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Mixed Stock Analysis of Chinook Salmon Harvested in the Southeast Alaska Sport Fishery, 2004–2015

by

Sara Gilk-Baumer

William D. Templin

Danielle F. Evenson

and

Edgar L. Jones III

December 2017

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

Symbols and Abbreviations

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

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. 17-43

MIXED STOCK ANALYSIS OF CHINOOK SALMON HARVESTED IN THE SOUTHEAST ALASKA SPORT FISHERY, 2004–2015

by
Sara Gilk-Baumer and William D. Templin
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Danielle F. Evenson
Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau

and

Edgar L. Jones III
Alaska Department of Fish and Game, Division of Sport Fish, Juneau

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

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Sara Gilk-Baumer,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage AK 99518, USA

William D. Templin,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage AK 99518, USA

Danielle F. Evenson
Alaska Department of Fish and Game, Commercial Fisheries,
1255 W. 8th Street, Juneau AK 99811-5526, USA

and

Edgar L. Jones III
Alaska Department of Fish and Game, Division of Sport Fish,
1255 W. 8th Street, Juneau AK 99811-5526, USA

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF APPENDICES (Continued)

Figure **Page**

ABSTRACT

Chinook salmon originating from Alaska, British Columbia, and the Pacific Northwest are harvested in the Southeast Alaska sport fisheries. Information used to manage this fishery under the Pacific Salmon Treaty come from various sources including coded wire tags and escapements. Reliance on stock composition estimates from these data is problematic because coded wire tags are not applied to all stocks contributing to fisheries and estimates of escapement or run size are often not available or poorly determined. Expanding on previous work conducted on commercial harvests since 1999, the Alaska Department of Fish and Game has used genetic mixed stock analysis to estimate the stock composition of Chinook salmon harvests in the Southeast Alaska sport fishery from 2004 to 2015, based on microsatellite loci developed by the Genetic Analysis of Pacific Salmonids group for use in Pacific Salmon Treaty fisheries. Results indicate considerable spatial variation in the composition of sport harvests within years, but consistent patterns of composition across years. The major contributors to the Southeast Alaska sport fisheries on an annual basis are the Taku, Andrew, Stikine, S Southeast Alaska, West Vancouver, South Thompson, Washington Coast, and Interior Columbia Su/F reporting groups. The sport fisheries conducted within the inside waters of Southeast Alaska mainly consisted of stocks from Southeast Alaska and the transboundary Taku and Stikine rivers, whereas fisheries conducted in the outside waters were composed of a variety of stocks including those from British Columbia and the Pacific Northwest.

Key words: Chinook salmon, Southeast Alaska, mixed stock analysis, microsatellite, sport fishery

INTRODUCTION

Chinook salmon (*Oncorhynchus tshawytscha)* is the species of fish most sought after by sport anglers in Southeast Alaska (SEAK). Sport harvest of Chinook salmon in SEAK averaged 68,574 fish from 2004 to 2015 (http://www.adfg.alaska.gov/sf/sportfishingsurvey/), with important sport fisheries taking place around the ports of Juneau, Ketchikan, Sitka, Petersburg, Wrangell, Craig/Klawock, Yakutat, Gustavus, Elfin Cove, Skagway, and Haines (Figure 1). The Southeast Alaska sport fishery harvests mixed stocks[1] of Chinook salmon, including salmon originating from Alaska, British Columbia (BC), and the Pacific Northwest, and is therefore under the jurisdiction of the Pacific Salmon Treaty (PST). The principles of the PST call for cooperative management and research on fisheries harvesting Chinook salmon from populations in Canada and the U.S. Variable annual Chinook harvest ceilings are set under the PST to limit interceptions of southbound Chinook salmon in SEAK and two other mixed stock fisheries along the North American coast as per PST Annexes and related Agreements (CTC 2017).

The annual all-gear harvest limit for Chinook salmon in SEAK is specified in Chapter 3, Annex IV of the PST. The objectives of the management plan for the sport fishery for Chinook salmon were specified by the Alaska Board of Fisheries in 2000, and are as follows: 1) to manage the sport fishery to attain a harvest of 20% of the annual ceiling specified by the Pacific Salmon Commission (PSC), after subtracting commercial net harvests; 2) to allow uninterrupted sport fishing in salt waters for Chinook salmon, while not exceeding the sport fishery harvest ceiling; 3) to minimize regulatory restrictions on resident anglers not fishing from a charter vessel; and 4) to provide stability to the sport fishery by eliminating inseason regulatory changes, except those needed for conservation.

The annual PST Chinook salmon ceiling for SEAK is dependent on the projected abundance of Chinook salmon forecasted by the Chinook Technical Committee (CTC) using the PSC Chinook Model (CTC 2017; Chadwick et al. 2015). The PSC Chinook Model uses catch, escapement,

[1] In this report, a "population" refers to a locally interbreeding group of salmon that is distinguished by a distinct combination of genetic, phenotypic, life history, and habitat characteristics, and a "stock" refers to an aggregation of two or more populations which occur in the same geographic area and are managed as a unit.

coded-wire tag (CWT) recovery, and recruitment information to forecast relative abundance of stocks in PST fisheries. Relative stock proportion information is an important component of the PSC Chinook Model, and currently CWT data are used for this purpose. However, reliance on stock composition estimates solely from CWT data can be problematic because CWTs are only applied to a subset of indicator stocks contributing to the fishery and the resulting estimates of escapement and terminal run size of important stocks are often not available or are poorly determined. Genetic mixed stock analysis (MSA) provides a complementary set of accurate, precise, and reliable stock composition estimates for major contributors to the fishery.

Mixed stock analysis has been used extensively to estimate the contribution of genetic aggregates of Chinook salmon to mixed-stock fisheries occurring throughout the PST area (Blankenship et al. 2007;[2] Hess et al. 2011; Templin et al. 2011; Beacham et al. 2012). This method uses the genetic variation in allele frequencies at multiple loci among populations (baseline) to estimate the contribution of each stock to a mixture given the multi-locus genotypes of fish in the mixture. Since 1999, the State of Alaska, Department of Fish and Game (ADF&G) has used MSA based on coastwide baselines (Teel et al. 1999; Seeb et al. 2007) to estimate the composition of Chinook salmon harvested in the commercial troll fishery (Crane et al. 2000; Templin et al. 2011; Gilk-Baumer et al. 2013, 2017). These MSA estimates are being integrated to the extent possible into the PSC coordinated coastwide stock assessment system.

Genetic MSA is possible for PST fisheries due to the CTC-funded Genetic Analysis of Pacific Salmonids (GAPS) project, a cooperative project among 10 laboratories with the goal of developing a coastwide standardized DNA baseline for stock identification of Chinook salmon (Moran et al. 2005). This process began in 2002, and a standardized baseline was available during the summer of 2005 (Seeb et al. 2007). The baseline can identify 44 reporting groups in mixtures with acceptable accuracy and precision (Seeb et al. 2007). For the SEAK fisheries, these were combined into 26 reporting groups based on management needs and stock presence (Table 1). This baseline continues to be improved through the addition of more populations and the current baseline (version 3.0) contains allele frequencies from 357 populations contributing to PSC fisheries, ranging from the Situk River in Alaska to the Central Valley of California (Appendix A1).

The information reported herein are the results of multiple annual projects that used MSA based on the standardized baseline of microsatellites to provide independent estimates of the stock composition of Chinook salmon harvested in the SEAK sport fishery from 2004 to 2015.

OBJECTIVES

The goal of this MSA program was to estimate the stock composition of Chinook salmon harvested in the SEAK sport fisheries from 2004 to 2015. Project objectives were to:

1. Sample Chinook salmon from the SEAK sport fishery harvests in a representative manner to provide stock composition estimates of the harvest within 5% of the true value 90% of the time.

[2] Blankenship, S., K. I. Warheit, J. Von Bargen, and D. A. Milward. Unpublished WDFW molecular genetics laboratory report submitted to the Pacific Salmon Commission-Chinook Technical Committee. 2007. Genetic stock identification determines inter-annual variation in stock composition for legal and sub-legal Chinook captured in the Washington Area-2 non-treaty troll fishery. Draft available from http://fish-tools.com/reports/2011/Blankenship_et-al_Area-2_fishery080211.pdf

2. Survey Chinook salmon sampled from the SEAK sport fishery for individual genotypes at the 13 microsatellite loci included in the coastwide baseline.
3. Estimate the relative contribution of 26 fine-scale reporting groups to SEAK sport fisheries from 2004 to 2015 in the following areas and time periods:
    a. Ketchikan, total season estimate;
    b. Petersburg-Wrangell, total season estimate;
    c. Northern Inside (ports of Juneau, Haines, and Skagway), total season estimate;
    d. Outside (ports of Craig, Sitka, Yakutat, Elfin Cove, and Gustavus),
        i. Early season estimate (through biweek[3] 13);
        ii. Late season estimate (after biweek 13);
        iii. Total season estimate.

METHODS

FISHERY SAMPLING

Sample sizes for the estimation of stock composition have traditionally been set at 400 individuals per stratum for fishery samples from locations where many stocks contribute to the harvest (e.g., Seeb et al. 2000). According to sampling theory, under the worst-case scenario (3 stocks contributing equal proportions) a sample of this size should provide estimates of relative proportions within 5% of the true value 90% of the time (Thompson 1987) when stocks are genetically identifiable. The same statistical approach indicates that under worst-case conditions, a sample size of 200 will be within approximately 7% of the true value 90% of the time. Thus, given these levels of precision and accuracy, the need to balance costs of fisheries sampling and costs of laboratory analysis, and the resolution of stock composition information needed to support fishery management, sample sizes were set to target a minimum of 400 samples per stratum for the following 6 strata, with the intention of representing harvest by biweek at each port:

1. Ketchikan, total season;
2. Petersburg and Wrangell, total season;
3. Northern Inside (Juneau, Haines, Skagway), total season;
4. Outside (Craig, Sitka, Yakutat, Elfin Cove, Gustavus):
    a. early season;
    b. late season; and
    c. total season.

Chinook salmon were collected from boats exiting the sport fishery at major boat harbors and boat ramps at each of the ports selected for surveying (Table 1; Figure 1). Sampling design and

[3] Sport biweeks run from Monday through Sunday, with biweek 1 beginning January 1 and biweek 2 beginning on the third Monday of the year. All biweeks except the first and last of the year are exactly 14 days long. Biweek calendars for each year are available at https://mtalab.adfg.alaska.gov/CWT/reports/sbp_calendar.aspx?value=biweek.

sampling details for each port are described in Jaenicke et al. (2014). A tissue section was dissected from the axillary process of each sampled Chinook salmon and placed in a 2 ml cryovial in at least 95% denatured ethanol or dried on Whatman paper[4]. Fishermen were interviewed to determine the creel area from which the Chinook salmon were harvested. At the end of the season, samples were shipped back to the ADF&G Gene Conservation Laboratory in Anchorage for analysis. Associated data were archived as part of an age-sex-length database maintained by ADF&G Division of Sport Fish.

MIXED STOCK ANALYSIS

Laboratory Analysis

Samples were assayed for 13 microsatellite loci developed by the GAPS group for use in Treaty fisheries (CTC standardized baseline loci; Seeb et al. 2007). DNA was extracted from axillary process tissue using DNeasy, 96-tissue kits (QIAGEN Valencia CA) or a NucleoSpin 96 Tissue Kit by Macherey-Nagel (Düren, Germany). Polymerase chain reaction (PCR) was carried out in 10 ul reaction volumes (10 mM Tris-HCl, 50 mM KCl, 0.2 mM each dNTP, 0.5 units Taq DNA polymerase [Promega, Madison, WI]) using an Applied Biosystems (AB, Foster City CA) thermocycler. Primer concentrations, $MgCl_2$ concentrations and the corresponding annealing temperature for each primer are available in Seeb et al. (2007). PCR fragment analysis was done on an AB 3730 capillary DNA sequencer. A 96-well reaction plate was loaded with 0.5 ul PCR product along with 0.5 ul of GS500LIZ (AB) internal lane size standard and 9.0 ul 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 CTC.

Genetic data were collected as individual multilocus genotypes. According to the convention implemented by the CTC, at each locus, a standardized allele is one that has a recognized holotype specimen from which the standardized allele can be reproduced using commonly applied fragment analysis techniques. By the process of sizing the alleles from the holotype specimens, any individual laboratory should be able to convert allele sizes obtained in the ADF&G laboratory to standardized allele names. Genotype data were stored as GeneMapper (*.fsa) files on a network drive that was backed up nightly. Long-term storage of the data was in an *Oracle* database (*LOKI*) on a network drive maintained by ADF&G computer services.

Several measures were implemented to ensure the quality of data produced. First, each individual tissue sample was assigned a unique accession identifier. At the time DNA was extracted or analyzed from each sample, a sample sheet was created that linked each individual sample's code to a specific well number in a uniquely numbered 96-well plate. This sample sheet then followed the sample through all phases of the project, minimizing the risk of misidentification of samples through human-induced errors. Second, genotypes were assigned to individuals using a system in which 2 people score the genotype data independently. Discrepancies between the 2 sets of scores were then resolved with one of 2 possible outcomes: (1) one score was accepted and the other rejected, or (2) both scores were rejected and no score was retained. Lastly, approximately 8% of the individuals, 8 samples from each 96-well DNA extraction plate, were reanalyzed for all loci. This enabled detection and correction of laboratory mistakes and allowed estimation of genotyping error rates. Error rates were calculated as the number of conflicting genotypes, divided by the total number of genotypes examined.

[4] All product names appearing in this report are included fort completeness and do not constitute an endorsement by the State of Alaska.

Statistical Analysis

Data retrieval and genotype quality control

Genotypes from LOKI were retrieved and imported into *R* (R Development Core Team 2015). All subsequent analyses were performed in *R* unless otherwise noted. Prior to MSA, 2 statistical quality control analyses were conducted to ensure that only quality genotypic data was included in the estimation of stock compositions. First, individuals were removed that were missing substantial genotypic data from further analyses. Individuals missing genotypes for 20% or more of loci were excluded, because these individuals likely have poor-quality DNA. The inclusion of individuals with poor-quality DNA could introduce genotyping errors and reduce accuracy and precision of MSA. Second, individuals with duplicate genotypes were identified and removed from further analyses. Duplicate genotypes can occur as a result of sampling or extracting the same individual twice, and were defined as pairs of individuals sharing the same genotype in 95% of markers screened. The individual with the most missing data from each duplicate pair was removed from further analyses.

Mixture Subsampling

Representative mixtures of individuals for MSA were created by subsampling individuals from the collected tissue samples in proportion to harvest by time and sample location (e.g., biweek and port). The Chinook salmon inseason estimated harvest for each biweek and port for a given fishing area was obtained from onsite sampling of sport harvested Chinook salmon by fisheries technicians working for the Division of Sport Fish (DSF), Southeast Alaska Marine Harvest Studies program (Wendt and Jaenicke, 2011; M. Jaenicke, personal comm.). The total estimated harvest for each port is estimated by the annual mail-out DSF Statewide Harvest Survey (Jennings et al. 2015; Romberg and Jennings 2013), which can be downloaded at http://www.adfg.alaska.gov/sf/sportfishingsurvey/. The relative proportion of the total harvest that was caught during each biweek and in each port was then calculated for each fishing area.

A total of 5 mixtures were necessary from each year to generate stock composition estimates for the 6 strata described above. For the total-season estimate for Outside ports, separate mixtures were made for 1) early (through biweek 13) and 2) late (after biweek 13) samples, and then these estimates were pooled into total-season estimates by weighting by harvest for each time period's harvest proportion. For each estimate, individual samples were randomly selected from the entire set of samples available in each biweek and port for a given fishing area such that the contribution in each biweek and port to the sample mixture reflected the composition of the harvest. When sufficient samples were available, the target sample size for each mixture was capped at 400. When the available samples from a given biweek and/or port were fewer than needed to adequately represent the quadrant in a mixture of 400, the total sample size was reduced to the point where each biweek and port was represented in the proper proportions. In some cases, the total sample size required from this method could be reduced to a level where the increase in variance due to small sample size might outweigh the presence of bias due to disproportionate representation in the sample. In these cases the decision was made to maintain a larger sample size with a target sample size of at least 200, without weighting by harvest. No estimates were generated for sample sizes less than 200.

BAYES Analysis

The stock composition of fishery mixtures was estimated using the program BAYES (Pella and Masuda 2001). The Bayesian method of MSA estimates the proportion of stocks caught within each fishery using 4 pieces of information: 1) a baseline of allele frequencies for each population, 2) the grouping of populations into the reporting groups desired for MSA, 3) prior information about the stock proportions of the fishery, and 4) the genotypes of fish sampled from the fishery.

The baseline of allele frequencies for Chinook salmon populations was obtained from the GAPS database (http://www.nwfsc.noaa.gov/research/divisions/cb/genetics/standardization.cfm; Appendix A1). Results from 100% proof tests indicate that the 26 fine-scale reporting groups used herein can be identified in mixtures with a 91% correct allocation or better (Gilk-Baumer et al. 2017).

The choice of prior information about stock proportions in a fishery (the prior probability distribution hereafter referred to as the *prior*) is important to the outcome of the MSA (Habicht et al. 2012a). In this analysis, for the initial 2004 estimates, prior parameters for each of the 26 fine-scale reporting groups were defined to be equal (i.e., a "flat" prior) with the prior for a reporting group divided equally among populations within that reporting group. In subsequent years, the estimates from the previous year were used as the prior (i.e., 2004 estimates were used as prior parameters when generating 2005 estimates). The prior information about stock proportions was incorporated in the form of a Dirichlet probability distribution. The sum of all prior parameters was set to 1 (prior weight), which is equivalent to adding 1 fish to each mixture (Pella and Masuda 2001).

For each fishery mixture, 5 independent Markov Chain Monte Carlo (MCMC) chains of 40,000 iterations were run with different starting values and the first 20,000 iterations were discarded to remove the influence of the initial start values. In order to assess the among-chain convergence, the Gelman-Rubin shrink factors computed for all stock groups in BAYES were examined (Gelman and Rubin 1992). If a shrink factor for any stock group in a mixture was greater than 1.2, the mixture was reanalyzed with 80,000 iterations. If a mixture still had a shrink factor greater than 1.2 after the reanalysis, results from the 3 or 4 chains in best agreement were averaged and a note was made in the results. We combined the second half of the 5 chains to form the posterior distribution and tabulated mean estimates, 90% credibility intervals, and standard deviations from a total of 100,000 iterations. In addition, we report the marginal median of the posterior distribution as a measure of central tendency for stock proportions (Pella and Masuda 2001). Misallocations to reporting groups that are either absent or at low proportions within mixtures can occur in MSA when the discriminant methods do not produce perfect identifiability (Pella and Milner 1987; Pella and Masuda 2001). Previous work has shown that the posterior distribution of these misallocations can be highly skewed and the mean is much more sensitive to extreme values than the median (e.g., Habicht et al. 2012b).

For total season estimates from the Outside area, early season and late season estimates were pooled into yearly estimates by weighting each season's estimate by their respective harvest proportions (stratified estimator). This analysis is described in detail in Templin et al. (2011c).

For ease of interpretation and visual presentation, the 26 fine-scale reporting groups were condensed into 14 broad-scale reporting groups (Table 2). The 14 reporting groups included 13 individual reporting groups, each of which were estimated to have contributed at least 5% to the

harvest in at least one area and/or period, and an additional *Other* group composed of the remaining 13 reporting groups. When reporting groups were combined, credibility intervals were calculated from the raw BAYES output using the new groupings.

RESULTS

FISHERY SAMPLING

Sampling of Chinook salmon typically began in April and ended in September of each year. Sample goals were not always met for every port in each year (Table 1). Reduced fishing effort, harvest sampling rates, and in some cases, poor Chinook salmon abundance were primary reasons for not attaining sampling goals. Low sample sizes compared to harvest levels in some ports caused some biweeks to be under-represented in mixture samples.

MIXED STOCK ANALYSIS

Laboratory Analysis

Quality control demonstrated a low error rate for all years of samples analyzed. A total of 3,115 fish were examined for quality control, or 40,495 genotype comparisons. The discrepancy rate was 1.0% over all projects.

Statistical Analysis

Ketchikan Area

Stock contributions in the Ketchikan area sport fishery harvests were dominated by the *S Southeast Alaska* reporting group in all years (range: 54–83%; Figure 2; Appendices B1–B4). In 2004 through 2007 and then again in 2011 through 2014, the *West Vancouver* reporting group was also present (range: 5–13%). The *Interior Columbia Su/F* reporting group was an important contributor in 2013 through 2015 (range: 6–13%). Very few fish from other stocks were consistently present at greater than 5% in this fishery.

Petersburg-Wrangell Area

The largest contributors to the sport fishery harvest in the Petersburg-Wrangell area were the *Stikine* reporting group (range: 13–42%) and the *Andrew* reporting group, which is primarily production from hatcheries which use Andrew Creek broodstock (range: 18–41%; Figure 3; Appendices B5–B8). Other important contributors in most years were the *Taku* and *S Southeast Alaska* reporting groups (ranges: 1–20% and 8–20%, respectively). The *BC Coast/Haida Gwaii* reporting group was an important contributor in 2009 through 2015 (range: 5–17%); however, prior to 2009 this group was present in low proportions (<5%). Results did not converge at 80,000 iterations in BAYES for the 2011, 2014, and 2015 estimates and the results reported herein are an average of the estimates generated from 3 of the 5 chains for 2011 and 2015, and 4 of the 5 chains for 2014.

Northern Inside Area

Sport fishery harvests in the Northern Inside area were dominated by local stocks in all years (Figure 4; Appendices B9–B12). The largest contributor in most years was the *Andrew* reporting group (range: 29–65%). The exception was in 2005 and 2006, when the *Taku* reporting group dominated the harvest (40% and 44%, respectively). Also important was the *N Southeast Alaska* reporting group in all years (range: 9–16%) except for 2015 (<5%). Very few fish from stocks

south of Alaska were present, although the *BC Coast/Haida Gwaii* reporting group was an important contributor in some years (range: 1–9%).

Outside Area

The largest contributor to the sport fishery over the entire season to the Outside area in 2004 through 2007 and 2011 was the *West Vancouver* reporting group (range: 23–36%; Figure 5; Appendices B13–B16). While this group remained an important contributor in following years, in 2008 the largest contributor was the *Andrew* reporting group (23%) and in 2010 the largest contributor was *South Thompson* group (22%). The largest contributor in 2009 and again in 2012 through 2015 was the *Interior Columbia Su/F* reporting group (range: 24–46% over this time period). Also important throughout the study period were the *Andrew* (range: 3–23%), *South Thompson* (range: 5–22%), and *Washington Coast* reporting groups (range: 6–15%).

Similar trends were apparent when comparing early and late season estimates in the Outside area. In the early season, the *West Vancouver* reporting group was the largest contributor in 2004 through 2007, and again in 2011 (range: 22–30%; Figure 6, Appendices B17–B20). In 2008 and 2009, the *Andrew* reporting group was the largest contributor during the early season (26% and 16%, respectively), while the largest contributor in 2010 was *South Thompson* (27%). The *Interior Columbia Su/F* reporting group dominated the harvest in 2012 through 2015 (range: 19–44%). Also important in the early season was the *Washington Coast* reporting group, especially in later years (range: 5–14%). During the late season, the *West Vancouver* and *Interior Columbia Su/F* reporting groups were more important contributors, with *West Vancouver* dominating from 2004 through 2007 and in 2010 and 2015 (range: 26–50%) and *Interior Columbia Su/F* was most prevalent in 2009 and from 2011 to 2014 (range: 26–49%; Figure 7; Appendices B21–B24). The *South Thompson* reporting group was the largest contributor in 2008 (22%). Noticeably absent from late season estimates in most years was the *Andrew* reporting group (range: 0–9%).

DISCUSSION

TEMPORAL AND SPATIAL PATTERNS DURING STUDY YEARS

These results demonstrate the application of MSA to estimate the stock composition of the SEAK Chinook salmon sport fishery from 2004 through 2015. Comparison of these results with estimates based on coded wire tags and the PSC Chinook Model will require additional analyses. However, detailed information is now available on the composition of Chinook salmon harvested in the SEAK sport fishery that was not observable under previous methods. These estimates indicate that the composition of the harvest varies both by time and area.

As expected, the stock composition of the Chinook salmon sport fishery harvests varied greatly by area. The fisheries located in inside waters (the Northern Inside, Petersburg-Wrangell, and Ketchikan areas) were comprised primarily of Alaska and transboundary Taku and Stikine rivers stocks. Local stocks were the major contributors to fisheries in each of these areas, with more northern (Southeast Alaska and transboundary) stocks present in the Northern Inside sport fishery, and increasing presence of southern (BC and south) stocks in southern Southeast Alaska sport fisheries. The Northern Inside sport fishery takes place near the ports of Juneau, Haines, and Skagway, and near the origin of stocks that make up the *N Southeast Alaska* and *Taku* reporting groups. In addition, *Andrew* is the broodstock for many hatchery stocks, including the Macaulay Hatchery located in Juneau. Similarly, the largest contributors to the Petersburg-

Wrangell fishery were the local *Stikine* and *Andrew* reporting groups; moreover, *Andrew* is the broodstock used in nearby Crystal Lake Hatchery. The largest contributor to the Ketchikan fishery was the *S Southeast Alaska* reporting group, which includes 14 nearby populations. Very few non-Alaska or non-transboundary groups were represented in these inside sport fisheries.

In contrast, Chinook salmon sport fishery harvests that took place in the Outside area of Southeast Alaska were comprised of a greater variety of stocks and many more fish from non-Alaska reporting groups. These results were similar to what has been observed for commercial troll fisheries that take place in outside waters of Southeast Alaska (Gilk-Baumer et al. 2013, Gilk-Baumer et al. 2017). While the sport fishery is more protracted compared to the seasonal commercial troll fisheries and occurs closer to shore, there is overlap in timing and location with the summer commercial troll fishery that allows comparison of represented reporting groups for 2004 through 2015. Like the Outside area sport fishery, the Northern Outside summer commercial troll fishery harvests a variety of stocks, primarily from non-Alaska reporting groups. The same reporting groups that are prevalent in the sport fishery (*West Vancouver*, *Interior Columbia Su/F*, *South Thompson*, *Washington Coas*t, and *Andrew*) were also large contributors in the commercial troll fisheries. However, compared to the commercial troll fishery, the sport fishery consistently harvested a higher proportion of fish from northern stocks: *Andrew* (broodstock released from Medvejie Hatchery south of Sitka are Andrew Creek stock), *S Southeast Alaska*, and *West Vancouver* reporting groups. The Northern Outside summer commercial troll fishery consistently harvested higher proportions of fish from southern stocks: the *South Thompson*, *Washington Coast*, *Interior Columbia Su/F*, and *North Oregon Coast* reporting groups. These differences are likely due to differences in where these fisheries take place, with sport anglers typically fishing closer to the coastline and commercial troll fishers operating well offshore in some cases. These findings are consistent with studies conducted in Northern British Columbia that have concluded that West Coast Vancouver Island Chinook salmon stocks tend to migrate within 1 mile of the coastline and are therefore more vulnerable to fisheries operating closer to shore (Winther and Beacham 2006). Differences in stock composition between these fisheries may also be due to the timing of the fisheries, because the sport fishery tends to be more protracted in duration. The early season sport fishery also tended to harvest a higher proportion of northern stocks compared to the late season fishery.

Although consistent patterns of contribution by reporting group were observed across years, there were some trends that appear to mimic abundance trends for certain stocks. For example, the increasing trend in the proportion of the *Interior Columbia Su/F* reporting group in recent years in the Outside area sport fishery mirrors increasing trends in abundance of Columbia River fall Chinook salmon observed at the Bonneville Dam (http://www.cbr.washington.edu/dart/adult.html). Similarly, the decreasing trends in proportion of the *Taku* and *N Southeast Alaska* reporting groups in the Northern Inside area sport fishery and of the *Stikine* reporting group in the Petersburg-Wrangell area sport fishery reflect the recent declines in abundance for these local stocks (CTC 2016).

APPLICATIONS TO PACIFIC SALMON TREATY

These results provide a comprehensive assessment using MSA to estimate the stock composition of Chinook salmon harvested in the SEAK troll fishery. Stock composition data from this program are currently being used in several other studies with a broad array of applications:

1. These MSA stock composition estimates have already proven considerably valuable for fishery management in terminal and near-terminal areas and are being used in run reconstructions to generate better forecasts of run strength for transboundary rivers under Chapter 1 of the PST.
2. These MSA stock composition estimates are being combined with individual assignment, otolith mark, CWT, age, and harvest information to provide independent abundance estimates of some PSC Chinook Model stocks to assist in evaluation of the PSC Chinook Model. The PSC Chinook Model may not reliably determine the composition of the harvest in SEAK because (1) it does not include fish originating from transboundary rivers (i.e., Taku, Stikine, Alsek rivers), (2) only 1 of its 30 model stocks originates from SEAK and it only represents a small proportion of the natural production of SEAK Chinook salmon, and (3) the model is based on *treaty Chinook* which excludes nearly all of the Southeast Alaska hatchery-produced Chinook salmon harvested in SEAK fisheries. For domestic applications, the preferred way to estimate the composition of the SEAK Chinook salmon harvest is to apply fishery stock composition data from MSA to harvest data. This approach has been successfully applied to the SEAK commercial troll fishery from 1999 through 2014 (Templin et al. 2011; Gilk-Baumer et al. 2013, 2017), and is currently being applied to a large proportion of the overall harvest of Chinook salmon in Southeast Alaska.
3. Bernard et al. (2014) investigated using genetic analysis in combination with CWTs to estimate terminal run size of Chinook salmon in 2011 from 4 large stock groups that are major contributors to SEAK troll and sport fisheries: West Coast Vancouver Island, Washington Coast, North Oregon Coast, and Upper Columbia River Falls. This "driver stock" method has proven successful at estimating the terminal run size of several of the stocks that are major contributors to the SEAK fishery and has resulted in an on-going annual effort.

CONCLUSIONS

1. There is considerable spatial variation in stock composition within years, but generally consistent patterns of contribution across years. Changes in contributions of stocks between years are consistent with abundance trends observed in some stocks.
2. The reporting groups that contributed the highest proportion of fish to the SEAK sport fisheries on an annual basis are the *Taku*, *Andrew*, *Stikine*, *S Southeast Alaska*, *West Vancouver*, *South Thompson*, *Washington Coast*, and *Interior Columbia Su/F* reporting groups.
3. The sport fisheries conducted in SEAK inside waters (Northern Inside, Petersburg-Wrangell, and Ketchikan areas) primarily harvest stocks of Chinook salmon from SEAK and the transboundary Taku and Stikine rivers, whereas sport fisheries conducted in outside waters (Outside area) harvest a greater variety of stocks including those from British Columbia and the Pacific Northwest.

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TABLES AND FIGURES

Table 1.–Sampling goals and numbers of fish sampled from sport fishery harvests of Chinook salmon at ports in Southeast Alaska for use in mixed stock analysis.

		Ketchikan	Petersburg-Wrangell		Northern Inside			Outside					
		Ketchikan	Petersburg	Wrangell	Haines	Juneau	Skagway	Craig	Elfin Cove	Glacier Bay	Sitka	Yakutat	Total
2004	Goal	600	320	80	15	350	20	200	50	65	600	40	2,340
	Actual	689	255	76	25	292	11	297	107	128	641	77	2,598
2005	Goal	600	320	80	15	350	20	200	50	65	600	40	2,340
	Actual	891	444	192	25	778	39	317	74	113	639	99	3,611
2006	Goal	300	200	50	20	300	20	150	20	20	300	20	1,400
	Actual	690	367	266	25	696	30	262	50	78	600	52	3,116
2007	Goal	600	450	200	15	600	20	200	50	65	600	75	2,875
	Actual	448	315	256	25	477	22	213	70	67	595	68	2,556
2008	Goal	600	450	200	15	600	20	200	50	65	600	75	2,875
	Actual	455	391	200	10	599	26	358	30	43	821	71	3,004
2009	Goal	600	450	200	15	600	20	200	50	65	600	75	2,875
	Actual	983	278	108	15	607	20	538	49	65	599	174	3,436
2010	Goal	600	450	200	15	600	20	200	50	65	600	75	2,875
	Actual	466	307	116	15	444	20	435	48	51	777	35	2,714
2011	Goal	600	450	200	25	600	20	500	50	65	1,500	75	4,085
	Actual	470	321	142	25	515	24	596	78	116	1,706	68	4,061
2012	Goal	600	450	200	25	600	20	500	50	65	1,500	75	4,085
	Actual	502	308	154	25	575	20	554	62	27	1,706	89	4,022
2013	Goal	600	450	200	25	600	20	500	50	65	1,500	75	4,085
	Actual	507	239	80	23	698	20	503	98	107	1,866	107	4,248
2014	Goal	600	450	200	25	600	20	500	50	65	1,500	75	4,085
	Actual	963	410	161	24	698	16	625	100	115	2,134	114	5,360
2015	Goal	600	450	200	25	600	20	500	50	65	1,500	75	4,085
	Actual	1,005	417	341	0	725	19	897	127	93	1,469	97	5,171

Table 2.–Reporting groups for the Chinook salmon coastwide baseline used to report stock composition of SEAK sport fishery harvests.

	Population	26 reporting groups	14 reporting groups
1	1	*Situk*	*Other*
2	2–5	*Alsek*	*Other*
3	6–10	*N Southeast Alaska*	*N Southeast Alaska*
4	11–17	*Taku*	*Taku*
5	18–21	*Andrew*	*Andrew*
6	22–28	*Stikine*	*Stikine*
7	29–42	*S Southeast Alaska*	*S Southeast Alaska*
8	43–51	*Nass*	*Other*
9	52–78	*Skeena*	*Other*
10	79–97	*BC Coast/Haida Gwaii*	*BC Coast/Haida Gwaii*
11	98-113	*West Vancouver*	*West Vancouver*
12	114-123	*East Vancouver*	*Other*
13	124-157	*Fraser*	*Other*
14	158-166	*Lower Thompson*	*Other*
15	167-172	*North Thompson*	*Other*
16	173-180	*South Thompson*	*South Thompson*
17	181-212	*Puget Sound*	*Other*
18	213-223	*Washington Coast*	*Washington Coast*
19	224-226	*West Cascades Sp*	*Other*
20	227-240	*Lower Columbia F*	*Lower Columbia F*
21	241-246	*Willamette Sp*	*Other*
22	247-302	*Columbia Sp*	*Other*
23	303-320	*Interior Columbia Su/F*	*Interior Columbia Su/F*
24	321-331	*North Oregon Coast*	*North Oregon Coast*
25	332-339	*Mid Oregon Coast*	*Other*
26	340-357	*S Oregon/California*	*Other*

Note: Population numbers are listed in Appendix A1. Populations were combined into 26 fine-scale reporting groups and 14 broad-scale reporting groups.

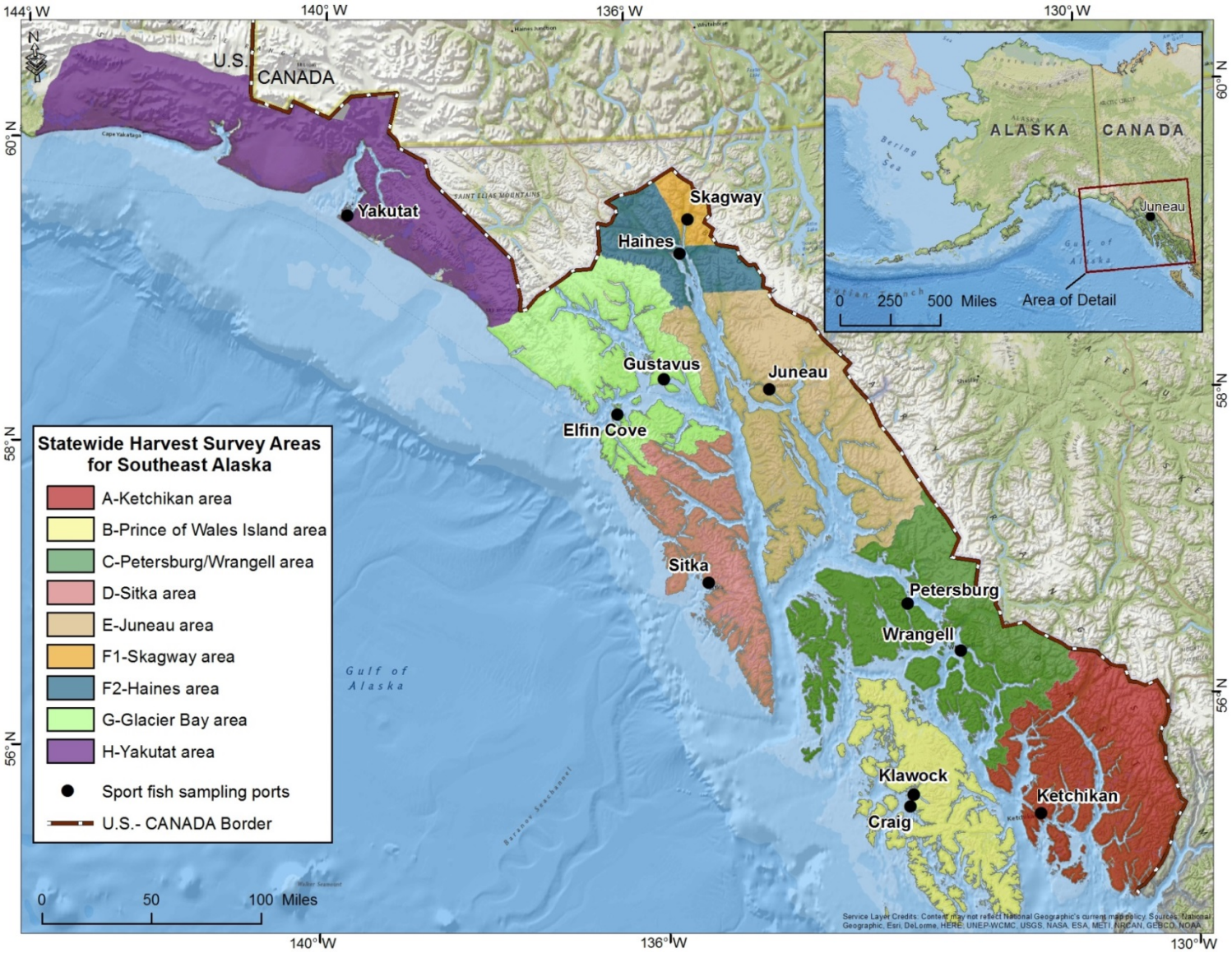

Figure 1.–Location of sport fishing ports in Southeast Alaska.

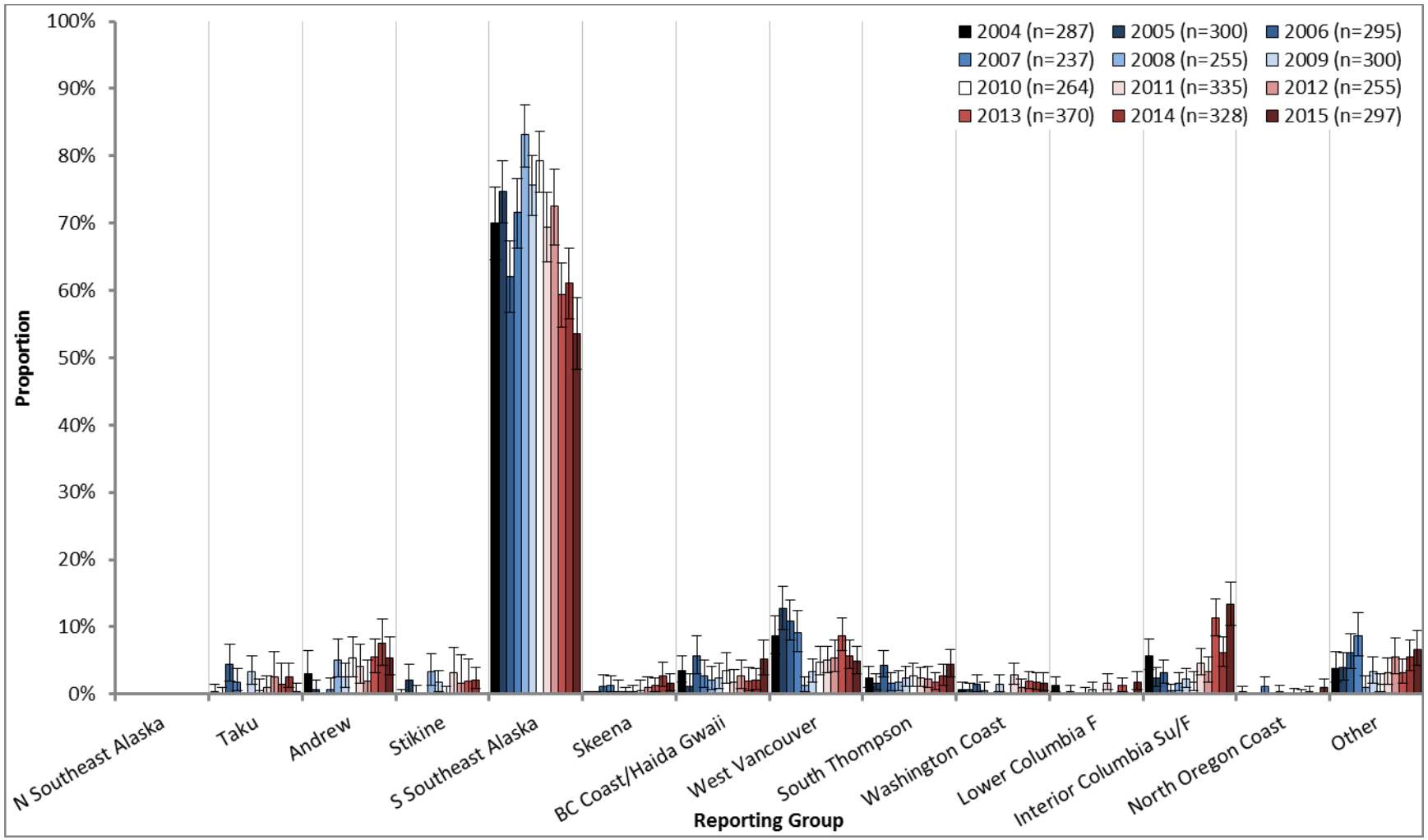

Figure 2.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the Ketchikan area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

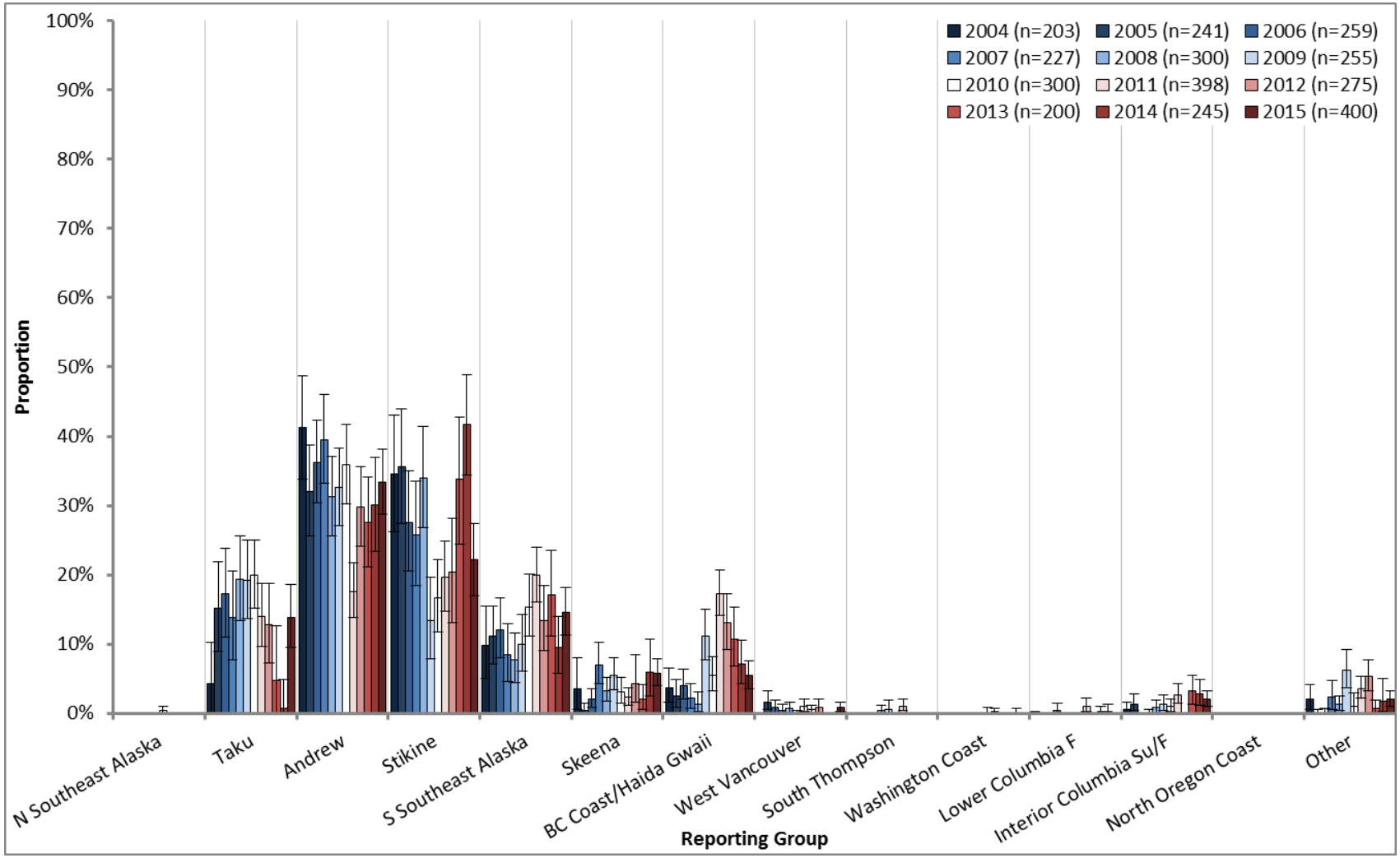

Figure 3.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the Petersburg-Wrangell area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

Note: For 2011 and 2015 estimates, results did not converge at 80,000 iterations and are an average of results from 3 of 5 chains.

Note: For 2014 estimates, results did not converge at 80,000 iterations and are an average of results from 4 of 5 chains.

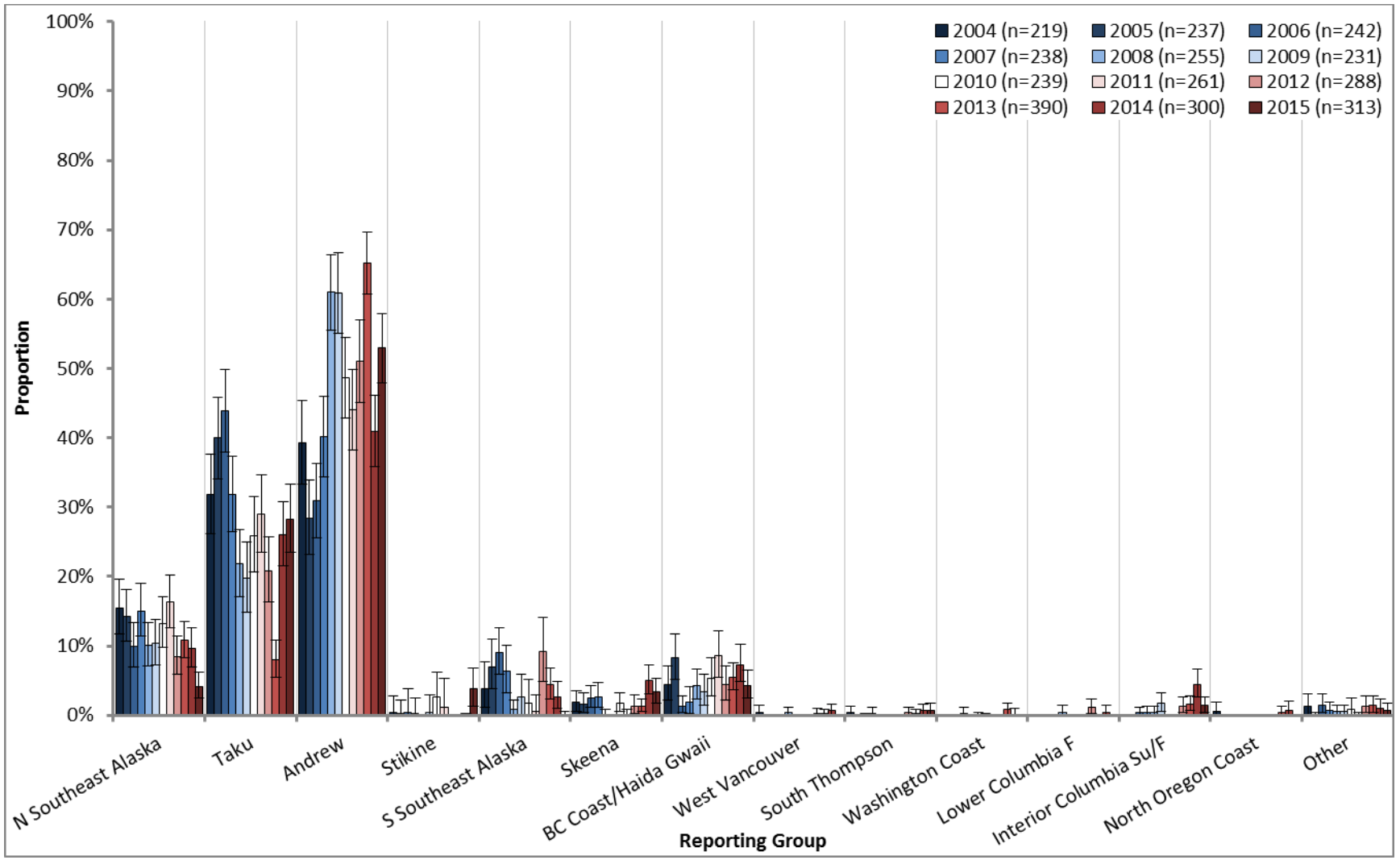

Figure 4.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the Northern Inside area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

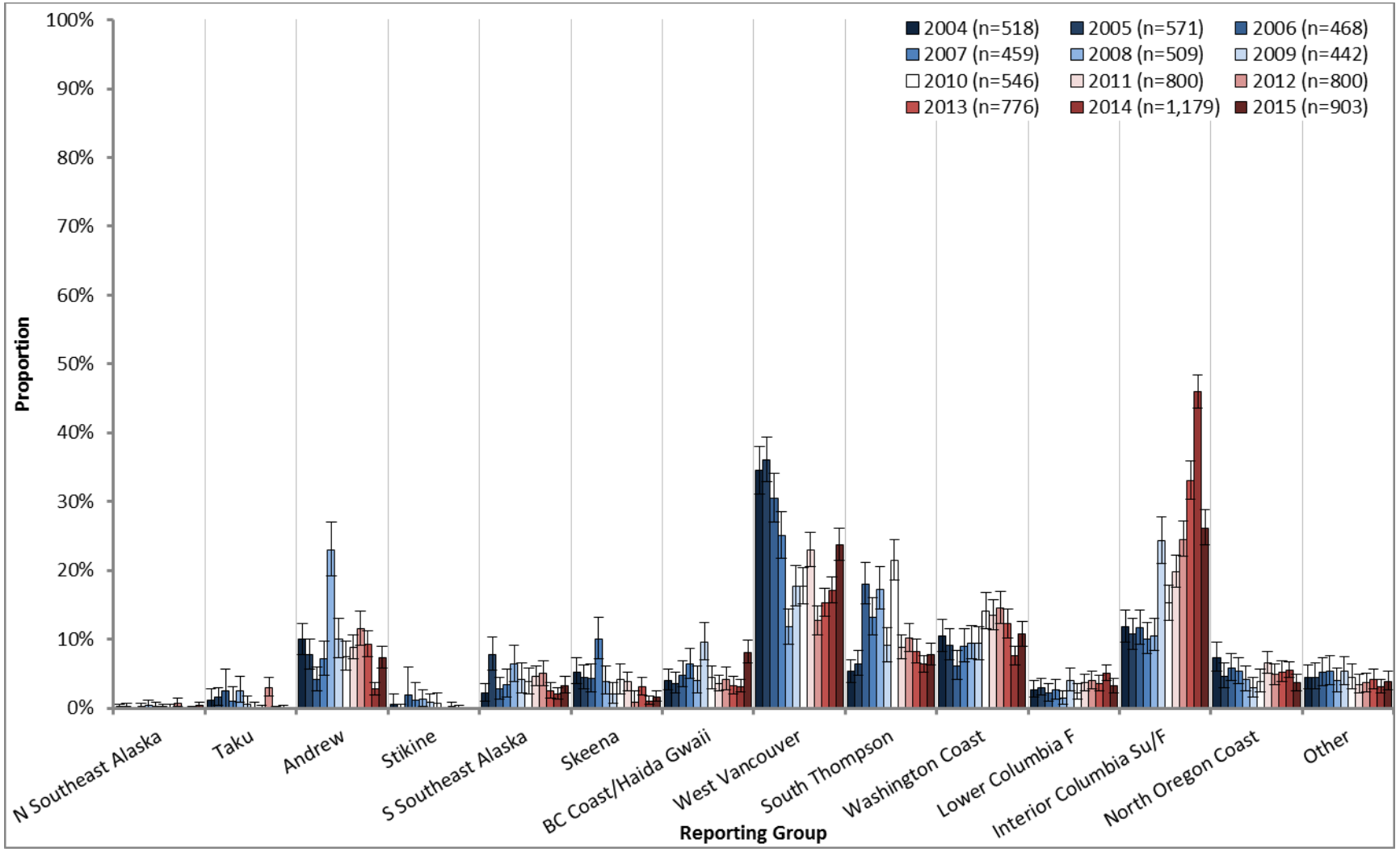

Figure 5.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the total season Outside area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

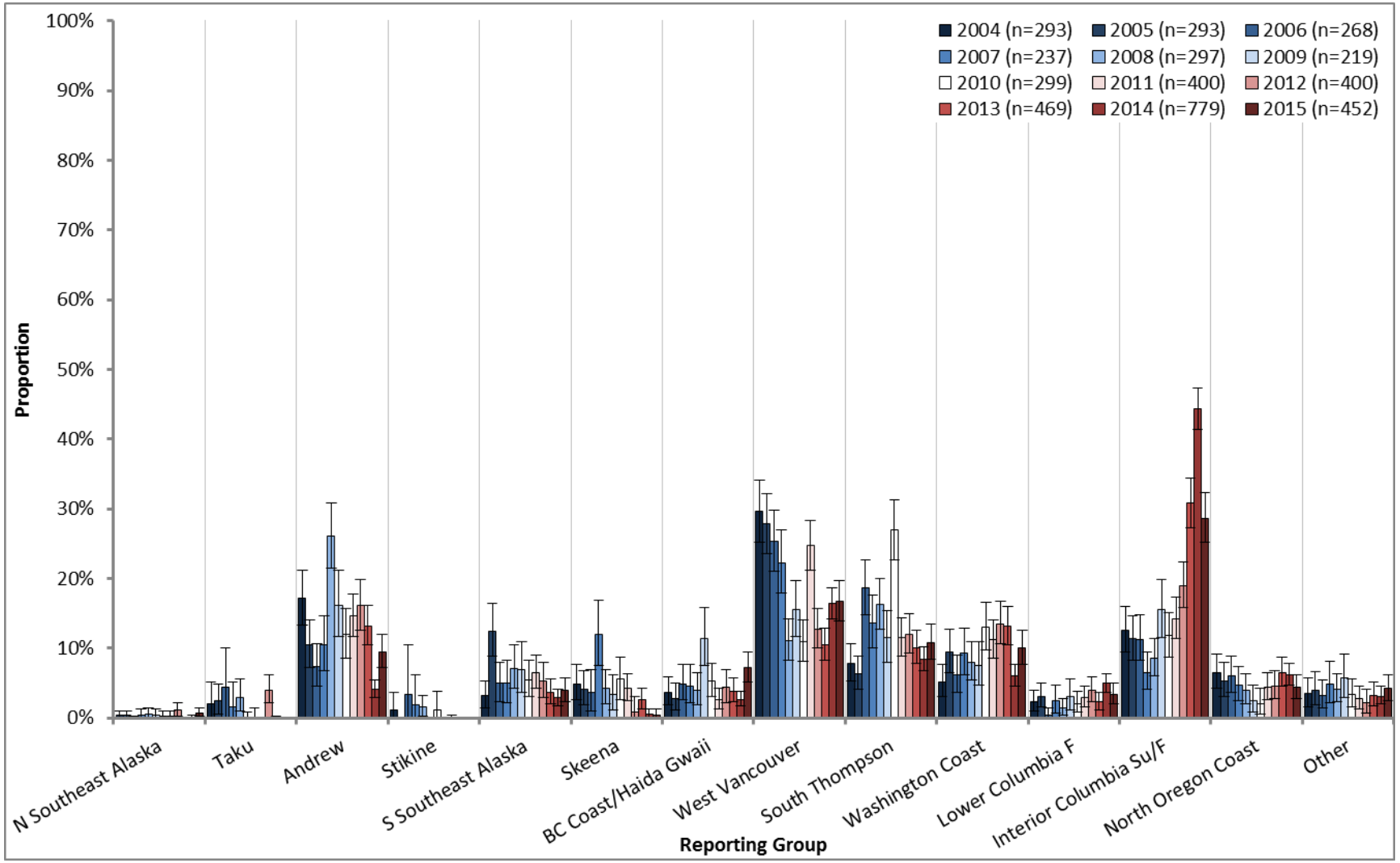

Figure 6.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the early season (biweeks 9–13) Outside area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

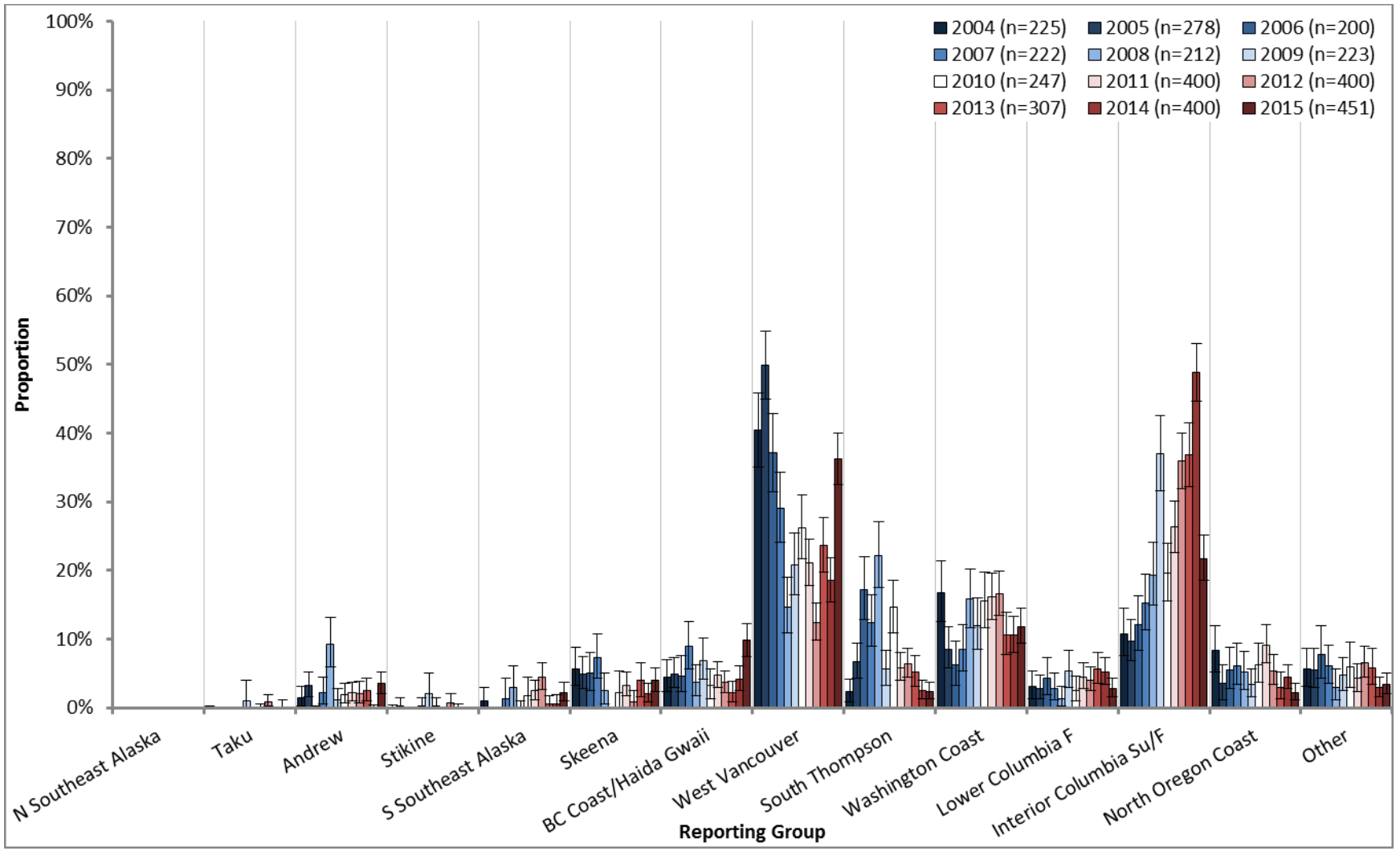

Figure 7.–Estimated contributions and 90% credibility intervals of 14 broad-scale reporting groups of Chinook salmon to the late season (biweeks 14–18) Outside area sport fishery harvest in SEAK, 2004–2015.

Note: Reporting groups are described in Table 2 and Appendix A.

APPENDIX A: BASELINE POPULATIONS

Appendix A1.–Location and collection details for each population of Chinook salmon included in the coastwide baseline of microsatellite data (GAPS version 3.0).

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
1	*Situk*	1	Situk River	127		W	Adult	1988, 1990, 1991, 1992
2	*Alsek*	2	Blanchard River	349		W	Adult	2000, 2001, 2002, 2003
		3	Goat Creek	62		W	Adult	2007, 2008
		4	Klukshu River	238		W	Adult	1987, 1989, 1990, 1991, 2000, 2001
		5	Takhanne River	196		W	Adult	2000, 2001, 2002, 2003, 2008
3	*N Southeast Alaska*	6	Big Boulder Creek	138		W	Adult	1992, 1995, 2004
		7	Tahini River--Macaulay Hatchery	77		H	Adult	2005
		8	Tahini River	119		W	Adult	1992, 2004
		9	Kelsall River	153		W	Adult	2004
		10	King Salmon River	143		W	Adult	1989, 1990, 1993
4	*Taku*	11	Dudidontu River	233		W	Adult	2002, 2004, 2005, 2006
		12	Kowatua Creek	288		W	Adult	1989, 1990, 2005
		13	Little Tatsamenie River	684		W	Adult	1999, 2005, 2006, 2007
		14	Little Trapper River	74		W	Adult	1999
		15	Upper Nahlin River	132		W	Adult	1989, 1990, 2004
		16	Nakina River	428		W	Adult	1989, 1990, 2004, 2005, 2006, 2007
		17	Tatsatua Creek	171		W	Adult	1989, 1990
5	*Andrew*	18	Andrew Creek	131		W	Adult	1989, 2004
		19	Andrew Creek–Crystal Hatchery	207		H	Adult	2005
		20	Andrew Creek–Macaulay Hatchery	135		H	Adult	2005
		21	Andrew Creek–Medvejie Hatchery	177		H	Adult	2005
6	*Stikine*	22	Christina River	164		W	Adult	2000, 2001, 2002
		23	Craig River	96		W	Adult	2001
		24	Johnny Tashoots Creek	62		W	Adult	2001, 2004, 2005, 2008
		25	Little Tahltan River	126		W	Adult	2001. 2004
		26	Shakes Creek	164		W	Adult	2000, 2001, 2002, 2007
		27	Tahltan River	80		W	Adult	2008
		28	Verrett River	482		W	Adult	2000, 2002, 2003, 2007
7	*S Southeast Alaska*	29	Chickamin River	126		W	Adult	1990, 2003
		30	King Creek	136		W	Adult	2003
		31	Butler Creek	190		W	Adult	2004
		32	Leduc Creek	43		W	Adult	2004
		33	Humpy Creek	124		W	Adult	2003
		34	Chickamin River–Little Port Walter H.	218		H	Adult	1993, 2005
		35	Chickamin River–Whitman Hatchery	193		H	Adult	2005
		36	Clear Creek	134		W	Adult	1989, 2003, 2004

-continued-

Appendix A1.–Page 2 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
7	*Southeast Alaska (cont.)*	37	Cripple Creek	141		W	Adult	1988, 2003
		38	Gene's Lake	92		W	Adult	1989, 2003, 2004
		39	Kerr Creek	151		W	Adult	2003, 2004
		40	Unuk River–Little Port Walter H.	149		H	Adult	2005
		41	Keta River	200		W	Adult	1989, 2003, 2004
		42	Blossom River	190		W	Adult	2004
8	*Nass*	43	Cranberry River	158		W	Adult	1996, 1997
		44	Damdochax River	63	Su	W	Adult	1996
		45	Ishkheenickh River	192			Adult	2004, 2006
		46	Kincolith River	220	Su	W	Adult	1996, 1999
		47	Kiteen River	54			Adult	2006
		48	Kwinageese River	67	Su	W	Adult	1996, 1997
		49	Meziadin River	45			Adult	1996
		50	Oweegie Creek	147	Su	W	Adult	1996, 1997, 2004
		51	Tseax River	198			Adult	1995, 1996, 2002, 2006, 2008
9	*Skeena*	52	Cedar River	112	Su	W	Adult	1996
		53	Ecstall River	149	Su	W	Adult	2000, 2001, 2002
		54	Exchamsiks River	106			Adult	1995, 2009
		55	Exstew River	140			Adult	2009
		56	Gitnadoix River	170			Adult	1995, 2009
		57	Kitsumkalum River (Lower)	449	Su	W	Adult	1996, 1998, 2001, 2009
		58	Kasiks River	60			Adult	2006
		59	Zymagotitz River	119			Adult	2006, 2009
		60	Zymoetz River (Upper)	54			Adult	1995, 2004, 2009
		61	Kispiox River	88			Adult	1995, 2004, 2006, 2008
		62	Kitseguecla River	258			Adult	2009
		63	Kitwanga River	169			Adult	1996, 2002, 2003
		64	Shegunia River	78			Adult	2009
		65	Sweetin River	60			Adult	2004, 2005, 2008
		66	Bear River	99			Adult	1991, 1995, 1996, 2005
		67	Kluakaz Creek	98			Adult	2007, 2008, 2009
		68	Kluayaz Creek	144			Adult	2007, 2008, 2009
		69	Kuldo Creek	170			Adult	2008, 2009
		70	Osti Creek	90			Adult	2009
		71	Sicintine River	105		W	Adult	2009
		72	Slamgeesh River	125			Adult	2004, 2005, 2006, 2007, 2008, 2009
		73	Squingala River	259			Adult	2008, 2009

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Appendix A1.–Page 3 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
9	*Skeena (cont.)*	74	Sustut River	337	Su	W	Adult	1995, 1996, 2001, 2002, 2005, 2006
		75	Babine River	105	Su	H	Adult	1996
		76	Bulkley River (Upper)	206	Su	W	Adult	1991, 1998, 1999
		77	Morice River	105			Adult	1991, 1995, 1996
		78	Suskwa River	85			Adult	2004, 2005, 2009
10	*BC Coast/Haida Gwaii*	79	Yakoun River	131			Adult	1989, 1996, 2001
		80	Atnarko Creek	142	Su	H	Adult	1996
		81	Chuckwalla River	46			Adult	1999, 2001, 2005
		82	Dean River	175			Adult	2002, 2003, 2004, 2006
		83	Dean River (Upper)	176			Adult	2001, 2002, 2003, 2004, 2006
		84	Docee River	42			Adult	1999, 2002, 2007
		85	Kateen River	128			Adult	2004, 2005
		86	Kilbella River	50			Adult	2001, 2005
		87	Kildala River	197			Adult	1999, 2000
		88	Kitimat River	135	Su	H	Adult	1997
		89	Kitlope River	181			Adult	2004, 2006
		90	Takia River	46			Adult	2002, 2003, 2006
		91	Wannock River	129	F	H	Adult	1996
		92	Capilano River	75			Adult	1999
		93	Cheakamus River	54	F		Adult	2006, 2007, 2008
		94	Devereux River	148	F	W	Adult	1997, 2000
		95	Klinaklini River	198	F	W	Adult	1997, 1998, 2002
		96	Phillips River	287			Adult	2000, 2004, 2006, 2007, 2008
		97	Squamish River	181	F	H	Adult	2003
11	*West Vancouver*	98	Burman River	218			Adult	1985, 1989, 1990, 1991, 1992, 2000, 2002, 2003
		99	Conuma River	140	F	H	Adult	1997
		100	Gold River	258			Adult	1983, 1985, 1986, 1987, 1992, 2002
		101	Kennedy River (Lower)	320			Adult	2005, 2007, 2008
		102	Marble River	136	F	H	Adult	1996, 1999, 2000
		103	Nahmint River	43			Adult	2002, 2003
		104	Nitinat River	125	F	H	Adult	1996
		105	Robertson Creek	124	F	H	Adult	1996, 2003
		106	San Juan River	175			Adult	2001, 2002
		107	Sarita River	137	F	H	Adult	1997, 2001
		108	Tahsis River	174	F	W	Adult	1996, 2002, 2003
		109	Thornton Creek	158			Adult	2001
		110	Tlupana River	58			Adult	2002, 2003

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Appendix A1.–Page 4 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
11	*West Vancouver (cont.)*	111	Toquart River	68			Adult	1999, 2000
		112	Tranquil Creek	227	F	W	Adult	1996, 1999, 2004
		113	Zeballos River	148			Adult	2002, 2005, 2006, 2007, 2008
12	*East Vancouver*	114	Chemainus River	202			Adult	1996, 1999
		115	Nanaimo River (Fall)	122	F	H	Adult	1996, 2002
		116	Nanaimo River (Summer)	166	Su	H	Adult	1996, 2002
		117	Nanaimo River (Spring)	94	Sp	W	Adult	1998
		118	Nanaimo River (Upper)	114			Adult	2003, 2004
		119	Nimpkish River	68			Adult	2004
		120	Puntledge River (Fall)	279	F	H	Adult	2000, 2001
		121	Puntledge River (Summer)	255	Su	H	Adult	1998, 2000, 2006
		122	Qualicum River	79	F	H	Adult	1996
		123	Quinsam River	143	F	H	Adult	1996, 1998
13	*Fraser*	124	Harrison River	216	F		Adult	1999, 2002
		125	Big Silver Creek	54	Sp	W	Adult	2004, 2005, 2006, 2007, 2008
		126	Birkenhead River	154	Sp	W	Adult	1998, 1999, 2001, 2002, 2005, 2006
		127	Pitt River (Upper)	65	Sp	W	Adult	2004, 2005, 2006, 2007, 2008
		128	Maria Slough	271	Su	W	Adult	1999, 2000, 2001, 2002, 2005
		129	Baezaeko River	80			Adult	1984, 1985
		130	Bridge River	157			Adult	1996
		131	Cariboo River	76	Su	W	Adult	1996, 2007, 2008
		132	Cariboo River (Upper)	166	Sp	W	Adult	2001
		133	Chilcotin River	201	Sp	W	Adult	1996, 1997, 1998, 2001
		134	Chilcotin River (Lower)	173	Sp	W	Adult	1996, 2000, 2001
		135	Chilko River	144	Sp	W	Adult	1995, 1999, 2001, 2002
		136	Cottonwood River (Upper)	118			Adult	2004, 2007, 2008
		137	Elkin Creek	190	Su	W	Adult	1996
		138	Endako River	42			Adult	1997, 1998, 2000
		139	Nazko River	179			Adult	1983, 1984, 1985
		140	Nechako River	128	Su	W	Adult	1992, 1996
		141	Portage Creek	138			Adult	2002, 2004, 2005, 2006, 2008
		142	Quesnel River	119	Su	W	Adult	1996, 1997
		143	Stuart River	125	Su	W	Adult	1996
		144	Taseko River	120			Adult	1997, 1998, 2002
		145	Bowron River	78	Sp	W	Adult	1997, 1998, 2001, 2003
		146	Fontoniko Creek	46			Adult	1996
		147	Goat River	46			Adult	1997, 2000, 2001, 2002

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Appendix A1.–Page 5 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
13	*Fraser (cont.)*	148	Holmes River	100			Adult	1996, 1999, 2000, 2001, 2002
		149	James Creek	53			Adult	1984, 1988
		150	McGregor River	119			Adult	1997
		151	Morkill River	152	Su	W	Adult	2001
		152	Salmon River (Fraser)	153	Sp	W	Adult	1996, 1997
		153	Slim Creek	113	Sp	W	Adult	1996, 1998, 2001
		154	Swift Creek	120	Sp	W	Adult	1996, 2000
		155	Fraser River above Tete Jaune	183			Adult	2001
		156	Torpy River	135	F	W	Adult	2001
		157	Willow River	37	Sp	W	Adult	1997, 2002, 2004
14	*Lower Thompson*	158	Coldwater River	109			Adult	1995, 1997, 1998, 1999
		159	Coldwater River (Upper)	69			Adult	2004, 2005, 2006
		160	Deadman River	256	Sp	H	Adult	1997, 1998, 1999, 2006
		161	Lois River	259	Sp	W	Adult	1997, 1999, 2001, 2006, 2008
		162	Nicola Hatchery	135	Sp	H	Adult	1998, 1999
		163	Nicola River	88			Adult	1998, 1999
		164	Spius Creek	52			Adult	1998, 1999
		165	Spius Creek (Upper)	82			Adult	2001, 2006
		166	Spius Hatchery	95	Sp	H	Adult	1996, 1997, 1998
15	*North Thompson*	167	Blue River	57			Adult	2001, 2002, 2003, 2004, 2006, 2007
		168	Clearwater River	112	Su	W	Adult	1997
		169	Finn Creek	174			Adult	1996, 1998, 2002, 2006, 2008
		170	Lemieux Creek	56			Adult	2001, 2002, 2004, 2006
		171	North Thompson River	77			Adult	2001
		172	Raft River	105	Su	W	Adult	2001, 2002, 2006, 2008
16	*South Thompson*	173	Adams River	76	Su	H	Adult	1996, 2001, 2002
		174	Bessette Creek	103			Adult	1998, 2002, 2003, 2004, 2006, 2008
		175	Eagle River	76			Adult	2003, 2004
		176	Shuswap River (Lower)	93			Adult	1996, 1997
		177	Shuswap River (Middle)	149	Su	H	Adult	1997, 2001
		178	South Thompson River	73			Adult	1996, 2001
		179	Salmon River	126			Adult	1997, 1998, 1999
		180	Thompson River (Lower)	175	F	W	Adult	2001, 2008
17	*Puget Sound*	181	Dungeness River	123		W	Adult	2004
		182	Elwha Hatchery	209	F	H	Adult/Juv	1996, 2004
		183	Elwha River	139		W	Adult/Juv	2004, 2005
		184	Upper Cascade River	43	Sp	W	Adult	1998, 1999

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Appendix A1.–Page 6 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
17	*Puget Sound (cont.)*	185	Marblemount Hatchery	91	Sp	H	Adult	2006
		186	North Fork Nooksack River	137	Sp	H,W	Adult	1998, 1999
		187	North Fork Stilliguamish River	290	Su	H,W	Adult	1996, 2001, 2004
		188	Samish Hatchery	74	F	H	Adult	1998
		189	Upper Sauk River	120	Sp/Su	W	Adult	1994, 1998, 1999, 2006
		190	Skagit River (Summer)	99	Su	W	Adult	1994, 1995
		191	Skagit River (Lower; Fall)	95	F	W	Adult	1998, 2006
		192	Skagit River (Upper)	53	Su	W		1998
		193	Skykomish River	73	Su	W	Adult	1996, 2000
		194	Snoqualmie River	49		W		2005
		195	Suiattle River	122	Sp	W	Adult	1989, 1998, 1999
		196	Wallace Hatchery	191	Su	H	Adult	1996, 2004, 2005
		197	Bear Creek	204	Su/F	W	Adult	1998, 1999, 2003, 2004
		198	Cedar River	170	Su/F	W	Adult	1994, 2003, 2004
		199	Nisqually River–Clear Creek Hatchery	132	F	H	Adult	2005
		200	Grovers Creek Hatchery	95	Su/F	H	Adult	2004
		201	Hupp Springs Hatchery	90	Sp	H	Adult	2002
		202	Issaquah Creek	166	Su/F	H,W	Adult	1999, 2004
		203	Nisqually River	94	Su/F	W	Adult	1998, 1999, 2000, 2006
		204	South Prairie Creek	78	F	W	Adult	1998, 1999, 2002
		205	Soos Creek	178	F	H	Adult	1998, 2004
		206	Univ of Washington Hatchery	125	Su/F	H	Adult	2004
		207	Voights Hatchery	93	F	H	Adult	1998
		208	White River	146	Sp	H	Adult	1998
		209	George Adams Hatchery	131	F	H	Adult	2005
		210	Hamma Hamma River	128	F	W	Adult	1999, 2000, 2001
		211	North Fork Skokomish River	87	F	W	Adult	1998, 1999, 2000, 2004, 2005, 2006
		212	South Fork Skokomish River	96	Su/F	H,W	Adult	2005, 2006
18	*Washington Coast*	213	Forks Creek Hatchery	140	F	H	Adult	2005
		214	Hoh River (Fall)	115	F	W	Adult	2004, 2005
		215	Hoh River (Spring/Summer)	138	Sp/Su	W	Adult	1995, 1996, 1997, 1998, 2005, 2006
		216	Hoko Hatchery	73	F	H,W	Adult	2004, 2006
		217	Humptulips Hatchery	60	F	H	Adult	1990
		218	Makah Hatchery	128	F	H	Adult	2001, 2003
		219	Queets River	53	F	W	Adult	1996, 1997
		220	Quillayute River	52	F	W	Adult	1995, 1996
		221	Quinault River	54	F	W	Adult	1995, 1997, 1998

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Appendix A1.–Page 7 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
18	*Washington Coast (cont.)*	222	Quinault Hatchery	82	F	H	Adult	2001, 2006
		223	Sol Duc Hatchery	94	Sp	H	Adult	2003
19	*West Cascades Sp*	224	Cowlitz Hatchery (Spring)	124	Sp	H		2004
		225	Kalama Hatchery	133	Sp	H		2004
		226	Lewis Hatchery	116	Sp	H		2004
20	*Lower Columbia F*	227	Abernathy Creek	89	F	W	Adult	1995, 1997, 1998, 2000
		228	Abernathy Hatchery	91	F	H	Adult	1995
		229	Coweeman River	109	F	W	Adult	1996, 2006
		230	Cowlitz Hatchery (Fall)	116	F	H		2004
		231	Elochoman River	88	F	W	Adult	1995, 1997
		232	Green River	55	F	W	Adult	2000
		233	Lewis River (Fall)	79	F	W	Adult	2003
		234	Lewis River (Lower; Summer)	83	F	W	Adult	2004
		235	Lewis River (Summer)	128	F	W	Adult	2004
		236	Sandy River (Fall)	106	F	W	Adult	2002, 2004
		237	Washougal River	108	F	W	Adult	1995, 1996, 2006
		238	Big Creek Hatchery	95	F	H	Juvenile	2004
		239	Elochoman Hatchery	94	F	H	Juvenile	2004
		240	Spring Creek	194	F	H	Juvenile	2001, 2002, 2006
21	*Willamette Sp*	241	Sandy River (Spring)	63	Sp	W	Adult	2006
		242	McKenzie Hatchery	127	Sp	H	Adult	2002, 2004
		243	McKenzie River	90	Sp	W	Juvenile	1997
		244	North Fork Clackamas River	62	Sp	W	Juvenile	1997
		245	North Santiam Hatchery	125	Sp	H	Adult	2002, 2004
		246	North Santiam River	83	Sp	W	Juvenile	1997
22	*Columbia Sp*	247	Klickitat Hatchery	82	Sp	H	Adult	2002, 2006
		248	Klickitat River (Spring)	40	Sp	W	Adult	2005
		249	Shitike Creek	127	Sp	H	Juvenile	2003, 2004
		250	Warm Springs Hatchery	127	Sp	H		2002, 2003
		251	Granite Creek	54	Sp	W	Adult	2005, 2006
		252	John Day River (upper mainstem)`	65	Sp	W	Adult	2004, 2005, 2006
		253	Middle Fork John Day River	83	Sp	W	Adult	2004, 2005, 2006
		254	North Fork John Day River	105	Sp	W	Adult	2004, 2005, 2006
		255	American River	116	Sp	W	Adult	2003
		256	Upper Yakima Hatchery	179	Sp	H	Adult	1998
		257	Little Naches River	73	Sp	W	Adult	2004
		258	Yakima River (Upper)	46	Sp	W	Adult	1992, 1997
		259	Naches River	64	Sp	W	Adult	1989, 1993

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Appendix A1.–Page 8 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
22	*Columbia Sp (cont.)*	260	Carson Hatchery	168	Sp	H		2001, 2004, 2006
		261	Entiat Hatchery	127	Sp	H	Juvenile	2002
		262	Little White Salmon Hatchery (Spring)	93	Sp	H	Juvenile	2005
		263	Methow River (Spring)	85	Sp	H	Juvenile	1998, 2000
		264	Twisp River	122	Sp	W	Adult	2001, 2005
		265	Wenatchee Hatchery	43	Sp	H	Adult	1998, 2000
		266	Wenatchee River	62	Sp	W	Adult	1993
		267	Tucannon River	112	Sp/Su	W	Adult	2003
		268	Chamberlain Creek	45	Sp/Su	W	Juvenile	2006
		269	Crooked Fork Creek	100	Sp/Su	W	Juvenile	2005, 2006
		270	Dworshak Hatchery	81	Sp/Su	H	Adult	2005
		271	Lochsa River	125	Sp/Su	H	Adult	2005
		272	Lolo Creek	92	Sp/Su	W	Adult/Juv	2001, 2002
		273	Newsome Creek	75	Sp/Su	W	Adult	2001, 2002
		274	Rapid River Hatchery	136	Sp/Su	H		1997, 1999, 2002
		275	Rapid River Hatchery	46	Su	H	Juvenile	2001, 2002
		276	Red River/South Fork Clearwater	172	Sp/Su	H	Adult	2005
		277	Catherine Creek	111	Sp/Su	W	Adult	2002, 2003
		278	Lookingglass Hatchery	188	Sp/Su	H	Juvenile	1994, 1995, 1998
		279	Minam River	136	Sp/Su	W		1994, 2002, 2003
		280	Wenaha Creek	46	Sp/Su	W	Juvenile	2002
		281	Imnaha River	132	Sp/Su	W		1998, 2002, 2003
		282	Bear Valley Creek	45	Sp/Su	W	Juvenile	2006
		283	Johnson Creek	186	Sp/Su	W	Adult/Juv	2001, 2002, 2003
		284	Johnson Hatchery	92	Sp/Su	H	Juvenile	2002, 2003, 2004
		285	Knox Bridge	90	Su	W	Juvenile	2001, 2002
		286	McCall Hatchery	80	Su	H	Juvenile	1999, 2001
		287	Poverty Flat	88	Su	W	Juvenile	2001, 2002
		288	Sesech River	115	Sp/Su	W		2001, 2002, 2003
		289	Stolle Meadows	91	Su	W	Juvenile	2001, 2002
		290	Big Creek	142	Sp/Su	W	Adult	2001, 2002, 2003
		291	Big Creek (Lower)	74	Su	W	Juvenile	1999, 2002
		292	Big Creek (Upper)	87	Su	W	Juvenile	1999, 2002
		293	Camas Creek	42	Sp/Su	W	Juvenile	2006
		294	Capehorn Creek	51	Sp/Su	W	Juvenile	2006
		295	Marsh Creek	95	Su	W	Juvenile	2001, 2002
		296	Decker Flat	78	Su	W	Juvenile	1999, 2002
		297	Valley Creek (Lower)	94	Su	W	Juvenile	1999, 2002

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Appendix A1.–Page 9 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
22	*Columbia Sp (cont.)*	298	Valley Creek (Upper)	95	Su	W	Juvenile	1999, 2002
		299	East Fork Salmon River	141	Sp/Su	W	Adult	2004, 2005
		300	Pahsimeroi River	71	Sp/Su	W	Adult	2002
		301	Sawtooth Hatchery	260	Sp/Su	H	Adult/Juv	2002, 2003, 2005, 2006
		302	West Fork Yankee Fork	59	Sp/Su	W	Juvenile	2005
23	*Interior Columbia Su/F*	303	Hanford Reach	163	Su/F	W		1999, 2000, 2001
		304	Klickitat River (Summer/Fall)	149	Su/F	W	Adult	1994, 2005
		305	Little White Salmon Hatchery (Fall)	94	Su/F	H	Juvenile	2006
		306	Marion Drain	131	Su/F	W	Adult	1989, 1992
		307	Methow River (Summer)	115	Su/F	W		1992, 1993, 1994
		308	Okanagan River	72	Su/F	W	Adult	2000, 2002, 2003, 2004, 2006, 2007, 2008
		309	Priest Rapids Hatchery	181	Su/F	H	Juvenile	1998, 1999, 2000, 2001
		310	Priest Rapids Hatchery	67	Su/F	H	Adult	1998
		311	Umatilla Hatchery	90	F	H	Adult	2006
		312	Umatilla Hatchery	94	Su/F	H	Adult	2003
		313	Wells Dam Hatchery	128	Su/F	H		1993
		314	Wenatchee River	119	Su/F	W	Adult	1993
		315	Yakima River (Lower)	102	Su/F	W	Adult	1990, 1993, 1998
		316	Deschutes River (Lower)	101	F	W		1999, 2001, 2002
		317	Deschutes River (Upper)	128	Su/F	W	Juvenile	1998, 1999, 2002
		318	Clearwater River	88	F	W	Adult	2000, 2001, 2002
		319	Lyons Ferry	185	F	H	Adult	2002, 2003
		320	Nez Perce Tribal Hatchery	123	F	H	Adult	2003, 2004
24	*North Oregon Coast*	321	Alsea River	108	F	W	Adult	2004
		322	Kilchis River	44	F	Unk	Adult	2000, 2005
		323	Necanicum Hatchery	50	F	H,W	Adult	2005
		324	Nehalem River	131	F	W	Adult	2000, 2002
		325	Nestucca Hatchery	119	F	H	Adult	2004, 2005
		326	Salmon River	83	F	Unk	Adult	2003
		327	Siletz River	107	F	W	Adult	2000
		328	Trask River	123	F	W	Adult	2005
		329	Wilson River	120	F	W	Adult	2005
		330	Yaquina River	113	F	W	Adult	2005
		331	Siuslaw River	105	F	W	Adult	2001
25	*Mid Oregon Coast*	332	Coos Hatchery	58	F	H	Adult	2005
		333	Coquille River	118	F	W	Adult	2000
		334	Elk River	129	F	H	Adult	2004
		335	South Coos Hatchery	73	F	H	Adult	2005

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Appendix A1.–Page 10 of 10.

	Fine-scale Reporting Group	Pop No.[a]	Population	N	Run time[b]	Origin[c]	Life Stage	Collection Date
25	*Mid Oregon Coast (cont.)*	336	South Coos River	45	F	W	Adult	2000
		337	South Umpqua Hatchery	128	F	H,W	Adult	2002
		338	Sixes River	107	F	W	Adult	2000, 2005
		339	Umpqua Hatchery	132	Sp	W	Adult	2004
26	*S Oregon/California*	340	Applegate Creek	110	F	W	Adult	2004
		341	Cole Rivers Hatchery	126	Sp	H	Adult	2004
		342	Klaskanine Hatchery	96	F	H	Juvenile	2009
		343	Chetco River	136	F	W	Adult	2004
		344	Klamath River	111	F	W	Adult	2004
		345	Trinity Hatchery (Fall)	144	F	H	Adult	1992
		346	Trinity Hatchery (Spring)	127	Sp	H	Adult	1992
		347	Eel River	122	F	W	Adult	2000, 2001
		348	Russian River	142	F	W	Juvenile	2001
		349	Battle Creek	99	F	W	Adult	2002, 2003
		350	Butte Creek	61	F	W	Adult	2002, 2003
		351	Feather Hatchery (Fall)	129	F	H	Adult	2003
		352	Stanislaus River	61	F	W	Adult	2002
		353	Butte Creek	101	Sp	W	Adult	2002, 2003
		354	Deer Creek	42	Sp	W	Adult	2002
		355	Feather Hatchery (Spring)	144	Sp	H	Adult	2003
		356	Mill Creek	76	Sp	W	Adult	2002, 2003
		357	Sacramento River (Winter)	95	Wi	W, H	Adult	1992, 1993, 1994, 1995, 1997, 1998, 2001, 2003, ‘04

[a] Population numbers given correspond to the population numbers referenced in Table 1.

[b] Run timing components are abbreviated as Sp (spring), Su (summer), F (fall), and W (winter).

[c] Origin categories are abbreviated as H (hatchery) and W (wild).

APPENDIX B: STOCK CONTRIBUTION ESTIMATES

Appendix B1.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Southeast Alaska, 2004–2006.

		2004 (n = 287)					2005 (n = 300)					2006 (n = 295)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.001	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
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.000	0.001	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
4	*Taku*	0.003	0.005	0.000	0.014	0.000	0.001	0.005	0.000	0.010	0.000	0.045	0.017	0.019	0.075	0.043
5	*Andrew*	0.030	0.020	0.000	0.064	0.029	0.006	0.007	0.000	0.021	0.004	0.001	0.004	0.000	0.003	0.000
6	*Stikine*	0.001	0.003	0.000	0.007	0.000	0.020	0.013	0.002	0.044	0.019	0.002	0.006	0.000	0.013	0.000
7	*S Southeast Alaska*	0.701	0.033	0.645	0.754	0.702	0.747	0.028	0.700	0.792	0.748	0.621	0.032	0.567	0.673	0.621
8	*Nass*	0.007	0.009	0.000	0.025	0.003	0.020	0.010	0.006	0.037	0.018	0.030	0.012	0.012	0.052	0.028
9	*Skeena*	0.001	0.002	0.000	0.004	0.000	0.001	0.002	0.000	0.003	0.000	0.011	0.009	0.001	0.029	0.009
10	*BC Coast/Haida Gwaii*	0.035	0.012	0.018	0.057	0.034	0.012	0.010	0.000	0.030	0.010	0.057	0.017	0.031	0.087	0.055
11	*West Vancouver*	0.087	0.017	0.061	0.116	0.086	0.127	0.019	0.097	0.160	0.126	0.108	0.018	0.080	0.140	0.108
12	*East Vancouver*	0.012	0.007	0.003	0.024	0.011	0.016	0.007	0.006	0.029	0.014	0.024	0.009	0.011	0.040	0.023
13	*Fraser*	0.000	0.001	0.000	0.001	0.000	0.003	0.003	0.000	0.010	0.002	0.000	0.001	0.000	0.001	0.000
14	*Lower Thompson*	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000
15	*North Thompson*	0.000	0.001	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
16	*South Thompson*	0.023	0.010	0.010	0.041	0.022	0.017	0.008	0.006	0.031	0.016	0.043	0.012	0.025	0.065	0.042
17	*Puget Sound*	0.013	0.007	0.004	0.027	0.012	0.000	0.002	0.000	0.003	0.000	0.003	0.003	0.000	0.010	0.002
18	*Washington Coast*	0.008	0.005	0.001	0.018	0.006	0.006	0.005	0.001	0.016	0.005	0.015	0.008	0.004	0.029	0.014
19	*West Cascades Sp*	0.000	0.001	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
20	*Lower Columbia F*	0.013	0.007	0.004	0.026	0.012	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.013	0.003
21	*Willamette Sp*	0.000	0.001	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
22	*Columbia Sp*	0.000	0.001	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
23	*Interior Columbia Su/F*	0.058	0.014	0.037	0.082	0.057	0.023	0.009	0.011	0.039	0.022	0.031	0.011	0.016	0.051	0.030
24	*North Oregon Coast*	0.004	0.004	0.000	0.012	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
25	*Mid OR Coast*	0.005	0.004	0.000	0.014	0.003	0.000	0.001	0.000	0.000	0.000	0.003	0.004	0.000	0.010	0.002
26	*S Oregon/California*	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.007	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B2.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Southeast Alaska, 2007–2009.

		2007 (n = 237)					2008 (n = 255)					2009 (n = 300)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.018	0.010	0.005	0.038	0.016	0.000	0.001	0.000	0.000	0.000	0.033	0.013	0.014	0.057	0.032
5	*Andrew*	0.008	0.008	0.000	0.024	0.005	0.051	0.017	0.025	0.081	0.049	0.025	0.011	0.009	0.046	0.024
6	*Stikine*	0.000	0.002	0.000	0.000	0.000	0.033	0.015	0.013	0.060	0.031	0.017	0.010	0.004	0.035	0.016
7	*S Southeast Alaska*	0.716	0.031	0.663	0.766	0.716	0.832	0.028	0.783	0.876	0.833	0.757	0.027	0.711	0.801	0.758
8	*Nass*	0.033	0.014	0.013	0.057	0.031	0.005	0.007	0.000	0.021	0.000	0.010	0.007	0.002	0.024	0.009
9	*Skeena*	0.013	0.008	0.004	0.028	0.012	0.003	0.008	0.000	0.022	0.000	0.003	0.003	0.000	0.010	0.002
10	*BC Coast/Haida Gwaii*	0.028	0.012	0.011	0.050	0.026	0.022	0.011	0.007	0.042	0.020	0.024	0.012	0.008	0.046	0.023
11	*West Vancouver*	0.092	0.019	0.063	0.125	0.091	0.013	0.007	0.004	0.026	0.011	0.033	0.011	0.018	0.052	0.032
12	*East Vancouver*	0.043	0.014	0.022	0.068	0.041	0.004	0.004	0.000	0.011	0.002	0.016	0.008	0.005	0.030	0.015
13	*Fraser*	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.016	0.008	0.005	0.032	0.015	0.018	0.009	0.006	0.035	0.017	0.024	0.009	0.011	0.041	0.023
17	*Puget Sound*	0.011	0.008	0.000	0.026	0.010	0.000	0.001	0.000	0.000	0.000	0.002	0.006	0.000	0.015	0.000
18	*Washington Coast*	0.005	0.006	0.000	0.017	0.003	0.000	0.000	0.000	0.000	0.000	0.014	0.007	0.004	0.028	0.013
19	*West Cascades Sp*	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	0.000
20	*Lower Columbia F*	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.010	0.000	0.008	0.005	0.001	0.018	0.006
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002
22	*Columbia Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.005	0.005	0.000	0.014	0.003	0.017	0.009	0.005	0.033	0.015	0.022	0.009	0.009	0.038	0.021
24	*North Oregon Coast*	0.012	0.007	0.003	0.026	0.011	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.013	0.003
25	*Mid OR Coast*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.003	0.000	0.008	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B3.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Southeast Alaska, 2010–2012.

		2010 (n = 264)					2011 (n = 335)					2012 (n = 255)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.006	0.008	0.000	0.023	0.002	0.011	0.009	0.000	0.028	0.010	0.026	0.021	0.000	0.063	0.026
5	*Andrew*	0.053	0.018	0.026	0.086	0.052	0.042	0.018	0.016	0.074	0.040	0.019	0.017	0.000	0.051	0.017
6	*Stikine*	0.002	0.006	0.000	0.011	0.000	0.031	0.022	0.000	0.070	0.031	0.016	0.021	0.000	0.059	0.002
7	*S Southeast Alaska*	0.793	0.028	0.745	0.837	0.794	0.694	0.031	0.642	0.745	0.695	0.726	0.034	0.668	0.780	0.726
8	*Nass*	0.013	0.008	0.003	0.027	0.012	0.008	0.008	0.000	0.023	0.006	0.021	0.011	0.005	0.041	0.020
9	*Skeena*	0.004	0.004	0.000	0.013	0.003	0.005	0.008	0.000	0.021	0.000	0.009	0.008	0.002	0.025	0.007
10	*BC Coast/Haida Gwaii*	0.036	0.014	0.016	0.061	0.034	0.018	0.010	0.003	0.037	0.016	0.027	0.013	0.008	0.050	0.025
11	*West Vancouver*	0.048	0.013	0.028	0.071	0.047	0.051	0.012	0.033	0.072	0.050	0.054	0.014	0.033	0.080	0.053
12	*East Vancouver*	0.000	0.003	0.000	0.001	0.000	0.019	0.008	0.008	0.033	0.018	0.024	0.010	0.011	0.042	0.023
13	*Fraser*	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	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.027	0.011	0.012	0.047	0.026	0.024	0.008	0.012	0.039	0.023	0.023	0.010	0.010	0.041	0.022
17	*Puget Sound*	0.000	0.002	0.000	0.000	0.000	0.005	0.005	0.000	0.015	0.003	0.009	0.007	0.001	0.023	0.007
18	*Washington Coast*	0.000	0.001	0.000	0.000	0.000	0.028	0.010	0.014	0.046	0.027	0.010	0.007	0.002	0.022	0.008
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	*Lower Columbia F*	0.000	0.000	0.000	0.000	0.000	0.016	0.007	0.006	0.030	0.015	0.000	0.001	0.000	0.000	0.000
21	*Willamette Sp*	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	0.000
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.018	0.009	0.006	0.034	0.016	0.047	0.012	0.029	0.068	0.046	0.034	0.012	0.017	0.055	0.033
24	*North Oregon Coast*	0.000	0.001	0.000	0.000	0.000	0.002	0.003	0.000	0.008	0.001	0.001	0.003	0.000	0.007	0.000
25	*Mid OR Coast*	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
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B4.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Southeast Alaska, 2013–2015.

		2013 (n = 370)					2014 (n = 328)					2015 (n = 297)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.015	0.017	0.000	0.046	0.005	0.025	0.011	0.009	0.046	0.024	0.004	0.006	0.000	0.017	0.000
5	*Andrew*	0.055	0.015	0.032	0.082	0.054	0.075	0.021	0.043	0.111	0.074	0.054	0.017	0.028	0.085	0.053
6	*Stikine*	0.019	0.019	0.000	0.052	0.017	0.021	0.010	0.008	0.040	0.020	0.000	0.002	0.000	0.002	0.000
7	*S Southeast Alaska*	0.594	0.029	0.545	0.641	0.594	0.611	0.032	0.557	0.663	0.611	0.536	0.032	0.483	0.590	0.536
8	*Nass*	0.001	0.004	0.000	0.010	0.000	0.036	0.012	0.019	0.057	0.035	0.029	0.011	0.013	0.048	0.028
9	*Skeena*	0.013	0.006	0.004	0.024	0.012	0.027	0.011	0.011	0.047	0.026	0.016	0.008	0.005	0.031	0.015
10	*BC Coast/Haida Gwaii*	0.020	0.011	0.005	0.040	0.018	0.020	0.010	0.007	0.039	0.019	0.053	0.016	0.029	0.080	0.052
11	*West Vancouver*	0.087	0.015	0.064	0.113	0.087	0.057	0.013	0.037	0.080	0.056	0.049	0.013	0.030	0.072	0.048
12	*East Vancouver*	0.018	0.008	0.008	0.032	0.017	0.010	0.006	0.003	0.021	0.009	0.030	0.010	0.015	0.048	0.029
13	*Fraser*	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	0.000	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.004	0.000
16	*South Thompson*	0.018	0.008	0.007	0.033	0.017	0.027	0.010	0.013	0.045	0.027	0.044	0.013	0.025	0.066	0.043
17	*Puget Sound*	0.012	0.007	0.003	0.024	0.011	0.009	0.005	0.003	0.020	0.008	0.004	0.004	0.000	0.012	0.003
18	*Washington Coast*	0.019	0.008	0.008	0.034	0.018	0.018	0.008	0.007	0.032	0.017	0.016	0.008	0.005	0.031	0.015
19	*West Cascades Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.011	0.000
20	*Lower Columbia F*	0.012	0.006	0.004	0.024	0.012	0.000	0.000	0.000	0.000	0.000	0.018	0.009	0.006	0.034	0.017
21	*Willamette Sp*	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	0.000
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.113	0.017	0.086	0.141	0.112	0.061	0.013	0.041	0.085	0.060	0.133	0.020	0.102	0.167	0.133
24	*North Oregon Coast*	0.003	0.004	0.000	0.012	0.002	0.000	0.000	0.000	0.000	0.000	0.010	0.007	0.002	0.023	0.009
25	*Mid OR Coast*	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B5.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Petersburg and Wrangell, Southeast Alaska, 2004–2006.

		2004 (n = 203)					2005 (n = 241)					2006 (n = 259)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.001	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
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	*Taku*	0.043	0.033	0.000	0.103	0.041	0.152	0.040	0.089	0.219	0.150	0.172	0.039	0.111	0.238	0.171
5	*Andrew*	0.413	0.045	0.338	0.487	0.414	0.320	0.040	0.256	0.387	0.320	0.362	0.036	0.303	0.423	0.361
6	*Stikine*	0.346	0.052	0.261	0.431	0.346	0.356	0.050	0.275	0.439	0.355	0.276	0.044	0.205	0.350	0.275
7	*S Southeast Alaska*	0.098	0.032	0.050	0.154	0.096	0.111	0.026	0.071	0.155	0.110	0.121	0.027	0.080	0.166	0.120
8	*Nass*	0.001	0.002	0.000	0.003	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.035	0.024	0.006	0.081	0.030	0.005	0.005	0.000	0.014	0.003	0.020	0.009	0.008	0.036	0.019
10	*BC Coast/Haida Gwaii*	0.037	0.016	0.016	0.066	0.035	0.026	0.013	0.008	0.049	0.024	0.040	0.013	0.021	0.064	0.039
11	*West Vancouver*	0.000	0.001	0.000	0.001	0.000	0.017	0.008	0.006	0.032	0.015	0.008	0.006	0.001	0.019	0.007
12	*East Vancouver*	0.017	0.010	0.004	0.035	0.015	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	*Fraser*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	*Lower Thompson*	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	*North Thompson*	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.000	0.001	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
17	*Puget Sound*	0.001	0.003	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.005	0.000
18	*Washington Coast*	0.000	0.001	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
19	*West Cascades Sp*	0.000	0.001	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
20	*Lower Columbia F*	0.000	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.001	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
22	*Columbia Sp*	0.000	0.001	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
23	*Interior Columbia Su/F*	0.005	0.005	0.000	0.015	0.004	0.013	0.008	0.004	0.028	0.012	0.000	0.000	0.000	0.000	0.000
24	*North Oregon Coast*	0.000	0.001	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
25	*Mid OR Coast*	0.000	0.001	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
26	*S Oregon/California*	0.000	0.001	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

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B6.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Petersburg and Wrangell, Southeast Alaska, 2007–2009.

		2007 (n = 227)					2008 (n = 300)					2009 (n = 255)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.138	0.039	0.077	0.206	0.137	0.193	0.037	0.134	0.255	0.192	0.192	0.035	0.137	0.250	0.191
5	*Andrew*	0.395	0.039	0.332	0.460	0.395	0.313	0.035	0.257	0.371	0.312	0.326	0.034	0.272	0.383	0.326
6	*Stikine*	0.257	0.046	0.184	0.335	0.256	0.340	0.045	0.268	0.415	0.340	0.134	0.036	0.079	0.196	0.133
7	*S Southeast Alaska*	0.084	0.026	0.045	0.129	0.082	0.077	0.022	0.044	0.116	0.075	0.099	0.025	0.060	0.143	0.098
8	*Nass*	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000
9	*Skeena*	0.070	0.018	0.043	0.103	0.068	0.033	0.011	0.017	0.052	0.032	0.055	0.014	0.034	0.081	0.054
10	*BC Coast/Haida Gwaii*	0.022	0.011	0.007	0.042	0.020	0.013	0.009	0.002	0.031	0.011	0.111	0.022	0.077	0.150	0.110
11	*West Vancouver*	0.004	0.004	0.000	0.013	0.003	0.007	0.005	0.001	0.016	0.006	0.001	0.002	0.000	0.004	0.000
12	*East Vancouver*	0.009	0.006	0.002	0.022	0.008	0.010	0.006	0.003	0.021	0.009	0.010	0.007	0.002	0.023	0.008
13	*Fraser*	0.010	0.010	0.000	0.029	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.012	0.003	0.006	0.006	0.000	0.019	0.004
17	*Puget Sound*	0.004	0.006	0.000	0.016	0.000	0.001	0.003	0.000	0.007	0.000	0.047	0.015	0.025	0.074	0.046
18	*Washington Coast*	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
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.005	0.000	0.012	0.000
20	*Lower Columbia F*	0.004	0.005	0.000	0.014	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.004	0.000	0.011	0.001
22	*Columbia Sp*	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.001	0.002	0.000	0.005	0.000	0.008	0.005	0.001	0.018	0.007	0.013	0.007	0.003	0.026	0.011
24	*North Oregon Coast*	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
25	*Mid OR Coast*	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
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B7.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Petersburg and Wrangell, Southeast Alaska, 2010–2012.

		2010 (n = 300)					2011 (n = 398)[b]					2012 (n = 275)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.003	0.003	0.000	0.010	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
4	*Taku*	0.200	0.030	0.151	0.250	0.199	0.140	0.028	0.097	0.187	0.139	0.128	0.035	0.072	0.188	0.126
5	*Andrew*	0.359	0.035	0.302	0.417	0.358	0.176	0.024	0.138	0.217	0.175	0.298	0.035	0.241	0.356	0.297
6	*Stikine*	0.167	0.032	0.118	0.222	0.165	0.196	0.031	0.147	0.248	0.195	0.204	0.046	0.131	0.282	0.203
7	*S Southeast Alaska*	0.154	0.027	0.111	0.200	0.153	0.200	0.024	0.161	0.240	0.199	0.134	0.029	0.090	0.184	0.133
8	*Nass*	0.000	0.001	0.000	0.001	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.030	0.012	0.015	0.052	0.029	0.023	0.008	0.012	0.037	0.022	0.044	0.021	0.017	0.084	0.039
10	*BC Coast/Haida Gwaii*	0.055	0.015	0.033	0.081	0.054	0.173	0.020	0.141	0.208	0.173	0.130	0.025	0.092	0.173	0.129
11	*West Vancouver*	0.010	0.006	0.002	0.021	0.009	0.005	0.004	0.001	0.012	0.004	0.009	0.006	0.002	0.020	0.008
12	*East Vancouver*	0.001	0.002	0.000	0.004	0.000	0.028	0.008	0.015	0.042	0.027	0.045	0.013	0.026	0.068	0.044
13	*Fraser*	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	0.000	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.000	0.000	0.000	0.000	0.000	0.010	0.005	0.003	0.020	0.009	0.000	0.000	0.000	0.000	0.000
17	*Puget Sound*	0.009	0.010	0.000	0.029	0.006	0.000	0.001	0.000	0.002	0.000	0.004	0.004	0.000	0.012	0.003
18	*Washington Coast*	0.001	0.003	0.000	0.008	0.000	0.002	0.003	0.000	0.008	0.002	0.000	0.001	0.000	0.000	0.000
19	*West Cascades Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.004	0.004	0.000	0.011	0.003
20	*Lower Columbia F*	0.000	0.000	0.000	0.000	0.000	0.011	0.006	0.003	0.021	0.010	0.000	0.001	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.008	0.002	0.000	0.000	0.000	0.000	0.000
22	*Columbia Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.010	0.006	0.003	0.021	0.009	0.027	0.008	0.015	0.042	0.026	0.000	0.001	0.000	0.000	0.000
24	*North Oregon Coast*	0.000	0.001	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	*Mid OR Coast*	0.000	0.001	0.000	0.000	0.000	0.004	0.004	0.000	0.012	0.003	0.000	0.000	0.000	0.000	0.000
26	*S Oregon/California*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

[b] Results did not converge at 80,000 iterations in BAYES. Results are an average of 3 out of 5 chains.

Appendix B8.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in Petersburg and Wrangell, Southeast Alaska, 2013–2015.

		2013 (n = 200)					2014 (n = 245)[b]					2015 (n = 400)[c]				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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
3	*N Southeast Alaska*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4	*Taku*	0.048	0.043	0.000	0.126	0.041	0.007	0.018	0.000	0.049	0.000	0.139	0.028	0.096	0.186	0.138
5	*Andrew*	0.275	0.039	0.212	0.341	0.274	0.284	0.042	0.216	0.356	0.283	0.334	0.028	0.288	0.381	0.333
6	*Stikine*	0.338	0.056	0.244	0.428	0.339	0.418	0.044	0.344	0.490	0.419	0.221	0.032	0.169	0.274	0.221
7	*S Southeast Alaska*	0.171	0.038	0.111	0.235	0.170	0.096	0.025	0.058	0.140	0.094	0.146	0.021	0.114	0.182	0.146
8	*Nass*	0.001	0.003	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.021	0.011	0.006	0.041	0.019	0.063	0.027	0.025	0.111	0.060	0.057	0.012	0.039	0.078	0.057
10	*BC Coast/Haida Gwaii*	0.108	0.026	0.067	0.154	0.106	0.068	0.019	0.040	0.102	0.067	0.054	0.012	0.036	0.076	0.054
11	*West Vancouver*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.004	0.002	0.016	0.007
12	*East Vancouver*	0.005	0.005	0.000	0.015	0.004	0.001	0.002	0.000	0.004	0.000	0.012	0.006	0.004	0.022	0.011
13	*Fraser*	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
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17	*Puget Sound*	0.000	0.001	0.000	0.000	0.000	0.021	0.020	0.000	0.054	0.022	0.003	0.003	0.000	0.008	0.002
18	*Washington Coast*	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.009	0.007	0.000	0.023	0.008	0.005	0.004	0.001	0.012	0.004
20	*Lower Columbia F*	0.002	0.004	0.000	0.010	0.000	0.003	0.005	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.000
22	*Columbia Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.032	0.013	0.014	0.055	0.030	0.025	0.011	0.010	0.046	0.024	0.020	0.007	0.010	0.033	0.019
24	*North Oregon Coast*	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
25	*Mid OR Coast*	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
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

[b] Results did not converge at 80,000 iterations in BAYES. Results are an average of 4 out of 5 chains.

[c] Results did not converge at 80,000 iterations in BAYES. Results are an average of 3 out of 5 chains.

Appendix B9.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in northern inside waters (Juneau, Skagway, and Haines), Southeast Alaska, 2004–2006.

		2004 (n = 219)					2005 (n = 237)					2006 (n = 242)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.001	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.155	0.024	0.117	0.197	0.154	0.143	0.023	0.107	0.182	0.142	0.100	0.019	0.070	0.133	0.099
4	*Taku*	0.318	0.034	0.262	0.376	0.318	0.400	0.036	0.341	0.458	0.400	0.440	0.036	0.380	0.499	0.440
5	*Andrew*	0.393	0.037	0.333	0.453	0.393	0.285	0.033	0.232	0.340	0.284	0.309	0.033	0.256	0.363	0.308
6	*Stikine*	0.004	0.010	0.000	0.027	0.000	0.003	0.012	0.000	0.022	0.000	0.005	0.014	0.000	0.038	0.000
7	*S Southeast Alaska*	0.039	0.021	0.011	0.077	0.036	0.070	0.022	0.038	0.110	0.068	0.090	0.020	0.059	0.126	0.089
8	*Nass*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.010	0.007	0.002	0.023	0.008
9	*Skeena*	0.019	0.009	0.006	0.036	0.017	0.016	0.009	0.005	0.033	0.015	0.025	0.010	0.011	0.043	0.024
10	*BC Coast/Haida Gwaii*	0.044	0.015	0.022	0.072	0.043	0.082	0.020	0.052	0.117	0.081	0.013	0.008	0.003	0.028	0.012
11	*West Vancouver*	0.005	0.005	0.000	0.014	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12	*East Vancouver*	0.005	0.005	0.000	0.014	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13	*Fraser*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.004	0.000
14	*Lower Thompson*	0.000	0.001	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
15	*North Thompson*	0.000	0.001	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
16	*South Thompson*	0.003	0.004	0.000	0.013	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000
17	*Puget Sound*	0.002	0.004	0.000	0.011	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19	*West Cascades Sp*	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.012	0.002
20	*Lower Columbia F*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.001	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
22	*Columbia Sp*	0.000	0.001	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
23	*Interior Columbia Su/F*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.004	0.000	0.012	0.002
24	*North Oregon Coast*	0.006	0.007	0.000	0.019	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	*Mid OR Coast*	0.003	0.006	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	*S Oregon/California*	0.000	0.001	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

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B10.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in northern inside waters (Juneau, Skagway, and Haines), Southeast Alaska, 2007–2009.

		2007 (n = 238)					2008 (n = 255)					2009 (n = 231)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.150	0.023	0.114	0.190	0.149	0.101	0.019	0.071	0.134	0.100	0.104	0.020	0.073	0.138	0.103
4	*Taku*	0.318	0.033	0.265	0.373	0.318	0.218	0.029	0.172	0.268	0.218	0.198	0.031	0.149	0.250	0.197
5	*Andrew*	0.401	0.035	0.344	0.460	0.401	0.610	0.033	0.555	0.664	0.610	0.609	0.035	0.550	0.667	0.610
6	*Stikine*	0.003	0.010	0.000	0.026	0.000	0.000	0.002	0.000	0.000	0.000	0.004	0.011	0.000	0.030	0.000
7	*S Southeast Alaska*	0.064	0.021	0.032	0.101	0.063	0.008	0.007	0.001	0.022	0.006	0.027	0.017	0.002	0.059	0.025
8	*Nass*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.027	0.011	0.012	0.048	0.026	0.002	0.003	0.000	0.009	0.000	0.000	0.001	0.000	0.000	0.000
10	*BC Coast/Haida Gwaii*	0.020	0.012	0.002	0.041	0.018	0.043	0.014	0.023	0.067	0.042	0.034	0.014	0.015	0.059	0.033
11	*West Vancouver*	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.012	0.003	0.000	0.000	0.000	0.000	0.000
12	*East Vancouver*	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.012	0.003	0.004	0.004	0.000	0.013	0.003
13	*Fraser*	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	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.002	0.004	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.002	0.005	0.000	0.012	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
17	*Puget Sound*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.003	0.004	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.003	0.000
19	*West Cascades Sp*	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	*Lower Columbia F*	0.000	0.000	0.000	0.000	0.000	0.005	0.005	0.000	0.014	0.003	0.000	0.001	0.000	0.001	0.000
21	*Willamette Sp*	0.004	0.004	0.000	0.013	0.003	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.004	0.004	0.000	0.013	0.003	0.004	0.004	0.000	0.013	0.003	0.017	0.009	0.006	0.033	0.016
24	*North Oregon Coast*	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	0.000
25	*Mid OR Coast*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
26	*S Oregon/California*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B11.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in northern inside waters (Juneau, Skagway, and Haines), Southeast Alaska, 2010–2012.

		2010 (n = 239)					2011 (n = 261)					2012 (n = 288)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.132	0.022	0.098	0.170	0.131	0.163	0.023	0.127	0.202	0.162	0.085	0.017	0.059	0.115	0.084
4	*Taku*	0.259	0.033	0.206	0.315	0.259	0.290	0.034	0.235	0.346	0.290	0.209	0.028	0.164	0.257	0.208
5	*Andrew*	0.486	0.035	0.428	0.544	0.486	0.441	0.035	0.383	0.499	0.441	0.511	0.036	0.452	0.570	0.510
6	*Stikine*	0.026	0.020	0.000	0.062	0.026	0.011	0.019	0.000	0.053	0.000	0.001	0.003	0.000	0.001	0.000
7	*S Southeast Alaska*	0.017	0.018	0.000	0.052	0.013	0.005	0.011	0.000	0.029	0.000	0.092	0.028	0.049	0.142	0.090
8	*Nass*	0.001	0.003	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.004	0.000	0.012	0.002
9	*Skeena*	0.017	0.008	0.006	0.033	0.016	0.002	0.003	0.000	0.009	0.000	0.013	0.008	0.003	0.029	0.011
10	*BC Coast/Haida Gwaii*	0.053	0.017	0.028	0.083	0.051	0.086	0.021	0.054	0.122	0.085	0.044	0.015	0.022	0.071	0.043
11	*West Vancouver*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002
12	*East Vancouver*	0.003	0.007	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.005	0.001	0.017	0.006
13	*Fraser*	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
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.011	0.003
17	*Puget Sound*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.000	0.002	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
19	*West Cascades Sp*	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	0.000
20	*Lower Columbia F*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.011	0.007	0.003	0.024	0.010
21	*Willamette Sp*	0.004	0.004	0.000	0.012	0.003	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.007	0.004	0.027	0.012
24	*North Oregon Coast*	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
25	*Mid OR Coast*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B12.–Estimated contributions of 26 reporting groups of Chinook salmon to the sport fishery harvest in northern inside waters (Juneau, Skagway, and Haines), Southeast Alaska, 2013–2015.

		2013 (n = 390)					2014 (n = 300)					2015 (n = 313)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.108	0.016	0.083	0.135	0.107	0.096	0.017	0.070	0.126	0.096	0.042	0.011	0.025	0.062	0.041
4	*Taku*	0.081	0.016	0.055	0.109	0.080	0.261	0.028	0.215	0.307	0.260	0.283	0.030	0.235	0.333	0.282
5	*Andrew*	0.652	0.027	0.607	0.696	0.653	0.410	0.031	0.359	0.461	0.410	0.529	0.030	0.479	0.579	0.530
6	*Stikine*	0.000	0.001	0.000	0.000	0.000	0.001	0.006	0.000	0.003	0.000	0.039	0.017	0.013	0.068	0.038
7	*S Southeast Alaska*	0.044	0.014	0.023	0.068	0.043	0.026	0.012	0.009	0.049	0.025	0.001	0.004	0.000	0.005	0.000
8	*Nass*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.013	0.006	0.005	0.024	0.012	0.050	0.013	0.031	0.073	0.049	0.034	0.011	0.018	0.053	0.033
10	*BC Coast/Haida Gwaii*	0.055	0.012	0.037	0.076	0.054	0.073	0.016	0.048	0.102	0.072	0.044	0.012	0.025	0.065	0.043
11	*West Vancouver*	0.003	0.003	0.000	0.008	0.002	0.007	0.005	0.001	0.016	0.006	0.000	0.000	0.000	0.000	0.000
12	*East Vancouver*	0.001	0.002	0.000	0.005	0.000	0.005	0.004	0.000	0.013	0.003	0.000	0.001	0.000	0.000	0.000
13	*Fraser*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000	0.000
16	*South Thompson*	0.003	0.003	0.000	0.008	0.002	0.007	0.005	0.001	0.016	0.006	0.007	0.005	0.001	0.017	0.006
17	*Puget Sound*	0.001	0.002	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.008	0.005	0.002	0.018	0.007	0.002	0.004	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000
19	*West Cascades Sp*	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000
20	*Lower Columbia F*	0.000	0.001	0.000	0.000	0.000	0.005	0.005	0.000	0.015	0.003	0.000	0.000	0.000	0.000	0.000
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002
22	*Columbia Sp*	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	0.000	0.000
23	*Interior Columbia Su/F*	0.015	0.006	0.006	0.027	0.015	0.045	0.012	0.027	0.066	0.044	0.014	0.007	0.005	0.027	0.013
24	*North Oregon Coast*	0.004	0.004	0.000	0.013	0.003	0.008	0.007	0.000	0.020	0.007	0.000	0.001	0.000	0.000	0.000
25	*Mid OR Coast*	0.012	0.006	0.004	0.024	0.011	0.003	0.004	0.000	0.011	0.002	0.000	0.001	0.000	0.002	0.000
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B13.–Estimated contributions of 26 reporting groups of Chinook salmon to the total season sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2004–2006.

		2004 (n = 518)					2005 (n = 571)					2006 (n = 468)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.001	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
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.002	0.002	0.000	0.006	0.001	0.002	0.002	0.000	0.006	0.002	0.000	0.001	0.000	0.001	0.000
4	*Taku*	0.011	0.010	0.000	0.028	0.011	0.016	0.008	0.004	0.030	0.015	0.025	0.021	0.000	0.056	0.030
5	*Andrew*	0.100	0.014	0.078	0.123	0.099	0.077	0.014	0.056	0.101	0.077	0.041	0.010	0.026	0.059	0.041
6	*Stikine*	0.006	0.007	0.000	0.020	0.003	0.001	0.002	0.000	0.006	0.000	0.019	0.023	0.000	0.059	0.003
7	*S Southeast Alaska*	0.022	0.008	0.010	0.036	0.021	0.078	0.015	0.055	0.103	0.078	0.028	0.010	0.013	0.045	0.027
8	*Nass*	0.002	0.003	0.000	0.009	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000
9	*Skeena*	0.053	0.011	0.035	0.073	0.052	0.044	0.011	0.028	0.063	0.044	0.042	0.013	0.023	0.065	0.042
10	*BC Coast/Haida Gwaii*	0.040	0.009	0.026	0.057	0.040	0.036	0.009	0.023	0.052	0.035	0.048	0.011	0.031	0.068	0.047
11	*West Vancouver*	0.346	0.021	0.311	0.381	0.345	0.361	0.020	0.328	0.394	0.361	0.305	0.021	0.270	0.341	0.305
12	*East Vancouver*	0.017	0.006	0.008	0.027	0.016	0.024	0.006	0.015	0.036	0.024	0.023	0.007	0.013	0.036	0.023
13	*Fraser*	0.005	0.003	0.001	0.012	0.005	0.002	0.002	0.000	0.006	0.002	0.004	0.004	0.000	0.012	0.003
14	*Lower Thompson*	0.000	0.001	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
15	*North Thompson*	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000
16	*South Thompson*	0.053	0.010	0.038	0.070	0.053	0.064	0.011	0.047	0.083	0.064	0.180	0.018	0.151	0.211	0.180
17	*Puget Sound*	0.002	0.003	0.000	0.007	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.006	0.000	0.019	0.003
18	*Washington Coast*	0.105	0.014	0.082	0.129	0.104	0.091	0.014	0.070	0.115	0.091	0.062	0.013	0.042	0.084	0.061
19	*West Cascades Sp*	0.002	0.003	0.000	0.008	0.001	0.000	0.001	0.000	0.002	0.000	0.001	0.002	0.000	0.004	0.000
20	*Lower Columbia F*	0.027	0.008	0.016	0.040	0.026	0.030	0.008	0.018	0.043	0.029	0.021	0.008	0.010	0.036	0.021
21	*Willamette Sp*	0.005	0.003	0.001	0.011	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
22	*Columbia Sp*	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.118	0.014	0.095	0.142	0.117	0.107	0.014	0.085	0.131	0.107	0.117	0.015	0.092	0.143	0.116
24	*North Oregon Coast*	0.074	0.012	0.054	0.095	0.073	0.046	0.011	0.029	0.065	0.046	0.059	0.012	0.040	0.079	0.058
25	*Mid OR Coast*	0.010	0.005	0.003	0.020	0.010	0.018	0.009	0.005	0.035	0.017	0.018	0.007	0.007	0.031	0.017
26	*S Oregon/California*	0.001	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B14.–Estimated contributions of 26 reporting groups of Chinook salmon to the total season sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2007–2009.

		2007 (n = 459)					2008 (n = 509)					2009 (n = 442)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.008	0.002	0.000	0.000	0.000	0.000	0.000
3	*N Southeast Alaska*	0.003	0.003	0.000	0.008	0.002	0.005	0.004	0.000	0.012	0.004	0.002	0.003	0.000	0.008	0.002
4	*Taku*	0.010	0.011	0.000	0.031	0.007	0.024	0.011	0.009	0.046	0.023	0.005	0.007	0.000	0.018	0.001
5	*Andrew*	0.071	0.015	0.048	0.097	0.071	0.230	0.024	0.192	0.270	0.230	0.100	0.017	0.073	0.130	0.099
6	*Stikine*	0.011	0.013	0.000	0.037	0.003	0.013	0.008	0.002	0.027	0.012	0.008	0.007	0.000	0.021	0.008
7	*S Southeast Alaska*	0.035	0.012	0.016	0.056	0.034	0.064	0.016	0.039	0.092	0.063	0.041	0.013	0.022	0.066	0.040
8	*Nass*	0.009	0.006	0.001	0.022	0.008	0.002	0.004	0.000	0.009	0.001	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.101	0.019	0.072	0.132	0.100	0.039	0.013	0.020	0.061	0.038	0.020	0.009	0.007	0.037	0.019
10	*BC Coast/Haida Gwaii*	0.064	0.013	0.043	0.086	0.063	0.039	0.012	0.022	0.061	0.038	0.096	0.017	0.070	0.124	0.095
11	*West Vancouver*	0.251	0.020	0.218	0.285	0.250	0.118	0.016	0.093	0.145	0.117	0.177	0.018	0.148	0.208	0.177
12	*East Vancouver*	0.013	0.005	0.006	0.023	0.013	0.019	0.007	0.010	0.031	0.018	0.017	0.006	0.008	0.028	0.016
13	*Fraser*	0.002	0.002	0.000	0.007	0.001	0.001	0.002	0.000	0.005	0.000	0.003	0.003	0.000	0.009	0.002
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.006	0.004	0.001	0.015	0.005	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.132	0.017	0.106	0.160	0.131	0.173	0.019	0.143	0.205	0.173	0.091	0.015	0.068	0.116	0.090
17	*Puget Sound*	0.009	0.005	0.002	0.020	0.008	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.003	0.000
18	*Washington Coast*	0.090	0.015	0.067	0.115	0.089	0.094	0.015	0.072	0.120	0.094	0.094	0.015	0.071	0.119	0.093
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.007	0.000	0.022	0.010
20	*Lower Columbia F*	0.026	0.009	0.013	0.042	0.026	0.014	0.006	0.005	0.025	0.013	0.040	0.010	0.025	0.058	0.039
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.009	0.002
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.101	0.014	0.079	0.125	0.100	0.105	0.014	0.083	0.130	0.105	0.243	0.020	0.211	0.277	0.243
24	*North Oregon Coast*	0.053	0.012	0.035	0.073	0.052	0.042	0.011	0.025	0.061	0.041	0.029	0.009	0.016	0.045	0.028
25	*Mid OR Coast*	0.019	0.008	0.007	0.034	0.018	0.008	0.005	0.002	0.018	0.007	0.020	0.008	0.009	0.034	0.019
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B15.–Estimated contributions of 26 reporting groups of Chinook salmon to the total season sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2010–2012.

		2010 (n = 546)					2011 (n = 800)					2012 (n = 800)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.002	0.002	0.000	0.006	0.001	0.002	0.002	0.000	0.005	0.001	0.008	0.004	0.002	0.015	0.007
4	*Taku*	0.001	0.003	0.000	0.008	0.000	0.001	0.001	0.000	0.003	0.000	0.030	0.008	0.017	0.045	0.029
5	*Andrew*	0.075	0.013	0.055	0.097	0.075	0.089	0.011	0.071	0.107	0.088	0.116	0.015	0.091	0.141	0.115
6	*Stikine*	0.007	0.008	0.000	0.023	0.005	0.000	0.001	0.000	0.000	0.000	0.003	0.003	0.000	0.008	0.002
7	*S Southeast Alaska*	0.038	0.011	0.021	0.058	0.037	0.046	0.009	0.032	0.061	0.046	0.050	0.011	0.033	0.069	0.049
8	*Nass*	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
9	*Skeena*	0.041	0.013	0.020	0.063	0.040	0.038	0.008	0.026	0.052	0.038	0.008	0.008	0.000	0.025	0.006
10	*BC Coast/Haida Gwaii*	0.044	0.010	0.028	0.062	0.043	0.036	0.007	0.025	0.048	0.035	0.041	0.010	0.026	0.059	0.041
11	*West Vancouver*	0.177	0.016	0.151	0.204	0.177	0.230	0.015	0.206	0.255	0.230	0.127	0.013	0.107	0.148	0.126
12	*East Vancouver*	0.016	0.006	0.007	0.027	0.016	0.005	0.003	0.001	0.010	0.005	0.006	0.003	0.002	0.011	0.006
13	*Fraser*	0.006	0.003	0.002	0.012	0.005	0.003	0.003	0.000	0.009	0.002	0.002	0.002	0.000	0.005	0.001
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.004	0.001
16	*South Thompson*	0.215	0.018	0.186	0.245	0.214	0.089	0.011	0.072	0.107	0.089	0.102	0.012	0.083	0.123	0.102
17	*Puget Sound*	0.001	0.002	0.000	0.006	0.000	0.001	0.002	0.000	0.004	0.000	0.001	0.001	0.000	0.004	0.001
18	*Washington Coast*	0.141	0.016	0.116	0.168	0.141	0.135	0.013	0.114	0.157	0.134	0.145	0.014	0.123	0.169	0.145
19	*West Cascades Sp*	0.003	0.003	0.000	0.010	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.000
20	*Lower Columbia F*	0.023	0.007	0.012	0.035	0.022	0.037	0.007	0.025	0.049	0.036	0.040	0.008	0.028	0.054	0.039
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.006	0.003	0.003	0.012	0.006	0.003	0.002	0.001	0.006	0.003
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.152	0.016	0.127	0.179	0.152	0.198	0.014	0.176	0.222	0.198	0.245	0.016	0.220	0.272	0.245
24	*North Oregon Coast*	0.039	0.010	0.024	0.057	0.038	0.066	0.010	0.050	0.083	0.065	0.049	0.009	0.034	0.065	0.048
25	*Mid OR Coast*	0.018	0.009	0.006	0.034	0.017	0.017	0.006	0.008	0.028	0.017	0.022	0.007	0.011	0.035	0.021
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B16.–Estimated contributions of 26 reporting groups of Chinook salmon to the total season sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2013–2015.

		2013 (n = 776)					2014 (n = 1,179)					2015 (n = 903)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	0.001	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	*N Southeast Alaska*	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.003	0.001	0.004	0.002	0.001	0.009	0.004
4	*Taku*	0.000	0.001	0.000	0.002	0.000	0.001	0.002	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000
5	*Andrew*	0.092	0.012	0.074	0.112	0.092	0.028	0.005	0.020	0.037	0.027	0.073	0.010	0.058	0.090	0.073
6	*Stikine*	0.001	0.002	0.000	0.004	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000
7	*S Southeast Alaska*	0.025	0.007	0.014	0.038	0.025	0.021	0.005	0.013	0.030	0.021	0.033	0.007	0.022	0.046	0.032
8	*Nass*	0.000	0.001	0.000	0.002	0.000	0.001	0.002	0.000	0.004	0.000	0.002	0.003	0.000	0.009	0.001
9	*Skeena*	0.031	0.008	0.019	0.045	0.031	0.011	0.004	0.005	0.018	0.010	0.017	0.005	0.010	0.025	0.016
10	*BC Coast/Haida Gwaii*	0.032	0.008	0.021	0.045	0.032	0.032	0.006	0.023	0.042	0.031	0.081	0.010	0.066	0.098	0.081
11	*West Vancouver*	0.153	0.013	0.133	0.175	0.153	0.171	0.011	0.154	0.190	0.171	0.237	0.014	0.215	0.261	0.237
12	*East Vancouver*	0.006	0.003	0.002	0.011	0.005	0.006	0.002	0.002	0.010	0.005	0.009	0.004	0.004	0.016	0.009
13	*Fraser*	0.001	0.001	0.000	0.004	0.001	0.003	0.002	0.001	0.006	0.003	0.004	0.002	0.001	0.008	0.004
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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
16	*South Thompson*	0.082	0.010	0.066	0.100	0.082	0.064	0.007	0.052	0.076	0.064	0.078	0.010	0.062	0.095	0.077
17	*Puget Sound*	0.002	0.002	0.000	0.005	0.001	0.006	0.003	0.003	0.011	0.006	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.122	0.013	0.102	0.143	0.122	0.076	0.008	0.063	0.090	0.076	0.107	0.011	0.089	0.126	0.107
19	*West Cascades Sp*	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	0.000
20	*Lower Columbia F*	0.036	0.007	0.025	0.048	0.035	0.050	0.007	0.040	0.062	0.050	0.032	0.006	0.022	0.043	0.031
21	*Willamette Sp*	0.004	0.003	0.001	0.009	0.004	0.007	0.003	0.003	0.012	0.007	0.003	0.002	0.001	0.007	0.003
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.331	0.017	0.303	0.359	0.331	0.459	0.015	0.435	0.484	0.459	0.262	0.016	0.237	0.288	0.262
24	*North Oregon Coast*	0.052	0.009	0.038	0.068	0.052	0.056	0.007	0.044	0.068	0.055	0.036	0.007	0.025	0.049	0.036
25	*Mid OR Coast*	0.027	0.007	0.016	0.041	0.027	0.007	0.003	0.003	0.013	0.007	0.020	0.006	0.011	0.030	0.019
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B17.–Estimated contributions of 26 reporting groups of Chinook salmon to the early season (biweeks 9-13) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2004–2006.

		2004 (n = 293)					2005 (n = 293)					2006 (n = 268)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.001	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
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.004	0.003	0.000	0.010	0.002	0.003	0.003	0.000	0.010	0.002	0.000	0.002	0.000	0.002	0.000
4	*Taku*	0.020	0.018	0.000	0.051	0.019	0.025	0.013	0.006	0.048	0.024	0.045	0.038	0.000	0.100	0.054
5	*Andrew*	0.171	0.024	0.134	0.212	0.171	0.104	0.021	0.072	0.140	0.103	0.074	0.018	0.046	0.106	0.073
6	*Stikine*	0.011	0.013	0.000	0.037	0.003	0.000	0.002	0.000	0.001	0.000	0.034	0.041	0.000	0.105	0.002
7	*S Southeast Alaska*	0.032	0.012	0.015	0.053	0.030	0.125	0.023	0.088	0.164	0.124	0.050	0.017	0.024	0.081	0.048
8	*Nass*	0.003	0.006	0.000	0.016	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.049	0.015	0.026	0.076	0.048	0.041	0.015	0.019	0.068	0.040	0.036	0.018	0.010	0.069	0.034
10	*BC Coast/Haida Gwaii*	0.037	0.013	0.018	0.059	0.036	0.028	0.012	0.011	0.050	0.027	0.049	0.016	0.026	0.077	0.048
11	*West Vancouver*	0.297	0.027	0.253	0.342	0.296	0.278	0.026	0.236	0.322	0.278	0.253	0.027	0.210	0.298	0.253
12	*East Vancouver*	0.009	0.006	0.002	0.020	0.007	0.014	0.007	0.004	0.027	0.013	0.008	0.005	0.001	0.018	0.006
13	*Fraser*	0.010	0.006	0.002	0.021	0.009	0.003	0.003	0.000	0.010	0.002	0.005	0.005	0.000	0.015	0.003
14	*Lower Thompson*	0.000	0.001	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
15	*North Thompson*	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000
16	*South Thompson*	0.078	0.016	0.053	0.107	0.077	0.063	0.015	0.041	0.089	0.062	0.186	0.024	0.148	0.227	0.185
17	*Puget Sound*	0.003	0.004	0.000	0.012	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.052	0.014	0.031	0.077	0.051	0.095	0.019	0.065	0.128	0.094	0.062	0.016	0.036	0.090	0.060
19	*West Cascades Sp*	0.001	0.002	0.000	0.004	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.007	0.000
20	*Lower Columbia F*	0.023	0.009	0.010	0.040	0.022	0.031	0.010	0.015	0.049	0.030	0.005	0.005	0.000	0.014	0.003
21	*Willamette Sp*	0.007	0.005	0.001	0.016	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	*Columbia Sp*	0.000	0.001	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
23	*Interior Columbia Su/F*	0.126	0.020	0.095	0.160	0.125	0.114	0.019	0.083	0.146	0.113	0.113	0.020	0.082	0.147	0.112
24	*North Oregon Coast*	0.066	0.015	0.042	0.092	0.065	0.053	0.015	0.030	0.080	0.052	0.061	0.016	0.037	0.088	0.060
25	*Mid OR Coast*	0.002	0.004	0.000	0.010	0.001	0.022	0.012	0.005	0.045	0.020	0.018	0.010	0.005	0.036	0.016
26	*S Oregon/California*	0.000	0.001	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

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B18.–Estimated contributions of 26 reporting groups of Chinook salmon to the early season (biweeks 9-13) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2007–2009.

		2007 (n = 237)					2008 (n = 297)					2009 (n = 219)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.000	0.010	0.002	0.000	0.000	0.000	0.000	0.000
3	*N Southeast Alaska*	0.004	0.004	0.000	0.013	0.003	0.006	0.005	0.000	0.015	0.004	0.004	0.005	0.000	0.013	0.003
4	*Taku*	0.017	0.018	0.000	0.052	0.012	0.030	0.014	0.011	0.056	0.028	0.001	0.005	0.000	0.009	0.000
5	*Andrew*	0.106	0.024	0.068	0.147	0.104	0.261	0.029	0.214	0.309	0.260	0.162	0.029	0.117	0.211	0.161
6	*Stikine*	0.018	0.023	0.000	0.062	0.004	0.015	0.009	0.003	0.033	0.014	0.000	0.002	0.000	0.000	0.000
7	*S Southeast Alaska*	0.050	0.018	0.023	0.082	0.048	0.071	0.019	0.042	0.105	0.070	0.069	0.023	0.036	0.110	0.067
8	*Nass*	0.016	0.011	0.002	0.037	0.014	0.002	0.004	0.000	0.009	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.120	0.028	0.076	0.169	0.118	0.042	0.015	0.020	0.069	0.041	0.034	0.016	0.012	0.062	0.032
10	*BC Coast/Haida Gwaii*	0.046	0.017	0.022	0.076	0.045	0.040	0.014	0.020	0.065	0.039	0.115	0.025	0.076	0.158	0.113
11	*West Vancouver*	0.223	0.027	0.179	0.269	0.222	0.111	0.018	0.083	0.143	0.111	0.155	0.024	0.117	0.197	0.154
12	*East Vancouver*	0.004	0.004	0.000	0.012	0.002	0.017	0.008	0.007	0.032	0.016	0.007	0.006	0.001	0.020	0.006
13	*Fraser*	0.004	0.004	0.000	0.012	0.002	0.001	0.002	0.000	0.006	0.000	0.001	0.004	0.000	0.010	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.008	0.005	0.001	0.018	0.007	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.137	0.023	0.101	0.177	0.136	0.162	0.022	0.128	0.200	0.162	0.115	0.023	0.080	0.154	0.114
17	*Puget Sound*	0.016	0.009	0.004	0.033	0.014	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.002	0.000
18	*Washington Coast*	0.093	0.020	0.062	0.128	0.092	0.080	0.017	0.054	0.110	0.079	0.075	0.019	0.047	0.109	0.074
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.011	0.000	0.037	0.016
20	*Lower Columbia F*	0.025	0.012	0.007	0.047	0.023	0.014	0.007	0.004	0.028	0.013	0.030	0.013	0.012	0.055	0.028
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005	0.000	0.014	0.003
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.066	0.017	0.041	0.095	0.064	0.086	0.017	0.060	0.115	0.085	0.155	0.025	0.115	0.199	0.154
24	*North Oregon Coast*	0.047	0.015	0.025	0.074	0.046	0.039	0.013	0.020	0.063	0.038	0.025	0.012	0.009	0.048	0.024
25	*Mid OR Coast*	0.009	0.010	0.000	0.030	0.006	0.010	0.006	0.002	0.022	0.009	0.027	0.012	0.009	0.049	0.025
26	*S Oregon/California*	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	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B19.–Estimated contributions of 26 reporting groups of Chinook salmon to the early season (biweeks 9-13) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2010–2012.

		2010 (n = 299)					2011 (n = 400)					2012 (n = 400)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.007	0.002	0.000	0.000	0.000	0.000	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.003	0.003	0.000	0.010	0.002	0.003	0.004	0.000	0.010	0.002	0.011	0.006	0.003	0.022	0.010
4	*Taku*	0.002	0.006	0.000	0.014	0.000	0.000	0.001	0.000	0.001	0.000	0.040	0.012	0.022	0.062	0.039
5	*Andrew*	0.120	0.022	0.086	0.157	0.119	0.146	0.019	0.116	0.178	0.145	0.162	0.022	0.127	0.199	0.161
6	*Stikine*	0.011	0.014	0.000	0.038	0.005	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.005	0.000
7	*S Southeast Alaska*	0.054	0.016	0.030	0.083	0.053	0.065	0.015	0.042	0.090	0.064	0.053	0.016	0.029	0.080	0.052
8	*Nass*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.055	0.018	0.027	0.087	0.054	0.042	0.012	0.024	0.063	0.041	0.008	0.011	0.000	0.032	0.002
10	*BC Coast/Haida Gwaii*	0.053	0.015	0.031	0.079	0.052	0.026	0.009	0.013	0.042	0.025	0.044	0.014	0.022	0.070	0.043
11	*West Vancouver*	0.109	0.018	0.081	0.141	0.109	0.247	0.022	0.212	0.284	0.247	0.128	0.017	0.101	0.157	0.127
12	*East Vancouver*	0.014	0.008	0.003	0.028	0.013	0.005	0.004	0.000	0.012	0.004	0.003	0.003	0.000	0.008	0.002
13	*Fraser*	0.000	0.001	0.000	0.000	0.000	0.006	0.005	0.000	0.017	0.004	0.003	0.002	0.000	0.007	0.002
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.269	0.026	0.227	0.314	0.269	0.115	0.017	0.089	0.144	0.115	0.120	0.017	0.094	0.150	0.120
17	*Puget Sound*	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.008	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.130	0.021	0.097	0.166	0.129	0.112	0.017	0.085	0.141	0.111	0.135	0.019	0.106	0.167	0.135
19	*West Cascades Sp*	0.006	0.006	0.000	0.017	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	*Lower Columbia F*	0.021	0.009	0.008	0.038	0.020	0.029	0.009	0.016	0.045	0.028	0.039	0.011	0.024	0.058	0.039
21	*Willamette Sp*	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	0.000
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.118	0.020	0.087	0.151	0.117	0.143	0.018	0.114	0.173	0.142	0.190	0.020	0.158	0.224	0.190
24	*North Oregon Coast*	0.020	0.011	0.006	0.042	0.018	0.043	0.012	0.026	0.064	0.042	0.046	0.012	0.028	0.067	0.045
25	*Mid OR Coast*	0.013	0.008	0.002	0.028	0.012	0.013	0.007	0.004	0.026	0.012	0.016	0.010	0.002	0.034	0.015
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B20.–Estimated contributions of 26 reporting groups of Chinook salmon to the early season (biweeks 9-13) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2013–2015.

		2013 (n = 469)					2014 (n = 779)					2015 (n = 452)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.005	0.001	0.007	0.004	0.002	0.014	0.006
4	*Taku*	0.000	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5	*Andrew*	0.132	0.017	0.105	0.162	0.132	0.042	0.008	0.030	0.055	0.041	0.095	0.015	0.072	0.120	0.094
6	*Stikine*	0.000	0.002	0.000	0.002	0.000	0.000	0.001	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000
7	*S Southeast Alaska*	0.036	0.011	0.020	0.055	0.036	0.029	0.007	0.018	0.041	0.028	0.039	0.010	0.023	0.057	0.039
8	*Nass*	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.006	0.000	0.003	0.005	0.000	0.014	0.001
9	*Skeena*	0.026	0.009	0.012	0.042	0.025	0.006	0.004	0.000	0.013	0.005	0.004	0.005	0.000	0.014	0.002
10	*BC Coast/Haida Gwaii*	0.038	0.011	0.023	0.057	0.037	0.027	0.006	0.017	0.038	0.026	0.072	0.013	0.052	0.095	0.071
11	*West Vancouver*	0.105	0.014	0.082	0.129	0.104	0.164	0.013	0.143	0.186	0.164	0.167	0.018	0.139	0.197	0.167
12	*East Vancouver*	0.004	0.003	0.001	0.010	0.004	0.003	0.002	0.000	0.008	0.003	0.009	0.005	0.003	0.018	0.008
13	*Fraser*	0.002	0.002	0.000	0.006	0.002	0.001	0.001	0.000	0.004	0.001	0.002	0.002	0.000	0.007	0.002
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
16	*South Thompson*	0.101	0.015	0.078	0.125	0.100	0.084	0.010	0.068	0.101	0.084	0.108	0.015	0.085	0.134	0.108
17	*Puget Sound*	0.000	0.000	0.000	0.000	0.000	0.010	0.004	0.004	0.017	0.009	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.131	0.017	0.105	0.160	0.131	0.061	0.009	0.046	0.076	0.060	0.101	0.015	0.077	0.126	0.100
19	*West Cascades Sp*	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	0.000
20	*Lower Columbia F*	0.023	0.008	0.012	0.037	0.022	0.049	0.008	0.037	0.064	0.049	0.034	0.009	0.020	0.050	0.033
21	*Willamette Sp*	0.003	0.003	0.000	0.008	0.002	0.005	0.003	0.001	0.011	0.005	0.002	0.003	0.000	0.008	0.002
22	*Columbia 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	0.000	0.000
23	*Interior Columbia Su/F*	0.309	0.022	0.273	0.345	0.308	0.444	0.018	0.414	0.474	0.444	0.287	0.022	0.252	0.323	0.287
24	*North Oregon Coast*	0.065	0.013	0.046	0.088	0.065	0.062	0.009	0.047	0.078	0.061	0.044	0.011	0.028	0.063	0.043
25	*Mid OR Coast*	0.023	0.009	0.009	0.040	0.022	0.010	0.005	0.003	0.019	0.009	0.024	0.009	0.012	0.040	0.024
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B21.–Estimated contributions of 26 reporting groups of Chinook salmon to the late season (biweeks 14-18) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2004–2006.

		2004 (n = 225)					2005 (n = 278)					2006 (n = 200)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	0.000	0.001	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
2	*Alsek*	0.000	0.001	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
3	*N Southeast Alaska*	0.000	0.001	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
4	*Taku*	0.000	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
5	*Andrew*	0.014	0.009	0.003	0.031	0.013	0.032	0.011	0.016	0.052	0.031	0.000	0.002	0.000	0.002	0.000
6	*Stikine*	0.001	0.003	0.000	0.004	0.000	0.003	0.005	0.000	0.014	0.000	0.000	0.002	0.000	0.001	0.000
7	*S Southeast Alaska*	0.010	0.010	0.000	0.029	0.008	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
8	*Nass*	0.001	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.003	0.000	0.007	0.000
9	*Skeena*	0.057	0.017	0.032	0.088	0.056	0.049	0.014	0.028	0.075	0.048	0.050	0.017	0.025	0.081	0.049
10	*BC Coast/Haida Gwaii*	0.044	0.014	0.024	0.069	0.043	0.049	0.013	0.029	0.073	0.048	0.046	0.017	0.023	0.077	0.044
11	*West Vancouver*	0.404	0.033	0.351	0.459	0.404	0.499	0.030	0.449	0.549	0.499	0.371	0.035	0.315	0.429	0.371
12	*East Vancouver*	0.026	0.011	0.011	0.046	0.025	0.042	0.012	0.024	0.064	0.041	0.043	0.015	0.022	0.070	0.042
13	*Fraser*	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.006	0.000	0.016	0.000
14	*Lower Thompson*	0.000	0.001	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
15	*North Thompson*	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
16	*South Thompson*	0.023	0.010	0.009	0.042	0.021	0.067	0.015	0.043	0.094	0.066	0.173	0.028	0.129	0.220	0.171
17	*Puget Sound*	0.000	0.002	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.012	0.014	0.000	0.042	0.007
18	*Washington Coast*	0.168	0.027	0.126	0.214	0.167	0.086	0.018	0.057	0.117	0.084	0.062	0.020	0.033	0.097	0.060
19	*West Cascades Sp*	0.004	0.006	0.000	0.015	0.001	0.000	0.002	0.000	0.003	0.000	0.000	0.001	0.000	0.000	0.000
20	*Lower Columbia F*	0.031	0.012	0.014	0.054	0.030	0.028	0.011	0.013	0.048	0.027	0.043	0.017	0.019	0.073	0.041
21	*Willamette Sp*	0.002	0.004	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
22	*Columbia Sp*	0.001	0.003	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.108	0.021	0.076	0.144	0.107	0.097	0.018	0.069	0.128	0.096	0.121	0.024	0.084	0.163	0.120
24	*North Oregon Coast*	0.083	0.020	0.052	0.119	0.082	0.035	0.016	0.012	0.062	0.034	0.056	0.018	0.028	0.088	0.054
25	*Mid OR Coast*	0.020	0.011	0.005	0.041	0.018	0.011	0.012	0.000	0.035	0.008	0.017	0.011	0.003	0.039	0.015
26	*S Oregon/California*	0.001	0.003	0.000	0.007	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B22.–Estimated contributions of 26 reporting groups of Chinook salmon to the late season (biweeks 14-18) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2007–2009.

		2007 (n = 222)					2008 (n = 212)					2009 (n = 223)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.011	0.015	0.000	0.040	0.000
5	*Andrew*	0.021	0.012	0.005	0.045	0.019	0.093	0.022	0.059	0.132	0.092	0.011	0.009	0.000	0.028	0.010
6	*Stikine*	0.000	0.002	0.000	0.000	0.000	0.002	0.007	0.000	0.015	0.000	0.020	0.018	0.000	0.050	0.020
7	*S Southeast Alaska*	0.013	0.015	0.000	0.043	0.009	0.029	0.018	0.000	0.060	0.028	0.002	0.004	0.000	0.010	0.000
8	*Nass*	0.000	0.001	0.000	0.000	0.000	0.003	0.008	0.000	0.020	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.073	0.020	0.043	0.107	0.072	0.024	0.014	0.006	0.051	0.022	0.000	0.002	0.000	0.001	0.000
10	*BC Coast/Haida Gwaii*	0.089	0.021	0.056	0.126	0.088	0.037	0.014	0.017	0.063	0.035	0.068	0.018	0.041	0.101	0.067
11	*West Vancouver*	0.291	0.031	0.241	0.342	0.290	0.147	0.025	0.108	0.190	0.146	0.208	0.027	0.165	0.255	0.207
12	*East Vancouver*	0.027	0.011	0.012	0.048	0.026	0.026	0.011	0.010	0.046	0.024	0.031	0.012	0.014	0.052	0.029
13	*Fraser*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.005	0.005	0.000	0.014	0.003
14	*Lower Thompson*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
15	*North Thompson*	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
16	*South Thompson*	0.125	0.023	0.089	0.164	0.123	0.222	0.029	0.175	0.271	0.221	0.056	0.016	0.033	0.084	0.055
17	*Puget Sound*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000
18	*Washington Coast*	0.085	0.021	0.054	0.122	0.084	0.158	0.026	0.117	0.203	0.157	0.120	0.023	0.085	0.159	0.119
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
20	*Lower Columbia F*	0.029	0.012	0.012	0.051	0.027	0.013	0.009	0.003	0.030	0.012	0.054	0.017	0.029	0.083	0.052
21	*Willamette Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000
22	*Columbia Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.152	0.025	0.113	0.195	0.151	0.194	0.028	0.150	0.241	0.193	0.370	0.033	0.316	0.425	0.370
24	*North Oregon Coast*	0.061	0.018	0.034	0.093	0.060	0.051	0.017	0.027	0.081	0.050	0.034	0.012	0.016	0.056	0.032
25	*Mid OR Coast*	0.033	0.013	0.014	0.057	0.031	0.000	0.001	0.000	0.001	0.000	0.010	0.007	0.002	0.024	0.009
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B23.–Estimated contributions of 26 reporting groups of Chinook salmon to the late season (biweeks 14-18) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2010–2012.

		2010 (n = 247)					2011 (n = 400)					2012 (n = 400)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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	0.000
2	*Alsek*	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	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.006	0.000	0.009	0.005	0.002	0.019	0.008
5	*Andrew*	0.019	0.009	0.006	0.036	0.017	0.022	0.008	0.010	0.037	0.021	0.021	0.009	0.007	0.038	0.020
6	*Stikine*	0.002	0.005	0.000	0.014	0.000	0.000	0.001	0.000	0.000	0.000	0.007	0.007	0.000	0.021	0.005
7	*S Southeast Alaska*	0.018	0.015	0.000	0.044	0.016	0.024	0.009	0.011	0.041	0.023	0.044	0.012	0.026	0.066	0.043
8	*Nass*	0.000	0.002	0.000	0.000	0.000	0.001	0.002	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000
9	*Skeena*	0.023	0.017	0.000	0.054	0.021	0.033	0.010	0.018	0.052	0.032	0.009	0.009	0.000	0.025	0.007
10	*BC Coast/Haida Gwaii*	0.032	0.014	0.012	0.057	0.030	0.047	0.011	0.030	0.067	0.047	0.036	0.010	0.022	0.054	0.035
11	*West Vancouver*	0.263	0.028	0.217	0.310	0.262	0.210	0.021	0.177	0.245	0.210	0.124	0.017	0.098	0.153	0.124
12	*East Vancouver*	0.020	0.010	0.006	0.038	0.018	0.006	0.004	0.001	0.013	0.005	0.012	0.006	0.004	0.023	0.012
13	*Fraser*	0.013	0.007	0.004	0.027	0.012	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.000	0.005	0.000
14	*Lower Thompson*	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	0.000
15	*North Thompson*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.004	0.001	0.013	0.004
16	*South Thompson*	0.146	0.023	0.110	0.186	0.145	0.059	0.012	0.040	0.080	0.058	0.064	0.013	0.044	0.087	0.063
17	*Puget Sound*	0.002	0.005	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.004	0.000	0.011	0.003
18	*Washington Coast*	0.155	0.025	0.116	0.197	0.154	0.161	0.020	0.129	0.196	0.161	0.166	0.020	0.134	0.199	0.165
19	*West Cascades Sp*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.004	0.000
20	*Lower Columbia F*	0.025	0.011	0.010	0.046	0.023	0.045	0.012	0.027	0.065	0.044	0.041	0.011	0.024	0.060	0.040
21	*Willamette Sp*	0.000	0.000	0.000	0.000	0.000	0.014	0.006	0.005	0.025	0.013	0.009	0.005	0.003	0.018	0.008
22	*Columbia Sp*	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
23	*Interior Columbia Su/F*	0.196	0.026	0.155	0.240	0.195	0.263	0.023	0.227	0.301	0.263	0.359	0.025	0.319	0.400	0.359
24	*North Oregon Coast*	0.063	0.018	0.036	0.095	0.062	0.092	0.017	0.066	0.120	0.091	0.054	0.014	0.034	0.078	0.053
25	*Mid OR Coast*	0.024	0.017	0.002	0.055	0.021	0.022	0.010	0.007	0.040	0.021	0.034	0.011	0.018	0.053	0.033
26	*S Oregon/California*	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).

Appendix B24.–Estimated contributions of 26 reporting groups of Chinook salmon to the late season (biweeks 14-18) sport fishery harvest in outside waters (Craig, Sitka, Yakutat, Gustavus, and Elfin Cove), Southeast Alaska, 2013–2015.

		2013 (n = 307)					2014 (n = 400)					2015 (n = 451)				
				90% CI					90% CI					90% CI		
	Reporting Group[a]	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median	Mean	SD	5%	95%	Median
1	*Situk*	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
2	*Alsek*	0.002	0.003	0.000	0.009	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3	*N Southeast Alaska*	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	0.000
4	*Taku*	0.000	0.001	0.000	0.000	0.000	0.002	0.004	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000
5	*Andrew*	0.024	0.010	0.010	0.042	0.023	0.001	0.002	0.000	0.004	0.000	0.035	0.010	0.021	0.052	0.034
6	*Stikine*	0.001	0.003	0.000	0.006	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
7	*S Southeast Alaska*	0.006	0.006	0.000	0.018	0.005	0.006	0.007	0.000	0.019	0.004	0.021	0.008	0.010	0.037	0.020
8	*Nass*	0.001	0.002	0.000	0.005	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
9	*Skeena*	0.040	0.015	0.017	0.065	0.040	0.020	0.008	0.008	0.035	0.019	0.039	0.011	0.023	0.058	0.038
10	*BC Coast/Haida Gwaii*	0.022	0.009	0.009	0.038	0.020	0.041	0.011	0.025	0.061	0.040	0.098	0.014	0.075	0.123	0.097
11	*West Vancouver*	0.236	0.024	0.197	0.277	0.235	0.186	0.020	0.154	0.219	0.185	0.362	0.023	0.325	0.400	0.362
12	*East Vancouver*	0.008	0.006	0.001	0.020	0.007	0.010	0.005	0.003	0.020	0.009	0.010	0.005	0.003	0.019	0.009
13	*Fraser*	0.000	0.001	0.000	0.000	0.000	0.006	0.004	0.001	0.014	0.005	0.007	0.004	0.002	0.014	0.006
14	*Lower Thompson*	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	0.000
15	*North Thompson*	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	0.000
16	*South Thompson*	0.051	0.014	0.031	0.076	0.050	0.025	0.008	0.013	0.039	0.024	0.023	0.007	0.013	0.037	0.023
17	*Puget Sound*	0.004	0.004	0.000	0.013	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
18	*Washington Coast*	0.107	0.019	0.077	0.139	0.106	0.106	0.016	0.081	0.133	0.105	0.118	0.016	0.093	0.145	0.118
19	*West Cascades Sp*	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	0.001	0.000
20	*Lower Columbia F*	0.056	0.014	0.035	0.081	0.055	0.052	0.012	0.034	0.073	0.051	0.028	0.008	0.017	0.043	0.028
21	*Willamette Sp*	0.007	0.005	0.000	0.017	0.006	0.010	0.005	0.003	0.019	0.009	0.004	0.003	0.001	0.011	0.004
22	*Columbia Sp*	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	0.000
23	*Interior Columbia Su/F*	0.368	0.028	0.323	0.415	0.368	0.489	0.025	0.447	0.531	0.489	0.218	0.020	0.186	0.251	0.217
24	*North Oregon Coast*	0.030	0.012	0.012	0.052	0.028	0.044	0.011	0.028	0.063	0.043	0.023	0.007	0.012	0.036	0.022
25	*Mid OR Coast*	0.035	0.013	0.016	0.058	0.034	0.003	0.003	0.000	0.008	0.002	0.012	0.005	0.004	0.022	0.011
26	*S Oregon/California*	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	0.000

Note: Sample sizes (n), standard deviation (SD), and 90% credibility intervals are provided.

[a] Run timing components are abbreviated as Sp (spring), Su (summer), and F (fall).