

PSC Northern Fund Final Report

Project Number: NF-2007-I-23 (ADFG identifier: 11360648)

Project Title: Chinook salmon stock composition of Southeast Alaska fisheries, 2008

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Duration of Project: Start date: July 1, 2007 End Date: June 30, 2009

Abstract:

Since 1999, the Alaska Department of Fish and Game (ADFG) has used genetic stock identification (GSI) to estimate the stock composition of Chinook salmon harvests in Southeast Alaska (SEAK) commercial and sport fisheries. This project continued the stock identification of these fisheries in 2007 and 2008 by screening 13 microsatellite markers in 8,000 Chinook salmon collected from Southeast Alaska troll, directed net, and sport fisheries. These estimates will provide an independent estimate of the stock composition of the harvests for comparison with estimates provided by coded-wire tag data and the PSC Chinook salmon model.

Introduction:

The use of genetic stock identification to estimate mixture components of Chinook salmon harvests is well established in the scientific literature (e.g. Marshall et al. 1991; Miller et al. 1993). Between 1999 and 2003, the State of Alaska used genetic stock identification based on a coastwide allozyme database (Teel et al. 1999) to estimate the composition of the commercial troll fishery harvest (Crane et al. 2000, Templin et al. *in revision*). At the same time, samples were collected from sublegal-sized Chinook salmon encountered in the summer troll fishery, providing important information for evaluating assumptions of stock-specific survival rates. Initial estimates demonstrated that the stock composition of the sublegal encounters was substantially different than assumptions used for management purposes (Bloomquist and Carlile 2002, Templin et al. *in review*).

Recently the Chinook Technical Committee (CTC) of the Pacific Salmon Commission (PSC) has explored the inclusion of genetic stock identification estimates as part of the decision-making process. To make this possible, the Genetic Analysis of Pacific Salmonids (GAPS), a cooperative project among eight laboratories to develop a standardized DNA database for stock identification of Chinook salmon was funded by Letter of Agreement. This process began in 2002, and a standardized baseline became available during the summer of 2005 (Seeb et al. 2007). This baseline contains allele frequencies at 13 microsatellite loci (Table 1) from 110 populations contributing to PSC fisheries, ranging from the Situk River in Alaska to the Central Valley of California. Initial results indicate that 44 regional groups can be identified in mixtures with acceptable accuracy and precision (Table 2). More populations have been added to the baseline, extending and deepening its coverage (Appendix 1).

Beginning in 2003 genetic stock identification was extended to cover every fishery harvesting Chinook salmon in Southeast Alaska waters for a period of two years with the intent to use the recently-developed GAPS baseline of DNA-markers. Since then, sampling of legal and sublegal

Chinook salmon from the troll, seine, gillnet, and sport fishery harvests has been accomplished through various funding sources. This project extends genetic stock identification coverage of the troll and sport fishery harvests of Chinook salmon in SEAK until the close of the summer troll fishery in 2008. Stock composition estimates will also be provided for the District 108 and 111 directed fisheries. This project will provide estimates of the stock composition of Chinook salmon harvests in selected SEAK fisheries for each stock group present for an additional year.

Objectives:

The goal of this project is to estimate the stock composition of the Southeast Alaska salmon troll, sport, and directed fisheries using genetic stock identification of samples collected in 2007 and 2008. This will be accomplished by meeting the following objectives:

- I. Sample Chinook salmon harvested in the following fisheries
 1. Troll fishery – Sample individuals from the seasonal troll fishery harvests (winter – October to April, spring – April to June, and summer – July to September) beginning October 2007 through September 2008 (Table 3).
 2. Directed fisheries – Sample individuals from gillnet fisheries operating in districts 108 and 111 between April and June 2008 (Table 4).
 3. Sport fishery – Sample individuals from the sport fishery harvests between April and September 2008, including sublegal-sized Chinook incidentally caught in this fishery (Table 5).
- II. Assay individual genotypes from 8,000 Chinook salmon at the DNA loci in the current CTC-supported baseline of genetic markers. These individuals will be subsampled from the available samples to represent the harvest in regional fisheries:
 1. Troll fishery – Analyze 2,800 legal-sized individuals.
 2. Directed fisheries – Analyze 800 individuals; 400 from the gillnet fisheries in each of districts 108 and 111
 3. Sport fishery – Analyze 2,000 legal-sized and 400 sublegal-sized individuals.
- III. Estimate the relative stock composition of the Southeast Alaska fisheries using genetic stock identification such that the estimated stock composition is within 5% of the true value 90% of the time.

Approach:

Fishery sampling

Chinook salmon were collected from commercial troll and gillnet landings at processors in Southeast Alaska. Sublegal-sized Chinook encountered in the troll fishery were collected as part of the logbook program. Both legal- and sublegal-sized Chinook salmon were sampled in the sport fishery by onboard participants and by creel census samplers. Sampling goals are listed in Tables 3, 4, and 5.

Chinook salmon were selected for sampling without regard to size, sex, adipose fin-clip, or position in the hold. Axillary process tissue was dissected from sampled fish and placed in alcohol in 2ml cryovials. Along with each individual sampled, basic information was recorded such as size, sex, date, vessel, and age (from scale samples). At the end of the fishery, samples were transported back to the ADF&G Gene Conservation Laboratory, Anchorage, for analysis. Associated data was archived as part of the ASL database maintained by ADF&G.

Representative tissue collections of individuals for mixture analysis were created by subsampling individuals from the collected samples in proportions weighted by harvest in the ports and quadrants that comprise the mixture composition to be estimated. Where sufficient samples exist, the collections were randomly subsampled proportional to harvests. Target mixture sample

sizes were 200, 300, or 400 individuals to achieve acceptable levels of accuracy and precision. However, due to the vagaries of fisheries and fishery sampling, target sample sizes may not have been available for every time and space stratum. Sample sizes smaller than the target were analyzed, but strata represented by fewer than 100 individuals were pooled into larger groups for analysis.

Laboratory analyses

Samples were assayed for DNA loci developed by the Genetic Analysis of Pacific Salmon group funded by the Pacific Salmon Commission for use in Treaty fisheries (Table 1). DNA was extracted from fin and muscle tissue using DNeasy 96 tissue kits (Qiagen). Polymerase chain reaction (PCR) was carried out in 10ul reaction volumes (10mM Tris-HCl, 50mM KCl, 0.2 mM each dNTP, 0.5 units Taq DNA polymerase (Promega, Madison, WI)) using an Applied Biosystems (AB) thermocycler. Primer concentrations, MgCl concentrations and the corresponding annealing temperature for each primer are available upon request. PCR Fragment analysis was done on an AB 3730 capillary DNA sequencer. 0.5ul PCR product was loaded into a 96 well reaction plate along with 0.5ul of GS500LIZ (AB) internal lane size standard and 9.0ul of Hi-Di (AB). PCR bands were visualized and separated into bin sets using AB GeneMapper software v4.0. All laboratory analyses followed protocols accepted by the Chinook Technical Committee of the Pacific Salmon Commission. The data collected were individual genotypes for each locus. Genotype data are stored in an *Oracle* database (*LOKI*) on a network drive maintained by ADF&G computer services.

Error checking and data storage

Several measures were implemented to insure the quality of data produced.

- I. Sample sheets which contain information for each plate of extracted DNA (95 individuals per plate) in the lab were created in a standard format. Once DNA was extracted or obtained from an outside source, an *Excel* file was created containing sample information for each well on that plate. This sample sheet followed the plate through all phases of a project, minimizing the risk of misidentification of samples through human error.
- II. Genotypes were assigned to individuals using a system in which two observers scored the genotype data. Discrepancies between the scores were then resolved with one of three possible outcomes: 1) one score is accepted and the other rejected, 2) both scores are rejected and the score is blanked, or 3) the sample is rerun.
- III. Approximately eight percent of the individuals, eight samples from each 96-well DNA extraction plate, will be reanalyzed for all loci. This insures that the data are reproducible and any errors created from the processing of individual plates are corrected.
- IV. The final data will be checked for duplicated multi-locus genotypes for indication of errors caused prior to extraction of the DNA. When duplicate genotypes are found, the genotype is attributed to the first individual and subsequent individuals with the same genotype are removed from the analysis.

Mixture Analysis

Stock composition estimates for the stock groups identified by the ongoing power analysis were generated using BAYES (Pella and Masuda 2001) which employs a Bayesian algorithm. For each estimation procedure, genotypes were removed from the estimation procedure if their probability of occurring was near zero. For these cases, the mixture estimates have an unknown group containing the percent of the mixture that was removed. Further, we deleted any individual missing data at five or more loci. Individual population or stock estimates will first be calculated and then summed into reporting regions. Three Monte Carlo Markov chains of estimates stock composition were run, with the initial starting values randomly generated for

each population for each chain. A flat prior distribution was used, in which each reporting group was given equal contribution. The sum of the prior parameters equaled one, thus minimizing the overall influence of the prior distribution. The chains were run until convergence was reached when the shrink factor was < 1.2 for the three chains (Pella and Masuda 2001). The first half of each chain was discarded in order to dispose of the influence of the initial values. The remaining half was combined and treated as the posterior distribution of the stock composition estimates. Posterior means were used as point estimates of stock composition.

Results/Findings:

Fishery sampling

A total of 3,628 Chinook salmon were sampled in Southeast Alaska troll fisheries during the 2008 PSC Accounting Year (Oct 2007 – Sept 2008; Table 3). A total of 1,481 Chinook salmon were sampled during the 2008 directed gillnet fisheries in districts 108 and 111 (Table 4). A total of 3,004 legal-sized and 436 sublegal-sized Chinook salmon were sampled from the 2008 sport fishery (Table 5). Sample goals were met for many but not all ports, but sample sizes were deemed sufficient for composition estimates.

Laboratory analyses

During quality control procedures a total of 704 fish were reanalyzed for all markers for a total of 9,152 comparisons. The few inconsistencies found ($< 0.5\%$ across all samples) were due to scoring errors caught during quality control procedures or due to poor tissue quality.

Mixture analysis

Stock composition estimates for each fishery stratum can be found in Tables 6-17. The most common stock group across all fisheries was the Andrew Creek stock group. Though more prevalent in fisheries that took place in the Northern Inside and Southern Inside quadrants, the Andrew Creek and Southern Southeast Alaska stock groups were present ($> 5\%$) in nearly every fishery. Fisheries that took place in the Northern Outside and Southern Outside quadrants typically had a greater variety of stock groups present. Summer sport and troll fisheries in these areas had a greater prevalence of non-Alaskan stock groups, especially the West Vancouver, South Thompson, Washington Coast, and Upper Columbia (Summer, Fall) stock groups. The Central British Columbia Coast and East Vancouver stock groups were present in the winter troll fisheries. Sport fishery harvest of sublegal-sized Chinook was comprised primarily of the Southern Southeast Alaska and Andrew Creek stock groups. As expected, gillnet and directed troll fisheries in Districts 108 and 111 were dominated by the Andrew Creek, Upper Stikine River, and Taku River stock groups.

Evaluation:

We accomplished the following:

- A total of 8,113 legal-sized and 436 sublegal-sized Chinook salmon were sampled during 2007-2008 fisheries. Sample goals were met for many but not all ports, but sample sizes were deemed sufficient for composition estimates.
- Samples of Chinook salmon were assayed for genotypes for the 13 microsatellite loci in the CTC standardized baseline, and quality control procedures revealed a low rate of inconsistencies.
- Mixture analyses estimated contributions of 44 stock groups of legal- and sublegal-sized Chinook salmon to ten troll, two directed, and seven sport fishery strata in Southeast Alaska in 2007-2008.

Project Products:

Results from this project will be presented to ADF&G Commercial Fisheries and Sport Fish management staff and will be presented to the Chinook Technical Committee. Publication in a peer-reviewed journal or agency report is expected in 2010.

Date Prepared: September 15, 2009

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Table 1. Microsatellite loci standardized for Chinook salmon among laboratories participating in the Genetic Analysis of Pacific Salmon project.

Locus	Primer Sequence (5' → 3')		Citation	Curator Agency ¹
	F > Forward, R > Reverse			
<i>Ots201b</i>	F- CAGGGCGTGACAATTATGC R- TGGACATCTGTGCGTTGC		OSU unpublished	ADFG
<i>Ots208b</i>	F- GGATGAACTGCAGCTTGTATG R- GGCAATCACATACTTCAACTTCC		Greig et al. 2003	CRITFC
<i>Ots211</i>	F - TAGGTTACTGCTTCCGTCAATG R - GAGAGGTGGTAGGATTTGCAG		Greig et al. 2003	ADFG
<i>Ots212</i>	F- TCTTTCCCTGTTCTCGCTTC R- CCGATGAAGAGCAGAAGAGAC		Greig et al. 2003	OSU
<i>Ogo4</i>	F- GTCGTCCTGGCATCAGCTA R- GAGTGGAGATGCAGCCAAAG		Olsen et al. 1998	WDFW
<i>Ogo2</i>	F- ACATCGCACACCATAAGCAT R- GTTTCTTCGACTGTTTCTCTGTGTTGAG		Olsen et al. 1998	ADFG
<i>Ots3M</i>	F- TGTCCTCACACTCTTTCAGGAG R- GAGAGTGCTGTCCAAAGGTGA		Banks et al. 1999	WDFW
<i>Ots213</i>	F- CCCTACTCATGTCTCTATTTGGTG R- AGCCAAGGCATTTCTAAGTGAC		Greig et al. 2003	OSU
<i>Omm1080</i>	F- GAGACTGACACGGGTATTGA R- GTTATGTTGTCATGCCTAGGG		Rexroad et al. 2001	SWFSC
<i>Ssa408UOS</i>	F- AATGGATTACGGGTACGTTAGACA R- CTCTTGTGCAGGTTCTTCATCTGT		Cairney et al. 2000	NWFSC
<i>Ots9</i>	F- ATCAGGGAAAGCTTTGGAGA R- CCCTCTGTTTCACAGCTAGCA		Banks et al. 1999	DFO
<i>OtsG474</i>	F- TTAGCTTTGGACATTTTATCACAC R- CCAGAGCAGGGACCAGAAC		Williamson et al. 2002	CRITFC
<i>Oki100</i>	F- CCAGCACTCTCACTATTT R- CCAGAGTAGTCATCTCTG		DFO unpublished	DFO

¹Laboratory abbreviations: OSU, Oregon State University; SWFSC, Southwest Fisheries Science Center – National Marine Fisheries Service; DFO, Department of Fisheries and Oceans Canada; NWFSC, Northwest Fisheries Science Center – National Marine Fisheries Service; CRITFC, Columbia River Inter-Tribal Fish Commission; ADFG, Alaska Department of Fish & Game; WDFW, Washington Department of Fish & Wildlife.

Table 2.—Broad-scale reporting regions for the Chinook salmon coastwide baseline (Seeb et al. 2007) used to report stock composition of Southeast Alaska troll fishery harvests. Population numbers are listed in Appendix 1.

	Reporting regions	Population numbers
1	Central Valley fall	1-4
2	Central Valley spring	5-8
3	Central Valley winter	9
4	California Coast	10-11
5	Klamath River	12-14
6	N California/S Oregon Coast	15
7	Rogue River	16-17
8	Mid Oregon Coast	18-26
9	North Oregon Coast	27-36
10	Lower Columbia R. spring	37-39
11	Lower Columbia R. fall	40-42
12	Willamette River	43-44
13	Mid Columbia R. tule fall	45
14	Mid and Upper Columbia R. spring	46-51
15	Deschutes River fall	52-53
16	Upper Columbia R. summer/fall	54-57
17	Snake River fall	58
18	Snake River spring/summer	59-66
19	Washington Coast	67-73
20	Hood Canal	74-75
21	South Puget Sound	76-81
22	North Puget Sound	82-96
23	Jaun de Fuca	97-99
24	Lower Fraser River	100-102
25	Lower Thompson River	103-104
26	South Thompson River	105-107
27	North Thompson River	108-111
28	Mid Fraser River	112-116
29	Upper Fraser River	117-120
30	East Vancouver Island	121-125
31	West Vancouver Island	126-132
32	S BC Mainland	133-134
33	Central BC Coast	135-137
34	Lower Skeena River	138-139
35	Upper Skeena River	140-142
36	Nass River	143-146
37	Upper Stikine River	147-151
38	Taku River	152-158
39	Southern Southeast Alaska	159-164
40	Andrews Creek	165-168
41	N. Southeast Alaska	169
42	Chilkat River	170-171
43	Alsek River	172-175
44	Situk River	176

Table 3.– Number of legal-sized Chinook salmon sampled from the troll fishery harvest at ports in Southeast Alaska, 2007-2008. Accounting years begin October 1 and end September 30 of the following year.

Season	Period	Port	Quadrants Represented	Samples		
				Goal	Actual	
Winter	Early (Oct 11-Dec 31, 2007)	Sitka	NO	400	154	
		Yakutat	NO	30	25	
		Juneau	NO, NI	30	30	
		Ketchikan	SI, SO	40	31	
		Craig	SO	20	5	
		Petersburg	NI, SI	25	25	
		Total		545	270	
	Late (Jan 1 - Apr 15, 2008)	Sitka	NO	350	350	
		Yakutat	NO	30	30	
		Juneau	NO, NI	30	30	
		Ketchikan	SI, SO	60	60	
		Craig	SO	20	20	
		Petersburg	NI, SI	40	40	
		Total		530	530	
	Spring	(April 22 - June 30, 2008)	Sitka	NO	300	300
			Hoonah	NI	75	75
			Petersburg	NI, SI	100	70
			Wrangell	NI, SI	300	30
			Ketchikan	SI	200	200
			Juneau	NO, NI	200	147
Total				1175	822	
Summer	(July 1 – Sept 30, 2008) Retention Periods 1 & 2	Yakutat	NO	60	60	
		Pelican	NO	60	140	
		Elfin Cove	NO	60	0	
		Sitka	NO	600	1018	
		Hoonah	NO	80	80	
		Petersburg	NI, SI	120	82	
		Port Alexander	NO, NI	120	62	
		Craig	SO	200	335	
		Ketchikan	SI, SO	150	229	
		Total		800	2006	
TOTAL				3700	3628	

Table 4.— Sampling goals by port from gillnet harvests in the directed Chinook salmon fisheries in districts 108 and 111 during 2008.

District	Port	Samples	
		Goal	Actual
108	Petersburg	440	384
	Wrangell	880	845
	Total	1320	1229
111	Juneau	880	252
TOTAL		2200	1481

Table 5.— Numbers of legal- and sublegal-size Chinook salmon sampled in Southeast Alaska sport fisheries during the spring and summer of 2008.

Port	Samples	
	Goals	Actual
<i>Legal</i>		
Juneau	600	599
Haines	15	10
Skagway	20	26
Glacier Bay	65	43
Sitka	600	821
Yakutat	75	71
Elfin Cove	50	30
Craig	200	358
Petersburg	450	391
Wrangell	200	200
Ketchikan	600	455
Total	2875	3004
<i>Sublegal</i>		
Special Harvest		
Juneau	20	25
Skagway	20	0
Petersburg	25	3
Ketchikan	50	24
Total	115	52
Release		
Juneau	50	19
Sitka	120	166
Craig	30	15
Wrangell	50	14
Ketchikan	150	170
Total	400	384
Total	3390	3440

Table 6.—Estimated contributions of 44 stock groups of legal-sized Chinook salmon to winter troll fishery harvests in Southeast Alaska, 2007-2008. Sample sizes after weighting by quadrant and removal of impossible genotypes are indicated (N).

Region	Early Winter 2007			Late Winter 2008		
	N = 265			N = 299		
	Est.	SD	90% CI	Est.	SD	90% CI
1 Central Valley Fa	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
2 Central Valley Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3 Central Valley Wi	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
4 California Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
5 Kalamath R Basin	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6 Nor CA, Sou OR coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7 Rogue River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
8 Mid Oregon Coast	0.000	0.001	(0.000 - 0.001)	0.003	0.003	(0.000 - 0.010)
9 North OR Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
10 Lower Columbia Sp	0.000	0.001	(0.000 - 0.001)	0.001	0.002	(0.000 - 0.005)
11 Lower Columbia Fa	0.000	0.001	(0.000 - 0.001)	0.005	0.005	(0.000 - 0.015)
12 Willamette River	0.007	0.005	(0.001 - 0.018)	0.016	0.007	(0.006 - 0.030)
13 Mid Columbia tule	0.000	0.001	(0.000 - 0.000)	0.009	0.006	(0.002 - 0.020)
14 Mid and Upp Columbia	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15 Deschutes R fa	0.001	0.003	(0.000 - 0.006)	0.000	0.001	(0.000 - 0.001)
16 Upp Columbia Su Fa	0.104	0.020	(0.074 - 0.138)	0.053	0.014	(0.033 - 0.077)
17 Snake R fa	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
18 Snake River Sp Su	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
19 Washington Coast	0.008	0.006	(0.001 - 0.018)	0.007	0.006	(0.001 - 0.018)
20 Hood Canal	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.001)
21 South Puget Sound	0.001	0.002	(0.000 - 0.003)	0.009	0.006	(0.001 - 0.021)
22 North Puget Sound	0.076	0.018	(0.048 - 0.108)	0.009	0.007	(0.001 - 0.022)
23 Juan de Fuca	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
24 Lower Fraser	0.007	0.006	(0.001 - 0.018)	0.000	0.001	(0.000 - 0.000)
25 Lower Thompson	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26 South Thompson	0.012	0.008	(0.002 - 0.027)	0.059	0.014	(0.038 - 0.083)
27 North Thompson R	0.000	0.001	(0.000 - 0.000)	0.003	0.004	(0.000 - 0.011)
28 Mid Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
29 Upper Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
30 East Vancouver	0.167	0.024	(0.130 - 0.208)	0.057	0.014	(0.036 - 0.081)
31 West Vancouver	0.143	0.022	(0.109 - 0.181)	0.286	0.026	(0.243 - 0.330)
32 South BC Mainland	0.004	0.005	(0.000 - 0.015)	0.007	0.006	(0.001 - 0.018)
33 Central BC Coast	0.210	0.028	(0.166 - 0.257)	0.108	0.021	(0.077 - 0.144)
34 Lower Skeena	0.000	0.002	(0.000 - 0.002)	0.036	0.015	(0.014 - 0.063)
35 Upper Skeena	0.000	0.001	(0.000 - 0.000)	0.001	0.003	(0.000 - 0.003)
36 Nass River	0.001	0.003	(0.000 - 0.002)	0.002	0.004	(0.000 - 0.012)
37 Upper Stikine R	0.000	0.002	(0.000 - 0.002)	0.044	0.025	(0.011 - 0.091)
38 Taku River	0.000	0.001	(0.000 - 0.000)	0.045	0.019	(0.014 - 0.077)
39 S. Southeast AK	0.157	0.026	(0.115 - 0.201)	0.125	0.024	(0.088 - 0.165)
40 Andrew Creek	0.093	0.021	(0.060 - 0.130)	0.111	0.023	(0.076 - 0.150)
41 King Salmon	0.004	0.004	(0.000 - 0.011)	0.000	0.001	(0.000 - 0.000)
42 Chilkat R	0.004	0.004	(0.000 - 0.011)	0.000	0.001	(0.000 - 0.000)
43 Alsek R	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.010)
44 Situk R	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Table 7.—Estimated contributions of 44 stock groups of Chinook salmon to the harvest from the Northern Outside, Northern Inside and Southern Inside quadrants during the spring troll fishery in Southeast Alaska, 2008. Run timing components are abbreviated as Sp (spring), Su (summer), F (fall), and W (winter). Sample sizes after removal of impossible genotypes are indicated (N).

Region	Northern Outside N = 400			Northern Inside N = 145			Southern Inside N = 200		
	Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
1 Central Valley Fa	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.001)
2 Central Valley Sp	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3 Central Valley Wi	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
4 California Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
5 Kalamath R Basin	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6 North CA, South OR coast	0.001	0.002	(0.000 - 0.004)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7 Rogue River	0.000	0.000	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
8 Mid Oregon Coast	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)	0.001	0.003	(0.000 - 0.007)
9 North OR Coast	0.005	0.004	(0.000 - 0.013)	0.000	0.002	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.001)
10 Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
11 Lower Columbia Fa	0.010	0.005	(0.003 - 0.020)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
12 Willamette River	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
13 Mid Columbia tule	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
14 Mid and Upp Columbia	0.000	0.001	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15 Deschutes R fa	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.001)	0.000	0.002	(0.000 - 0.002)
16 Upp Columbia Su Fa	0.023	0.008	(0.011 - 0.037)	0.007	0.009	(0.000 - 0.025)	0.027	0.012	(0.010 - 0.050)
17 Snake R fa	0.001	0.002	(0.000 - 0.006)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.001)
18 Snake River Sp Su	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
19 Washington Coast	0.018	0.007	(0.008 - 0.031)	0.000	0.001	(0.000 - 0.000)	0.002	0.004	(0.000 - 0.010)
20 Hood Canal	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.001	0.003	(0.000 - 0.005)
21 South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.001	0.003	(0.000 - 0.006)
22 North Puget Sound	0.003	0.003	(0.000 - 0.009)	0.000	0.001	(0.000 - 0.001)	0.002	0.005	(0.000 - 0.012)
23 Juan de Fuca	0.003	0.003	(0.000 - 0.008)	0.000	0.002	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
24 Lower Fraser	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)	0.002	0.004	(0.000 - 0.011)
25 Lower Thompson	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26 South Thompson	0.078	0.014	(0.056 - 0.102)	0.110	0.027	(0.070 - 0.157)	0.042	0.015	(0.021 - 0.069)
27 North Thompson R	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
28 Mid Fraser	0.001	0.002	(0.000 - 0.006)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Region	Northern Outside N = 400			Northern Inside N = 145			Southern Inside N = 200		
	Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
29 Upper Fraser	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
30 East Vancouver	0.016	0.006	(0.007 - 0.027)	0.027	0.014	(0.009 - 0.052)	0.015	0.009	(0.004 - 0.031)
31 West Vancouver	0.161	0.019	(0.131 - 0.192)	0.014	0.010	(0.003 - 0.033)	0.029	0.012	(0.012 - 0.051)
32 South BC Mainland	0.000	0.000	(0.000 - 0.000)	0.002	0.005	(0.000 - 0.013)	0.013	0.009	(0.002 - 0.029)
33 Central BC Coast	0.029	0.009	(0.016 - 0.046)	0.010	0.010	(0.000 - 0.030)	0.019	0.012	(0.003 - 0.042)
34 Lower Skeena	0.008	0.007	(0.001 - 0.021)	0.000	0.002	(0.000 - 0.001)	0.006	0.006	(0.000 - 0.018)
35 Upper Skeena	0.018	0.008	(0.006 - 0.033)	0.000	0.002	(0.000 - 0.001)	0.003	0.006	(0.000 - 0.015)
36 Nass River	0.006	0.006	(0.000 - 0.017)	0.000	0.001	(0.000 - 0.001)	0.004	0.007	(0.000 - 0.018)
37 Upper Stikine R	0.020	0.023	(0.000 - 0.064)	0.057	0.035	(0.002 - 0.118)	0.081	0.028	(0.037 - 0.130)
38 Taku River	0.085	0.025	(0.043 - 0.124)	0.052	0.035	(0.006 - 0.118)	0.001	0.003	(0.000 - 0.002)
39 S. Southeast AK	0.065	0.017	(0.039 - 0.094)	0.241	0.042	(0.175 - 0.312)	0.559	0.042	(0.490 - 0.627)
40 Andrew Creek	0.438	0.028	(0.393 - 0.484)	0.466	0.047	(0.388 - 0.545)	0.190	0.033	(0.139 - 0.247)
41 King Salmon	0.000	0.000	(0.000 - 0.000)	0.007	0.007	(0.000 - 0.022)	0.000	0.001	(0.000 - 0.000)
42 Chilkat R	0.011	0.005	(0.004 - 0.021)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
43 Alsek R	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
44 Situk R	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Table 8.—Estimated contributions of 44 stock groups of legal-sized Chinook salmon encountered during each retention period of the summer troll fishery in Southeast Alaska, 2008. Sample sizes after removal of impossible genotypes are indicated (N).

Region	Retention Period 1			Retention Period 2		
	N = 394			N = 394		
	Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI
1 Central Valley Fa	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
2 Central Valley Sp	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
3 Central Valley Wi	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
4 California Coast	0.000	0.000	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.006)
5 Kalamath R Basin	0.000	0.000	(0.000 - 0.000)	0.002	0.002	(0.000 - 0.007)
6 N CA, S OR coast	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
7 Rogue River	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
8 Mid Oregon Coast	0.026	0.010	(0.012 - 0.043)	0.027	0.010	(0.012 - 0.045)
9 North OR Coast	0.058	0.014	(0.036 - 0.083)	0.076	0.015	(0.052 - 0.102)
10 Lower Columbia Sp	0.001	0.002	(0.000 - 0.005)	0.000	0.001	(0.000 - 0.001)
11 Lower Columbia Fa	0.031	0.010	(0.016 - 0.049)	0.015	0.007	(0.005 - 0.028)
12 Willamette River	0.000	0.001	(0.000 - 0.000)	0.006	0.004	(0.001 - 0.014)
13 Mid Columbia tule	0.000	0.000	(0.000 - 0.000)	0.008	0.005	(0.002 - 0.018)
14 Mid and Upp Columbia	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15 Deschutes R fa	0.009	0.012	(0.000 - 0.033)	0.003	0.006	(0.000 - 0.016)
16 Upp Columbia Su Fa	0.177	0.022	(0.141 - 0.215)	0.372	0.025	(0.331 - 0.414)
17 Snake R fa	0.012	0.010	(0.000 - 0.030)	0.000	0.001	(0.000 - 0.001)
18 Snake River Sp Su	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
19 Washington Coast	0.096	0.016	(0.071 - 0.123)	0.195	0.021	(0.162 - 0.231)
20 Hood Canal	0.001	0.002	(0.000 - 0.006)	0.000	0.000	(0.000 - 0.000)
21 South Puget Sound	0.002	0.003	(0.000 - 0.008)	0.000	0.000	(0.000 - 0.000)
22 North Puget Sound	0.010	0.006	(0.002 - 0.021)	0.007	0.005	(0.001 - 0.018)
23 Juan de Fuca	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
24 Lower Fraser	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.008)
25 Lower Thompson	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
26 South Thompson	0.267	0.023	(0.229 - 0.306)	0.045	0.011	(0.028 - 0.064)
27 North Thompson R	0.008	0.005	(0.002 - 0.018)	0.000	0.001	(0.000 - 0.000)
28 Mid Fraser	0.000	0.001	(0.000 - 0.000)	0.003	0.004	(0.000 - 0.012)
29 Upper Fraser	0.009	0.009	(0.000 - 0.026)	0.001	0.003	(0.000 - 0.009)
30 East Vancouver	0.005	0.004	(0.001 - 0.012)	0.043	0.010	(0.027 - 0.062)
31 West Vancouver	0.090	0.014	(0.068 - 0.115)	0.103	0.015	(0.079 - 0.129)
32 South BC Mainland	0.013	0.006	(0.005 - 0.024)	0.005	0.004	(0.000 - 0.013)
33 Central BC Coast	0.019	0.008	(0.008 - 0.034)	0.024	0.009	(0.012 - 0.040)
34 Lower Skeena	0.004	0.005	(0.000 - 0.016)	0.000	0.000	(0.000 - 0.000)
35 Upper Skeena	0.024	0.010	(0.010 - 0.042)	0.003	0.003	(0.000 - 0.009)
36 Nass River	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.008)
37 Upper Stikine R	0.025	0.015	(0.000 - 0.052)	0.001	0.003	(0.000 - 0.007)
38 Taku River	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.002)
39 S. Southeast AK	0.034	0.013	(0.013 - 0.057)	0.033	0.010	(0.019 - 0.051)
40 Andrew Creek	0.076	0.016	(0.051 - 0.104)	0.019	0.008	(0.008 - 0.034)
41 King Salmon	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
42 Chilkat R	0.003	0.003	(0.000 - 0.008)	0.000	0.000	(0.000 - 0.000)
43 Alsek R	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
44 Situk R	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)

Table 9.—Estimated contributions of 44 stock groups of Chinook salmon to the harvest from selected fishing periods of the troll fishery in the Northern Outside quadrant of Southeast Alaska, 2008. Run timing components are abbreviated as Sp (spring), Su (summer), F (fall), and W (winter). Sample sizes after removal of impossible genotypes are indicated (N).

Region	Late Winter 2008 N = 300			Spring 2008 N = 400			Summer Ret 1 2008 N = 396			Summer Ret 2 2008 N = 394		
	Relative Contribution			Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
1 Central Valley Fa	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
2 Central Valley Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3 Central Valley Wi	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
4 California Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
5 Kalamath R Basin	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.002	0.003	(0.000 - 0.007)
6 N CA, S OR coast	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.004)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
7 Rogue River	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.003)
8 Mid Oregon Coast	0.008	0.006	(0.001 - 0.020)	0.000	0.001	(0.000 - 0.002)	0.029	0.010	(0.014 - 0.046)	0.019	0.010	(0.005 - 0.037)
9 North OR Coast	0.000	0.001	(0.000 - 0.001)	0.005	0.004	(0.000 - 0.013)	0.066	0.015	(0.042 - 0.092)	0.077	0.016	(0.052 - 0.104)
10 Lower Columbia Sp	0.001	0.003	(0.000 - 0.007)	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.004)	0.000	0.001	(0.000 - 0.001)
11 Lower Columbia Fa	0.008	0.006	(0.001 - 0.019)	0.010	0.005	(0.003 - 0.020)	0.044	0.012	(0.027 - 0.065)	0.024	0.009	(0.011 - 0.040)
12 Willamette River	0.037	0.011	(0.021 - 0.056)	0.000	0.000	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.008)	0.013	0.006	(0.005 - 0.024)
13 Mid Columbia tule	0.000	0.002	(0.000 - 0.001)	0.000	0.000	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.005)	0.003	0.004	(0.000 - 0.011)
14 Mid and Upp Columbia	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.003)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15 Deschutes R fa	0.000	0.002	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.015	0.009	(0.004 - 0.031)
16 Upp Columbia Su Fa	0.078	0.016	(0.054 - 0.106)	0.023	0.008	(0.011 - 0.037)	0.193	0.021	(0.159 - 0.228)	0.372	0.026	(0.329 - 0.414)
17 Snake R fa	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.006)	0.018	0.008	(0.006 - 0.033)	0.001	0.003	(0.000 - 0.005)
18 Snake River Sp Su	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
19 Washington Coast	0.007	0.005	(0.001 - 0.017)	0.018	0.007	(0.008 - 0.031)	0.128	0.018	(0.100 - 0.158)	0.198	0.021	(0.164 - 0.234)
20 Hood Canal	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.006)	0.000	0.001	(0.000 - 0.001)
21 South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.010)	0.000	0.001	(0.000 - 0.001)
22 North Puget Sound	0.017	0.009	(0.004 - 0.034)	0.003	0.003	(0.000 - 0.009)	0.002	0.003	(0.000 - 0.008)	0.001	0.003	(0.000 - 0.009)
23 Juan de Fuca	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.008)	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
24 Lower Fraser	0.003	0.003	(0.000 - 0.010)	0.000	0.001	(0.000 - 0.002)	0.003	0.003	(0.000 - 0.008)	0.008	0.005	(0.002 - 0.017)
25 Lower Thompson	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
26 South Thompson	0.070	0.015	(0.047 - 0.097)	0.078	0.014	(0.056 - 0.102)	0.211	0.022	(0.176 - 0.247)	0.031	0.010	(0.017 - 0.048)
27 North Thompson R	0.002	0.003	(0.000 - 0.009)	0.000	0.001	(0.000 - 0.001)	0.009	0.005	(0.002 - 0.019)	0.000	0.000	(0.000 - 0.000)
28 Mid Fraser	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.006)	0.008	0.006	(0.001 - 0.019)	0.001	0.003	(0.000 - 0.007)
29 Upper Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.003	0.007	(0.000 - 0.020)	0.002	0.005	(0.000 - 0.012)
30 East Vancouver	0.014	0.007	(0.005 - 0.027)	0.016	0.006	(0.007 - 0.027)	0.009	0.005	(0.002 - 0.018)	0.031	0.009	(0.018 - 0.047)
31 West Vancouver	0.279	0.026	(0.237 - 0.322)	0.161	0.019	(0.131 - 0.192)	0.081	0.014	(0.059 - 0.104)	0.107	0.016	(0.083 - 0.134)
32 South BC Mainland	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.017	0.007	(0.008 - 0.029)	0.002	0.003	(0.000 - 0.007)
33 Central BC Coast	0.119	0.021	(0.086 - 0.155)	0.029	0.009	(0.016 - 0.046)	0.009	0.005	(0.002 - 0.019)	0.033	0.010	(0.019 - 0.051)
34 Lower Skeena	0.015	0.011	(0.001 - 0.036)	0.008	0.007	(0.001 - 0.021)	0.011	0.010	(0.000 - 0.030)	0.000	0.001	(0.000 - 0.000)
35 Upper Skeena	0.000	0.001	(0.000 - 0.002)	0.018	0.008	(0.006 - 0.033)	0.014	0.010	(0.000 - 0.031)	0.000	0.001	(0.000 - 0.002)
36 Nass River	0.006	0.007	(0.000 - 0.020)	0.006	0.006	(0.000 - 0.017)	0.000	0.000	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.008)

Region	Late Winter 2008			Spring 2008			Summer Ret 1 2008			Summer Ret 2 2008		
	N = 300			N = 400			N = 396			N = 394		
	Relative Contribution			Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
37 Upper Stikine R	0.074	0.036	(0.023 - 0.138)	0.020	0.023	(0.000 - 0.064)	0.024	0.012	(0.002 - 0.045)	0.001	0.004	(0.000 - 0.010)
38 Taku River	0.033	0.025	(0.000 - 0.073)	0.085	0.025	(0.043 - 0.124)	0.000	0.001	(0.000 - 0.000)	0.004	0.005	(0.000 - 0.015)
39 S. Southeast AK	0.067	0.019	(0.038 - 0.100)	0.065	0.017	(0.039 - 0.094)	0.011	0.006	(0.003 - 0.022)	0.024	0.009	(0.012 - 0.040)
40 Andrew Creek	0.145	0.026	(0.103 - 0.189)	0.438	0.028	(0.393 - 0.484)	0.099	0.017	(0.072 - 0.128)	0.026	0.009	(0.013 - 0.042)
41 King Salmon	0.003	0.003	(0.000 - 0.010)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
42 Chilkat R	0.007	0.005	(0.001 - 0.016)	0.011	0.005	(0.004 - 0.021)	0.005	0.004	(0.001 - 0.013)	0.000	0.000	(0.000 - 0.000)
43 Alsek R	0.003	0.003	(0.000 - 0.010)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
44 Situk R	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)

Table 10.– Estimated contributions of 44 stock groups of Chinook salmon to directed gillnet fishery harvests in Southeast Alaska in 2008. Sample sizes after weighting by statistical week harvest and removal of impossible genotypes are indicated (N).

Region	Dist. 108			Dist. 111		
	N = 394			N = 174		
	Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI
1 Central Valley Fa	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
2 Central Valley Sp	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3 Central Valley Wi	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
4 California Coast	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
5 Kalamath R Basin	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6 Nor CA, Sou OR coast	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7 Rogue River	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
8 Mid Oregon Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
9 North OR Coast	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
10 Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
11 Lower Columbia Fa	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
12 Willamette River	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
13 Mid Columbia tule	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
14 Mid and Upp Columbia	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15 Deschutes R fa	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
16 Upp Columbia Su Fa	0.000	0.001	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)
17 Snake R fa	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
18 Snake River Sp Su	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
19 Washington Coast	0.000	0.001	(0.000 - 0.000)	0.001	0.003	(0.000 - 0.007)
20 Hood Canal	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
21 South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.001)
22 North Puget Sound	0.003	0.003	(0.000 - 0.009)	0.000	0.002	(0.000 - 0.001)
23 Juan de Fuca	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
24 Lower Fraser	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
25 Lower Thompson	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26 South Thompson	0.000	0.002	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)
27 North Thompson R	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
28 Mid Fraser	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
29 Upper Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
30 East Vancouver	0.006	0.004	(0.001 - 0.014)	0.000	0.001	(0.000 - 0.000)
31 West Vancouver	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
32 South BC Mainland	0.003	0.004	(0.000 - 0.010)	0.029	0.013	(0.011 - 0.054)
33 Central BC Coast	0.000	0.002	(0.000 - 0.003)	0.019	0.011	(0.005 - 0.040)
34 Lower Skeena	0.008	0.005	(0.002 - 0.017)	0.053	0.017	(0.028 - 0.084)
35 Upper Skeena	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.001)
36 Nass River	0.000	0.001	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.001)
37 Upper Stikine R	0.305	0.033	(0.251 - 0.359)	0.104	0.045	(0.000 - 0.173)
38 Taku River	0.114	0.022	(0.079 - 0.152)	0.274	0.054	(0.196 - 0.375)
39 S. Southeast AK	0.080	0.017	(0.053 - 0.110)	0.032	0.018	(0.008 - 0.064)
40 Andrew Creek	0.479	0.031	(0.427 - 0.530)	0.437	0.043	(0.368 - 0.507)
41 King Salmon	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
42 Chilkat R	0.000	0.000	(0.000 - 0.000)	0.047	0.016	(0.024 - 0.075)
43 Alsek R	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
44 Situk R	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Table 11.— Estimated contributions of 44 stock groups of Chinook salmon to directed troll fishery harvests in Southeast Alaska in 2008. Sample sizes after weighting by statistical week and removal of impossible genotypes are indicated (N).

		Dist. 108		
		N = 209		
		Relative Contribution		
Region		Est.	SD	90% CI
1	Central Valley Fa	0.000	0.001	(0.000 - 0.000)
2	Central Valley Sp	0.000	0.001	(0.000 - 0.000)
3	Central Valley Wi	0.000	0.001	(0.000 - 0.000)
4	California Coast	0.000	0.001	(0.000 - 0.000)
5	Kalamath R Basin	0.000	0.001	(0.000 - 0.000)
6	North CA, South OR coast	0.000	0.001	(0.000 - 0.000)
7	Rogue River	0.000	0.001	(0.000 - 0.000)
8	Mid Oregon Coast	0.000	0.001	(0.000 - 0.000)
9	North OR Coast	0.000	0.001	(0.000 - 0.000)
10	Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)
11	Lower Columbia Fa	0.000	0.001	(0.000 - 0.000)
12	Willamette River	0.000	0.001	(0.000 - 0.000)
13	Mid Columbia tule	0.000	0.001	(0.000 - 0.000)
14	Mid and Upp Columbia	0.000	0.001	(0.000 - 0.000)
15	Deschutes R fa	0.001	0.002	(0.000 - 0.004)
16	Upp Columbia Su Fa	0.021	0.011	(0.007 - 0.041)
17	Snake R fa	0.000	0.001	(0.000 - 0.000)
18	Snake River Sp Su	0.000	0.001	(0.000 - 0.000)
19	Washington Coast	0.000	0.001	(0.000 - 0.000)
20	Hood Canal	0.000	0.001	(0.000 - 0.000)
21	South Puget Sound	0.000	0.001	(0.000 - 0.000)
22	North Puget Sound	0.000	0.001	(0.000 - 0.000)
23	Juan de Fuca	0.000	0.001	(0.000 - 0.000)
24	Lower Fraser	0.000	0.001	(0.000 - 0.000)
25	Lower Thompson	0.000	0.001	(0.000 - 0.000)
26	South Thompson	0.019	0.010	(0.006 - 0.037)
27	North Thompson R	0.000	0.001	(0.000 - 0.000)
28	Mid Fraser	0.000	0.001	(0.000 - 0.001)
29	Upper Fraser	0.000	0.001	(0.000 - 0.001)
30	East Vancouver	0.004	0.005	(0.000 - 0.014)
31	West Vancouver	0.014	0.008	(0.004 - 0.030)
32	South BC Mainland	0.015	0.012	(0.000 - 0.037)
33	Central BC Coast	0.001	0.003	(0.000 - 0.002)
34	Lower Skeena	0.010	0.007	(0.002 - 0.023)
35	Upper Skeena	0.000	0.001	(0.000 - 0.000)
36	Nass River	0.001	0.003	(0.000 - 0.004)
37	Upper Stikine R	0.556	0.051	(0.471 - 0.638)
38	Taku River	0.010	0.021	(0.000 - 0.060)
39	S. Southeast AK	0.101	0.029	(0.056 - 0.153)
40	Andrew Creek	0.243	0.046	(0.168 - 0.321)
41	King Salmon	0.000	0.001	(0.000 - 0.000)
42	Chilkat R	0.000	0.001	(0.000 - 0.000)
43	Alsek R	0.000	0.001	(0.000 - 0.000)
44	Situk R	0.000	0.001	(0.000 - 0.000)

Table 12.– Estimated contributions of 44 stock groups of legal-sized Chinook salmon to sport fishery harvests in Juneau and Sitka, Southeast Alaska, 2008. Sample sizes after removal of impossible genotypes are indicated (N).

Region	Juneau N = 277			Sitka N = 399			
	Relative Contribution			Relative Contribution			
	Est.	SD	90% CI	Est.	SD	90% CI	
1	Central Valley Fa	0.001	0.002	(0.000 - 0.003)	0.000	0.000	(0.000 - 0.000)
2	Central Valley Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
3	Central Valley Wi	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
4	California Coast	0.000	0.001	(0.000 - 0.001)	0.000	0.000	(0.000 - 0.000)
5	Kalamath R Basin	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
6	Nor CA, Sou OR coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
7	Rogue River	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
8	Mid Oregon Coast	0.000	0.001	(0.000 - 0.000)	0.022	0.012	(0.007 - 0.047)
9	North OR Coast	0.000	0.001	(0.000 - 0.000)	0.042	0.012	(0.024 - 0.063)
10	Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.002)
11	Lower Columbia Fa	0.009	0.006	(0.001 - 0.021)	0.017	0.007	(0.007 - 0.029)
12	Willamette River	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
13	Mid Columbia tule	0.001	0.002	(0.000 - 0.005)	0.000	0.000	(0.000 - 0.000)
14	Mid and Upp Columbia	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
15	Deschutes R fa	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
16	Upp Columbia Su Fa	0.000	0.001	(0.000 - 0.000)	0.098	0.015	(0.074 - 0.124)
17	Snake R fa	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.002)
18	Snake River Sp Su	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
19	Washington Coast	0.000	0.001	(0.000 - 0.001)	0.090	0.016	(0.066 - 0.117)
20	Hood Canal	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
21	South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
22	North Puget Sound	0.001	0.002	(0.000 - 0.004)	0.000	0.001	(0.000 - 0.000)
23	Juan de Fuca	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
24	Lower Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
25	Lower Thompson	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
26	South Thompson	0.002	0.004	(0.000 - 0.010)	0.158	0.019	(0.128 - 0.190)
27	North Thompson R	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
28	Mid Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
29	Upper Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.001)
30	East Vancouver	0.007	0.006	(0.000 - 0.019)	0.011	0.006	(0.003 - 0.021)
31	West Vancouver	0.004	0.004	(0.000 - 0.011)	0.129	0.017	(0.102 - 0.157)
32	South BC Mainland	0.016	0.008	(0.005 - 0.031)	0.005	0.004	(0.000 - 0.013)
33	Central BC Coast	0.023	0.009	(0.010 - 0.040)	0.026	0.010	(0.012 - 0.045)
34	Lower Skeena	0.007	0.005	(0.001 - 0.017)	0.027	0.010	(0.012 - 0.045)
35	Upper Skeena	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
36	Nass River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
37	Upper Stikine R	0.025	0.031	(0.000 - 0.086)	0.011	0.010	(0.000 - 0.029)
38	Taku River	0.202	0.037	(0.138 - 0.261)	0.026	0.010	(0.012 - 0.043)
39	S. Southeast AK	0.024	0.012	(0.008 - 0.045)	0.084	0.018	(0.056 - 0.114)
40	Andrew Creek	0.666	0.032	(0.612 - 0.717)	0.247	0.024	(0.208 - 0.288)
41	King Salmon	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
42	Chilkat R	0.011	0.006	(0.003 - 0.024)	0.005	0.004	(0.001 - 0.012)
43	Alsek R	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.005)
44	Situk R	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.003)

Table 13.– Estimated contributions of 44 stock groups of legal-sized Chinook salmon to sport fishery harvests in Ketchikan, Petersburg, and Craig, Southeast Alaska, 2008. Sample sizes after removal of impossible genotypes are indicated (N).

Region	Ketchikan N = 255			Petersburg N = 350			Craig N = 297			
	Relative Contribution			Relative Contribution			Relative Contribution			
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI	
1	Central Valley Fa	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.002)
2	Central Valley Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
3	Central Valley Wi	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
4	California Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
5	Kalamath R Basin	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6	N CA, S OR coast	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7	Rogue River	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
8	Mid Oregon Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.007	0.006	(0.001 - 0.019)
9	North OR Coast	0.001	0.003	(0.000 - 0.008)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
10	Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
11	Lower Columbia Fa	0.000	0.001	(0.000 - 0.000)	0.003	0.003	(0.000 - 0.009)	0.003	0.006	(0.000 - 0.016)
12	Willamette River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
13	Mid Columbia tule	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.006	0.005	(0.000 - 0.015)
14	Mid and Upp Columbia	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15	Deschutes R fa	0.007	0.008	(0.000 - 0.023)	0.000	0.000	(0.000 - 0.000)	0.014	0.008	(0.003 - 0.030)
16	Upp Columbia Su Fa	0.009	0.009	(0.000 - 0.026)	0.003	0.003	(0.000 - 0.010)	0.119	0.020	(0.088 - 0.153)
17	Snake R fa	0.001	0.003	(0.000 - 0.005)	0.000	0.001	(0.000 - 0.000)	0.003	0.005	(0.000 - 0.014)
18	Snake River Sp Su	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
19	Washington Coast	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.060	0.016	(0.037 - 0.088)
20	Hood Canal	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.002	0.003	(0.000 - 0.008)
21	South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
22	North Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.003)
23	Juan de Fuca	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.003)
24	Lower Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
25	Lower Thompson	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26	South Thompson	0.014	0.009	(0.002 - 0.030)	0.003	0.003	(0.000 - 0.009)	0.180	0.023	(0.143 - 0.218)
27	North Thompson R	0.000	0.002	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)	0.009	0.006	(0.001 - 0.021)
28	Mid Fraser	0.001	0.003	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.002)
29	Upper Fraser	0.001	0.002	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
30	East Vancouver	0.008	0.006	(0.001 - 0.019)	0.009	0.005	(0.003 - 0.019)	0.011	0.006	(0.003 - 0.022)
31	West Vancouver	0.020	0.009	(0.008 - 0.037)	0.006	0.004	(0.001 - 0.014)	0.240	0.025	(0.200 - 0.283)
32	South BC Mainland	0.002	0.004	(0.000 - 0.012)	0.000	0.001	(0.000 - 0.000)	0.008	0.006	(0.001 - 0.020)

Region	Ketchikan			Petersburg			Craig		
	N = 255			N = 350			N = 297		
	Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
33 Central BC Coast	0.031	0.020	(0.000 - 0.065)	0.019	0.009	(0.007 - 0.035)	0.015	0.010	(0.002 - 0.033)
34 Lower Skeena	0.003	0.005	(0.000 - 0.013)	0.037	0.011	(0.021 - 0.058)	0.034	0.016	(0.009 - 0.061)
35 Upper Skeena	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.001)
36 Nass River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)
37 Upper Stikine R	0.018	0.020	(0.000 - 0.054)	0.411	0.044	(0.341 - 0.485)	0.032	0.016	(0.010 - 0.062)
38 Taku River	0.016	0.017	(0.000 - 0.046)	0.087	0.031	(0.037 - 0.138)	0.002	0.007	(0.000 - 0.018)
39 S. Southeast AK	0.821	0.029	(0.771 - 0.868)	0.106	0.024	(0.070 - 0.149)	0.083	0.019	(0.054 - 0.116)
40 Andrew Creek	0.047	0.019	(0.020 - 0.081)	0.314	0.032	(0.262 - 0.368)	0.170	0.026	(0.129 - 0.215)
41 King Salmon	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
42 Chilkat R	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
43 Alsek R	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
44 Situk R	0.000	0.001	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Table 14.— Estimated contributions of 44 stock groups of legal-sized Chinook salmon to sport fishery harvests in the Northern Outside, Northern Inside, and Southern Inside quadrants, Southeast Alaska, 2008. Sample sizes after removal of impossible genotypes are indicated (N).

Region	Northern Outside N = 398			Northern Inside N = 280			Southern Inside N = 274			
	Relative Contribution			Relative Contribution			Relative Contribution			
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI	
1	Central Valley Fa	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
2	Central Valley Sp	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3	Central Valley Wi	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
4	California Coast	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
5	Kalamath R Basin	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6	N CA, S OR coast	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7	Rogue River	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
8	Mid Oregon Coast	0.008	0.008	(0.000 - 0.024)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
9	North OR Coast	0.030	0.014	(0.009 - 0.056)	0.000	0.001	(0.000 - 0.000)	0.001	0.002	(0.000 - 0.004)
10	Lower Columbia Sp	0.000	0.001	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
11	Lower Columbia Fa	0.014	0.007	(0.005 - 0.027)	0.005	0.005	(0.000 - 0.014)	0.003	0.004	(0.000 - 0.010)
12	Willamette River	0.002	0.003	(0.000 - 0.007)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
13	Mid Columbia tule	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
14	Mid and Upp Columbia	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
15	Deschutes R fa	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)	0.004	0.006	(0.000 - 0.017)
16	Upp Columbia Su Fa	0.113	0.017	(0.087 - 0.141)	0.000	0.001	(0.000 - 0.000)	0.006	0.007	(0.000 - 0.021)
17	Snake R fa	0.000	0.002	(0.000 - 0.002)	0.000	0.001	(0.000 - 0.000)	0.001	0.004	(0.000 - 0.010)
18	Snake River Sp Su	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
19	Washington Coast	0.074	0.015	(0.051 - 0.100)	0.001	0.002	(0.000 - 0.004)	0.000	0.001	(0.000 - 0.000)
20	Hood Canal	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
21	South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
22	North Puget Sound	0.000	0.001	(0.000 - 0.000)	0.001	0.003	(0.000 - 0.007)	0.000	0.001	(0.000 - 0.001)
23	Juan de Fuca	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
24	Lower Fraser	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
25	Lower Thompson	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26	South Thompson	0.164	0.019	(0.134 - 0.197)	0.002	0.003	(0.000 - 0.008)	0.000	0.001	(0.000 - 0.001)
27	North Thompson R	0.007	0.004	(0.002 - 0.016)	0.000	0.001	(0.000 - 0.000)	0.001	0.003	(0.000 - 0.006)
28	Mid Fraser	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
29	Upper Fraser	0.014	0.013	(0.000 - 0.036)	0.000	0.001	(0.000 - 0.000)	0.000	0.002	(0.000 - 0.002)
30	East Vancouver	0.016	0.007	(0.007 - 0.028)	0.009	0.007	(0.001 - 0.022)	0.004	0.004	(0.000 - 0.011)
31	West Vancouver	0.120	0.017	(0.094 - 0.149)	0.004	0.004	(0.000 - 0.011)	0.012	0.007	(0.003 - 0.024)
32	South BC Mainland	0.003	0.003	(0.000 - 0.009)	0.000	0.001	(0.000 - 0.001)	0.005	0.005	(0.000 - 0.014)

Region	Northern Outside			Northern Inside			Southern Inside		
	N = 398			N = 280			N = 274		
	Relative Contribution			Relative Contribution			Relative Contribution		
	Est.	SD	90% CI	Est.	SD	90% CI	Est.	SD	90% CI
33 Central BC Coast	0.048	0.012	(0.029 - 0.069)	0.025	0.010	(0.012 - 0.043)	0.005	0.010	(0.000 - 0.027)
34 Lower Skeena	0.043	0.012	(0.025 - 0.065)	0.014	0.007	(0.005 - 0.028)	0.038	0.015	(0.017 - 0.064)
35 Upper Skeena	0.004	0.004	(0.000 - 0.012)	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.000)
36 Nass River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
37 Upper Stikine R	0.009	0.007	(0.000 - 0.021)	0.011	0.017	(0.000 - 0.048)	0.128	0.029	(0.083 - 0.176)
38 Taku River	0.027	0.010	(0.012 - 0.046)	0.218	0.028	(0.173 - 0.265)	0.006	0.014	(0.000 - 0.035)
39 S. Southeast AK	0.065	0.017	(0.039 - 0.094)	0.027	0.014	(0.005 - 0.052)	0.673	0.035	(0.616 - 0.729)
40 Andrew Creek	0.234	0.024	(0.196 - 0.274)	0.631	0.033	(0.576 - 0.685)	0.110	0.025	(0.072 - 0.152)
41 King Salmon	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
42 Chilkat R	0.000	0.000	(0.000 - 0.000)	0.051	0.014	(0.031 - 0.075)	0.000	0.001	(0.000 - 0.000)
43 Alsek R	0.001	0.002	(0.000 - 0.005)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
44 Situk R	0.000	0.001	(0.000 - 0.003)	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)

Table 15.– Estimated contributions of 44 stock groups of sublegal-sized Chinook salmon to sport fishery harvests in Southeast Alaska, 2008. Sample sizes after removal of impossible genotypes are indicated (N).

Region	Regionwide N = 396			Special Release Only N = 351			
	Relative Contribution			Relative Contribution			
	Est.	SD	90% CI	Est.	SD	90% CI	
1	Central Valley Fa	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
2	Central Valley Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
3	Central Valley Wi	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
4	California Coast	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
5	Kalamath R Basin	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
6	Nor CA, Sou OR coast	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
7	Rogue River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
8	Mid Oregon Coast	0.003	0.004	(0.000 - 0.010)	0.003	0.004	(0.000 - 0.011)
9	North OR Coast	0.006	0.005	(0.000 - 0.015)	0.007	0.005	(0.000 - 0.017)
10	Lower Columbia Sp	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
11	Lower Columbia Fa	0.009	0.005	(0.002 - 0.019)	0.010	0.006	(0.003 - 0.022)
12	Willamette River	0.013	0.006	(0.005 - 0.024)	0.015	0.007	(0.006 - 0.027)
13	Mid Columbia tule	0.000	0.001	(0.000 - 0.003)	0.001	0.002	(0.000 - 0.005)
14	Mid and Upp Columbia	0.002	0.003	(0.000 - 0.008)	0.003	0.003	(0.000 - 0.009)
15	Deschutes R fa	0.002	0.005	(0.000 - 0.014)	0.003	0.006	(0.000 - 0.018)
16	Upp Columbia Su Fa	0.094	0.016	(0.069 - 0.122)	0.099	0.017	(0.071 - 0.128)
17	Snake R fa	0.008	0.007	(0.000 - 0.021)	0.008	0.008	(0.000 - 0.023)
18	Snake River Sp Su	0.000	0.001	(0.000 - 0.001)	0.000	0.001	(0.000 - 0.002)
19	Washington Coast	0.008	0.005	(0.002 - 0.017)	0.009	0.005	(0.002 - 0.019)
20	Hood Canal	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
21	South Puget Sound	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.001)
22	North Puget Sound	0.001	0.003	(0.000 - 0.005)	0.001	0.003	(0.000 - 0.002)
23	Juan de Fuca	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
24	Lower Fraser	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
25	Lower Thompson	0.000	0.000	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
26	South Thompson	0.012	0.006	(0.004 - 0.023)	0.013	0.007	(0.004 - 0.026)
27	North Thompson R	0.001	0.002	(0.000 - 0.003)	0.001	0.003	(0.000 - 0.008)
28	Mid Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
29	Upper Fraser	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
30	East Vancouver	0.026	0.008	(0.014 - 0.041)	0.027	0.009	(0.014 - 0.043)
31	West Vancouver	0.056	0.012	(0.038 - 0.076)	0.060	0.013	(0.041 - 0.083)
32	South BC Mainland	0.014	0.006	(0.005 - 0.026)	0.016	0.007	(0.006 - 0.030)
33	Central BC Coast	0.044	0.013	(0.025 - 0.068)	0.049	0.014	(0.028 - 0.075)
34	Lower Skeena	0.029	0.013	(0.010 - 0.052)	0.035	0.014	(0.013 - 0.059)
35	Upper Skeena	0.000	0.001	(0.000 - 0.002)	0.000	0.002	(0.000 - 0.002)
36	Nass River	0.000	0.001	(0.000 - 0.000)	0.000	0.001	(0.000 - 0.000)
37	Upper Stikine R	0.018	0.013	(0.000 - 0.040)	0.009	0.012	(0.000 - 0.033)
38	Taku River	0.003	0.007	(0.000 - 0.019)	0.004	0.007	(0.000 - 0.018)
39	S. Southeast AK	0.391	0.028	(0.346 - 0.437)	0.387	0.029	(0.340 - 0.436)
40	Andrew Creek	0.252	0.025	(0.212 - 0.294)	0.235	0.026	(0.193 - 0.279)
41	King Salmon	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
42	Chilkat R	0.005	0.004	(0.001 - 0.013)	0.003	0.003	(0.000 - 0.010)
43	Alsek R	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)
44	Situk R	0.000	0.000	(0.000 - 0.000)	0.000	0.000	(0.000 - 0.000)

Appendix 1.—Location and collection details for each population of Chinook salmon included in the coastwide baseline of microsatellite data. Population numbers given correspond to the population numbers referenced in Table 3.

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
1	Central Valley fall	1	Battle Creek	Fa	W	Adult	2002, 2003
		2	Butte Creek	Fa	W	Adult	2002, 2003
		3	Feather Hatchery fall	Fa	H	Adult	2003
		4	Stanislaus River	Fa	W	Adult	2002
2	Central Valley spring	5	Butte Creek	Sp	W	Adult	2002, 2003
		6	Deer Creek	Sp	W	Adult	2002
		7	Feather Hatchery	Sp	H	Adult	2003
		8	Mill Creek	Sp	W	Adult	2002, 2003
3	Central Valley winter	9	Sacramento River winter	Wi	W/H	Adult	1992, 1993, 1994, 1995, 1997, 1998, 2001, 2003, 2004
4	California Coast	10	Eel River	Fa	W	Adult	2000, 2001
		11	Russian River	Fa	W	Juvenile	2001
5	Klamath River	12	Klamath River	Fa	W	Adult	2004
		13	Trinity Hatchery	Fa	H	Adult	1992
		14	Trinity Hatchery	Sp	H	Adult	1992
		15	Chetco	Fa	W	Adult	2004
6	N California/S Oregon Coast	16	Applegate	Fa	W	Adult	2004
7	Rogue River	17	Cole Rivers Hatchery	Sp	H	Adult	2004
		18	Coos Hatchery	Fa	H	Adult	2005
8	Mid Oregon Coast	19	South Coos	Fa	W, H	Adult	2000, 2005
		20	Coquille	Fa	W	Adult	2000
		21	Elk River	Fa	H	Adult	2004
		22	Millicoma River	Fa	W	Adult	2000
		23	Sixes River	Fa	W	Adult	2000, 2005
		24	Siuslaw	Fa	W	Adult	2001
		25	South Umpqua	Fa	H,W	Adult	2002
		26	Umpqua	Sp	W	Adult	2004
9	North Oregon Coast	27	Alsea	Fa	W	Adult	2004
		28	Nehalem	Fa	W	Adult	2000, 2002-1, 2002-2

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
		29	Kilchis River	Fa	Unk	Adult	2000, 2005
		30	Necanicum Hatchery	Fa	H,W	Adult	2005
		31	Nestucca Hatchery	Fa	H	Adult	2004, 2005
		32	Salmon River	Fa	Unk	Adult	2003
		33	Trask River	Fa	W	Adult	2005
		34	Wilson River	Fa	W	Adult	2005
		35	Yaquina River	Fa	W	Adult	2005
		36	Siletz	Fa	W	Adult	2000
10	Lower Columbia R. spring	37	Cowlitz H. spring	Sp	H		2004
		38	Kalama H. spring	Sp	H		2004
		39	Lewis H. spring	Sp	H		2004
11	Lower Columbia R. fall	40	Cowlitz H. fall	Fa	H		2004
		41	Lewis fall	Fa	W	Adult	2003
		42	Sandy	Fa	W	Adult	2002, 2004
12	Willamette River	43	McKenzie	Sp	H	Adult	2002, 2004
		44	North Santiam	Sp	H	Adult	2002, 2004-1, 2004-2
13	Mid Columbia R. tule fall	45	Spring Creek	Fa	H		2001, 2002
14	Mid and Upper Columbia R. spring	46	Carson H.	Sp	H		2001, 2004
		47	John Day	Sp	W	Juvenile, Adult	2000-1, 2000-2, 2000-3, 2000-4, 2000-5, 2000-6, 2004
		48	Upper Yakima	Sp	H	Adult, Mixed	1998, 2003
		49	Warm Springs Hatchery	Sp	H		2002, 2003
		50	Wenatchee Hatchery	Sp	H	Adult	1998, 2000
		51	Wenatchee River	Sp	W	Adult	1993, 1998, 2000
15	Deschutes River fall	52	Upper Deschutes River	Su/Fa	W	Juvenile	1998, 1999, 2002
		53	Lower Deschutes R.	Fa	W		1999-1, 1999-2, 2001, 2002

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
16	Upper Columbia R.	54	Hanford Reach CR	Su/Fa	W	Adult, ?	1999, 2000-1, 2000-2, 2000-3, 2001-1, 2001-2, 2001-3
		55	Methow R.	Su/Fa	W		1992, 1993, 1994
		56	Wells Dam	Su/Fa	H		1993-1, 1993-2
		57	Wenatchee River	Su/Fa	W	Adult	1993-1, 1993-2
17	Snake River	58	Lyons Ferry	Fa	W	Adult	2002-1, 2002-2, 2003-1, 2003-2
18	Snake River	59	Innaha R.	Sp/Su	W		1998, 2002, 2003
		60	Minam R.	Sp/Su	W		1994, 2002, 2003
		61	Newsome Creek	Sp/Su	W	Adult	2001, 2002
		62	Rapid River H.	Sp/Su	H		1997, 1999, 2002
		63	Sesech R.	Sp/Su	W		2001, 2002, 2003
		64	Tucannon	Sp/Su	W	Adult	2003-1, 2003-2
		65	Tucannon	Sp/Su	H	Adult	2003
		66	West Fork Yankee Fork	Sp/Su	W		2005
19	Washington Coast	67	Forks Creek	Fa	H	Adult	2005
		68	Hoh River	Fa	W	Adult	2004, 2005
		69	Humptulips	Fa	H	Adult	1990
		70	Makah Hatchery	Fa	H	Adult	2001, 2003
		71	Queets	Fa	W	Adult	1996, 1997
		72	Quillayute/ Bogachiel	Fa	W	Adult	1995-1, 1995-2, 1995-3, 1996-1, 1996-2
		73	Sol Duc	Sp	H	Adult	2003
20	Hood Canal	74	George Adams Hatchery	Fa	H	Adult	2005
		75	Hamma Hamma River	Fa	W	Adult	1999, 2000, 2001
21	South Puget Sound	76	Clear Creek	Fa	H	Adult	2005
		77	Hupp Sp Hatchery	Sp	H	Adult	2002
		78	South Prairie Creek	Fa	W	Adult	1998, 1999, 2002
		79	Soos Creek	Fa	H	Adult	1998-1, 1998-2, 2004
		80	Voights Hatchery	Fa	H	Adult	1998

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date		
22	North Puget Sound	81	White River	Sp	H	Adult	1998-1, 1998-2, 2002		
		82	L. Sauk River	Su	W		1998		
		83	Marblemount Hatchery	Sp	H		1997		
		84	Marblemount Hatchery	Su	H		1997		
		85	NF Nooksack	Sp	H,W	Adult	1999		
		86	NF Stilliguamish	Su	H,W	Adult	1996, 2001-1, 2001-2		
		87	Samish Hatchery	Fa	H	Adult	1998		
		88	Skagit summer	Su	W	Adult	1994, 1995		
		89	Suiattle (Skagit)	Sp	W	Adult	1989, 1998, 1999		
		90	Skykomish River		W		2004, 2005		
		91	Snoqualmie River		W		2005		
		92	Stillaguamish Hatchery	Su	H	Adult	2004		
		93	Upper Cascade River	Sp	W		1998		
		94	Upper Sauk River	Sp	W		1998		
		95	Upper Skagit River	Su	W		1998		
		23	Jaun de Fuca	96	Wallace Hatchery	Su	H		2004, 2005
				97	Dungeness River		W	Adult	2004-1, 2004-2
				98	Elwha Hatchery	Fa	H	Adult/Juv	1996-1, 1996-2, 2004
				99	Elwha River		W	Adult/Juv	2004-1, 2004-2
24	Lower Fraser River	100	Birkenhead River	Sp	H	Adult	1996, 1997, 1999, 2001, 2002, 2003		
		101	Maria Slough	Su	W	Adult	1999, 2000, 2001		
25	Lower Thompson River	102	West Chilliwack Hatchery	Fa	H	Adult	1998, 1999		
		103	Nicola	Sp	H		1998, 1999		
26	South Thompson River	104	Spilus River	Sp	H	Adult	1996, 1997, 1998		
		105	Lower Adams	Fa	H	Adult	1996		
		106	Lower Thompson	Fa	W	Adult	2001		
27	North Thompson River	107	M.Shuswap	Fa	H	Adult	1997		
		108	Clearwater	Fa	W	Adult	1997		
		109	Deadman Hatchery	Sp	H	Adult	1996, 1997, 1998, 1999		
		110	Louis River	Fa	W	Adult	2001		

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
28	Mid Fraser River	111	Raft River	Su	W	Adult	2001, 2002
		112	Chilko	Fa	W	Adult	1995, 1996, 1999, 2002
29	Upper Fraser River	113	Nechako	Fa	W	Adult	1996
		114	Quesnel	Fa	W	Adult	1996
		115	Stuart	Fa	W	Adult	1996
		116	Upper Chilcotin River	Sp	W	Adult	2001
		117	Morkill River	Fa	W	Adult	2001
		118	Salmon River (Fraser)	Sp	W	Adult	1997
		119	Swift	Fa	W	Adult	1996
30	East Vancouver Island	120	Torpy River	Fa	W	Adult	2001
		121	Big Qualicum	Fa	H	Adult	1996
		122	Cowichan Hatchery	Fa	H	Adult	1999, 2000
		123	Nanaimo Hatchery	Fa	H	Adult	1998, 2002
		124	Puntledge Hatchery	Fa	H	Adult	2000, 2001
31	West Vancouver Island	125	Quinsam	Fa	H	Adult	1996, 1998
		126	Conuma	Fa	H	Adult	1997, 1998
		127	Marble at NVI	Fa	H	Adult	1996, 1999, 2000
		128	Nitinat	Fa	H	Adult	1996
		129	Robertson	Fa	H	Adult	1996, 2003
		130	Sarita	Fa	H	Adult	1997, 2001
		131	Tahsis River	Fa	W	Adult	1996, 2002, 2003
		132	Tranquil River	Fa	W	Adult	1996, 1999
		133	Klinaklini	Fa	W	Adult	1997
32	S BC Mainland	134	Porteau Cove	Fa	H	Adult	2003
		135	Atnarko	Fa	H	Adult	1996
33	Central BC Coast	136	Kitimat	Fa	H	Adult	1997
		137	Wannock	Fa	H	Adult	1996
34	Lower Skeena River	138	Ecstall	Fa	W	Adult	2000, 2001, 2002
		139	Lower Kalum	Fa	W	Adult	2001
35	Upper Skeena River	140	Babine	Fa	H	Adult	1996
		141	Bulkley	Fa	W	Adult	1999
		142	Sustut	Fa	W	Adult	2001

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
36	Nass River	143	Damdochax	Fa	W	Adult	1996
		144	Kincolith	Fa	W	Adult	1996
		145	Kwinageese	Fa	W	Adult	1996
		146	Owegee	Fa	W	Adult	1996
37	Upper Stikine River	147	Christina		W	Adult	2000, 2001, 2002
		148	Craig River		W	Adult	2001
		149	Little Tahltan River		W	Adult	1989, 1990
		150	Shakes Creek		W	Adult	2000, 2001, 2002
		151	Verrett River		W	Adult	2000, 2002, 2003
38	Taku River	152	Dudidontu		W	Adult	2005, 2006, 2008
		153	Kowatua Creek		W	Adult	1989, 1990
		154	Little Tatsamenie		W	Adult	2007
		155	Little Trapper		W	Adult	1999
		156	Nakina River		W	Adult	1989, 1990
		157	Tatsatua Creek		W	Adult	1989, 1990
		158	Upper Nahlin River		W	Adult	1989, 1990, 2004
		159	Chickamin River		W	Adult	1990, 1993
39	Southern Southeast Alaska	160	Chickamin River – Whitman		H	Adult	2005
		161	Clear Creek (Unuk R.)		W	Adult	1989, 2003, 2004
		162	Cripple Creek (Unuk R.)		W	Adult	1988, 2003
		163	Keta River		W	Adult	1989, 2003
		164	King Creek		W	Adult	2003
		165	Andrews Creek		W	Adult	1989, 2004
		166	Andrews Creek – Crystal		H	Adult	2005
40	Andrews Creek	167	Andrews Creek – MaCaulay		H	Adult	2005
		168	Andrews Creek – Medvejie		H	Adult	2005
		169	King Salmon River		W	Adult	1989, 1990, 1993
41	Northern Southeast Alaska	170	Big Boulder Creek		W	Adult	1992, 1995, 2004
42	Chilkat River	171	Tahini River		W	Adult	1992, 2004
43	North Gulf Coast, Alsek River	172	Blanchard River		W		2000, 2001, 2002, 2003
		173	Klukshu River		W	Adult	1989, 1990, 1991
		174	Takhanne		W	Adult	2000, 2001, 2002,

Region #	Region	Population #	Population	Run time	Origin	Life Stage	Collection Date
		175	Klukshu		W	Adult	2003
44	Situk River	176	Situk River		W	Adult	1987, 2000, 2001
							1988, 1990, 1991, 1992