77%	0.00%	1.54%	0.77%	0.00%	0.00%	52.31%
	sum	1.54%	0.00%	5.38%	13.85%	0.00%	0.00%	73.08%	0.77%	0.77%	3.85%	0.77%	0.00%	0.00%	
Lower Stikine Commercial															
Male	N	3	0	2	416	0	0	303	16	1	23	0	0	8	772
	Percent	0.20%	0.00%	0.14%	28.26%	0.00%	0.00%	20.58%	1.09%	0.07%	1.56%	0.00%	0.00%	0.54%	52.45%
Female	N	0	0	3	269	0	0	176	226	0	21	0	0	5	700
	Percent	0.00%	0.00%	0.20%	18.27%	0.00%	0.00%	11.96%	15.35%	0.00%	1.43%	0.00%	0.00%	0.34%	47.55%
	sum	0.20%	0.00%	0.34%	46.54%	0.00%	0.00%	32.54%	16.44%	0.07%	2.99%	0.00%	0.00%	0.88%	

Table 5. Length summary for the sockeye captured in the Goat Creek set gillnet and the sockeye recovered in the lower Stikine test and commercial fisheries, 2006.

		Age Class									
		3(1)	4(1)	4(2)	5(2)	5(3)	6(2)	6(3)	6(4)	7(4)	7(5)
Goat Creek Tagging											
Male	N	3	2	101	102	7		7		2	1
	Avg HL	410	513	442	501	465		502		501	508
	Std.Dev.	14.43	31.85	26.98	20.68	29.86		13.53		24.50	
Female	N		1	176	98	7		12			4
	Avg. HL		494	447	477	452		480			459
	Std.Dev.			21.05	42.57	13.63		17.63			20.98
Lower Stikine Test											
Male	N		4	8	46		1	3			
	Avg HL		468	452	490		513	492			
	Std.Dev.		49.09	36.02	21.19			20.37			
Female	N	2	3	10	49	1		2	1		
	Avg HL	488	462	435	467	433		479	457		
	Std.Dev.	25.48	2.50	14.73	16.23			7.35			
Lower Stikine Commercial											
Male	N	3	2	416	303	16	1	23			8
	Avg HL	401	461	428	485	434	519	483			465
	Std.Dev.	25.44	12.74	27.09	19.91	23.03		21.56			20.45
Female	N		3	269	176	26		21			5
	Avg HL		478	429	466	437		471			459
	Std.Dev.		12.50	21.63	18.45	19.04		19.07			12.20

Table 4. Sex ratio of Stikine River sockeye captured at the Goat Creek set gillnet, 2006.

Stat.WK.	Net Size	F	M	Grand Total
25-33	5"	492 58.9%	344 41.1%	836
34	5" & 5 3/8"	24 75.0%	8 25.0%	32
35-36	5 3/8"	10 47.6%	11 52.4%	21

Table 5. Summary of migration rates and tagging period for sockeye recovered in the Lower Stikine Test fishery (Boundary House) and the three areas of the Lower Stikine Commercial fisheries; Iskut Down, Above Iskut, and Flood River.

	# Recovered	Average Days in Transit	Migration Rate Km/Day	First Fish	Last Fish	Max. days Traveled	Min. Days Traveled
Lower Stikine Test Boundary House	4	5.3	3.8	18-Jul	25-Aug	17	1
Lower Stikine Commercial Iskut Down	165	6.4	4.5	20-Jun	8-Aug	29	1
Lower Stikine Commercial Above Iskut	47	6.6	5.6	23-Jun	29-Jul	14	1
Lower Stikine Commercial Flood River	50	11.7	7.4	24-Jun	16-Jul	21	5
Rock Island to Lower Stikine Test, approx. (km)			20				
Rock Island to (LSC) Iskut Down, approx. (km)			29				
Rock Island to (LSC) Above Iskut, approx. (km)			37				
Rock Island to (LSC) Flood River, approx. (km)			87				

APPENDICES

Appendix 1. Tags recovered in the lower Stikine test and commercial fisheries, 2006.

LST (Boundary House)				LSC (Iskut Down)				
Stat. Wk.	Week Ending	Percent	# of tags	Stat. Wk.	Week Ending	Percent	# of tags	
29	22-Jul	25.0%	1	25	24-Jun	4.2%	7	
30	29-Jul	0.0%	0	26	1-Jul	5.5%	9	
31	5-Aug	0.0%	0	27	8-Jul	32.1%	53	
32	12-Aug	0.0%	0	28	15-Jul	33.3%	55	
33	19-Aug	50.0%	2	29	22-Jul	14.5%	24	
34	26-Aug	25.0%	1	30	29-Jul	4.8%	8	
Total:			4	31	5-Aug	4.2%	7	
Weeks 33-34 tags not used in Peterson estimate				32	12-Aug	1.2%	2	
Total:							165	
LSC (Above Iskut)				LSC (Flood River)				
Stat. Wk.	Week Ending	Percent	# of tags	Stat. Wk.	Week Ending	Percent	# of tags	
25	24-Jun	2.1%	1	25	24-Jun	2.0%	1	
26	1-Jul	8.5%	4	26	1-Jul	22.0%	11	
27	8-Jul	27.7%	13	27	8-Jul	48.0%	24	
28	15-Jul	29.8%	14	28	15-Jul	26.0%	13	
29	22-Jul	14.9%	7	29	22-Jul	2.0%	1	
30	29-Jul	17.0%	8	Total:				50
Total:			47					

Appendix 2. Stikine River population estimate, 2006 (recoveries from the lower Stikine test and lower Stikine commercial fisheries).

Tags recovered up to August 6/2006	R = 250
Total examinations associated with tags	C = 95,116
Total tags applied	620
Censored (commercial U.S. catch)	1
Total adjusted tags applied (5% drop-out)	M = 589

adjusted Petersen Estimate = $\frac{(M+1)(C+1)}{(R+1)} - 1$

	<u>Total</u>	<u>Comm. / Sub. Catch</u>	<u>Total Run</u>
adjusted Petersen Estimate =	point est. 223,581	81,401	304,982
	max 253004	81,401	334,405
	min 197580	81,401	278,981

Expanded Estimate **235,847**

(m-r estimate up to August 6th divided by total run proportion to date 0.94799)

	<u>Weir #</u>	<u>% of total</u>
Percent of Total In-river Run to Tahltan Lake	53,855	22.4%

	<u>Catch</u>	<u>% of total</u>
Harvest Rate (U.S.)	District 106 13,092	5.6%
% Tahltan	District 108 68,309	29.0%

<u>tags</u>	<u>tags + 1.92</u>	<u>1.96*sqrt(R+1)</u>	<u>equals</u>	<u>95 % CI RANGE</u>	
250	251.92	31.11	283.03	Upper R	197580
250	251.92	31.11	220.81	Lower R	253004

Appendix 3. Chi Square Test of the age composition observed for Goat Creek sockeye versus what was recovered in the test and commercial fisheries, 2006.

Site	Sampling Event (Observed)					EXPANDED ENTRIES								Total
	3(1)	3(2)	4(1)	4(2)	4(3)	5(1)	5(2)	5(3)	6(2)	6(3)	6(4)	7(4)	7(5)	
Goat Creek	3	0	3	320	0	0	245	18	0	22	0	2	6	619
Lower Stikine Test	2	0	8	21	0	0	112	1	1	6	1	0	0	152
Lower Stikine Commercial	4	0	7	845	0	0	597	52	1	55	0	0	16	1577

Site	Expected													Total
	3(1)	3(2)	4(1)	4(2)	4(3)	5(1)	5(2)	5(3)	6(2)	6(3)	6(4)	7(4)	7(5)	
Goat Creek	NOT APPLICABLE													
Lower Stikine Test	1	0	1	79	0	0	60	4	0	5	0	0	1	140
Lower Stikine Commercial	8	0	8	815	0	0	624	46	0	56	0	5	15	1455

Site	Calculations													x ²	DF	P
	3(1)	3(2)	4(1)	4(2)	4(3)	5(1)	5(2)	5(3)	6(2)	6(3)	6(4)	7(4)	7(5)			
Goat Creek	NOT APPLICABLE															
Lower Stikine Test	2		72	42			45	3		0		0	1	165.31	12	0.000
Lower Stikine Commercial	2		0	1			1	1		0		5	0	10.03	12	0.613

X² = 21.03 @ 0.05

There is a statistical significant difference in age composition between the tagging event and recovery sites with the Lower Stikine Commercial fishery being the exception.

Appendix 4. Chi square test of the length (POHL) frequency observed for the goat Creek sockeye versus what was recovered in the test and commercial fisheries, 2006.

Site	Sampling Event (Observed)					Total
	< 401 mm	401 - 450 mm	451 - 500 mm	501 - 550 mm	> 550 mm	
Goat Creek	22	252	454	159	2	889
Lower Stikine Test	24	159	564	164	8	919
Lower Stikine Commercial	171	1663	1561	205	1	3601

Site	Expected					Total
	< 401 mm	401 - 450 mm	451 - 500 mm	501 - 550 mm	> 550 mm	
Goat Creek	NOT APPLICABLE					
Lower Stikine Test	23	261	469	164	2	919
Lower Stikine Commercial	89	1021	1839	644	8	3601

Site	Calculations					χ^2	DF	P
	< 401 mm	401 - 450 mm	451 - 500 mm	501 - 550 mm	> 550 mm			
Goat Creek	NOT APPLICABLE							
Lower Stikine Test	0	40	19	0	17	75.74	4	1.38684E-15
Lower Stikine Commercial	75	404	42	299	6	826.88	4	1.1557E-177

$\chi^2 = 9.49 @ 0.05$

Therefore, there is a statistical significant difference in length frequency between the tagging sample and recovery sites.

Appendix 5. Summary of sockeye caught and tags applied per day, Goat Creek/ Rock Island Stikine River sockeye salmon mark-recapture program, 2006.

Date	Stat. Wk.	Effort		Net Size	# Caught	# Tagged
		Fished (Hrs)	Location			
15-Jun	24	3.00	reset at goat crk.	5	0	0
16-Jun	24	5.00	goat crk	5	0	0
17-Jun	24	6.00	goat crk	5	0	0
18-Jun	25	7.00	goat crk	5	0	0
19-Jun	25	6.03	goat crk	5	2	2
20-Jun	25	6.00	goat crk	5	1	1
21-Jun	25	5.88	goat slough	5	0	0
22-Jun	25	6.07	goat crk	5	2	2
23-Jun	25	6.20	goat crk	5	3	3
24-Jun	25	6.03	goat crk	5	9	9
25-Jun	26	6.00	goat crk	5	12	12
26-Jun	26	6.03	goat crk	5	8	8
27-Jun	26	5.98	goat crk	5	7	7
28-Jun	26	6.02	goat crk	5	13	13
29-Jun	26	6.10	goat crk	5	17	17
30-Jun	26	6.05	goat crk	5	10	10
1-Jul	26	6.15	goat crk	5	16	15
2-Jul	27	6.13	goat crk	5	33	33
3-Jul	27	6.03	goat crk	5	28	26
4-Jul	27	5.95	goat crk	5	26	25
5-Jul	27	5.98	goat crk	5	24	24
6-Jul	27	5.90	goat crk	5	21	18
7-Jul	27	6.02	goat crk	5	23	23
8-Jul	27	5.98	goat crk	5	19	18
9-Jul	28	5.90	goat crk	5	26	25
10-Jul	28	6.03	goat crk	5	29	26
11-Jul	28	5.92	goat crk	5	23	23
12-Jul	28	0.00	no - fishing	motor breakdown	0	0
13-Jul	28	6.05	goat crk	5	31	30
14-Jul	28	6.05	goat crk	5	31	31
15-Jul	28	6.00	goat crk	5	28	28
16-Jul	29	6.00	goat crk	5	23	23
17-Jul	29	6.05	goat crk	5	30	28
18-Jul	29	6.00	goat crk	5	16	16
19-Jul	29	6.13	goat crk	5	23	22
20-Jul	29	5.98	goat crk	5	17	17
21-Jul	29	6.02	goat crk	5	25	25
22-Jul	29	0.00	no - fishing	high water	0	0
23-Jul	30	5.97	goat crk	5	7	7
24-Jul	30	6.03	goat crk	5	5	5
25-Jul	30	5.98	goat crk	5	5	5
26-Jul	30	6.00	goat crk	5	6	6
27-Jul	30	5.95	goat crk	5	15	15
28-Jul	30	5.98	goat crk	5	14	14

Appendix 5. Summary of sockeye caught and tags applied per day, Goat Creek/ Rock Island Stikine River sockeye salmon mark-recapture program, 2006 (continued).

29-Jul	30	6.05	goat crk	5	11	9
30-Jul	31	6.08	goat crk	5	18	18
31-Jul	31	6.02	goat crk	5	22	22
1-Aug	31	5.98	goat crk	5	17	16
2-Aug	31	5.95	goat crk	5	13	13
3-Aug	31	8.83	goat crk	5	10	10
4-Aug	31	6.00	goat crk	5	15	15
5-Aug	31	6.05	goat crk	5	14	14
6-Aug	32	6.00	goat crk	5	12	12
7-Aug	32	6.03	goat crk	5	10	10
8-Aug	32	5.98	goat crk	5	11	11
9-Aug	32	6.00	goat crk	5	6	6
10-Aug	32	6.10	goat crk	5	4	4
11-Aug	32	6.20	goat crk	5	4	4
12-Aug	32	6.05	goat crk	5	12	11
13-Aug	33	5.95	goat crk	5	8	8
14-Aug	33	6.00	goat crk	5	11	11
15-Aug	33	6.02	goat crk	5	10	10
16-Aug	33	6.10	goat crk	5	7	6
17-Aug	33	6.00	goat crk	5	2	2
18-Aug	33	6.02	goat crk	5	4	4
19-Aug	33	6.07	goat crk	5	8	8
20-Aug	34	6.02	goat crk	5	6	6
21-Aug	34	6.03	goat crk	5	1	1
22-Aug	34	6.07	across rock Is.	5	2	2
23-Aug	34	6.12	on rock Is.	5 3/8	11	11
24-Aug	34	6.02	on rock Is.	5 3/8	3	3
25-Aug	34	6.03	on rock Is.	5 3/8	5	5
26-Aug	34	6.00	on rock Is.	5 3/8	5	4
27-Aug	35	6.05	on rock Is.	5 3/8	4	4
28-Aug	35	6.03	on rock Is.	5 3/8	6	6
29-Aug	35	5.98	on rock Is.	5 3/8	1	0
30-Aug	35	6.03	on rock Is.	5 3/8	3	2
31-Aug	35	5.97	on rock Is.	5 3/8	2	2
1-Sep	35	5.97	on rock Is.	5 3/8	5	5
2-Sep	35	0.00	no - fishing	net repair	0	0
3-Sep	36	6.03	goat creek	5 3/8	0	0
4-Sep	36	6.02	on rock is	5 3/8	1	1
5-Sep	36	5.98	on rock is	5 3/8	1	1
6-Sep	36	6.02	on rock is	5 3/8	1	0
7-Sep	36	5.97	on rock is	5 3/8	1	0
8-Sep	36	5.57	on rock is	5 3/8	0	0
9-Sep	36	0.00	no - fishing	net repair	0	0
10-Sep	37	6.02	on rock is	5 3/8	2	0
11-Sep	37	5.97	on rock is	5 3/8	1	0
12-Sep	37	6.05	on rock is	5 3/8	1	0
13-Sep	37	6.03	on rock is	5 3/8	0	0
14-Sep	37	4.50	on rock is	5 3/8	0	0

Appendix 5. Summary of sockeye caught and tags applied per day, Goat Creek/ Rock Island Stikine River sockeye salmon mark-recapture program, 2006 (continued).

15-Sep	37	6.03	on rock is	5 3/8	1	0
16-Sep	37	5.97	on rock is	5 3/8	1	0
17-Sep	38	5.97	on rock is	5 3/8	0	0
18-Sep	38	6.00	on rock is	5 3/8	0	0
19-Sep	38	6.08	on rock is	5 3/8	0	0
20-Sep	38	6.02	on rock is	5 3/8	0	0
21-Sep	38	6.00	on rock is	5 3/8	1	0
22-Sep	38	6.03	on rock is	5 3/8	0	0
23-Sep	38	6.00	on rock is	5 3/8	0	0
24-Sep	39	6.02	goat creek	5 3/8	0	0
25-Sep	39	5.60	goat creek	5 3/8	0	0
26-Sep	39	6.03	goat creek	5 3/8	0	0
27-Sep	39	6.03	goat creek	5 3/8	0	0
28-Sep	39	6.15	goat creek	5 3/8	0	0
29-Sep	39	6.00	goat creek	5 3/8	0	0
30-Sep	39	6.08	goat creek	5 3/8	0	0
1-Oct	40	6.05	goat creek	5 3/8	0	0
2-Oct	40	6.00	goat creek	5 3/8	0	0
3-Oct	40	6.13	on rock is	5 3/8	0	0
4-Oct	40	6.02	on rock is	5	0	0
5-Oct	40	6.03	on rock is	5	1	0
6-Oct	40	5.97	on rock is	5	0	0
7-Oct	40	6.02	on rock is	5	0	0
8-Oct	41	6.02	on rock is	5 1/2	0	0
9-Oct	41	6.00	on rock is	5 1/2	0	0
10-Oct	41	6.00	on rock is	5 1/2	0	0
11-Oct	41	6.00	on rock is	5 1/2	0	0
12-Oct	41	6.00	on rock is	5 1/2	0	0
13-Oct	41	6.02	on rock is	5 1/2	0	0
14-Oct	41	6.03	on rock is	5 1/2	0	0
15-Oct	42	6.00	on rock is	5 1/2	0	0
16-Oct	42	6.07	on rock is	5 1/2	0	0

Appendix 6. Financial summary for the Stikine River sockeye mark-recapture program, 2006.

SPA-Miscellaneous Accounts - Credit	112
Regular Pay - Other	4.47
Seasonal - Other (Indeterminate)	40.62
Holiday & Vacation Pay- Non Recov.	0.17
Isolated Posts Allowance	1.78
Travel in Canada (incl.Short Term Relocation)	0.95
Aircraft Charters - Duty Travel Only	6.35
Surface-Freight & Cargo Services	0.07
Air-Freight & Cargo Services	0.15
Ship Charters (incl. Basic Cost & all Related Costs)	0.45
Automobile Rental	6.12
Repair and Betterment of Ships & Small Craft:Propulsion Sys & Equip	1.51
Repair and Betterment of Maintenance & Serv Buildings (incl. Elevators & Escalators)	0.8
Repair and Betterment of Residential Buildings	0.29
Repair and betterment of Heating,AC & Refrigerat.Equip.	0.26
Maintenance, Repairs & Betterment to Road Motor Vehicles	0.66
Repair and Betterment to Misc Vehicles & Mobile Heavy-Duty Equipment	0.19
Safety & Sanitation Equipment (Alarm,Signal,Fire Fighting)	0.07
Voice Communications Equipment	0.08
Tools and Implements	0.23
Oceanography, Aquaculture & Fisheries Research-Scientific Services (excl.consultants)	20.96
Rewards-Tag&Bounties-Seals	1.98
Liquified Petroleum Gas (excl. for Road Motor Vehicles)	1.14
Wood Fabricated Materials	0.04
Ferrous Metals (Hardware Items, etc.)	1.65
Non-ferrous Metals	0.03
Protective & Other Clothing	0.88
Footwear	0.57
Hunt/Fish/Recrea Equip&Supply	0.14
Textile Fabricated Material-Fishing Nets & Gear, etc.	3.2
Fish Tags	2.58
Scientific Supplies Miscell	1.04
LIMIT-Provisions-Groceries-Other	10.08
<hr/>	
Total expenses to date	109.51
Funds owing PSC	2.49