Fishery Data Series No. 11-39

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, 2007

by

Janet M. Rumble,

Iris S. Frank,

and

Kathleen A. Jensen

September 2011

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

Symbols and Abbreviations

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

Weights and measures (metric)

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. 11-39

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, 2007

by
Janet M. Rumble
Iris S. Frank
and
Kathleen A. Jensen
Alaska Department of Fish and Game, Division of Commercial Fisheries, Douglas

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

September 2011

Development and publication of this manuscript were partially financed by the Federal Aid in Sport Fish Restoration Act(16 U.S.C.777-777K) under Project F-10- NA07NMF4380269.

The Division of Sport Fish Fishery Data Series was established in 1987 for the publication of technically oriented results for a single project or group of closely related projects. Since 2004, the Division of Commercial Fisheries has also used the Fishery Data Series. Fishery Data Series reports are intended for fishery and other technical professionals. Fishery Data Series reports are available through the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/ This publication has undergone editorial and peer review.

Janet M. Rumble, Iris S. Frank,
and
Kathleen A Jensen
Alaska Department of Fish and Game, Division of Commercial Fisheries,
P.O. Box 240020, Douglas, Alaska 99824,
USA

This document should be cited as:
Rumble, J. M., I. S. Frank, and K. A. Jensen. 2011. 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, 2007. Alaska Department of Fish and Game, Fishery Data Series No. 11-39, Anchorage.

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

Sockeye salmon *(Oncorhynchus nerka)* harvested in southern Southeast Alaska's 2007 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 1,175,889 sockeye salmon harvested in purse seine and gillnet fisheries in 2007 close to the 1982–2006 average of 1.05 million annually. This catch was classified to nation of origin to estimate that 310,745 fish (26.4%) were of Alaska origin, 778,735 fish (66.2%) were of Canadian origin, and 86,410 fish (7.3%) 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 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®[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 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 (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 OF SOUTHERN SOUTHEAST SOCKEYE SALMON CATCHES

The total sockeye salmon harvest in the southern Southeast Alaska (Districts 101–108) seine and gillnet fisheries was 1,175,889 fish in 2007. Catches from these net fisheries were classified by nation of origin (Table 1). The estimated U.S. contribution was 310,745 fish (26.4%), estimated

Canadian contribution was 778,735 (66.2%), and estimated shared transboundary stock contribution was 86,410 fish (7.3%).

STOCK COMPOSITION OF SOUTHERN SOUTHEAST SOCKEYE SALMON CATCHES

The total number of sockeye salmon classified to stock group of origin was 1,175,889 fish (Table 2). Of these, it was estimated that 310,745 fish (26.4%) were of Alaska origin; 301,847 fish (25.7%) were Nass River origin; 387,080 (32.9%) were Skeena River origin; 89,808 (7.6%) were south-migrating stock origin (primarily Fraser River); 63,199 (5.4%) were transboundary Tahltan Lake origin; 5,200 (0.4%) were transboundary Stikine River origin; and 18,011 (1.5%) 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 2007 District 101 gillnet fishery. Of the season catch of 66,822 sockeye salmon, the estimated stock contributions were: 10,381 fish from the Alaska stock grouping for 15.5% of the total; 46,472 Nass River fish (69.5%); and 9,970 Skeena River fish (14.9%; Table 3). Nass was the largest stock component in all weekly strata until statistical week 33.

District 101 Purse Seine Stock Composition

Weekly sockeye stock composition estimates were made for Alaska, Nass, and Skeena stock groupings in the 2007 District 101 purse seine fishery. The season catch total was 29,215 sockeye. The estimated stock contributions were 17,217 fish from the Alaska stock grouping (58.9%), 5,693 Nass River fish (19.5%), and 6,305 Skeena River fish (21.6%; Table 4). Alaska was the largest stock contributor from statistical weeks 27 through 32, Skeena for statistical week 33 and Alaska and Skeena equal at 44% for the last two weeks of the season, statistical weeks 34 and 35.

District 102 Purse Seine Stock Composition

Where possible weekly stock composition estimates were made for Alaska, Nass, and Skeena stock groupings in the 2007 District 102 purse seine fishery. Of the catch of 29,727 sockeye salmon caught over the entire season (statistical weeks 25–38), the estimated stock contributions were: 23,155 fish from the Alaska stock grouping (77.9%); 2,527 Nass River fish (8.5%); and 4,045 Skeena River fish (13.6%; Table 5). For all statistical weeks, Alaska was the stock dominating the District 102 catch ranging from 49.9 to 90.2%.

District 103 Purse Seine Stock Composition

Sockeye salmon harvested in the 2007 District 103 purse seine fishery totaled 116,398 fish. The estimates for contributions by stock group were: 79,029 (67.9%) from Alaska, 7,836 (6.7%) from Nass, and 29,533 (25.4%) from Skeena (Table 6). Alaska had the highest contributions in statistical weeks 31, 32, Skeena dominated week 33 and Alaskan stocks were the largest component in weeks 34-38. Stock composition estimates in later weeks were approximated using samples from adjacent weekly strata.

District 104 Purse Seine Stock Composition

Weekly stock compositions estimates were made for Alaska, Nass, Skeena, and south-migrating groupings in the 2007 District 104 purse seine fishery. Of the season total of 770,666 sockeye salmon caught, the estimated stock contributions were: 124,787 fish from the Alaska stock

grouping (16.2%); 226,556 Nass River fish (29.4%); 329,515 Skeena River fish (42.8%); and 89,808 (11.7%) fish from the south-migrating stock grouping (Table 7). Skeena dominated all weeks except for 35 in which Nass was a little higher.

District 106 and 108 Gillnet Stock Composition

A total of 92,481 sockeye salmon were caught in the 2007 District 106 gillnet fishery (Table 8) and 70,580 sockeye salmon in the District 108 gillnet fishery (Table 9). Alaska contributed 43,523 sockeye (47.1%) to the 106 gillnet fishery and 12,653 sockeye (17.9%) to the 108 gillnet fishery. Canadian stocks contributed 11,102 (12.0%) fish to the 106 gillnet fishery and 9,373 (13.3%) fish to 108 gillnet. Transboundary stocks contributed 37,856 (40.9%) fish to 106 gillnet and 48,553 (68.8%) 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 2007 was 1,175,889; close to the average (1982–2006) annual harvest of 1,050,660 sockeye salmon.

Four fisheries had catches that were below average (1982–2006), District 101 gillnet and purse seine, District 102 purse seine, and the District 106 gillnet fisheries. In both of the District 101 fisheries the harvest was less than half of the average (1982–2006). In District 103 and 104 purse seine and District 108 gillnet fisheries the harvest in 2007 was above average (1982–2006). District 103 purse seine fisheries harvest was almost 6 times above average (1982–2006).

The catch in District 101 gillnet fishery (66,822) in 2007 was the 2nd smallest harvest from 1982–2007 with an average (1982–2006). The estimated contribution of Canadian stocks in 2007 was 1.5% higher than average (1982–2006).

The catch in the District 101 purse seine fishery (29,215) was the 2nd smallest harvest since 1982-2007 with an average (1982–2006). The estimated contribution of Canadian stocks to this fishery was similar to average (1982–2006).

The catch in District 102 purse seine fishery (29,727) was below average (1982–2006). The estimated contribution of Canadian stocks to this fishery was average (1982–2006).

The catch in District 103 purse seine fishery was 116,398, the highest catch in recorded history. This catch was 6 times the average catch from 1982-2006 (19,516 fish). The estimated contribution of Canadian stocks was 32.1%, above the 1982–2006 average.

The catch in District 104 purse seine fishery (770,666) was above average (1982–2006). The estimated contribution of Canadian stocks was about 5% higher than average (1982–2006).

The catch in District 106 gillnet fishery (92,481) in 2007 was well below average (1982–2006). This is the seventh year since 1982 that the catch has been less than 100,000. The estimated contribution of transboundary stocks was 40.9% which is more than twice average (1982–2006). The Canadian contribution was below average (1982–2006). The catch in District 108 gillnet fishery (70,580) in 2007 was above average (1982–2006). 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 68.8%, which was 5% above average (1982–2006).

ACKNOWLEDGMENTS

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 Bill Bale and Jeffrey Rice. Fisheries and Oceans Canada 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 Fisheries and Oceans Canada 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.

REFERENCES CITED

Anas, R. E., and S. Murai. 1969. Use of scale characters as a discriminant function for classifying sockeye salmon (Oncorhynchus nerka) by continent of origin. International North Pacific Fisheries Commission, Bulletin 26:157–192.

Bloomquist, R., A. M. Reynolds, and I. S. Frank. 2005. 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, 1998**.** Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J02-40, Juneau.

Bloomquist, R., A. M. Reynolds, and I. S. Frank. 2010. 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, 2002**.** Alaska Department of Fish and Game, Fishery Data Series No. 10-27, Anchorage.

Clutter R. and L. Whitesel. 1956. Collection and interpretation of sockeye salmon scales. Bulletin International Pacific Salmon Fisheries Commission, No. 9.

English, K. K., W. J. Gazey, and J. A. Taylor. 1984. Part C. The 1983 North Coast tagging study. [*In*] Gazey, W. J., and D. A. Birdsall (editors), Design and execution of a stock interception study. Draft of Unpublished Report by LGL Limited and ESSA Environmental Social Systems Analysts Ltd., for Fisheries and Oceans Canada, 115p., LGL Limited, No. 333, 2453 Beacon Ave., Sidney, B.C., Canada.

Farrington, C. W. and G. T. Oliver, 1994. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to 1990 catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J94-03, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1996a. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1992, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J96-10, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1996b. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1993, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J96-11, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1996c. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to 1993 catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J96-12, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1998a. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1994, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J98-15, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1998b. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1995, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J98-16, Juneau.

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1999a. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1996, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J99-43, Juneau.

REFERENCES CITED (continued)

Farrington, C. W., G. T. Oliver, and R. A. Bloomquist. 1999b. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1997, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J99-46, Juneau.

Fisher, R. 1936. The use of multiple measurements in taxonomic problems. Annals of Eugenics 7:179–188.

Hoffman, S., L. Talley, and M. C. Seibel. 1983. 1983 chum and sockeye tagging, interception rates, migration patterns, run timing, and stock intermingling research in southern Southeast Alaska and northern British Columbia. Alaska Department of Fish and Game, Technical Data Report 110. Juneau.

INPFC (International North Pacific Fisheries Commission). 1963. Annual Report 1961.

Koo, T. S. Y. 1962. Age designation in salmon. Pages 37–48 [*In*] T. S. Y. Koo, editor, Studies of Alaska red salmon. University of Washington Press, Seattle, Washington.

Logan, R. 1967. The Noyes Island salmon fishing conflict. British Columbia Geographic Series, Occasional Paper 8:18–26.

Marshall, S. L., G. T. Oliver, D. R. Bernard, and S. A. McPherson. 1984. Accuracy of scale pattern analysis in separating major stocks of sockeye salmon (Oncorhynchus nerka) from southern Southeastern Alaska and northern British Columbia. Alaska Department of Fish and Game, Informational Leaflet 230, Juneau.

Mosher, K. H. 1968. Photographic atlas of sockeye salmon scales. Fishery Bulletin 67(2):243–279.

Norenberg, W. 1959. Salmon migrations in Southeastern Alaska. U.S. Fish and Wildlife Service, Circular No. 59.

Oliver, G. T. Unpublished Report. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska Purse Seine and gillnet fisheries, Districts 101–108, 1987, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Oliver, G., S. Marshall, D. Bernard, S. McPherson, and S. Walls. 1984. Estimated contribution from Alaska and Canada stocks to the catches of sockeye salmon in southern Southeast Alaska, 1982 and 1983 based on scale pattern analysis. Alaska Department of Fish and Game, Division of Commercial Fisheries, Technical Data Report 137, Juneau.

Oliver, G. and S. Walls. 1985. Estimated contribution from Alaska and Canada stocks to the catches of sockeye salmon in southern Southeast Alaska, 1984, based on the analysis of scale patterns. Section report in 1985 salmon research conducted in southeast Alaska by the Alaska Department of Fish and Game in conjunction with the National Marine Fisheries Service Auke Bay Laboratory for Joint U.S./Canada interception studies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Contract Report WASC 84 00179.

Oliver, G. T. and K. A. Jensen. 1986. Estimated contribution of Alaskan, Canadian, and transboundary stocks to the catches of sockeye salmon in southern Southeast Alaska, 1985, based on analysis of scale patterns. Section report in 1985 salmon research conducted in southeast Alaska by the Alaska Department of Fish and Game in conjunction with the National Marine Fisheries Service Auke Bay Laboratory for Joint U.S./Canada interception studies. Alaska Department of Fish and Game, Division of Commercial Fisheries, Contract Report 85 ABC 00142.

Oliver, G. T., K. Jensen, I. Frank, and N. Sands. 1987. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches from Southeast Alaska Districts 101–108, 1986, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J87-07, Juneau.

Oliver, G. T. and C. W. Farrington. 1989. Contribution of Alaskan, Canadian, and Transboundary sockeye stocks to catches in Southeast Alaska purse seine and gillnet fisheries, Districts 101–108, 1988, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J89-45, Juneau.

REFERENCES CITED (continued)

Oliver, G. T., C. W. Farrington and B. V. Alen. 1990. Contribution of Alaskan, Canadian, and transboundary sockeye stocks to catches in Southeast Alaska Purse Seine and gillnet fisheries, Districts 101–108, 1989, based on analysis of scale patterns. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J90-29, Juneau.

Rich, W. and F. Morton. 1930. Salmon-tagging experiments in Alaska, 1927–1928. U. S. Bureau of Fisheries Bulletin 45:1–23.

Ryan, P. and M. Christie. 1976. Scale reading equipment. Fisheries and Marine Service, Canada Technical Report No. PAC/T 758.

Simpson, L. 1968. Sockeye salmon migratory behavior and biological statistics collection, Southeastern Alaska. Annual progress report, 1 July, 1967 to 30 June, 1968. Anadromous Fish Act (P. L. 89–304), Project No. AFC-2–2.

Thompson, S. K. 1987. Sample size for estimating multinomial proportions. The American Statistician 41:1:62–46.

Verhoeven, L. 1952. A report to the salmon fishing industry of Alaska on the results of the 1947 tagging experiments. Unpublished manuscript. Fisheries Research Institute, University of Washington, Seattle.

TABLES AND FIGURES

Table 1.–Estimated sockeye salmon contributions by nation of origin to southern Southeast Alaska Districts 101–108 net fisheries, 1982–2007.

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**	**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
	Seine	**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**	**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
	Seine	**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**	**US**			7,098	68			19,560	74	9,883	72	1,401	98	790	33	20,551	96	14,226	74
	Seine	**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**	**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
	Seine	**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	

-continued-

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**	**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
	Seine	**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**	**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
	Seine	**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**	**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
	Seine	**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**	**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
	Seine	**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	

-continued-

Table 1.–Page 3 of 3.

District	Type	Stock Group	2000	(%)	2001	(%)	2002	(%)	2003	(%)	2004	(%)	2005	(%)	2006	(%)	2007	(%)
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
		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
		Total	94,651		80,041		120,353		105,263		142,357		79,725		62,770		66,822	
101[a]	**Purse Seine**	**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
		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
		Total	127,110		157,683		25,689		74,650		124,936		81,020		42,416		29,215	
102[b]	**Purse Seine**	**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
		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
		Total	33,570		54,032		29,667		38,357		45,560		39,610		19,558		29,727	
103[c]	**Purse Seine**	**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
		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
		Total	16,624		26,959		5,725		24,654		23,920		48,594		28,251		116,398	
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	124,787	16
		Canada	148,312	65	454,276	85	24,018	70	218,226	66	300,671	86	453,857	87	212,511	88	645,879	84
		Total	227,039		536,634		34,187		329,719		349,139		521,854		242,034		770,666	
106	**Gillnet**	**US**	57,923	64	86,078	52	42,573	76	86,626	74	58,005	50	51,735	47	33,454	37	43,523	47
		Canada	21,007	23	54,512	33	5,487	10	12,527	11	25,809	22	34,464	31	33,336	36	11,102	12
		Transboundary[d]	11,146	12	23,423	14	8,075	14	17,751	15	32,445	28	23,993	22	25,189	27	37,856	41
		Total	90,076		164,013		56,135		116,904		116,259		110,192		91,979		92,481	
108	**Gillnet**	**US**	3,319	21	473	78	182	88	8,675	21	10,379	10	9,193	9	4,088	7	12,653	18
		Canada	2,025	13	60	10	25	12	4,563	11	3,131	3	11,074	11	7,973	13	9,373	13
		Transboundary	10,489	66	77	13	1	0	28,920	69	89,882	87	79,198	80	49,237	80	48,553	69
		Total	15,833		610		208		42,158		103,392		99,465		61,298		70,580	
Total		**US**	268,369	44	324,715	32	112,382	41	332,558	45	259,316	53	252,849	26	124,381	23	310,745	26
		Canada	314,899	52	671,757	66	151,506	56	352,445	48	523,920	32	624,420	64	349,739	64	778,735	66
		Transboundary	21,635	4	23,500	2	8,076	3	46,671	6	122,327	15	103,191	11	74,186	14	86,410	7
		Total	604,903		1,019,972		271,964		731,704		905,563		980,460		548,306		1,175,889	

[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, 2007.

						90% CI	
District	Gear Type	Group	Number	Percent	SE	Lower	Upper
101	**Gillnet**	**Alaska**	10,381	15.5	172	10,098	10,663
		Nass	46,472	69.5	325	45,938	47,006
		Skeena	9,970	14.9	289	9,495	10,444
		Total	66,822				
101	**Purse seine**	**Alaska**	17,217	58.9	187	16,909	17,524
		Nass	5,693	19.5	163	5,425	5,961
		Skeena	6,305	21.6	167	6,031	6,579
		Total	29,215				
102	**Purse seine**	**Alaska**	23,155	77.9	139	22,927	23,384
		Nass	2,527	8.5	141	2,296	2,758
		Skeena	4,045	13.6	109	3,866	4,223
		Total	29,727				
103	**Purse seine**	**Alaska**	79,029	67.9	813	77,692	80,367
		Nass	7,836	6.7	682	6,714	8,957
		Skeena	29,533	25.4	920	28,021	31,046
		Total	116,398				
104	**Purse seine**	**Alaska**	124,787	16.2	4,359	117,616	131,958
		Nass	226,556	29.4	8,063	213,293	239,820
		Skeena	329,515	42.8	6,970	318,049	340,982
		South Migrating	89,808	11.7	50,954	5,988	173,627
		Total	770,666				
106	**Gillnet**	**Alaska I**	26,654	28.8	360	26,062	27,245
		Alaska II	16,869	18.2	441	16,144	17,594
		Nass	5,286	5.7	294	4,803	5,769
		Skeena	5,816	6.3	474	5,037	6,596
		Tahltan	29,760	32.2	414	29,080	30,440
		Stikine	484	0.5	110	302	665
		Tuya	7,613	8.2	308	7,106	8,119
		Total	92,481				
108	**Gillnet**	**Alaska I**	6,354	9	318.8	5,830	6,879
		Alaska II	6,299	8.9	356.5	5,712	6,885
		Nass	7,478	10.6	299	6,986	7,970
		Skeena	1,896	2.7	223.9	1,528	2,264
		Tahltan	33,439	47.4	434.3	32,724	34,153
		Stikine	4,716	6.7	229.7	4,338	5,094
		Tuya	10,398	14.7	281.6	9,935	10,862
		Total	70,580				
Total		**Alaska**	310,745	26.4	4506	303,333	318,157
		Nass	301,847	25.7	8112	288,503	315,191
		Skeena	387,080	32.9	7059	375,468	398,692
		South Migrating	89,808	7.6	50954	5,988	173,627
		Tahltan	63,199	5.4	600	62,212	64,185
		Stikine	5,200	0.4	255	4,781	5,619
		Tuya	18,011	1.5	417	17,324	18,698
		Total	1,175,889				

Table 3.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 101 (Tree Point) drift gillnet fishery, 2007.

		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	38	0	264	26	328	2.1	75.5	204	453
6/17–6/23	**Nass**	146	6,230	3,759	3,230	1,172	14,537	93	177	14,246	14,828
	Skeena	142	0	60	505	62	770	4.9	172.8	485	1,054
	Total	288	6,268	3,819	3,999	1,261	15,635				
Week 26	**Alaska**	23	302	0	4	12	341	5.8	32.5	288	395
6/24–6/30	**Nass**	43	1,737	1,888	1,259	184	5,111	86.9	76.8	4,985	5,238
	Skeena	0	241	100	76	16	433	7.4	70.6	316	549
	Total	66	2,280	1,988	1,339	212	5,885				
Week 27	**Alaska**	0	870	0	154	14	1,038	13.3	59.4	940	1,135
7/01–7/07	**Nass**	166	3,177	1,433	1,573	86	6,435	82.7	87	6,291	6,578
	Skeena	60	0	43	201	4	309	4	78.5	180	438
	Total	226	4,047	1,476	1,928	104	7,781				
Week 28	**Alaska**	0	1,232	0	302	36	1,570	19.8	66.4	1,461	1,680
7/08–7/14	**Nass**	223	2,875	829	1,177	120	5,223	65.8	122.2	5,022	5,424
	Skeena	0	1,074	1	39	26	1,140	14.4	96.5	981	1,298
	Total	223	5,181	830	1,518	182	7,933				
Week 29	**Alaska**	39	778	36	260	10	1,123	31.4	35.3	1,065	1,181
7/15–7/21	**Nass**	36	1,189	374	746	22	2,366	66.2	46.6	2,289	2,443
	Skeena	32	0	0	51	1	84	2.4	36.5	24	144
	Total	107	1,967	410	1,057	33	3,573				
Week 30	**Alaska**	62	875	27	0	11	975	15.7	52	890	1,061
7/22–7/28	**Nass**	142	1,892	556	1,510	48	4,149	66.8	103.8	3,978	4,319
	Skeena	14	861	38	166	13	1,091	17.6	81.6	957	1,225
	Total	217	3,628	621	1,677	72	6,215				
Week 31	**Alaska**	17	2,242	55	443	28	2,784	27.2	91	2,634	2,933
7/29–8/04	**Nass**	131	3,022	487	899	45	4,585	44.8	154.5	4,330	4,839
	Skeena	106	2,663	66	0	28	2,863	28	131.4	2,646	3,079
	Total	253	7,926	608	1,342	101	10,231				
Week 32	**Alaska**	24	660	69	158	5	915	16.4	43.8	843	987
8/05–8/11	**Nass**	45	1,933	124	491	13	2,605	46.7	83.8	2,468	2,743
	Skeena	0	1,719	13	313	10	2,055	36.9	78.5	1,925	2,184
	Total	69	4,312	206	961	27	5,575				
Week 33	**Alaska**	0	394	35	220	2	652	31.3	20.1	618	685
8/12–8/18	**Nass**	85	169	182	251	2	689	33.1	39.6	624	754
	Skeena	0	682	0	55	2	740	35.6	36.2	680	799
	Total	85	1,246	218	526	6	2,080				
Week 34	**Alaska**	9	238	14	167	0	428	51.9	11	410	446
8/19–8/25	**Nass**	20	197	14	45	0	276	33.5	11.1	258	295
	Skeena	0	121	0	0	0	121	14.6	8.9	106	135
	Total	29	555	29	213	0	825				

-continued-

Table 3.–Page 2 of 2.

		Catch By Age Class								90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**Other**	**Total**	**Percent**	**SE**	**Upper**	**Lower**
Week 35	**Alaska**	0	47	5	59	0	112	20.5	9.3	96	127
8/26–9/01	**Nass**	13	214	13	53	0	293	53.9	8.8	279	307
	Skeena	1	137	0	2	0	139	25.6	10	123	156
	Total	14	398	18	114	0	544				
Week 36	**Alaska**	0	58	0	27	0	85	21	5.2	76	93
9/02–9/08	**Nass**	0	117	0	0	0	117	29.1	7.7	105	130
	Skeena	0	167	0	34	0	201	49.9	5.7	192	210
	Total	0	342	0	61	0	403				
Week 37	**Alaska**	0	29	0	0	0	29	24.4	2.9	25	34
9/09–9/15	**Nass**	0	52	0	14	0	66	54.9	5.3	57	74
	Skeena	0	25	0	0	0	25	20.8	2.7	20	29
	Total	0	106	0	14	0	120				
Week 38	**Alaska**	0	1	0	0	0	1	5.5	1	-1	3
9/16–9/22	**Nass**	0	2	0	14	0	16	89.8	1.8	13	19
	Skeena	0	1	0	0	0	1	4.7	0.8	-1	2
	Total	0	4	0	14	0	18				
Week 39–40[a]	**Alaska**	0	0	0	0	0	0	5.5	0.2	0	1
9/23–10/06	**Nass**	0	0	0	3	0	4	89.8	0.4	3	4
	Skeena	0	0	0	0	0	0	4.7	0.2	0	0
	Total	0	1	0	3	0	4				
Totals	**Alaska**	172	7,763	243	2,058	144	10,381	15.5	172	10,098	10,663
	Nass	1,048	22,807	9,659	11,265	1,693	46,472	69.5	325	45,938	47,006
	Skeena	355	7,689	321	1,443	162	9,970	14.9	289	9,495	10,444
	Total	1,575	38,259	10,222	14,766	1,999	66,822				

[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, 2007.

		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**	6	139	0	35	0	180	90	2.3	176	184
7/01–7/07	**Nass**	0	7	0	0	0	7	3.4	2	4	10
	Skeena	0	13	0	0	0	13	6.7	1.7	10	16
	Total	6	159	0	35	0	200				
Week 28	**Alaska**	36	256	0	204	9	505	38.9	34.6	448	562
7/08–7/14	**Nass**	0	344	0	64	7	416	32	24.9	375	457
	Skeena	35	320	0	15	7	377	29	27.8	331	423
	Total	71	921	0	283	23	1,298				
Week 29	**Alaska**	12	328	63	111	12	526	57.5	14.8	502	551
7/15–7/21	**Nass**	8	231	10	7	6	262	28.6	16.3	235	289
	Skeena	0	97	0	29	3	128	14	10.2	111	145
	Total	21	656	73	146	21	916				
Week 30	**Alaska**	399	2,390	234	1,393	62	4,477	63.1	80.8	4,344	4,610
7/22–7/28	**Nass**	66	1,106	153	319	23	1,667	23.5	78.3	1,538	1,796
	Skeena	0	857	78	0	13	947	13.4	65.1	840	1,055
	Total	465	4,353	465	1,712	98	7,092				
Week 31	**Alaska**	152	2,494	95	1,317	13	4,071	57.6	84	3,933	4,209
7/29–8/04	**Nass**	228	1,294	224	259	6	2,011	28.4	104	1,840	2,182
	Skeena	77	796	0	112	3	988	14	78.8	859	1,118
	Total	456	4,584	319	1,688	23	7,070				
Week 32	**Alaska**	290	2,967	144	1,668	30	5,099	80.2	62.5	4,997	5,202
8/05–8/11	**Nass**	0	415	6	10	3	434	6.8	63.4	330	538
	Skeena	163	468	96	95	5	827	13	66.4	718	936
	Total	453	3,850	245	1,774	38	6,360				
Week 33	**Alaska**	47	681	0	828	0	1,555	34.8	123.3	1,353	1,758
8/12–8/18	**Nass**	0	658	0	31	0	689	15.4	66.1	581	798
	Skeena	45	2,036	0	144	0	2,224	49.8	105.3	2,051	2,398
	Total	91	3,375	0	1,003	0	4,469				
Week 34	**Alaska**	22	324	23	290	0	659	44.3	28.1	612	705
8/19–8/25	**Nass**	3	124	0	44	0	171	11.5	18.1	141	201
	Skeena	21	622	0	13	0	657	44.2	30.8	606	707
	Total	46	1,070	23	346	0	1,486				
Week 34	**Alaska**	5	71	5	63	0	144	44.3	6.1	134	154
8/26–9/01	**Nass**	1	27	0	10	0	37	11.5	3.9	31	44
	Skeena	5	136	0	3	0	143	44.2	6.7	132	154
	Total	11	233	5	76	0	324				
Total	**Alaska**	967	9,651	564	5,908	126	17,217	58.9	187	16,909	17,524
	Nass	306	4,205	393	744	45	5,693	19.5	163	5,425	5,961
	Skeena	345	5,344	173	411	31	6,305	21.6	167	6,031	6,579
	Total	1,619	19,201	1,130	7,063	202	29,215				

Table 5.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 102 purse seine fishery, 2007.

		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**	3	297	6	27	6	339	49.9	11.1	321	357
6/17–6/23	**Nass**	26	71	40	48	3	188	27.7	18.2	158	218
	Skeena	0	150	0	0	3	152	22.4	9.8	136	168
	Total	29	518	46	75	12	679				
Week 26	**Alaska**	110	790	45	57	27	1,029	56.4	21.7	993	1,064
6/24–6/30	**Nass**	51	173	0	47	7	277	15.2	27.1	232	322
	Skeena	77	270	109	51	13	519	28.5	25.1	478	561
	Total	237	1,232	154	154	47	1,825				
Week 27	**Alaska**	6	409	0	100	15	530	58.8	24.1	491	570
7/01–7/07	**Nass**	59	208	26	0	9	302	33.5	26.7	258	346
	Skeena	0	63	0	5	2	70	7.7	8.2	56	83
	Total	65	680	26	105	26	902				
Week 28	**Alaska**	491	3,147	149	632	198	4,617	79.7	56.5	4,524	4,710
7/08–7/14	**Nass**	17	289	31	0	15	352	6.1	71.1	235	469
	Skeena	172	546	53	15	35	822	14.2	55.2	731	912
	Total	680	3,982	232	647	249	5,791				
Week 29	**Alaska**	36	938	36	198	0	1,209	74.3	67.4	1,098	1,320
7/15–7/21	**Nass**	74	0	0	55	0	129	7.9	39.8	64	194
	Skeena	22	25	30	212	0	290	17.8	50.1	208	373
	Total	133	964	66	465	0	1,628				
Week 30	**Alaska**	352	2,205	113	648	65	3,382	84.7	37.6	3,320	3,444
7/22–7/28	**Nass**	14	78	60	147	6	304	7.6	50.8	221	388
	Skeena	132	169	0	0	6	307	7.7	34.5	250	363
	Total	498	2,451	172	795	77	3,993				
Week 31	**Alaska**	122	901	59	162	26	1,271	90.2	13.2	1,249	1,292
7/29–8/04	**Nass**	11	0	0	0	0	11	0.8	9.9	–5	27
	Skeena	4	57	0	63	3	126	9	13.2	105	148
	Total	137	958	59	225	29	1,408				
Week 32	**Alaska**	430	3,225	0	1,891	99	5,646	85.4	78	5,518	5,774
8/05–8/11	**Nass**	0	128	186	105	7	425	6.4	81.7	291	560
	Skeena	150	384	0	0	10	543	8.2	45.6	468	618
	Total	580	3,737	186	1,996	116	6,615				
Week 33	**Alaska**	120	2,463	60	524	33	3,200	81.8	37.9	3,137	3,262
8/12–8/18	**Nass**	0	0	60	0	1	60	1.5	34.3	4	117
	Skeena	0	570	0	75	7	652	16.7	32.7	598	706
	Total	120	3,034	120	599	40	3,912				
Week 34	**Alaska**	35	573	59	518	12	1,196	69.3	21.4	1,161	1,231
8/19–8/25	**Nass**	0	0	0	48	0	48	2.8	14.8	24	72
	Skeena	15	399	0	63	5	482	27.9	27	438	526
	Total	50	972	59	628	17	1,726				
Week 35	**Alaska**	0	265	14	343	17	639	60.4	28.2	592	685
8/26–9/01	**Nass**	0	289	14	47	9	359	34	24.7	318	400
	Skeena	14	44	0	0	2	59	5.6	15.7	34	85
	Total	14	598	28	389	28	1,057				
Week 37	**Alaska**	0	54	3	36	0	93	51.5	7.6	81	106
9/09–9/15	**Nass**	0	59	3	5	0	67	37.1	6.3	57	77
	Skeena	12	9	0	0	0	21	11.4	7.9	8	34
	Total	12	123	6	41	0	181				
Week 38	**Alaska**	0	3	0	2	0	5	51.5	0.4	4	6
9/16–9/22	**Nass**	0	3	0	0	0	4	37.1	0.3	3	4
	Skeena	1	0	0	0	0	1	11.4	0.4	0	2
	Total	1	7	0	2	0	10				
Total	**Alaska**	1,705	15,273	544	5,136	498	23,155	77.9	139	22,927	23,384
	Nass	252	1,297	419	501	58	2,527	8.5	141	2,296	2,758
	Skeena	599	2,685	192	484	84	4,045	13.6	109	3,866	4,223
	Total	2,556	19,256	1,154	6,121	640	29,727				

Table 6.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 103 purse seine fishery, 2007.

		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**	1,366	8,698	925	1,541	193	12,724	93.8	98.9	12,561	12,886
7/29–8/04	**Nass**	0	312	0	0	5	317	2.3	110.4	136	499
	Skeena	175	341	0	0	8	524	3.9	80.5	392	657
	Total	1,541	9,352	925	1,541	206	13,565				
Week 32	**Alaska**	3,778	29,768	4,014	7,231	325	45,115	75.6	477.5	44,329	45,900
8/05–8/11	**Nass**	0	0	278	1,781	15	2,074	3.5	307.8	1,568	2,581
	Skeena	943	11,430	0	0	90	12,463	20.9	564.4	11,534	13,391
	Total	4,721	41,199	4,292	9,012	429	59,652				
Week 33	**Alaska**	803	6,209	2,184	3,579	139	12,914	40.3	552.4	12,005	13,822
8/12–8/18	**Nass**	119	2,011	226	1,585	43	3,983	12.4	412.7	3,304	4,662
	Skeena	799	14,156	0	0	163	15,118	47.2	709.2	13,952	16,285
	Total	1,721	22,376	2,410	5,164	344	32,015				
Week 34	**Alaska**	0	4,380	559	446	207	5,593	74.1	309.9	5,083	6,102
8/19–8/25	**Nass**	0	0	0	951	37	987	13.1	390.1	346	1,629
	Skeena	0	929	0	0	36	965	12.8	120	767	1,162
	Total	0	5,309	559	1,397	279	7,545				
Week 35–											
38	**Alaska**	0	2,102	268	214	99	2,684	74.1	148.7	2,439	2,929
8/26–9/22	**Nass**	0	0	0	456	18	474	13.1	187.2	166	782
	Skeena	0	446	0	0	17	463	12.8	57.6	368	558
	Total	0	2,548	268	671	134	3,621				
Total	**Alaska**	5,947	51,158	7,949	13,012	963	79,029	67.9	813	77,692	80,367
	Nass	119	2,323	504	4,773	117	7,836	6.7	682	6,714	8,957
	Skeena	1,918	27,303	0	0	313	29,533	25.4	920	28,021	31,046
	Total	7,983	80,784	8,453	17,785	1,392	116,398				

Table 7.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 104 purse seine fishery, 2007.

		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**	0	1,028	279	572	21	1,901	25.7	162.3	1,634	2,168
7/01–7/07	**Nass**	204	1,469	64	54	20	1,812	24.5	190.8	1,498	2,125
	Skeena	46	3,078	157	372	42	3,694	49.9	194.3	3,374	4,013
	South Migrating	0	0	0	0	0	0	0	0	0	0
	Total	250	5,575	499	999	83	7,406				
Week 28	**Alaska**	546	3,140	180	786	47	4,700	26.8	226.4	4,327	5,072
7/08–7/14	**Nass**	0	679	473	386	15	1,554	8.9	350.7	977	2,131
	Skeena	585	9,256	0	481	104	10,426	59.4	386	9,791	11,061
	South Migrating	0	767	0	0	100	867	4.9	215	514	1,221
	Total	1,132	13,842	653	1,654	266	17,547				
Week 29	**Alaska**	483	3,331	296	1,173	1,009	6,293	29.1	253	5,877	6,709
7/15–7/21	**Nass**	489	1,601	252	826	605	3,773	17.5	415	3,090	4,455
	Skeena	435	8,170	17	0	1,646	10,268	47.5	372.8	9,655	10,881
	South Migrating	331	806	0	0	148	1,285	5.9	262.3	854	1,717
	Total	1,739	13,908	565	2,000	3,408	21,619				
Week 30	**Alaska**	736	8,527	1,638	2,522	1,869	15,292	23.3	811.6	13,957	16,627
7/22–7/28	**Nass**	3,844	9,811	1,034	551	2,122	17,361	26.5	1,473.10	14,938	19,785
	Skeena	601	23,787	0	0	3,395	27,784	42.4	1,181.60	25,840	29,728
	South Migrating	430	4,105	0	1	589	5,126	7.8	903.3	3,640	6,611
	Total	5,612	46,230	2,672	3,074	7,975	65,563				
Week 31	**Alaska**	10,838	32,481	6,179	6,107	7,999	63,603	30.7	2,490.80	59,506	67,701
7/29–8/04	**Nass**	0	21,524	3,062	9,854	4,954	39,394	19	3,533.30	33,582	45,206
	Skeena	8,300	66,896	0	0	10,817	86,013	41.6	3,305.10	80,576	91,450
	South Migrating	3,544	12,250	0	4	2,052	17,850	8.6	2,503.10	13,732	21,967
	Total	22,682	133,150	9,241	15,965	25,822	206,860				
Week 32	**Alaska**	7,455	7,966	1,739	9,173	4,002	30,335	14.8	2,535.40	26,164	34,505
8/05–8/11	**Nass**	20,706	23,981	1,608	4,824	7,768	58,887	28.7	4,761.20	51,054	66,719
	Skeena	6,395	67,364	2,777	0	11,631	88,167	43	3,970.90	81,635	94,699
	South Migrating	0	24,479	0	6	3,181	27,666	13.5	2,497.30	23,558	31,774
	Total	34,556	123,790	6,124	14,003	26,581	205,054				
Week 33	**Alaska**	6,085	4,755	1,374	4,805	2,340	19,358	11.4	1,955.90	16,141	22,576
8/12–8/18	**Nass**	12,593	10,382	1,247	3,807	3,854	31,883	18.7	4,989.80	23,675	40,092
	Skeena	3,205	58,936	0	0	8,544	70,686	41.6	3,379.10	65,128	76,245
	South Migrating	7,322	35,258	0	10	5,533	48,123	28.3	3,462.70	42,427	53,819
	Total	29,205	109,332	2,621	8,621	20,272	170,051				
Week 34	**Alaska**	629	755	223	572	20	2,199	4.6	413	1,519	2,878
8/19–8/25	**Nass**	0	6,184	142	1,762	75	8,162	17.2	1,131.00	6,302	10,023
	Skeena	1,710	18,055	261	587	190	20,802	43.9	978.3	19,193	22,412
	South Migrating	374	14,018	0	3	1,870	16,265	34.3	917	14,756	17,773
	Total	2,712	39,012	626	2,924	2,155	47,428				
Week 35	**Alaska**	111	1,184	0	603	704	2,601	8.9	275.6	2,148	3,054
8/26–9/01	**Nass**	1,218	3,821	295	2,203	2,795	10,333	35.5	697.6	9,185	11,480
	Skeena	0	6,931	0	0	2,570	9,501	32.6	529.2	8,630	10,371
	South Migrating	0	5,931	0	1	771	6,703	23	502.6	5,877	7,530
	Total	1,329	17,867	295	2,807	6,840	29,138				
Total	**Alaska**	26,883	63,168	11,908	26,314	18,010	146,282	19	4,184	139,400	153,164
	Nass	39,054	79,451	8,177	24,267	22,208	173,158	22.5	8,020	159,965	186,351
	Skeena	21,277	262,472	3,211	1,441	38,939	327,341	42.5	6,409	316,799	337,883
	South Migrating	12,002	97,615	0	25	14,244	123,885	16.1	5,149	115,414	132,356
	Total	99,216	502,706	23,296	52,046	93,401	770,666				

Table 8.–Estimated contribution of sockeye salmon stocks originating in Alaska and Canada to Alaska District 106 drift gillnet fishery, 2007.

		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**	2	4	6	71	0	0	83	6.5	10	67	99
6/10–6/16	**Alaska II**	0	112	0	0	0	0	112	8.7	2	108	115
	Nass	0	132	0	0	0	0	133	10.3	2	128	137
	Skeena	0	87	20	3	0	0	110	8.6	6	100	121
	Tahltan	0	597	0	64	0	2	662	51.4	6	653	671
	Stikine	0	0	0	0	6	0	6	0.5	4	-1	13
	Tuya	4	178	0	0	0	0	182	14.1	4	175	189
	Total	6	1,109	27	137	6	3	1,288				
Week 25	**Alaska I**	35	249	104	1,205	0	3	1,597	7.6	162	1,331	1,863
6/17–6/23	**Alaska II**	0	1,776	0	0	0	4	1,780	8.5	145	1,542	2,018
	Nass	0	2,136	4	0	0	5	2,146	10.3	203	1,811	2,480
	Skeena	5	1,380	323	71	0	4	1,783	8.5	309	1,275	2,292
	Tahltan	0	9,533	0	1,011	0	24	10,568	50.6	250	10,156	10,979
	Stikine	0	0	0	0	93	0	93	0.4	66	-15	201
	Tuya	66	2,845	0	0	0	7	2,917	14	201	2,586	3,249
	Total	106	17,920	432	2,287	93	46	20,884				
Week 26	**Alaska I**	287	1,060	210	1,344	0	9	2,910	11.5	125	2,704	3,116
6/24–6/30	**Alaska II**	0	2,930	0	0	0	0	2,930	11.6	181	2,633	3,228
	Nass	3	1,347	23	32	0	1	1,406	5.6	198	1,080	1,732
	Skeena	42	153	568	21	0	0	784	3.1	313	268	1,299
	Tahltan	0	12,896	0	1,754	0	0	14,650	57.8	314	14,133	15,167
	Stikine	0	0	0	0	119	0	119	0.5	74	-3	241
	Tuya	515	2,013	0	0	0	0	2,528	10	216	2,173	2,884
	Total	846	20,400	801	3,151	119	10	25,328				
	Alaska I	120	872	111	789	0	15	1,907	33.5	78	1,778	2,036
Week 27	**Alaska II**	0	1,253	0	0	0	10	1,263	22.2	80	1,132	1,395
7/01–7/07	**Nass**	19	392	15	198	0	5	629	11.1	43	559	699
	Skeena	13	19	283	23	0	3	341	6	61	240	442
	Tahltan	7	976	0	125	0	9	1,118	19.7	44	1,044	1,191
	Stikine	0	0	0	0	33	0	33	0.6	19	1	65
	Tuya	124	269	0	0	0	3	396	7	41	329	463
	Total	283	3,782	409	1,135	33	45	5,687				
Week 28	**Alaska I**	201	1,156	175	1,522	0	19	3,073	31.8	153	2,821	3,324
7/08–7/14	**Alaska II**	0	3,087	0	0	0	19	3,107	32.2	132	2,889	3,324
	Nass	44	55	17	23	0	1	141	1.5	28	95	187
	Skeena	29	323	127	0	0	3	482	5	70	367	597
	Tahltan	16	1,800	0	188	0	13	2,017	20.9	76	1,892	2,142
	Stikine	0	0	0	0	36	0	36	0.4	22	1	72
	Tuya	270	517	0	0	0	5	792	8.2	67	682	903
	Total	560	6,939	319	1,733	36	60	9,648				
Week 29	**Alaska I**	200	1,809	107	2,945	0	17	5,077	53.5	131	4,862	5,293
7/15–7/21	**Alaska II**	0	3,118	0	0	0	11	3,129	33	119	2,933	3,324
	Nass	30	0	17	128	0	1	175	1.8	27	131	220
	Skeena	3	0	28	152	0	0	183	1.9	36	124	242
	Tahltan	0	398	0	0	0	1	399	4.2	31	347	450
	Stikine	0	0	0	0	69	0	69	0.7	28	23	116
	Tuya	46	413	0	0	0	1	460	4.8	26	417	503
	Total	278	5,738	152	3,224	69	31	9,492				
Week 30	**Alaska I**	158	1,928	88	1,691	0	6	3,871	57.6	86	3,729	4,012
7/22–7/28	**Alaska II**	0	1,502	0	0	0	2	1,504	22.4	85	1,363	1,644
	Nass	19	123	11	0	0	0	154	2.3	35	97	211
	Skeena	12	145	47	310	0	1	515	7.7	46	439	591
	Tahltan	0	314	0	0	0	1	315	4.7	30	265	365
	Stikine	12	0	0	0	51	0	63	0.9	22	27	100
	Tuya	33	268	0	0	0	1	302	4.5	25	261	343
	Total	234	4,280	146	2,001	51	10	6,723				

-continued-

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**	75	820	22	768	0	1	1,685	62.4	43	1,615	1,756
7/29–8/04	**Alaska II**	0	757	0	0	0	0	757	28	41	690	825
	Nass	2	12	20	0	0	0	34	1.3	7	23	46
	Skeena	8	78	8	31	0	0	125	4.6	10	109	142
	Tahltan	0	32	0	0	0	0	32	1.2	1	30	34
	Stikine	9	0	0	0	23	0	33	1.2	10	15	50
	Tuya	3	31	0	0	0	0	35	1.3	7	23	46
	Total	98	1,730	50	799	23	1	2,701				
Week 32	**Alaska I**	0	821	24	693	0	2	1,540	54.9	46	1,464	1,616
8/05–8/11	**Alaska II**	0	944	0	0	0	1	945	33.7	57	851	1,039
	Nass	33	38	8	3	0	0	83	3	17	56	111
	Skeena	0	138	25	59	0	0	221	7.9	28	176	267
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	1	0	0	0	12	0	13	0.5	6	2	24
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	34	1,941	58	755	12	3	2,803				
Week 33–40[b]	**Alaska I**	0	1,990	25	2,885	0	10	4,910	61.9	171	4,629	5,192
8/12–10/06	**Alaska II**	0	1,341	0	0	0	2	1,343	16.9	301	848	1,837
	Nass	64	155	26	138	0	2	385	4.9	27	341	429
	Skeena	0	697	4	567	0	3	1,271	16	134	1,051	1,491
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	1	0	1	13	3	0	18	0.2	8	5	31
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	65	4,184	56	3,603	3	16	7,927				
Total	**Alaska I**	1,076	10,710	874	13,913	0	81	26,654	28.8	360	26,062	27,245
	Alaska II	0	16,820	0	0	0	49	16,869	18.2	441	16,144	17,594
	Nass	214	4,393	141	523	0	15	5,286	5.7	294	4,803	5,769
	Skeena	113	3,020	1,432	1,236	0	15	5,816	6.3	474	5,037	6,596
	Tahltan	23	26,546	0	3,141	0	49	29,760	32.2	414	29,080	30,440
	Stikine	22	0	1	13	447	0	484	0.5	110	302	665
	Tuya	1,061	6,534	0	0	0	18	7,613	8.2	308	7,106	8,119
	Total	2,510	68,023	2,448	18,826	447	227	92,481				

[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, 2007.

		Catch By Age Class									90% CI	
Date	**Group**	**1.2**	**1.3**	**2.2**	**2.3**	**0**	**Other**	**Total**	**Percent**	**SE**	**Lower**	**Upper**
Week 20–23[a]	**Alaska I**	0	0	0	0	0	0	0	0	0	0	0
5/13–6/09	**Alaska II**	0	2	0	0	0	0	2	9	0.2	2	3
	Nass	0	1	0	0	0	0	1	4.8	0.2	1	2
	Skeena	0	0	0	0	0	0	0	0	0	0	0
	Tahltan	0	18	0	0	0	0	18	66.5	0.8	17	19
	Stikine	0	0	0	0	1	0	1	5.3	1	0	3
	Tuya	0	4	0	0	0	0	4	14.4	0.3	3	4
	Total	0	26	0	0	1	0	27				
Week 24	**Alaska I**	0	0	0	0	0	0	0	0	0	0	0
6/10–6/16	**Alaska II**	0	37	0	0	0	0	37	9	3.4	32	43
	Nass	0	20	0	0	0	0	20	4.8	3.4	14	25
	Skeena	0	0	0	0	0	0	0	0	0	0	0
	Tahltan	0	275	0	0	0	0	275	66.5	11.6	256	294
	Stikine	0	0	0	0	22	0	22	5.3	15.2	-3	47
	Tuya	0	59	0	0	0	0	59	14.4	4	53	66
	Total	0	391	0	0	22	0	413				
Week 25	**Alaska I**	91	0	89	40	0	1	222	2	39.9	156	287
6/17–6/23	**Alaska II**	0	924	0	0	0	5	929	8.3	77.9	800	1,057
	Nass	0	495	0	0	0	3	497	4.5	81.7	363	632
	Skeena	0	0	204	0	0	1	206	1.8	64.7	99	312
	Tahltan	102	6,830	0	489	0	40	7,460	67	147.3	7,218	7,702
	Stikine	0	0	0	0	88	0	88	0.8	50.7	5	172
	Tuya	248	1,476	0	0	0	9	1,733	15.6	98	1,572	1,894
	Total	441	9,724	294	529	88	59	11,134				
Week 26	**Alaska I**	264	360	208	100	0	2	935	4.2	241.8	537	1,332
6/24–6/30	**Alaska II**	0	2,535	0	0	0	5	2,541	11.5	284.4	2,073	3,009
	Nass	0	1,255	0	0	0	3	1,258	5.7	177.3	966	1,549
	Skeena	0	0	477	0	0	1	478	2.2	123.7	275	682
	Tahltan	295	11,204	0	1,225	0	27	12,751	57.6	284.4	12,283	13,219
	Stikine	0	0	0	0	229	0	229	1	101.8	61	396
	Tuya	720	3,201	0	0	0	8	3,929	17.8	197.9	3,604	4,255
	Total	1,280	18,555	686	1,325	229	46	22,120				
Week 27	**Alaska I**	33	391	261	156	0	8	850	5.8	156.6	593	1,108
7/01–7/07	**Alaska II**	0	1,352	0	0	0	13	1,365	9.3	170.9	1,084	1,646
	Nass	755	1,186	0	0	0	19	1,959	13.4	176.6	1,669	2,250
	Skeena	0	0	603	0	0	6	609	4.2	137.8	383	836
	Tahltan	50	5,950	0	845	0	66	6,910	47.2	236	6,522	7,298
	Stikine	0	0	0	0	273	0	273	1.9	110.6	91	455
	Tuya	664	1,998	0	0	0	26	2,687	18.3	141	2,455	2,919
	Total	1,502	10,877	865	1,001	273	137	14,654				
Week 28	**Alaska I**	66	1,750	61	112	0	5	1,994	21.8	84.1	1,856	2,132
7/08–7/14	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	421	1,220	0	0	0	4	1,646	18	112.2	1,461	1,831
	Skeena	58	0	141	0	0	1	199	2.2	78.7	69	328
	Tahltan	207	2,701	0	605	0	9	3,522	38.4	134	3,301	3,742
	Stikine	0	0	0	0	515	0	515	5.6	104.5	343	687
	Tuya	570	713	0	0	0	3	1,286	14	90.3	1,138	1,435
	Total	1,322	6,384	202	717	515	22	9,162				
Week 29	**Alaska I**	10	691	59	127	0	11	898	15.2	77.5	770	1,025
7/15–7/21	**Alaska II**	0	905	0	0	0	11	915	15.5	87.2	772	1,059
	Nass	90	1,033	40	77	0	15	1,255	21.3	75.5	1,131	1,379
	Skeena	104	0	58	92	0	3	258	4.4	61.5	157	359
	Tahltan	361	1,033	0	208	0	19	1,621	27.5	76.7	1,495	1,747
	Stikine	0	0	195	0	218	2	416	7	72.5	297	535
	Tuya	224	305	0	0	0	6	536	9.1	47	458	613
	Total	790	3,966	353	504	218	67	5,899				

-continued-

Table 9.–Page 2 of 2.

Date	Group	Catch By Age Class						Total	Percent	SE	90% CI	
		1.2	1.3	2.2	2.3	0	Other				Lower	Upper
Week 30	**Alaska I**	80	610	22	99	0	3	815	24.7	45	741	889
7/22–7/28	**Alaska II**	0	333	0	0	0	1	334	10.1	47.5	256	412
	Nass	0	678	15	60	0	3	755	22.9	39	691	819
	Skeena	6	0	22	72	0	0	100	3	33.8	45	156
	Tahltan	15	527	0	162	0	3	707	21.4	39.9	642	773
	Stikine	220	0	72	0	131	1	424	12.8	60.2	325	523
	Tuya	0	163	0	0	0	1	164	5	17.5	135	193
	Total	322	2,311	131	393	131	12	3,300				
Week 31	**Alaska I**	28	231	9	104	0	0	371	17.6	38.9	307	435
7/29–8/04	**Alaska II**	0	175	0	0	0	0	175	8.3	32.9	121	229
	Nass	0	25	6	0	0	0	31	1.4	14.9	6	55
	Skeena	2	0	8	11	0	0	21	1	15.7	-4	47
	Tahltan	5	134	0	14	0	0	154	7.3	49	73	234
	Stikine	77	1,068	28	67	123	0	1,364	64.5	61.7	1,262	1,465
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	113	1,633	51	195	123	0	2,116				
Week 32	**Alaska I**	3	48	5	92	0	3	151	17.4	16.9	123	179
8/05–8/11	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	23	3	0	0	0	27	3.1	7.2	15	38
	Skeena	0	2	5	9	0	0	16	1.9	14.7	-8	40
	Tahltan	1	0	0	12	0	0	13	1.5	42	-56	82
	Stikine	9	525	15	59	42	10	662	76.1	52	576	747
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	14	598	28	174	42	14	869				
Week 33	**Alaska I**	0	38	0	0	0	0	38	8	5	30	47
8/12–8/18	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	18	0	0	0	0	18	3.8	5.5	9	27
	Skeena	0	1	0	0	0	0	1	0.3	5	-7	10
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	0	420	0	0	0	0	420	87.8	8.2	406	433
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	0	478	0	0	0	0	478				
Week 34	**Alaska I**	0	13	0	0	0	0	13	7	2.6	9	17
8/19–8/25	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	6	0	0	0	0	6	3.4	2.1	3	10
	Skeena	0	0	0	0	0	0	0	0.2	1.7	-2	3
	Tahltan	0	0	0	0	0	0	0	0	0	0	0
	Stikine	0	145	0	0	24	0	169	89.4	4	162	176
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	0	165	0	0	24	0	189				
Week 35–39[b]	**Alaska I**	2	8	0	56	0	0	67	30.4	10.4	50	84
8/26–9/29	**Alaska II**	0	0	0	0	0	0	0	0	0	0	0
	Nass	0	4	0	0	0	0	4	1.8	1.5	2	6
	Skeena	0	0	0	6	0	0	6	2.8	8	-7	19
	Tahltan	0	0	0	8	0	0	8	3.6	25.3	-34	50
	Stikine	6	93	0	36	0	0	134	61.3	31.1	83	185
	Tuya	0	0	0	0	0	0	0	0	0	0	0
	Total	8	105	0	105	0	0	219				
Total	**Alaska I**	579	4,141	715	887	0	33	6,354	9	318.8	5,830	6,879
	Alaska II	0	6,263	0	0	0	35	6,299	8.9	356.5	5,712	6,885
	Nass	1,266	5,965	64	136	0	46	7,478	10.6	299	6,986	7,970
	Skeena	171	4	1,519	190	0	12	1,896	2.7	223.9	1,528	2,264
	Tahltan	1,037	28,671	0	3,568	0	163	33,439	47.4	434.3	32,724	34,153
	Stikine	312	2,251	311	162	1,666	14	4,716	6.7	229.7	4,338	5,094
	Tuya	2,426	7,919	0	0	0	53	10,398	14.7	281.6	9,935	10,862
	Total	5,790	55,214	2,609	4,944	1,666	356	70,580				

[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.

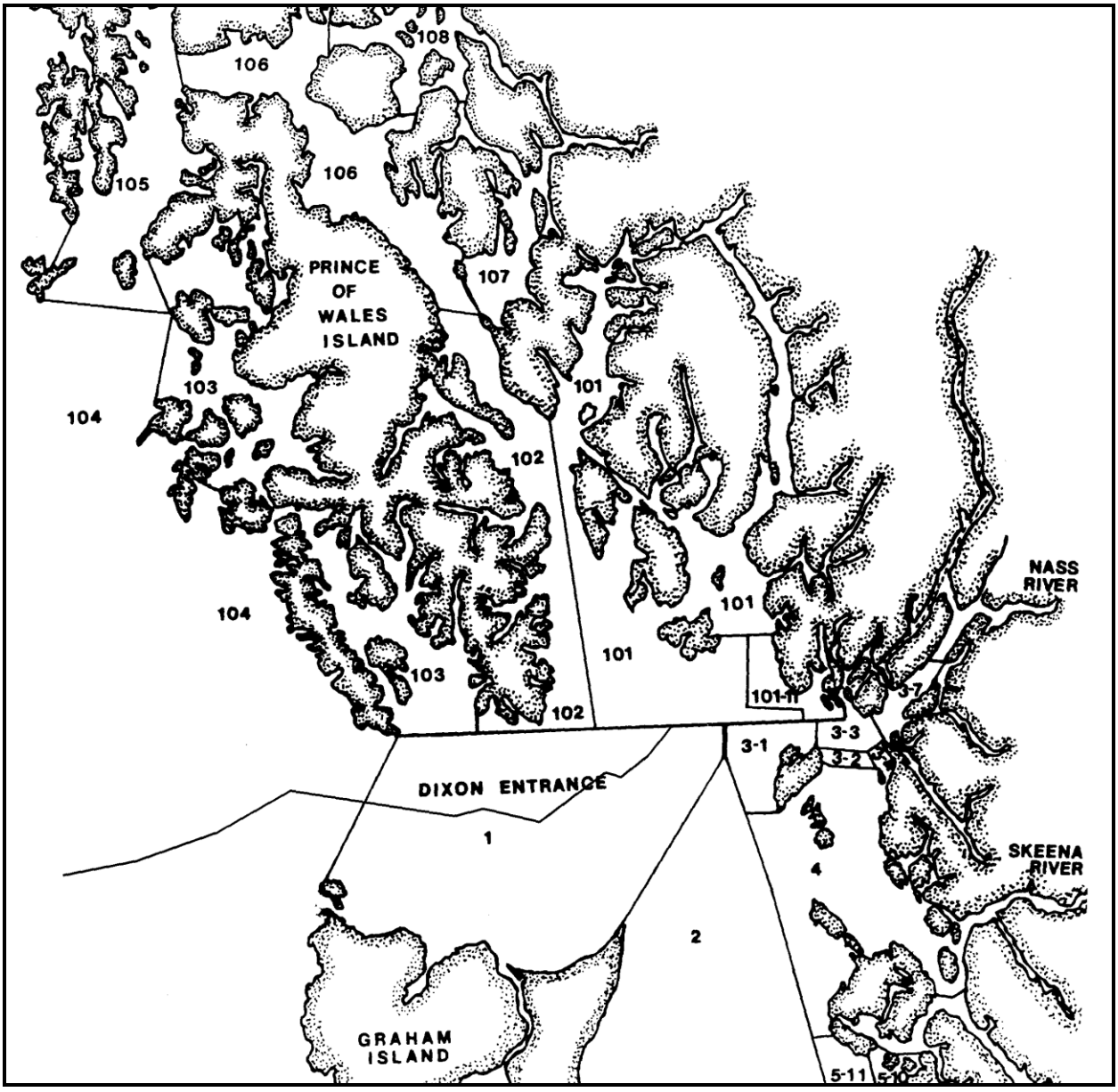

Figure 1.–Fishery management districts in southern Southeast Alaska and northern British Columbia waters.

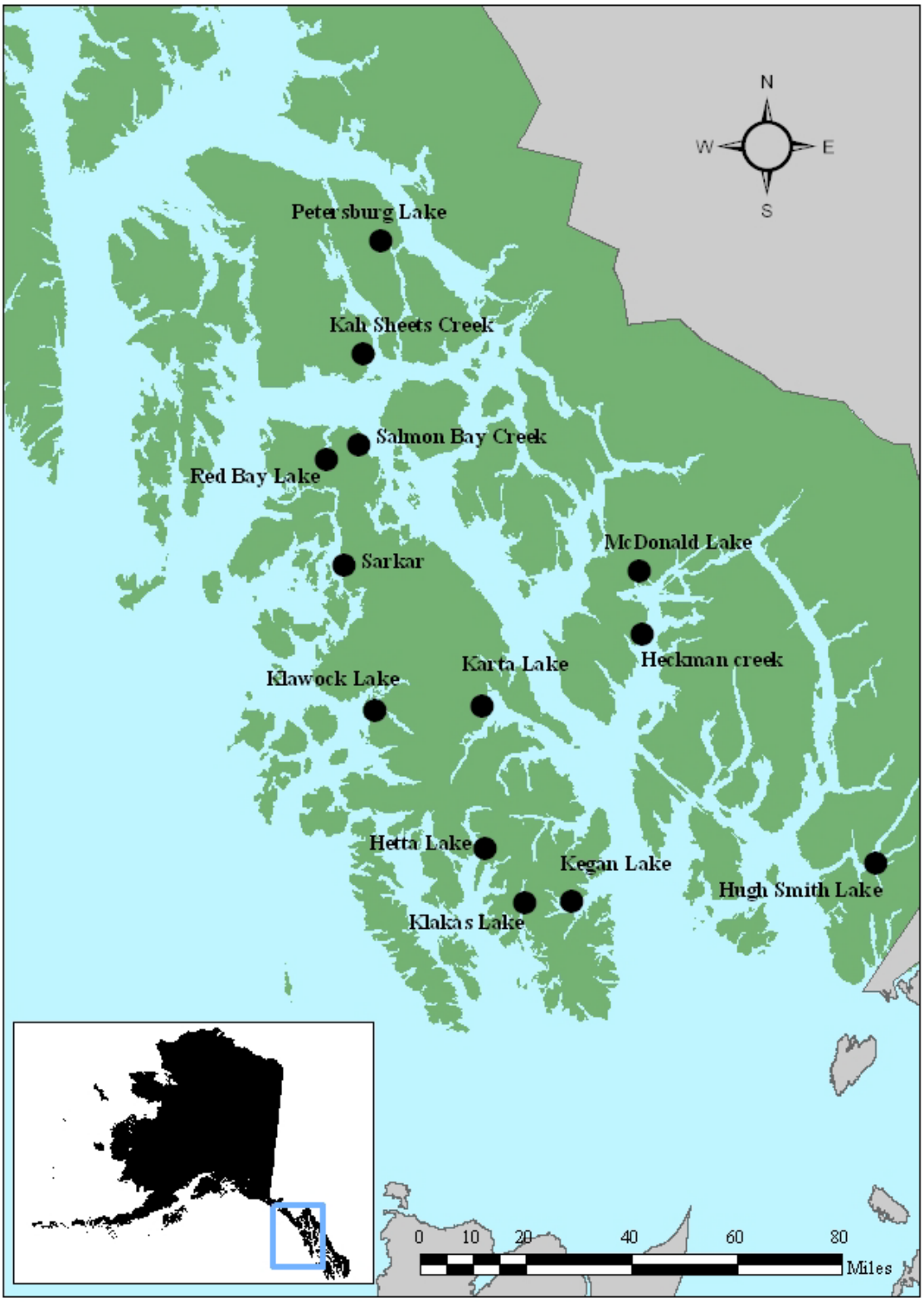

Figure 2.–Major sockeye salmon systems of Southeast Alaska sampled for scales used in scale pattern analysis stock discrimination studies.

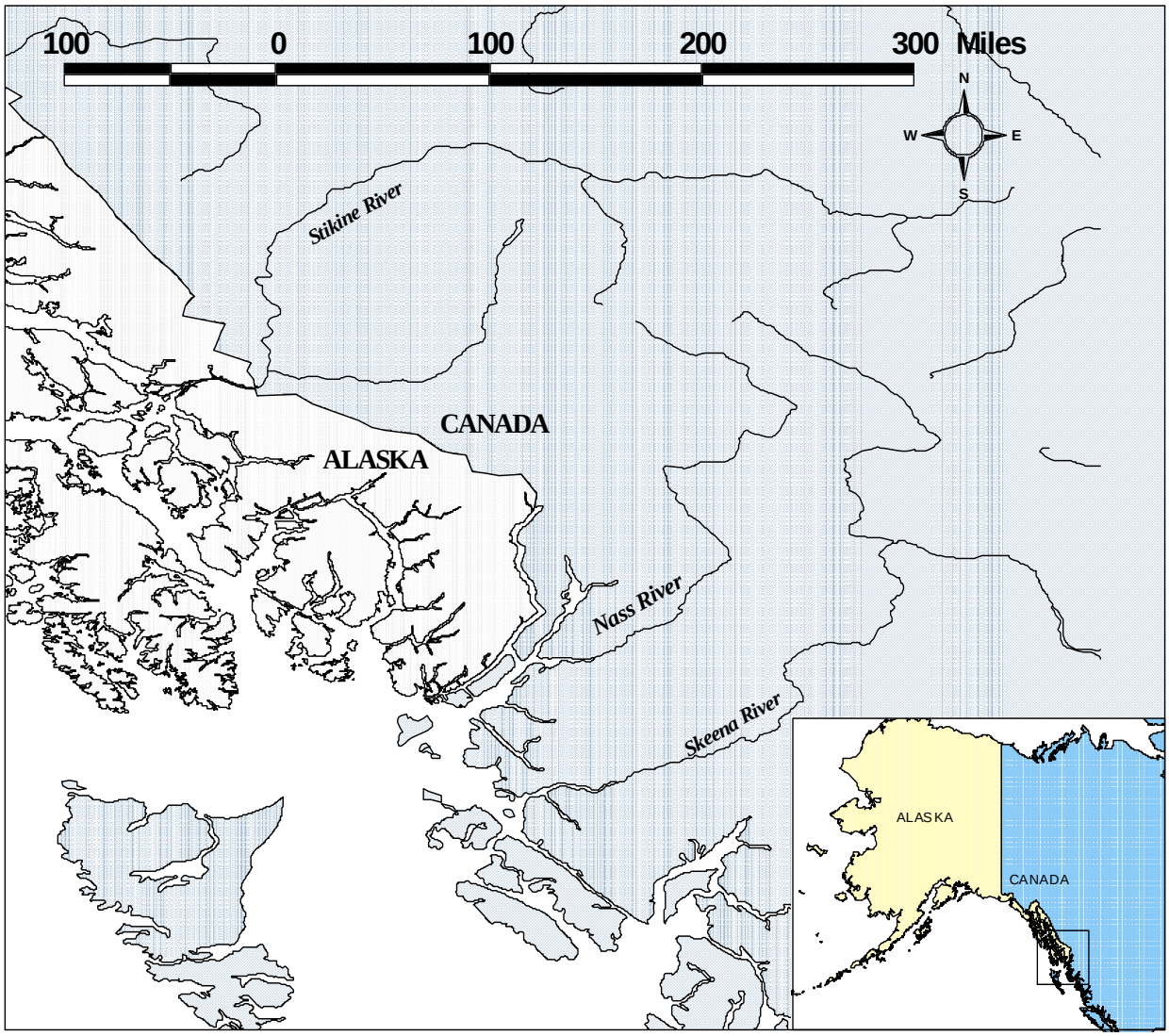

Figure 3.–The Canadian Nass and Skeena Rivers and the transboundary Stikine River.

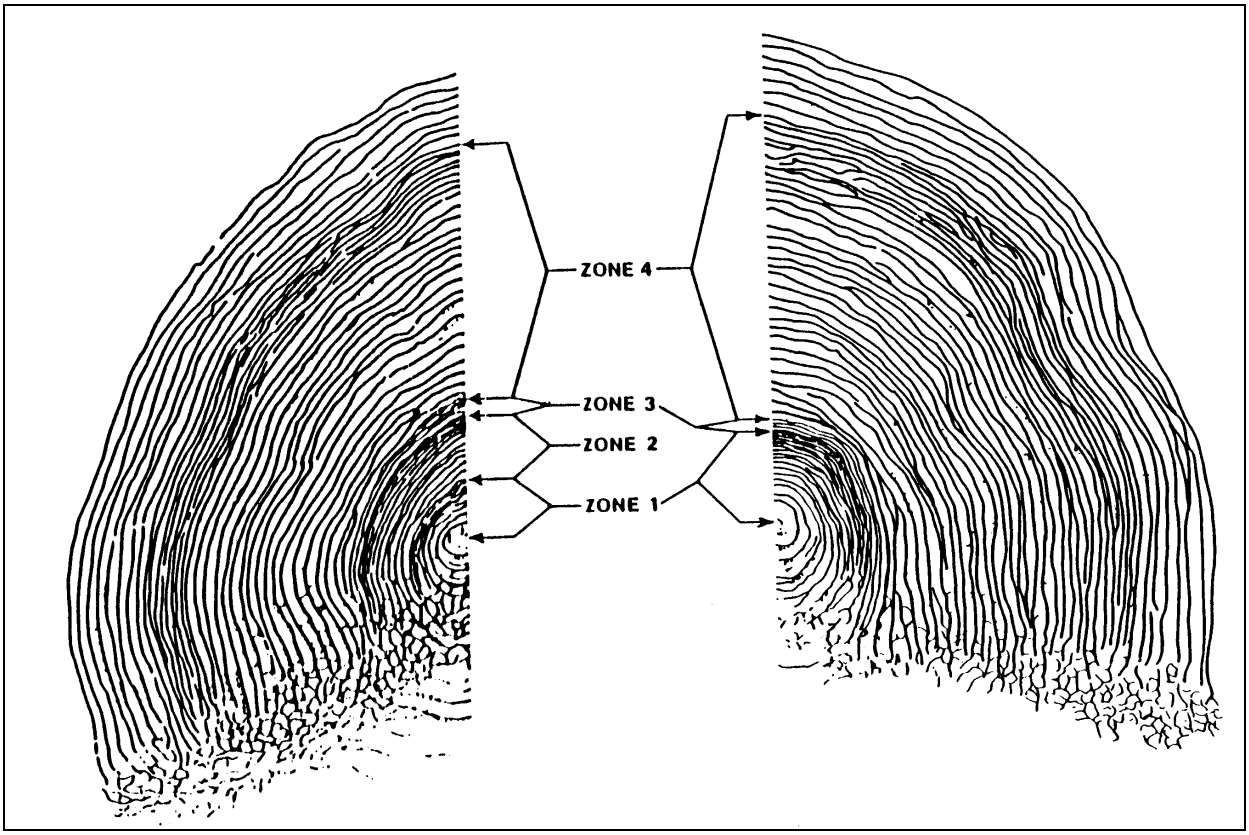

Figure 4.–Typical scales with two and one freshwater growth zones showing the zones used for scale pattern analysis.

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[a]		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, 2007.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix				
				True Stock	Classified As (number and percent)			
Age Class	Run	Variable	F-Statistic		Alaska	Nass	Skeena	Total
12	Total	z5	221.17	**Alaska**	196	39	13	
	Season	Z71	50.30		79.03%	15.73%	5.24%	248
		Z106	28.55	**Nass**	12	28	21	
		Z84	12.82		19.67%	45.90%	34.43%	61
				Skeena	6	39	150	
					3.08%	20.00%	76.92%	195
				Total	214	106	184	504
13	Total	z5	232.85	**Alaska**	166	14	4	
	Season	z80	120.04		90.22%	7.61%	2.17%	184
		z88	33.96	**Nass**	23	125	48	
		z27	19.70		11.73%	63.78%	24.49%	196
		z105	8.03	**Skeena**	7	40	152	
					3.52%	20.10%	76.38%	199
				Total	196	179	204	579
22	Total	z4	128.55	**Alaska**	58	9	2	
	Season	z66	44.55		84.06%	13.04%	2.90%	69
		z36	18.47	**Nass**	8	159	17	
		z87	14.39		4.35%	86.41%	9.24%	184
		z27	11.70	**Skeena**	0	3	19	
					0%	13.64%	86.36%	22
				Total	66	171	38	275
23	Total	z27	179.28	**Alaska**	127	12	10	
	Season	z87	36.25		85.23%	8.05%	6.71%	149
		z58	21.47	**Nass**	12	141	34	
		z32	24.38		6.42%	75.40%	18.18%	187
				Skeena	9	31	45	
					10.59%	36.47%	52.94%	85
				Total	148	184	89	421

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, 2007.

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	117.27	Alaska	148	21	17	8	
	Season	z71	61.48		76.29%	10.82%	8.76%	4.12%	194
		z76	19.73	Fraser	28	86	39	24	
		z86	16.05		15.82%	48.59%	22.03%	13.56%	177
		z84	10.94	Nass	10	12	21	17	
		z75	6.75		16.67%	20.00%	35.00%	28.33%	60
		z73	4.34	Skeena	4	21	32	138	
					2.05%	10.77%	16.41%	70.77%	195
				Total	190	140	109	187	626
13	Total	z5	191.24	Alaska	180	13	17	1	
	Season	z80	113.02		85.31%	6.16%	8.06%	0.47%	211
		z2	44.58	Fraser	6	119	31	14	
		z88	47.57		3.53%	70.00%	18.24%	8.24%	170
		z85	36.56	Nass	18	31	105	42	
					9.18%	15.82%	53.57%	21.43%	196
				Skeena	3	27	25	144	
					1.51%	13.57%	12.56%	72.36%	199
				Total	207	190	178	201	776
22	Total	z4	136.82	Alaska	70		8	2	
	Season	z87	15.77		87.50%		10.00%	2.50%	80
		z27	10.59	Nass	17		129	38	
		z106	10.35		9.24%		70.11%	20.65%	184
		z70	10.31	Skeena	0		8	16	
					0.00%		33.33%	66.67%	24
				Total	87		145	56	288
23	Total	z27	202.56	Alaska	153		15	35	
	Season	z87	26.71		75.37%		7.39%	17.24%	203
		z77	13.01	Nass	5		127	50	
		z4	8.51		2.75%		69.78%	27.47%	182
		z1	7.34	Skeena	15		27	42	
		z2	5.11		17.86%		32.14%	50.00%	84
		z86	4.38	Total	173		169	127	469

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, 2007.

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		z5	91.87	Alaska I		145	24	1	8	16	2	
		z71	24.12			73.98%	12.24%	0.51%	4.08%	8.16%	1.02%	196
		z2	15.43	Nass		10	26	10	4	7	3	
		z84	9.68			16.67%	43.33%	16.67%	6.67%	11.67%	5.00%	60
		z77	8.43	Skeena		2	28	109	20	24	12	
		z70	4.65			1.03%	14.36%	55.90%	10.26%	12.31%	6.15%	195
		z86	6.84	Stikine*		35	21	24	19	52	82	
						15.02%	9.01%	10.30%	8.15%	22.32%	35.19%	233
				Tahltan		4	4	7	6	23	1	
						8.89%	8.89%	15.56%	13.33%	51.11%	2.22%	45
				Tuya		0	1	3	3	3	14	
						0.00	4.17%	12.50%	12.50%	12.50%	58.33%	24
				Total		196	104	154	60	125	114	753
13		z5	138.14	McDonald	80	62	21	0	13	13	1	
		z27	100.02		42.11	32.63	11.05	0.00	6.84	6.84	0.53	190
		z88	52.97	Alaska I	41	111	4	2	25	17	2	
		z80	33.67		20.30	54.95	1.98	0.99	12.38	8.42	0.99	202
		z28	15.71	Nass	11	6	86	37	25	16	15	
		z105	13.81		5.61	3.06	43.88	18.88	12.76	8.16	7.65	196
				Skeena	8	0	22	109	0	17	42	
					4.04%	0.00%	11.11%	55.05%	0.00%	8.59%	21.21%	198
				Stikine*	21	30	11	17	135	19	46	
					7.53%	10.75%	3.94%	6.09%	48.39%	6.81%	16.49%	279
				Tahltan	9	12	7	26	1	138	13	
					4.37%	5.83%	3.40%	12.62%	0.49%	66.99%	6.31%	206
				Tuya	1	0	2	22	0	9	56	
					1.11%	0.00	2.22%	24.44%	0.00%	10.00%	62.22%	90
				Total	171	221	153	213	199	229	175	1361

-continued-

Appendix D.–Page 2 of 2.

Age-Specific Model Constructed		Stepwise Variable Selection		Misclassification Matrix							
					Classified As (number and percent)						Total
Age Class	Timing	Variable	F-Statistic	True Stock	Alaska II	Alaska I	Nass	Skeena	Stikine*	Tahltan	Tuya	
22	Total	z5	63.45	Alaska I		63	12	2	1	2	0	
	Season	z71	49.60			78.75%	15.00%	2.50%	1.25%	2.50%	0.00%	80
		z2	37.21	Nass		8	149	21	4	2	0	
		z57	14.83			4.35%	80.98%	11.41%	2.17%	1.09%	0.00%	184
		z66	9.52	Skeena		0	7	15	0	0	2	
		z82	7.47			0.00%	29.17%	62.50%	0.00%	0.00%	8.33%	24
		z1	6.56	Stikine		2	2	6	24	8	15	
						3.51%	3.51%	10.53%	42.11%	14.4%	26.32%	57
				Tahltan		0	0	1	0	7	0	
						0.00%	0.00%	12.50%	0.00%	87.50%	0.00%	8
				Tuya		0	0	0	3	1	4	
						0.00%	0.00%	0.00%	37.50%	12.50%	50.00%	8
				Total		73	170	45	32	20	21	361
23	Total	z27	67.75	Alaska I		120	14	8	8	5	7	
	Season	z88	41.15			74.07%	8.64%	4.94%	4.94%	3.09%	4.32%	162
		z58	10.60	Nass		13	131	23	7	4	5	
		z32	11.93			7.10%	71.58%	12.57%	3.83%	2.19%	2.73%	183
		z83	9.08	Skeena		9	23	17	9	14	13	
		z73	9.21			10.59%	27.06%	20.00%	10.59%	16.47%	15.29%	85
		z5	7.28	Stikine*		8	4	8	22	26	7	
		z28	6.01			10.67%	5.33%	10.67%	29.33%	34.67%	9.33%	75
				Tahltan		2	4	7	16	21	7	
						3.51%	7.02%	12.28%	28.07%	36.84%	12.28%	57
				Tuya		0	0	1	0	0	0	
						0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	1
				Total		152	176	64	62	70	39	563