

Stikine, Taku, and Alsek River Sockeye and Chinook  
Salmon Baseline DNA Profiles 2011.

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

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## **Executive Summary**

A total of \$50,000 was set aside from the Northern Fund to support the collection of tissue samples from Stikine, Taku and Alsek river chinook and sockeye salmon stocks in 2011, in order to continue development of DNA baselines for genetic stock identification purposes. A total of 201 chinook salmon samples were collected from eight spawning locations, and a total of 814 sockeye salmon samples were collected from 21 spawning locations. Sample collection took place from July to September. The locations sampled were remote and generally not accessible by road except to limited departure points (Dease Lake, Telegraph Creek, Atlin, Haines Junction). Therefore access was primarily via helicopter or float-plane. Fish capture methodology included weirs for pre-spawn fish, and angling, gaffing, gillnetting and seine netting for post-spawn fish.

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# 1.0 Introduction

Improved in-season management of Transboundary River salmon is required to meet stock-specific spawning goals and harvest shares. The current techniques for identifying particular stocks of sockeye salmon include scale pattern analysis (SPA), measurement of egg size, and determination of brain parasite prevalence. Each of these has significant drawbacks and only measurement of egg diameter (which is limited to the Tahltan Lake stock) can be used for in-season management. The techniques available for identifying chinook salmon stocks are even more limited.

While this project focused on collection of samples for post-season estimates of weekly stock compositions, the long term goal is to have in-season capability. In addition, improved stock composition estimates will permit the compilation of stock recruitment data which will be used to establish biologically based escapement goals for particular stocks of interest (e.g. Tatsamenie sockeye salmon).

This project addresses the following strategic objective of the Northern Fund:

- *“improve the Parties ability to better manage the stocks and fisheries in the region (e.g. by developing methods to more accurately estimate inseason run sizes; to improve stock assessment capability; and to acquire the necessary information in a more timely fashion).”;*

It also addresses aspects of the Transboundary chinook salmon arrangements reached in February 2005 which include the following provisions:

- *Management of Stikine and Taku Chinook salmon will take into account the conservation of specific stocks or conservation units when planning and prosecuting their respective fisheries. To avoid over-harvesting of specific components of the run, weekly guideline harvests will be developed by apportioning their allowable harvest over the total Chinook season based on historical weekly run timing. The project will provide information to assess the run timing of various stocks or stock groupings through the inriver fishery.*
- *By 2008, the Parties agree to develop and implement through the Committee an agreed Chinook stock identification program to assist in the management of Stikine and Taku Chinook salmon.*

As such, the Transboundary Technical Committee seeks improved in-season stock identification for sockeye salmon and is tasked specifically with development of the capability for chinook salmon. Tahltan First Nation and Taku River Tlingit First Nation representatives on this committee, and the Transboundary Panel, are fully supportive of developing genetic stock identification for Stikine and Taku inriver fisheries.

## 2.0 Objectives

Collection of tissue samples from transboundary salmon stocks in order to establish a DNA baseline for identification of stocks in Canadian and U.S. fisheries.

Appendix 1 lists stock-specific sample requirements as identified by the Transboundary Technical Committee.

## 3.0 Methods

Tissue samples consisting of individual opercular punches or axillary clips were taken from Transboundary chinook and sockeye salmon stocks, for inclusion in microsatellite and/or single nucleotide polymorphism (SNP) baselines. Sampling was conducted according to the following protocol developed by the Transboundary Technical Committee (Pacific Salmon Commission 2007 - TCTR (07)-02):

- the target sample size is 200 adult samples per population;
- the preferred tissue to sample is the axillary appendage. For baseline samples, each fish will be sampled for two appendages; one to be sent to the DFO lab and the other to the ADF&G lab. For fishery samples, each fish will be sampled for one axillary appendage which will be shared if requested;
- if opercular punches are taken, two punches will be taken from each fish, again one for each of the respective labs. To eliminate problems associated with potential delamination of punches in composite samples i.e. where punches from one population and/or location are all stored in one vial as has been the practice, opercular punches will now be stored in individual labelled vials;
- Axillary appendages and opercular punches will be stored in ethanol (full strength) and each sample appropriately labelled (date, location, species, number of samples, fixative and volume thereof, collector, contact name, agency, phone number);

- although it is recognised that there are potential efficiencies in terms of effort, time, storage, shipping and archiving associated with using scale samples for GSI, this should not be a tissue of choice when obtaining fishery or other samples for GSI (e.g. out of a tote) but may be used as last resort.

The locations sampled were remote and generally not accessible by road except to limited departure points (Dease Lake, Telegraph Creek, Atlin, Haines Junction). Access to most spawning populations was via helicopter or float-plane, with a few accessible by river boat.

Sample collection took place from July through September 2011. Fish capture methods included weirs for live fish and angling, gaffing, gillnetting and seine netting for post-spawn fish.

Stikine Chinook samples were obtained from the Tahltan River on 17 August. Verret River chinook samples were collected from August 5-13, and from the Tuya River from 20-23 July. Johnny Tashoots Creek was surveyed but no fish were available to sample. Access to the Tahltan River and Tuya was via helicopter charters. Verret River was accessed by boat from the DFO facility on the lower Stikine River. Access to Johnny Tashoots Creek was by foot from the DFO facility located at Tahltan Lake.

The Verret River also provided sockeye samples on the same dates (August 5-13). Additional Stikine sockeye samples were obtained from the Porcupine and Scud rivers and two locations on the Stikine River mainstem on September 16; two locations on the Iskut River on the following day; and finally, Chutine Lake samples were collected from 18-21 September and Christina Lake September 22-24. A float-plane was chartered to access Chutine and Christina lakes; all other locations except the Verret River were reached by helicopter.

Gaffs were used to capture post-spawn fish on the Verret River. Gillnets were used on Chutine and Christina lakes, while all other samples were captured with rod and reel (angling).

No Chinook samples were obtained from the Taku River in 2011 due primarily to a very poor in-season run projections. Limited success had been achieved in years associated with much higher abundance projections. For example, in 2010, the estimated of Taku River spawning escapement 19,000 fish and the total number of samples collected from Yeth Creek, King Salmon Creek, and the Sutlahine River was only 15 fish. The final in-season run assessment in 2011 projected an escapement of only 12,000 fish. Post-season estimates of escapement are higher (19,000 – 27,000 fish) however, these were not obtained in time to permit planning of sampling excursions and still may not have provided many samples.

Taku sockeye samples were collected from Takwahoni/Sinwa, Yellow Bluff, and Yonakina on September 13. These sites are on the mainstem Taku River and were reached by helicopter. Fish were captured at these locations using a beach seine. Samples were collected at the King Salmon Lake weir between July 12 and August 8, in conjunction with an ongoing enumeration project. Samples were collected from the Tatsatua River just upstream from Little Tatsamenie Lake, using rod and reel, between September 8 and 14. King Salmon and Little Tatsamenie lakes are accessible by float plane.

Alsek chinook samples were obtained from Goat (July 20<sup>th</sup> and August 4<sup>th</sup>), Kudwat (July 29<sup>th</sup>), Tweedsmuir (July 29<sup>th</sup>), and Stanley (July 21<sup>st</sup> and August 5<sup>th</sup>) creeks, and from the Takhanne River on August 3<sup>rd</sup>. A helicopter was used to access the Kudwat and Tweedsmuir sites and the remaining were accessible by road. Angling was the method used to capture Alsek chinook.

Alsek sockeye samples were obtained from Tweedsmuir (July 29<sup>th</sup>), Border Slough (September 26<sup>th</sup>), Kudwat Creek (September 26<sup>th</sup>), Detour Creek (September 26<sup>th</sup>), and the Tatshenshini River in the Stinky Creek and Bridge/Silver areas (September 30<sup>th</sup>). These sites were accessed by helicopter, and the capture method was angling. Additional samples were collected (angled) in the Goat and Kwatinini creek areas beginning in late August through to the end of September, which were accessed by boat and road.

## 4.0 Results and Discussion

A total of 201 chinook salmon samples from eight spawning locations, and 814 sockeye salmon samples from 21 spawning locations, were collected for all three drainages combined. Collections by species and drainage are presented in Tables 1-6.

Generally speaking, high water did not affect sample collection, unlike in some previous years (most notably 2007). However, as noted chinook sample collection on the Taku was not undertaken due to very poor in-season run size indicators, and even though post-season assessments were more favourable, they were still well below average (Figure 3). Escapement of Taku River sockeye was the highest in the past five years (Figure 4). Escapements of Stikine River chinook were below average (Figure 1), while those of Stikine River sockeye were above average (Figure 2). Escapement levels of Alsek chinook and sockeye, as indexed by the Klukshu River, favoured sample collection (Figures 5 and 6). Since chinook sample collection was not undertaken on the Taku River, extra effort was expended on the Alsek River, taking advantage of the above-average escapements.

A total of 149 samples were collected from three Stikine River chinook salmon spawning locations (Table 1).

**Table 1. Chinook salmon samples collected in the Stikine River drainage 2007-2011.**

Stock	2007	2008	2009	2010	2011	Total
Johnny Tashoots Creek		37	33	4		74
Shakes Creek	75					75
Tahltan River		83	89		45	217
Tuya River			6		4	10
Verrett Creek	90			150	100	340
Total	165	120	128	154	149	716

A total of 394 samples were collected from eight Stikine River sockeye salmon spawning locations (Table 2).

**Table 2. Sockeye salmon samples collected in the Stikine River drainage 2007-2011.**

Stock	2007	2008	2009	2010	2011	Total
Iskut mainstem at Bronson Slough			16			16
Iskut mainstem at Craig		22	11			33
Iskut mainstem at Hoodoo				11		11
Iskut mainstem at Verret		63	16	19	9	107
Stikine mainstem at Porcupine				12		12
Stikine mainstem at Fowler	11	12	8	4	36	71
Stikine mainstem at Andy Smith	10	4	11		11	36
Stikine mainstem at Devil's Elbow	50	150	50			250
Chutine River		154	190			344
Chutine Lake			67	33	163	263
Christina Lake				14	36	50
Porcupine River	36	3	3	23	43	108
Scud River	90	48	61	23	60	282
Shakes Creek		30				30
Tuya River		208				208
Verret River				41	36	77
Zappa		7				7
Total	197	701	433	180	394	1905

No samples were collected from Taku River chinook salmon spawning locations in 2011. Table 3 presents sample collections from 2007 - 2010.

**Table 3. Chinook salmon samples collected in the Taku River drainage 2007-2011.**

Stock	2007	2008	2009	2010	Total
Hackett River	35	168			203
Tatsatua River	273				273
Nakina River	18	36			54
Nahlin River	34				34
King Salmon River	2	13		2	17
Tseta Creek		80		172	252
Yeth Creek		41	6	9	56
Sutlahine River				4*	4
Total	366	338	6	187	893

\* Juvenile samples.

A total of 190 samples were collected from five Taku River sockeye salmon spawning locations (Table 4).

**Table 4. Sockeye salmon samples collected in the Taku River drainage 2007-2011.**

Stock	2007	2008	2009	2010	2011	Total
Hackett River	16	64	133			213
Nahlin River	76					76
Little Tatsamenie Lake					60	60
Tulsequah River	18	53	199			270
Yellow Bluff		34		31	17	82
Tuskwa Creek		19				19
Tuskwa Slough		34	100			134
Tuskwa to Chunk		171	138			309
Shustahine Creek		95	112			207
Takwahoni / Sinwa			69	64	41	174
Yonakina					7	7
Nakina River			4			4
King Salmon Lake				144	65	209
Total	110	470	755	239	190	1764

A total of 52 samples were collected from five Alsek River chinook salmon spawning locations (Table 5).

**Table 5. Chinook salmon samples collected in the Alsek River drainage 2007-2011.**

Stock	2007	2008	2009	2010	2011	Total
Goat Creek	54	15	25	20	10	124
Takhanne				15	5	20
Low Fog				2		2
Stanley				17	12	29
Kudwat Creek		3		46	24	73
Tweedsmuir			5		1	6
Total	54	18	30	100	52	254

A total of 230 samples were collected from eight Alsek River sockeye salmon spawning locations (Table 6).

**Table 6. Sockeye salmon samples collected in the Alsek River drainage 2007-2011.**

Stock	2007	2008	2009	2010	2011	Total
Klukshu (early)				215		215
Blanchard	111	9	63			183
Border Slough	50	22	30		40	142
Detour Creek					4	4
Goat Creek	13				1	14
Kudwat Creek	45	0	20	50	30	145
Nesketaheen	199					199
Tatshenshini at Stinky					40	40
Tatshenshini at Bridge/Silver					30	30
Tatshenshini at Kwatini					65	65
Tweedsmuir	51	0	66	12	20	149
Tats Lake				13		13
Sediment Creek				12		12
Vern Richie	64	38	95	22		219
Total	533	69	274	324	230	1430



Figures 1-6 present escapement data for the Stikine, Taku and Alsek river systems. Note that the Klukshu River serves as an index for the Alsek River drainage.

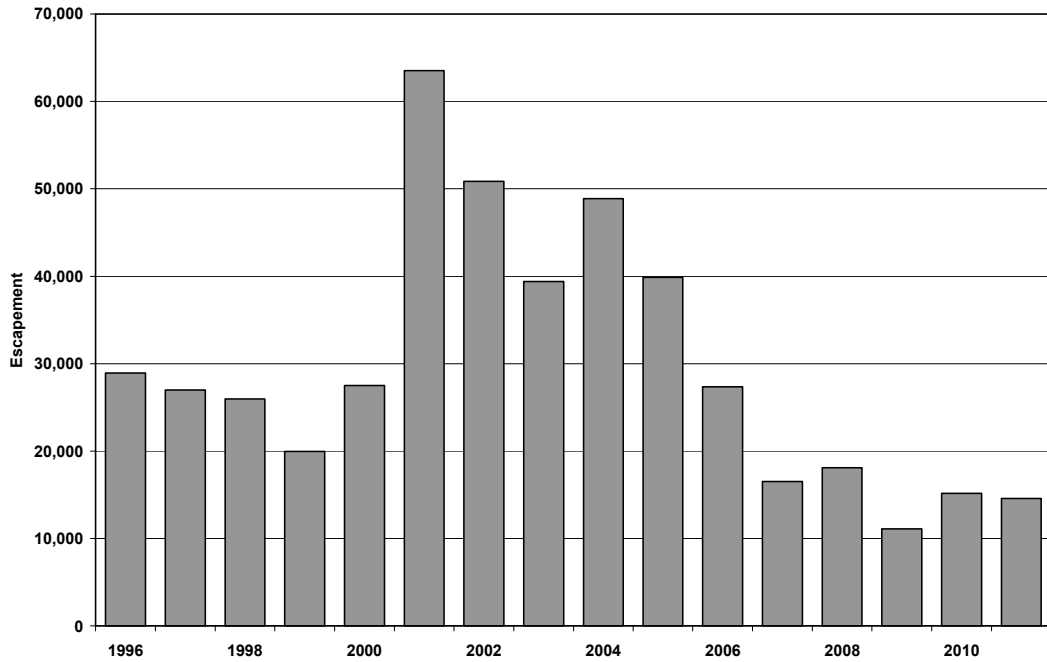


Figure 1. Escapements of chinook salmon to the Stikine River 1996-2011.

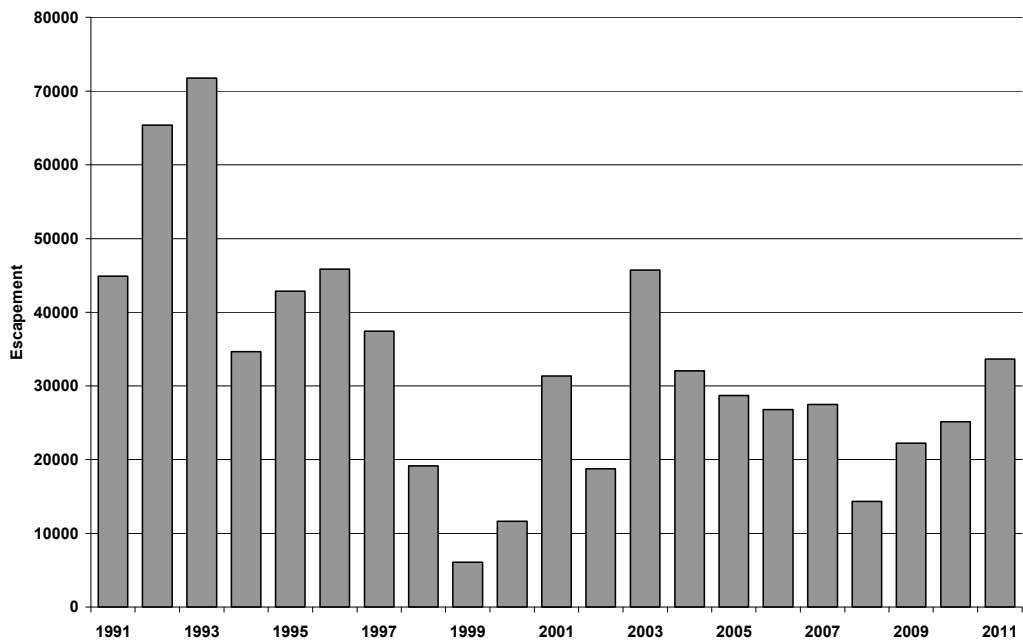
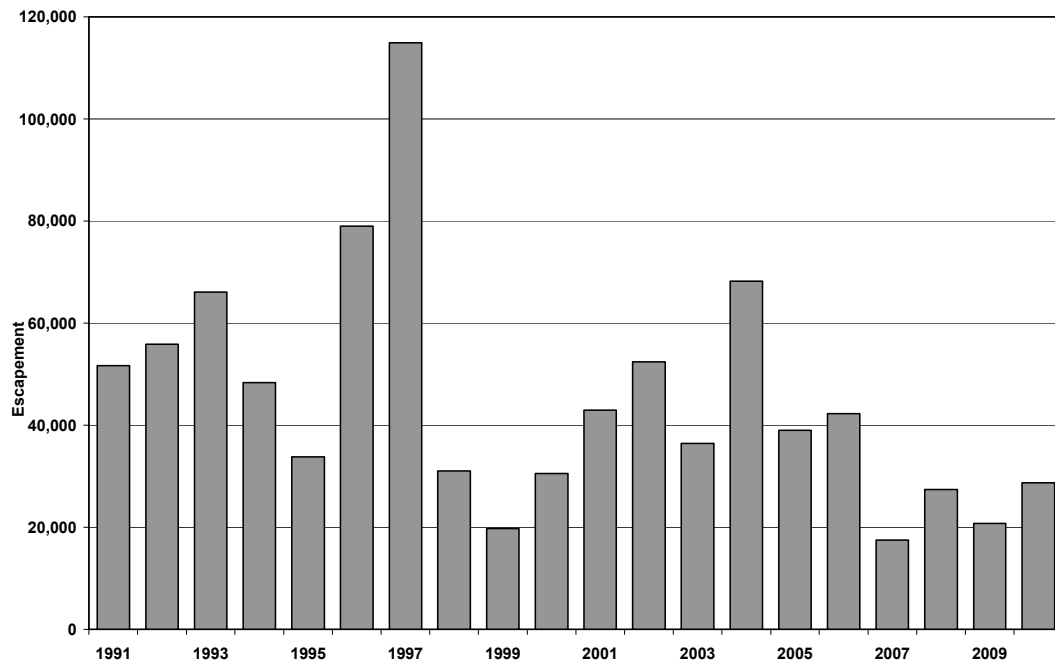
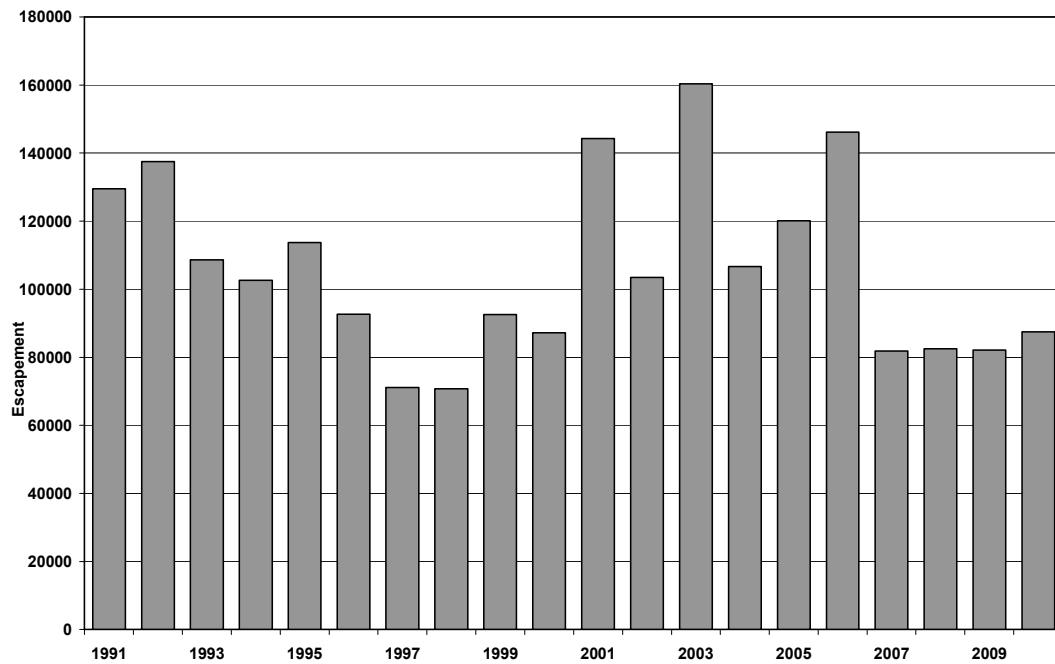


Figure 2. Escapements of sockeye salmon to the Stikine River, 1991-2011. (Note: Based on post season run size calculations exclusive of the Tahltan Lake stock.)



**Figure 3. Escapements of chinook salmon to the Taku River 1991-2011.** (Due to limited mark-recapture data, the 2011 escapement estimate is based on expansion of aerial survey counts).



**Figure 4. Escapements of sockeye salmon to the Taku River 1991-2011.**

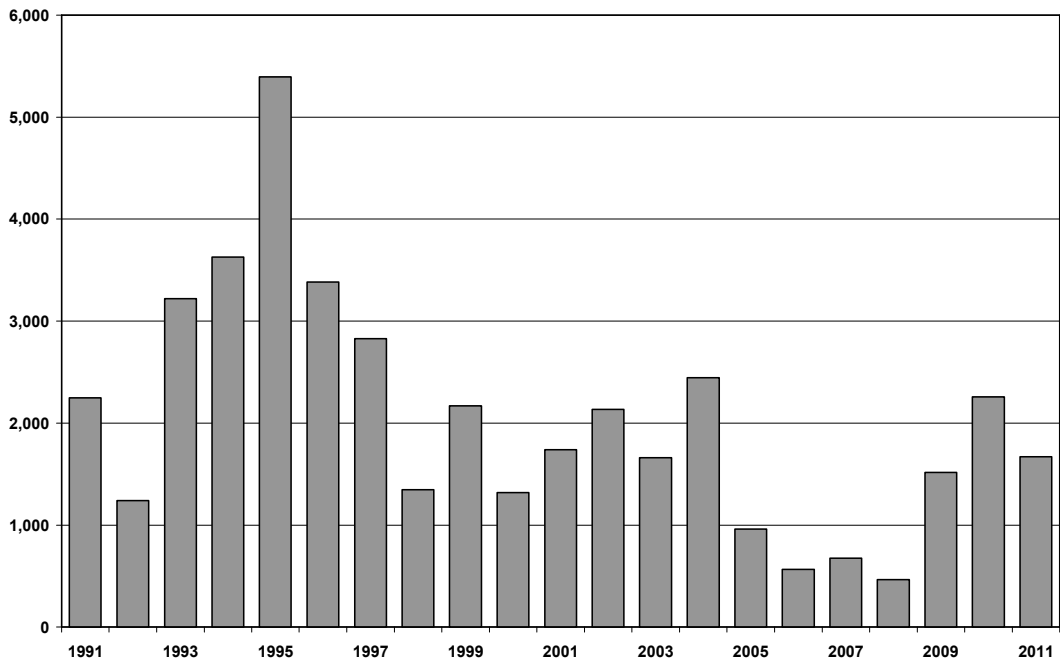


Figure 5. Escapements of chinook salmon to the Klukshu River 1991-2011.

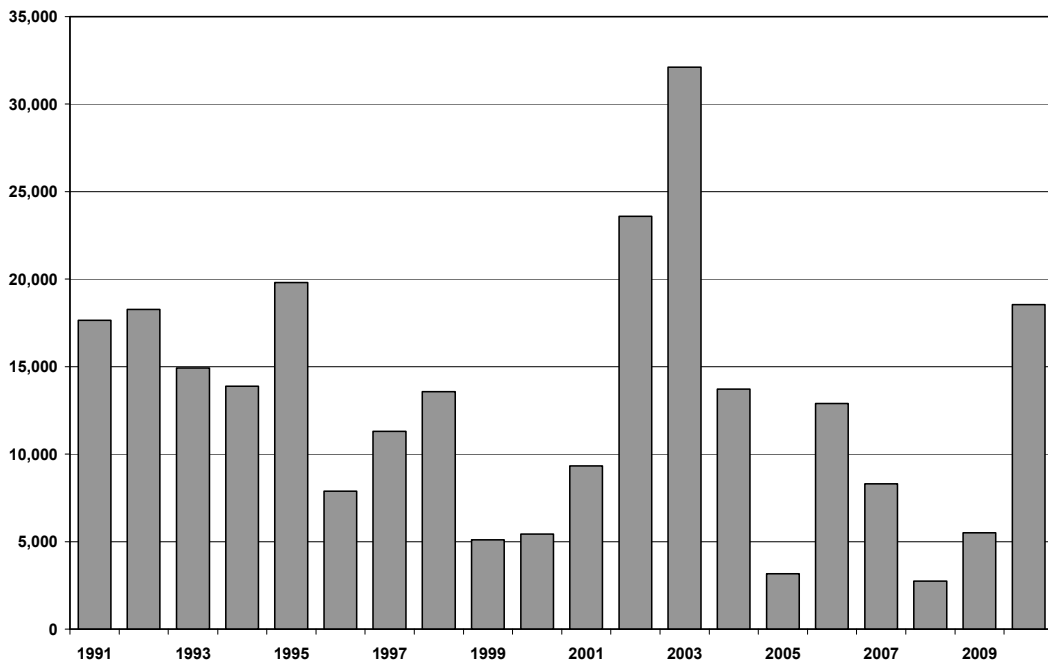


Figure 6. Escapements of sockeye salmon to the Klukshu River 1991-2011.

## 4.1 Budget and Project Operations

As presented in Appendix 2, the expenditures of Northern Funds amounted to \$49,958 pending receipt of the final 10%, i.e. \$4,958. The greatest expenditure was in the site / project costs category, and was primarily for helicopter charter. The overage in this category was offset by an underage in the labour category. Casual hires rather than contractors / consultants conducted some of the sampling. A summary of Fund expenditures in relation to budgeted amounts is as follows:

- a) Labour
  - i) technicians/ surveyors: 0 (actual: 3,140)
  - ii) subcontractors and consultants: 17,500 (actual: 7,219; balance: 10,281)Total: 17,500 (actual: 11,515; balance: 5,985)
  
- b) Site / Project Costs
  - i) travel: 29,500 (actual: 34,935; balance: -5,435)
  - ii) repairs and maintenance: 0 (actual: 51)
  - iii) equipment: 0 (actual: 796)
  - iv) supplies and materials: 2,700 (actual: 1,181; balance: 1,519)
  - v) work and safety gear: 0 (actual: 1,281)Total: 32,200 (actual: 38,243; balance: -6,043)
  
- c) Overhead / Indirect Costs
  - i) shipping: 300 (actual: 201; balance: 99)
  
- d) Estimated value
  - i) **\$50,000** in cash (actual: **\$49,958**; balance: **\$42**)

## 5.0 Conclusion

More progress was made towards achieving the 200 sample target for a number of baseline stocks in 2011. As of 2010, collections for the easily accessible and abundant stocks were complete. However, as noted in previous reports, due to limited accessibility and abundance sample collection for other stocks is extremely challenging and could take several years. Radio or acoustic tagging, if undertaken in the future, could assist in this endeavour (collection of tissue samples at time of application from fish subsequently tracked to spawning areas eliminates the need to sample there). However, radio and acoustic tagging programs are costly, and there are currently no plans or funding to undertake them.

## 6.0 Acknowledgements

Individuals who assisted with sample collection include Sean Stark, Kirstie Falkevitch, Shawn McFarland, Mark McFarland, Elizabeth MacDonald, Andy Carlick, Johnny Sembsmoen, Jodie Mackenzie-Grieve, Mike Martin, Manon Fontaine, Marty Mossop, and Clodie-Pascale Brassat-Villeneuve of DFO; Alex Joseph, Kyle Inkster, and Clayton Tashoots of the Tahltan First Nations; and Joseph Jack, Jason Brockman-Jack, Mark Connor and Jerry Jack of the Taku River Tlingit First Nation. Colleen Claggett, Rhonda Hickey and Marnie Barteaux of DFO assisted with administration and accounting.

## 7.0 Literature Cited

Pacific Salmon Commission 2007. Joint Transboundary Technical Committee Report. TCTR 07-02: *Summary of the Transboundary Genetic Stock ID Workshop: January 18-19, 2007.*

Pacific Salmon Commission 2011. Joint Transboundary Technical Committee Report. TCTR (11)-3. *Salmon management and enhancement plans for the Stikine, Taku and Alsek rivers, 2011.*

## **Appendix 1.**

### **Transboundary Technical Committee Sample Targets**

Excerpt from: *Pacific Salmon Commission 2011. Joint Transboundary Technical Committee Report. TCTR (11)-3. Salmon management and enhancement plans for the Stikine, Taku and Alsek rivers, 2011.*

**Appendix Table 7. Proposed Genetic stock ID field projects, 2011.**

Project/Dates	Function	Priority	Agency
<b>Stikine Chinook baseline samples (sample goal 200 per population)</b>			
	Farragut– need 65	M	ADF&G/NMFS
	East or North Bradfield – need 164	H	ADF&G/NMFS
	Harding – need 155	M	ADF&G/NMFS
	Tahltan R. – need 0		DFO/ADF&G
	Chutine – need 200	M	DFO
	Tuya – need 176	M	DFO
	Beatty – need 200	M	DFO/ADF&G
	Bear – need 200	H	DFO
	Johnny Tashoots Creek – need 120	H	DFO
	Craig - need 87	M	DFO
	Katete - need 200	L	DFO
	Stikine (above Chutine) - need 200	L	DFO
	Stikine (below Chutine) - need 200	M	DFO
	N. Arm (US section) - need 182	L	ADF&G
	Goat (US section) - need 177	L	ADF&G
	Alpine/Clear (US section) - need 100	L	ADF&G
	Kikahe (US section) - need 177	L	ADF&G
<b>Stikine Chinook fishery samples</b>			
	Lower Stikine commercial fishery – target is 120 per week		DFO
	Kakwan Pt tagging site – collect tissues from each fish		ADF&G/DFO
	D-108 GN – 120/wk (directed); 80/wk (non-directed)		ADF&G
	D-108 sport - Petersburg target sample is 450; Wrangell is 200 spread over season.		ADG&G
	D-108 spring troll - Petersburg target sample is 100; Wrangell is 300 spread over season.		ADF&G
<b>Stikine sockeye baseline samples (sample goal 200 per population)</b>			
	Scud – need 0		DFO
	Porcupine – need 135	H	DFO
	Tahltan R – need 200	L	DFO
	Stikine mainstem – Andy Smith – need 168	H	DFO
	Stikine mainstem – Fowler – need 168	H	DFO
	Verrett River – need 57	H	DFO
	Iskut – Verrett Slough – need 180	H	DFO
	Iskut – Inhini Slough– need 200	H	DFO
	Iskut - Bronson Slough– need 121	L	DFO
	Iskut – Bugleg Slough – need 200	L	DFO
	Iskut - Twin – need 200	L	DFO
	Iskut – Craigson Slough - 157	H	DFO
	Iskut – Craig – need 151	H	DFO
	Chutine Lake – need 103	H	DFO
	Chutine R. – need 0		DFO
	Christina Lake (lake spawners) – need 137	H	DFO
	Christina Lake (inlet spawners) – need 200	H	DFO
	Katete – need 200	M	DFO

**Appendix Table 7 (cont'd)**

Project/Dates	Function		Agency
<b>Stikine steelhead baseline samples</b>			
Collect bulk samples opportunistically from inriver fisheries.			
Shakes SI (US section) – need 146		L	ADF&G
Andrew Cr (US section) – need 197		L	ADF&G
<b>Stikine sockeye fishery samples</b>			
Lower Stikine commercial fishery – target is 120 per week			DFO
Lower Stikine test fishery – target is 120 per week			DFO
Upper Stikine test fishery – sample goal is 200.			
D-108 – sample goal for Petersburg and Wrangell 520/wk/combined			ADF&G
D-106 – sample goal for Sumner and Clarence is 520/wk/ea – 106- 30, 106-41			ADF&G
<b>Taku Chinook baseline samples</b>			
Yeth- need 153		H	DFO
King Salmon- need 185		H	DFO
Sloko- need 200		M	DFO
mainstem Taku- need 200		L	DFO
Sutlahine- need 200		L	DFO
Tseta- need 39		M	
<b>Taku Chinook fishery samples</b>			
Taku assessment fishery – sample target is 120/wk			DFO
Taku commercial fishery – target is 120/wk			DFO
D-111 – sample target is 120/wk (directed); incidental non- directed, n=80/wk			ADF&G
Juneau area sport – sample target is 600			ADF&G
<b>Taku sockeye baseline samples</b>			
King Salmon - need 200		H	DFO/TRT
Taku Mainstem –			
	Yellow Bluff – need 166	L	DFO/ADF&G
	Tuskwa Creek- need 181	L	DFO/ADF&G
	Takwahoni – need 131	M	DFO/ADF&G
	Yonakina – need 200	L	DFO/ADF&G
	Other Taku mainstem – opportunistic	L	DFO/ADF&G
Hackett- need 6		L	DFO
Nakina– need 194		M	TRT
Fish Cr (US section) – need 126		H	ADF&G
Yehring (US section) – need 19		H	ADF&G
Johnson (US section) – need 200		L	ADF&G
Samotua - need 200		L	DFO
<b>Taku steelhead baseline samples</b>			
Collect bulk samples opportunistically from the fish wheels and inriver fisheries.			

Appendix Table 7. (cont'd)

Project/Dates	Function	Agency
<b>Taku sockeye fishery samples</b>		
Taku Inriver commercial fishery – target is 125 per week		DFO
D-111 – sample target is up to 800 weekly		ADF&G
<b>Alsek Chinook baseline samples</b>		
Goat Cr. – need 109		H DFO
Lofog – need 200		L DFO
mainstem Tatshenshini (middle, i.e. Kudwat) – need 169		H DFO
mainstem Tatshenshini (lower) – need 200		H DFO
mainstem Tatshenshini (upper) – need 200		H DFO
mainstem Alsek – need 200		L DFO
Tweedsmuir – need 195		
<b>Alsek sockeye baseline samples</b>		
Klukshu River early – need 193		H DFO
Blanchard Lake- need 21		H DFO
Takhanne R. – need 200		H DFO
Goat Cr – need 188		M
Mainstem Tatshenshini (upper) – need 200		H DFO
Mainstem.Tatshenshini (lower) –		DFO
	Tats Lake- need 200	M DFO
	Detour- need 200	L DFO
	Kudwat- need 148	M DFO
	Stinky- need 200	L DFO
Alsek mainstem (Can) – need 15		H DFO
Vern Ritchie – need 10		L
Tweedsmuir – need 78		M
Alsek mainstem (US) - need 163		L ADF&G
Border Slough – need 98		M
Tanis (US section) - need 200		L ADF&G
Basin (US section) - need 200		H ADF&G
Ahrnklin R- need 10		L ADF&G
Akwe- need 7		L ADF&G
Italio- need 200		L ADF&G
Lost- need 13		M ADF&G
Dangerous- need 0		ADF&G
<b>Alsek fishery samples</b>		
Chinook test fishery – all fish		ADF&G
Dry Bay commercial – Chinook and sockeye – target is 800 sockeye and 600 Chinook spread over run.		ADF&G



Appendix Table 7. (cont'd)

GSI sampling protocol:

- the target sample size is 200 adult samples per population.
- the preferred tissue to sample is the axillary appendage. For baseline samples, each fish will be sampled for two appendages; one to be sent to the DFO lab and the other to the ADF&G lab. For fishery samples, each fish will be sampled for one axillary appendage which will be shared if requested.
- if opercular punches are taken, two punches will be taken from each fish, again one for each of the respective labs. To eliminate problems associated with potential delamination of punches in composite samples i.e. where punches from one population and/or location are all stored in one vial as has been the practice, opercular punches will now be stored in individual labeled vials.
- Axillary appendages and opercular punches will be stored in ethanol (full strength) and each sample appropriately labeled (date, location (GPS), species, number of samples, fixative and volume thereof, collector, contact name, agency, phone number).
- although it is recognised that there are potential efficiencies in terms of effort, time, storage, shipping and archiving associated with using scale samples for GSI, this should not be a tissue of choice when obtaining fishery or other samples for GSI (e.g. out of a tote) but may be used as last resort.

**Appendix 2.**

**Financial Summary**

# Project Budget Form

**Name of Project:** Stikine, Taku, and Alsek River Chinook and sockeye DNA baseline sampling

**ELIGIBLE COSTS**

**Labour**

**Wages & Salaries**

Position	# of crew	# of work days	hrs per day	rate per hour	Total (In-kind + cash + PSC Amount)
project manager (DFO Bi-4)	1	2	7.5	42	632
biologist (DFO Bi-3)	1	7	7.5	39	2,048
Stikine technician (DFO Eg-5)	1	9	7.5	35	2,356
Alsek technician (DFO Eg-5)	1	9	7.5	35	2,356
Taku technician (DFO Eg-5)					
Financial officer (DFO As-2)	1	9	7.5	30	2,025
Sampling Technicians	2	15	7.5	32	7,200
Person Days (# of crew x work days)		51		sub total	16,617

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
632			-
2,048			-
2,356			-
2,356			-
			-
2,025			-
7,200		3,140	(3,140)
16,617	-	3,140	(3,140)

TOTAL PROJECT BUDGET

OTHER FUNDING

PSC N. FUND GRANT AMOUNT

**Labour - Employer Costs ( percent of wages subtotal amount )**

rate	0%	sub total	-
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-	-	1,156	(1,156)
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**Subcontractors & Consultants**

	# of crew	# of work days	hrs per day	rate per hour	Total
Stikine (rate includes boat)	2	14	10	37.5	10,500
Taku	2	14	10	25	7,000
Insurance if applicable	rate	0%			
				sub total	17,500

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
	10,500	7,219	3,281
	7,000	-	7,000
			-
			-
			-
-	17,500	7,219	10,281

**Volunteer Labour**

	# of crew	# of work days	hrs per day	rate per hour	Total
Skilled					
Un-skilled					
Insurance if applicable	rate	0%			
				sub total	

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
			-
			-
			-
			-

**Total Labour Costs** 34,117

16,617	17,500	11,515	5,985
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**Site / Project Costs**

**Provide details in the space below (use an additional page if needed)**

Travel (do not include to & from work)	aircraft charters	29,500
Small Tools & Equipment		
Site Supplies & Materials	groceries & field supplies	2,700
Equipment Rental		
Work & Safety Gear		
Repairs & Maintenance		
Permits		
Technical Monitoring		
Other site costs		
<b>Total Site / Project Costs</b>		32,200

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
	29,500	34,935	(5,435)
		796	(796)
	2,700	1,181	1,519
			-
		1,281	(1,281)
		51	(51)
			-
			-
			-
-	32,200	38,243	(6,043)

**Training (e.g Swiftwater, bear aware, electrofishing, etc).**

Name of course	# of crew	# of days	Total (PSC + In-kind + cash)
<b>Total Training Costs</b>			-

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
			-
			-
			-
			-
			-
			-
			-
			-
-	-	-	-

**Overhead / Indirect Costs**

Office space; including utilities, etc.		800
Insurance		
Office supplies		100
Telephone & long Distance		500
Photocopies & printing		
Indirect/overhead costs		
(If the PSC contribution to indirect costs exceeds 20% of the total PSC grant you will be required to submit back-up documentation justifying the expense).		
Other overhead costs	Shipping	300
<b>Total Overhead Costs</b>		1,700

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
800			-
			-
100			-
500			-
			-
			-
			-
			-
	300	201	99
1,400	300	201	99

**Capital Costs / Assets**

**Provide details in the space below (use an additional page if needed)**

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.

<b>Total Capital Costs</b>		

In-Kind & Cash	PSC Amount	PSC Expenditures	Balance
			-
			-
			-
			-
			-
			-
			-
			-
			-

**Project Total Costs** 68,017

18,017	50,000	49,958	42
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