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Contribution Of Alaskan, Canadian, and Transboundary Sockeye Salmon Stocks to Catches in Southeast Alaska Purse Seine and Gillnet Fisheries, Districts 101–108, Based On Analysis of Scale Patterns, 2006

by

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Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

FISHERY DATA SERIES NO. 11-38

CONTRIBUTION OF ALASKAN, CANADIAN, AND TRANSBOUNDARY SOCKEYE SALMON STOCKS TO CATCHES IN SOUTHEAST ALASKA PURSE SEINE AND GILLNET FISHERIES, DISTRICTS 101–108, BASED ON ANALYSIS OF SCALE PATTERNS, 2006

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ABSTRACT

Sockeye salmon *(Oncorhynchus nerka)* harvested in southern Southeast Alaska's 2006 gillnet and purse seine fisheries were classified to nation and/or stock group of origin using linear discriminant function analysis of scale patterns and age composition data. Measurements of spacing between circuli were used to characterize stock-specific differences in scale patterns, and were measured using image processing techniques on digital images of scales. A total of 548,306 sockeye salmon harvested in purse seine and gillnet fisheries in 2006 was a little over half of the 1982–2005 average of 1.03 million annually. This catch was classified to nation of origin to estimate that 124,381 fish (22.7%) were of Alaska origin, 349,739 fish (63.8%) were of Canadian origin, and 74,186 fish (13.5%) were of Stikine River (transboundary) origin.

Key words: sockeye salmon, *Oncorhynchus nerka*, stock composition, linear discriminant function, scale pattern analysis, image processing, Southeast Alaska, Canada, Boundary Area

INTRODUCTION

Sockeye salmon (*Oncorhynchus nerka*) harvested in southern Southeast Alaskan commercial fisheries include drift gillnet fisheries that target primarily sockeye salmon in Alaska Districts 101, 106 and 108, as well as purse seine fisheries in Alaska Districts 101 through 104 that primarily target other species and harvest sockeye salmon only incidentally. These sockeye salmon stocks originate from numerous rivers in Southeast Alaska and British Columbia (Figure 1). The rivers can be entirely contained within Alaskan or Canadian boundaries, or if they cross an international border they are referred to as transboundary rivers (Rich and Morton 1930; Verhoeven 1952; Norenberg 1959; Logan 1967; Simpson 1968; Hoffman et al. 1983).

Sockeye salmon that spawn in rivers entirely within Alaskan borders originate primarily from numerous low to moderately productive systems in the immediate vicinity (Figure 2). Sockeye salmon from drainages entirely within Canadian borders originate principally from the Nass River, which flows into Portland Canal, and from the Skeena River, which flows into Chatham Sound, just south of the Alaska-Canada border (Figure 3). These harvests may also include a few sockeye salmon bound for northern Southeast Alaska, Prince William Sound, and Washington State, but their low numbers preclude estimates of stock of origin. In some years, migration patterns change for sockeye salmon from southern British Columbia, and increased numbers are caught in the Alaska District 104 purse seine fishery along the outer coast of Alaska and just north of the Alaska-Canada border. These fish are thought to originate primarily from the Fraser River. Several transboundary river systems contribute to sockeye salmon catches in Southeast Alaska, including the Taku, Stikine, and Alsek Rivers. In southern Southeast Alaska, the District 108 and 106 gillnet fisheries are the only ones that regularly harvest transboundary river sockeye stocks in quantifiable numbers, primarily stocks from the Stikine River drainage.

In 1982, the Alaska Department of Fish and Game (ADF&G) began using scale pattern analysis (Marshall et al. 1984) to estimate the numbers of salmon bound for specific Canadian river systems. Scale pattern analysis is based on differences in patterns of arrangement of circuli on scales, which reflect average differences in fish growth history over broad geographic areas. Significant and persistent differences between sockeye salmon stock groups originating in Alaska and Canada have been documented in the patterns of scale growth during freshwater and early marine life history (Oliver et al. 1984; Oliver and Walls 1985; Oliver and Jensen 1986; Oliver et al. 1987; Oliver *Unpublished Report*; Oliver and Farrington 1989; Oliver et al. 1990; Farrington and Oliver 1994; Farrington et al. 1996a–c; Farrington et al. 1998a–b; Farrington et al. 1999a–b; Bloomquist et al. 2005 and 2010).

The purpose of this study is to determine the national origin of major sockeye salmon stocks contributing to commercial gillnet and purse seine fishery catches in southern Southeast Alaska (Figure 1). Under the Pacific Salmon Treaty of 1985 and its later annexes, catches by fishermen of either country of their neighboring country's stocks are restricted in selected fisheries. In particular, the catch of Nass and Skeena sockeye salmon in Alaska District 101 gillnet and District 104 purse seine fisheries are limited, over a ten-year period, to a percentage of the total return of these stocks. Annual stock-specific run reconstructions (catch plus escapement) are required to accurately estimate relative contribution of each stock caught in these restricted fisheries. Estimates of national origin of contributing stocks from this study provide the most reliable information currently available to complete these run reconstructions, and are used to evaluate stock-specific productivity and to revise pre-season forecasts.

METHODS

COMMERCIAL HARVEST INFORMATION

The number of fish harvested by gear type, district, and week were obtained from an ADF&G statewide commercial harvest database of commercial salmon sales receipts dating back to 1960. Catches were summarized by statistical weeks (weeks), which began on Sunday at 12:01 a.m. and ended the following Saturday at midnight. These weeks were numbered sequentially starting from the beginning of the calendar year.

BIOLOGICAL DATA COLLECTION AND PROCESSING

ADF&G Division of Commercial Fisheries personnel collected biological information and scales of sockeye salmon from southern Southeast Alaska commercial gillnet and purse seine landings at fish processing facilities in Petersburg, Ketchikan, Craig, and Wrangell. A sample size of 520 fish per stratum was sufficient to describe the estimated sockeye salmon age composition with a precision of ± 5% and a probability of 0.10 (Thompson 1987). Technicians collected samples from multiple vessels and tenders for each district. Samples were collected throughout unloading, selecting no more than 40 fish from any single delivery. Deliveries containing catches mixed from more than one gear type or more than one district were not sampled.

Gender was determined visually from external physical characteristics and recorded for each fish sampled. Mid-eye to fork-of-tail length was recorded for 25% of the fish sampled, except for District 101 and District 104 where length was 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 (INPFC 1963).

ADF&G Division of Commercial Fisheries personnel collected scales from a variety of major sockeye salmon escapement lake and stream systems in southern Southeast Alaska. In northern British Columbia, Canadian Department of Fisheries and Oceans (CDFO) personnel collected scales from daily gillnet catches in test fisheries operating near or in the lower reaches of the Skeena River. LGL Ltd. personnel under contract to the Nisga'a First Nation in British Columbia, Canada, collected scales from daily fishwheel catches in test fishery in the lower Nass River. The Pacific Salmon Commission (PSC) provided scales from commercial net fishery catches in British Columbia and Washington State waters that were used to represent south migrating stocks.

Scales were mounted on gum cards and impressions made in cellulose acetate (Clutter and Whitesel 1956). Scales were examined under moderate (70x) magnification to determine age.

Criteria used to assign ages were similar to those of Mosher (1968), and ages were reported in European notation (Koo 1962).

DIGITIZING OF SCALES

Counts and measurements were made on a selected radius along or near the longest axis of the scale (Figure 4) (Anas and Murai 1969). Measurements and counts were collected along this axis line from the scale focus to end of the first marine annular zone. Methods used in 2006 to measure fish growth characteristics from scale circuli were based on image analysis techniques, which have been used since 2003. Prior methods projected scale impressions onto a digitizing tablet at 100x magnification to obtain measurements using equipment similar to that described by Ryan and Christie (1976).

Beginning in 2003, scale impressions were projected onto the screen of a ScreenScan®[1] Model PC scanning microfiche reader at 42x magnification, similar to equipment described by Hagen et al. (2001). The projected image was digitally rendered using ScreenScan® image capture software, and each scale image stored as a single Tagged Image File Format (TIFF) file. Image files representing scales from district and weekly strata, and from escapement locations, were stored in computer directories organized according to collection location and week.

Images files were processed using Optimate® 6.51 image analysis software running customized macros developed specifically for measuring salmon scales. Macros used to process sockeye salmon for these studies were written in the Optimas® proprietary programming language ALI, and were modified from routines originally developed by Hagen et al. (2001). ALI code for the modified macros is documented in the detailed project operational plan for the Southeast Alaska regional scale lab in Douglas, Alaska.

The scale image processing macro permitted the scale reader to use a series of mouse clicks and key commands to extract circuli measurement data within growth pattern zones from each scale image file. Images were processed in the following sequence:

1) Open an image file.
2) Using successive mouse clicks, establish location of an axis line by setting a rubber band line start point in the visual center of the scale focus, and end point a few circuli beyond the first marine annulus.
3) Manually place a marker for each growth zone with a mouse click along the axis line, a short distance beyond the outside edge of the last circulus of each zone.
4) Invoke an edge detection algorithm to automatically identify and mark the intersection of the leading edge of each circulus with the transect line.
5) Manually adjust circulus markers placed incorrectly due to natural variations in scale circuli and poor image quality.
6) Calculate distance measurements between each adjacent circulus and append zone indicator codes and distance measurements to a specified comma delimited text file.

[1] Product names used in this report are included for scientific completeness, but do not constitute a product endorsement.

DATA ANALYSIS

Linear discriminant function (LDF) analysis (Fisher 1936) of scale patterns has been used to estimate stock contributions to southern Southeast Alaska mixed stock sockeye salmon fisheries based on observed differences between stocks since 1982 (Oliver et al. 1984; Oliver and Walls 1985; Oliver and Jensen 1986; Oliver et al. 1987; Oliver *Unpublished Report*; Oliver and Farrington 1989; Oliver et al. 1990; Farrington and Oliver 1994; Farrington et al. 1996a–c; Farrington et al. 1998a–b; Farrington et al. 1999a–b; Bloomquist et al. 2005 and 2010.).

Age-specific LDF models for each gear type and District were assembled for the three distinct geographic areas (Appendices B–D) from 2006 escapement samples based on stock-specific migration patterns observed in tagging studies from the early 1980s (Hoffman et al. 1983, English et al. 1984). Construction of separate age-specific models from potential contributing stock groups within the Districts 106 and 108 gillnet fisheries also considered observed run timing differences (personal communication, K. A. Jensen, Commercial Fishery Research Biologist, ADF&G, Douglas).

Weekly commercial catches in each district were classified to potential contributing stocks using age-specific LDF models for four major age groups (1.2, 1.3, 2.2 and 2.3) that generally comprise more than 98% of commercial catches. Up to 100 scales per temporal stratum for each major age class in a district and fishery were analyzed to provide estimates of stock proportions with a precision of ± 10% with probability of 0.10. The stock apportionment of the other (minor) age classes not directly classified using LDF assumes that the proportion of the minor ages belonging to any given stock is equal to the combined proportion of all classified age classes. Age specific models were used in the analysis to 1) account for differences in age composition between stocks; 2) remove potential bias due to differences in migratory timing of different aged fish; and 3) eliminate the effect of different environmental conditions on the scale patterns of different age fish. Stock contributions were estimated for each week to track temporal patterns. Stock contribution estimates for weekly district catches for which no scale samples were collected (primarily early and late in the season) were generally approximated using the age and stock composition results from the nearest temporal stratum for that district. Stock contribution estimates for catches from districts for which few samples were available for relatively small catches over a period of weeks, were approximated using stock composition results from an adjacent temporal stratum to estimate pooled catch contributions for the weekly catches.

Variances of weekly and seasonal stock composition estimates were approximated with the delta method (Seber 1982). Variance estimates were functions of the variances associated with the weekly: 1) estimated age composition of the catch, 2) age specific stock composition estimates, 3) sample size of the age composition, and 4) catch size. Use of a maximum likelihood procedure to constrain the stock proportion estimates did provide a variance estimate for stock(s) contributing zero fish.

RESULTS

NATIONAL ORIGIN AND STOCK COMPOSITION OF SOUTHERN SOUTHEAST SOCKEYE SALMON CATCHES

The total sockeye salmon harvest in the southern Southeast Alaska (Districts 101–108) seine and gillnet fisheries was 548,306 fish in 2006 and these fish were classified to stock group of origin (Table 1). The estimated U. S. contribution was 124,381 fish (22.7%), estimated Canadian

contribution was 349,739 (63.8%), and estimated shared transboundary stock contribution was 74,186 fish (13.5%).

The total number of sockeye salmon classified to stock group of origin was 548,306 fish (Table 2). Of these, it was estimated that 124,381 fish (22.7%) were of U.S. origin; 137,224 fish (25.0%) were Nass River origin; 176,719 (32.2%) were Skeena River origin; 35,796 (6.5%) were south-migrating stock origin (primarily Fraser River); 54,684 (10.0%) were transboundary Tahltan Lake origin; 9,425 (1.7%) were transboundary Stikine River origin; and 10,077 (1.8%) were transboundary Tuya Lake origin.

District 101 Gillnet Stock Composition

Weekly stock composition estimates from the District 101 (Tree Point) gillnet fishery were made for Alaska, Nass, and Skeena stock groupings. Of the season catch of 62,770 sockeye salmon, the estimated stock contributions were: 7,795 fish from the Alaska stock grouping for 12.4% of the total; 48,140 Nass River fish (76.7%); and 6,835 Skeena River fish (10.9%) (Table 3). The fishery took place between statistical week 25 and 40. Nass was the largest stock component in almost all weekly strata until week 37.

District 101 Purse Seine Stock Composition

Weekly and stock composition estimates from the District 101 (Tree Point) purse seine fishery were made for Alaska, Nass, and Skeena stock groupings. The season catch total was 42,416 sockeye. The estimated stock contributions were 15,703 fish from the Alaska stock grouping (37.0%), 7,579 Nass River fish (17.9%), and 19,134 Skeena River fish (45.1%; Table 4). The fishery took place between statistical week 27 and 34. Nass was the largest contributor in the first week of the season with Alaska dominating weeks 28, 29 and 32 and Skeena dominating weeks 30, 31, 33 and 34.

District 102 Purse Seine Stock Composition

Where possible weekly stock composition estimates from the District 102 purse seine fishery were made for Alaska, Nass, and Skeena stock groupings. Of the catch of 19,558 sockeye salmon caught over the entire season (weeks 25–39), the estimated stock contributions were: 18,378 fish from the Alaska stock grouping (94.0%); 479 Nass River fish (2.4%); and 701 Skeena River fish (3.6%; Table 5). The fishery took place between statistical week 25 and 39. Because landings for this district are frequently mixed with catches from other districts, stock contribution estimates for most weekly strata were approximated using district-specific samples collected successfully during only 6 weeks of the fishery.

District 103 Purse Seine Stock Composition

Sockeye salmon harvested in the District 103 purse seine fishery totaled 28,251 fish. The estimates for contributions by stock group were: 15,312 (54.2%) from Alaska, 1,974 (7.0%) from Nass, and 10,965 (38.8%) from Skeena (Table 6). Alaska had the highest contributions in weeks 30-36 except week 33 with Skeena contributing 66.6%. The fishery took place between statistical week 30 and 36. Stock composition estimates for the earliest and latest weeks for this district were approximated using samples from adjacent weekly strata.

District 104 Purse Seine Stock Composition

Weekly stock compositions estimates from the District 104 purse seine fishery were made for Alaska, Nass, Skeena, and south-migrating groupings. Of the season total of 242,034 sockeye salmon caught, the estimated stock contributions were: 29,523 fish from the Alaska stock grouping (12.2%); 55,901 Nass River fish (23.1%); 120,815 Skeena River fish (49.9%); and 35,796 (14.8%) fish from the south-migrating stock grouping (Table 7). The fishery took place between statistical week 27 and 34. Skeena stocks dominated all weeks except for 27 (Nass) and 33 (South migrating).

District 106 and 108 Gillnet Stock Composition

A total of 91,979 sockeye salmon were caught in the District 106 gillnet fishery (Table 8), and 61,298 sockeye salmon in the District 108 gillnet fishery (Table 9). Alaska contributed 33,454 sockeye (36.4%) to the District 106 gillnet fishery and 4,088 sockeye (6.7%) to the District 108 gillnet fishery. Canadian stocks contributed 33,336 (36.2%) fish to the District 106 gillnet fishery and 7,973 (13.0%) fish to District 108 gillnet. Transboundary stocks contributed 25,189 (27.4%) fish to District 106 gillnet and 49,237 (80.3%) fish to the District 108 gillnet fishery. The fishery took place between statistical week 24 and 40.

DISCUSSION

The total sockeye salmon harvest in the southern Southeast Alaska (Districts 101–108) seine and gillnet fisheries in 2006 (548,306) was a little more than half of the 1982–2005 average annual harvest of 1,028,728 sockeye salmon and the 2005 harvest of 980,915 sockeye salmon (Table 1).

There were only two fisheries that had catches that were above the 1982-2005 average, District 108 gillnet and District 103 purse seine fisheries. The harvest was well below half of the 1982-2005 averages in District 101 gillnet and Districts 101, 102, and 104 purse seine fisheries. The harvest in the District 106 gillnet fishery was about 72% of the 1982-2005 average.

The catch in District 101 gillnet fishery (62,770) in 2006 was the smallest harvest between 1982 and 2005 with an average annual harvest of 141,916 fish. The estimated contribution of Canadian stocks was 5% above the 1982–2005 average of 88%.

The catch in the District 101 purse seine fishery (42,416) was the 3rd smallest harvest between 1982 and 2005 with an average annual harvest of 108,880 fish. The estimated contribution of Canadian stocks to this fishery was almost 25% higher than the 1982-2005 average of 39.4%.

The catch in District 102 purse seine fishery (19,558) was the 4th smallest harvest between 1982 and the 2005 with an average annual harvest of 39,962 fish. The estimated contribution of Canadian stocks to this fishery was well below (6.0%) the 1982-2005 average of 21.5%.

The catch in District 103 purse seine fishery (28,251) was the 4th highest catch between 1982 and 2005. The estimated contribution of Canadian stocks was about 20% above the 1982–2005 average of 23.6%.

The catch in District 104 purse seine fishery (242,034) harvest was less than half of the 1982–2005 average (537,160). The estimated contribution of Canadian stocks was about 10% above the 1982–2005 average of 77.2%.

The catch in District 106 gillnet fishery (91,979) in 2006 was well below the 1982–2004 average (147,058) but more in line with the average of the previous 5 years (112,792). This is the sixth

year since 1982 that the catch has been less than 100,000. The estimated contribution of transboundary stocks was 27% which is twice the 1982–2005 average and 6% above the 2005 estimated catch.

The catch in District 108 gillnet fishery (61,298) in 2006 was above the 1982–2005 average (46,164), one of the two fisheries that was above average this season. This district experienced several years of low abundance and non-harvests in the 1980s, as well as low abundance and very low harvests in 2001 and 2002. The estimated contribution of transboundary stocks was 80%, which is 17% above the 1982–2005 average.

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TABLES AND FIGURES

Table 1.–Estimated sockeye salmon contributions by nation of origin to southern Southeast Alaska Districts 101–108 net fisheries, 1982–2006.

District	Type	Stock Group	1982	(%)	1983	(%)	1984	(%)	1985	(%)	1986	(%)	1987	(%)	1988	(%)	1989	(%)	1990	(%)
101	**Gillnet**	**US**	69,483	36	48,905	36	34,843	39	30,946	18	12,738	9	25,073	23	14,796	13	31,406	22	13,862	16
		Canada	121,325	64	86,998	64	53,588	61	142,154	82	132,961	91	82,430	77	101,319	87	113,530	78	71,829	84
		Total	190,808		135,903		88,431		173,100		145,699		107,503		116,115		144,936		85,691	
101[a]	**Purse Seine**	**US**	39,518	56	20,376	43	49,348	60	82,311	69	50,313	67	30,071	69	12,799	41	37,236	32	29,498	51
		Canada	30,941	44	27,263	57	32,537	40	37,159	31	24,510	33	13,233	31	18,340	59	80,622	68	27,809	49
		Total	70,459		47,639		81,885		119,470		74,823		43,304		31,139		117,858		57,307	
102[b]	**Purse Seine**	**US**	18,672	80	6,482	59	17,857	82	28,417	78	24,030	73	16,211	94	10,347	70	35,807	62	38,384	75
		Canada	4,542	20	4,498	41	3,808	18	7,887	22	8,681	27	1,064	6	4,455	30	21,834	38	12,838	25
		Total	23,214		10,980		21,665		36,304		32,711		17,275		14,802		57,641		51,222	
103[c]	**Purse Seine**	**US**			7,098	68			19,560	74	9,883	72	1,401	98	790	33	20,551	96	14,226	74
		Canada			3,357	32			6,703	26	3,806	28	34	2	1,587	67	936	4	5,124	26
		Total			10,455				26,263		13,689		1,435		2,377		21,487		19,350	
104	**Purse Seine**	**US**	106,786	38	155,967	24	78,954	27	94,005	22	101,121	23	68,647	40	104,042	18	73,026	14	123,420	15
		Canada	176,572	62	487,301	76	215,208	73	337,648	78	343,550	77	102,332	60	487,243	82	443,575	86	673,378	85
		Total	283,358		643,268		294,162		431,653		444,671		170,979		591,285		516,601		796,798	
106	**Gillnet**	**US**	94,320	49	32,583	67	60,597	66	126,914	48	100,268	69	112,893	83	80,868	87	126,603	66	112,983	61
		Canada	62,063	32	10,582	22	24,755	27	111,017	42	42,756	29	21,190	15	9,784	11	59,959	31	68,921	37
		Transboundary[d]	37,418	19	5,580	11	6,787	7	27,056	10	2,685	2	2,344	2	1,877	2	6,172	3	3,901	2
		Total	193,801		48,842		92,139		264,987		145,709		136,427		92,529		192,734		185,805	
108	**Gillnet**	**US**	1,784	25							930	22			265	21	1,180	12	4,576	40
		Canada	4,139	58							73	2			48	4	545	5	1,479	13
		Transboundary	1,213	17							3,184	76			933	75	8,358	83	5,519	48
		Total	7,136								4,185				1,246		10,083		11,574	
Total		**US**	330,562	43	271,411	30	241,599	42	382,152	36	299,284	35	254,296	53	223,907	27	325,809	31	336,949	28
		Canada	399,583	52	619,998	69	329,896	57	642,569	61	556,336	64	220,283	46	622,776	73	721,001	68	861,378	71
		Transboundary	38,631	5	5,580	1	6,787	1	27,056	3	5,869	1	2,344	1	2,810	0	14,530	1	9,420	1
		Total	768,776		896,989		578,282		1,051,777		861,489		476,923		849,493		1,061,340		1,207,747	

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Table 1.–Page 2 of 3.

District	Type	Stock Group	1991	(%)	1992	(%)	1993	(%)	1994	(%)	1995	(%)	1996	(%)	1997	(%)	1998	(%)	1999	(%)
101	**Gillnet**	**US**	13,599	10	49,771	20	42,337	11	14,008	14	13,056	8	29,745	14	32,028	19	15,884	10	15,030	9
		Canada	117,893	90	194,878	80	351,761	89	86,369	86	151,238	92	182,658	86	137,446	81	144,622	90	144,998	91
		Total	131,492		244,649		394,098		100,377		164,294		212,403		169,474		160,506		160,028	
101[a]	**Purse Seine**	**US**	34,193	57	83,065	74	246,662	75	18,991	33	63,279	29	396,178	89	84,519	80	47,485	67	77,174	88
		Canada	26,227	43	28,954	26	83,820	25	39,100	67	154,699	71	47,653	11	21,691	20	22,916	33	10,420	12
		Total	60,420		112,019		330,482		58,091		217,978		443,831		106,210		70,401		87,594	
102[b]	**Purse Seine**	**US**	32,413	75	30,075	90	115,916	94	18,521	65	56,518	77	60,026	90	45,908	84	23,111	79	35,518	91
		Canada	10,841	25	3,377	10	7,991	6	10,158	35	16,907	23	6,767	10	8,503	16	6,303	21	3,591	9
		Total	43,254		33,452		123,907		28,679		73,425		66,793		54,411		29,414		39,109	
103[c]	**Purse Seine**	**US**	13,867	74	3,277	74	37,251	74	11,242	74	7,532	74	24,009	99	24,666	82	14,873	85	7,925	100
		Canada	4,995	26	1,180	26	13,419	26	4,050	26	2,713	26	178	1	5,306	18	2,582	15	31	0
		Total	18,862		4,457		50,670		15,292		10,245		24,187		29,972		17,455		7,956	
104	**Purse Seine**	**US**	166,794	20	198,080	18	205,108	22	212,854	19	68,952	14	209,567	24	210,524	17	65,348	13	63,013	38
		Canada	683,037	80	873,959	82	740,177	78	923,284	81	428,193	86	650,872	76	1,034,156	83	421,882	87	101,844	62
		Total	849,831		1,072,039		945,285		1,136,138		497,145		860,439		1,244,680		487,230		164,857	
106	**Gillnet**	**US**	78,577	55	120,977	60	82,301	40	122,118	58	65,544	32	165,221	53	97,101	58	67,890	60	70,334	67
		Canada	47,695	33	47,207	23	69,616	34	53,683	25	116,075	56	83,271	27	45,665	27	34,811	31	9,692	9
		Transboundary[d]	17,832	12	34,971	17	54,038	26	35,247	17	25,679	12	62,608	20	25,752	15	10,734	9	24,809	24
		Total	144,104		203,155		205,955		211,048		207,298		311,100		168,518		113,435		104,835	
108	**Gillnet**	**US**	3,116	17	8,604	16	17,758	23	31,715	33	10,374	14	15,755	10	5,381	6	2,541	12	5,263	14
		Canada	2,117	12	2,696	5	8,742	11	20,250	21	15,641	20	12,618	8	12,152	13	2,376	11	1,314	4
		Transboundary	12,754	71	41,417	79	50,374	66	45,259	47	50,741	66	125,777	82	75,506	81	17,114	78	30,024	82
		Total	17,987		52,717		76,874		97,224		76,756		154,150		93,039		22,031		36,601	
Total		**US**	342,560	27	493,849	29	747,333	35	429,450	26	285,255	23	900,501	43	500,127	27	237,132	26	274,257	46
		Canada	892,804	71	1,152,251	67	1,275,526	60	1,136,893	69	885,466	71	984,017	48	1,264,919	68	635,492	71	271,890	45
		Transboundary	30,585	2	76,388	4	104,412	5	80,506	5	76,420	6	188,385	9	101,258	5	27,848	3	54,833	9
		Total	1,265,950		1,722,488		2,127,271		1,646,849		1,247,141		2,072,903		1,866,304		900,472		600,980	

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Table 1.–Page 3 of 3.

District	Type	Stock Group	2000	(%)	2001	(%)	2002	(%)	2003	(%)	2004	(%)	2005	(%)	2006	(%)
101	**Gillnet**	**US**	16,727	18	10,915	14	14,462	12	14,723	14	18,555	13	12,660	16	7,795	12
		Canada	77,924	82	69,126	86	105,891	88	90,540	86	123,802	87	67,065	84	54,975	88
		Total	94,651		80,041		120,353		105,263		142,357		79,725		62,770	
101[a]	**Purse Seine**														15,703	37
		US	71,168	56	96,511	61	16,567	64	57,046	76	74,003	59	46,164	57		
		Canada	55,942	44	61,172	39	9,122	36	17,604	24	50,933	41	34,856	43	26,713	63
		Total	127,110		157,683		25,689		74,650		124,936		81,020		42,416	
102[b]	**Purse Seine**														18,378	94
		US	26,265	78	36,987	68	23,759	80	35,098	92	31,516	69	31,735	80		
		Canada	7,305	22	17,045	32	5,908	20	3,259	8	14,044	31	7,875	20	1,180	6
		Total	33,570		54,032		29,667		38,357		45,560		39,610		19,558	
103[c]	**Purse Seine**														15,312	54
		US	14,240	86	11,393	42	4,670	82	18,929	77	18,390	77	33,365	69		
		Canada	2,384	14	15,566	58	1,055	18	5,725	23	5,530	23	15,229	31	12,939	46
		Total	16,624		26,959		5,725		24,654		23,920		48,594		28,251	
104	**Purse Seine**	**US**	78,727	35	82,358	15	10,169	30	111,492	34	48,468	14	67,997	13	29,523	12
		Canada	148,312	65	454,276	85	24,018	70	218,226	66	300,671	86	453,857	87	212,511	88
		Total	227,039		536,634		34,187		329,719		349,139		521,854		242,034	
106	**Gillnet**	**US**	57,923	64	86,078	52	42,573	76	86,626	74	58,005	50	51,735	47	33,454	37
		Canada	21,007	23	54,512	33	5,487	10	12,527	11	25,809	22	34,464	31	33,336	36
		Transboundary[d]	11,146	12	23,423	14	8,075	14	17,751	15	32,445	28	23,993	22	25,189	27
		Total	90,076		164,013		56,135		116,904		116,259		110,192		91,979	
108	**Gillnet**	**US**	3,319	21	473	78	182	88	8,675	21	10,379	10	9,193	9	4,088	7
		Canada	2,025	13	60	10	25	12	4,563	11	3,131	3	11,074	11	7,973	13
		Transboundary	10,489	66	77	13	1	0	28,920	69	89,882	87	79,198	80	49,237	80
		Total	15,833		610		208		42,158		103,392		99,465		61,298	
Total		**US**	268,369	44	324,715	32	112,382	41	332,558	45	259,316	53	252,849	26	124,381	23
		Canada	314,899	52	671,757	66	151,506	56	352,445	48	523,920	32	624,420	64	349,739	64
		Transboundary	21,635	4	23,500	2	8,076	3	46,671	6	122,327	15	103,191	11	74,186	14
		Total	604,903		1,019,972		271,964		731,704		905,563		980,460		548,306	

[a] Includes catches from Yes Bay (West Behm Canal) terminal area fisheries.

[b] District 102 includes fish taken in terminal area fisheries after week 35.

[c] District 103 estimates are average of the preceding years, except the direct estimates of 1996 and 2004.

[d] Includes Stikine, Tahltan, and Tuya River spawning stock groups.

Table 2.–Estimated contribution by stock group of origin of sockeye salmon harvested in commercial net fisheries in Alaska Districts 101–108, 2006.

						90% CI	
District	Gear Type	Stock Group	Number	Percent	Error	Lower	Upper
101	**Gillnet**	**Alaska**	7,795	12.4	153	7,542	8,047
		Nass	48,140	76.7	253	47,725	48,556
		Skeena	6,835	10.9	171	6,553	7,117
		Total	62,770				
101	**Purse seine**	**Alaska**	15,703	37	205	15,365	16,041
		Nass	7,579	17.9	251	7,166	7,992
		Skeena	19,134	45.1	268	18,692	19,575
		Total	42,416				
102	**Purse seine**	**Alaska**	18,378	94	126	18,171	18,585
		Nass	479	2.4	117	286	672
		Skeena	701	3.6	69	587	815
		Total	19,558				
103	**Purse seine**	**Alaska**	15,312	54.2	163	15,044	15,580
		Nass	1,974	7	195	1,654	2,294
		Skeena	10,965	38.8	266	10,527	11,402
		Total	28,251				
104	**Purse seine**	**Alaska**	29,523	12.2	1,257	27,455	31,590
		Nass	55,901	23.1	2,921	51,096	60,707
		Skeena	120,815	49.9	2,586	116,560	125,069
		South Migrating	35,796	14.8	1,907	32,658	38,933
		Total	242,034				
106	**Gillnet**	**Alaska I**	31,591	34.3	277	31,135	32,048
		Alaska II	1,991	2.2	125	1,785	2,197
		Nass	18,371	20	326	17,835	18,908
		Skeena	15,076	16.4	315	14,558	15,594
		Tahltan	18,664	20.3	278	18,206	19,122
		Stikine Mainstem	1,152	1.3	101	986	1,318
		Tuya	5,134	5.6	240	4,739	5,528
		Total	91,979				
108	**Gillnet**	**Alaska I**	3,059	5	147.1	2,817	3,301
		Alaska II	1,029	1.7	102.4	860	1,197
		Nass	4,779	7.8	225.9	4,407	5,150
		Skeena	3,195	5.2	285.5	2,725	3,664
		Tahltan	36,021	58.8	349.2	35,446	36,595
		Stikine Mainstem	8,272	13.5	246.4	7,867	8,678
		Tuya	4,944	8.1	272.6	4,495	5,392
		Total	61,298				
Total	**Total**	**Alaska**	124,381	22.7	1346	122,166	126,596
		Nass	137,224	25	2978	132,325	142,123
		Skeena	176,719	32.2	2654	172,353	181,086
		South Migrating	35,796	6.5	1907	32,658	38,933
		Tahltan	54,684	10	447	53,950	55,419
		Stikine Mainstem	9,425	1.7	266	8,987	9,863
		Tuya	10,077	1.8	363	9,480	10,674
		Total	548,306				

Table 3.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 101 (Tree Point) drift gillnet fishery, 2006.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 25	**Alaska**	0	274	41	0	8	322	3.9	40.9	255	390
6/18–6/24	**Nass**	1,534	1,111	1,641	3,345	192	7,824	94.5	57.5	7,729	7,918
	Skeena	0	131	0	0	3	134	1.6	28.3	88	181
	Total	1,534	1,516	1,682	3,345	203	8,280				
Week 26	**Alaska**	216	136	23	1	4	379	5.2	45.7	304	454
6/25–7/01	**Nass**	1,488	1,039	1,616	2,457	74	6,674	92.3	57.9	6,578	6,769
	Skeena	0	175	0	0	2	177	2.5	29.2	129	225
	Total	1,703	1,350	1,639	2,458	80	7,230				
Week 27	**Alaska**	205	321	0	210	7	744	5.3	81.7	609	878
7/02–7/08	**Nass**	2,978	1,404	3,333	4,651	122	12,488	89.2	149.9	12,241	12,735
	Skeena	0	672	91	0	8	770	5.5	110.5	589	952
	Total	3,184	2,396	3,423	4,861	137	14,002				
Week 28	**Alaska**	414	240	128	28	16	826	11.4	58.2	730	922
7/09–7/15	**Nass**	1,153	1,053	1,509	2,146	115	5,977	82.2	86.1	5,836	6,119
	Skeena	187	274	0	0	9	470	6.5	48.1	390	549
	Total	1,754	1,567	1,637	2,175	140	7,273				
Week 29	**Alaska**	565	355	71	121	9	1,121	13.8	67.3	1,010	1,232
7/16–7/22	**Nass**	1,053	1,185	1,808	2,207	52	6,305	77.9	98	6,143	6,466
	Skeena	162	505	0	0	6	672	8.3	58.5	576	769
	Total	1,779	2,045	1,879	2,328	67	8,098				
Week 30	**Alaska**	284	107	78	0	3	472	10.8	32.5	419	526
7/23–7/29	**Nass**	404	696	566	1,091	20	2,778	63.4	72.1	2,659	2,896
	Skeena	505	570	0	49	8	1,132	25.8	57.1	1,038	1,226
	Total	1,193	1,373	644	1,140	32	4,382				
Week 31	**Alaska**	594	529	121	94	3	1,341	30.4	46.3	1,265	1,418
7/30–8/05	**Nass**	298	592	543	611	5	2,049	46.4	74	1,927	2,171
	Skeena	334	688	0	0	2	1,025	23.2	51.4	940	1,109
	Total	1,226	1,809	664	705	10	4,415				
Week 32	**Alaska**	406	414	91	148	5	1,064	28.8	36.7	1,004	1,125
8/06–8/12	**Nass**	96	339	707	571	8	1,721	46.6	68.7	1,608	1,834
	Skeena	375	523	0	1	4	905	24.5	47.2	827	982
	Total	877	1,276	799	721	17	3,690				
Week 33	**Alaska**	117	149	48	60	0	374	22.3	13.8	352	397
8/13–8/19	**Nass**	142	202	197	212	0	753	44.9	27.4	708	798
	Skeena	172	361	4	11	0	548	32.7	24.4	508	588
	Total	430	713	249	283	0	1,675				
Week 34	**Alaska**	9	63	10	33	0	116	15.5	7	104	127
8/20–8/26	**Nass**	61	167	78	219	0	526	70.5	15.1	501	551
	Skeena	3	88	0	14	0	105	14.1	11.6	86	124
	Total	74	318	89	266	0	747				
Week 35	**Alaska**	165	209	87	59	2	522	34	15.7	496	547
8/27–9/02	**Nass**	82	144	96	217	2	541	35.2	26.9	497	585
	Skeena	149	304	0	20	2	473	30.8	22.9	436	511
	Total	396	656	183	295	6	1,536				
Week 36	**Alaska**	26	158	48	79	0	312	35	10.7	294	329
9/03–9/09	**Nass**	0	16	50	248	0	314	35.2	25.5	271	356
	Skeena	47	198	9	11	0	265	29.8	20.2	232	298
	Total	73	372	107	338	0	890				
Week 37	**Alaska**	3	112	6	53	2	176	36.5	6.5	165	187
9/10–9/16	**Nass**	19	40	14	93	2	168	34.8	13.4	146	190
	Skeena	8	124	5	0	1	138	28.7	11.1	120	157
	Total	30	276	25	146	5	482				
Week 38–40[a]	**Alaska**	0	16	1	8	0	26	36.5	0.9	24	27
9/17–10/14	**Nass**	3	6	2	13	0	24	34.8	1.9	21	28
	Skeena	1	18	1	0	0	20	28.7	1.6	17	23
	Total	4	40	4	21	1	70				
Totals	**Alaska**	3,004	3,082	754	895	60	7,795	12.4	153	7,542	8,047
	Nass	9,311	7,994	12,160	18,082	592	48,140	76.7	253	47,725	48,556
	Skeena	1,943	4,630	110	106	46	6,835	10.9	171	6,553	7,117
	Total	14,258	15,706	13,024	19,083	698	62,770				

[a] Age and stock composition for week 38–40 estimated using 96 samples collected during week 37.

Table 4.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 101 purse seine fishery, 2006.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 27	**Alaska**	70	139	41	36	5	292	36.2	9.5	277	308
7/02–7/08	**Nass**	57	169	137	64	8	435	53.9	14.6	411	459
	Skeena	30	48	0	0	1	80	9.9	8.4	66	93
	Total	157	357	179	100	14	807				
Week 28	**Alaska**	713	352	218	23	20	1,327	45.6	38.9	1,263	1,391
7/09–7/15	**Nass**	17	538	196	171	14	937	32.2	53.5	849	1,024
	Skeena	359	234	46	0	10	649	22.3	31.5	597	701
	Total	1,089	1,124	460	195	44	2,912				
Week 29	**Alaska**	1,517	1,127	363	111	35	3,153	55.6	63.2	3,049	3,257
7/16–7/22	**Nass**	135	666	219	321	15	1,357	23.9	81.1	1,224	1,490
	Skeena	593	453	103	0	13	1,162	20.5	54.1	1,073	1,251
	Total	2,246	2,246	685	431	63	5,672				
Week 30	**Alaska**	962	578	382	0	7	1,929	22.4	96.4	1,770	2,087
7/23–7/29	**Nass**	640	0	205	211	4	1,060	12.3	126.5	852	1,268
	Skeena	4,511	794	249	57	19	5,630	65.3	131.7	5,414	5,847
	Total	6,114	1,372	835	268	30	8,619				
Week 31	**Alaska**	1,310	983	505	259	0	3,057	30.6	110.7	2,875	3,240
7/30–8/05	**Nass**	650	165	553	135	0	1,502	15	137.4	1,276	1,728
	Skeena	4,437	993	0	0	0	5,429	54.4	165.2	5,157	5,701
	Total	6,397	2,141	1,058	394	0	9,989				
Week 32	**Alaska**	1,837	1,574	622	488	0	4,521	50.3	97.7	4,360	4,682
8/06–8/12	**Nass**	749	138	731	295	0	1,914	21.3	124.2	1,710	2,118
	Skeena	1,831	682	31	15	0	2,559	28.5	115.9	2,369	2,750
	Total	4,417	2,395	1,384	798	0	8,994				
Week 33	**Alaska**	212	438	105	50	18	822	35.5	58.1	727	918
8/13–8/19	**Nass**	19	0	44	0	1	65	2.8	26.7	21	109
	Skeena	1,065	335	0	0	31	1,431	61.7	66.9	1,321	1,541
	Total	1,296	773	150	50	50	2,318				
Week 34	**Alaska**	231	157	38	170	6	602	19.4	45.3	528	677
8/20–8/26	**Nass**	151	0	92	63	3	309	10	48.5	229	389
	Skeena	1,122	954	33	62	23	2,194	70.7	74	2,072	2,315
	Total	1,503	1,111	163	294	33	3,105				
Total	**Alaska**	6,852	5,349	2,275	1,137	91	15,703	37	205	15,365	16,041
	Nass	2,420	1,677	2,177	1,260	45	7,579	17.9	251	7,166	7,992
	Skeena	13,948	4,492	462	134	98	19,134	45.1	268	18,692	19,575
	Total	23,219	11,518	4,914	2,530	234	42,416				

Table 5.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 102 purse seine fishery, 2006.

		Catch By Age Class								90% CI	
Date	Group	1.2	1.3	2.2	2.3	Other	Total	Percent	SE	Lower	Upper
Week 25–26[a]	Alaska	121	53	35	0	7	215	75.6	12.9	194	237
6/18–7/01	Nass	0	0	9	9	1	18	6.2	9.1	3	33
	Skeena	0	50	0	0	2	52	18.2	11.8	33	71
	Total	121	104	43	9	9	285				
Week 27	Alaska	424	379	106	56	0	966	83.4	18.3	936	996
7/02–7/08	Nass	29	65	45	19	0	158	13.7	18	129	188
	Skeena	0	34	0	0	0	34	3	8.6	20	49
	Total	454	479	151	76	0	1,159				
Week 28	Alaska	867	525	128	350	0	1,869	97.2	27	1,825	1,914
7/09–7/15	Nass	0	0	0	0	0	0	0	0	NA	NA
	Skeena	7	0	47	0	0	55	2.8	27	10	99
	Total	875	525	175	350	0	1,924				
Week 29	Alaska	400	291	182	15	6	894	91.4	9.6	878	910
7/16–7/22	Nass	0	0	16	15	0	31	3.2	7.3	19	43
	Skeena	50	0	0	4	0	53	5.5	6.4	43	64
	Total	450	291	198	33	7	979				
Week 30	Alaska	1,277	229	221	60	17	1,804	83.4	19.6	1,771	1,836
7/23–7/29	Nass	0	0	5	0	0	5	0.2	3.3	0	10
	Skeena	264	71	15	0	3	354	16.4	19.8	321	386
	Total	1,541	300	240	60	20	2,162				
Week 31–39[b]	Alaska	8,060	2,534	1,652	384	0	12,629	96.8	118.9	12,434	12,825
7/30–10/7	Nass	0	0	267	0	0	267	2	115	78	456
	Skeena	0	153	0	0	0	153	1.2	58.2	57	249
	Total	8,060	2,687	1,919	384	0	13,049				
Total	Alaska	11,149	4,011	2,324	865	29	18,378	94	126	18,171	18,585
	Nass	29	65	341	43	1	479	2.4	117	286	672
	Skeena	321	309	62	4	5	701	3.6	69	587	815
	Total	11,500	4,385	2,727	911	35	19,558				

[a] Age and stock composition for week 25–26 estimated using 33 samples collected during week 26.
[b] Age and stock composition for week 31–39 estimated using 34 samples collected during week 31

Table 6.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 103 purse seine fishery, 2006.

		Catch By Age Class								90% CI	
Date	Group	1.2	1.3	2.2	2.3	Other	Total	Percent	SE	Lower	Upper
Week 30	Alaska	244	120	71	15	0	451	88.2	4.7	443	458
7/23–7/29	Nass	0	7	0	5	0	12	2.3	3.7	6	18
	Skeena	39	10	0	0	0	48	9.5	4.4	41	56
	Total	283	137	71	20	0	511				
Week 31	Alaska	4,024	1,982	1,166	248	0	7,420	88.2	76.9	7,294	7,547
7/30–8/05	Nass	0	111	0	85	0	197	2.3	60.5	97	296
	Skeena	642	156	0	0	0	798	9.5	71.9	680	917
	Total	4,666	2,250	1,166	333	0	8,415				
Week 32	Alaska	3,129	1,655	666	308	52	5,810	50	109.4	5,630	5,990
8/06–8/12	Nass	0	0	106	268	3	378	3.2	83.2	241	514
	Skeena	3,362	1,800	223	0	49	5,434	46.8	146.2	5,193	5,674
	Total	6,491	3,455	995	576	105	11,621				
Week 33	Alaska	274	172	87	189	0	722	12.5	91.4	572	872
8/13–8/19	Nass	1,019	0	0	190	0	1,209	20.9	163.4	940	1,478
	Skeena	1,005	2,723	84	46	0	3,858	66.6	208.2	3,516	4,201
	Total	2,299	2,894	170	426	0	5,789				
Week 34–36[a]	Alaska	453	283	109	60	5	909	47.5	19	878	941
8/20–9/09	Nass	56	0	92	30	1	179	9.4	23.8	140	219
	Skeena	356	427	25	13	4	826	43.1	29.3	778	874
	Total	865	710	227	103	10	1,915				
Total	Alaska	8,124	4,212	2,098	820	57	15,312	54.2	163	15,044	15,580
	Nass	1,075	118	199	578	4	1,974	7	195	1,654	2,294
	Skeena	5,404	5,116	332	60	53	10,965	38.8	266	10,527	11,402
	Total	14,603	9,446	2,629	1,458	115	28,251				

[a] Age and stock composition for week 34–36 estimated using 186 samples collected during week 34.

Table 7.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 104 purse seine fishery, 2006.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 27	**Alaska**	141	98	44	53	0	336	33.6	16.9	308	364
7/02–7/08	**Nass**	187	114	82	103	0	487	48.7	23.5	448	526
	Skeena	124	40	13	0	0	177	17.7	18.5	147	208
	South Migrating	0	0	0	0	0	0	0	0	NA	NA
	Total	452	252	139	157	0	1,000				
Week 28	**Alaska**	191	323	49	0	0	563	14.5	82.4	428	699
7/09–7/15	**Nass**	804	0	179	281	0	1,265	32.4	148.9	1,020	1,510
	Skeena	1,385	213	0	5	0	1,602	41.1	110.1	1,421	1,783
	South Migrating	309	150	0	0	9	468	12	65.6	360	576
	Total	2,688	686	229	286	9	3,898				
Week 29	**Alaska**	686	534	967	251	11	2,449	13.2	241.7	2,051	2,846
7/16–7/22	**Nass**	183	0	976	545	7	1,712	9.2	406.2	1,044	2,380
	Skeena	9,979	3,027	446	0	58	13,509	72.8	468.9	12,738	14,281
	South Migrating	855	22	0	0	17	894	4.8	228.3	518	1,270
	Total	11,704	3,583	2,388	796	93	18,564				
Week 30	**Alaska**	5,886	3,227	2,520	125	73	11,830	17.9	809.9	10,498	13,163
7/23–7/29	**Nass**	13,861	0	2,318	1,931	112	18,222	27.5	1,573.00	15,634	20,809
	Skeena	22,961	10,522	453	183	211	34,330	51.9	1,399.20	32,028	36,631
	South Migrating	633	1,105	0	0	34	1,771	2.7	902.3	287	3,256
	Total	43,340	14,854	5,290	2,239	430	66,153				
Week 31	**Alaska**	3,997	2,090	1,017	612	19	7,735	9.3	804.2	6,412	9,057
7/30–8/05	**Nass**	19,194	1,394	2,846	809	60	24,303	29.4	2,135.90	20,789	27,817
	Skeena	21,603	16,704	827	618	98	39,851	48.1	1,783.90	36,916	42,785
	South Migrating	10,673	0	0	2	207	10,882	13.1	1,312.50	8,723	13,041
	Total	55,466	20,188	4,690	2,041	384	82,770				
Week 32	**Alaska**	2,416	1,516	439	0	0	4,371	10	419.8	3,680	5,061
8/06–8/12	**Nass**	2,542	517	1,243	1,035	0	5,337	12.2	1,066.30	3,583	7,091
	Skeena	10,420	9,806	0	0	0	20,225	46.1	1,048.80	18,500	21,951
	South Migrating	12,446	1,232	0	3	265	13,945	31.8	931.3	12,413	15,477
	Total	27,823	13,070	1,682	1,038	265	43,878				
Week 33	**Alaska**	650	117	258	46	0	1,071	8.2	137.5	845	1,297
8/13–8/19	**Nass**	674	1,097	266	228	0	2,265	17.4	328.4	1,725	2,805
	Skeena	1,380	2,738	78	0	0	4,196	32.2	334.6	3,646	4,747
	South Migrating	4,798	593	0	1	104	5,496	42.2	337.4	4,941	6,051
	Total	7,502	4,545	602	275	104	13,028				
Week 34	**Alaska**	599	146	274	149	0	1,168	9.2	128.7	957	1,380
8/20–8/26	**Nass**	1,623	0	222	466	0	2,311	18.1	255.1	1,891	2,731
	Skeena	2,387	4,268	96	173	0	6,924	54.3	322	6,394	7,454
	South Migrating	2,253	42	0	0	44	2,340	18.4	251.4	1,926	2,753
	Total	6,862	4,456	592	789	44	12,743				
Totals	**Alaska**	14,565	8,051	5,568	1,236	102	29,523	12.2	1,257	27,455	31,590
	Nass	39,068	3,123	8,132	5,399	179	55,901	23.1	2,921	51,096	60,707
	Skeena	70,239	47,317	1,913	979	368	120,815	49.9	2,586	116,560	125,069
	South Migrating	31,965	3,143	0	7	680	35,796	14.8	1,907	32,658	38,933
	Total	155,837	61,634	15,613	7,621	1,330	242,034				

Table 8.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 106 drift gillnet fishery, 2006.

		Catch By Age Class									90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**0**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 24	**Alaska I**	62	72	38	7	0	1	183	49.2	5	175	191
6/11–6/17	**Alaska II**	0	0	0	0	0	0	0	0	NA	NA	NA
	Nass	22	42	18	40	0	1	124	33.4	5	116	133
	Skeena	0	12	1	2	0	0	16	4.3	3	11	21
	Tahltan	0	28	0	1	0	0	29	7.8	3	25	33
	Stikine	0	10	0	0	5	0	10	2.7	2	7	13
	Tuya	10	0	0	0	0	0	10	2.6	1	8	12
	Total	93	163	58	50	5	3	372				
Week 25	**Alaska I**	418	911	233	123	0	12	1,701	44.3	36	1,641	1,761
6/18–6/24	**Alaska II**	0	0	0	0	0	0	0	0	NA	NA	NA
	Nass	183	42	154	360	0	6	747	19.4	45	672	821
	Skeena	0	0	8	39	0	0	47	1.2	27	4	91
	Tahltan	201	728	0	93	0	8	1,033	26.9	39	969	1,097
	Stikine	0	84	0	0	7	1	84	2.2	15	59	110
	Tuya	229	0	0	0	0	2	231	6	21	197	265
	Total	1,031	1,765	395	615	7	30	3,843				
Week 26	**Alaska I**	861	855	596	101	0	21	2,438	27.3	71	2,320	2,555
6/25–7/01	**Alaska II**	0	172	0	0	0	2	174	1.9	25	133	215
	Nass	342	154	297	319	0	12	1,125	12.6	76	1,000	1,250
	Skeena	0	282	0	0	0	4	286	3.2	44	213	359
	Tahltan	2,029	2,027	0	283	0	55	4,394	49.2	99	4,231	4,556
	Stikine	0	0	0	0	4	0	0	0	8	0	13
	Tuya	516	0	0	0	0	7	522	5.8	50	440	605
	Total	3,748	3,490	893	704	4	100	8,939				
	Alaska I	1,485	1,226	1,272	272	0	20	4,281	23.8	130	4,067	4,494
Week 27	**Alaska II**	0	155	0	0	0	1	157	0.9	41	89	224
7/02–7/08	**Nass**	697	95	346	571	0	7	1,718	9.6	108	1,540	1,896
	Skeena	186	1,938	438	0	0	21	2,583	14.4	211	2,236	2,931
	Tahltan	3,274	2,743	0	557	0	53	6,627	36.9	174	6,341	6,914
	Stikine	0	445	0	0	10	4	449	2.5	51	365	532
	Tuya	2,133	0	0	0	0	17	2,150	12	186	1,845	2,456
	Total	7,774	6,602	2,055	1,400	10	123	17,965				
Week 28	**Alaska I**	1,938	2,483	1,188	367	0	21	6,004	41.7	100	5,840	6,168
7/09–7/15	**Alaska II**	0	0	0	0	0	0	0	0	0	NA	NA
	Nass	1,323	154	811	940	0	12	3,244	22.5	131	3,028	3,459
	Skeena	180	920	96	7	0	7	1,211	8.4	118	1,017	1,406
	Tahltan	1,377	1,499	0	157	0	17	3,057	21.2	106	2,882	3,231
	Stikine	0	17	0	0	21	0	17	0.1	25	0	58
	Tuya	862	0	0	0	0	5	868	6	90	719	1,016
	Total	5,679	5,073	2,095	1,471	21	62	14,400				
Week 29	**Alaska I**	3,436	2,639	1,286	505	0	13	7,938	38.9	141	7,706	8,171
7/16–7/22	**Alaska II**	0	332	0	0	0	0	335	1.6	35	278	392
	Nass	1,306	999	1,317	1,164	0	12	4,830	23.7	207	4,489	5,170
	Skeena	1,676	1,728	116	269	0	12	3,823	18.7	155	3,568	4,079
	Tahltan	74	2,168	0	210	0	11	2,474	12.1	150	2,228	2,720
	Stikine	0	157	0	0	131	0	158	0.8	58	63	254
	Tuya	850	0	0	0	0	3	857	4.2	103	688	1,026
	Total	7,342	8,024	2,718	2,148	131	52	20,416				
Week 30	**Alaska I**	1,298	728	715	327	0	12	3,091	51.2	49	3,010	3,172
7/23–7/29	**Alaska II**	0	337	0	0	0	1	340	5.6	35	283	397
	Nass	451	194	317	341	0	5	1,314	21.7	57	1,220	1,408
	Skeena	132	368	0	95	0	3	603	10	31	551	654
	Tahltan	29	457	0	15	0	3	506	8.4	26	464	548
	Stikine	56	0	0	0	25	0	57	0.9	12	37	76
	Tuya	132	0	0	0	0	0	133	2.2	11	114	151
	Total	2,098	2,084	1,033	779	25	25	6,043				

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Table 8.–Page 2 of 2.

		Catch By Age Class									90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**0**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 31	**Alaska I**	467	385	264	269	0	3	1,406	38.9	58	1,310	1,501
7/30–8/05	**Alaska II**	0	114	0	0	0	0	114	3.2	26	72	157
	Nass	172	126	348	195	0	1	857	23.7	78	729	985
	Skeena	370	528	38	0	0	2	952	26.4	72	833	1,070
	Tahltan	7	76	0	13	0	0	97	2.7	9	82	112
	Stikine	83	0	0	0	49	0	84	2.3	20	50	117
	Tuya	97	0	0	0	0	0	100	2.8	30	51	148
	Total	1,196	1,229	651	477	49	6	3,609				
Week 32	**Alaska I**	692	488	411	396	0	9	2,008	46.5	85	1,868	2,148
8/06–8/12	**Alaska II**	0	378	0	0	0	2	382	8.8	66	274	491
	Nass	261	166	366	232	0	4	1,035	24	77	909	1,162
	Skeena	196	352	0	33	0	2	586	13.6	45	511	661
	Tahltan	6	108	0	10	0	0	125	2.9	22	90	161
	Stikine	60	0	0	0	25	0	61	1.4	35	3	118
	Tuya	122	0	0	0	0	0	123	2.8	14	101	145
	Total	1,337	1,493	777	672	25	17	4,321				
Week 33	**Alaska I**	314	210	156	224	0	2	906	24	94	752	1,061
8/13–8/19	**Alaska II**	0	212	0	0	0	1	213	5.6	73	93	333
	Nass	225	118	258	371	0	2	973	25.7	84	835	1,111
	Skeena	493	807	0	89	0	4	1,392	36.8	47	1,315	1,469
	Tahltan	34	121	2	5	0	0	161	4.3	24	122	201
	Stikine	52	84	0	0	0	0	137	3.6	39	73	201
	Tuya	0	0	0	0	0	0	0	0	NA	NA	NA
	Total	1,118	1,552	415	689	0	10	3,783				
Week 34	**Alaska I**	217	158	203	261	0	3	842	16.7	35	784	899
8/20–8/26	**Alaska II**	0	144	0	0	0	0	144	2.9	22	109	180
	Nass	242	77	420	713	0	4	1,456	28.9	62	1,353	1,558
	Skeena	745	1,660	0	21	0	7	2,433	48.4	51	2,350	2,517
	Tahltan	58	41	0	0	0	0	99	2	14	75	122
	Stikine	0	5	0	0	0	0	5	0.1	0	5	5
	Tuya	53	0	0	0	0	0	53	1.1	14	31	76
	Total	1,316	2,084	623	995	0	14	5,032				
Week 35	**Alaska I**	156	61	91	172	0	3	483	21.3	14	460	506
8/27–9/02	**Alaska II**	0	101	0	0	0	1	101	4.5	8	88	115
	Nass	107	0	114	363	0	4	589	25.9	23	551	627
	Skeena	183	748	16	0	0	6	954	42	23	916	992
	Tahltan	8	15	0	0	0	0	24	1	2	20	27
	Stikine	4	34	0	0	0	0	38	1.7	2	35	41
	Tuya	83	0	0	0	0	1	83	3.7	3	78	88
	Total	541	959	222	535	0	15	2,272				
Week 36-40[ab]	**Alaska I**	104	35	77	93	0	2	311	31.6	23	273	348
9/03–10/14	**Alaska II**	0	30	0	0	0	0	30	3.1	9	15	46
	Nass	37	83	64	174	0	1	360	36.6	13	338	382
	Skeena	64	124	0	0	0	1	189	19.2	11	170	207
	Tahltan	3	35	0	0	0	0	38	3.9	9	24	53
	Stikine	13	40	0	0	0	0	53	5.4	5	45	61
	Tuya	3	0	0	0	0	0	3	0.3	1	1	5
	Total	224	347	141	268	0	4	984				
Total	**Alaska I**	11,447	10,252	6,530	3,119	0	122	31,469	34.2	277	31,013	31,926
	Alaska II	0	1,976	0	0	0	9	1,985	2.2	125	1,778	2,191
	Nass	5,368	2,249	4,830	5,785	0	71	18,303	19.9	326	17,767	18,840
	Skeena	4,224	9,469	714	556	0	69	15,032	16.3	315	14,515	15,550
	Tahltan	7,100	10,045	2	1,344	0	149	18,640	20.3	278	18,182	19,097
	Stikine	269	874	0	0	277	7	1,427	1.6	101	1,261	1,593
	Tuya	5,088	0	0	0	0	34	5,123	5.6	240	4,728	5,517
	Total	33,497	34,865	12,076	10,804	277	461	91,979				

[a] Age and stock composition for statistical area 106-30 weeks 36-39 estimated using 219 samples collected during week 36.
[b] Age and stock composition for statistical area 106-41 week 37-40 estimated using 14 samples collected during week 37.

Table 9.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 108 drift gillnet fishery, 2006.

		Catch By Age Class									90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**0**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 23-24[a]	**Alaska I**	1	2	0	0	0	0	2	1.8	1.2	0	4
6/4-6/17	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	1	34	0	0	0	0	35	27.5	6.5	25	46
	Skeena	0	0	0	0	0	0	0	0	0	0	0
	Tahltan	5	46	0	0	0	0	52	40.3	7.8	39	64
	Stikine	1	11	0	0	23	0	35	27.1	14	12	58
	Tuya	4	0	0	0	0	0	4	3.2	4.2	0	11
	Total	12	93	0	0	23	0	128				
Week 25	**Alaska I**	12	66	0	7	0	3	89	11.2	7.5	76	101
6/18-6/24	**Alaska II**	0	31	0	0	0	1	31	4	4.6	24	39
	Nass	14	20	0	0	0	1	35	4.4	6.5	24	46
	Skeena	0	30	16	7	0	2	54	6.8	8.1	41	67
	Tahltan	99	295	4	35	0	14	447	56.7	9.7	431	463
	Stikine	10	36	0	0	7	2	55	7	5.9	45	65
	Tuya	75	0	0	0	0	2	78	9.9	7.6	65	90
	Total	211	478	20	49	7	25	789				
Week 26	**Alaska I**	132	263	0	17	0	1	413	10.5	26.9	369	457
6/25–7/01	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	0	0	0	0	0	0	0	0	0	0
	Skeena	0	0	68	16	0	0	84	2.1	24.3	44	124
	Tahltan	726	1,914	17	83	0	7	2,747	69.8	42.6	2,677	2,817
	Stikine	0	216	0	0	11	1	228	5.8	23.2	189	266
	Tuya	461	0	0	0	0	1	462	11.7	38.8	398	526
	Total	1,318	2,394	84	116	11	11	3,933				
Week 27	**Alaska I**	763	0	104	138	0	2	1,007	4.9	107.1	830	1,183
7/02–7/08	**Alaska II**	0	290	0	0	0	1	291	1.4	61.4	190	392
	Nass	0	991	0	136	0	2	1,130	5.5	136.9	904	1,355
	Skeena	45	1,345	48	0	0	3	1,442	7	230.8	1,062	1,822
	Tahltan	6,358	5,826	462	559	0	28	13,233	64.3	221.9	12,868	13,598
	Stikine	148	1,239	0	0	44	3	1,434	7	123.2	1,231	1,636
	Tuya	2,027	0	0	0	0	4	2,031	9.9	217	1,674	2,388
	Total	9,341	9,691	614	833	44	44	20,567				
Week 28	**Alaska I**	0	0	194	111	0	4	309	1.5	54.3	219	398
7/09–7/15	**Alaska II**	0	234	0	0	0	3	237	1.2	74.8	114	360
	Nass	0	1,598	0	0	0	21	1,619	8	153.4	1,367	1,872
	Skeena	0	261	389	191	0	11	851	4.2	155.1	596	1,106
	Tahltan	6,094	5,493	142	551	0	161	12,442	61.7	242.6	12,043	12,841
	Stikine	146	2,434	0	0	384	34	2,997	14.9	192.3	2,681	3,313
	Tuya	1,690	0	0	0	0	22	1,713	8.5	148.3	1,469	1,957
	Total	7,931	10,020	725	853	384	256	20,168				
Week 29	**Alaska I**	330	249	94	21	0	12	707	8.9	64.6	600	813
7/16–7/22	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	696	99	128	0	16	940	11.8	75	816	1,063
	Skeena	78	0	130	0	0	4	211	2.7	48.3	132	290
	Tahltan	842	3,050	0	344	0	75	4,311	54.2	92.6	4,159	4,463
	Stikine	185	935	0	0	136	20	1,277	16	69.9	1,162	1,392
	Tuya	503	0	0	0	0	9	512	6.4	57.2	418	606
	Total	1,938	4,931	323	493	136	136	7,957				
Week 30	**Alaska I**	0	187	94	42	0	2	325	7.6	44.3	252	398
7/23–7/29	**Alaska II**	0	137	0	0	0	1	138	3.2	28	92	184
	Nass	0	401	53	25	0	3	482	11.2	42.9	412	553
	Skeena	99	0	62	97	0	2	259	6	28.8	212	306
	Tahltan	238	1,669	0	96	0	14	2,017	46.9	52.4	1,931	2,103
	Stikine	288	585	0	0	80	6	959	22.3	45.4	884	1,034
	Tuya	122	0	0	0	0	1	123	2.9	19	92	154
	Total	747	2,978	209	259	80	30	4,303				

-continued-

Table 9.–Page 2 of 2.

Date	Group	Catch By Age Class									90% CI	
		1.2	1.3	2.2	2.3	0	Other	Total	Percent	SE	Lower	Upper
Week 31	**Alaska I**	21	109	0	17	0	1	148	9.3	15.2	123	173
7/30–8/05	**Alaska II**	0	139	0	0	0	1	141	8.8	14.1	118	164
	Nass	43	1	82	93	0	2	220	13.8	26.7	176	264
	Skeena	40	52	48	0	0	1	141	8.9	17.1	113	169
	Tahltan	45	512	11	68	0	6	643	40.4	22.7	606	681
	Stikine	66	218	0	0	15	3	301	18.9	18.3	271	331
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	215	1,031	141	178	15	15	1,594				
Week 32	**Alaska I**	15	0	11	10	0	0	35	3.8	6.6	24	46
8/06–8/12	**Alaska II**	0	98	0	0	0	1	99	10.5	9.9	82	115
	Nass	9	88	47	35	0	2	180	19.2	19.2	148	211
	Skeena	0	98	12	5	0	1	116	12.4	9.2	101	131
	Tahltan	7	71	0	2	0	1	81	8.6	7.3	69	93
	Stikine	45	358	0	0	9	4	416	44.3	19.3	384	448
	Tuya	12	0	0	0	0	0	12	1.3	3.7	6	18
	Total	87	713	70	52	9	9	939				
Week 33	**Alaska I**	4	0	1	2	0	0	7	2.6	1.7	4	10
8/13–8/19	**Alaska II**	0	49	0	0	0	1	50	19.7	3.6	45	56
	Nass	3	36	4	6	0	1	48	19	4.1	42	55
	Skeena	0	2	1	1	0	0	3	1.3	1.8	0	6
	Tahltan	2	27	0	0	0	1	30	11.9	2.2	27	34
	Stikine	13	94	0	0	3	2	112	44.1	4.5	105	120
	Tuya	3	0	0	0	0	0	3	1.4	1.1	2	5
	Total	25	208	6	8	3	6	255				
Week 34	**Alaska I**	6	0	2	10	0	0	18	6.3	3	13	23
8/20–8/26	**Alaska II**	0	41	0	0	0	0	41	14.5	4.4	34	49
	Nass	4	12	8	35	0	0	58	20.5	8.6	44	72
	Skeena	0	11	2	5	0	0	18	6.2	2.4	14	22
	Tahltan	3	13	0	2	0	0	18	6.5	1.7	16	21
	Stikine	19	99	0	0	8	0	126	44.2	8.6	112	140
	Tuya	5	0	0	0	0	0	5	1.8	1.6	3	8
	Total	38	176	11	53	8	0	285				
Week 35-40[b]	**Alaska I**	0	0	0	0	0	0	0	0	0	0	0
8/27–10/14	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	31	0	0	0	0	31	8.2	5.4	22	40
	Skeena	0	15	0	0	0	0	15	4	3.1	10	20
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	0	244	0	0	89	0	334	87.8	7	322	345
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	0	291	0	0	89	0	380				
Total	**Alaska I**	1,283	876	500	374	0	26	3,059	5	147.1	2,817	3,301
	Alaska II	0	1,020	0	0	0	9	1,029	1.7	102.4	860	1,197
	Nass	72	3,908	292	458	0	49	4,779	7.8	225.9	4,407	5,150
	Skeena	262	1,813	775	321	0	24	3,195	5.2	285.5	2,725	3,664
	Tahltan	14,419	18,917	636	1,741	0	307	36,021	58.8	349.2	35,446	36,595
	Stikine	921	6,470	0	0	808	74	8,272	13.5	246.4	7,867	8,678
	Tuya	4,903	0	0	0	0	40	4,944	8.1	272.6	4,495	5,392
	Total	21,862	33,003	2,202	2,894	808	530	61,298				

[a] Age and stock composition for week 23–24 estimated using 11 samples collected during week 24.
[b] Age and stock composition for week 35–40 estimated using 17 samples collected during week 35.

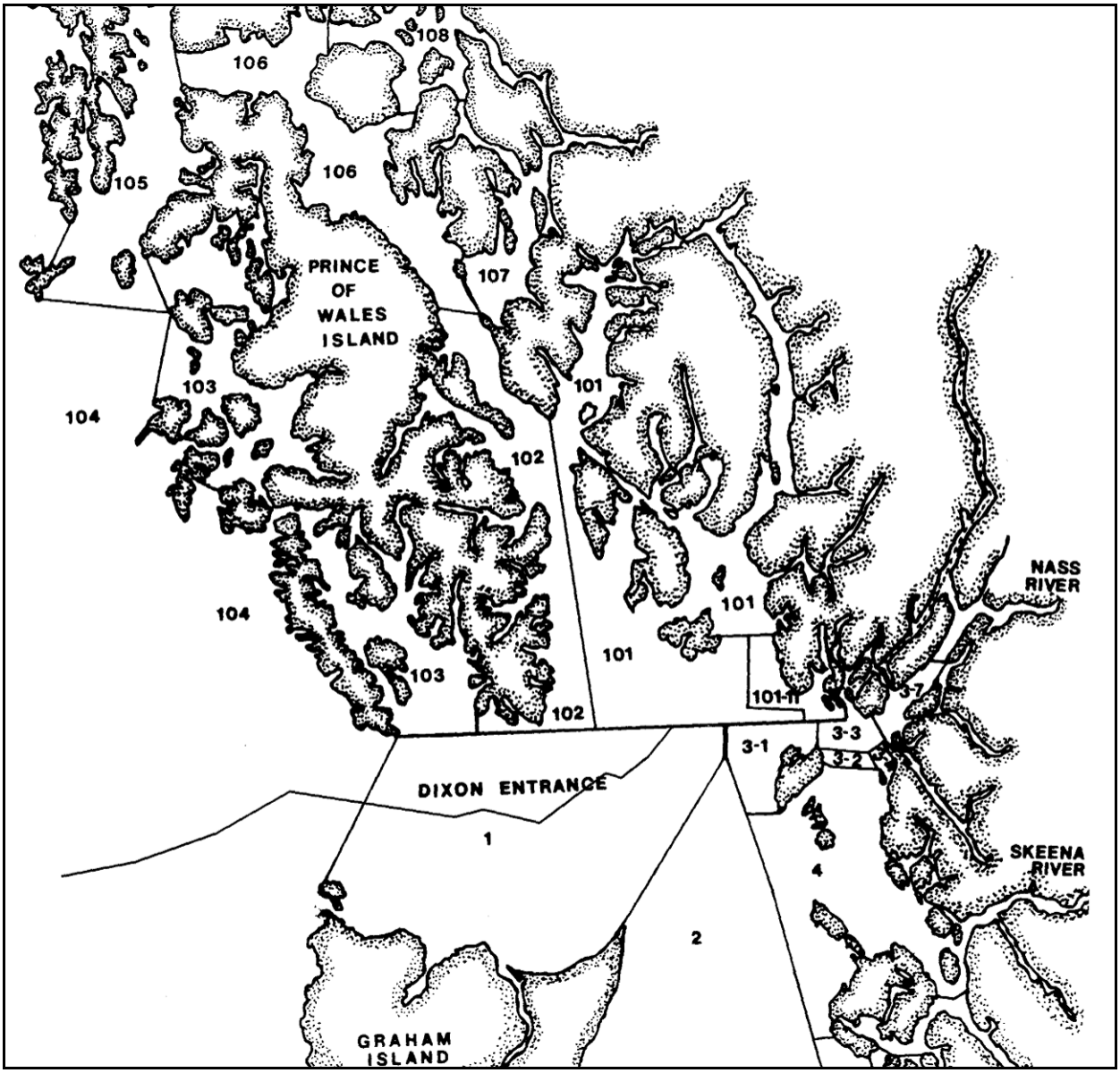

Figure 1.–Fishery management districts in southern Southeast Alaska and northern British Columbia waters.

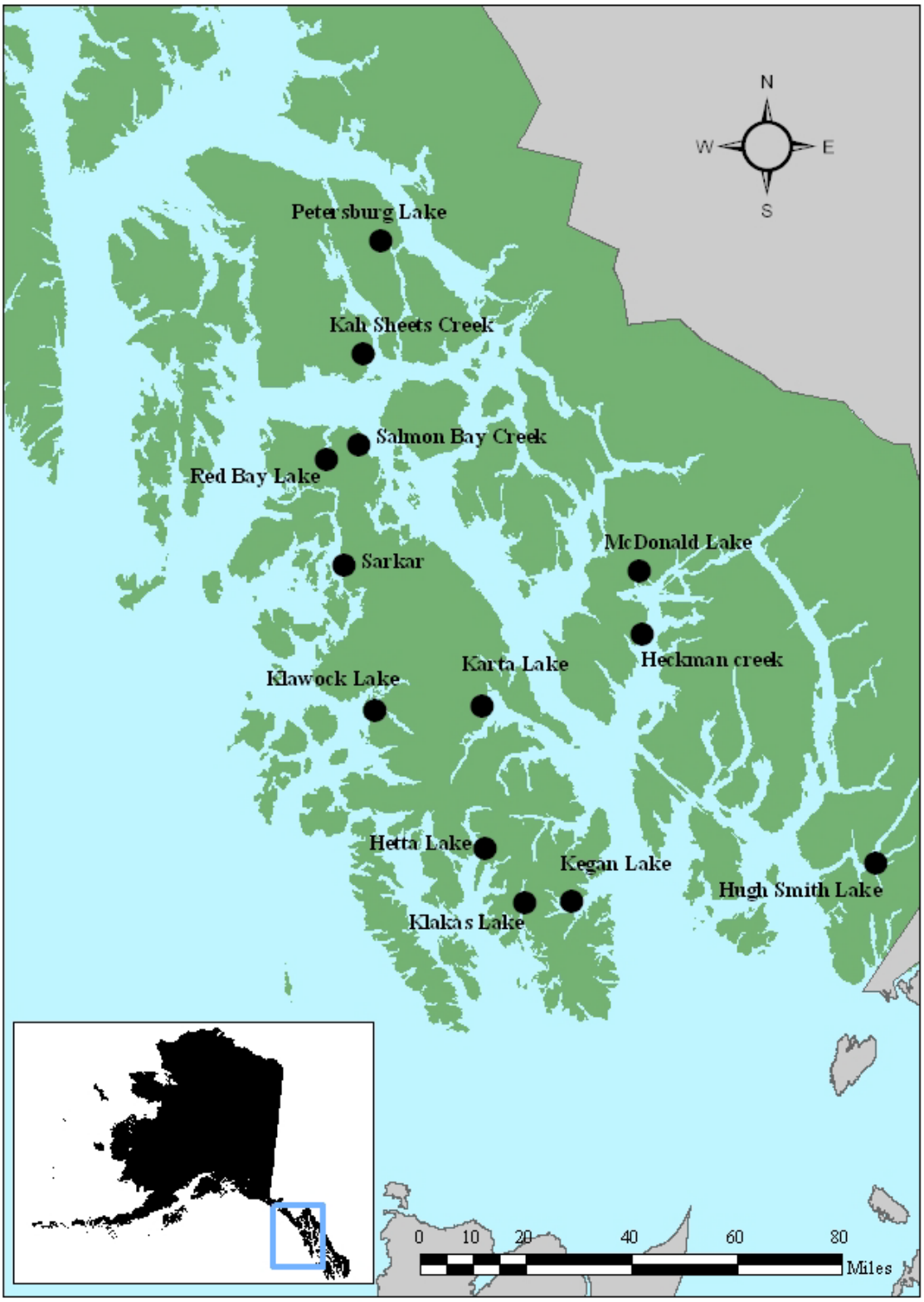

Figure 2.–Major sockeye salmon systems of Southeast Alaska sampled for scales used in scale pattern analysis stock discrimination studies.

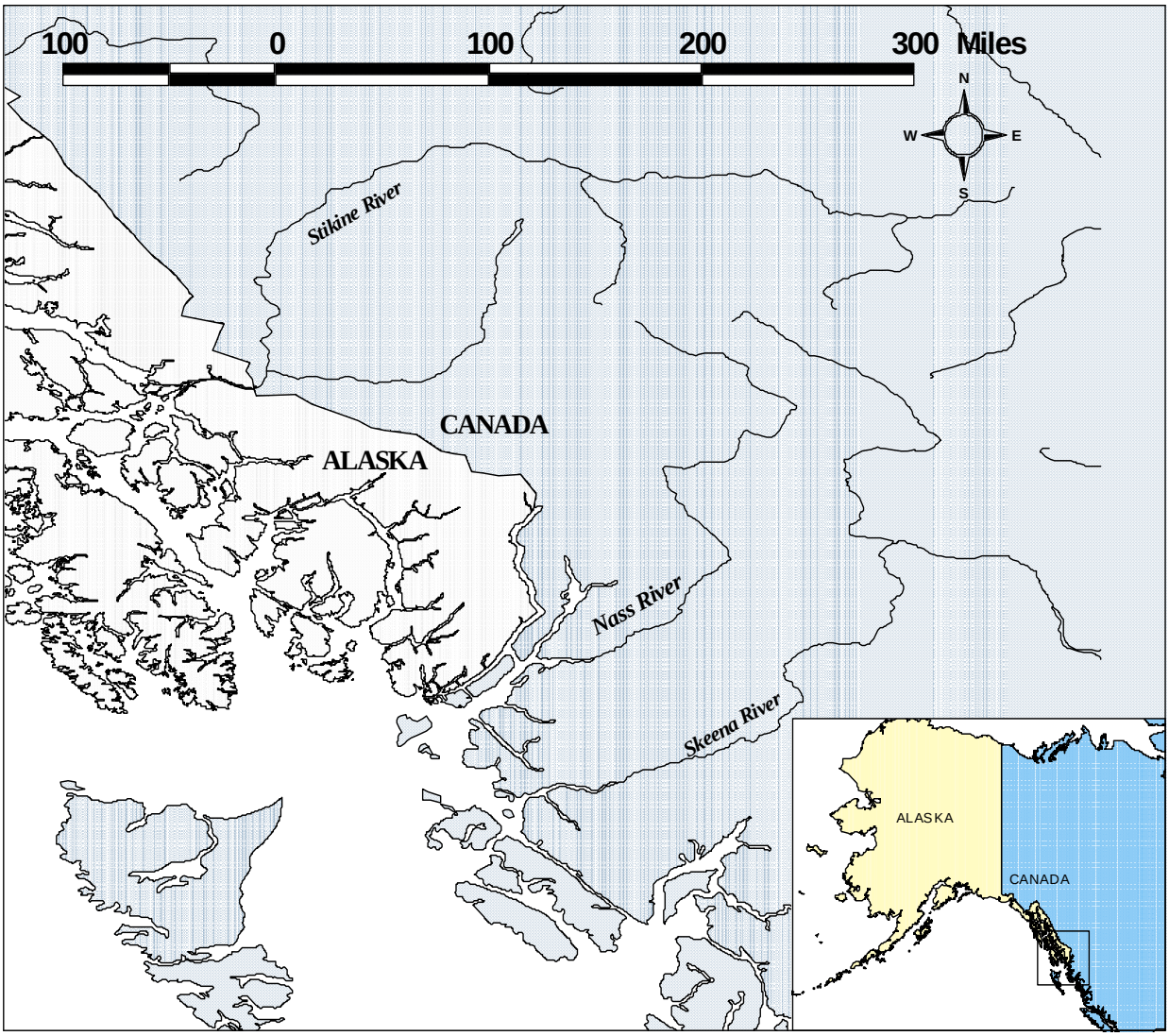

Figure 3.–The Canadian Nass and Skeena Rivers and the transboundary Stikine River.

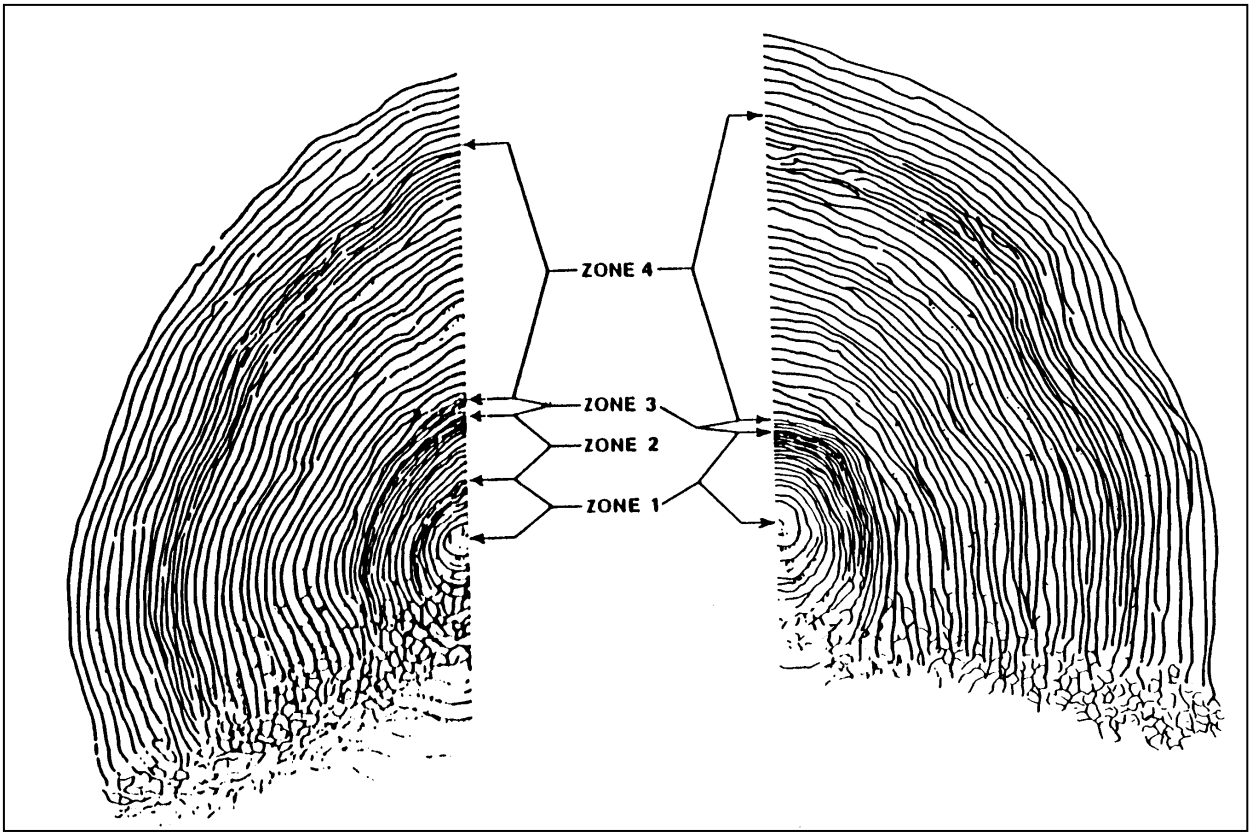

Figure 4.–Typical scales with two and one freshwater growth zones showing the zones used for scale pattern analysis.

APPENDICES

Appendix A.–Scale measurement and count characters calculated from intercirculus distances and evaluated for use in linear discriminant function analysis.

Variable Code	Growth Zone	Scale Character
Z1	1st Freshwater Annular	Number of circuli (NC1FW)
Z2		Width of zone (S1FW)
Z3		Distance from scale focus (C0) to circulus 2 (C2)
Z4		Distance from scale focus to circulus 4 (C0 -C4)
Z5		Distance from scale focus to circulus 6 (C0 -C6)
Z6		Distance from scale focus to circulus 8 (C0 C8)
Z12		Distance from fourth-to-last circulus to end of zone, C(NC1FW-4) -EOZ
Z13		Distance from second-to-last circulus to end of zone, C(NC1FW-2) -EOZ
Z28		Number of circuli in first 3/4 of zone
Z30		Relative width, (variable 29)/S1FW
Z31	2nd Freshwater Annular	Number of circuli (NC2FW)
Z32		Width of zone (S2FW)
Z33		Distance from end of first annular zone (E1FW) to circulus 2 (C2)
Z34		Distance from end of first annular zone to circulus 4 (E1FW -C4)
Z35		Distance from end of first annular zone to circulus 6 (E1FW -C6)
Z36		Distance from end of first annular zone to circulus 8 (E1FW -C8)
Z42		Distance from fourth-to-last circulus to end of zone, C(NC2FW-4) -EOZ
Z43		Distance from second-to-last circulus to end of zone, C(NC2FW-2) -EOZ
Z57		Average interval between circuli (S2FW/NC2FW)
Z58		Number of circuli in first 3/4 of zone
Z61	Freshwater Plus Growth	Number of circuli (NCPGZ)
Z62		Width of zone (SPGZ)
Z63	All Freshwater	Total number of annular circuli (NC1FW + NC2FW)
Z64		Total width of annular zones (S1FW + S2FW)
Z65		Total number of freshwater circuli (NC1FW + NC2FW + NCPGZ)
Z66		Total width of freshwater zones (S1FW + S2FW + SPGZ)
Z70	1st Marine Annular	Number of circuli (NC1OZ)
Z71		Width of zone (S1OZ)
Z72		Distance from end of freshwater growth (EFW) to circulus 3 (C3)
Z73		Distance from end of freshwater growth to circulus 6 (EFW -C6)
Z74		Distance from end of freshwater growth to circulus 9 (EFW -C9)
Z75		Distance from end of freshwater growth to circulus 12 (EFW -C12)
Z76		Distance from end of freshwater growth to circulus 15 (EFW -C15)
Z85		Distance from sixth-to-last circulus to end of zone, C(NC1OZ-6) -EOZ
Z86		Distance from third-to-last circulus to end of zone, C(NC1OZ-3) -EOZ
Z87		Distance from circulus 3 to end of zone (C3 EOZ)
Z88		Distance from circulus 9 to end of zone (C9 -EOZ)
Z89		Distance from circulus 15 to end of zone (C15 -EOZ)
Z105		Average interval between circuli (S1OZ/NC1OZ)
Z106		Number of circuli in first 1/2 of zone

Appendix B.–Scale variables with associated entry F-statistics, and classification matrices for age-specific linear discriminant models used to classify sockeye salmon commercial catches in the District 101 gillnet fishery, and Districts 101–103 purse seine fisheries, 2006.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix				
					Classified As (number and percent)			
Age Class	Run	Variable	F-Statistic	True Stock	Alaska	Nass	Skeena	Total
12	Total	z5	267.32	**Alaska**	163	25	12	
	Season	z80	71.78		81.50%	12.50%	6.00%	200
		z2	40.43	**Nass**	23	135	36	
		z105	26.74		11.86%	69.59%	18.56%	194
		z88	10.53	**Skeena**	6	34	160	
					3.00%	17.00%	80.00%	200
				Total	192	194	208	594
13	Total	z5	220.20	**Alaska**	173	33	17	
	Season	z76	46.77		77.58%	14.80%	7.62%	223
		z70	16.17	**Nass**	20	67	22	
		z72	8.13		18.35%	61.47%	20.18%	109
		z2	5.64	**Skeena**	9	38	154	
					4.48%	18.91%	76.62%	201
				Total	202	138	193	533
22	Total	z5	185.54	**Alaska**	159	13	18	
	Season	z65	42.60		83.68%	6.84%	9.47%	190
		z87	40.66	**Nass**	11	157	30	
					5.56%	79.29%	15.15%	198
				Skeena	7	12	43	
					11.29%	19.35%	69.35%	62
				Total	177	182	91	450
23	Total	z4	210.98	**Alaska**	117	15	10	
	Season	z1	22.95		82.39%	10.56%	7.04%	142
		z82	14.72	**Nass**	12	148	31	
		z35	13.15		6.28%	77.49%	16.23%	191
		z72	6.57	**Skeena**	2	3	18	
					8.70%	13.04%	78.26%	23
				Total	131	166	59	356

Appendix C.–Scale variables with associated entry F-statistics, and classification matrices for age-specific linear discriminant models used to classify sockeye salmon commercial catches in the District 104 purse seine fishery, 2006.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix					
					Classified As (number and percent)				
Age Class	Timing	Variable	F-Statistic	True Stock	Alaska	Fraser	Nass	Skeena	Total
12	Total	z5	218.74	**Alaska**	167	9	16	9	
	Season	z80	116.60		83.08	4.48	7.96	4.48	201
		z85	87.56	**Fraser**	5	134	30	20	
		z88	31.25		2.65	70.90	15.87	10.58	189
		z70	17.81	**Nass**	14	38	104	38	
		z2	15.35		7.22	19.59	53.61	19.59	194
				Skeena	3	15	25	157	
					1.50	7.50	12.50	78.50	200
				Total	189	196	175	224	784
13	Total	z5	198.09	**Alaska**	169	7	32	4	
	Season	z2	64.03		79.72	3.30	15.09	1.89	212
		z76	53.53	**Fraser**	2	74	12	13	
		z74	13.64		1.98	73.27	11.88	12.87	101
		z70	8.89	**Nass**	14	9	68	18	
					12.84	8.26	62.39	16.51	109
				Skeena	4	41	36	122	
					1.97	20.20	17.73	60.10	203
				Total	189	131	148	157	625
22	Total	z5	183.38	**Alaska**	161		13	16	
	Season	z65	43.05		84.74		6.84	8.42	190
		z87	41.07	**Nass**	11		157	30	
					5.56		79.29	15.15	198
				Skeena	7		12	43	
					11.29		19.35	69.35	62
				Total	179		182	89	450
23	Total	z27	234.22	**Alaska**	110		11	12	
	Season	z82	13.26		82.71		8.27	9.02	133
		z35	11.70	**Nass**	9		152	31	
		z77	8.59		4.69		79.17	16.15	192
		z76	8.95	**Skeena**	3		5	16	
		z5	6.72		12.50		20.83	66.67	24
				Total	122		168	59	349

Appendix D.–Scale variables with associated entry F-statistics, and classification matrices for age-specific linear discriminant models used to classify sockeye salmon commercial catches in the Districts 106 and 108 drift gillnet fisheries, 2006.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix								
					Classified As (number and percent)							
Age Class	Timing	Variable	F-Statistic	True Stock	Alaska II	Alaska I	Nass	Skeena	Stikine	Tahltan	Tuya	Total
12		z2	236.21	Alaska I		123	18	2	35	11	4	
		z28	79.95			63.73	9.33	1.04	18.13	5.70	2.07	193
		z80	48.45	Nass		6	122	21	10	27	7	
		z88	36.72			3.11	63.21	10.88	5.18	13.99	3.63	193
		z105	30.91	Skeena		1	30	99	0	22	48	
						0.50	15.00	49.50	0.00	11.00	24.00	200
				Stikine		6	3	0	26	1	0	
						16.67	8.33	0.00	72.22	2.78	0.00	36
				Tahltan		8	21	14	1	143	24	
						3.79	9.95	6.64	0.47	67.77	11.37	211
				Tuya		3	9	47	0	23	112	
						1.55	4.64	24.23	0.00	11.86	57.73	194
				Total		147	203	183	72	227	195	1027
13		z2	321.85	Alaska II	136	27	3	0	19	1		
		z28	69.98		73.12	14.52	1.61	0.00	10.22	0.54		186
		z71	64.63	Alaska I	41	108	14	10	18	12		203
		z76	31.66		20.20	53.20	6.90	4.93	8.87	5.91		
		z12	13.30	Nass	3	16	61	14	4	11		
		z72	13.00		2.75	14.68	55.96	12.84	3.67	10.09		109
				Skeena	0	6	29	136	0	32		
					0.00	2.96	14.29	67.00	0.00	15.76		203
				Stikine	20	7	6	3	80	1		117
					17.09	5.98	5.13	2.56	68.38	0.85		
				Tahltan	0	8	21	29	3	142		
					0.00	3.94	10.34	14.29	1.48	69.95		203
				Tuya								
				Total	200	172	134	192	124	199		1021

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Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix							
					Classified As (number and percent)						
Age Class	**Timing**	**Variable**	**F-Statistic**	**True Stock**	**Alaska II**	**Alaska I**	**Nass**	**Skeena**	**Stikine**	**Tahltan**	**Tuya**	**Total**
22	Total	z5	103.70	Alaska I		99	11	8		11		
	Season	z87	32.79			76.74	8.53	6.20		8.53		129
		z65	25.27	Nass		12	149	26		11		
		z77	10.63			6.06	75.25	13.13		5.56		198
		z85	5.19	Tahltan		1	2	2		17		
		z33	2.24			4.55	9.09	9.09		77.27		22
				Skeena		8	15	18		21		
						12.90	24.19	29.03		33.87		62
				Total		120	177	54		60		411
23	Total	z27	186.51	Alaska I		116	10	10		4		
	Season	z71	33.75			82.29	7.80	7.09		2.84		141
		z57	11.06	Nass		7	150	33		1		
		z82	8.16			3.66	78.53	17.28		0.52		191
				Skeena		2	5	13		4		
						8.33	20.83	54.17		16.67		24
				Stikine								
				Tahltan		0	0	2		10		
						0.00	0.00	16.67		83.33		12
				Tuya								
				Total		126	166	56		20		368