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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, 2008

by

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Symbols and Abbreviations

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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)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

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 REPORT NO. 11-20

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, 2008

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ABSTRACT

Sockeye salmon *(Oncorhynchus nerka)* harvested in southern Southeast Alaska's 2008 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 163,992 sockeye salmon were harvested in Southeast Alaska purse seine and gillnet fisheries in 2008. This annual harvest of sockeye salmon was the lowest since 1982, representing only 16% of the 1982–2007 average of 1.05 million annually. This catch was classified to nation of origin to estimate that 32,172 fish (19.6%) were of Alaska origin, 86,307 fish (52.6%) were of Canadian origin, and 45,513 fish (27.8%) 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 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 (DFO) 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 2007 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® Model PC scanning microfiche reader at 42x magnification, similar to equipment described by Hagen (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 (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.

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; Wilcock et al. 2011a-b).

Age-specific LDF models for each gear type and District were assembled for the three distinct geographic areas (Appendices A2–A4) from 2007 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 (K. A. Jensen, Commercial Fishery Research Biologist, ADF&G, Douglas; personal communication).

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 OF SOUTHERN SOUTHEAST SOCKEYE SALMON CATCHES

The total sockeye salmon harvest in the southern Southeast Alaska (Districts 101–108) seine and gillnet fisheries was 163,992 fish in 2008. Catches from these net fisheries were classified by nation of origin (Table 1). The estimated U.S. contribution was 32,172 fish (19.6%), estimated Canadian contribution was 86,307 fish (52.6%), and estimated shared transboundary stock contribution was 45,513 fish (27.8%) 45,513 fish (27.8%).

STOCK COMPOSITION OF SOUTHERN SOUTHEAST SOCKEYE SALMON CATCHES

The total number of sockeye salmon classified to stock group of origin was 163,992 fish (Table 2). Of these, it was estimated that 32,172 fish (19.6%) were of Alaska origin; 44,572 fish (27.2%) were Nass River origin; 40,483 (24.7%) were Skeena River origin; 1,251 (0.8%) were south-migrating stock origin (primarily Fraser River); 17,577 (10.7%) were transboundary Tahltan Lake origin; 10,310 (6.3%) were transboundary Stikine River origin; and 17,626 (10.7%) were transboundary Tuya Lake origin.

District 101 Gillnet Stock Composition

Weekly sockeye stock composition estimates were made for Alaska, Nass, and Skeena stock groupings in the 2008 District 101 gillnet fishery (Table 3). Of the season catch of 34,113 sockeye salmon, estimated stock contributions were: 2,654 fish from the Alaska stock grouping (7.8%); 24,329 Nass River fish (71.3%); and 7,131 Skeena River fish (20.9%). Nass was the largest stock component in all weekly strata until statistical week 34.

District 101 Purse Seine Stock Composition

Weekly sockeye stock composition estimates were made for Alaska, Nass, and Skeena stock groupings in the 2008 District 101 purse seine fishery. The season catch total was 6,962 sockeye (Table 4). The estimated stock contributions were 1,920 fish from the Alaska stock grouping (27.6%), 1,426 Nass River fish (20.5%), and 3,616 Skeena River fish (51.9%).

District 102 Purse Seine Stock Composition

Where possible weekly stock composition estimates were made for Alaska, Nass, and Skeena stock groupings in the 2008 District 102 purse seine fishery (Table 5). Of the catch of 10,104 sockeye salmon caught over the entire season (statistical weeks 26–37), the estimated stock contributions were: 5,615 fish from the Alaska stock grouping (55.6%); 1,313 Nass River fish (13.0%); and 3,176 Skeena River fish (31.4%). For most statistical weeks, Alaska stock grouping dominated the District 102 catch, ranging from 40.8% to 76.1%.

District 103 Purse Seine Stock Composition

Sockeye salmon harvested in the 2008 District 103 purse seine fishery totaled 5,448 fish. The estimates for contributions by stock group were: 4,085 (75.0%) from Alaska, 890 (16.3%) from Nass, and 472 (8.7%) from Skeena (Table 6). Alaska stock grouping contributions dominated in all statistical weeks.

District 104 Purse Seine Stock Composition

Weekly stock composition estimates were made for Alaska, Nass, Skeena, and south-migrating groupings in the 2008 District 104 purse seine fishery. Of the season total of 41,154 sockeye salmon caught, the estimated stock contributions were: 6,116 fish from the Alaska stock grouping (14.9%); 11,994 Nass River fish (29.1%); 21,792 Skeena River fish (53.0%); and 1,252 fish (3.0%) from the south-migrating stock grouping (Table 7). Skeena River stocks dominated contribution estimates for all statistical weeks.

District 106 and 108 Gillnet Stock Composition

A total of 30,533 sockeye salmon were caught in the 2008 District 106 gillnet fishery (Table 8) and 35,678 sockeye salmon in the District 108 gillnet fishery (Table 9). Alaska contributed 8,593 sockeye (28.1%) to the District 106 gillnet fishery and 3,189 sockeye (8.9%) to the District108 gillnet fishery. Canadian stocks contributed 4,997 (16.4%) fish to the District 106 gillnet fishery and 3,919 (11.0%) fish to District108 gillnet. Transboundary stocks contributed 16,943 (55.5%) fish to 106 gillnet and 28,570 (80.1%) fish to the District 108 gillnet fishery.

DISCUSSION

The total sockeye salmon harvest in the southern Southeast Alaska (Districts 101–108) seine and gillnet fisheries in 2008 was 163,992 fish, the lowest annual harvest for this species since 1982 (Table 1). Harvests in all districts were dramatically lower than the record harvests of 2007 and well below the 1982-2007 average, ranging from 25.6% below average for the District 108 drift gillnet fishery, to 93.5% below average for the District 101 purse seine fishery.

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Scales and biological data used in these analyses were collected by Division of Commercial Fisheries port sampling crews in Ketchikan, Craig, Wrangell, and Petersburg under the direction of Anne Reynolds and Jeffrey Rice. Canadian Department of Fisheries and Oceans personnel in Prince Rupert, under the direction of Steve Cox-Rogers, provided scales and biological data for sockeye salmon from the Nass and Skeena River test fisheries. Peter Etherton with Canadian Department of Fisheries and Oceans in Whitehorse, directed technical staff that provided scales and biological data for sockeye salmon from the Stikine River. Steve Latham with the Pacific Salmon Commission in Vancouver, B.C., provided scales and biological data from Fraser River and Johnstone Strait fisheries. Field collection of scale samples and data is supported through a wide variety of US and Canadian projects working under the auspices of the Pacific Salmon Commission. Additional support to complete technological updates and revisions to analytical systems was provided specifically for this purpose through the Southeast Sustainable Salmon Fund.

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TABLES AND FIGURES

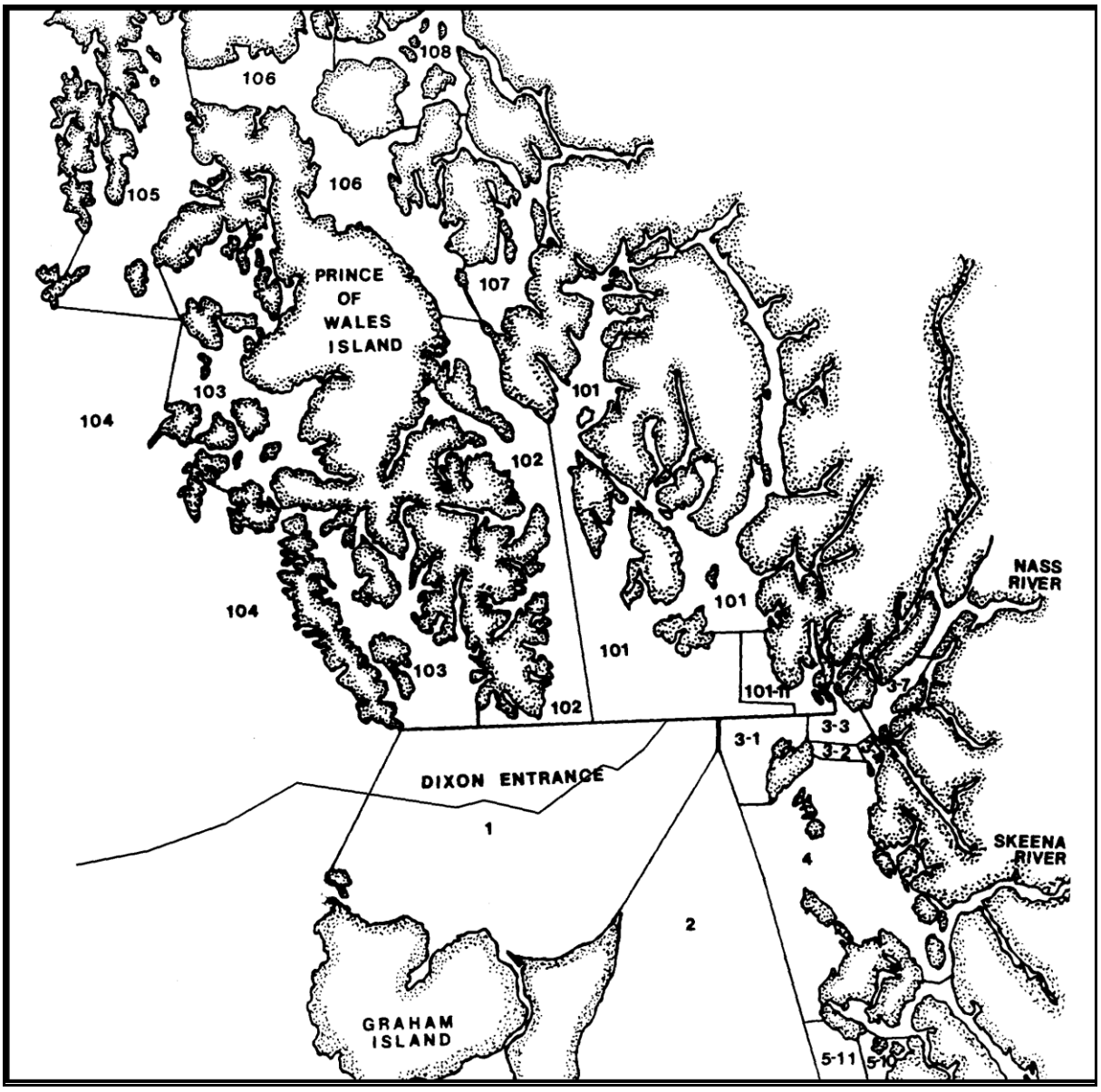

Figure 1.–Fishery management districts in southern Southeast Alaska and northern British Columbia waters.

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

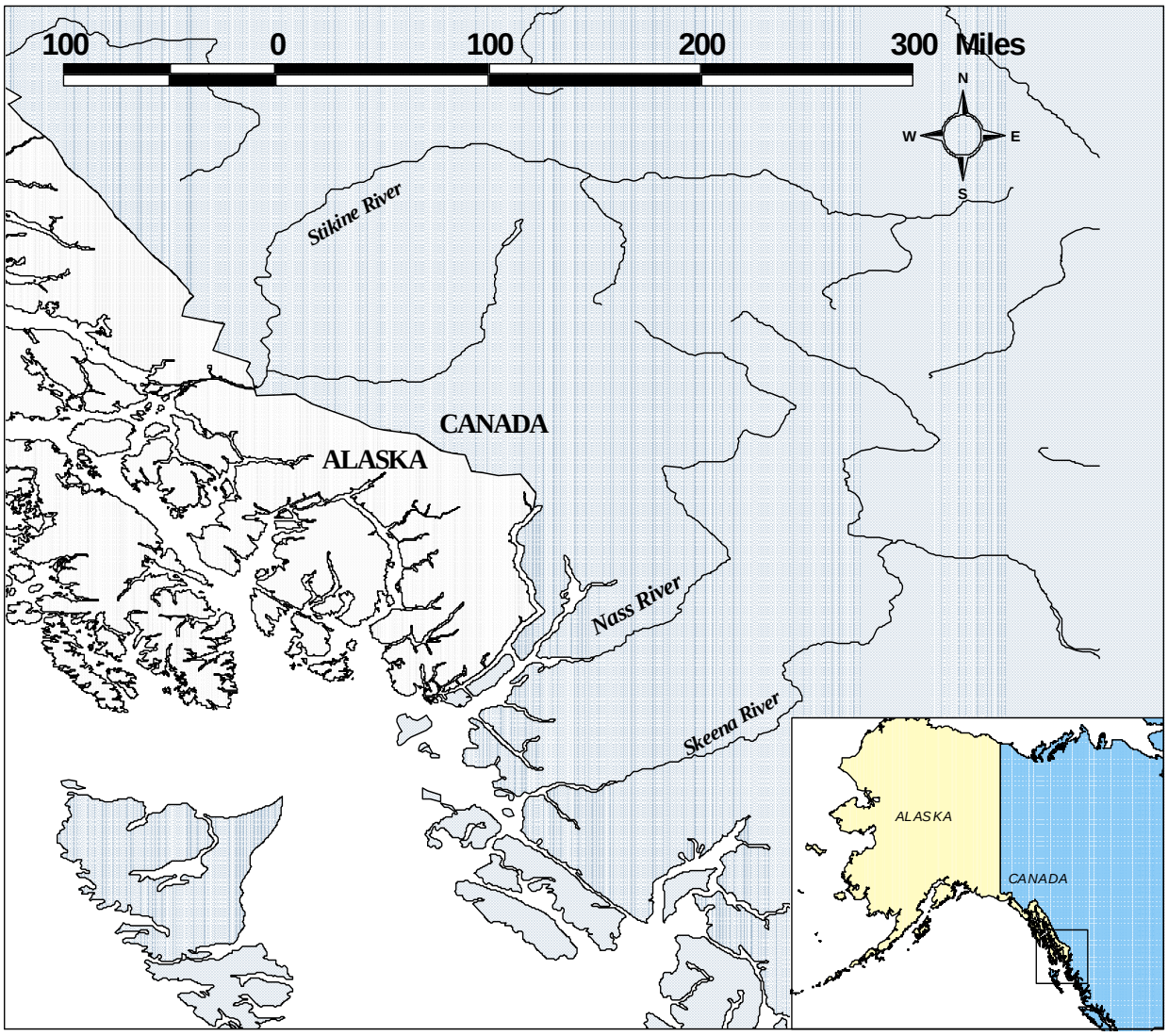

Figure 3.–The Canadian Nass and Skeena Rivers and the transboundary Stikine River.

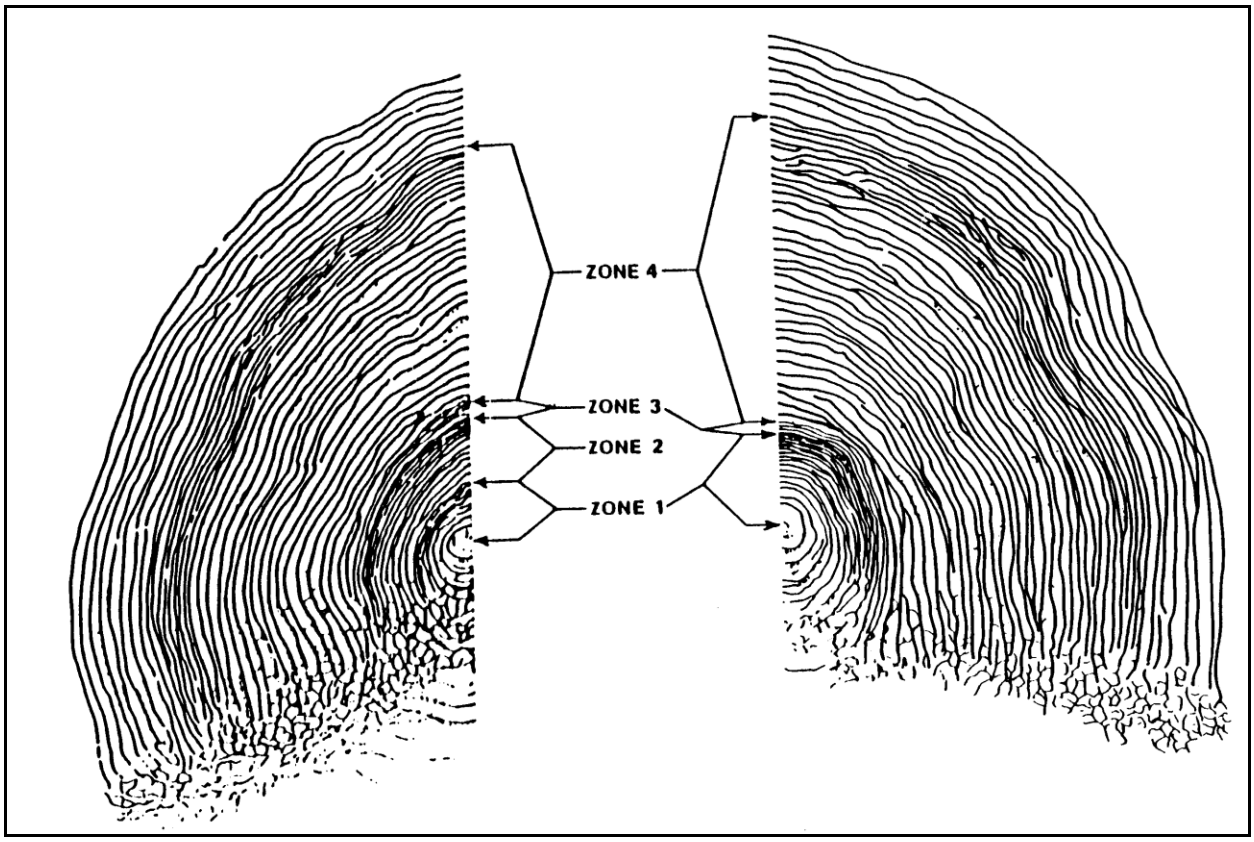

Figure 4.–Typical scales with two and one freshwater growth zones showing the zones used for scale pattern analysis.

Table 1.–Estimated sockeye salmon contributions by nation of origin to southern Southeast Alaska Districts 101–108 net fisheries, 1982–2008.

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	101,31	87	113,530	78	71,829	84
		Total	190,808		135,903		88,431		173,100		145,699		107,503		116,11		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	104,04	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	487,24	82	443,575	86	673,378	85
		Total	283,358		643,268		294,162		431,653		444,671		170,979		591,28		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	223,90	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	622,77	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		1,051,77		861,489		476,923		849,49		1,061,34		1,207,74	

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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	117,89	90	194,878	80	351,761	89	86,369	86	151,238	92	182,658	86	137,446	81	144,62	90	144,99	91
		Total	131,49		244,649		394,098		100,377		164,294		212,403		169,474		160,50		160,02	
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**	166,79	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	683,03	80	873,959	82	740,177	78	923,284	81	428,193	86	650,872	76	1,034,15	83	421,88	87	101,84	62
		Total	849,83		1,072,03		945,285		1,136,13		497,145		860,439		1,244,68		487,23		164,85	
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	144,10		203,155		205,955		211,048		207,298		311,100		168,518		113,43		104,83	
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**	342,56	27	493,849	29	747,333	35	429,450	26	285,255	23	900,501	43	500,127	27	237,13	26	274,25	46
		Canada	892,80	71	1,152,25	67	1,275,52	60	1,136,89	69	885,466	71	984,017	48	1,264,91	68	635,49	71	271,89	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	1,265,9		1,722,48		2,127,27		1,646,84		1,247,14		2,072,90		1,866,30		900,47		600,98	

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Table 1.–Page 3 of 3.

District	Type	Stock Group	2000	(%)	2001	(%)	2002	(%)	2003	(%)	2004	(%)	2005	(%)	2006	(%)	2007	(%)	2008	(%)
101	**Gillnet**	**US**	16,727	18	10,915	14	14,462	12	14,723	14	18,555	13	12,660	16	7,795	12	10,381	16	2,654	8
		Canada	77,924	82	69,126	86	105,891	88	90,540	86	123,802	87	67,065	84	54,975	88	56,441	84	31,459	92
		Total	94,651		80,041		120,353		105,263		142,357		79,725		62,770		66,822		34,113	
101[a]	**Purse**	**US**	71,168	56	96,511	61	16,567	64	57,046	76	74,003	59	46,164	57	15,703	37	17,217	59	1,920	28
		Canada	55,942	44	61,172	39	9,122	36	17,604	24	50,933	41	34,856	43	26,713	63	11,998	41	5,042	72
		Total	127,110		157,683		25,689		74,650		124,936		81,020		42,416		29,215		6,962	
102[b]	**Purse**	**US**	26,265	78	36,987	68	23,759	80	35,098	92	31,516	69	31,735	80	18,378	94	23,155	78	5,615	56
		Canada	7,305	22	17,045	32	5,908	20	3,259	8	14,044	31	7,875	20	1,180	6	6,572	22	4,489	44
		Total	33,570		54,032		29,667		38,357		45,560		39,610		19,558		29,727		10,104	
103[c]	**Purse**	**US**	14,240	86	11,393	42	4,670	82	18,929	77	18,390	77	33,365	69	15,312	54	79,029	68	4,085	75
		Canada	2,384	14	15,566	58	1,055	18	5,725	23	5,530	23	15,229	31	12,939	46	37,369	32	1,363	25
		Total	16,624		26,959		5,725		24,654		23,920		48,594		28,251		116,398		5,448	
104	**Purse**	**US**	78,727	35	82,358	15	10,169	30	111,492	34	46,886	13	67,997	13	29,523	12	124,787	16	6,116	15
		Canada	148,312	65	454,276	85	24,018	70	218,226	66	302,253	87	453,857	87	212,511	88	645,879	84	35,038	85
		Total	227,039		536,634		34,187		329,718		349,139		521,854		242,034		770,666		41,154	
106	**Gillnet**	**US**	57,923	64	86,078	52	42,573	76	86,626	74	58,005	50	52,514	47	33,454	36	43,523	47	8,593	28
		Canada	21,007	23	54,512	33	5,487	10	12,527	11	25,809	22	35,072	32	33,336	36	11,102	12	4,997	16
		Transboundary[d]	11,146	12	23,423	14	8,075	14	17,751	15	32,445	28	23,061	21	25,192	27	37,856	41	16,943	55
		Total	90,076		164,013		56,135		116,904		116,259		110,647		91,979		92,481		30,533	
108	**Gillnet**	**US**	3,319	21	473	78	182	88	8,675	21	10,379	10	12,742	13	4,088	7	12,653	18	3,189	9
		Canada	2,025	13	60	10	25	12	4,563	11	3,131	3	17,661	18	7,973	13	9,373	13	3,919	11
		Transboundary	10,489	66	77	13	1	0	28,920	69	89,882	87	69,062	69	49,237	80	48,553	69	28,570	80
		Total	15,833		610		208		42,158		103,392		99,465		61,298		70,580		35,678	
Total		**US**	268,369	44	324,715	32	112,382	41	332,588	45	257,735	28	257,177	26	124,381	23	310,745	26	32,172	20
		Canada	314,899	52	671,757	66	151,506	56	352,445	48	525,502	58	631,615	64	349,739	64	778,735	66	86,307	53
		Transboundary	21,635	4	23,500	2	8,076	3	46,671	6	122,327	14	92,123	9	74,186	14	86,410	7	45,513	28
		Total	604,903		1,019,972		271,964		731,704		905,563		980,915		548,306		1,175,889		163,992	

[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, 2008.

						90% CI	
District	**Gear Type**	**Group**	**Number**	**Percent**	**SE**	**Lower**	**Upper**
101	**Gillnet**	**Alaska**	2,654	7.8	82	2,519	2,789
		Nass	24,329	71.3	229	23,951	24,706
		Skeena	7,131	20.9	197	6,807	7,454
		Total	34,113				
101	**Purse seine**	**Alaska**	1,920	27.6	80	1,788	2,052
		Nass	1,426	20.5	59	1,329	1,523
		Skeena	3,616	51.9	112	3,432	3,801
		Total	6,962				
102	**Purse seine**	**Alaska**	5,615	55.6	59	5,518	5,711
		Nass	1,313	13	60	1,215	1,412
		Skeena	3,176	31.4	80	3,044	3,308
		Total	10,104				
103	**Purse seine**	**Alaska**	4,085	75	47	4,008	4,163
		Nass	890	16.3	49	810	971
		Skeena	472	8.7	46	396	549
		Total	5,448				
		Total					
104	**Purse seine**	**Alaska**	6,116	14.9	300	5,623	6,609
		Nass	11,994	29.1	561	11,071	12,917
		Skeena	21,792	53	584	20,832	22,753
		South Migrating	1,251	3	288	778	1,725
		Total	41,154				
106	**Gillnet**	**Alaska I**	8,538	28	139	8,309	8,767
		Alaska II	56	0.2	18	26	85
		Nass	2,875	9.4	111	2,693	3,058
		Skeena	2,121	6.9	179	1,828	2,415
		Tahltan	5,031	16.5	148	4,786	5,275
		Stikine	4,651	15.2	125	4,446	4,857
		Tuya	7,261	23.8	159	6,999	7,523
		Total	30,533				
108	**Gillnet**	**Alaska I**	2,438	6.8	137.2	2,213	2,664
		Alaska II	751	2.1	79.8	620	882
		Nass	1,745	4.9	225.9	1,373	2,116
		Skeena	2,174	6.1	293.6	1,691	2,657
		Tahltan	12,547	35.2	274.1	12,096	12,998
		Stikine	5,658	15.9	199.3	5,331	5,986
		Tuya	10,365	29.1	238.2	9,973	10,757
		Total	35,678				
Total		**Alaska**	32,172	19.6	392	31,528	32,817
		Nass	44,572	27.2	664	43,481	45,664
		Skeena	40,483	24.7	720	39,298	41,668
		South Migrating	1,251	0.8	288	778	1,725
		Tahltan	17,577	10.7	312	17,064	18,090
		Stikine	10,310	6.3	235	9,923	10,697
		Tuya	17,626	10.7	287	17,155	18,097
		Total	163,992				

Table 3.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 101 (Tree Point) drift gillnet fishery, 2008.

		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**	60	43	0	0	7	110	3.4	12.1	90	130
6/15–6/21	**Nass**	359	111	1,697	442	182	2,792	84.8	41	2,724	2,859
	Skeena	300	60	0	3	25	389	11.8	35.2	331	447
	Total	719	215	1,697	445	215	3,291				
Week 26	**Alaska**	30	65	0	0	2	97	2.1	16.1	71	124
6/22–6/28	**Nass**	767	128	2,170	637	92	3,794	83.6	56.7	3,700	3,887
	Skeena	507	127	0	0	16	649	14.3	51.8	564	735
	Total	1,304	319	2,170	637	110	4,540				
Week 27	**Alaska**	5	0	0	0	0	5	0.1	10.6	-12	23
6/29–7/05	**Nass**	956	398	1,960	703	83	4,099	82.8	61.6	3,998	4,201
	Skeena	567	166	0	94	17	844	17.1	62.9	741	948
	Total	1,528	565	1,960	797	100	4,949				
Week 28	**Alaska**	251	172	64	141	13	640	10.4	47.3	563	718
7/06–7/12	**Nass**	235	943	2,656	511	92	4,436	71.8	126	4,229	4,644
	Skeena	832	244	0	0	23	1,098	17.8	105	926	1,271
	Total	1,317	1,360	2,719	651	127	6,175				
Week 29	**Alaska**	23	225	142	0	4	393	11.7	29.9	344	442
7/13–7/19	**Nass**	46	160	1,582	268	19	2,075	61.7	71.5	1,957	2,193
	Skeena	591	244	0	50	8	893	26.6	64.6	787	999
	Total	660	629	1,723	318	31	3,361				
Week 30	**Alaska**	103	85	3	75	4	270	5.7	29.9	221	320
7/20–7/26	**Nass**	117	328	2,584	143	43	3,216	67.9	96.3	3,057	3,374
	Skeena	1,000	165	0	65	17	1,247	26.3	86.5	1,105	1,389
	Total	1,220	578	2,587	284	63	4,733				
Week 31	**Alaska**	46	80	2	60	2	190	14.4	15	165	214
7/27–8/02	**Nass**	15	27	826	75	9	952	72.5	26.7	908	996
	Skeena	104	55	0	12	2	172	13.1	16.4	145	199
	Total	165	162	828	146	13	1,313				
Week 32	**Alaska**	199	221	5	111	7	543	12.4	36.9	483	604
8/03–8/09	**Nass**	11	0	1,815	542	33	2,401	54.6	102.3	2,232	2,569
	Skeena	714	703	0	13	20	1,450	33	83.9	1,312	1,588
	Total	925	925	1,819	666	60	4,394				
Week 33	**Alaska**	39	109	4	41	7	200	36.2	12	180	220
8/10–8/16	**Nass**	0	3	212	31	9	255	46.2	17	227	283
	Skeena	63	26	0	4	3	97	17.6	9.5	82	113
	Total	102	139	216	77	19	552				
Week 34	**Alaska**	13	14	21	9	1	58	15.1	3.4	52	63
8/17–8/23	**Nass**	0	49	121	38	2	210	55	13	189	232
	Skeena	45	50	0	18	1	114	29.8	11.8	95	133
	Total	58	113	142	65	4	382				
Week 35–39[a]	**Alaska**	61	86	0	0	0	147	34.7	21	112	181
8/24–9/27	**Nass**	0	0	75	25	0	100	23.5	44.9	26	173
	Skeena	63	113	0	0	0	176	41.7	25	135	218
	Total	124	199	75	25	0	423				
Total	**Alaska**	831	1,101	239	436	47	2,654	7.8	82	2,519	2,789
	Nass	2,505	2,148	15,698	3,415	562	24,329	71.3	229	23,951	24,706
	Skeena	4,786	1,953	0	260	131	7,131	20.9	197	6,807	7,454
	Total	8,122	5,202	15,937	4,112	740	34,113				

[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, 2008.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 28	**Alaska**	27	28	0	0	4	59	53.3	3.4	53	64
7/06–7/12	**Nass**	1	10	10	0	1	22	20.3	3.6	16	28
	Skeena	21	1	4	0	2	29	26.4	3	24	34
	Total	49	40	14	0	7	110				
Week 29	**Alaska**	43	41	74	37	3	197	26	13	176	219
7/13–7/19	**Nass**	126	67	100	17	6	315	41.5	13	293	336
	Skeena	194	0	48	0	4	247	32.5	19.4	215	279
	Total	363	107	222	54	13	759				
Week 30	**Alaska**	67	47	30	4	10	157	71.5	4.6	150	165
7/20–7/26	**Nass**	11	0	10	3	2	26	11.7	3.3	20	31
	Skeena	31	0	3	0	2	37	16.8	4.2	30	44
	Total	110	47	43	7	13	220				
Week 31	**Alaska**	107	99	76	15	10	306	51.2	13.3	284	328
7/27–8/02	**Nass**	63	32	24	12	4	136	22.7	6.9	124	147
	Skeena	147	0	0	4	5	156	26.1	15.1	131	181
	Total	318	131	100	31	19	598				
Week 32	**Alaska**	88	42	80	10	11	232	44.7	8.2	218	245
8/03–8/09	**Nass**	96	24	28	5	8	161	31.1	6.9	150	172
	Skeena	112	7	0	0	6	125	24.2	9.1	110	140
	Total	297	73	108	15	25	518				
Week 33	**Alaska**	359	76	215	32	34	717	25.4	36.3	657	777
8/10–8/16	**Nass**	201	0	176	0	19	397	14	41.5	328	465
	Skeena	1,524	108	0	0	82	1,713	60.6	59.9	1,615	1,812
	Total	2,084	184	391	32	136	2,827				
Week 34–36	**Alaska**	32	0	183	37	0	252	13	68.2	139	364
8/17–9/06	**Nass**	255	0	114	0	0	370	19.2	38.4	306	433
	Skeena	1,235	74	0	0	0	1,309	67.8	90.9	1,159	1,458
	Total	1,522	74	297	37	0	1,930				
Total	**Alaska**	723	333	657	134	72	1,920	27.6	80	1,788	2,052
	Nass	754	132	462	37	40	1,426	20.5	59	1,329	1,523
	Skeena	3,264	190	56	4	102	3,616	51.9	112	3,432	3,801
	Total	4,742	655	1,175	176	213	6,962				

Table 5.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 102 purse seine fishery, 2008.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 26	**Alaska**	10	24	13	0	2	49	44.1	4.2	43	56
6/22–6/28	**Nass**	1	0	0	0	0	1	1.2	0.7	0	3
	Skeena	30	22	0	7	2	61	54.7	4.1	55	68
	Total	42	46	13	7	4	112				
Week 27	**Alaska**	232	250	136	25	16	659	51.6	15.7	633	685
6/29–7/05	**Nass**	39	0	13	1	1	54	4.2	10.4	37	71
	Skeena	278	219	30	23	14	563	44.1	18	533	593
	Total	549	468	179	49	31	1,276				
Week 28	**Alaska**	466	598	223	135	83	1,506	61.4	30.3	1,456	1,555
7/06–7/12	**Nass**	151	0	38	0	11	200	8.2	43.8	128	272
	Skeena	354	298	52	0	41	745	30.4	39.1	681	810
	Total	971	897	313	135	135	2,451				
Week 29	**Alaska**	340	445	157	71	49	1,062	55.1	17	1,034	1,090
7/13–7/19	**Nass**	104	64	154	16	16	354	18.4	18.9	323	385
	Skeena	336	141	0	10	24	510	26.5	20.9	476	544
	Total	779	650	311	96	89	1,926				
Week 30	**Alaska**	132	141	102	16	28	418	64.5	8	405	431
7/20–7/26	**Nass**	86	0	45	0	9	140	21.6	6.2	130	151
	Skeena	66	7	0	11	6	90	13.9	6.3	79	100
	Total	284	148	146	28	43	648				
Week 32	**Alaska**	202	55	185	37	46	525	76.1	8.3	512	539
8/03–8/09	**Nass**	16	0	47	18	8	89	12.9	8.8	75	104
	Skeena	69	0	0	0	7	75	10.9	9.9	59	92
	Total	287	55	232	55	61	690				
Week 33	**Alaska**	413	130	333	64	141	1,081	48.5	30.2	1,032	1,131
8/10–8/16	**Nass**	132	0	156	18	46	352	15.8	27.9	306	398
	Skeena	653	36	0	4	104	797	35.7	43.3	726	869
	Total	1,198	166	489	87	292	2,231				
Week 34–37	**Alaska**	90	60	143	0	21	314	40.8	30.7	264	365
8/17–9/13	**Nass**	24	43	47	0	8	122	15.9	18	92	152
	Skeena	296	0	15	0	22	334	43.4	46.2	258	410
	Total	411	103	205	0	51	770				
Total	**Alaska**	1,885	1,703	1,292	348	387	5,615	55.6	59	5,518	5,711
	Nass	553	108	499	53	100	1,313	13	60	1,215	1,412
	Skeena	2,081	722	97	55	220	3,176	31.4	80	3,044	3,308
	Total	4,519	2,533	1,888	457	707	10,104				

Table 6.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 103 purse seine fishery, 2008.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 31	**Alaska**	296	108	150	19	27	600	76.1	11.2	582	618
7/27–8/02	**Nass**	44	15	30	17	5	110	14	12.6	89	131
	Skeena	36	39	0	0	4	79	10	12.6	58	99
	Total	377	161	179	36	36	789				
Week 32	**Alaska**	155	56	78	10	14	313	76.1	5.8	304	323
8/03–8/09	**Nass**	23	8	16	9	3	58	14	6.6	47	68
	Skeena	19	20	0	0	2	41	10	6.6	30	52
	Total	197	84	94	19	19	412				
Week 33	**Alaska**	735	231	427	15	72	1,480	68	27.2	1,435	1,525
8/10–8/16	**Nass**	376	85	38	0	25	525	24.1	29.5	476	573
	Skeena	116	0	36	12	8	172	7.9	25.9	129	215
	Total	1,227	317	501	26	106	2,177				
Week 34–37	**Alaska**	555	311	403	0	423	1,692	81.7	36.7	1,631	1,752
8/17–9/13	**Nass**	0	34	114	0	49	198	9.5	36.3	138	257
	Skeena	135	0	0	0	45	181	8.7	35.9	122	240
	Total	690	345	518	0	518	2,070				
Total	**Alaska**	1,740	707	1,058	44	536	4,085	75	47	4,008	4,163
	Nass	443	141	198	25	82	890	16.3	49	810	971
	Skeena	307	59	36	12	59	472	8.7	46	396	549
	Total	2,490	907	1,292	81	678	5,448				

Table 7.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 104 purse seine fishery, 2008.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 28–30	**Alaska**	840	262	151	107	22	1,382	22.1	113.8	1,195	1,569
7/06–7/26	**Nass**	1,945	0	312	32	37	2,327	37.2	179.5	2,032	2,622
	Skeena	1,738	750	24	0	41	2,553	40.8	188	2,244	2,863
	South Migrating	0	0	0	0	0	0	0	93.3	–153	153
	Total	4,523	1,013	487	139	100	6,262				
Week 31	**Alaska**	623	94	232	44	18	1,011	12.3	121.8	811	1,212
7/27–8/02	**Nass**	2,280	436	459	53	60	3,288	39.8	240.1	2,893	3,683
	Skeena	3,369	441	0	71	72	3,952	47.9	248.1	3,544	4,360
	South Migrating	0	0	0	0	0	0	0	0	0	0
	Total	6,273	971	691	168	149	8,252				
Week 32	**Alaska**	549	346	342	53	25	1,315	12.7	152.9	1,064	1,567
8/03–8/09	**Nass**	3,028	52	112	45	64	3,300	32	318.7	2,776	3,825
	Skeena	4,719	516	346	16	110	5,707	55.3	318.9	5,182	6,232
	South Migrating	0	0	0	0	0	0	0	111.1	–183	183
	Total	8,295	914	800	114	200	10,323				
Week 33	**Alaska**	874	50	274	97	33	1,328	13.7	155.2	1,072	1,583
8/10–8/16	**Nass**	759	376	444	153	44	1,776	18.3	295	1,291	2,261
	Skeena	4,554	625	303	22	139	5,643	58	315.4	5,124	6,162
	South Migrating	786	142	0	0	46	974	10	211.7	626	1,323
	Total	6,974	1,194	1,021	272	261	9,721				
Week 34–36	**Alaska**	309	296	339	91	45	1,080	16.4	120.6	882	1,278
8/17–9/06	**Nass**	1,056	5	142	45	54	1,302	19.7	190.9	988	1,616
	Skeena	3,053	559	18	142	165	3,936	59.7	206.9	3,596	4,277
	South Migrating	224	40	0	0	13	277	4.2	130.4	63	492
	Total	4,641	900	500	278	277	6,596				
Total	**Alaska**	3,195	1,047	1,338	392	144	6,116	14.9	300	5,623	6,609
	Nass	9,069	870	1,469	328	259	11,994	29.1	561	11,071	12,917
	Skeena	17,432	2,891	692	251	526	21,792	53	584	20,831	22,752
	South Migrating	1,010	183	0	0	59	1,252	3	288	778	1,725
	Total	30,706	4,991	3,498	972	987	41,154				

Table 8.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 106 drift gillnet fishery, 2008.

		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[a]	**Alaska I**	3	7	4	3	0	0	16	19.8	1	15	18
6/08–6/14	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	4	5	4	0	0	0	14	16.3	1	11	16
	Skeena	4	0	0	1	0	0	5	6.1	1	4	6
	Tahltan	4	18	0	1	0	0	24	28.5	1	21	26
	Stikine	0	0	0	0	2	0	3	3.8	1	1	5
	Tuya	0	20	1	0	0	0	21	25.6	1	19	23
	Total	15	51	9	5	2	0	83				
Week 25[b]	**Alaska I**	80	144	94	44	0	4	366	29.5	13	344	388
6/15–6/21	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	49	70	54	4	0	1	178	14.3	17	150	206
	Skeena	57	0	0	7	0	0	64	5.2	11	46	82
	Tahltan	68	220	4	17	0	2	311	25	17	282	339
	Stikine	10	6	0	0	39	0	55	4.4	13	34	77
	Tuya	2	251	14	0	0	2	268	21.6	16	242	294
	Total	266	690	166	72	39	9	1,242				
Week 26	**Alaska I**	87	255	179	165	0	4	691	19.4	43	619	762
6/22–6/28	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	65	205	10	8	0	0	289	8.1	43	218	360
	Skeena	7	0	0	32	0	0	39	1.1	14	17	62
	Tahltan	576	317	43	79	0	1	1,016	28.5	51	931	1,100
	Stikine	100	113	0	0	117	0	329	9.3	44	258	401
	Tuya	407	684	106	0	0	0	1,197	33.6	51	1,113	1,281
	Total	1,241	1,574	338	284	117	6	3,561				
Week 27	**Alaska I**	80	583	495	183	0	11	1,352	18.7	66	1,244	1,461
6/29–7/05	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	619	70	12	0	5	706	9.7	64	601	811
	Skeena	0	0	0	20	0	0	20	0.3	9	6	34
	Tahltan	1,171	173	14	54	0	9	1,420	19.6	85	1,280	1,559
	Stikine	494	231	0	0	125	5	856	11.8	57	761	950
	Tuya	1,439	1,266	169	0	0	16	2,890	39.9	75	2,767	3,014
	Total	3,184	2,872	748	269	125	46	7,244				
Week 28	**Alaska I**	86	547	343	189	0	6	1,170	22.4	53	1,083	1,256
7/06–7/12	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	322	83	6	0	3	414	7.9	42	344	483
	Skeena	179	0	144	50	0	3	376	7.2	124	172	580
	Tahltan	576	184	0	31	0	5	796	15.3	66	687	905
	Stikine	533	198	0	0	215	5	952	18.2	54	863	1,041
	Tuya	902	523	76	0	0	12	1,512	29	95	1,356	1,668
	Total	2,275	1,774	646	276	215	34	5,219				
Week 29	**Alaska I**	326	675	743	175	0	27	1,946	31.3	70	1,831	2,060
7/13–7/19	**Alaska II**	0	35	0	0	0	1	35	0.6	13	14	57
	Nass	0	432	152	0	0	7	592	9.5	50	509	674
	Skeena	96	13	127	32	0	3	272	4.4	110	91	454
	Tahltan	789	42	0	40	0	12	883	14.2	69	769	997
	Stikine	886	463	0	0	194	16	1,559	25.1	60	1,459	1,658
	Tuya	749	142	26	0	0	10	928	14.9	85	788	1,067
	Total	2,846	1,803	1,048	247	194	76	6,215				

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Table 8.-Page 2 of 2.

Date	Group	Catch by Age Class 1.2	1.3	2.2	2.3	0	Other	Total	Percent	SE	90% CI Lower	Upper
Week 30	**Alaska I**	458	406	412	85	0	27	1,388	46.6	45	1,314	1,462
7/20–7/26	**Alaska II**	0	20	0	0	0	0	20	0.7	12	0	41
	Nass	84	43	76	39	0	5	247	8.3	29	198	295
	Skeena	161	36	0	0	0	4	201	6.7	33	146	256
	Tahltan	318	0	4	11	0	7	339	11.4	39	276	403
	Stikine	262	71	0	0	85	7	425	14.2	37	363	486
	Tuya	285	60	9	0	0	7	360	12.1	20	327	393
	Total	1,568	636	501	135	85	56	2,980				
Week 31	**Alaska I**	72	159	152	72	0	4	459	37.2	27	414	503
7/27–8/02	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	22	19	47	27	0	1	115	9.3	12	96	134
	Skeena	47	38	0	0	0	1	86	7	17	58	114
	Tahltan	217	11	0	1	0	3	231	18.8	20	199	263
	Stikine	264	3	0	0	23	3	293	23.8	22	256	329
	Tuya	42	3	2	0	0	0	48	3.9	10	32	63
	Total	664	233	201	100	23	10	1,231				
Week 32	**Alaska I**	349	141	195	54	0	8	748	45.9	40	682	813
8/03–8/09	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	104	0	71	9	0	2	186	11.4	26	144	229
	Skeena	506	44	0	0	0	7	557	34.2	38	494	620
	Tahltan	5	0	0	2	0	0	8	0.5	30	-41	56
	Stikine	62	0	0	0	37	0	99	6.1	41	33	166
	Tuya	27	1	2	0	0	0	31	1.9	13	9	52
	Total	1,054	186	269	66	37	17	1,629				
Wks.33	**Alaska I**	49	56	55	26	0	10	195	37.2	12	176	214
8/10–8/16	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	25	0	29	4	0	4	62	11.7	5	53	70
	Skeena	191	22	0	0	0	11	224	42.7	12	205	243
	Tahltan	0	0	0	1	0	0	1	0.2	1	0	3
	Stikine	31	0	0	0	7	1	39	7.5	6	29	50
	Tuya	0	2	2	0	0	0	4	0.7	1	3	5
	Total	295	80	86	31	7	27	525				
Wks 34–39[cd]	**Alaska I**	66	33	64	44	0	2	208	34.4	28	162	254
8/17–9/27	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	36	0	31	6	0	0	74	12.2	10	57	90
	Skeena	262	13	0	0	0	2	277	45.8	30	228	325
	Tahltan	0	0	0	2	0	0	2	0.3	2	-1	5
	Stikine	41	0	0	0	0	1	41	6.8	5	34	49
	Tuya	0	1	1	0	0	0	2	0.4	1	0	4
	Total	405	46	97	52	0	4	604				
Total	**Alaska I**	1,655	3,006	2,736	1,038	0	102	8,538	28	139	8,309	8,767
	Alaska II	0	55	0	0	0	1	56	0.2	18	26	85
	Nass	389	1,716	629	115	0	26	2,875	9.4	111	2,693	3,058
	Skeena	1,511	166	271	142	0	32	2,121	6.9	179	1,828	2,415
	Tahltan	3,723	964	65	240	0	39	5,031	16.5	148	4,786	5,275
	Stikine	2,683	1,086	0	0	845	38	4,651	15.2	125	4,446	4,857
	Tuya	3,853	2,953	408	0	0	47	7,261	23.8	159	6,999	7,523
	Total	13,814	9,946	4,108	1,536	845	285	30,533				

[a] Age and stock composition for statistical area 106-41 weeks 24–25 estimated using 200 samples collected during week 25.
[b] Age and stock composition for statistical area 106-30 weeks 25–26 estimated using 282 samples collected during week 26.
[c] Age and stock composition for statistical area 106-41 week 34–39 estimated using 13 samples collected during week 34.
Age and stock composition for statistical area 106-30 weeks 34–38 estimated using 66 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, 2008.

		Catch By Age Class									90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**0**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 23–25[a]	**Alaska I**	0	40	4	10	0	0	54	2.5	15.5	29	80
6/1–6/21	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	60	3	0	0	0	63	2.9	37.3	2	124
	Skeena	0	0	0	6	0	0	6	0.3	3.1	1	11
	Tahltan	111	1,028	10	31	0	0	1,181	54.1	46	1,105	1,257
	Stikine	0	42	0	0	133	0	176	8	34.8	118	233
	Tuya	203	477	21	0	0	0	701	32.1	32.4	648	754
	Total	314	1,648	38	48	133	0	2,181				
Week 26	**Alaska I**	0	0	57	78	0	1	136	1.3	28.5	89	182
6/22–6/28	**Alaska II**	0	46	0	0	0	0	47	0.4	42.6	–23	117
	Nass	0	416	37	0	0	5	457	4.3	174.9	169	745
	Skeena	246	128	0	48	0	4	426	4	251.2	13	839
	Tahltan	1,116	3,382	135	245	0	51	4,929	46.5	194	4,610	5,248
	Stikine	0	324	0	0	344	3	672	6.3	100.5	506	837
	Tuya	1,441	2,182	274	0	0	41	3,938	37.1	171.1	3,656	4,219
	Total	2,803	6,479	502	370	344	106	10,604				
Week 27	**Alaska I**	0	264	291	8	0	2	565	8.3	67.3	455	676
6/29–7/05	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	425	0	0	0	1	426	6.2	93.8	272	581
	Skeena	0	0	0	71	0	0	71	1	29.1	23	119
	Tahltan	593	1,804	90	48	0	8	2,542	37.1	110.6	2,360	2,724
	Stikine	113	45	0	0	211	1	369	5.4	70.7	253	486
	Tuya	1,423	1,277	167	0	0	9	2,876	42	97.4	2,716	3,036
	Total	2,129	3,815	548	126	211	21	6,850				
Week 28	**Alaska I**	194	0	266	10	0	3	473	7.3	62.7	370	577
7/06–7/12	**Alaska II**	0	265	0	0	0	2	266	4.1	37.5	204	328
	Nass	0	244	0	0	0	1	246	3.8	70	131	361
	Skeena	1,390	0	0	88	0	8	1,486	22.8	145.7	1,247	1,726
	Tahltan	0	1,492	31	59	0	9	1,591	24.4	104.2	1,420	1,763
	Stikine	0	535	0	0	315	3	853	13.1	79.8	722	984
	Tuya	781	759	53	0	0	9	1,603	24.6	112.8	1,417	1,788
	Total	2,366	3,295	350	158	315	35	6,519				
Week 29	**Alaska I**	348	147	405	133	0	13	1,045	15.5	92.4	893	1,197
7/13–7/19	**Alaska II**	0	224	0	0	0	3	227	3.4	50.2	145	310
	Nass	0	361	0	109	0	6	476	7.1	71.3	359	594
	Skeena	0	0	74	74	0	2	150	2.2	29.8	101	199
	Tahltan	1,157	924	87	0	0	28	2,196	32.5	110.1	2,014	2,377
	Stikine	79	775	0	0	855	11	1,720	25.5	119.5	1,523	1,917
	Tuya	368	431	122	0	0	12	932	13.8	55.4	841	1,023
	Total	1,952	2,862	688	316	855	74	6,747				
Week 30	**Alaska I**	11	18	13	18	0	1	61	4	23.3	23	99
7/20–7/26	**Alaska II**	0	137	0	0	0	2	140	9.2	22.8	102	177
	Nass	0	0	0	15	0	0	15	1	10.7	-2	33
	Skeena	0	0	2	10	0	0	13	0.8	7.6	0	25
	Tahltan	0	95	3	0	0	2	99	6.5	12.9	78	120
	Stikine	87	644	0	0	282	13	1,026	67.5	42.1	956	1,095
	Tuya	98	62	4	0	0	3	166	10.9	29	118	214
	Total	195	955	22	43	282	22	1,520				

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		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**	9	0	12	8	0	1	30	4.3	8.6	16	45
7/27–8/02	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	20	0	7	0	1	28	4	5.5	19	37
	Skeena	0	0	2	5	0	0	7	1	3	2	12
	Tahltan	0	5	2	0	0	0	8	1.2	3.3	3	14
	Stikine	73	304	0	0	158	14	549	77.1	20.1	516	582
	Tuya	82	0	3	0	0	3	89	12.5	14.6	65	113
	Total	165	330	20	20	158	20	712				
Week 32	**Alaska I**	2	11	0	0	0	2	15	7.2	3.3	9	20
8/03–8/09	**Alaska II**	0	17	0	0	0	3	20	9.8	4.7	12	28
	Nass	0	3	0	0	0	0	3	1.7	1.2	1	5
	Skeena	0	0	0	0	0	0	0	0	0	0	0
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	12	46	0	0	71	9	137	67.6	10.5	120	155
	Tuya	13	11	0	0	0	4	28	13.7	6.9	16	39
	Total	26	88	0	0	71	18	203				
Week 33–37[b]	**Alaska I**	0	33	0	25	0	0	58	17.1	11.8	39	78
8/10–9/13	**Alaska II**	0	51	0	0	0	0	51	14.9	9.3	36	66
	Nass	0	9	0	21	0	0	30	8.6	10.9	12	47
	Skeena	0	0	0	14	0	0	14	4.1	8.1	1	27
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	0	137	0	0	20	0	157	45.8	20.9	122	191
	Tuya	0	32	0	0	0	0	32	9.5	5.2	24	41
	Total	0	262	0	60	20	0	342				
Total	**Alaska I**	564	513	1,048	290	0	23	2,438	6.8	137.2	2,213	2,664
	Alaska II	0	741	0	0	0	10	751	2.1	79.8	620	882
	Nass	0	1,538	39	152	0	15	1,745	4.9	225.9	1,373	2,116
	Skeena	1,636	128	79	316	0	15	2,174	6.1	293.6	1,691	2,657
	Tahltan	2,977	8,730	358	383	0	98	12,547	35.2	274.1	12,096	12,998
	Stikine	363	2,852	0	0	2,390	54	5,658	15.9	199.3	5,331	5,986
	Tuya	4,409	5,231	644	0	0	80	10,365	29.1	238.2	9,973	10,757
	Total	9,950	19,733	2,168	1,142	2,390	295	35,678				

[a] Age and stock composition for week 23–25 estimated using 14 samples collected during week 25.
[b] Age and stock composition for week 33–37 estimated using 17 samples collected during week 33.

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, 2008.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix				
				True Stock	Classified As (number and percent)			
					Alaska	Nass	Skeena	
Age Class	Run	Variable	F-Statistic					Total
12	Total Season	z5	440.4	**Alaska**	181	11	15	207
		z27	83.08		87.44	5.31	7.25	
		z77	15.7	**Nass**	5	149	43	197
		z5	440.4		2.54	75.63	21.83	
				Skeena	21	41	144	206
					10.19	19.9	69.9	
				Total	207	201	202	610
13	Total Season	z5	296.37	**Alaska**	166	25	1	192
		z71	50.42		86.46	13.02	0.52	
		z84	19.21	**Nass**	7	30	20	57
		z85	6.71		12.28	52.63	35.09	
				Skeena	9	57	144	210
					4.29	27.14	68.57	
				Total	182	112	165	459
22	Total Season	z5	216.97	**Alaska**	101	4	15	120
		z57	60.57		84.17	3.33	12.5	
		z71	24.55	**Nass**	7	138	62	207
					3.38	66.67	29.95	
				Skeena	3	18	32	53
					5.66	33.96	60.38	
				Total	111	160	109	380
23	Total Season	z27	88.79	**Alaska**	49	10	7	66
		z57	37.22		74.24	15.15	10.61	
		z82	17.77	**Nass**	11	79	13	103
		z31	6.25		10.68	76.7	12.62	
				Skeena	2	10	33	45
					4.44	22.22	73.33	
				Total	62	99	53	214

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, 2008.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix					
				True	Classified As (number and percent)				Total
Age Class	Timing	Variable	F-Statistic	Stock	Fraser	Alaska	Nass	Skeena	
12	Total	z5	288.68	**Fraser**	122	13	21	27	183
	Season	z2	119.64		66.67	7.1	11.48	14.75	
		z27	56.00	**Alaska**	8	177	11	13	209
		z3	14.74		3.83	84.69	5.26	6.22	
		z80	14.80	**Nass**	21	5	138	33	197
		z85	14.18		10.66	2.54	70.05	16.75	
		z86	14.73	**Skeena**	17	9	30	150	206
		z70	11.40		8.25	4.37	14.56	72.82	
				Total	168	204	200	223	795
13	Total	z5	224.38	**Fraser**	97	16	33	23	169
	Season	z84	59.17		57.4	9.47	19.53	13.61	
		z71	22.73	**Alaska**	25	169	11	4	209
		z85	17.40		11.96	80.86	5.26	1.91	
		z3	13.95	**Nass**	14	3	26	14	57
		z1	6.57		24.56	5.26	45.61	24.56	
				Skeena	29	5	36	140	210
					13.81	2.38	17.14	66.67	
				Total	165	193	106	181	645
22	Total	z27	186.8	**Alaska**		90	4	8	102
	Season	z35	43.21			88.24	3.92	7.84	
		z71	28.51	**Nass**		10	140	57	207
		z13	5.2			4.83	67.63	27.54	
				Skeena		4	17	32	53
						7.55	32.08	60.38	
				Total		104	161	97	362
23	Total	z27	92.9	**Alaska**		52	10	7	69
	Season	z57	36.21			75.36	14.49	10.14	
		z82	15.22	**Nass**		11	79	13	103
		z31	7.15			10.68	76.7	12.62	
				Skeena		2	10	33	45
						4.44	22.22	73.33	
				Total		65	99	53	217

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, 2008.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix								
					Classified As (number and percent)							Total
Age Class	Timing	Variable	F-Statistic	True Stock	Alaska I	Alaska II[a]	Nass	Skeena	Stikine*	Tahltan	Tuya	
12		z5	200.13	**Alaska I**	110		2	1	23	16	2	154
		z27	75.8		71.43		1.3	0.65	14.94	10.39	1.3	
		z71	27.8	**Nass**	3		136	18	7	7	26	197
		z78	12.99		1.52		69.04	9.14	3.55	3.55	13.2	
		z28	14.18	**Skeena**	7		36	87	6	37	32	205
		z75	11.93		3.41		17.56	42.44	2.93	18.05	15.61	
		z13	8.92	**Stikine***	6		3	0	16	1	2	28
					21.43		10.71	0	57.14	3.57	7.14	
				Tahltan	15		6	14	3	103	22	163
					9.2		3.68	8.59	1.84	63.19	13.5	
				Tuya	0		27	39	0	28	113	207
					0		13.04	18.84	0	13.53	54.59	
				Total	141		210	159	55	192	197	954
13		z2	460.89	**Alaska I**	59	26	8	0	7	9	0	109
		z1	89.74		54.13	23.85	7.34	0	6.42	8.26	0	
		z5	73.16	**Alaska II[a]**	20	50	2	2	10	3	0	87
		z71	49.55		22.99	57.47	2.3	2.3	11.49	3.45	0	
		z78	18.93	**Nass**	5	2	23	11	1	12	3	57
		z89	21.7		8.77	3.51	40.35	19.3	1.75	21.05	5.26	
		z4	4.71	**Skeena**	1	6	50	106	2	38	7	210
					0.48	2.86	23.81	50.48	0.95	18.1	3.33	
				Stikine*	3	10	0	4	131	2	2	152
					1.97	6.58	0	2.63	86.18	1.32	1.32	
				Tahltan	9	5	23	41	1	132	2	213
					4.23	2.35	10.8	19.25	0.47	61.97	0.94	
				Tuya	0	0	7	19	0	9	157	192
					0	0	3.65	9.9	0	4.69	81.77	
				Total	97	99	113	183	152	205	171	1020

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Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix								
					Classified As (number and percent)							Total
Age Class	Timing	Variable	F-Statistic	True Stock	Alaska I	Alaska II	Nass	Skeena	Stikine*	Tahltan	Tuya	
22	Total	z5	116.67	Alaska I	74		1	2		11	0	88
	Season	z2	53.04		84.09		1.14	2.27		12.5	0	
		z32	46.51	Nass	8		137	54		5	3	207
		z87	33.2		3.86		66.18	26.09		2.42	1.45	
		z63	13.38	Skeena	4		17	12		15	5	53
					7.55		32.08	22.64		28.3	9.43	
				Stikine	3		0	7		25	3	38
					7.89		0	18.42		65.79	7.89	
				Tahltan	0		0	3		1	33	37
					0		0	8.11		2.7	89.19	
				Tuya	89		155	78		57	44	423
					40		4	7		8		59
				Total	67.8		6.78	11.86		13.56		
23	Total	z4	38.93	Alaska I	7		76	14		6		103
	Season	z71	35.08		6.8		73.79	13.59		5.83		
		z1	22.95	Nass	1		9	28		7		45
		z64	13.08		2.22		20	62.22		15.56		
				Skeena	2		0	2		25		29
					6.9		0	6.9		86.21		
				Stikine*	50		89	51		46		236
					74		1	2		11	0	88
				Tahltan	84.09		1.14	2.27		12.5	0	
					8		137	54		5	3	207
				Tuya	3.86		66.18	26.09		2.42	1.45	
					4		17	12		15	5	53
				Total	7.55		32.08	22.64		28.3	9.43	