

Pacific Salmon Commission, Northern Fund Final Report

**Northern & Transboundary Sockeye Salmon Matched
Scale-Tissue Sampling – Final Report for Northern
Fund, Cooperative Agreement COOP-07-116; NF-
2007-I-25**

by

Glen T. Oliver

October 2008

Alaska Department of Fish and Game

Division of Commercial Fisheries



Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, Special Publications and the Division of Commercial Fisheries Regional Reports. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL			mid-eye-to-fork	MEF
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-tail-fork	METF
hectare	ha			standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L	at	@	Mathematics, statistics <i>all standard mathematical signs, symbols and abbreviations</i>	
meter	m	compass directions:		alternate hypothesis	H _A
milliliter	mL	east	E	base of natural logarithm	<i>e</i>
millimeter	mm	north	N	catch per unit effort	CPUE
		south	S	coefficient of variation	CV
Weights and measures (English)		west	W	common test statistics	(F, t, χ^2 , etc.)
cubic feet per second	ft ³ /s	copyright	©	confidence interval	CI
foot	ft	corporate suffixes:		correlation coefficient (multiple)	R
gallon	gal	Company	Co.	correlation coefficient (simple)	r
inch	in	Corporation	Corp.	covariance	cov
mile	mi	Incorporated	Inc.	degree (angular)	°
nautical mile	nmi	Limited	Ltd.	degrees of freedom	df
ounce	oz	District of Columbia	D.C.	expected value	<i>E</i>
pound	lb	et alii (and others)	et al.	greater than	>
quart	qt	et cetera (and so forth)	etc.	greater than or equal to	≥
yard	yd	exempli gratia (for example)	e.g.	harvest per unit effort	HPUE
		Federal Information Code	FIC	less than	<
Time and temperature		id est (that is)	i.e.	less than or equal to	≤
day	d	latitude or longitude	lat. or long.	logarithm (natural)	ln
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	logarithm (base 10)	log
degrees Fahrenheit	°F	months (tables and figures): first three letters	Jan, ..., Dec	logarithm (specify base)	log ₂ , etc.
degrees kelvin	K	registered trademark	®	minute (angular)	'
hour	h	trademark	™	not significant	NS
minute	min	United States (adjective)	U.S.	null hypothesis	H ₀
second	s	United States of America (noun)	USA	percent	%
		U.S.C.	United States Code	probability	P
Physics and chemistry		U.S. state	use two-letter abbreviations (e.g., AK, WA)	probability of a type I error (rejection of the null hypothesis when true)	α
all atomic symbols				probability of a type II error (acceptance of the null hypothesis when false)	β
alternating current	AC			second (angular)	"
ampere	A			standard deviation	SD
calorie	cal			standard error	SE
direct current	DC			variance	
hertz	Hz			population	Var
horsepower	hp			sample	var
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

***PACIFIC SALMON COMMISSION, NORTHERN FUND FINAL
REPORT***

**NORTHERN & TRANSBOUNDARY SOCKEYE SALMON MATCHED
SCALE-TISSUE SAMPLING**

(COOP-07-116; NF-2007-I-25)

By
Glen T. Oliver,
Alaska Department of Fish and Game, Division of Commercial Fisheries, Douglas

Alaska Department of Fish and Game
Division of Commercial Fisheries, Publications Section
P.O. Box 110024
Juneau, Alaska 99811-0024

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*Glen T. Oliver,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
802 3rd Street, Douglas, Alaska, USA*

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	II
ABSTRACT	1
INTRODUCTION.....	1
PROJECT DELIVERABLES.....	2
DISCUSSION.....	6
TANGIBLE BENEFITS.....	6
BUDGET SUMMARY	7

LIST OF TABLES

Table	Page
Table 1.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 101 gillnet fishery.....	3
Table 2.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 106 gillnet fishery.....	3
Table 3.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 108 gillnet fishery.....	4
Table 4.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 101-29 purse seine fishery.....	4
Table 5.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 102-80 purse seine fishery.....	5
Table 6.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 104 purse seine fishery.....	5
Table 7.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 105-41 purse seine fishery.....	5
Table 8.–Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 107-10 purse seine fishery.....	5

Alaska Department of Fish and Game

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10/21/08

Vendor Name	Description	Invoice #	Inv Date	Trans	D Type/Number	Acct	Amount	Verified	Rec Num
APPERSON PRINT MGNT	25,000 ADFG SALMON MA		10/1/07	110	EN	1184102 74522	(\$6,975.00)	1007	4503417
APPERSON PRINT MGNT	25,000 ADFG SALMON MA		10/1/07	110	EN	1184102 74522	\$6,975.00	1007	4503420
APPERSON PRINT MANAG	cODE CHANGED FROM 11		9/18/07	110	EN	1184102 73756	\$6,975.00	0907	4501141
Subtotal for Transaction Code 110 \$6,975.00									
ANNE BERG'S AJE LINE 10	FROM 11110104 TO 113112		10/31/07	310	AJE	2064871 71975	\$5,351.52	1107	4503058
BERG//US TRAVEL	JNU-KTN 11/09-17/07 STO	5056698148	10/15/07	310	PCD	72116	\$17.00	1207	4503547
BALE, R.	KTN AIRPORT FERRY 10/3	11042007	11/4/07	310	TA	72112	\$10.00	1107	4502575
BERG//MENDENHALL BRA	CASH ADVANCE	1935	11/5/07	310	PCD	72116	\$252.00	1207	4503548
BALE, R.	MEALS 10/31-11/4 SALMON	11042007	11/4/07	310	TA	72114	\$164.00	1107	4502576
BERG//CASH ADVANCE ITE	CASH ADVANCE FEE	1935	11/5/07	310	PCD	72930	\$5.61	1207	4503549
RUMBLE//OFFICE PLUS	LABEL	1042326-0	3/6/08	310	PCD	74229	\$530.20	0408	4507543
BLUE SKIES SOLUTIONS	ARCGIS II TRAINING	250	11/5/07	310	INV	73913	\$997.50	1107	4503221
JASON MCGINLEY pp12	FROM 11311288 TO 113111		6/15/08	310	AJE	2132509 71970	(\$1,453.85)	0808	4511883
LYNDEEN TRANSPORT	SAMPLES KTN-ANC	6043934	9/27/07	310	INV	73226	\$79.67	1007	4501881
CELLULAR ONE	723-8570 FROM 104 TO 11	0910143226	7/12/07	310	AJE	2064871 73404	\$94.41	1107	4502992
KTN LOCK & KEY	RICHARD HAMLIN	2684	6/22/08	310	INV	73688	\$504.00	0708	4510404
LOBDELL, B.	PCF-KTN/ KTN FERRY/ EQ	10122007	10/12/07	310	INV	72112	\$22.00	1207	4502338
BERG//ALASKA AIR CARG	SHIPPING	0277279780	2/12/08	310	PCD	73226	\$112.92	0308	4505842
BALE / ALASKA AIR	RT JNU 10/31-11/4 SALMO	0272112190	10/4/07	310	PCD	72111	\$222.00	1207	4502341
BALE / US TRVL - AGENCY	RT JNU 10/31-11/4 SALMO	5056696740	10/4/07	310	PCD	72116	\$17.00	1207	4502342
ACS	752-0072 FROM 104 TO 131	0040051095	7/25/07	310	AJE	2064871 73404	\$7.09	1107	4502995
RICE,J	PSG-JNU//11/06-11/2007	JER04229	11/15/07	310	TA	72114	\$300.00	1107	4504244
REYNOLDS//FRED MEYER	JUMP DRIVES	041508	5/5/08	310	PCD	74754	\$69.99	0508	4507947
MCGINLEY,JASON D	PP13		6/30/08	310	PAY	71000	\$3,606.64	0708	2314269
ALASKA MARINE LINES	REYNOLDS.A//OFFICE SUP	302106	6/26/08	310	PCD	73226	\$61.50	0608	4508650
WORLDCOM	KTN TENDER-SATPHN Fro	140130	7/1/07	310	AJE	2064871 73405	\$25.12	1107	4502999
K AND M FISHERIES	TENDER RIDER PMT 07/3,0	070307, 07/1	7/3/07	310	AJE	2064871 73689	\$800.00	1107	4503002
JUNE	LEAVE AND HOLIDAY		6/26/08	310	PAY	71975	\$122.26	0608	4511263
JULY	LEAVE AND HOLIDAY		7/1/08	310	PAY	71975	\$249.29	0708	4511264
LAZNACK CORPORTION	TENDER RIDER 7/7-7/10/07	071007	7/10/07	310	AJE	2064871 73689	\$400.00	1107	4503004
ALASKA AIRLINES	RICE,J PSG-JNU	0277152087	11/7/07	310	CTA	72111	\$318.01	1207	4503218
STO	RICE,J PSG-JNU	8108436229	11/7/07	310	CTA	72116	\$16.00	1207	4503219
K & M FISHERIES	TENDER RIDER 5 DAYS 7/2	072507	7/25/07	310	AJE	2064871 73689	\$500.00	1107	4503006
BERG//LYNDEEN TRANSP		1265	10/12/07	310	PCD	73226	\$80.32	1207	4502385
TOMI MARSH/ T/V SAVAGE	TENDER RIDER 7/6-7/11/07	07112007	7/11/07	310	AJE	2064871 73751	\$600.00	1107	4503009
TOMI MARSH / F/V SAVAG	TENDER RIDER 7/17 - 1 DA	07172007	7/17/07	310	AJE	2064871 73751	\$100.00	1107	4503011
JOHN OAKS / MISS MARY	TENDER RIDER 7/15-7/16,1	07162007	7/16/07	310	AJE	2064871 73751	\$400.00	1107	4503013
HAMMER & WIKAN	FROM 0107 TO 11311288	170635	7/11/07	310	AJE	2057499 74754	\$6.99	1107	4502016
HAMMER & WIKAN	FROM 0107 TO 11311288	171530	7/20/07	310	AJE	2057499 74754	\$28.21	1107	4502017
W. RHODES / F/V NAKWASI	TENDER RIDER 7/16-7/17 2	07172007	7/17/07	310	AJE	2064871 73751	\$200.00	1107	4503015
RICE//ALASKA AIRLINES	AIRFARE PSG-JNU	0277151471	10/16/07	310	PCD	72111	\$194.00	1207	4502668
RICE//STO	AGENT FEE PSG-JNU	5056698263	10/16/07	310	PCD	72116	\$17.00	1207	4502669
DAVID SHELDON / F/V GEN	TENDER RIDER 7/22-25 4	07252007	7/25/07	310	AJE	2064871 73751	\$400.00	1107	4503017
BALE / PROSPECTOR HOT	LOGGING 10/31-11/03 MGT	175237	11/3/07	310	PCD	72113	\$327.00	1207	4503127
LOBDELL / USPS KETCHIK	LOG BOOKS KTN-DOUGLA	543	7/18/07	310	AJE	2064871 73228	\$28.49	1107	4503019
BALE / AFS - AK CHAPTER	MTG REGISTRATION 11/13-	262	10/17/07	310	PCD	73026	\$220.00	1207	4502796
MCGINLEY,JASON D	PP12		6/15/08	310	PAY	71000	\$1,453.85	0608	2312156
BERG//USPS DOUGLAS	POSTAGE FROM 104 TO 11	645	7/12/07	310	AJE	2064871 73228	\$12.70	1207	4503022
APPERSON PRINT MANAG	11J04208	880016	2/5/08	310	EN	1184102 73756	\$6,975.00	0308	4507289
APPERSON PRINT MANAG	11J04208	880016	2/5/08	310	INV	73756	\$697.50	0308	4507290
JANET RUMBLE	TRANSPORTATION JNU-KT		11/20/07	310	TA	72112	\$10.00	1107	4504245

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Vendor Name	Description	Invoice #	Inv Date	Trans	D Type /Number	Acct	Amount	Verified	Rec Num
CELLULAR ONE	723-8570 FROM 104 TO 113	0910143226	7/26/07	310	AJE	2064871 73404	\$91.11	1107	4503024
ACS	752-0072 FROM 104 TO 113	0040051095	8/12/07	310	AJE	2064871 73404	\$7.72	1107	4503026
JANET RUMBLE	PD 11/14-16/2007 JNU-KTN	JAR97203	11/26/07	310	TA	72114	\$240.00	1107	4504246
AK MARINE LINES	FREIGHT	89868	11/5/07	310	INV	73226	\$2.00	1107	4504247
MCGINLEY, J.	MEAL PER DIEM 6/15-18	06182008	6/18/08	310	TA	72114	\$16.00	0608	4510216
MCGINLEY, J.	TAQUAN FLT KTN-COFFMA	1746	6/15/08	310	TA	72111	\$181.60	0608	4510217
DAVID SHELDON / F/V GEN	TENDER RIDER 7/28-8/01 F	080107	8/1/07	310	AJE	2064871 73751	\$500.00	1107	4503028
ALASKA MARINE LINES	1 BOX ALCOHOL NOS 3 U	644897	9/19/07	310	INV	73226	\$75.73	1007	4501891
DAVE SHELDON/ F/V GENE	TENDER RIDER 8/4-8/07 FR	08072007	8/7/07	310	AJE	2064871 73751	\$400.00	1107	4503030
JOHN OAKS/ F/V MISS MAR	TENDER RIDER 6/15-6/17/0	06172008	6/17/08	310	INV	73751	\$300.00	0608	4510271
ICICLE SEAFOODS	WETLOCK BOXES	60867	10/11/07	310	INV	74523	\$255.00	1107	4503207
DAVE SHELDON / F/V GEN	TENDER RIDER 8/11-8/14 F	08142007	8/14/07	310	AJE	2064871 73751	\$400.00	1107	4503034
TOMI MARSH / F/V SAVAG	TENDER RIDER 8/26-8/29/0	08292007	8/29/07	310	AJE	2064871 73751	\$400.00	1107	4503036
AML	FREIGHT-BOX COMP AND	665261	10/11/07	310	INV	73226	\$52.43	1207	4503331
BERG//DAY-TIMER	DESK COASTLINES REFILL	56818670	7/5/07	310	AJE	2064871 74229	\$43.74	1107	4503038
AML	FREIGHT-BX ETHANOL -LO	658930	9/27/07	310	INV	73226	\$75.73	1107	4503332
BERG//IDENTI-TAPE INC.	FLAGGING TAPE FROM 10	43515	7/6/07	310	AJE	2064871 74754	\$273.90	1207	4503040
BERG//IDENTI-TAPE INC.	FLAGGING TAPE FROM 10	43605	7/10/07	310	AJE	2064871 74754	\$695.90	1207	4503042
AML	FREIGHT/ANNE BERG TO 1	645009	8/30/07	310	AJE	2064871 73226	\$75.73	1207	4503044
RICE//PROSPECTOR HOTE	LODGING 10/31-11/3/07	175344	11/3/07	310	PCD	72113	\$327.00	1207	4503107
RICE//BUDGET CAR RENT	CAR RENTAL 11/6-10/2007	110607	11/6/07	310	PCD	72112	\$148.00	1207	4503340
BERG//LODGING WITH FA	STAYED WITH FAMILY DU	111707	11/17/07	310	PCD	72113	\$180.00	1107	4503586
RICE//BUDGET RENT A CA	CAR RENTAL 10/31-11/3/07	110307	11/3/07	310	PCD	72112	\$74.00	1207	4503108
BERG//KTN FERRY TO AIR	TOOK KTN FERRY ACROS	111707	11/17/07	310	PCD	72112	\$5.00	1107	4503587
CELLULAR ONE	723-8570 FROM 104 TO 113	0910143226	8/26/07	310	AJE	2064871 73404	\$90.65	1207	4503046
RICE//MIKES AIRPORT EXP	GAS FOR RENTAL CAR 10/	110307	11/3/07	310	PCD	72116	\$9.56	1207	4503110
RICE//PROSPECTOR HOTE	LODGING 11/6-10/2007	175751	11/6/07	310	PCD	72113	\$436.00	1207	4503341
RICE,J	PSG-JNU//10/31-11/3/07	JER04229	11/5/07	310	TA	72114	\$180.00	1107	4503111
RUMBLE//US TRAVEL	STO FEE	8108843547	10/30/07	310	PCD	72116	\$17.00	1207	4503503
BERG//PER DIEM	PER DIEM FOR AFS CONF	111707	11/17/07	310	PCD	72114	\$82.00	1107	4503588
WCC - SATELLITE	KTN-TENDER RIDER 8/1-8/	AW0807026	8/31/07	310	AJE	2064871 73405	\$36.14	1207	4503048
RUMBLE//ALASKA AIRLINE	AIRLINE TICKET	0272113270	10/31/07	310	PCD	72111	\$292.40	1207	4503505
RICE//MIKES AIRPORT EXP	RENTAL CAR GASOLINE	111007	11/10/07	310	PCD	72116	\$27.03	1207	4503342
PETERSBURG SHIPWRIGH	GLOVES FROM 104 TO 113	27302	7/13/07	310	AJE	2064871 74754	\$22.40	1207	4503050
RUMBLE//US TRAVEL	STO FEE - CHANGED HOT	8108435533	10/31/07	310	PCD	72116	\$17.00	1207	4503507
BERG//UNIVERSAL PAPER	STORAGE BOX	2066359-IN	2/25/08	310	PCD	74525	\$1,897.36	0408	4507524
RICE//BW LANDING HOTEL	LODING 11-10-07	136918	11/1/07	310	PCD	72113	\$98.00	1207	4503343
RUMBLE//THE GILMORE H	HOTEL ROOM CHARGES 2	11966	11/16/07	310	PCD	72113	\$149.98	1207	4503508
RUMBLE//AMERICAN FISH	CONFERENCE FEE	111407	11/14/07	310	PCD	73026	\$240.00	1207	4503509
RUMBLE//PAKS CUSTOM P	AIRPORT PARKING 3 DAYS	276118	11/16/07	310	PCD	72112	\$36.00	1207	4503510
WCC - SATPHONE	KTN TENDER RIDER 50991	AW0707025	8/1/07	310	AJE	2064871 73405	\$82.98	1207	4503052
RICE,J	PSG-JNU//11/06-11/2007	111307	11/13/07	310	TA	72112	\$10.00	1107	4503344
RUMBLE//ALASKA AIR CAR	GERNEAL CARGO	0277286126	6/10/08	310	PCD	73226	\$105.51	0708	4510015
ALASKA MARINE LINES	FREIGHT FROM 104 TO 11	654606	9/19/07	310	AJE	2064871 73226	\$75.73	1207	4503054
OLSEN//FED EX EXPRESS	POSTAGE	8641057895	12/19/07	310	PCD	73228	\$23.97	1207	4504587
ANNE BERG'S AJE LINE 10	FROM 11110104 TO 113112		10/31/07	310	AJE	2064871 71970	\$60,052.66	1107	4503057
BERG//ALASKA AIRLINES	JNU-KTN 11/09-17/2007	0272112658	10/15/07	310	PCD	72111	\$259.40	1207	4503546

Subtotal for Transaction Code 310 \$94,215.30

ABSTRACT

Matched sockeye salmon scale and tissue samples for stock identification analyses were collected from weekly catches in the 2007 and 2008 Alaska District 101, 106, and 108 drift gillnet and District 101-29, 102-80, 104, 105-41 and 107-10 purse seine fisheries.

Key words: sockeye salmon, *Oncorhynchus nerka*, matched biological sampling, scale pattern analysis, Southeast Alaska, Canada, Northern Boundary Area

INTRODUCTION

Provisions of the 1999 Pacific Salmon Treaty specify abundance-based harvest sharing agreements for Canadian Nass and Skeena River and Transboundary Stikine River sockeye salmon in selected U.S. fisheries. In these fisheries the U.S. is allowed to harvest a fixed percentage of the return of Nass, Skeena and Stikine sockeye stocks over the 1999 to 2008 duration of the agreements. Accurate estimates of the catch of Nass, Skeena and Stikine River sockeye salmon in all U.S. and Canadian commercial fisheries targeting these stocks is required, along with escapement estimates, to calculate their total return, and the percentage of that return caught in treaty-limited fisheries.

In the District 101 gillnet fishery the United States is allowed to harvest 13.8% of the Annual Allowable Harvest (AAH) of Nass River sockeye stocks. In the District 104 purse seine fishery, prior to statistical week 31 (late July), the United States is allowed to harvest 2.45% of the combined AAH of Nass and Skeena River sockeye salmon returns.

In the District 106 and 108 gillnet fisheries the U.S. is allowed to harvest 50% of the annual Total Allowable Catch (TAC) of Stikine River wild and enhanced sockeye salmon. Significant numbers of enhanced sockeye propagated under treaty agreement are caught in the District 106 and 108 fisheries and the relative strength of the wild and enhanced returns need to be assessed inseason by inspecting otoliths for thermal marks to avoid over-harvest of wild stocks.

Alaskan McDonald Lake sockeye salmon are not subject to treaty agreement but are the largest stock in southern Southeast Alaska and have been below escapement goals recently; time and area specific catch information is required for conservation efforts. McDonald Lake stocks cannot be identified accurately using scale pattern analysis, due to similarities in freshwater growth patterns shared by numerous other Alaskan stocks, so only genetic stock identification techniques are used for these estimates.

Since 1982 the catch of Canadian Nass and Skeena sockeye salmon in the District 101, 106, and 108 gillnet fisheries and the Districts 101-104 purse seine fisheries has been estimated using scale pattern analysis. Scale pattern analysis has also been used since 1982 to estimate the catch of Transboundary Stikine River sockeye salmon in the District 106 and 108 gillnet fisheries.

Scale pattern based stock identification analysis of sockeye salmon, based primarily on patterns of freshwater rearing growth, can only identify relatively large groups of stocks; e.g. Alaska, Nass, Skeena, and Stikine. Scale pattern analysis cannot accurately separate McDonald Lake sockeye from the numerous other Southeast Alaskan stocks, nor can the numerous individual sockeye stocks within the Nass, Skeena and Stikine Rivers be separated. Scale analysis is also labor intensive and time consuming and requires annual re-sampling of escapements to form an annual baseline which precludes its use inseason. These, and other problems in accurately estimating stock-specific catches and total returns of sockeye salmon in the early years of the

Pacific Salmon Treaty resulted in an extensive investigation by the bilateral Northern Boundary Technical Committee of the run reconstruction modeling process currently used. The Committee concluded that improved stock identification techniques capable of accurately estimating specific groups of stocks are needed to accurately evaluate effectiveness of and improve, if possible, existing run reconstruction methods.

Genetic Stock Identification (GSI) analyses are a powerful emerging technology. Various types of genetic stock identification techniques, including mitochondrial and SNP analysis, have demonstrated accuracy in estimating the contribution of specific sockeye salmon stocks to mixed stock fisheries in Southeast Alaska and northern British Columbia. Fisheries and Oceans Canada (DFO) started using mixed stock analysis (MSA) based on genetic markers as a marine stock identification tool in 2003. This method has been used for stock separation of Canadian Nass and Skeena in-river fisheries since 1996. DFO has a long-term plan to use MSA solely in their analysis.

Matched scale-tissue samples will allow side-by-side comparison of GSI and scale pattern based stock identification estimates in Alaskan fisheries which will be useful in indexing new GSI estimates to the scale pattern estimates which go back to 1982 and which were used in calculating the current sharing agreements. As GSI stock identification techniques are developed this powerful tool will supersede much of the current scale pattern based stock identification work. However, historical baseline interception rate estimates, on which many of the current harvest sharing annexes are based, were based on scale analysis estimates and any differences between these and the new GSI estimates will need to be considered prior to switching analytical techniques.

PROJECT DELIVERABLES

This report covers only matched sampling collection as performed by the Alaska Fish and Game Commercial Fisheries Port Sampling Project. GSI analysis, scale pattern analysis, and otolith analysis are separate projects.

The objective of this project was to representatively sample 520 matched scale-tissue samples weekly from the Districts 101, 106, and 108 gillnet fisheries; and the Districts 101-29, 102-80, 104, 105-41, and 107-10 purse seine fisheries. The District 101, 106, and 108 gillnet and 104 purse seine fisheries are subject to PST harvest sharing agreements for sockeye salmon.

A total of 23,860 matched scale-tissue samples were collected (Tables 1-8). Weekly sampling goals of 520 were sometimes not achieved due to low catches or catches from different fisheries being mixed onboard tenders before being delivered to processors. Subdistrict specific purse seine samples in particular are difficult to obtain since numerous areas are open at the same time and seiners move between areas frequently seeking concentrations of fish resulting in mixed-subarea deliveries. Sex and mid-eye-to-fork length were recorded for all fish sampled. Scales were taken from the preferred area above the lateral line on the left side of the fish on a diagonal downward from the posterior insertion of the dorsal fin to the anterior insertion of the anal fin. Tissue samples consisted of an axial process and/or otoliths.

Table 1.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 101 gillnet fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
July 7, 2007	27	7,781	520
July 14, 2007	28	7,933	480
July 21, 2007	29	3,573	520
July 28, 2007	30	6,215	520
August 4, 2007	31	10,231	520
August 11, 2007	32	5,575	520
August 18, 2007	33	2,080	440
August 25, 2007	34	825	348
September 1, 2007	35	544	160
September 8, 2007	36	403	140
September 15, 2007	37	120	20
September 22, 2007	38	18	5
June 21, 2008	25	3,291	520
June 28, 2008	26	4,540	520
July 5, 2008	27	7,383	1,029
Total		60,512	6,262

Table 2.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 106 gillnet fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
July 7, 2007	27	5,687	657
July 14, 2007	28	9,648	810
July 21, 2007	29	9,492	1,077
July 28, 2007	30	6,723	1,020
August 4, 2007	31	2,701	560
August 11, 2007	32	2,803	600
August 18, 2007	33	3,971	638
August 25, 2007	34	2,361	460
September 1, 2007	35	1,121	93
September 8, 2007	36	356	0
September 15, 2007	37	76	0
September 22, 2007	38	37	0
June 14, 2008	24	83	0
June 21, 2008	25	1,214	260
June 28, 2008	26	3,544	539
July 5, 2008	27	7,383	1,029
Total		57,200	7,743

Table 3.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 108 gillnet fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
July 7, 2007	27	14,654	394
July 14, 2007	28	9,162	520
July 21, 2007	29	5,899	492
July 28, 2007	30	3,300	350
August 4, 2007	31	2,116	299
August 11, 2007	32	869	185
August 18, 2007	33	478	8
August 25, 2007	34	189	13
September 1, 2007	35	169	35
September 8, 2007	36	45	0
September 15, 2007	37	2	0
June 14, 2008	24	78	0
June 21, 2008	25	2,041	310
June 28, 2008	26	10,604	528
July 5, 2008	27	6,790	460
Total		56,396	3,594

Table 4.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 101-29 purse seine fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
July 28, 2007	30	3,656	360
August 4, 2007	31	5,501	400
August 11, 2007	32	4,596	430
August 18, 2007	33	3,158	120
August 25, 2007	34	966	180
September 1, 2007	35	269	0
Total		18,146	1,490

Table 5.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 102-80 purse seine fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
September 1, 2007	35	450	0
Total		450	0

Table 6.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 104 purse seine fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
July 7, 2007	27	7,406	113
July 14, 2007	28	17,547	499
July 21, 2007	29	21,619	520
July 28, 2007	30	65,563	520
August 4, 2007	31	206,860	515
August 11, 2007	32	205,054	500
August 18, 2007	33	170,051	520
August 25, 2007	34	47,428	260
September 1, 2007	35	29,138	200
Total		770,666	3,647

Table 7.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 105-41 purse seine fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
August 18, 2007	33	126	0
August 25, 2007	34	1	0
Total		127	0

Table 8.—Weekly matched scale-tissue samples collected and digitized for scale pattern analysis from Alaska’s District 107-10 purse seine fishery.

Week Ending	Statistical Week	Sockeye Catch	Matched Scale-Tissue Samples
August 4, 2007	31	1,633	440
August 11, 2007	32	2,551	484
August 18, 2007	33	3,218	200
August 25, 2007	34	550	0
September 1, 2007	35	345	0
Total		8,297	1,124

Analytical results of the matched sample analyses will be correlated using a unique number assigned to each scale sample digitized. This unique number is listed for each digitized scale in the Alexander database which also lists the numbered vial containing the matching tissue sample. Since all scales cannot be digitized this database will be used both to identify which tissues should be analyzed and to compare both individual and pooled stock identification estimates generated by the two techniques.

This project was funded for the period July 1, 2007 through June 30, 2008. Traditional purse seine fisheries do not begin until the first Sunday in July so there are only samples from 2007 for these fisheries. Traditional gillnet fisheries targeting sockeye salmon begin in mid-June so samples were also taken from this period in 2008. Samples were collected from weekly catches throughout the duration of the fisheries. Prior or subsequent projects provided continuity in sampling over several years.

DISCUSSION

Progress in achieving sampling goals, sample quality control, and the quality of recordkeeping necessary to match stock composition estimates, were monitored on a daily basis by port sampling supervisors in Ketchikan and Petersburg and on a weekly basis by the regional data coordinator and project supervisor in Juneau. Representative sampling of the landed catch was assured by: 1) sampling landings in Petersburg, Wrangell and Ketchikan; 2) collecting no more than 40 samples from individual fishing boat deliveries or 200 from individual tender deliveries; 3) placing samplers onboard vessels purchasing fish on the grounds to obtain unmixed subdistrict specific samples; 4) sampling throughout the duration of each weekly opening; and 5) interviewing vessel personnel and checking fish tickets to assure that all fish onboard were caught in the targeted fishery.

Matched scale-tissue sampling goals were generally met except where low catches and/or mixed deliveries made this impossible. or exceeded and the scales collected have been analyzed to produce stock identification estimates. However, delays in completing the genetic analysis baseline, which was not part of this project, have delayed processing of the tissue sample portion of the matched catch samples. Therefore, we are submitting this final report for Alaska Department of Fish and Game's portion of the project and the National Marine Fisheries Service Auke Bay Laboratory will submit results of the genetic analysis when these are complete.

TANGIBLE BENEFITS

Replacement of scale pattern analysis with an accurate, genetically based, stock identification technique will facilitate: 1) reduced sampling costs since the annual baseline escapement samples needed for scale analysis will no longer be needed; 2) much finer resolution of individual stocks allowing stock specific migratory routing and timing studies; 3) inseason stock identification analyses which cannot be done with scale analysis because the baseline samples required cannot be collected until early fall; 4) stock specific spawner-recruit analyses; and 5) providing managers with the ability to shift time and area openings to access surplus stocks or avoid weak stocks.

Inseason examination of otoliths collected in the District 106 and 108 gillnet fisheries provides managers with an estimate of the contribution of enhanced stocks and thus the ability to avoid overharvest of wild stocks.

The negotiated percentage of the annual allowable harvest of Nass and Skeena sockeye that can be taken in Alaska's District 101 gillnet and 104 purse seine fisheries are based on average interception rates in these fisheries estimated by scale pattern analyses between 1985 and 1997. Having matched scale-tissue samples will allow direct comparison of the two techniques which will allow researchers to determine if any apparent changes in interception rates are real or are due to differences in estimates produced by the two techniques.

BUDGET SUMMARY

The budget allocation for this project was as follows:

Salary for ADF&G port sampling personnel: 9 samplers x 7.5/hr/day x 37 days x \$26.6024/hr	\$66,439
Travel; to/from Juneau, Ketchikan, Petersburg, Wrangell	\$6,400
Contractual; pay to tenders for onboard samplers, cell phone charges, shipping, etc.	15,500
Supplies; vials, forms, tags, gloves, etc.	\$4,000
Subtotal Direct	\$94,339
ADF&G Overhead: \$94,339 x 13.5%	\$12,736
TOTAL	\$107,075

Actual direct expenditures for this project were as follows (see appendix for details):

Line 100, salaries and benefits	\$69,382
Line 200, travel	\$4,678
Line 300 Contractual	\$16,332
Line 400 Commodities	\$3,824
Subtotal Direct	\$94,215

Total direct project expenditures by Alaska Fish and Game totaled \$94,215, All project expenditures by Alaska Fish and Game were for personnel, travel, contractual and commodities related to matched sample collection in Ketchikan, Petersburg and Wrangell as well as project supervision in Juneau. ADF&G personnel coded to this project included: 1) Anne Reynolds, Regional port sampling supervisor; 2) Bill Bale, Ketchikan port sampling; 3) Jason McGinley, Ketchikan port sampling, 4) Jeff Rice, Petersburg port sampling; 4) Jan Rumble, Juneau port sampling. A summary Ledger Balance Report as well as a detailed audit trail of project costs from the State of Alaska ETS accounting system are presented below.

Alaska Department of Fish and Game

Ledger Balance Report FY - 2008
10/21/08

Ledger Code - 11311288

NF Sockeye Scale-Tissue Sampling

	Allocations	Expenditures	Encumbrances	Credits	Obligated	Balance
100 - Personnel	\$66,439.00	\$69,382.37	\$0.00	\$0.00	\$69,382.37	(\$2,943.37)
200 - Travel	\$8,400.00	\$4,677.59	\$0.00	\$0.00	\$4,677.59	\$3,722.41
300 - Contractual	\$15,500.21	\$16,331.65	\$0.00	\$0.00	\$16,331.65	(\$831.44)
400 - Commodities	\$4,000.00	\$3,823.69	\$0.00	\$0.00	\$3,823.69	\$176.31
500 - Equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Lines 200 - 500	\$27,900.21	\$24,832.93	\$0.00	\$0.00	\$24,832.93	\$3,067.28
All Lines	\$94,339.21	\$94,215.30	\$0.00	\$0.00	\$94,215.30	\$123.91

	Allocation	Verified	Unverified	Balance
Line 100	\$66,439.00	\$69,382.37	\$0.00	(\$2,943.37)
Line 200	\$8,400.00	\$4,677.59	\$0.00	\$3,722.41
Line 300	\$15,500.21	\$16,331.65	\$0.00	(\$831.44)
Line 400	\$4,000.00	\$3,823.69	\$0.00	\$176.31
Line 500	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$94,339.21	\$94,215.30	\$0.00	\$123.91

All Obligations, Verified & Unverified

Alaska Department of Fish and Game

Audit Trail Report FY - 2008 Ledger Code - 11311288
10/21/08

Vendor Name	Description	Invoice #	Inv Date	Trans	D Type/Number	Acct	Amount	Verified	Rec Num
APPERSON PRINT MGNT	25,000 ADFG SALMON MA		10/1/07	110	EN	1184102 74522	(\$6,975.00)	1007	4503417
APPERSON PRINT MGNT	25,000 ADFG SALMON MA		10/1/07	110	EN	1184102 74522	\$6,975.00	1007	4503420
APPERSON PRINT MANAG	cODE CHANGED FROM 11		9/18/07	110	EN	1184102 73756	\$6,975.00	0907	4501141
Subtotal for Transaction Code 110 \$6,975.00									
ANNE BERG'S AJE LINE 10	FROM 11110104 TO 113112		10/31/07	310	AJE	2064871 71975	\$5,351.52	1107	4503058
BERG//US TRAVEL	JNU-KTN 11/09-17/07 STO	5056698148	10/15/07	310	PCD	72116	\$17.00	1207	4503547
BALE, R.	KTN AIRPORT FERRY 10/3	11042007	11/4/07	310	TA	72112	\$10.00	1107	4502575
BERG//MENDENHALL BRA	CASH ADVANCE	1935	11/5/07	310	PCD	72116	\$252.00	1207	4503548
BALE, R.	MEALS 10/31-11/4 SALMON	11042007	11/4/07	310	TA	72114	\$164.00	1107	4502576
BERG//CASH ADVANCE ITE	CASH ADVANCE FEE	1935	11/5/07	310	PCD	72930	\$5.61	1207	4503549
RUMBLE//OFFICE PLUS	LABEL	1042326-0	3/6/08	310	PCD	74229	\$530.20	0408	4507543
BLUE SKIES SOLUTIONS	ARCGIS II TRAINING	250	11/5/07	310	INV	73913	\$997.50	1107	4503221
JASON MCGINLEY pp12	FROM 11311288 TO 113111		6/15/08	310	AJE	2132509 71970	(\$1,453.85)	0808	4511883
LYNDEEN TRANSPORT	SAMPLES KTN-ANC	6043934	9/27/07	310	INV	73226	\$79.67	1007	4501881
CELLULAR ONE	723-8570 FROM 104 TO 11	0910143226	7/12/07	310	AJE	2064871 73404	\$94.41	1107	4502992
KTN LOCK & KEY	RICHARD HAMLIN	2684	6/22/08	310	INV	73688	\$504.00	0708	4510404
LOBDELL, B.	PCF-KTN/ KTN FERRY/ EQ	10122007	10/12/07	310	INV	72112	\$22.00	1207	4502338
BERG//ALASKA AIR CARG	SHIPPING	0277279780	2/12/08	310	PCD	73226	\$112.92	0308	4505842
BALE / ALASKA AIR	RT JNU 10/31-11/4 SALMO	0272112190	10/4/07	310	PCD	72111	\$222.00	1207	4502341
BALE / US TRVL - AGENCY	RT JNU 10/31-11/4 SALMO	5056696740	10/4/07	310	PCD	72116	\$17.00	1207	4502342
ACS	752-0072 FROM 104 TO 131	0040051095	7/25/07	310	AJE	2064871 73404	\$7.09	1107	4502995
RICE,J	PSG-JNU//11/06-11/2007	JER04229	11/15/07	310	TA	72114	\$300.00	1107	4504244
REYNOLDS//FRED MEYER	JUMP DRIVES	041508	5/5/08	310	PCD	74754	\$69.99	0508	4507947
MCGINLEY,JASON D	PP13		6/30/08	310	PAY	71000	\$3,606.64	0708	2314269
ALASKA MARINE LINES	REYNOLDS.A//OFFICE SUP	302106	5/15/08	310	PCD	73226	\$61.50	0608	4508650
WORLDCOM	KTN TENDER-SATPHN Fro	140130	7/1/07	310	AJE	2064871 73405	\$25.12	1107	4502999
K AND M FISHERIES	TENDER RIDER PMT 07/3,0	070307, 07/1	7/3/07	310	AJE	2064871 73689	\$800.00	1107	4503002
JUNE	LEAVE AND HOLIDAY		6/26/08	310	PAY	71975	\$122.26	0608	4511263
JULY	LEAVE AND HOLIDAY		7/1/08	310	PAY	71975	\$249.29	0708	4511264
LAZNACK CORPORTION	TENDER RIDER 7/7-7/10/07	071007	7/10/07	310	AJE	2064871 73689	\$400.00	1107	4503004
ALASKA AIRLINES	RICE,J PSG-JNU	0277152087	11/7/07	310	CTA	72111	\$318.01	1207	4503218
STO	RICE,J PSG-JNU	8108436229	11/7/07	310	CTA	72116	\$16.00	1207	4503219
K & M FISHERIES	TENDER RIDER 5 DAYS 7/2	072507	7/25/07	310	AJE	2064871 73689	\$500.00	1107	4503006
BERG//LYNDEEN TRANSP		1265	10/12/07	310	PCD	73226	\$80.32	1207	4502385
TOMI MARSH/ T/V SAVAGE	TENDER RIDER 7/6-7/11/07	07112007	7/11/07	310	AJE	2064871 73751	\$600.00	1107	4503009
TOMI MARSH / F/V SAVAG	TENDER RIDER 7/17 - 1 DA	07172007	7/17/07	310	AJE	2064871 73751	\$100.00	1107	4503011
JOHN OAKS / MISS MARY	TENDER RIDER 7/15-7/16,1	07162007	7/16/07	310	AJE	2064871 73751	\$400.00	1107	4503013
HAMMER & WIKAN	FROM 0107 TO 11311288	170635	7/11/07	310	AJE	2057499 74754	\$6.99	1107	4502016
HAMMER & WIKAN	FROM 0107 TO 11311288	171530	7/20/07	310	AJE	2057499 74754	\$28.21	1107	4502017
W. RHODES / F/V NAKWASI	TENDER RIDER 7/16-7/17 2	07172007	7/17/07	310	AJE	2064871 73751	\$200.00	1107	4503015
RICE//ALASKA AIRLINES	AIRFARE PSG-JNU	0277151471	10/16/07	310	PCD	72111	\$194.00	1207	4502668
RICE//STO	AGENT FEE PSG-JNU	5056698263	10/16/07	310	PCD	72116	\$17.00	1207	4502669
DAVID SHELDON / F/V GEN	TENDER RIDER 7/22-25 4	07252007	7/25/07	310	AJE	2064871 73751	\$400.00	1107	4503017
BALE / PROSPECTOR HOT	LOGGING 10/31-11/03 MGT	175237	11/3/07	310	PCD	72113	\$327.00	1207	4503127
LOBDELL / USPS KETCHIK	LOG BOOKS KTN-DOUGLA	543	7/18/07	310	AJE	2064871 73228	\$28.49	1107	4503019
BALE / AFS - AK CHAPTER	MTG REGISTRATION 11/13-	262	10/17/07	310	PCD	73026	\$220.00	1207	4502796
MCGINLEY,JASON D	PP12		6/15/08	310	PAY	71000	\$1,453.85	0608	2312156
BERG//USPS DOUGLAS	POSTAGE FROM 104 TO 11	645	7/12/07	310	AJE	2064871 73228	\$12.70	1207	4503022
APPERSON PRINT MANAG	11J04208	880016	2/5/08	310	EN	1184102 73756	\$6,975.00	0308	4507289
APPERSON PRINT MANAG	11J04208	880016	2/5/08	310	INV	73756	\$697.50	0308	4507290
JANET RUMBLE	TRANSPORTATION JNU-KT		11/20/07	310	TA	72112	\$10.00	1107	4504245

Alaska Department of Fish and Game

Audit Trail Report FY - 2008 Ledger Code - 11311288
10/21/08

Vendor Name	Description	Invoice #	Inv Date	Trans	D Type /Number	Acct	Amount	Verified	Rec Num
CELLULAR ONE	723-8570 FROM 104 TO 113	0910143226	7/26/07	310	AJE	2064871 73404	\$91.11	1107	4503024
ACS	752-0072 FROM 104 TO 113	0040051095	8/12/07	310	AJE	2064871 73404	\$7.72	1107	4503026
JANET RUMBLE	PD 11/14-16/2007 JNU-KTN	JAR97203	11/26/07	310	TA	72114	\$240.00	1107	4504246
AK MARINE LINES	FREIGHT	89868	11/5/07	310	INV	73226	\$2.00	1107	4504247
MCGINLEY, J.	MEAL PER DIEM 6/15-18	06182008	6/18/08	310	TA	72114	\$16.00	0608	4510216
MCGINLEY, J.	TAQUAN FLT KTN-COFFMA	1746	6/15/08	310	TA	72111	\$181.60	0608	4510217
DAVID SHELDON / F/V GEN	TENDER RIDER 7/28-8/01 F	080107	8/1/07	310	AJE	2064871 73751	\$500.00	1107	4503028
ALASKA MARINE LINES	1 BOX ALCOHOL NOS 3 U	644897	9/19/07	310	INV	73226	\$75.73	1007	4501891
DAVE SHELDON/ F/V GENE	TENDER RIDER 8/4-8/07 FR	08072007	8/7/07	310	AJE	2064871 73751	\$400.00	1107	4503030
JOHN OAKS/ F/V MISS MAR	TENDER RIDER 6/15-6/17/0	06172008	6/17/08	310	INV	73751	\$300.00	0608	4510271
ICICLE SEAFOODS	WETLOCK BOXES	60867	10/11/07	310	INV	74523	\$255.00	1107	4503207
DAVE SHELDON / F/V GEN	TENDER RIDER 8/11-8/14 F	08142007	8/14/07	310	AJE	2064871 73751	\$400.00	1107	4503034
TOMI MARSH / F/V SAVAG	TENDER RIDER 8/26-8/29/0	08292007	8/29/07	310	AJE	2064871 73751	\$400.00	1107	4503036
AML	FREIGHT-BOX COMP AND	665261	10/11/07	310	INV	73226	\$52.43	1207	4503331
BERG//DAY-TIMER	DESK COASTLINES REFILL	56818670	7/5/07	310	AJE	2064871 74229	\$43.74	1107	4503038
AML	FREIGHT-BX ETHANOL -LO	658930	9/27/07	310	INV	73226	\$75.73	1107	4503332
BERG//IDENTI-TAPE INC.	FLAGGING TAPE FROM 10	43515	7/6/07	310	AJE	2064871 74754	\$273.90	1207	4503040
BERG//IDENTI-TAPE INC.	FLAGGING TAPE FROM 10	43605	7/10/07	310	AJE	2064871 74754	\$695.90	1207	4503042
AML	FREIGHT/ANNE BERG TO 1	645009	8/30/07	310	AJE	2064871 73226	\$75.73	1207	4503044
RICE//PROSPECTOR HOTE	LODGING 10/31-11/3/07	175344	11/3/07	310	PCD	72113	\$327.00	1207	4503107
RICE//BUDGET CAR RENT	CAR RENTAL 11/6-10/2007	110607	11/6/07	310	PCD	72112	\$148.00	1207	4503340
BERG//LODGING WITH FA	STAYED WITH FAMILY DU	111707	11/17/07	310	PCD	72113	\$180.00	1107	4503586
RICE//BUDGET RENT A CA	CAR RENTAL 10/31-11/3/07	110307	11/3/07	310	PCD	72112	\$74.00	1207	4503108
BERG//KTN FERRY TO AIR	TOOK KTN FERRY ACROS	111707	11/17/07	310	PCD	72112	\$5.00	1107	4503587
CELLULAR ONE	723-8570 FROM 104 TO 113	0910143226	8/26/07	310	AJE	2064871 73404	\$90.65	1207	4503046
RICE//MIKES AIRPORT EXP	GAS FOR RENTAL CAR 10/	110307	11/3/07	310	PCD	72116	\$9.56	1207	4503110
RICE//PROSPECTOR HOTE	LODGING 11/6-10/2007	175751	11/6/07	310	PCD	72113	\$436.00	1207	4503341
RICE,J	PSG-JNU//10/31-11/3/07	JER04229	11/5/07	310	TA	72114	\$180.00	1107	4503111
RUMBLE//US TRAVEL	STO FEE	8108843547	10/30/07	310	PCD	72116	\$17.00	1207	4503503
BERG//PER DIEM	PER DIEM FOR AFS CONF	111707	11/17/07	310	PCD	72114	\$82.00	1107	4503588
WCC - SATELLITE	KTN-TENDER RIDER 8/1-8/	AW0807026	8/31/07	310	AJE	2064871 73405	\$36.14	1207	4503048
RUMBLE//ALASKA AIRLINE	AIRLINE TICKET	0272113270	10/31/07	310	PCD	72111	\$292.40	1207	4503505
RICE//MIKES AIRPORT EXP	RENTAL CAR GASOLINE	111007	11/10/07	310	PCD	72116	\$27.03	1207	4503342
PETERSBURG SHIPWRIGH	GLOVES FROM 104 TO 113	27302	7/13/07	310	AJE	2064871 74754	\$22.40	1207	4503050
RUMBLE//US TRAVEL	STO FEE - CHANGED HOT	8108435533	10/31/07	310	PCD	72116	\$17.00	1207	4503507
BERG//UNIVERSAL PAPER	STORAGE BOX	2066359-IN	2/25/08	310	PCD	74525	\$1,897.36	0408	4507524
RICE//BW LANDING HOTEL	LODING 11-10-07	136918	11/1/07	310	PCD	72113	\$98.00	1207	4503343
RUMBLE//THE GILMORE H	HOTEL ROOM CHARGES 2	11966	11/16/07	310	PCD	72113	\$149.98	1207	4503508
RUMBLE//AMERICAN FISH	CONFERENCE FEE	111407	11/14/07	310	PCD	73026	\$240.00	1207	4503509
RUMBLE//PAKS CUSTOM P	AIRPORT PARKING 3 DAYS	276118	11/16/07	310	PCD	72112	\$36.00	1207	4503510
WCC - SATPHONE	KTN TENDER RIDER 50991	AW0707025	8/1/07	310	AJE	2064871 73405	\$82.98	1207	4503052
RICE,J	PSG-JNU//11/06-11/2007	111307	11/13/07	310	TA	72112	\$10.00	1107	4503344
RUMBLE//ALASKA AIR CAR	GERNEAL CARGO	0277286126	6/10/08	310	PCD	73226	\$105.51	0708	4510015
ALASKA MARINE LINES	FREIGHT FROM 104 TO 11	654606	9/19/07	310	AJE	2064871 73226	\$75.73	1207	4503054
OLSEN//FED EX EXPRESS	POSTAGE	8641057895	12/19/07	310	PCD	73228	\$23.97	1207	4504587
ANNE BERG'S AJE LINE 10	FROM 11110104 TO 113112		10/31/07	310	AJE	2064871 71970	\$60,052.66	1107	4503057
BERG//ALASKA AIRLINES	JNU-KTN 11/09-17/2007	0272112658	10/15/07	310	PCD	72111	\$259.40	1207	4503546

Subtotal for Transaction Code 310 \$94,215.30