**Fishery Data Series No. 24-20**

# Mixed Stock Analysis of Chinook Salmon Harvested in Southeast Alaska Commercial Troll and Sport Fisheries, 2020–2022

**by**

**Kyle R. Shedd**

**David L. Leonard**

**and**

**Jeff V. Nichols**

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

## Symbols and Abbreviations

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

**Weights and measures (metric)**

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

**Weights and measures (English)**

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

**Time and temperature**

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

**Physics and chemistry**

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

**General**

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

**Mathematics, statistics**

| | |
|---|---|
| *all standard mathematical signs, symbols and abbreviations* | |
| alternate hypothesis | $H_A$ |
| base of natural logarithm | $e$ |
| catch per unit effort | CPUE |
| coefficient of variation | CV |
| common test statistics | ($F$, $t$, $\chi^2$, 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. 24-20*

# MIXED STOCK ANALYSIS OF CHINOOK SALMON HARVESTED IN SOUTHEAST ALASKA COMMERCIAL TROLL AND SPORT FISHERIES, 2020–2022

by

Kyle R. Shedd
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

David L. Leonard
Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau

and

Jeff V. Nichols
Alaska Department of Fish and Game, Division of Sport Fish, Douglas

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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*Kyle R. Shedd*
*Alaska Department of Fish and Game, Division of Commercial Fisheries*
*333 Raspberry Road, Anchorage AK 99518, USA*

*David L. Leonard*
*Alaska Department of Fish and Game, Division of Commercial Fisheries*
*1255 W. 8th Street, Juneau AK 99811-5526, USA*

*and*

*Jeff V. Nichols*
*Alaska Department of Fish and Game, Division of Sport Fish*
*803 3rd Street, Douglas, AK 99824-5412, USA*

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# ABSTRACT

Chinook salmon originating in Alaska, British Columbia, and the Pacific Northwest are harvested in Southeast Alaska (SEAK) commercial troll and sport fisheries. Owing to its mixed stock nature, the overall SEAK Chinook salmon fishery is managed as 1 of 3 aggregate abundance-based management (AABM) fisheries under provisions of the Pacific Salmon Treaty Agreement (PST). Alaska Department of Fish and Game has used genetic mixed stock analysis to estimate the stock composition of Chinook salmon harvests in the SEAK troll since 1998 and sport fisheries since 2004, allowing direct estimation of the major stock groups contributing to these fisheries. This project estimated the relative stock composition of troll and sport fishery harvests from fishery accounting years 2020–2022. The major contributors to the troll and sport fisheries ordered from north to south were Southeast Alaska/Transboundary River, North/Central British Columbia, West Coast Vancouver Island, South Thompson, Washington Coast, Interior Columbia River Summer/Fall, and Oregon Coast reporting groups. Collectively, these 7 stock aggregates, referred to as driver stocks, accounted for 90–91% of the troll harvest, and 92–95% of the sport harvest. The Interior Columbia River Summer/Fall driver stock was the largest contributor to the troll fishery for 2020–2022 (24–27% of the annual harvest). Conversely, the Southeast Alaska/Transboundary River and West Coast Vancouver Island driver stock groups were the largest contributors to the sport fishery (23–30% and 17–25% of the annual harvest, respectively). Results indicate considerable temporal and spatial variation in harvests within and across years. Stock composition data from this and other stock assessments are used to provide fisheries information, including stock-specific run reconstructions, forecasting of run sizes to transboundary rivers, and separate harvest estimates of SEAK and transboundary river wild and hatchery salmon.

Keywords: Chinook salmon, Southeast Alaska, troll fishery, sport fishery, mixed stock analysis, genetics, microsatellite, Pacific Salmon Treaty

# INTRODUCTION

## CHINOOK SALMON FISHERY MANAGEMENT

Chinook salmon *Oncorhynchus tshawytscha* is one of the fish species most sought after by sport anglers and the commercial troll fishing industry in Southeast Alaska (SEAK). In SEAK, Chinook salmon are harvested in State of Alaska and Federal Exclusive Economic Zone waters east of Cape Suckling and north of Dixon Entrance (CTC 2004; NPFMC 2012). This area is divided into 4 quadrants for stock assessment purposes for the commercial troll fishery: Northern Outside (NO), Northern Inside (NI), Southern Outside (SO), and Southern Inside (SI) (Figure 1). The sport fisheries predominantly occur around the ports of Juneau, Ketchikan, Sitka, Petersburg, Wrangell, Craig/Klawock, Yakutat, Gustavus, Elfin Cove, Skagway, and Haines (Figure 2). Both the troll and sport fisheries harvest mixed stocks[1] of Chinook salmon, including salmon originating from Alaska, British Columbia (BC), and the Pacific Northwest of the United States, and are therefore under the jurisdiction of the Pacific Salmon Treaty (PST, or Treaty). The PST calls for cooperative management and research on fisheries harvesting Chinook salmon from populations in Canada and the U.S. Under the 2019 PST Agreement, Chinook salmon fisheries are structured as either aggregate abundance-based management (AABM) or individual stock-based management (ISBM) fisheries. The SEAK Chinook salmon fishery is 1 of 3 mixed stock AABM fisheries (2019 PST Agreement, Annex IV, Chapter 3).

The annual all-gear harvest limit for Chinook salmon in SEAK is specified in Chapter 3, Annex IV of the PST, and for 2019–2022, was determined by the SEAK early winter District 113 troll fishery catch per unit effort (CPUE) metric estimated from data collected in statistical weeks (SW) 41–48. The majority of the PST harvest limit is allocated to the commercial troll and sport fisheries

[1] In this report, *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 *stock* refers to an aggregation of one or more populations that occur in the same geographic area and are managed as a unit. *Reporting groups* refers to an aggregation of one or more stocks that can be identified using genetic mixed stock analysis.

under State of Alaska management plans established by the Alaska Board of Fisheries (BOF). The purse seine fishery is allocated 4.3% of the harvest, the gillnet fishery is allocated 2.9% of the harvest, and the setnet fishery is allocated 1,000 fish; the remaining portion of the annual harvest limit is allocated 80% to the troll fishery and 20% to the sport fishery. Thus, careful monitoring of the harvest in the troll and sport fisheries throughout the season is essential to prevent exceeding the annual harvest limit (Hagerman et al. 2021, 2022a, *In prep*; Jaenicke et al. 2022, 2023a, 2023b). Additionally, the PST requires that the fisheries be managed to achieve escapement goals for SEAK and Transboundary River (TBR) stocks. By regulation, legal-sized Chinook salmon in the troll and sport fisheries must be 71 cm (28 inches) or greater in total length (tip of snout to tail fork), except in special harvest areas—generally terminal in nature—that target Alaska hatchery-origin stocks.

In addition to the provisions of the PST, these fisheries are also managed pursuant to Alaska's *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222), wherein impacts of fishing on salmon escapement are assessed and considered in management decisions, and necessary conservation restrictions may be imposed in order to achieve escapement goals, rebuild, or, in some other way, conserve a specific salmon stock or group of stocks.

## Troll Fishery Overview

The SEAK troll harvest of Chinook salmon occurs over 3 seasonal fisheries: winter, spring, and summer. By regulation, the winter fishery occurs from October 11 to April 30 of the following year, or until the guideline harvest level of 45,000 non-Alaska hatchery-produced Chinook salmon is reached. The fishery is split into "early winter" (October 11–December 31) and "late winter" (January 1–April 30) components, and the open fishing area is restricted to within the troll boundary of the outer coast surf line (Hagerman and Vaughn 2022). The spring troll fishery (May 1 or earlier, through June 30) is managed to target Chinook salmon produced from SEAK hatcheries, many of which are exempt from the annual harvest limit. The summer troll fishery accounts for most of the annual Chinook salmon commercial harvest and is closely monitored and managed to prevent exceeding the troll allocation of the annual harvest limit by allowing retention of Chinook salmon during 2 or more periods in most years. The first summer troll fishery opening, beginning July 1 by regulation, allows harvest in the waters of frequent high Chinook salmon abundance and is managed to not exceed 70% of the remaining troll allocation of the annual harvest limit. Once the July fishery is closed, Chinook salmon retention by the troll fleet is not allowed unless it is determined that additional openings will not result in exceeding the annual harvest limit. August (and sometimes September) openings are conducted in years when it is determined that the annual harvest limit will not be exceeded. Unlike the first retention period, if additional openings occur, the waters of frequent high Chinook salmon abundance remain closed to troll gear. However, if after 10 days, Alaska Department of Fish and Game (ADF&G) determines that the annual harvest limit for troll Chinook salmon may not be reached by September 20 with those waters closed, the waters of frequent high Chinook salmon abundance reopen.

## Sport Fishery Overview

The sport fishery occurs throughout the region, with most of the harvest annually occurring in the outside areas, primarily in Sitka and Craig/Klawock, and in the inside areas, primarily associated with the ports of Ketchikan and Juneau (Figure 2). Most of the sport fishery effort for Chinook salmon in the region occurs from May through September when both resident and nonresident participation are at their highest levels. The objectives of the *Southeast Alaska King Salmon*

*Management Plan* were specified by the BOF and direct ADF&G (1) to manage the sport fishery to attain an average harvest of 20% of the all-gear harvest limit after accounting for commercial net harvests; (2) to allow uninterrupted sport fishing in salt waters for Chinook salmon, but not exceeding the sport fishery harvest limit; (3) to minimize regulatory restriction on resident anglers; and (4) to provide stability to the sport fishery by eliminating inseason regulatory changes, except those needed for conservation.

## SUMMARY OF 2020 SEASON

The 2020 preseason early winter District 113 power troll Chinook salmon CPUE metric was estimated at 4.83 fish per boat day, resulting in an all-gear allowable catch limit of 205,165 Treaty Chinook salmon (Hagerman et al. 2021).

In 2017, 9 of the 11 Chinook salmon stocks that ADF&G monitors for escapement did not meet management objectives. Three Chinook salmon indicator stocks had missed the lower bound of their escapement objectives in at least 4 of the past 5 years. Given this "chronic inability, despite use of specific management measures, to maintain escapements within the bounds of the SEG [sustainable escapement goal], BEG [biological escapement goal], OEG [optimum escapement goal], or other specified management objectives for the fishery," ADF&G recommended that Unuk, Chilkat, and King Salmon Rivers be designated as *stock(s) of management concern* (SOC) pursuant to the *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222). The BOF accepted ADF&G's recommendations and adopted SOC action plans for Unuk, Chilkat, and King Salmon Rivers that were designed to conserve these stocks of Chinook salmon (Lum and Fair 2018a, 2018b). The action plan to conserve Unuk River Chinook salmon directed ADF&G to consider management provisions for all Chinook salmon fisheries in the region; examples include: close the winter troll fishery on March 15 (the typical closing date is April 30), notwithstanding any remaining guideline harvest level, and limit spring troll areas to terminal harvest areas and outer coast spring troll areas with low proportional harvests of wild SEAK stocks; and to use ADF&G emergency order (EO) authority for establishing conservative regulations in the Ketchikan area sport fishery (Hagerman et al. 2021; Lum and Fair 2018a). Additionally, the action plan to conserve Chilkat and King Salmon River Chinook salmon directed ADF&G to close the waters of Upper Lynn Canal, modify time and area restrictions of the spring troll fishery, and use ADF&G EO authority to implement conservative Chinook salmon sport fishery regulations in Districts 11, 12, and 15 (Lum and Fair 2018b).

### Troll Fishery

In accounting year[2] (AY) 2020, the troll fishery harvested 169,916 Chinook salmon, the 11th lowest on record since statehood through 2020 (CTC 2021a; Hagerman et al. 2021). The winter fishery harvest was 15,810 fish, of which 8,370 were caught in early winter and 7,440 were caught in late winter. The winter troll fishery closed on March 15 in accordance with new regulations adopted by the BOF from the *Unuk River King Salmon Stock Status and Action Plan* (Lum and Fair 2018a). In 2020, spring troll fisheries were conducted between May 1 and June 30; however, in accordance with the *Unuk River King Salmon Stock Status and Action Plan*, open areas were limited to 8 terminal harvest areas and 11 spring troll areas to conserve wild SEAK Chinook salmon (Lum and Fair 2018a). A total of 13,600 fish were harvested in the spring fishery, which includes harvest in hatchery terminal areas and wild terminal exclusion areas (CTC 2021a;

[2] The PST accounting year begins with the start of the winter fishery on October 11 of the previous calendar year and ends the following September, e.g., AY 2020 is October 1, 2019, through September 30, 2020. Note: all references to years in this report are accounting years.

Hagerman et al. 2021). The total summer fishery harvest was 140,506 fish, of which 71,494 were caught during the first retention period July 1–6, with 68,893 caught in the second retention period August 15–September 8, and the remainder caught in Annette Island troll or confiscated harvests (CTC 2021a; Hagerman et al. 2021).

## Sport Fishery

The SEAK Chinook salmon sport fishery is managed under the directives of the *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055). This plan prescribes management measures based on the SEAK early winter troll CPUE metric and the harvest management plan adopted by the BOF. In 2020, 37,900 Treaty Chinook salmon were allocated to the sport fishery. To avoid implementation of the payback provisions in the new 2019 PST Agreement, which requires the payback of any overages to the Alaska all-gear catch limit the following year, the sport fishery was managed conservatively with a harvest target of 37,100 Treaty Chinook salmon in 2020. As directed by the *Southeast Alaska King Salmon Management Plan,* if restrictions are necessary to keep the sport fishery within its harvest allocation, nonresident anglers will be restricted first, and ADF&G shall only restrict resident anglers if nonresident angler restrictions are insufficient to keep the sport harvest within the sport harvest allocation. The following regulations applied during the 2020 sport fishery as dictated by the *Southeast Alaska King Salmon Management Plan*:

### *Alaska Resident*

- The resident bag and possession limit was 1 Chinook salmon, 28 inches or greater in length.
- In those inside waters where the sport fishery for Chinook salmon was closed to retention during the spring and early summer (Juneau area, Petersburg/Wrangell area, Ketchikan area), when those waters reopen, the resident bag and possession limit was 2 Chinook salmon 28 inches or greater in length through December 31, 2020.

### *Nonresident*

- The nonresident bag and possession limit was 1 Chinook salmon 28 inches or greater in length.
- From January 1 through June 30, a nonresident's annual catch limit was 3 Chinook salmon 28 inches or greater in length.
- From July 1 through July 7, a nonresident's annual catch limit was 2 Chinook salmon 28 inches or greater in length.
- From July 1 through December 31, a nonresident's annual catch limit was 1 Chinook salmon 28 inches or greater in length, and any Chinook salmon 28 inches or greater in length harvested by a nonresident from January 1 through June 30 applied toward the 1 fish annual catch limit.

The sport fishery was monitored closely throughout the season to ensure it stayed below the PST catch limit and the conservative harvest target. In early June, COVID-19 impacts significantly reduced Chinook salmon harvest levels due to a reduction in nonresident angler effort. While continuing to closely monitor the sport fishery—including participation levels— ADF&G initiated a series of progressively liberalized regionwide regulations beginning in mid-June of 2020 in an effort to achieve—but not exceed—the sport harvest allocation. These more liberalized regulations included increases of bag and possession limits for resident anglers as well as increases in bag,

possession, and annual limits for nonresident anglers. Liberalized regionwide regulations were rescinded effective September 30, 2020, at which point on October 1, 2020, the original regionwide regulations applied at the beginning of the season took effect (noted explicitly above), per the *Southeast Alaska King Salmon Management Plan*. The 2020 sport fishery had an estimated total harvest of 35,100 Chinook salmon (CTC 2021a).

## SUMMARY OF 2021 SEASON

The 2021 preseason early winter District 113 power troll Chinook salmon CPUE metric was estimated at 3.85 fish per day, resulting in an all-gear allowable catch limit of 205,165 Treaty Chinook salmon (Hagerman et al. 2022a).

### Troll Fishery

In AY 2021, the troll fishery harvested 163,210 Chinook salmon, the 11th lowest on record since statehood through 2021 (CTC 2022; Hagerman et al. 2022a). The winter fishery harvest was 15,072 fish, of which 6,312 were caught in early winter and 8,760 were caught in late winter. The winter troll fishery closed on March 15 in accordance with new regulations adopted by the BOF from the *Unuk River King Salmon Stock Status and Action Plan* (Lum and Fair 2018a). In 2021, spring troll fisheries were conducted between May 1 and June 30; however, in accordance with the *Unuk River King Salmon Stock Status and Action Plan*, open areas were limited to 10 terminal harvest areas and 11 spring troll areas to conserve wild SEAK Chinook salmon (Lum and Fair 2018a). A total of 16,535 fish were harvested in the spring fishery, which includes harvest in hatchery terminal areas and wild terminal exclusion areas (CTC 2022; Hagerman et al. 2022a). The total summer fishery harvest was 131,603 fish, of which 70,465 were caught during the first retention period July 1–8, with 60,814 caught in the second retention period August 13–September 3, and the remainder caught in Annette Island troll or confiscated harvests (CTC 2022; Hagerman et al. 2022a).

### Sport Fishery

In 2021, 37,900 Treaty Chinook salmon were allocated to the sport fishery. To avoid implementation of the payback provisions in the new 2019 PST Agreement, which requires the payback of any overages to the Alaska all-gear catch limit the following year, the sport fishery was managed conservatively with a harvest target of 37,100 Treaty Chinook salmon in 2021. As directed by the *Southeast Alaska King Salmon Management Plan*, if restrictions are necessary to keep the sport fishery within its harvest allocation, nonresident anglers will be restricted first, and the department shall only restrict resident anglers if nonresident angler restrictions are insufficient to keep the sport harvest within the sport harvest allocation. The following regulations applied during the 2021 sport fishery as dictated by the *Southeast Alaska King Salmon Management Plan*:

Effective through June 20, 2021:

***Alaska Resident***

- The resident bag and possession limit was 1 Chinook salmon 28 inches or greater in length.

***Nonresident***

- The nonresident bag and possession limit was 1 Chinook salmon 28 inches or greater in length.
- The nonresident annual limit is 4 Chinook salmon 28 inches or greater in length.

- Immediately upon landing and retaining a Chinook salmon, a nonresident must enter the species, date, and location on the back of their sport fishing license or on a nontransferable harvest record.

Effective June 21–July 31:

***Alaska Resident***

- The resident bag and possession limit was 2 Chinook salmon 28 inches or greater in length.
- From October 1, 2021, through March 31, 2022, a sport angler may use 2 rods when fishing for Chinook salmon; a person using 2 rods under this regulation may only retain salmon.

***Nonresident***

- The nonresident bag and possession limit is 1 Chinook salmon 28 inches or greater in length.
- From January 1 through June 30, a nonresident's total harvest limit is 3 Chinook salmon 28 inches or greater in length.
- From July 1 through July 7, a nonresident's total harvest limit is 2 Chinook salmon 28 inches or greater in length, and any Chinook salmon harvested by the nonresident from January 1 through June 30 will apply toward the 2 fish total harvest limit.
- From July 8 through December 31, a nonresident's total harvest limit is 1 Chinook salmon 28 inches or greater in length, and any Chinook salmon harvested by the nonresident from January 1 through July 7 will apply toward the 1 fish total harvest limit.

Effective August 1–31:

***Alaska Resident***

- The resident bag and possession limit is 1 Chinook salmon 28 inches or greater in length.
- From October 1, 2021, through March 31, 2022, a sport angler may use 2 rods when fishing for Chinook salmon; a person using 2 rods under this regulation may only retain salmon.

***Nonresident***

- From August 1 through August 31, 2021, nonresidents may not retain or possess Chinook salmon; any Chinook salmon caught must be released immediately and returned to the water unharmed.
- The nonresident bag and possession limit is 1 Chinook salmon 28 inches or greater in length.
- The nonresident total harvest limit is 1 Chinook salmon 28 inches or greater in length, and any Chinook salmon harvested by a nonresident from January 1 through July 31 will apply toward the 1 fish nonresident total harvest limit.

The sport fishery was monitored closely throughout the season to ensure it stayed below the PST catch limit and the conservative harvest target. Despite continued COVID-19 impacts reducing overall sport fishery effort levels, relative HPUE remained high, and ADF&G initiated a series of progressively restrictive management measures beginning in mid-June of 2021 in an effort to

achieve—but not exceed—the sport harvest allocation. These more restrictive regulations included a decreased bag and possession limits for resident anglers as well as drops in bag, possession, and annual limits for nonresident anglers. The 2021 sport fishery had an estimated total harvest of 41,982 Chinook salmon (CTC 2022).

## SUMMARY OF 2022 SEASON

The 2022 preseason early winter District 113 power troll Chinook salmon CPUE metric was estimated at 7.02 fish per day, resulting in an all-gear allowable catch limit of 266,585 Treaty Chinook salmon (Hagerman et al. *In prep*).

### Troll Fishery

In AY 2022, the troll fishery harvested 196,783 Chinook salmon, the 19th lowest on record since statehood through 2022 (CTC 2023; Hagerman et al. *In prep*). The winter fishery harvest was 28,238 fish, of which 6,149 were caught in early winter and 22,089 were caught in late winter. The winter fishery begins on October 11 and may continue through April 30, or until the GHL of 45,000 Treaty Chinook salmon is met. However, from 2018–2021, as adopted under the Unuk River Chinook salmon action plan (Lum and Fair 2018a), notwithstanding any remaining portion of the 45,000 non-Alaska hatchery-produced Chinook salmon GHL, the commercial winter troll fishery closed by emergency order on March 15 in all SEAK waters. In 2022, under newly adopted provisions of Alaska Board of Fisheries action plans to conserve SEAK and TBR wild Chinook salmon stocks, ADF&G was given direction to take necessary management actions under emergency order authority that provide for conservation of SEAK and TBR wild Chinook salmon stocks while continuing to identify harvest opportunities that maintain conservation of these stocks (Salomone et al. 2021; Hagerman et al. 2022b; Meredith et al. 2022). Accordingly, the 2021–2022 winter troll fishery was reopened from April 3 through 30, 2022. The reopening of the late winter fishery in select outer coastal areas provided additional harvest opportunities compared to the most recent 4 years but maintained conservation actions for SEAK and TBR wild Chinook salmon stocks. By regulation, the winter fishery is restricted to waters of Yakutat Bay and most waters east of the winter boundary line defined by established point to point landmarks between Cape Spencer and the International Boundary at Dixon Entrance (5 AAC 29.020[b]).

In 2022, spring troll fisheries were conducted between May 1 and June 30. Since 1986, when hatchery access fisheries were established, the number of spring fisheries increased considerably, with more than 30 spring fishery areas open to trolling as recently as 2017. As directed by SEAK Chinook salmon actions plans adopted by the BOF and under emergency order authority, the 2022 spring fisheries were limited to 10 Chinook salmon terminal harvest areas and 11 spring troll areas located on the outer coast or near hatchery release sites to conserve wild SEAK Chinook salmon (Meredith et al. 2022). A total of 15,699 fish were harvested in the spring fishery, which includes harvest in hatchery terminal areas and wild terminal exclusion areas (CTC 2023; Hagerman et al. *In prep*). The total summer fishery harvest was 152,721 fish, of which 93,336 were caught during the first retention period July 1–28, with 59,385 caught in the second retention period August 1–September 20, which includes confiscated harvests (CTC 2023; Hagerman et al. *In prep*).

### Sport Fishery

In 2022, 48,290 Treaty Chinook salmon were allocated to the sport fishery. To avoid implementation of the payback provisions in the new 2019 PST Agreement, which requires the payback of any overages to the Alaska all-gear catch limit the following year, the sport fishery was

managed conservatively with a harvest target of 47,300 Treaty Chinook salmon in 2022. Chinook nonretention periods were implemented in 2022 for the inside waters of Southeast Alaska (Haines, Skagway, Juneau, Petersburg, Wrangell, Ketchikan) from early spring through mid-summer to protect Alaska wild stocks and transboundary river stocks. Additionally, longer periods of nonretention or closed waters were implemented to provide additional protection in select locations. Focused opportunity was provided to target Alaska hatchery-produced Chinook in select terminal areas and times. Management prescriptions were established at the beginning of the season and modified in July to align with modifications made to the *Southeast Alaska King Salmon Management Plan* during the 2022 Southeast Alaska Board of Fisheries meeting. The following regional regulations applied during the beginning of the 2022 sport fishery as dictated by the *Southeast Alaska King Salmon Management Plan* (Alaska State Legislature 2023a):

***Alaska Resident***

- The resident bag and possession limit is 2 Chinook salmon 28 inches or greater in length.
- From February 3 through March 31, 2022, and October 1, 2022, through March 31, 2023, a resident sport angler may use 2 rods when fishing for Chinook salmon, a person using 2 rods under this regulation may only retain salmon.

***Nonresident***

- The nonresident bag and possession limit is 1 Chinook salmon 28 inches or greater in length.
- The nonresident annual limit is 3 Chinook salmon 28 inches or greater in length.
- Immediately upon landing and retaining a Chinook salmon a nonresident must enter the species, date, and location on their sport fishing license or on a nontransferable harvest record.

The following regional regulations applied to the sport fishery effective July 1 through the remainder of the 2022 season as dictated by the revised *Southeast Alaska King Salmon Management Plan* adopted by the BOF (Alaska State Legislature 2023a):

***Alaska Resident***

- The resident bag and possession limit is 2 Chinook salmon 28 inches or greater in length.
- From October 1, 2022, through March 31, 2023, a resident sport angler may use 2 rods when fishing for Chinook salmon, a person using 2 rods under this regulation may only retain salmon.

***Nonresident***

- The nonresident bag and possession limit is 1 Chinook salmon 28 inches or greater in length.

The newly revised *Southeast Alaska King Salmon Management Plan* (Alaska State Legislature 2023a) provides stability to the sport fishery by eliminating the need for inseason management while maintaining the existing domestic allocation between sport and commercial troll fisheries over time. Under this plan, the sport fishery is expected to be under its allocation in high abundance years and above allocation in low abundance years. As expected, the sport fishery was under allocation in the 2022 season. In accordance with the newly revised management plan, the sport fishery took no inseason management action to harvest remaining PST allowable catch in the sport

fishery. The 2022 sport fishery had an estimated total harvest of 41,176 Chinook salmon (CTC 2023).

## GENETIC MSA

The annual PST Chinook salmon harvest limit for SEAK under the 2019 PST is determined preseason based on the SEAK early winter District 113 troll fishery CPUE metric estimated from data collected in statistical weeks (SW) 41–48 (Hagerman et al. 2021, 2022a, *In prep*). This preseason winter troll CPUE metric is translated to the equivalent abundance index (AI) value, which is the projected abundance of Chinook salmon forecasted by the Chinook Technical Committee (CTC) using the PSC Chinook Model (CTC 2021a, 2022, 2023; Hagerman et al. 2021, 2022a, *In prep*). The PSC Chinook Model uses catch, escapement, 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, most of which are hatchery stocks intended to represent wild stocks, and resulting escapement and terminal run size estimates are often not available or are poorly determined for many stocks outside of SEAK. Genetic mixed stock analysis (MSA) provides a complementary set of stock composition estimates for major contributors to fisheries. Where CWT methods are one of the only ways of detecting and estimating stocks of Chinook salmon that are minor contributors to a fishery (because the numeric tags minimize the problem of misclassification and more catch is sampled for CWTs on a coastwide basis [~20%] to recover these tags), genetic MSA is best suited for estimating contributions of major stocks, i.e., those contributing relatively large proportions (≥5%) of the sample. However, genetic MSA cannot currently differentiate between hatchery and wild stocks representing the same brood source and does not include the age information provided by CWTs. Although both MSA and CWT assessments can provide stock composition estimates of harvest, the combination of the 2 methods is expected to be more useful.

Genetic MSA has been used extensively to estimate the relative contribution of genetic aggregates of Chinook salmon to mixed stock fisheries occurring throughout the PST area (unpublished data;[3] 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 multilocus genotypes of fish in the mixture. ADF&G has used MSA based on coastwide baselines (allozymes: Teel et al. 1999; microsatellites: Seeb et al. 2007) to estimate the composition of Chinook salmon harvested in the commercial troll fishery since 1998, and the sport fishery since 2004 (Crane et al. 2000; Templin et al. 2011; Gilk-Baumer et al. 2013, 2017a, 2017b, 2017c, 2018; Shedd et al. 2021a, 2021b, 2022).

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 standardized DNA baseline for stock identification of Chinook salmon.[4] This process

[3] Blankenship, S., K. I. Warheit, J. Von Bargen, and D. A. Milward. 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. Unpublished Washington Department of Fish and Wildlife molecular genetics laboratory report submitted to the Pacific Salmon Commission-Chinook Technical Committee, 2007.

[4] Moran, P., M. Banks, T. D. Beacham, C. Garza, S. Narum, M. Powell, L. W. Seeb, R. L. Wilmot, and S. Young. Genetic analysis of Pacific salmonids (GAPS): Development of a standardized microsatellite DNA database for stock identification of Chinook salmon. Chinook funding proposal submitted to the US Chinook Technical Committee for funding under the budget increment associated with the US Letter of Agreement, 2004.

began in 2002, and a standardized baseline was available during the summer of 2005 (Seeb et al. 2007). The baseline can be used to identify 44 reporting groups in mixtures with acceptable accuracy and precision (Seeb et al. 2007). For the SEAK fisheries, the 44 reporting groups were combined into 26 reporting groups based on management needs and stock presence (Table 1). The current baseline (version 3.0) contains allele frequencies from 357 populations contributing to PST fisheries, ranging from the Situk River in Alaska to the Central Valley of California (Appendix A1).

Stocks of Chinook salmon originating from streams and hatcheries along the Southeast Alaska, Northern/Central British Columbia, West Vancouver Island, Washington, and Oregon coasts, and in the South Thompson and Upper Columbia Rivers[5] consistently contribute more than 5% to the troll and sport harvest in SEAK, and consequently are important stocks that help drive harvest allocations under the PST (Table 1; CTC 2021b). Collectively, these 7 aggregate stocks make up a large proportion (typically >90%; Gilk-Baumer et al. 2017a, 2017b; Shedd et al. 2021a, 2021b, 2022) of all Chinook salmon annually harvested in SEAK troll and sport fisheries, and thus genetic MSA is the preferred method for providing accurate and precise stock composition estimates for these "driver stocks" in SEAK fisheries (PSC 2008).

The information reported herein are the results of genetic MSA based on the CTC standardized baseline of microsatellites (GAPS version 3.0) to provide independent estimates of the stock composition of Chinook salmon harvested in the SEAK troll and sport fisheries in AY 2020–2022. Results focus primarily on the 7 driver stocks important for SEAK fisheries managed under the PST, although information at broader and finer scales is also provided for context.

# OBJECTIVES

The goal of this genetic MSA program was to estimate the stock composition of Chinook salmon harvested in SEAK commercial troll and sport fisheries during AY 2020–2022. Project objectives were as follows:

1. Sample Chinook salmon from the SEAK troll and 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. Survey Chinook salmon sampled from the SEAK troll and sport fisheries for individual genotypes at the 13 microsatellite loci in the coastwide baseline (GAPS version 3.0).
3. Estimate the relative contribution of 26 fine-scale reporting groups for the following troll fisheries in AY 2020–2022:
    a. early winter (October–December) and late winter (January–March) troll fisheries in the NO quadrant, and across all quadrants;
    b. spring troll fisheries (May–June) with separate estimates for Chinook salmon harvested in the NO, SO, and SI quadrants; and
    c. summer troll fisheries (July–September) with separate estimates for the first Chinook salmon opening and subsequent openings combined for Chinook salmon harvested across all quadrants and in the NO quadrant alone.
4. Estimate the relative contribution of 26 fine-scale reporting groups to SEAK sport fisheries in the following areas and time periods in AY 2020–2022:

[5] All summer and fall Chinook salmon transiting Bonneville Dam from June 1 through November 15, 2018, destined for areas above McNary Dam and the Deschutes River.

a. Ketchikan, total season estimate;
b. Petersburg-Wrangell, total season estimate;
c. NI (ports of Juneau, Haines, and Skagway), total season estimate; and
d. Outside (ports of Craig/Klawock, Sitka, Yakutat, Elfin Cove, and Gustavus)
    i. early season estimate (through biweek[6] 13),
    ii. late season estimate (after biweek 13), and
    iii. total season estimate.

# METHODS

## FISHERY SAMPLING

The standard for precision and accuracy used by ADF&G for genetic MSA is to estimate a stock's proportional contribution within 5% of the true value, 90% of the time (Seeb et al. 2000). A sample size of 400 individuals will provide estimates with the target level of precision under the worst case scenario (3 stocks contributing equal proportions; Thompson 1987), and ADF&G applies this standard when developing sampling programs for MSA. However, sample sizes for some strata may not meet this target size due to harvest numbers, sampling success, or some combination of both. In cases where sample sizes are fewer than 400 and reduced precision is acceptable, estimates based on smaller sample sizes may be appropriate to inform PST-related questions. Sample sizes of 200 fish provide estimates within approximately 7% of the true value 90% of the time (Thompson 1987). Reducing sample sizes below this threshold increases uncertainty rapidly, so when strata are represented by between 100 and 199 samples, estimates are only reported for broad-scale and driver-stock reporting groups to compensate (JTC 1997). Uncertainty associated with genetic MSA results from sample sizes below 100 fish is considered too high to provide anything other than broad-scale reporting groups.

### Troll Fishery

Sample sizes were set to target a minimum 400 samples per stratum for the following 11 troll fishery strata:

1. Early winter fishery (October–December)
    a. NO quadrant
    b. Regionwide
2. Late winter fishery (January–April)
    a. NO quadrant
    b. Regionwide
3. Spring fishery (May–June)
    a. NO quadrant
    b. SO quadrant
    c. SI quadrant

[6] Sport fishery 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 (accessed November 18, 2021).

    d. Regionwide
4. Summer fishery (July–September)
    a. First retention period (July)
        i. NO quadrant
        ii. Regionwide
    b. Second and subsequent retention periods (August–September)
        i. NO quadrant
        ii. Regionwide

When necessary, sample objectives were moved between ports within a stratum to achieve minimum sample sizes for some strata (Tables 2–4). Sample sizes in the NO quadrant were set so that stock contributions to the harvest in this quadrant could be estimated for each of the time periods in addition to an all-quadrant estimate. Objectives varied among ports depending on expectations for deliveries (processor availability), availability of port samplers, and the vagaries of each seasonal fishery.

Details regarding port sampling procedures are outlined in Reynolds-Manney et al. (2020). In short, Chinook salmon were targeted for sampling from landings at processors at various SEAK ports (Tables 2–4, Figure 1). Fish were selected for sampling without regard to size, sex, presence of an adipose fin, or position in the vessel hold or tote; sampling was conducted in such a manner to be as representative as possible of that week's commercial catch. A small piece of pelvic fin tissue (i.e., fin clip) was excised from each fish and dried on Whatman paper. Troll fishery participants were interviewed to determine the quadrant (NO, NI, SO, or SI; Tables 5–7) from which the Chinook salmon were harvested. At the end of each fishing period, samples were shipped via air cargo to the ADF&G Gene Conservation Laboratory in Anchorage for analysis. Associated data were archived as part of the age-sex-length database maintained by ADF&G.

## Sport Fishery

Sample sizes were set to target a minimum of 400 samples per stratum for the following 6 sport fishery strata, with the intention of representing harvest by biweek at each port:

1. Ketchikan, total season;
2. Petersburg and Wrangell, total season;
3. NI (Juneau, Haines, Skagway), total season;
4. Outside (Craig/Klawock, Sitka, Yakutat, Elfin Cove, Gustavus)
    a. early season (through biweek 13),
    b. late season (after biweek 13), 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 (Tables 8–10, Figure 2). Sampling design and sampling details for each port are described in Jaenicke et al. (2022, 2023a, 2023b). A tissue section was dissected from the pelvic fin of each sampled Chinook salmon and dried on Whatman paper. Anglers were interviewed to determine the creel port 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 PST fisheries (CTC standardized baseline loci; Seeb et al. 2007). Genomic DNA was extracted from tissue samples using a NucleoSpin 96 Tissue Kit by Macherey-Nagel (Düren, Germany). Polymerase chain reaction (PCR) was carried out in 10 µl 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 µl PCR product along with 0.5 µl of GS500LIZ (AB) internal lane size standard and 9.0 µl 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. Nontarget species, such as coho salmon *O. kisutch*, were identified during scoring and removed from further analysis. 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 1 of 2 possible outcomes: (1) 1 score was accepted and the other rejected, or (2) both scores were rejected, and no score was retained. Lastly, 8 samples from each 96-well DNA extraction plate were reanalyzed for all loci for quality control (QC). This enabled detection and correction of laboratory mistakes and allowed for estimation of genotyping error rates. Error rates were calculated as the number of conflicting genotypes, divided by the total number of genotypes examined.

## Statistical Analysis

### *Data Retrieval and Genotype Quality Assurance*

Genotypes from LOKI were retrieved and imported into R (R Core Team 2020).[7] 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 samples are likely to 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 because 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.

### *Troll Fishery Mixture Subsampling*

Representative mixtures of individuals for MSA were created by subsampling individuals from the collected tissue samples in proportion to harvest by statistical week for each quadrant, or by statistical area in the case of the spring troll fishery. The harvest of Chinook salmon in each quadrant for a given troll fishery opening was obtained from the ADF&G Mark, Tag, and Age Laboratory website (https://mtalab.adfg.alaska.gov/CWT/reports/default.aspx) using the criteria in Table 11. The relative proportion of the total period harvest that was caught in each quadrant was then calculated for each fishery opening.

Eleven mixtures were necessary to generate stock composition estimates for the strata described above. For each fishery/quadrant stratum, individual samples were randomly selected from each statistical week in proportion to harvest. When a stratum was composed of multiple quadrants, individual samples were randomly selected from the entire set of samples in proportion to harvest in each quadrant. For regionwide (all quadrant) estimates, separate mixtures were made to estimate stock contributions for both the NO quadrant and all other quadrants combined. These separate estimates were then pooled into regionwide, stratified estimates by weighting by harvest (Templin et al. 2011). When sufficient samples were available, the target sample size for each mixture was 400; however, fine-scale estimates were generated down to a minimum sample size of 200. Estimates were generated for samples of 100–199 fish, but only for the broad-scale and driver stock reporting groups outlined in Table 1. Only broad-scale estimates were generated for sample sizes fewer than 100.

### *Sport Fishery 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 inseason estimated Chinook salmon harvest for each biweek and port for a given fishing area was obtained from onsite sampling of sport harvested Chinook salmon by the Division of Sport Fish Southeast Alaska Marine Harvest Studies program (Jaenicke et al. 2022, 2023a, 2023b). The total harvest for each port is estimated by the Marine Harvest Studies program. The relative

[7] R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL https://www.r-project.org/.

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 to generate stock composition estimates for the 6 sport fishery strata described previously. For each time period/port stratum, individual samples were randomly selected from the entire set of samples from that biweek and port. When a stratum was composed of multiple time periods or ports, individual samples were randomly selected in proportion to the harvest in each period or port. For the total season estimate for Outside ports, separate mixtures were made to estimate stock contributions for the early (through biweek 13) and late (after biweek 13) periods. These estimates were then combined into total season, stratified estimates by weighting by harvest each time period's 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 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 proportion to harvest.

### *BAYES Analysis*

The stock composition of fishery mixtures was estimated using the program BAYES (Pella and Masuda 2001). The Bayesian method of MSA is used to estimate 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.[8] Results from 100% proof tests indicate that the fine-scale reporting groups used herein can be identified in mixtures with a 91% correct allocation or better (Gilk-Baumer et al. 2017a, 2017b).

The choice of prior information about stock proportions in a fishery (the prior probability distribution hereafter referred to as the *prior*) is important for increasing MSA accuracy (Habicht et al. 2012a). In this analysis, the estimated stock proportions from the previous year in each stratum were used as the prior for that stratum (i.e., 2019 estimates were used as prior parameters when generating 2020 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 start values. We assessed the within- and among-chain convergence of estimates using the Raftery-Lewis (within-chain) and Gelman-Rubin (among-chain) diagnostics. These values measure the convergence of each chain to stable estimates (Raftery and Lewis 1996) and measure the variation of estimates within a chain to the total variation among chains (Gelman and Rubin 1992), respectively. If a Gelman-Rubin diagnostic for any stock group in a mixture was greater than 1.2, the mixture was reanalyzed with 80,000 iterations. If a mixture

[8] Moran, P., M. Banks, T. D. Beacham, C. Garza, S. Narum, M. Powell, L. W. Seeb, R. L. Wilmot, and S. Young. Genetic analysis of Pacific salmonids (GAPS): Development of a standardized microsatellite DNA database for stock identification of Chinook salmon. Chinook funding proposal submitted to the US Chinook Technical Committee for funding under the budget increment associated with the US Letter of Agreement, 2004.

still had a diagnostic greater than 1.2 after the reanalysis, results from the 5 chains 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). Both means and medians are reported in appendix tables, and means are reported in figures and in the text. Means reported in the text are rounded from the raw stock composition data not the rounded values found in appendix tables.

For regionwide estimates for the winter and summer troll fisheries, estimates from the NO quadrant and all other quadrants combined were pooled into total area estimates by weighing each quadrant's estimate by their respective harvests (stratified estimator). Similarly, for sport fishery total season estimates from the Outside area, early-season and late-season estimates were pooled into yearly estimates by weighing each season's estimate by their respective harvest proportions (stratified estimator). This analysis is described in detail in Templin et al. (2011).

To better describe annual trends across a longer time frame for the stocks that make up the largest proportion of the SEAK Chinook salmon harvest (i.e., the driver stocks), the 26 fine-scale reporting groups were condensed into 8 reporting groups that consisted of 7 driver stocks and an *Other* group (Table 1). Where possible, these reporting groups were aligned with stock groups used by the CTC for the PSC Chinook Model, and these groups perform well in genetic MSA. Further, the fine-scale groups were combined into 4 broad-scale reporting groups for describing trends on a large geographic scale (Table 1). When reporting groups were combined, credibility intervals were calculated from the raw BAYES output using the new groupings to accurately reflect uncertainty in the estimates.

These reporting groups are large and, in some situations, do not provide the desired resolution. To enable accurate and precise investigation at a finer scale and to improve visualization of results, proportional contributions are also provided graphically for a subset of the fine-scale reporting groups estimated that consistently contribute at least 5% to the harvest in at least 1 seasonal fishery per year. Again, all other stocks are included in an additional *Other* group, and credibility intervals were calculated from the raw BAYES output using the new groupings.

# RESULTS

## FISHERY SAMPLING

### Troll Fishery

A total of 9,010 tissue samples were collected across all seasonal troll fisheries in AY 2020 (Table 2), which is well above the sampling goal of 6,880. A total of 8,937 tissue samples were collected across all seasonal troll fisheries in AY 2021 (Table 3), also above the sampling goal of 6,880. A total of 12,203 tissue samples were collected across all seasonal troll fisheries in AY 2022 (Table 4). Goals were generally met for all fishery periods, with the exception of late winter in AY 2021, but some samples were missed at some ports (Table 3).

Each accounting year, sampling of Chinook salmon during the winter fisheries began with the early winter opening on October 11 and continued until the late winter fishery closed by EO. The late winter fishery closed on March 15 in AY 2020 and AY 2021, to protect SEAK wild stocks. In AY 2022, the late winter fishery closed on March 15; however, it reopened in outside waters from April 3–30 (Hagerman and Vaughn 2022). The sampling goals for winter fisheries by port are heavily weighted towards Sitka (48%) and Craig (24%) where most of the seasonal harvest occurs. In 2020, a total of 1,555 samples (goal 830) were collected from the early winter troll fishery and 1,249 samples (goal 990) were collected from the late winter troll fishery. In 2021, a total of 874 samples (goal 830) were collected from the early winter troll fishery, and 929 samples (goal 990) were collected from the late winter troll fishery. In 2022, a total of 1,005 samples (goal 830) were collected from the early winter troll fishery, and 2,942 samples (goal 990) were collected from the late winter troll fishery. In all years, sample goals were missed in Craig and Ketchikan in the early winter largely due to low harvest. In all years, sample goals were missed in Craig and Ketchikan in the late winter period.

Sampling of Chinook salmon during the spring troll fishery occurred during May and June. Sample goals were vastly exceeded in 2020, 2021, and 2022, with most of the samples collected from Sitka (Tables 2–4). There were no open spring troll areas in the NI quadrant; therefore, no samples were collected (Tables 5–7).

Sampling of Chinook salmon during the first retention period of the summer troll fishery occurred during July 1–6 in 2020, July 1–8 in 2021, and July 1–28 in 2022. Sample collection goals were largely met or exceeded, with the exception of Craig, Port Alexander, and Wrangell in 2020 and 2021.

Sampling of Chinook salmon during the second retention period of the summer troll fishery occurred during August 15–September 8 in 2020, August 13–September 3 in 2021, and August 1–September 20 in 2022. Sample goals were vastly exceeded in all years, with most of the samples collected from Sitka.

## Sport Fishery

Sampling of Chinook salmon from SEAK sport fisheries began in April and ended in September of each year. The winter sport fishery experiences limited effort, primarily by Alaska residents, and was not sampled. A total of 3,552 tissue samples were collected in the 2020 sport fishing season, and 3,943 tissue samples were collected in the 2021 season, which are slightly below the sampling objective of 4,075. In 2022, a total of 4,198 tissue samples were collected which exceeded the sample objective. With few exceptions, objectives were generally met for outside ports, but not for the inside ports of Juneau, Petersburg-Wrangell, and Ketchikan (Tables 8–10).

In Ketchikan, the total sample sizes of 513 in 2020, and 584 in 2021 did not meet the objective of 600 samples. However, this sample size was sufficient to generate estimates to the fine-scale reporting groups for the Ketchikan area. In 2022, the total sample size of 756 exceeded the objective.

In Petersburg-Wrangell, the total samples collected during 2020–2022 did not meet the annual 650-sample objective. The tissues collected were sufficient to generate estimates to the fine-scale reporting groups for the Petersburg-Wrangell area.

The sampling objectives for NI fisheries by port are heavily weighted towards Juneau (95%), where the vast majority of the fishing effort is concentrated. The total sample size of 339 in 2020,

375 in 2021, and 498 in 2022 are all below the sampling objective of 600 but sufficient to generate estimates to the fine-scale reporting groups. No samples were taken in Haines or Skagway given restrictions in Section 15-A to conserve Chilkat River Chinook.

For Outside fisheries in 2020, a total of 1,109 samples (objective 1,375) were collected from biweeks 9–13, and 1,467 samples (objective 815) were collected from biweeks 14–18 (Table 8). For Outside fisheries in 2021, a total of 1,936 samples were collected from biweeks 9–13, and 895 samples were collected from biweeks 14–18 (Table 9). For Outside fisheries in 2022, a total of 1,988 samples were collected from biweeks 9–13, and 841 samples were collected from biweeks 14–18 (Table 10). The only objective not met was for Outside fisheries biweeks 9-13 in 2020, when the Sitka samples collected fell below the 1,000-sample objective for that port.

# MIXED STOCK ANALYSIS

## Laboratory Analysis

Quality control analyses demonstrated a low error rate for all samples analyzed. A total of 1,738 fish, or 22,594 genotype comparisons, were examined for quality control for 2020–2022. The discrepancy rate was 0.32% over all projects. This translates to an estimated error rate of 0.16%, assuming that laboratory errors are equally likely to occur in projects and quality control evaluations.

## 2020

### *Early Winter Troll Fishery*

For broad-scale reporting groups, *Canada* was the highest contributor during the regionwide early winter troll fishery in AY 2020 (50%), followed by *Alaska* (26%), *US South* (24%), and *Transboundary* (*TBR*; 0.1%) reporting groups (Appendix B1).

For driver stock reporting groups, the largest contributor to the regionwide early winter troll fishery was *Other* (34%), followed by *SEAK/TBR* (26%), *North/Central British Columbia* (*NCBC*; 20%), *Interior Columbia River Su/F* (11%), and *West Vancouver* (8%) reporting groups (Figure 3, Appendix B2).

For the fine-scale reporting groups, the largest contributors to the regionwide early winter troll fishery were *East Vancouver* (19%), *S Southeast Alaska* (18%), *BC Coast/Haida Gwaii* (18%), *Interior Columbia River Su/F* (11%), *Puget Sound* (11%), *West Vancouver* (8%), and *Andrew* (7%) reporting groups (Figure 4, Appendix B3).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups were somewhat different, with *Other* remaining the largest contributor (28 %), followed by *Interior Columbia River Su/F* (23%), *NCBC* (22%), *West Vancouver* (18%), and *SEAK/TBR* (7%) reporting groups (Figure 3, Appendix B2).

### *Late Winter Troll Fishery*

For broad-scale reporting groups, *Canada* was the highest contributor during this fishery (46%), followed by *US South* (38%), and *Alaska* (15%) reporting groups. The *TBR* group had a low contribution (1%; Appendix B1).

For driver stock reporting groups, the largest contributor to the regionwide late winter troll fishery was *Other* (25%), followed by *West Vancouver* (22%)*, Interior Columbia River Su/F* (19%), *SEAK/TBR* (16%), and *NCBC* (13%) reporting groups (Figure 3, Appendix B2).

For the fine-scale reporting groups, the largest contributor to the regionwide late winter troll fishery was *West Vancouver* (22%), followed by *Interior Columbia Su/F* (19%), *S Southeast Alaska* (12%), *BC Coast/Haida Gwaii* (12%), *East Vancouver* (8%), *Willamette Sp* (7%), and *Puget Sound* (5%) reporting groups (Figure 5, Appendix B4).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups were similar to regionwide estimates with *Other* (27%), followed by *Interior Columbia River Su/F* (26%),*West Vancouver* (25%)*, NCBC* (11%), and *SEAK/TBR* (5%) reporting groups (Figure 3, Appendix B2).

### *Spring Troll Fishery*

During the spring troll fisheries, contributions of the broad-scale reporting groups were highly variable across the 3 quadrants analyzed. In the NO quadrant, *Canada* was the highest contributor (47%), followed by *Alaska* (30%), and *US South* (22%) reporting groups (Appendix B1). In the SO quadrant, *Canada* contributed much of the harvest (70%), followed by *Alaska* (23%), and *US South* (6%) reporting groups. In the SI quadrant *Alaska* contributed most of the harvest (84%) followed by *Canada* (10%). The *TBR* group made a low contribution (<5%) across all quadrants. There were no open spring troll areas in the NI quadrant in AY 2020.

For the driver stock reporting groups, contributions were also variable among quadrants during the spring troll fisheries. The largest contributor to the NO quadrant harvest was *SEAK/TBR* (31%), followed by *West Vancouver* (24%), *South Thompson* (16%), *Other* (11%), and *Interior Columbia Su/F* (10%) reporting groups (Figure 3, Appendix B2). In the SO quadrant, *West Vancouver* had the largest contribution (54%), followed by *SEAK/TBR* (23%), *NCBC* (7%), *Other* (6%), and *South Thompson* (6%) reporting groups. In the SI quadrant, harvest was dominated by *SEAK/TBR* (89%), with *Other* (6%) the only other reporting group greater than 5%.

For the fine-scale reporting groups, similar variability between quadrants was observed. In the NO quadrant, the highest proportion of Chinook salmon was from *Andrew* (27%), followed by *West Vancouver* (24%), *South Thompson* (16%), *Interior Columbia Su/F* (10%), and *Lower Columbia F* (6%; Figure 6, Appendix B5). In the SO quadrant, most of the harvest was from *West Vancouver*(54%), followed by *S Southeast Alaska* (22%), *BC Coast/Haida Gwaii* (7%), *South Thompson* (6%). Sample sizes in the SI quadrant were insufficient for fine-scale reporting groups.

### *Summer Troll Fishery, First Retention Period*

For the broad-scale reporting groups during the first retention period of the summer troll fishery, *US South* accounted for the majority of the regionwide harvest (61%), followed by *Canada* (36%) and *Alaska* (3%) reporting groups. The *TBR* group had a low contribution (~0.1%; Appendix B1).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the first retention of the summer troll fishery was *South Thompson* (27%), followed by *Interior Columbia Su/F* (22%), *Oregon Coast* (20%), *Washington Coast* (13%), *Other* (7%), and *West Vancouver* (5%) reporting groups (Figure 3, Appendix B2).

For the fine-scale reporting groups, the first retention period of the summer troll fishery was led by *South Thompson* (27%), followed by *Interior Columbia Su/F* (22%), *North Oregon Coast*

(19%), *Washington Coast* (13%), *Lower Columbmia F* (6%), and *West Vancouver* (5%) reporting groups (Figure 7, Appendix B6).

Stock composition in the NO quadrant during the first retention period was similar to estimates for the entire area at the driver stock level of reporting groups, with harvests led by *Oregon Coast* (22%), followed by *South Thompson* (22%), *Interior Columbia Su/F* (22%), *Washington Coast* (15%), *Other* (8%), and *West Vancouver* (6%) reporting groups (Figure 3, Appendix B2).

### *Summer Troll Fishery, Second Retention Period*

For the broad-scale reporting groups during the second retention period of the summer troll fishery, *US South* accounted for most of the regionwide harvest (73%), followed by *Canada* (20%), and *Alaska* (7%) reporting groups. The *TBR* group had a low contribution (~0.2%; Appendix B1).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the second retention of the summer troll fishery was *Interior Columbia Su/F* (36%), followed by *Oregon Coast* (17%), *Washington Coast* (16%), *West Vancouver* (11%), *SEAK/TBR* (8%), *Other* (5%), and *South Thompson* (5%) reporting groups (Figure 3, Appendix B2).

For the fine-scale reporting groups, the second retention period of the summer troll fishery was led by *Interior Columbia Su/F* (36%), followed by *Washington Coast* (16%), *North Oregon Coast* (12%), *West Vancouver* (11%), *South Thompson* (5%), *S Southeast Alaska* (5%), and *Mid Oregon Coast* (5%) reporting groups (Figure 8, Appendix B7).

Stock composition in the NO quadrant during the second retention period was similar to estimates for the entire area at the driver stock level of reporting groups, with harvests led by *Interior Columbia Su/F* (39%), followed by the *Washington Coast* (18%), *Oregon Coast* (16%), *West Vancouver* (12%), *SEAK/TBR* (5%), and *South Thompson* (5%) reporting groups (Figure 3, Appendix B2).

### *Ketchikan Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* was the largest contributor to the Ketchikan area sport fishery harvest (44%), followed by *Canada* (40%), and *US South* (16%) reporting groups. The *TBR* group was not detected (Appendix B8).

For driver stock reporting groups, the greatest contributor to the Ketchikan area sport fishery harvest was *SEAK/TBR* (44%), followed by *West Vancouver* (15%), *Other* (14%), *South Thompson* (11%), and *Interior Columbia Su/F* (8%) reporting groups (Figure 9, Appendix B9).

Stock contribution in the Ketchikan area sport fishery harvest for the fine-scale reporting groups was led by *S Southeast Alaska* (44%), followed by *West Vancouver* (15%), *South Thompson* (11%), *East Vancouver* (10%), and *Interior Columbia Su/F* (8%) reporting groups (Figure 10, Appendix B10).

### *Petersburg-Wrangell Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* was the largest contributor to the Petersburg-Wrangell area sport fishery harvest (73%), followed by *Canada* (20%), and *US South* (5%) reporting groups (Appendix B8). The *TBR* reporting group had a low contribution (~2%). Sample sizes were insufficient for both the driver stock and fine-scale reporting groups.

### *Northern Inside Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* was the largest contributor to the NI area sport fishery harvest (84%), followed by *Canada* (10%). The *TBR* (3%) and the *US South* (2%) aggregates each had low contributions (Appendix B8).

For driver stock reporting groups, the greatest contributor to the NI area sport fishery harvest was *SEAK/TBR* (88%; Figure 9, Appendix B9). The only other stock present at greater than 5% in this fishery was *NCBC* (8%).

Local stocks dominated sport fishery harvests in the NI area at the fine-scale (Figure 10, Appendix B10). The largest contributor was *Andrew* (79%), which is the broodsource for DIPAC Macaulay Hatchery located in Juneau. The only other stock present at greater than 5% in this fishery was *BC Coast/Haida Gwaii* (5%).

### *Outside Area Sport Fishery*

For the broad-scale reporting groups, *Canada* was the largest contributor to the Outside area all season sport fishery harvest (51%), followed by *US South* (42%) and *Alaska* (7%) reporting groups (Appendix B8). In the early season, *Canada* was the largest contributor (49%), followed by *US South* (36%) and *Alaska* (15%) reporting groups. In the late season, the pattern was similar with *Canada* remaining the largest contributor (52%), followed by *US South* (45%), with a decrease in Alaska (3%). The *TBR* group had low contributions for all time periods analyzed (<1%).

The largest driver stock contributor to the sport fishery over the entire season to the Outside area was *West Vancouver* (32%) followed by *Interior Columbia Su/F* (20%), *Washington Coast* (11%), *South Thompson* (10%), *Other* (8%), *SEAK/TBR* (8%), *Oregon Coast* (6%), and *NCBC* (6%) reporting groups (Figure 9; Appendix B9).

For fine-scale reporting groups, the greatest contributor to the Outside area sport fishery harvest was *West Vancouver* (32%) followed by *Interior Columbia Su/F* (20%), *Washington Coast* (11%), and *South Thompson* (10%), and *North Oregon Coast* (5%) reporting groups (Figure 11; Appendix B11).

Comparing early and late season driver stock estimates in the Outside area for the driver stocks shows temporal changes in stock composition. In the early season, *West Vancouver* led the harvest (25%), followed by *SEAK/TBR* (16%), *Interior Columbia Su/F* (15%), *South Thompson* (13%), *Washington Coast* (10%), *NCBC* (8%), *Other* (8%), and *Oregon Coast* (6%) reporting groups (Figure 9; Appendix B9). During the late season, *West Vancouver* (36%) and *Interior Columbia Su/F* (23%) increased, *Washington Coast* (11%), *Other* (8%), and *Oregon Coast* (6%) remained similar, and *South Thompson* (8%), *NCBC* (4%), and *SEAK/TBR* (3%) decreased.

## 2021

### *Early Winter Troll Fishery*

For broad-scale reporting groups, *Canada* was the highest contributor during the regionwide early winter troll fishery in AY 2021 (47%), followed by *Alaska* (31%), *US South* (21%), and *Transboundary* (0.3%) reporting groups (Appendix B12).

For driver stock reporting groups, the largest contributor to the regionwide early winter troll fishery was *SEAK/TBR* (32%), followed by *Other* (31%), *NCBC* (22%), *Interior Columbia River Su/F* (10%), and *West Vancouver* (5%) reporting groups (Figure 12; Appendix B13).

For the fine-scale reporting groups, the largest contributors to the regionwide early winter troll fishery were *S Southeast Alaska* (23%), *BC Coast/Haida Gwaii* (19%), *East Vancouver* (19%), *Interior Columbia Su/F* (10%), *Puget Sound* (9%), *Andrew* (8%), and *West Vancouver* (5%) reporting groups (Figure 13; Appendix B14).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups had a lower contribution from *SEAK/TBR* with *Other* (34%) being the largest contributor followed by *NCBC* (21%), *Interior Columbia Su/F* (17%), *SEAK/TBR* (16%), and *West Vancouver* (11%) reporting groups (Figure 12; Appendix B13).

### *Late Winter Troll Fishery*

For broad-scale reporting groups, *Canada* was the highest contributor during this fishery (62%), followed by *US South* (23%), and *Alaska* (16%) reporting groups. The *TBR* group had a low contribution (0.1%; Appendix B12).

For driver stock reporting groups, the largest contributor to the regionwide late winter troll fishery was *West Vancouver* (30%), followed by *Other* (21%), *NCBC* (17%), *SEAK/TBR* (16%), and *Interior Columbia River Su/F* (13%) reporting groups (Figure 12; Appendix B13).

For the fine-scale reporting groups, the largest contributor to the regionwide late winter troll fishery was *West Vancouver* (30%) followed by *BC Coast/Haida Gwaii* (14%), *Interior Columbia Su/F* (13%), *East Vancouver* (12%), *S Southeast Alaska* (11%), and *Willamette Sp* (5%) reporting groups (Figure 14; Appendix B15).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups were similar to regionwide estimates with a lower contribution from *SEAK/TBR*. *West Vancouver* was the largest contributor (36%) followed by *Other* (17%), *NCBC* (17%), *Interior Columbia Su/F* (17%), and *SEAK/TBR* (7%) reporting groups (Figure 12; Appendix B13).

### *Spring Troll Fishery*

During the spring troll fisheries, contributions of the broad-scale reporting groups were highly variable across the 3 quadrants analyzed. In the NO quadrant, *Canada* was the highest contributor (46%), followed by *Alaska* (34%) and *US South* (20%) reporting groups (Appendix B12). In the SO quadrant, *Canada* contributed most of the harvest (77%), followed by *Alaska* (19%) and *US South* (4%) reporting groups. In the SI quadrant *Alaska* contributed almost all the harvest (95%) followed by *Canada* (4%). The *TBR* group made a low contribution (<1%) across all quadrants. There were no open spring troll areas in the NI quadrant in AY2021.

For the driver stock reporting groups, contributions were similarly variable among quadrants. The largest contributor to the NO quadrant harvest was *SEAK/TBR* (34%), followed by *West Vancouver* (27%), *South Thompson* (13%), *Interior Columbia Su/F* (11%), *Other* (7%), and *NCBC* (5%) reporting groups (Figure 12; Appendix B13). In the SO quadrant, *West Vancouver* had the largest contribution (67%), followed by *SEAK/TBR* (19%), and *NCBC* (6%) reporting groups. In the SI quadrant, almost all the harvest was *SEAK/TBR* (96%).

For the fine-scale reporting groupsin the NO quadrant, the highest proportion of Chinook salmon was from *Andrew* (31%), followed by *West Vancouver* (27%), *South Thompson* (13%), and *Interior Columbia Su/F* (11%; Figure 15; Appendix B16). In the SO quadrant, the highest proportion of Chinook salmon was from *West Vancouver* (67%), followed by *S Southeast Alaska*

(18%), and *BC Coast/Haida Gwaii* (5%). Sample sizes in the SI quadrant were insufficient for fine-scale reporting groups.

### *Summer Troll Fishery, First Retention Period*

For the broad-scale reporting groups during the first retention period of the summer troll fishery, *US South* accounted for the majority of the regionwide harvest (51%), followed by *Canada* (43%) and *Alaska* (5%) reporting groups. The *TBR* group had a low contribution (~0.7%; Appendix B12).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the first retention of the summer troll fishery was *South Thompson* (31%), followed by *Interior Columbia Su/F* (24%), *Oregon Coast* (11%), *Washington Coast* (10%), *West Vancouver* (8%), *Other* (7%), and *SEAK/TBR* (6%) reporting groups (Figure 12; Appendix B13).

For the fine-scale reporting groups, the first retention period of the summer troll fishery was led by *South Thompson* (31%), followed by *Interior Columbia Su/F* (24%), *North Oregon Coast* (11%), *Washington Coast* (10%), and *West Vancouver* (8%) reporting groups (Figure 16; Appendix B17).

Stock composition in the NO quadrant during the first retention period was similar to estimates for the entire area at the driver stock level of reporting groups, but with a lower proportion of *South Thompson*. Harvests were led by *Interior Columbia Su/F* (24%), followed by *South Thompson* (21%), *Washington Coast* (14%), *West Vancouver* (13%), *Oregon Coast* (13%), *Other* (7%), and *SEAK/TBR* (6%) reporting groups (Figure 12; Appendix B13).

### *Summer Troll Fishery, Second Retention Period*

For the broad-scale reporting groups during the second retention period of the summer troll fishery, *US South* accounted for most of the regionwide harvest (72%), followed by *Canada* (22%) and *Alaska* (6%) reporting groups—an increase in *US South* and corresponding decrease in *Canada* relative to the first retention period. The *TBR* group had a low contribution (~0.1%; Appendix B12).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the second retention of the summer troll fishery was *Interior Columbia Su/F* (30%), followed by *Washington Coast* (18%), *Oregon Coast* (17%), *West Vancouver* (12%), *Other* (8%), *SEAK/TBR* (6%), and *South Thompson* (6%) reporting groups (Figure 12; Appendix B13).

Stock composition for fine-scale reporting groups was largely like the driver stock groups. Contributions to the second retention period were led by *Interior Columbia Su/F* (30%) followed by *Washington Coast* (18%), *North Oregon Coast* (15%), *West Vancouver* (12%), *South Thompson* (6%), and *Lower Columbia F* (5%) reporting groups (Figure 17; Appendix B18).

Stock composition in the NO quadrant during the second retention period was like estimates for the entire area at the driver stock level of reporting groups, with harvests led by *Interior Columbia Su/F* (33%), followed by the *Washington Coast* (21%), *Oregon Coast* (15%), *West Vancouver* (13%), *Other* (7%), and *South Thompson* (6%) reporting groups (Figure 12; Appendix B13).

### *Ketchikan Area Sport Fishery*

For the broad-scale reporting groups, *Canada* was the largest contributor to the Ketchikan area sport fishery harvest (46%), followed by *Alaska* (43%) and *US South* (11%) reporting groups. The *TBR* group had a low contribution (<0.1%; Appendix B19).

For driver stock reporting groups, the greatest contributor to the Ketchikan area sport fishery harvest was *SEAK/TBR* (43%), followed by *West Vancouver* (25%), *South Thompson* (12%), *Other* (8%), *Interior Columbia Su/F* (6%), and *NCBC* (5%) reporting groups (Figure 18; Appendix B20).

Stock contribution in the Ketchikan area sport fishery harvest for the fine-scale reporting groups was dominated by *S Southeast Alaska* (42%). *West Vancouver* (25%), *South Thompson* (12%), and *Interior Columbia Su/F* (6%) reporting groups were the only other stocks present at greater than 5% in this fishery (Figure 19; Appendix B21).

### *Petersburg-Wrangell Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* contributed the most to the Petersburg-Wrangell area sport fishery harvest (84%), followed by *Canada* (15%), and *US South* (1%) reporting groups (Appendix B23). The *TBR* group had a low contribution (<0.1%; Appendix B19).

For driver stock reporting groups, the greatest contributor to the Petersburg-Wrangell area sport fishery harvest was *SEAK/TBR* (85%), followed by the *NCBC* (7%) reporting group (Figure 18; Appendix B20).

Sample sizes were insufficient for fine-scale reporting groups.

### *Northern Inside Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* contributed the most to the NI area sport fishery harvest (80%), followed by *Canada* (10%), *TBR* (8%), and *US South* (2%) reporting groups (Appendix B19).

For driver stock reporting groups, the greatest contributors to the NI area sport fishery harvest were *SEAK/TBR* (88%) and *NCBC* (10%; Figure 18; Appendix B20).

Sport fishery harvests in the NI area at the fine-scale were dominated by local stocks (Figure 19; Appendix B21). The largest contributor was *Andrew* (78%), which is the broodsource for DIPAC Macaulay Hatchery located in Juneau. The only other stock present at greater than 5% in this fishery was *BC Coast/Haida Gwaii* (8%).

### *Outside Area Sport Fishery*

For the broad-scale reporting groups, *Canada* was the largest contributor to the Outside area all-season sport fishery harvest (54%), followed by *US South* (35%), and *Alaska* (11%) reporting groups (Appendix B19). In the early season, *Canada* was the largest contributor (51%), followed by *US South* (35%), and *Alaska* (14%) reporting groups. In the late season, the proportion of *Canada* increased and the proportion of *Alaska* decreased, with *Canada* accounting for the majority of the harvest (62%), followed by *US South* (36%), and Alaska (2%) reporting groups. The *TBR* group had low contributions for all time periods analyzed (<0.1%).

The largest driver stock contributor to the sport fishery over the entire season to the Outside area was *West Vancouver* (26%), followed by *South Thompson* (18%), *Interior Columbia Su/F* (18%), *SEAK/TBR* (11*%), Washington Coast* (8%), *NCBC* (7%), and *Other* (7%) reporting groups (Figure 18, Appendix B20).

For fine-scale reporting groups, the greatest contributor to the Outside area sport fishery harvest was *West Vancouver* (26%), followed by *South Thompson* (18%), *Interior Columbia Su/F* (18%), *Washington Coast* (8%), *Andrew* (6%), and *S Southeast Alaska* (5%) reporting groups (Figure 20, Appendix B22).

Comparing early and late season driver stock estimates in the Outside area for the driver stocks shows temporal changes in stock composition. In the early season, *West Vancouver* led the harvest (24%), followed by *Interior Columbia Su/F* (18%), *South Thompson* (17%), *SEAK/TBR* (14%), *Washington Coast* (7%), *Other* (7%), *NCBC* (6%), and *Oregon Coast* (6%) reporting groups (Figure 18, Appendix B20). During the late season, *West Vancouver* (31%), *South Thompson* (20%), *Washington Coast* (12%), and *NCBC* (9%) increased, while *Interior Columbia Su/F* (18%) remained similar relative to early season. Whereas, during the late season, *SEAK/TBR* (2%), *Other* (5%), and *Oregon Coast* (3%) decreased in stock composition.

**2022**

***Early Winter Troll Fishery***

For broad-scale reporting groups, *Canada* was the highest contributor during the regionwide early winter troll fishery in AY 2022 (34%), followed by *US South* (33%), *Alaska* (32%), and *Transboundary* (*TBR*; 1%) reporting groups (Appendix B23).

For driver stock reporting groups, the largest contributor to the regionwide early winter troll fishery was *SEAK/TBR* (33%), followed by *Other* (22%), *NCBC* (19%), and *Interior Columbia Su/F* (18%) reporting groups (Figure 21, Appendix B24).

For the fine-scale reporting groups, the largest contributors to the regionwide early winter troll fishery were *S Southeast Alaska* (23%), *Interior Columbia Su/F* (18%), *BC Coast/Haida Gwaii* (16%), *Puget Sound* (9%), *Andrew* (9%), and *East Vancouver* (8%) reporting groups (Figure 22, Appendix B25).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups were somewhat different than the regionwide estimates. *Interior Columbia Su/F* was the largest contributor (35%), followed by *Other* (23%), *NCBC* (19%), *SEAK/TBR* (9%), and *West Vancouver* (8%) reporting groups (Figure 21, Appendix B24).

***Late Winter Troll Fishery***

For broad-scale reporting groups, *Canada* was the highest contributor during this fishery (47%), followed by *US South* (36%), and *Alaska* (14%) reporting groups. The *TBR* group had a low contribution (2%; Appendix B23).

For driver stock reporting groups, the largest contributor to the regionwide late winter troll fishery was *West Vancouver* (28%), followed by *Other* (20%), *SEAK/TBR* (17%), *Interior Columbia River Su/F* (16%), and *NCBC* (10%) reporting groups (Figure 21, Appendix B24).

For the fine-scale reporting groups, the largest contributor to the regionwide late winter troll fishery was *West Vancouver* (28%), followed by *Interior Columbia Su/F* (16%), *BC Coast/Haida Gwaii* (9%), *Willamette Sp* (8%), *S Southeast Alaska* (8%), and *Andrew* (7%) reporting groups (Figure 23, Appendix B26).

When considering harvest from the NO quadrant only, the contributions for driver stock reporting groups were similar to regionwide estimates with *West Vancouver* being the largest contributor (24%), followed by *Other* (21%), *Interior Columbia Su/F* (20%), *SEAK/TBR* (16%), *NCBC* (9%), and *South Thompson* (5%) reporting groups (Figure 21, Appendix B24).

### *Spring Troll Fishery*

During the spring troll fisheries, contributions of the broad-scale reporting groups were highly variable across the 3 quadrants analyzed. In the NO quadrant, stock composition was split evenly among *Canada* (35%), *Alaska* (34%), and *US South* (31%) reporting groups (Appendix B23). In the SO quadrant, *Canada* contributed most of the harvest (62%), followed by *Alaska* (29%), and *US South* (6%) reporting groups. In the SI quadrant, *Alaska* contributed almost all of the harvest (92%), followed by *Canada* (5%). The *TBR* group had a low contribution (<2%) across all quadrants.

For the driver stock reporting groups, contributions were also variable among quadrants during the spring troll fisheries. The largest contributor to the NO quadrant harvest was *SEAK/TBR* (34%), followed by *West Vancouver* (25%), *Interior Columbia Su/F* (18%), *Other* (7%), *Washington Coast* (6%), and *South Thompson* (5%) reporting groups (Figure 21, Appendix B24). In the SO quadrant, *West Vancouver* had the largest contribution (50%), followed by *SEAK/TBR* (32%), *NCBC* (7%), and *Other* (7%) reporting groups. In the SI quadrant, *SEAK/TBR* (94%) contributed almost all the harvest.

For the fine-scale reporting groups, similar variability between quadrants was observed. In the NO quadrant, the highest proportion of Chinook salmon was from *Andrew* (31%), followed by *West Vancouver* (25%), *Interior Columbia Su/F* (18%), *Washington Coast* (6%), and *South Thompson* (5%) reporting groups (Figure 24, Appendix B27). In the SO quadrant, the highest proportion was from *West Vancouver* (50%), followed by *S Southeast Alaska* (21%), *Andrew* (8%), and *BC Coast/Haida Gwaii* (7%) reporting groups. In the SI quadrant, harvests were dominated by *S Southeast Alaska* (92%).

### *Summer Troll Fishery, First Retention Period*

For the broad-scale reporting groups during the first retention period of the summer troll fishery, *US South* accounted for most of the regionwide harvest (69%), followed by *Canada* (24%), and *Alaska* (7%) reporting groups. The *TBR* group had a low contribution (<0.1%; Appendix B23).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the first retention of the summer troll fishery was *Interior Columbia Su/F* (30%), followed by *Washington Coast* (16%), *Oregon Coast* (16%), *South Thompson* (11%), *Other* (8%), *West Vancouver* (8%), and *SEAK/TBR* (7%) reporting groups (Figure 21, Appendix B24).

For the fine-scale reporting groups, the first retention period of the summer troll fishery was led by *Interior Columbia Su/F* (30%), followed by *Washington Coast* (16%), *North Oregon Coast* (15%), *South Thompson* (11%), *West Vancouver* (8%), and *Lower Columbia F* (6%) reporting groups (Figure 25, Appendix B28).

Stock composition in the NO quadrant during the first retention period was very similar to estimates for the entire area at the driver stock level of reporting groups, with harvests led by *Interior Columbia Su/F* (31%), followed by *Washington Coast* (17%), *Oregon Coast* (16%), *South Thompson* (9%), *Other* (9%), *West Vancouver* (8%), and *SEAK/TBR* (6%) reporting groups (Figure 21, Appendix B24).

### *Summer Troll Fishery, Second Retention Period*

For the broad-scale reporting groups during the second retention period of the summer troll fishery, *US South* accounted for most of the regionwide harvest (73%), followed by *Canada* (19%), and

*Alaska* (7%) reporting groups—very similar to the first retention period. The *TBR* group had a low contribution (~1%; Appendix B23).

For driver stock reporting groups, the greatest contributor to the regionwide harvest during the second retention of the summer troll fishery was *Interior Columbia Su/F* (30%), followed by *Washington Coast* (21%), *Oregon Coast* (16%), *West Vancouver* (10%), *SEAK/TBR* (9%), and *Other* (8%) reporting groups (Figure 21, Appendix B24).

For the fine-scale reporting groups, the second retention period of the summer troll fishery was led by *Interior Columbia Su/F* (30%), followed by *Washington Coast* (21%), *North Oregon Coast* (15%), *West Vancouver* (10%), and *S Southeast Alaska* (6%) reporting groups (Figure 26, Appendix B29).

Stock composition in the NO quadrant during the second retention period was similar to estimates for the entire area at the driver stock level of reporting groups, with harvests led by *Interior Columbia Su/F* (31%), followed by the *Washington Coast* (23%), *Oregon Coast* (14%), *West Vancouver* (11%), *Other* (8%), and *SEAK/TBR* (7%) reporting groups (Figure 21, Appendix B24).

### *Ketchikan Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* accounted for the majority of the Ketchikan area sport fishery harvest (57%), followed by *Canada* (25%), and *US South* (17%) reporting groups. The *TBR* group had a low contribution (<0.2%; Appendix B30).

For driver stock reporting groups, the greatest contributor to the Ketchikan area sport fishery harvest was *SEAK/TBR* (58%), followed by *West Vancouver* (13%), *Interior Columbia Su/F* (9%), *Other* (5%), and *South Thompson* (5%) reporting groups (Figure 27, Appendix B31).

Stock contribution in the Ketchikan area sport fishery harvest for the fine-scale reporting groups was mostly *S Southeast Alaska* (53%), followed by *West Vancouver* (13%), *Interior Columbia Su/F* (9%), and *South Thompson* (5%) reporting groups (Figure 28, Appendix B32).

### *Petersburg-Wrangell Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* was the largest contributor to the Petersburg-Wrangell area sport fishery harvest (87%), followed by *Canada* (10%), and *US South* (4%) reporting groups (Appendix B30). The *TBR* reporting group was present at low levels (<0.2%). Sample sizes were insufficient for both the driver stock and fine-scale reporting groups.

### *Northern Inside Area Sport Fishery*

For the broad-scale reporting groups, *Alaska* was the largest contributor to the NI area sport fishery harvest (83%), followed by *Canada* (13%). The *TBR* (4%) and the *US South* (0.5%) aggregates each had low contributions (Appendix B30).

For driver stock reporting groups, the greatest contributor to the NI area sport fishery harvest was *SEAK/TBR* (86%; Figure 27, Appendix B31). The only other stock present at greater than 5% in this fishery was *NCBC* (12%).

Sport fishery harvests in the NI area at the fine scale were dominated by local stocks (Figure 28, Appendix B32). The largest contributor was *Andrew* (74%), which is the broodsource for DIPAC Macaulay Hatchery located in Juneau. The only other stock present at greater than 5% in this fishery are *BC Coast/Haida Gwaii* (9%), and *S Southeast Alaska* (8%).

### *Outside Area Sport Fishery*

For the broad-scale reporting groups, *US South* was the largest contributor to the Outside area all season sport fishery harvest (49%), followed by *Canada* (38%), and *Alaska* (12%) reporting groups (Appendix B30). In the early season, *US South* was the largest contributor (49%), followed by *Canada* (36%), and *Alaska* (15%) reporting groups. In the late season, the pattern was similar with *US South* (52%) and *Canada* (44%) increasing, while Alaska (4%) decreased. The *TBR* group had low contributions for all time periods analyzed (<1%).

The largest driver stock contributor to the sport fishery over the entire season to the Outside area was *West Vancouver* (22%), followed by *Interior Columbia Su/F* (22%), *Washington Coast* (15%), *SEAK/TBR* (12*%), South Thompson* (8%), *Oregon Coast* (8%), *NCBC* (7%), and *Other* (6%) reporting groups (Figure 27, Appendix B31).

For fine-scale reporting groups, the greatest contributor to the Outside area sport fishery harvest was *West Vancouver* (22%), followed by *Interior Columbia Su/F* (22%), *Washington Coast* (15%), *South Thompson* (8%), *Andrew* (7%), and *North Oregon Coast* (7%) reporting groups (Figure 29, Appendix B33).

Comparing early and late season driver stock estimates in the Outside area for the driver stocks shows temporal changes in stock composition. In the early season, *Interior Columbia Su/F* led the harvest (22%), followed by *West Vancouver* (20%), *SEAK/TBR* (15%), *Washington Coast* (14%), *South Thompson* (9%), *Oregon Coast* (8%), *NCBC* (6%), and *Other* (6%) reporting groups (Figure 27, Appendix B31). During the late season, *West Vancouver* (27%), *Washington Coast* (18%), and *NCBC* (9%) increased, while *Interior Columbia Su/F* (23%), *Oregon Coast* (7%), and *Other* (6%) remained similar relative to early season. Whereas, during the late season, *SEAK/TBR* (5%) and *South Thompson* (6%) decreased in stock composition.

# DISCUSSION

Genetic MSA has been successfully used to estimate the composition of Chinook salmon harvested in the commercial troll fishery since 1998 and the sport fishery since 2004 (Crane et al. 2000; Templin et al. 2011; Gilk-Baumer et al. 2013, 2017a, 2017b, 2017c, 2018; Shedd et al. 2021a, 2021b, 2022). Because the 7 aggregate driver stocks make up the vast majority (>90%) of all Chinook salmon annually harvested in SEAK troll and sport fisheries, these stock aggregates influence the harvest allocations under the PST. Genetic MSA is the preferred method to provide accurate and precise harvest estimates for these large aggregates of driver stocks. These estimates indicate that the composition of the harvest varies spatially and by seasonal fishery, but essentially the same constituent stocks are present year to year.

## INTRA-ANNUAL VARIABILITY

### Temporal Variability

Comparing the harvest composition among seasonal troll fisheries in AY 2020, AY 2021, and AY2022 reveals considerable variability (Figures 3, 12, and 21). The composition of early and late winter fisheries includes a mixture of more stocks than other seasonal fisheries; the 7 driver stocks account for 66% of the early and 75% of the late winter harvest in 2020, 69% of the early and 79% of the late winter harvest in 2021, and 78% of the early and 80% of the late winter harvest in 2022 (Appendices B2, B13, and B24). The early winter fishery was largely composed of *SEAK/TBR, NCBC*, and *Other* driver stocks in 2020 and 2021, while in 2022, the early winter fishery was

composed largely of *SEAK/TBR*, *NCBC*, *Interior Columbia Su/F*, and *Other* driver stocks. The fine-scale reporting group breakdown shows that most of the *Other* driver stock group came from *East Vancouver* and *Puget Sound* in all 3 years (Appendices B3, B14, and B25). The late winter fishery was led by contributions from *West Vancouver* in 2021 and 2022, followed by *Other*, *SEAK/TBR*, *NCBC*, and *Interior Columbia Su/F* driver stocks. In the late winter 2020 fishery, *Other* was the main contributing stock group, followed by *West Vancouver, Interior Columbia Su/F, SEAK/TBR,* and *NCBC*. The fine-scale reporting group breakdown shows that most of the *Other* driver stock group came from *East Vancouver, Puget Sound,* and *Willamette Sp* (Appendices B4, B15, and B26). By contrast, during the spring troll fishery, when fishing effort is directed at harvesting SEAK-origin hatchery stocks, the contribution of SEAK-origin Chinook salmon (hatchery-origin plus natural-origin) is typically considerably higher than at other times of the year. In 2020, the *SEAK/TBR* driver stock contributed 33%, followed by *West Vancouver* at 28%, and *South Thompson* at 13%. In 2021, *SEAK/TBR* contributed 38%, and *West Vancouver* contributed 32% to the spring troll fishery; and in 2022, *SEAK/TBR* contributed 45%, *West Vancouver* contributed 24%, and *Interior Columbia Su/*F contributed 13%. Roughly 90%, 94%, and 94% of the spring harvest composition was accounted for by the 7 driver stocks in 2020, 2021, and 2022, respectively.

In 2020, the harvest composition in the first retention period of the summer troll fishery was led by *South Thompson* (27%), *Interior Columbia Su/F* (22%), and *Oregon Coast* (20%) driver stocks; overall, 93% of harvest was contributed by driver stocks. In 2021, the harvest composition in the first retention period of the summer troll fishery was led by *South Thompson* (31%), *Interior Columbia Su/F* (24%), *Oregon Coast* (11%), and *Washington Coast* (10%) driver stocks; overall, 92% of harvest was contributed by driver stocks. In 2022, the harvest composition in the first retention period of the summer troll fishery was led by *Interior Columbia Su/F* (30%), *Washington Coast* (16%), *Oregon Coast* (16%), and *South Thompson* (11%) driver stocks; overall, 91% of harvest was contributed by driver stocks. In the second retention of the summer troll fishery in 2020, the harvest composition shifted to *Interior Columbia Su/F* (37%), *Oregon Coast* (17%), *Washington Coast* (16%), and *West Vancouver* (11%) driver stocks; overall, 95% of the harvest was contributed by driver stocks. In 2021, in the second retention of the summer troll fishery, the harvest composition was very similar to 2020 with contributions from *Interior Columbia Su/F* (30%), *Washington Coast* (18%), *Oregon Coast* (17%), and *West Vancouver* (12%) driver stocks; overall, 92% of the harvest was contributed by driver stocks. This composition was similar in the 2022 second retention of the summer troll fishery with contributions from *Interior Columbia Su/F* (30%), *Washington Coast* (21%), and *Oregon Coast* (16%) driver stocks; overall, 92% of the harvest was contributed by driver stocks.

Similarly, the stock composition of the Outside area sport fishery harvest shows some seasonal variability (Figures 9, 18, and 27). In the 2020 early season, *West Vancouver* reporting group contributed the largest amount (25%), followed by *SEAK/TBR* (15%), *Interior Columbia Su/F* (15%), and *South Thompson* (13%) reporting groups (Appendices B9, B20, and B31). In the 2021 early season, *West Vancouver* was the largest reporting group (24%), followed by *Interior Columbia Su/F* (18%), *South Thompson* (17%), and *SEAK/TBR* (14%). In the 2022 early season, *Interior Columbia Su/F* was the largest reporting group (22%), followed by *West Vancouver* (20%), *SEAK/TBR* (15%), and *Washington Coast* (14%). The largest contributors to the late season sport fishery were a bit different; *West Vancouver* was again the primary contributor, with 36%, 31%, and 27% in 2020, 2021, and 2022, respectively; but it was followed by *Interior Columbia Su/F* in both 2020 and 2022 (both 23%), and *South Thompson* (20%) in 2021. For both the early

and late season fishery in AY 2020, 92% of the harvest is attributable to driver stocks; whereas the early season fishery in AY 2021, 93% of the harvest was attributable to driver stocks, and the late season fishery harvest was composed of 94% driver stocks. In AY 2022, for both the early and late season fishery, harvest was 94% attributable to driver stocks.

Although the 7 driver stocks accounted for most of the harvests in AY 2020–2022, the proportional contribution of each stock varied across seasons. The *SEAK/TBR* driver stock aggregate was a primary contributor to both spring troll fisheries and all non-Outside sport fisheries (Ketchikan, Petersburg-Wrangell, and Northern Inside), and present in low proportions for other seasonal fisheries (Figures 3, 9, 12, 18, 21, and 27). This reporting group was also more prevalent in early season (biweeks 9–13) than late season (biweeks 14–18) Outside area sport fisheries (Figures 9, 18, and 27).

*Interior Columbia Su/F* accounted for the largest portion of the annual troll harvest (24–27%) in all 3 years, was most pronounced in the second retention of the summer troll fisheries (30–37%), and was present in Outside sport fisheries in all years (18–22%). In contrast to *Interior Columbia Su/F*, the *NCBC* driver stock aggregate only contributed substantially to winter troll fisheries and were largely absent from the spring and summer periods, contributing only a small percentage to the annual troll (4–5%) and sport (6–7%) harvests, a trend seen in previous years as well (Shedd et al. 2020). *West Vancouver* accounted for a relatively large portion of the harvest during the late winter (22–30%) and spring (24–31%) troll fisheries, as well as to the Craig (39–47%), Ketchikan (13–25%), Sitka (20–23%), and Outside (22–32%) sport fisheries, being slightly more prevalent during the late Outside period (27–36%) than the early Outside period (22–25%).

*South Thompson, Washington Coast,* and *Oregon Coast* stocks were only present in small amounts from the winter and spring troll fisheries and only contributed significantly to the summer troll openers. *South Thompson* contributed more to the first summer retention period in 2020 and 2021 (27% and 31%, respectively), and was only present 6% or less in the second summer retention in all 3 years. *Washington Coast* contributed to nearly all summer troll fisheries at greater than 15%, and *Oregon Coast* was present in summer troll fisheries in 2020 in both first and second retention periods, in 2021 only in the second retention regionwide, and in both first and second retentions in 2022, with the exception of the northern Outside second retention period.

## Spatial Variability

Variation in stock composition also occurs spatially among the troll fishery quadrants. In general, stock contribution estimates based on samples from the NO quadrant had the most diverse stock compositions and the highest proportion of stocks originating south of Alaska (Figures 4–8, 13–17, and 22–26). This was most pronounced in the spring fishery where the SI quadrant had the highest proportion of *Alaska* and *TBR* stocks (making up 89–96% of the harvest), and the proportion of those stocks in the NO quadrant was 31–34% (Appendices B1, B12, and B23). In the winter troll fisheries, stock contribution estimates for the NO quadrant were often similar to the regionwide estimates, except that the proportion of *SEAK*/*TBR* was much lower in the NO quadrant, except for late winter in 2022 (17% regionwide, 16% NO). For summer fisheries, stock contribution estimates based on samples from the NO quadrant were similar in most cases to estimates based on samples from all quadrants (Figures 4–8, 13–17, and 22–26). This reflects the high proportion of fish harvested in this quadrant relative to the other quadrants.

The stock composition of sport fishery harvests also varies greatly by area. The fisheries located in inside waters were composed primarily of *Alaska* and *TBR* stocks (NI: 86–88%; Petersburg-

Wrangell: 75–87%; Ketchikan: 43–58%; Figures 10, 19, and 28; Appendices B8, B19, and B30). Local stocks were the major contributors to fisheries in each of these areas, with more northern (*Alaska* and *TBR*) stocks present in the NI fishery, and the prevalence of nonlocal stocks originating from south of the Alaska/Canada border increasing in the more southern areas of Southeast Alaska. The NI fishery takes place near the ports of Juneau, Haines, and Skagway, which are proximal to the origin of stocks that make up the *N Southeast Alaska* and *Taku* reporting groups. In addition, the *Andrew* reporting group is the primary broodstock for hatcheries in northern and central SEAK, including the DIPAC Macaulay Hatchery located in Juneau and release sites near Petersburg, Wrangell, and Sitka. *Andrew* was the largest contributor to the NI fishery harvest (74–79%), whereas a smaller share of the harvest was contributed by *BC Coast/Haida Gwaii* (6%; Figures 10, 19, and 28; Appendices B8, B19, and B30). The largest contributor to the Ketchikan fishery was *S Southeast Alaska* (42–53%), which is composed of 14 nearby populations, including the Chickamin River, which is the primary broodstock for hatcheries in southern SEAK, including releases near Ketchikan and Craig. Additional contributions to the Ketchikan fishery were from the *West Vancouver* (13–25%) and *South Thompson* (5–12%) reporting groups (Figures 10, 19, and 28; Appendices B8, B19, and B30). Generally, few non-Alaska or non-transboundary groups were represented in these inside fisheries.

In contrast to inside areas, Chinook salmon sport fishery harvests that took place in the Outside area were composed of a greater variety of stocks with many more fish from non-Alaska reporting groups (Figures 11, 20, and 29; Appendices B8, B19, and B30). This is similar to the spatial pattern of catch composition observed in troll fisheries occurring in outside quadrants (Figures 3, 9, 12, 18, 21, and 27). Although the sport fishery is more protracted when compared to each seasonal commercial troll fishery and occurs closer to shore, there is overlap in timing and location with the spring and summer commercial troll fisheries that allows comparison of represented reporting groups. Both the Outside area sport fishery and the NO quadrant troll fishery harvest a variety of stocks, and the same reporting groups (*SEAK/TBR*, *NCBC*, *West Vancouver*, *South Thompson*, *Washington Coast*, *Interior Columbia Su/F*, and *Oregon Coast*) are prevalent in both fisheries. In all 3 years, the Ketchikan area sport fishery and SI quadrant spring troll fishery had the same largest contributor (*SEAK/TBR*), but the sport fishery also had substantial contributions from *West Vancouver* in all years, and *South Thompson* in 2020 and 2021 (Figures 3, 9, 12, 18, 21, and 27). The NO quadrant spring troll fishery had much higher proportions of local stocks than the early season (biweeks 9–13) outside waters sport fishery: *SEAK/TBR* (31–34% troll, 15–16% sport), whereas the sport fishery had similar proportions of *West Vancouver* (25–27% troll, 22–32% sport) and *South Thompson* (5–16% troll, 8–18% sport), and higher proportions in *Washington Coast* (3–6% troll, 7–15% sport), *Interior Columbia Su/F* (10–18% troll, 18–22% sport; Appendices B5, B11, B16, B22, B27, and B33).

Similar to the early season, the late season (biweeks 14–18) Outside area sport fishery harvested a higher proportion of fish from *West Vancouver* (6–13% troll, 27–36% sport) compared to the first retention period of the NO quadrant summer troll fishery. These differences are probably due to where these fisheries take place—sport anglers typically fish closer to the coastline and commercial trollers sometimes operate well offshore.

## INTER-ANNUAL TRENDS

Some interesting trends can be observed regarding the stock composition of SEAK troll and sport fisheries under the current PST fishing regime from the data reported herein and from similar

studies dating back to AY 2009 (Gilk-Baumer et al. 2013, 2017a, 2017b, 2017c, 2018; Shedd et al. 2021a, 2021b, 2022). When making inferences on the relative contributions of each stock group to the overall harvest by fishery, it is important to note that the troll fishery harvests substantially more fish than the sport fishery on an annual basis. It is also important to evaluate fishery management trends, which changed substantially starting in 2018 in response to poor productivity of SEAK and TBR wild stocks and the 2017 and 2020 BOF SOC action plans (Lum and Fair 2018a, 2018b; Hagerman et al. 2022b, Meredith et al. 2022, Salomone et al. 2022). Additional changes took place in 2019 with the implementation of the revised PST Agreement, which reduced the overall harvest limit for the SEAK AABM fishery (2019 PST Agreement, Annex IV, Chapter 3).

From 2014 through 2016, *Interior Columbia Su/F* stocks experienced extraordinarily high productivity; this has been reflected in their contribution to SEAK fisheries—up to 44% in the troll fisheries and 32% in sport fisheries (Figure 30, Appendices B34–B35). During this period, overall coastwide abundance was high, and corresponding harvest limits were high. Accordingly, this super dominance of *Interior Columbia Su/F* overshadowed the relative contributions of other stocks, particularly those originating from the US South (i.e., *Washington Coast* and *Oregon Coast*), which were also experiencing a period of high productivity. However, from 2017 through 2019, coastwide abundance has been lower and thus harvest limits in SEAK fisheries have been reduced (CTC 2020; Hagerman et al. 2020). However, coastwide abundance has been steadily increasing over 2020–2022 (CTC 2023). *Interior Columbia Su/*F again contributed higher proportions of the harvest in 2020 through 2022 with 24–27% contributions to annual troll fisheries harvests, and 14–17% to annual sport fisheries harvests.

In general, there was a slight increasing contribution in the proportion of *SEAK/TBR* across most fisheries from 2020 through 2022, despite a decrease in productivity for *SEAK/TBR* stocks and decreased contributions relative to 2019 (Figure 30, Appendices B34–B35). Beginning in 2016, and ramping up with the 2017/2018 BOF SOC action plans, conservative management restrictions in time and area have been implemented to shape fisheries away from *SEAK/TBR* wild stocks, reducing the overall harvest of *SEAK/TBR* stocks (including Alaska hatchery fish), despite the *SEAK/TBR* stock proportion. This has been most pronounced during the spring troll fishery and other troll fisheries occurring in the NO quadrant, and the Outside area of the sport fishery (Appendices B2, B9, B13, B20, B24, and B31). The conservative management measures put in place to protect wild *SEAK/TBR* stocks in the late winter and spring troll fisheries have shifted more harvest to the summer troll fisheries, changing the mixture of stocks harvested.

Specific comparisons between analyses using the most recent microsatellite baseline (GAPS version 3.0; Gilk-Baumer et al. 2017a, 2017b, 2018; Shedd et al. 2021a, 2021b, 2022; this report), those using older microsatellite baselines (GAPS version 2.2: 2004–2009; Gilk-Baumer et al. 2013), and those using allozyme baselines (1999–2003; Templin et al. 2011) can be made, but they must be interpreted carefully because both the number of populations and reporting groups changed between the studies. Because of these changes in the genetic baselines, comparisons across years prior to 2010 are more reliable at the broadscale level than at the fine-scale level.

## APPLICATIONS TO PACIFIC SALMON TREATY

These results provide a comprehensive assessment using genetic MSA to estimate the stock composition of Chinook salmon harvested in SEAK troll and sport fisheries. Stock composition data from this program has been used in several other studies with a broad array of applications:

1. These genetic MSA stock composition estimates have already proven valuable for fishery management in terminal and near-terminal areas, and are being used in run reconstructions to generate more accurate stock assessments for transboundary rivers under Chapter One of the PST.
2. These MSA stock composition estimates can be 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 evaluating the PSC Chinook Model. The current PSC Chinook Model does not reliably determine the composition of the harvest in SEAK because, at a minimum, the model is based on "Treaty Chinook," which excludes nearly all the Southeast Alaska hatchery-produced Chinook salmon harvested in SEAK fisheries; further genetic MSA provides greater clarity than the PSC Chinook model in terms of temporal and spatial representation. For domestic applications, the preferred way to estimate the composition of the SEAK Chinook salmon harvest is to apply fishery stock composition data from genetic MSA to harvest data. This approach has been successfully applied to the SEAK commercial troll fishery since 1998 (Crane et al. 2000; Templin et al. 2011; Gilk-Baumer et al. 2013, 2017a, 2017b, 2017c, 2018; Shedd et al. 2021a, 2021b), and SEAK sport fishery since 2004 (Gilk-Baumer et al. 2017c, 2018; Shedd et al. 2021a, 2021b, 2022).
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 for estimating the terminal run size of several of the stocks that are major contributors to the SEAK fishery.

# CONCLUSIONS

1. The driver stock reporting group that contributed the highest proportion of Chinook salmon harvest to the SEAK troll fishery in AY 2020–2022 was *Interior Columbia Su/F*. In AY 2020, the next largest contributors were *Oregon Coast*, *South Thompson, Washington Coast*, *West Vancouver, SEAK/TBR, Other,* and *NCBC*. In AY 2021, largest contributors other than *Interior Columbia Su/F* were *South Thompson, West Vancouver*, *Washington Coast*, *Oregon Coast, SEAK/TBR, Other*, and *NCBC*. In AY 2022, largest contributors other than *Interior Columbia Su/F* were *Washington Coast*, *Oregon Coast, SEAK/TBR*, *West Vancouver, Other, South Thompson*, and *NCBC*.
2. The 7 driver stocks (*SEAK/TBR*, *NCBC*, *South Thompson*, *West Vancouver*, *Washington Coast*, *Interior Columbia Su/F*, and *Oregon Coast*) collectively contributed 91%, 91%, and 90% of the regionwide troll harvest, and 92%, 94%, and 95% of the season total sport fishery harvest in AY 2020, AY 2021, and AY 2022, respectively.
3. The driver stock reporting groups that contributed the highest proportion of harvest to the SEAK sport fishery in 2020 from largest to smallest were *West Vancouver*, *SEAK/TBR, Interior Columbia Su/F, Washington Coast, South Thompson, Other, NCBC,* and *Oregon Coast.* The driver stock reporting groups that contributed the highest proportion of harvest to the SEAK sport fishery in 2021 from largest to smallest are *SEAK/TBR, West Vancouver*, *South Thompson, Interior Columbia Su/F, NCBC, Washington Coast, Other,* and *Oregon Coast.* The driver stock reporting groups that contributed the highest proportion of harvest to the SEAK sport fishery in 2022 from largest to smallest are *SEAK/TBR, West Vancouver*,

*Interior Columbia Su/F, Washington Coast, NCBC, South Thompson, Oregon Coast,* and *Other.*

4. The winter troll fishery encountered the greatest diversity of stocks, with 34% of the early winter fishery and 25% of the late winter fishery composed of the *Other* driver stock group in AY 2020, 31% of the early winter fishery and 21% of the late winter fishery in AY 2021, and 22% of the early winter fishery and 20% of the late winter fishery in AY 2022, which was largely made up of *East Vancouver*, *Puget Sound*, and *Willamette Sp* fine-scale stocks in all 3 years.
5. Stocks from SEAK and the associated transboundary rivers were the largest contributors to the spring troll fishery harvest, particularly in the SI quadrant, and to sport fisheries conducted in SEAK inside waters (NI, Petersburg-Wrangell, and Ketchikan areas). Most of this harvest was SEAK hatchery-origin fish in all 3 years.
6. Summer and fall-run Chinook salmon originating from the Upper Columbia River were dominant contributors to SEAK fisheries from AY 2013 through AY 2016. Between AY 2017 and AY 2019, the relative contribution of these stocks decreased to historical averages. From AY 2020 to AY 2022, the contribution of Interior Columbia summer- and fall-run Chinook increased again, although not as high as was seen from AY 2013 through AY 2016.
7. Stocks from the West Coast of Vancouver Island (*West Vancouver*) were tied with *SEAK/TBR* for the largest contributor to the sport fishery in 2020 and 2021, each accounting for 22–25% of the harvest. In 2022, *SEAK*/*TBR* stocks contributed more than *West Vancouver*, 30% and 17% of each stock, respectively.
8. Troll (NO quadrant) and sport (Outside area) fisheries conducted in outside waters harvested a greater variety of stocks—including those from British Columbia and the Pacific Northwest—than fisheries occurring in inside waters.

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# REFERENCES CITED


Beacham, T. D., K. Jonsen, and C. Wallace. 2012. A comparison of stock and individual identification for Chinook salmon in British Columbia provided by microsatellites and single-nucleotide polymorphisms. Marine and Coastal Fisheries 4(1):1–22.

Bernard, D. R., S. Gilk-Baumer, D. Evenson, W. D. Templin, R. L. Peterson, and R. Briscoe. 2014. Feasibility of estimating the 2011 terminal run sizes for Chinook salmon driver stocks harvested in Southeast Alaska troll and sport fisheries. Alaska Department of Fish and Game, Fishery Manuscript No. 14-09, Anchorage.

Crane, P. A., W. D. Templin, D. M. Eggers, and L. W. Seeb. 2000. Genetic stock identification of Southeast Alaska Chinook salmon fishery catches. Final Report of the Alaska Department of Fish and Game to US Chinook Technical Committee, US Letter of Agreement Award No. NA87FPO408. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 5J00-01, Anchorage.

CTC (Chinook Technical Committee) 2004. Standardized fishery regimes for Southeast Alaska Chinook fisheries. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK (04)-3. Vancouver, BC.

CTC (Chinook Technical Committee). 2017. Annual report of catch and escapement for 2016. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK (17)-02,Vancouver, BC.

CTC (Chinook Technical Committee). 2020. Annual report of catch and escapement for 2019. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK (20)-01,Vancouver, BC.

CTC (Chinook Technical Committee). 2021a. Annual report of catch and escapement for 2020. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK (21)-03,Vancouver, BC.

CTC (Chinook Technical Committee). 2021b. 2019 Exploitation rate analysis and model calibration – Volume 1. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK (21)-01 V1,Vancouver, BC.

CTC (Chinook Technical Committee). 2022. Annual report of catch and escapement for 2021. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK(22)-04,Vancouver, BC.

CTC (Chinook Technical Committee). 2023. Annual report of catch and escapement for 2022. Pacific Salmon Commission Joint Chinook Technical Committee Report TCCHINOOK(23)-02,Vancouver, BC.

Gelman, A., and D. B. Rubin. 1992. Inference from iterative simulation using multiple sequences. Statistical Science 7:457–511.

Gilk-Baumer, S., D. F. Evenson, and W. D. Templin. 2017a. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll fisheries, 2010–2014. Alaska Department of Fish and Game, Fishery Data Series No. 17-37, Anchorage.

Gilk-Baumer, S., D. F. Evenson, K. Shedd, and W. D. Templin. 2017b. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll fisheries, 2015. Alaska Department of Fish and Game, Fishery Data Series No. 17-41, Anchorage.

Gilk-Baumer, S., W. D. Templin, D. F. Evenson, and E. L. Jones. 2017c. Mixed stock analysis of Chinook salmon harvested in the Southeast Alaska sport fishery, 2004–2015. Alaska Department of Fish and Game, Fishery Data Series No. 17-43, Anchorage.

Gilk-Baumer, S., D. F. Evenson, K. Shedd, and E. L. Jones. 2018. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll and sport fisheries, 2016. Alaska Department of Fish and Game, Fishery Data Series No. 18-01, Anchorage.

Gilk-Baumer, S., W. D. Templin, and L. W. Seeb. 2013. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll fisheries, 2004–2009. Alaska Department of Fish and Game, Fishery Data Series No. 13-26, Anchorage.

# REFERENCES CITED (Continued)


Habicht, C., W. D. Templin, and J. R. Jasper. 2012a. Western Alaska Salmon Stock Identification Program Technical Document 16: Prior sensitivity using the chum salmon baseline. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 5J12-23, Anchorage.

Habicht, C., T. T. Baker, E. L. Chenoweth, T. H. Dann, D. M. Eggers, K. G. Howard, J. R. Jasper, H. L. Liller, A. R. Munro, S. D. R. Olive, and W. D. Templin. 2012b. Harvest and harvest rates of sockeye salmon stocks in fisheries of the Western Alaska Salmon Stock Identification Program (WASSIP), 2006–2008. Alaska Department of Fish and Game, Special Publication No. 12-24, Anchorage.

Hagerman, G., M. Vaughn, and J. Priest. 2020. Annual management report for the 2019 Southeast Alaska/Yakutat salmon troll fisheries. Alaska Department of Fish and Game, Fishery Management Report No. 20-21, Anchorage.

Hagerman, G., M. Vaughn, and J. Priest. 2021. Annual management report for the 2020 Southeast Alaska/Yakutat salmon troll fisheries. Alaska Department of Fish and Game, Fishery Management Report No. 21-17, Anchorage.

Hagerman, G., M. Vaughn, and J. Priest. 2022a. Annual management report for the 2021 Southeast Alaska/Yakutat salmon troll fisheries. Alaska Department of Fish and Game, Fishery Management Report No. 22-23, Anchorage.

Hagerman, G. T., D. K. Harris, J. T. Williams, D. J. Teske, B. W. Elliott, N. L. Zeiser, and R. S. Chapell. 2022b. Northern Southeast Alaska Chinook salmon stock status and action plan, 2022. Alaska Department of Fish and Game, Regional Information Report No. 1J22-17, Douglas, Alaska.

Hagerman, G., and M. Vaughn. 2022. 2022/2023 Winter troll fishery management plan. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J22-21, Douglas.

Hagerman, G., M. Vaughn, and J. Priest. *In prep*. Annual management report for the 2022 Southeast Alaska/Yakutat salmon troll fisheries. Alaska Department of Fish and Game, Fishery Management Report, Anchorage.

Hess, J. E., A. P. Matala, and S. R. Narum. 2011. Comparison of SNPs and microsatellites for fine-scale application of genetic stock identification of Chinook salmon in the Columbia River Basin. Molecular Ecology Resources 11(S1):137–149.

Jaenicke, M., D. Tersteeg, and J. Huang. 2022. Operational Plan: Southeast Alaska marine boat sport fishery harvest studies, 2022. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan No. ROP.SF.1J.2022.02, Anchorage.

Jaenicke, M., D. Tersteeg, and J. Huang. 2023a. Operational Plan: Southeast Alaska marine boat sport fishery harvest studies, 2020. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan No. ROP.SF.1J.2023.08, Anchorage.

Jaenicke, M., D. Tersteeg, and J. Huang. 2023b. Operational Plan: Southeast Alaska marine boat sport fishery harvest studies, 2021. Alaska Department of Fish and Game, Division of Sport Fish, Regional Operational Plan No. ROP.SF.1J.2023.10, Anchorage.

JTC (Joint Technical Committee). 1997. Review of stock identification studies on the Yukon River. The United States and Canada Yukon River Joint Technical Committee, Whitehorse, Yukon Territory.

Lum, J. L., and L. Fair. 2018a. Unuk River king salmon stock status and action plan, 2018. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J18-04, Douglas.

Lum, J. L., and L. Fair. 2018b. Chilkat River and King Salmon River king salmon stock status and action plan, 2018. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J18-05, Douglas.

Meredith, B. L., N. D. Frost, K. S. Reppert, and G. T. Hagerman. 2022. Unuk and Chickamin Chinook salmon stock status and action plan, 2022. Alaska Department of Fish and Game, Alaska Department of Fish and Game, Regional Information Report No. 1J22-13, Douglas.

NPFMC (North Pacific Fishery Management Council). 2012. Fishery management plan for the salmon fisheries in the EEZ off Alaska. North Pacific Fishery Management Council, Anchorage.

# REFERENCES CITED (Continued)


PSC (Pacific Salmon Commission). 2008. Recommendations for application of genetic stock identification (GSI) methods to management of ocean salmon fisheries: Special report of the Genetic Stock Identification Steering Committee and the Pacific Salmon Commission's Committee on Scientific Cooperation. Pacific Salmon Commission Technical Report No. 23.

Pella, J. J., and G. B. Milner. 1987. Use of genetic marks in stock composition analysis. Pages 247–276 [*In*] N. Ryman and F. Utter, editors. Population genetics and fisheries management. University of Washington Press, Seattle.

Pella, J., and M. Masuda. 2001. Bayesian methods for analysis of stock mixtures from genetic characters. Fishery Bulletin 99:151–167.

Peterson, R. L., R. A. Clark, and D. F. Evenson. 2016. Does the Queets exploitation rate indicator stock represent the distribution of fishery impacts of Washington coast Chinook salmon stocks in Pacific Salmon Treaty fisheries? Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 5J16-06, Juneau.

Raftery, A. E., and S. M. Lewis. 1996. Implementing MCMC. Pages 115–130 [*In*] W. R. Gilks, S. Richardson, and D. J. Spiegelhalter, editors. Markov chain Monte Carlo in practice. Chapman and Hall, Inc., London.

Reynolds-Manney, A. M, J. A. Jones, J. R. Rice, and J. C. Walker. 2020. Operational Plan: Southeast Alaska and Yakutat salmon commercial port sampling 2020–2023. Alaska Department of Fish and Game, Regional Operational Plan No. ROP.CF.1J.2020.04, Douglas.

Salomone, P. G., K. Courtney, G. T. Hagerman, P. A. Fowler, and P. J. Richards. 2022. Stikine River and Andrew Creek Chinook salmon stock status and action plan, 2021. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 1J22-15, Douglas.

Seeb, L. W., C. Habicht, W. D. Templin, K. E. Tarbox, R. Z. Davis, L. K. Brannian, and J. E. Seeb. 2000. Genetic diversity of sockeye salmon of Cook Inlet, Alaska, and its application to management of populations affected by the Exxon Valdez oil spill. Transactions of the American Fisheries Society 129:1223–1249.

Seeb, L. W., A. Antonovich, M. Banks, T. Beacham, R. Bellinger, S. Blankenship, M. Campbell, N. DeCovich, J. C. Garza, C. Guthrie, T. Lundrigan, P. Moran, S. Narum, J. Stephenson, J. Supernault, D. Teel, W. D. Templin, J. K. Wenburg, S. Young, and C. T. Smith. 2007. Development of a standardized DNA database for Chinook salmon. Fisheries 32:540–552.

Shedd, K. R., D. F. Evenson, and J. V. Nichols. 2021a. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll and sport fisheries, 2017. Alaska Department of Fish and Game, Fishery Data Series No. 21-02, Anchorage.

Shedd, K. R., D. L. Leonard, and J. V. Nichols. 2021b. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll and sport fisheries, 2018. Alaska Department of Fish and Game, Fishery Data Series No. 21-23, Anchorage.

Shedd, K. R., D. L. Leonard, and J. V. Nichols. 2022. Mixed stock analysis of Chinook salmon harvested in Southeast Alaska commercial troll and sport fisheries, 2019. Alaska Department of Fish and Game, Fishery Data Series No. 22-20, Anchorage.

Teel, D. J., P. A. Crane, C. M. Guthrie III, A. R. Marshall, D. M. Van Doornik, W. D. Templin, N. V. Varnavskaya, and L. W. Seeb. 1999. Comprehensive allozyme database discriminates Chinook salmon around the Pacific Rim. NPAFC document 440.

Templin, W. D., J. M. Berger, and L. W. Seeb. 2011. Mixed stock analysis of Chinook salmon harvested in the Southeast Alaska commercial troll fishery, 1999–2003. Alaska Department of Fish and Game, Fishery Manuscript No. 11-03, Anchorage.

Thompson, S. K. 1987. Sample size for estimating multinomial proportions. The American Statistician 41:42–46.

# TABLES AND FIGURES

Table 1.–Relationship between populations and reporting groups for Chinook salmon used to report stock composition of Southeast Alaska troll and sport fishery harvests.

| Reporting group no. | Population | Fine-scale | Driver stocks[a] | Broad-scale |
|---|---|---|---|---|
| 1 | 1 | *Situk* | *SEAK/TBR* | *Alaska* |
| 2 | 2–5 | *Alsek* | *SEAK/TBR* | *TBR* |
| 3 | 6–10 | *N Southeast Alaska* | *SEAK/TBR* | *Alaska* |
| 4 | 11–17 | *Taku* | *SEAK/TBR* | *TBR* |
| 5 | 18–21 | *Andrew* | *SEAK/TBR* | *Alaska* |
| 6 | 22–28 | *Stikine* | *SEAK/TBR* | *TBR* |
| 7 | 29–42 | *S Southeast Alaska* | *SEAK/TBR* | *Alaska* |
| 8 | 43–51 | *Nass* | *NCBC* | *Canada* |
| 9 | 52–78 | *Skeena* | *NCBC* | *Canada* |
| 10 | 79–97 | *BC Coast/Haida Gwaii* | *NCBC* | *Canada* |
| 11 | 98–113 | *West Vancouver* | *West Vancouver* | *Canada* |
| 12 | 114–123 | *East Vancouver* | *Other* | *Canada* |
| 13 | 124–157 | *Fraser* | *Other* | *Canada* |
| 14 | 158–166 | *Lower Thompson* | *Other* | *Canada* |
| 15 | 167–172 | *North Thompson* | *Other* | *Canada* |
| 16 | 173–180 | *South Thompson* | *South Thompson* | *Canada* |
| 17 | 181–212 | *Puget Sound* | *Other* | *US South* |
| 18 | 213–223 | *Washington Coast* | *Washington Coast* | *US South* |
| 19 | 224–226 | *West Cascades Sp* | *Other* | *US South* |
| 20 | 227–240 | *Lower Columbia F* | *Other* | *US South* |
| 21 | 241–246 | *Willamette Sp* | *Other* | *US South* |
| 22 | 247–302 | *Columbia Sp* | *Other* | *US South* |
| 23 | 303–320 | *Interior Columbia Su/F* | *Interior Columbia Su/F* | *US South* |
| 24 | 321–331 | *North Oregon Coast* | *Oregon Coast* | *US South* |
| 25 | 332–339 | *Mid Oregon Coast* | *Oregon Coast* | *US South* |
| 26 | 340–357 | *S Oregon/California* | *Other* | *US South* |

*Note*: Population numbers are listed in Appendix A1. Populations were combined into (1) 26 fine-scale reporting groups; (2) 8 driver stock reporting groups, including an "Other" group; and (3) 4 broad-scale reporting groups.

[a] Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

Table 2.–Sampling goals and numbers of fish sampled from troll-caught Chinook salmon landings at processors at ports in Southeast Alaska for mixed stock analysis, AY 2020.

| Fishery | Period | Port | Quadrants represented[a] | Sample goal | Samples collected |
|---|---|---|---|---|---|
| Winter (Oct–Apr) | Early winter (Oct 11–Dec 31) | Craig | SO, SI, NI | 100 | 58 |
| | | Juneau | NI, NO | 90 | 110 |
| | | Ketchikan | SI | 120 | 95 |
| | | Petersburg/Wrangell | NI, SI | 70 | 130 |
| | | Sitka | NO | 450 | 1,162 |
| | | | | 830 | 1,555 |
| | Late winter (Jan 1–Mar 15) | Craig | SO, SI, NI | 330 | 94 |
| | | Juneau | NI, NO | 70 | 91 |
| | | Ketchikan | SI | 80 | 56 |
| | | Petersburg | NI, SI | 80 | 80 |
| | | Sitka | NO | 430 | 928 |
| | | | | 990 | 1,249 |
| Spring (May–Jun) | | Craig | SO | 400 | 553 |
| | | Juneau | NI, NO | – | 9 |
| | | Ketchikan | SI, NI | 400 | 262 |
| | | Petersburg | NI, SI | – | – |
| | | Wrangell | SI, NI | – | – |
| | | Sitka | NO | 1,000 | 1,501 |
| | | Yakutat | NO | – | – |
| | | | | 1,800 | 2,325 |
| Summer (Jul–Sep) | Retention period 1 (Jul 1–6) | Craig | SO, NI | 550 | 477 |
| | | Hoonah | NO, SO | – | – |
| | | Ketchikan | SI, SO, NI | 150 | 224 |
| | | Tender Rider | NO, NI | 160 | – |
| | | Pelican/Elfin Cove | NO | – | – |
| | | Petersburg | NI, SI, NO | 250 | 200 |
| | | Port Alexander | NI | 100 | – |
| | | Sitka | NO, SO | 450 | 866 |
| | | Wrangell | SI | 100 | 76 |
| | | | | 1,760 | 1,843 |
| | Retention period 2 (Aug 15–Sep 8) | Craig | SO | 420 | 398 |
| | | Hoonah | NO, NI | – | – |
| | | Ketchikan | SI, SO | 200 | 273 |
| | | Tender Rider | NO, NI | 80 | – |
| | | Pelican | NO | – | – |
| | | Petersburg | NI, SI | 180 | 254 |
| | | Port Alexander | NI | 50 | – |
| | | Sitka | NO | 450 | 982 |
| | | Wrangell | SI | 120 | 131 |
| | | | | 1,500 | 2,038 |
| | | Total | | 6,880 | 9,010 |

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020. En dashes = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Northern Inside (NI), Southern Outside (SO), and Southern Inside (SI).

Table 3.–Sampling goals and numbers of fish sampled from troll-caught Chinook salmon landings at processors at ports in Southeast Alaska for mixed stock analysis, AY 2021.

| Fishery | Period | Port | Quadrants represented[a] | Sample goal | Samples collected |
|---|---|---|---|---|---|
| Winter (Oct–Apr) | Early winter (Oct 11–Dec 31) | Craig | SO | 100 | 30 |
| | | Juneau | NI, NO | 90 | 90 |
| | | Ketchikan | SI | 120 | 76 |
| | | Petersburg | NI, SI | 70 | 108 |
| | | Sitka | NO, NI | 450 | 570 |
| | | | | 830 | 874 |
| | Late winter (Jan 1–Mar 15) | Craig | SO | 330 | 56 |
| | | Juneau | NO, NI | 70 | 108 |
| | | Ketchikan | SI | 80 | 33 |
| | | Petersburg | NI, SI | 80 | 66 |
| | | Sitka | NO, NI | 430 | 666 |
| | | | | 990 | 929 |
| Spring (May–Jun) | | Craig | SO | 400 | 343 |
| | | Ketchikan | SI | 400 | 413 |
| | | Wrangell | SI | – | 10 |
| | | Sitka | NO | 1,000 | 1,754 |
| | | Yakutat | NO | – | 592 |
| | | | | 1,800 | 3,112 |
| Summer (Jul–Sep) | Retention period 1 (Jul 1–8) | Craig | SO, SI | 550 | 455 |
| | | Ketchikan | SI, SO | 150 | 199 |
| | | Tender Rider | – | 160 | – |
| | | Petersburg | NI, SI | 250 | 351 |
| | | Port Alexander | – | 100 | – |
| | | Sitka | NO, SO, NI, SI | 450 | 863 |
| | | Wrangell | SO, SI | 100 | 79 |
| | | Yakutat | NO | – | 27 |
| | | | | 1,760 | 1,974 |
| | Retention period 2 (Aug 13–Sep 3) | Craig | SO, SI | 420 | 386 |
| | | Ketchikan | SI, SO | 200 | 202 |
| | | Tender Rider | NO | 80 | 80 |
| | | Petersburg | NI, SI | 180 | 205 |
| | | Port Alexander | – | 50 | – |
| | | Sitka | NO | 450 | 981 |
| | | Wrangell | SI, SO, NI | 120 | 194 |
| | | | | 1,500 | 2,048 |
| | | Total | | 6,880 | 8,937 |

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021. En dashes = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Northern Inside (NI), Southern Outside (SO), and Southern Inside (SI).

Table 4.–Sampling goals and numbers of fish sampled from troll-caught Chinook salmon landings at processors at ports in Southeast Alaska for mixed stock analysis, AY 2022.

| Fishery | Period | Port | Quadrants represented[a] | Sample goal | Samples collected |
|---|---|---|---|---|---|
| Winter (Oct–Apr) | Early winter (Oct 11–Dec 31) | Craig | SO | 100 | 39 |
| | | Juneau | NI, NO | 90 | 154 |
| | | Ketchikan | SI | 120 | 109 |
| | | Petersburg | NI, SI | 70 | 79 |
| | | Sitka | NO, NI | 450 | 553 |
| | | Wrangell | SI | | 71 |
| | | | | 830 | 1,005 |
| | Late winter (Jan 1–Apr 30) | Craig | SO, SI, NI | 330 | 833 |
| | | Juneau | NO, NI | 70 | 93 |
| | | Ketchikan | SI | 80 | 57 |
| | | Petersburg | SI, NI | 80 | 155 |
| | | Sitka | NO, NI | 430 | 1,804 |
| | | | | 990 | 2,942 |
| Spring (May–Jun) | | Craig | SO | 400 | 373 |
| | | Ketchikan | SI | 400 | 525 |
| | | Wrangell | SI | – | 35 |
| | | Sitka | NO | 1,000 | 1,918 |
| | | Yakutat | NO | – | 318 |
| | | | | 1,800 | 3,169 |
| Summer (Jul–Sep) | Retention period 1 (Jul 1–28) | Craig | SO, NI, SI | 550 | 592 |
| | | Ketchikan | SI, SO | 150 | 283 |
| | | Tender Rider | – | 160 | – |
| | | Petersburg | NI, SI | 250 | 308 |
| | | Port Alexander | – | 100 | – |
| | | Sitka | NO, NI, SO, SI | 450 | 1,405 |
| | | Wrangell | SI, SO, NI | 100 | 182 |
| | | Yakutat | – | – | – |
| | | | | 1,760 | 2,770 |
| | Retention period 2 (Aug 1–Sep 20) | Craig | SO, NI, SI | 420 | 553 |
| | | Ketchikan | SI, SO, NI | 200 | 214 |
| | | Tender Rider | NO, NI | 80 | 123 |
| | | Petersburg | NI, SI, SO | 180 | 170 |
| | | Port Alexander | – | 50 | – |
| | | Elfin Cove | NO | – | 20 |
| | | Sitka | NO, NI | 450 | 1,201 |
| | | Wrangell | SI | 120 | 36 |
| | | | | 1,500 | 2,317 |
| | | Total | | 6,880 | 12,203 |

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022. En dashes = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Northern Inside (NI), Southern Outside (SO), and Southern Inside (SI).

Table 5.–Samples collected by quadrant for each seasonal Chinook salmon troll fishery in Southeast Alaska, 2020.

| | Quadrant[a] | | | | |
|---|---|---|---|---|---|
| Fishery | NO | SO | NI | SI | Total |
| Early winter | 1,111 | 58 | 211 | 175 | 1,555 |
| Late winter | 867 | 57 | 192 | 133 | 1,249 |
| Spring | 1,510 | 557 | – | 258 | 2,325 |
| Summer retention 1 | 866 | 544 | 230 | 203 | 1,843 |
| Summer retention 2 | 982 | 318 | 304 | 434 | 2,038 |

*Note*: En dash = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Southern Outside (SO), Northern Inside (NI), and Southern Inside (SI).

Table 6.–Samples collected by quadrant for each seasonal Chinook salmon troll fishery in Southeast Alaska, 2021.

| | Quadrant[a] | | | | |
|---|---|---|---|---|---|
| Fishery | NO | SO | NI | SI | Total |
| Early winter | 589 | 30 | 124 | 131 | 874 |
| Late winter | 681 | 56 | 116 | 76 | 929 |
| Spring | 2,346 | 343 | – | 423 | 3,112 |
| Summer retention 1 | 862 | 571 | 248 | 293 | 1,974 |
| Summer retention 2 | 1,061 | 450 | 146 | 391 | 2,048 |

*Note*: En dash = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Southern Outside (SO), Northern Inside (NI), and Southern Inside (SI).

Table 7.–Samples collected by quadrant for each seasonal Chinook salmon troll fishery in Southeast Alaska, 2022.

| | Quadrant[a] | | | | |
|---|---|---|---|---|---|
| Fishery | NO | SO | NI | SI | Total |
| Early winter | 567 | 39 | 188 | 211 | 1,005 |
| Late winter | 1,848 | 498 | 227 | 369 | 2,942 |
| Spring | 2,236 | 373 | – | 560 | 3,169 |
| Summer retention 1 | 1,269 | 694 | 396 | 411 | 2,770 |
| Summer retention 2 | 1,291 | 586 | 182 | 258 | 2,317 |

*Note*: En dash = no data.

[a] Quadrant names are abbreviated as follows: Northern Outside (NO), Southern Outside (SO), Northern Inside (NI), and Southern Inside (SI).

Table 8.–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, AY 2020.

| | | AY 2020 | |
|---|---|---|---|
| Area/Time | Port | Sample objective | Samples collected |
| Ketchikan | Ketchikan | 600 | 513 |
| | | 600 | 513 |
| Petersburg-Wrangell | Petersburg | 450 | 16 |
| | Wrangell | 200 | 108 |
| | | 650 | 124 |
| Northern Inside | Juneau | 600 | 339 |
| | Haines | 15 | – |
| | Skagway | 20 | – |
| | | 635 | 339 |
| Outside/Biweeks 9–13 | Craig/Klawock | 250 | 281 |
| | Sitka | 1,000 | 779 |
| | Yakutat | 50 | 31 |
| | Gustavus | 50 | 18 |
| | Elfin Cove | 25 | – |
| | | 1,375 | 1,109 |
| Outside/Biweeks 14–18 | Craig/Klawock | 250 | 467 |
| | Sitka | 500 | 919 |
| | Yakutat | 25 | 48 |
| | Gustavus | 15 | 33 |
| | Elfin Cove | 25 | – |
| | | 815 | 1,467 |
| | Total | 4,075 | 3,552 |

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020. En dashes = no data.

Table 9.–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, AY 2021.

| | | AY 2021 | |
|---|---|---|---|
| Area/Time | Port | Sample objective | Samples collected |
| Ketchikan | Ketchikan | 600 | 584 |
| | | 600 | 584 |
| Petersburg-Wrangell | Petersburg | 450 | 68 |
| | Wrangell | 200 | 85 |
| | | 650 | 153 |
| Northern Inside | Juneau | 600 | 375 |
| | Haines | 15 | – |
| | Skagway | 20 | – |
| | | 635 | 375 |
| Outside/Biweeks 9–13 | Craig/Klawock | 250 | 687 |
| | Sitka | 1,000 | 1,169 |
| | Yakutat | 50 | 56 |
| | Gustavus | 50 | 24 |
| | Elfin Cove | 25 | – |
| | | 1,375 | 1,936 |
| Outside/Biweeks 14–18 | Craig/Klawock | 250 | 317 |
| | Sitka | 500 | 557 |
| | Yakutat | 25 | 12 |
| | Gustavus | 15 | 9 |
| | Elfin Cove | 25 | – |
| | | 815 | 895 |
| | Total | 4,075 | 3,943 |

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021. En dashes = no data.

Table 10.–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, AY 2022.

| | | AY 2022 | |
|---|---|---|---|
| Area/Time | Port | Sample objective | Samples collected |
| Ketchikan | Ketchikan | 600 | 756 |
| | | 600 | 756 |
| Petersburg-Wrangell | Petersburg | 450 | 86 |
| | Wrangell | 200 | 29 |
| | | 650 | 115 |
| Northern Inside | Juneau | 600 | 498 |
| | Haines | 15 | – |
| | Skagway | 20 | – |
| | | 635 | 498 |
| Outside/Biweeks 9–13 | Craig/Klawock | 250 | 346 |
| | Sitka | 1,000 | 1,192 |
| | Yakutat | 50 | 184 |
| | Gustavus | 50 | 136 |
| | Elfin Cove | 25 | 130 |
| | | 1,375 | 1,988 |
| Outside/Biweeks 14–18 | Craig/Klawock | 250 | 195 |
| | Sitka | 500 | 544 |
| | Yakutat | 25 | 52 |
| | Gustavus | 15 | 14 |
| | Elfin Cove | 25 | 36 |
| | | 815 | 841 |
| | Total | 4,075 | 4,198 |

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022. En dashes = no data.

Table 11.–Selection criteria used to generate the Commercial Harvest Expansion Report on the ADF&G OceanAK Database.

| Criteria | Values |
|---|---|
| Years | 2020, 2021, 2022 |
| Species | 410 |
| Gear class codes | 5 |
| Harvest codes | 11, 13 |
| Time code | P |
| Time value range | 1, 54 |
| Area code | Q- Quadrants |
| Districts | ALL |
| Quadrants | NE, NW, SE, SW (correspond to NI, NO, SI, and SO, respectively) |
| Stat area values | ALL |

*Source*: Data are available at https://mtalab.adfg.alaska.gov/CWT/reports/default.aspx

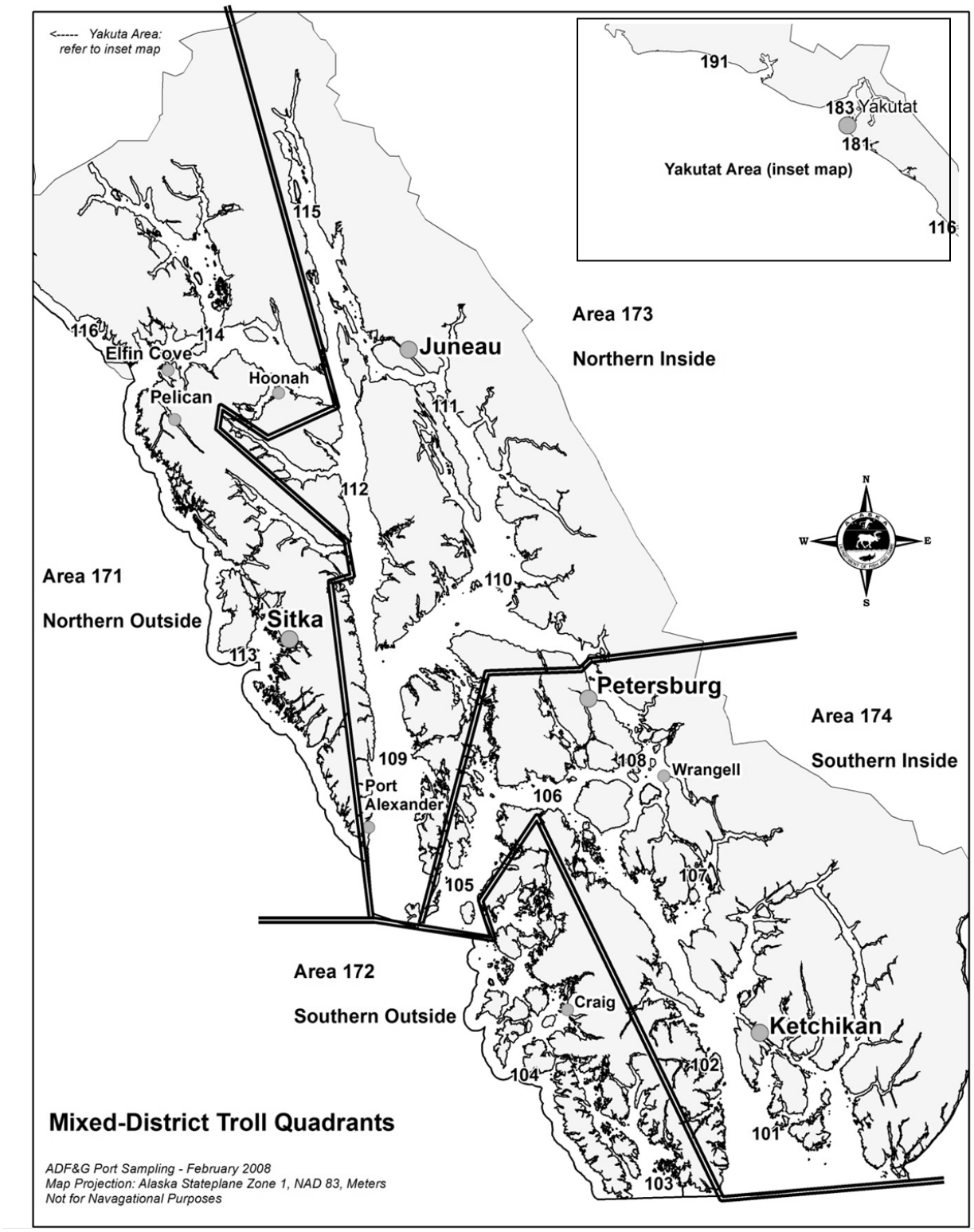


Figure 1.–Location of Southeast Alaska troll fishing quadrants and ports.

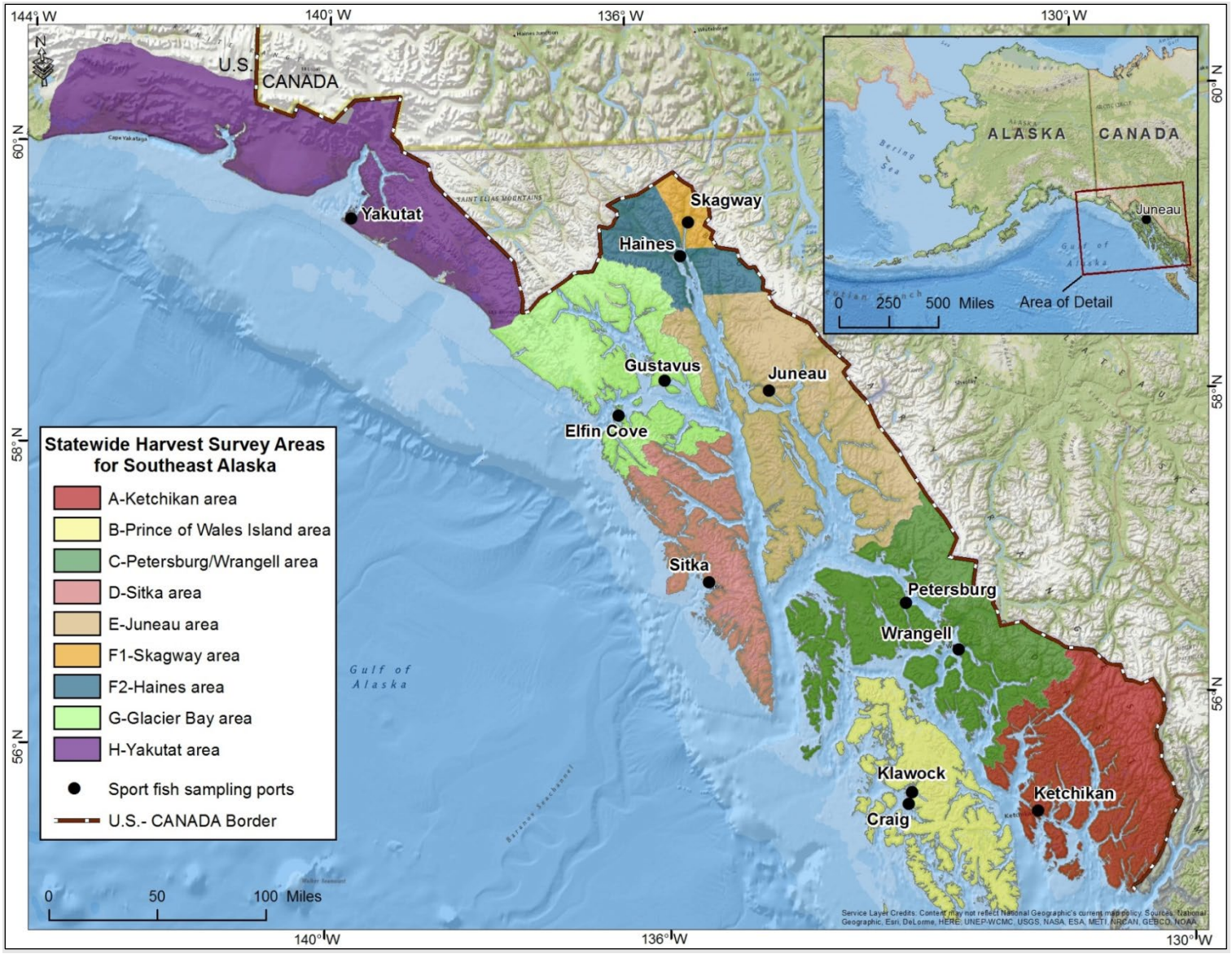


Figure 2.–Location of primary sport fishing ports in Southeast Alaska.

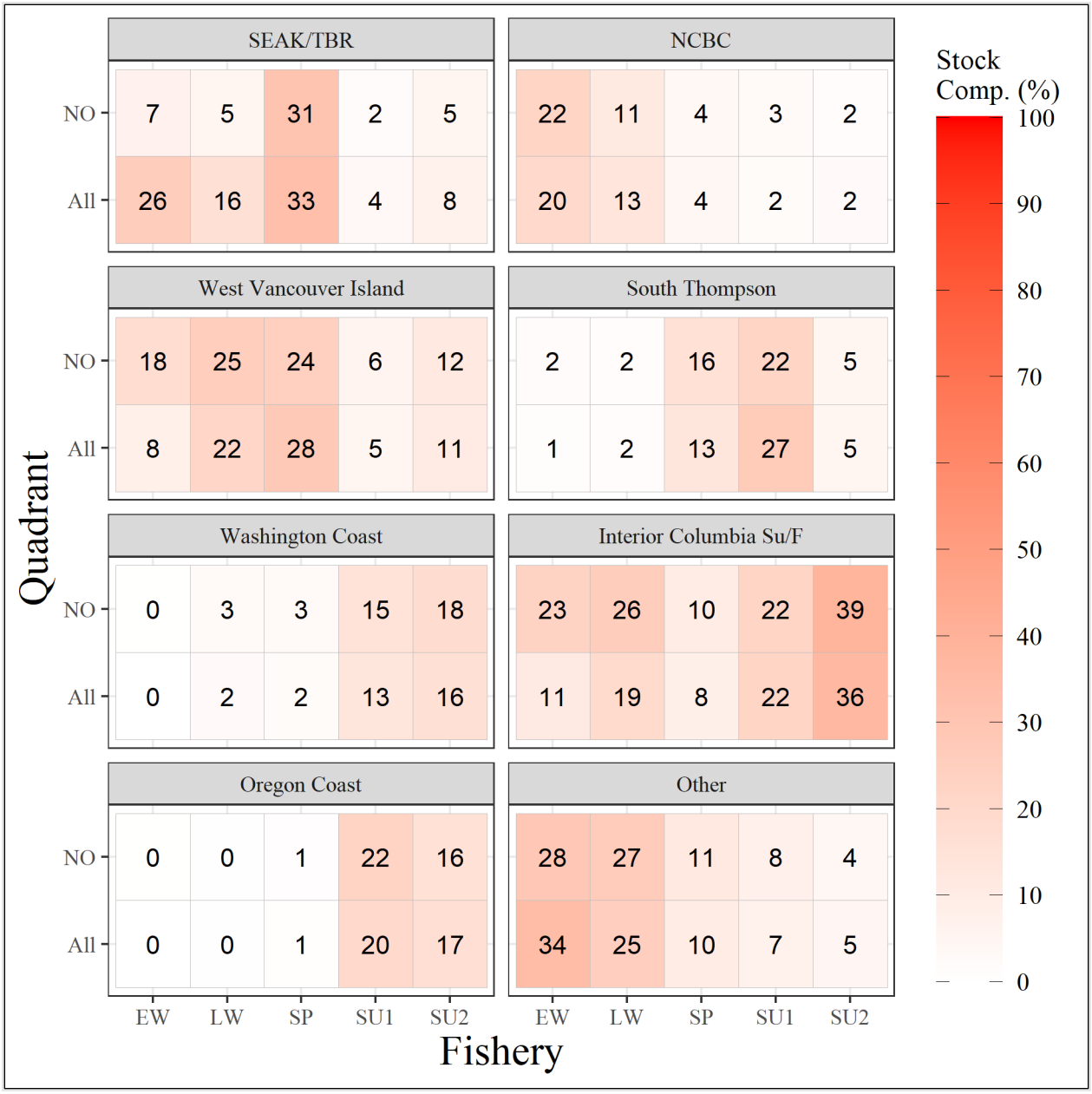


Figure 3.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the troll fishery harvest in Southeast Alaska for the northern quadrant (NO) and all quadrants by the seasonal fishery (All), AY 2020.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Fishery names are abbreviated as follows: early winter (EW), late winter (LW), spring (SP), summer retention period 1 (SU1), and summer retention period 2 (SU2).

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

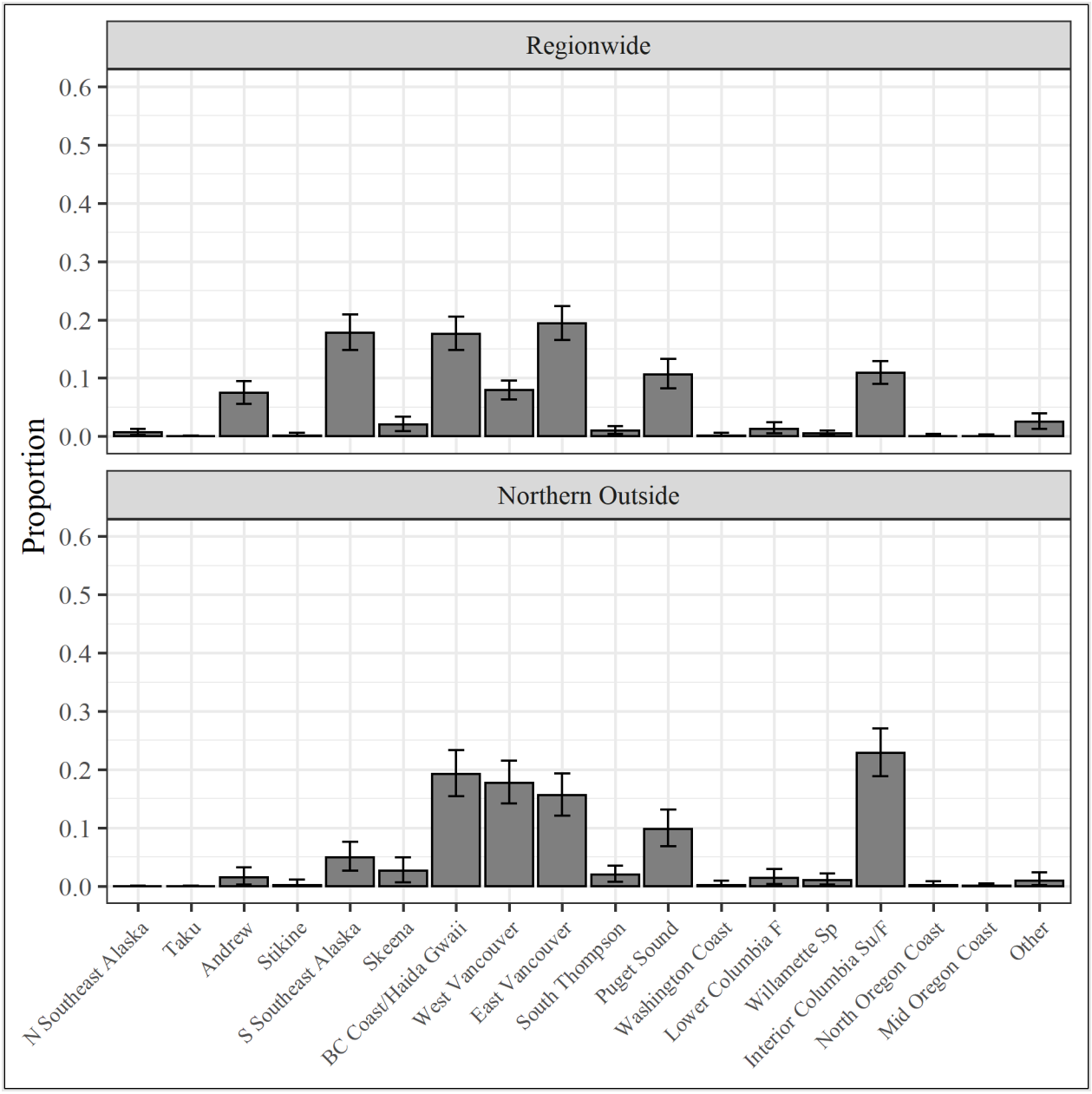


Figure 4.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) early winter troll fishery harvest in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

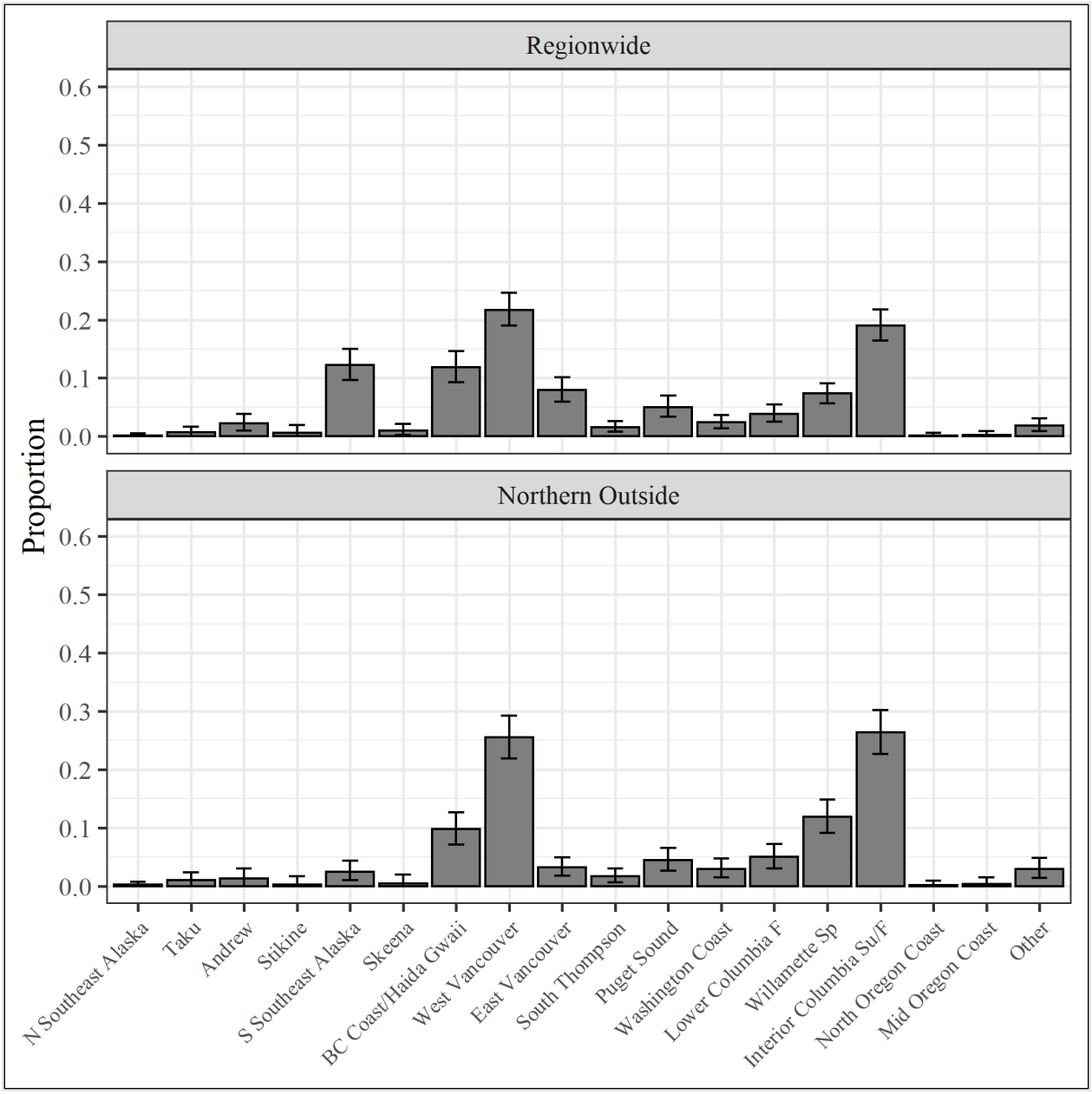


Figure 5.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) late winter troll fishery harvest in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

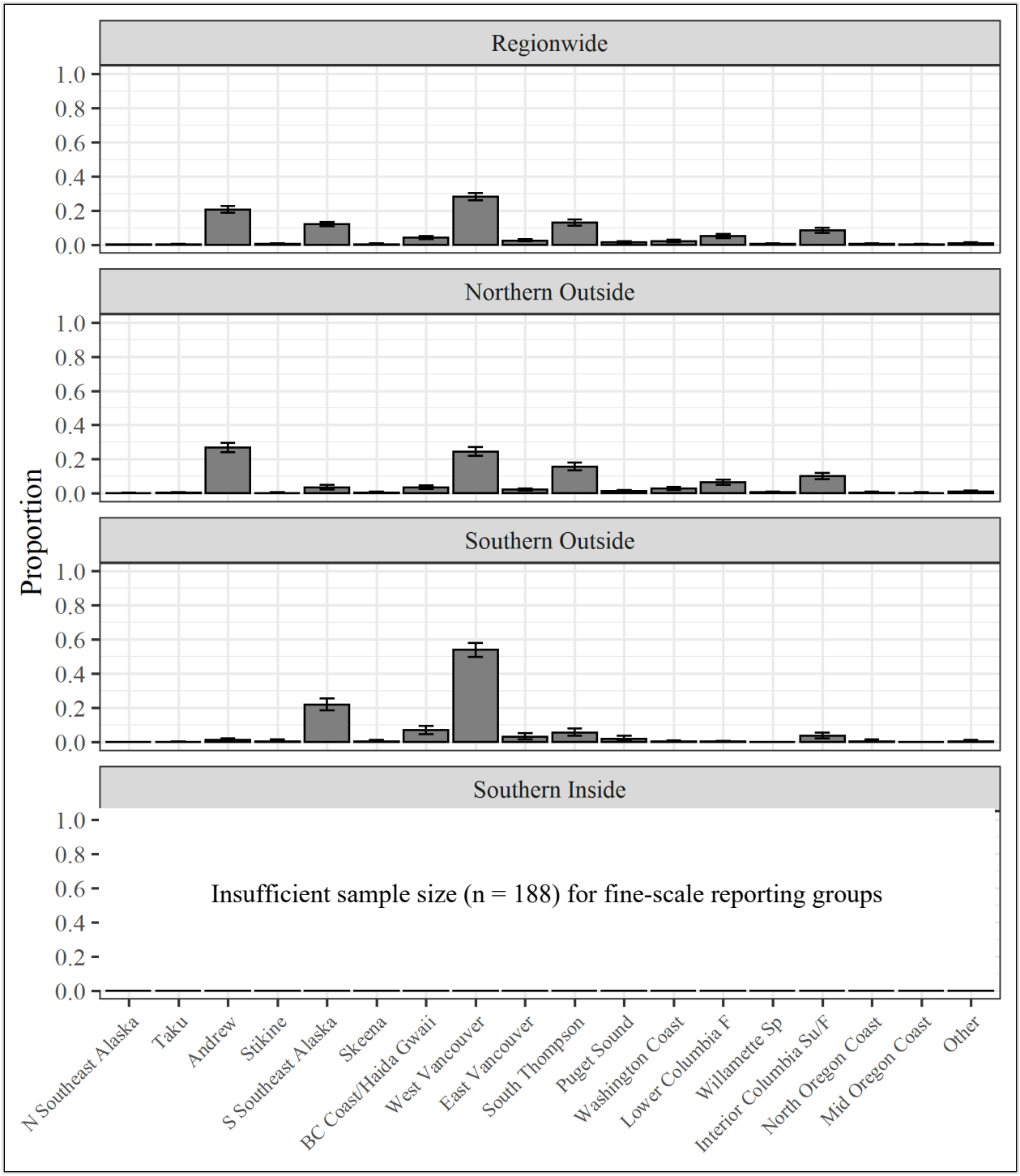


Figure 6.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the spring troll fishery harvest regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

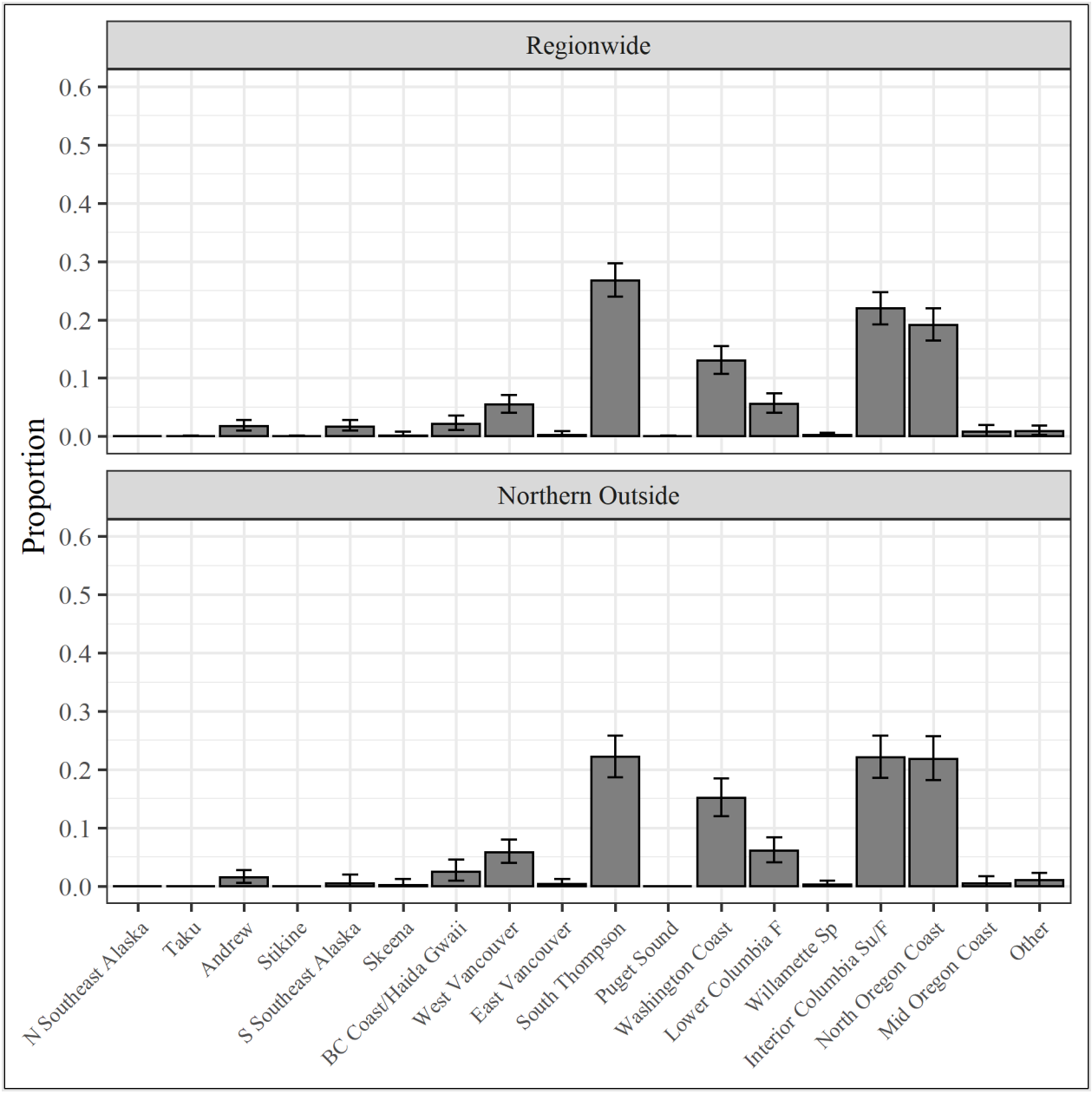


Figure 7.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) first retention period of the summer troll fishery harvest in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

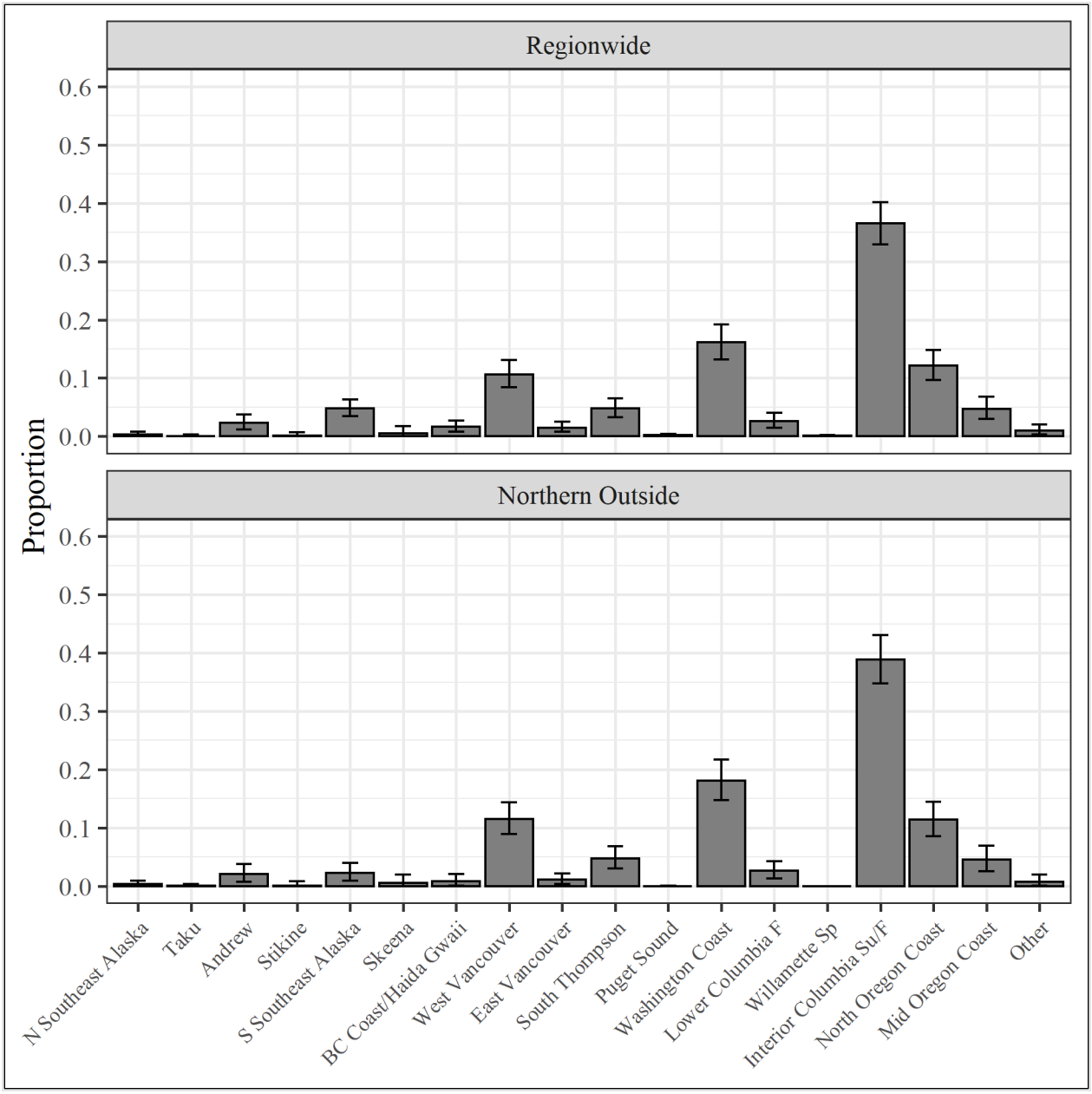


Figure 8.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) second retention period of the summer troll fishery harvest in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

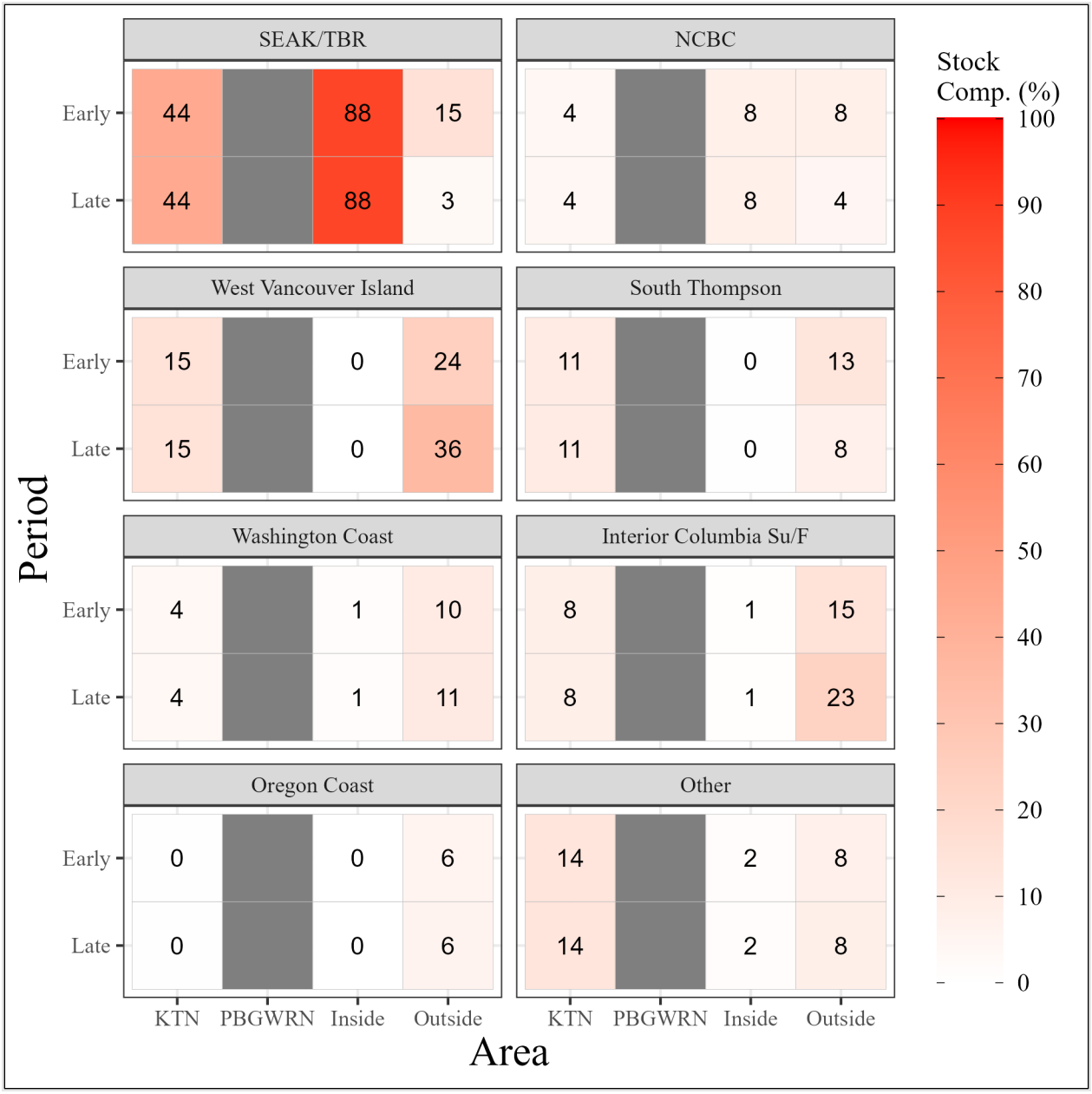


Figure 9.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the sport fishery harvest in Southeast Alaska by area and time period (for the Outside area only), AY 2020.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Area names are abbreviated as follows: Ketchikan (KTN) and Petersburg-Wrangell (PBGWRN).

*Note:* Period names for the Outside area are Early (biweeks 9–13) and Late (biweeks 14–18).

*Note:* There was insufficient sample size (n = 97) for driver stock reporting groups for Petersburg-Wrangell (PBGWRN).

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

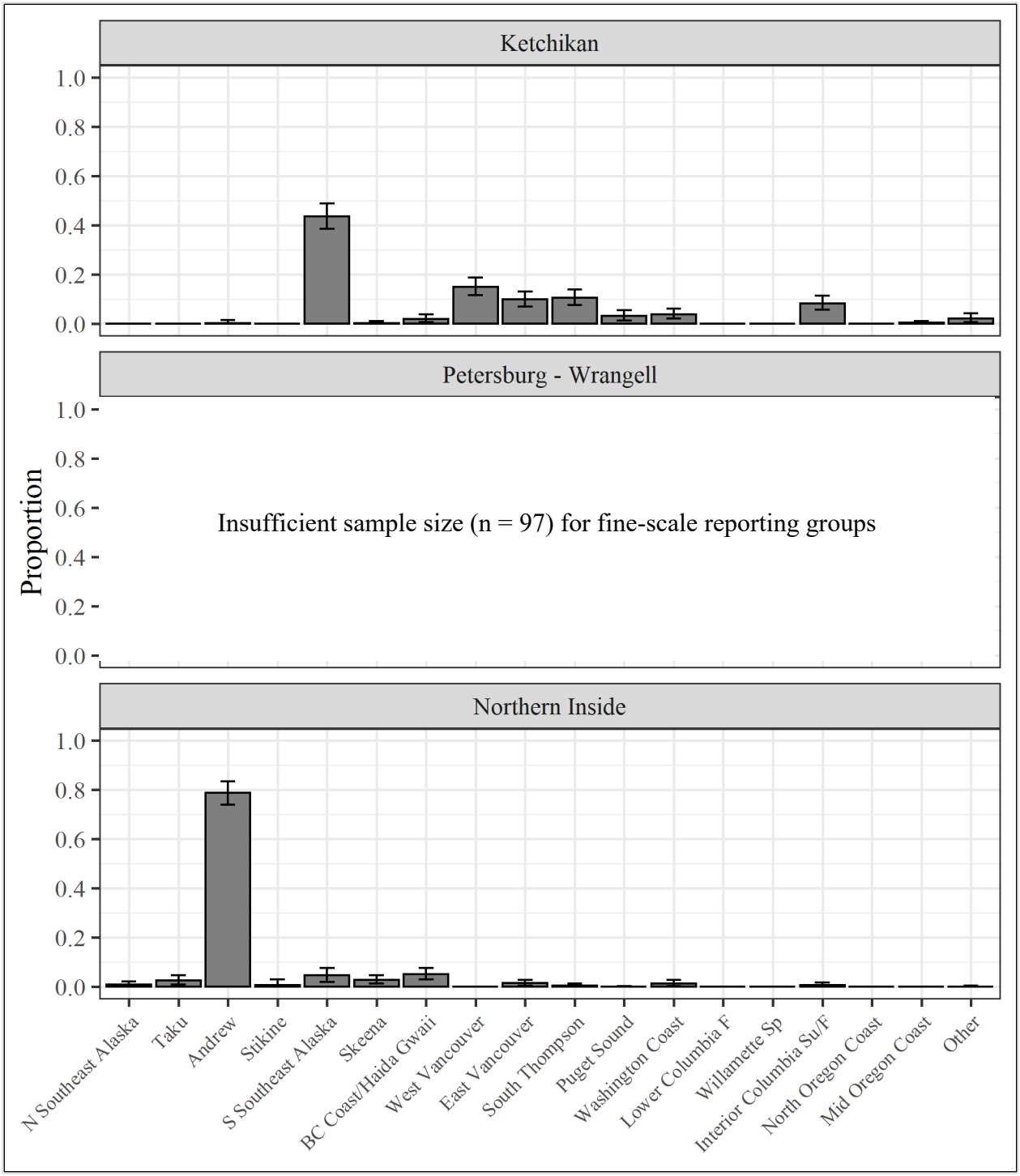


Figure 10.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the Ketchikan, Petersburg-Wrangell, and Northern Inside (Juneau, Haines, and Skagway) area sport fishery harvests in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

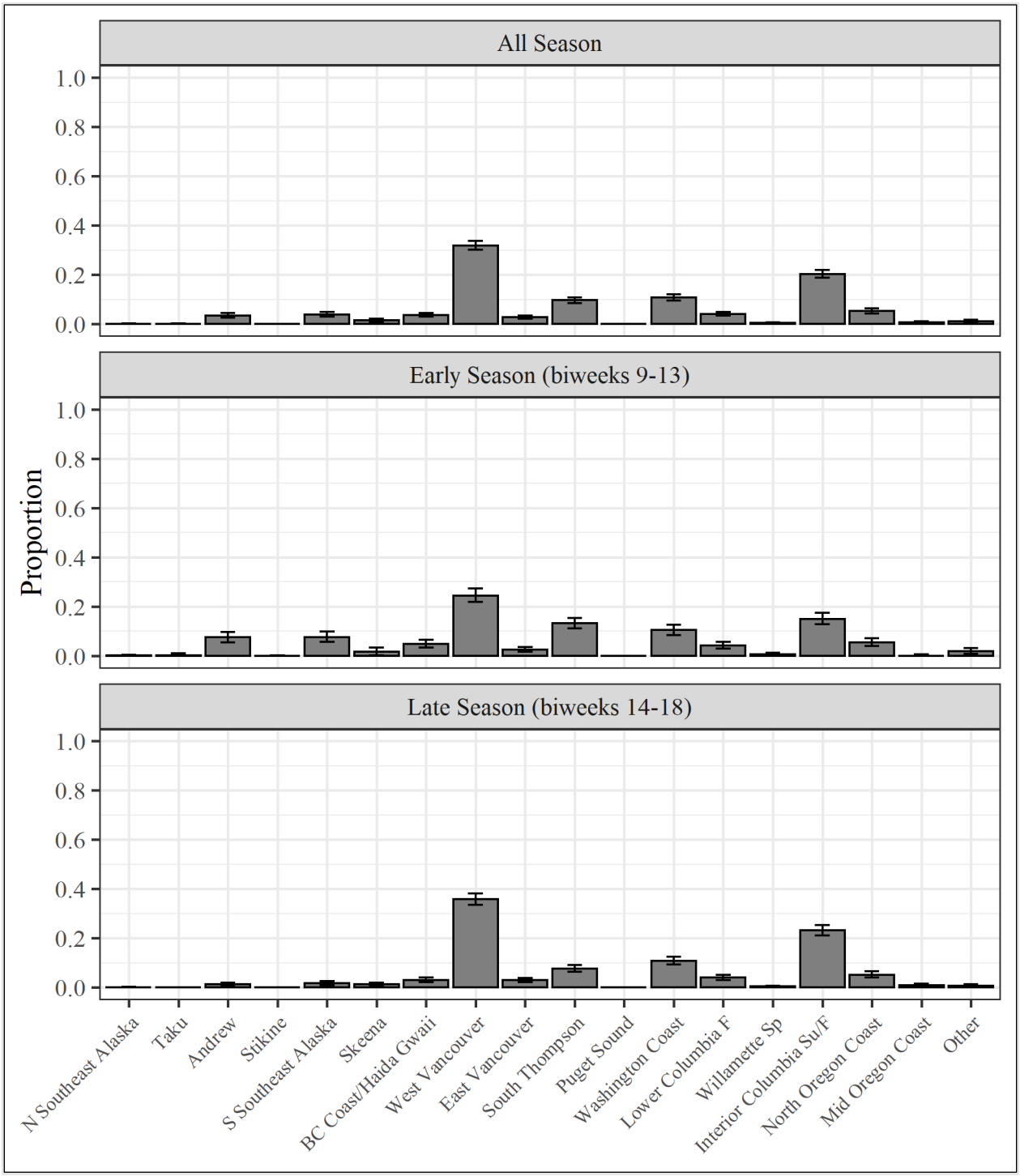


Figure 11.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) Outside area sport fishery harvest in Southeast Alaska, AY 2020.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

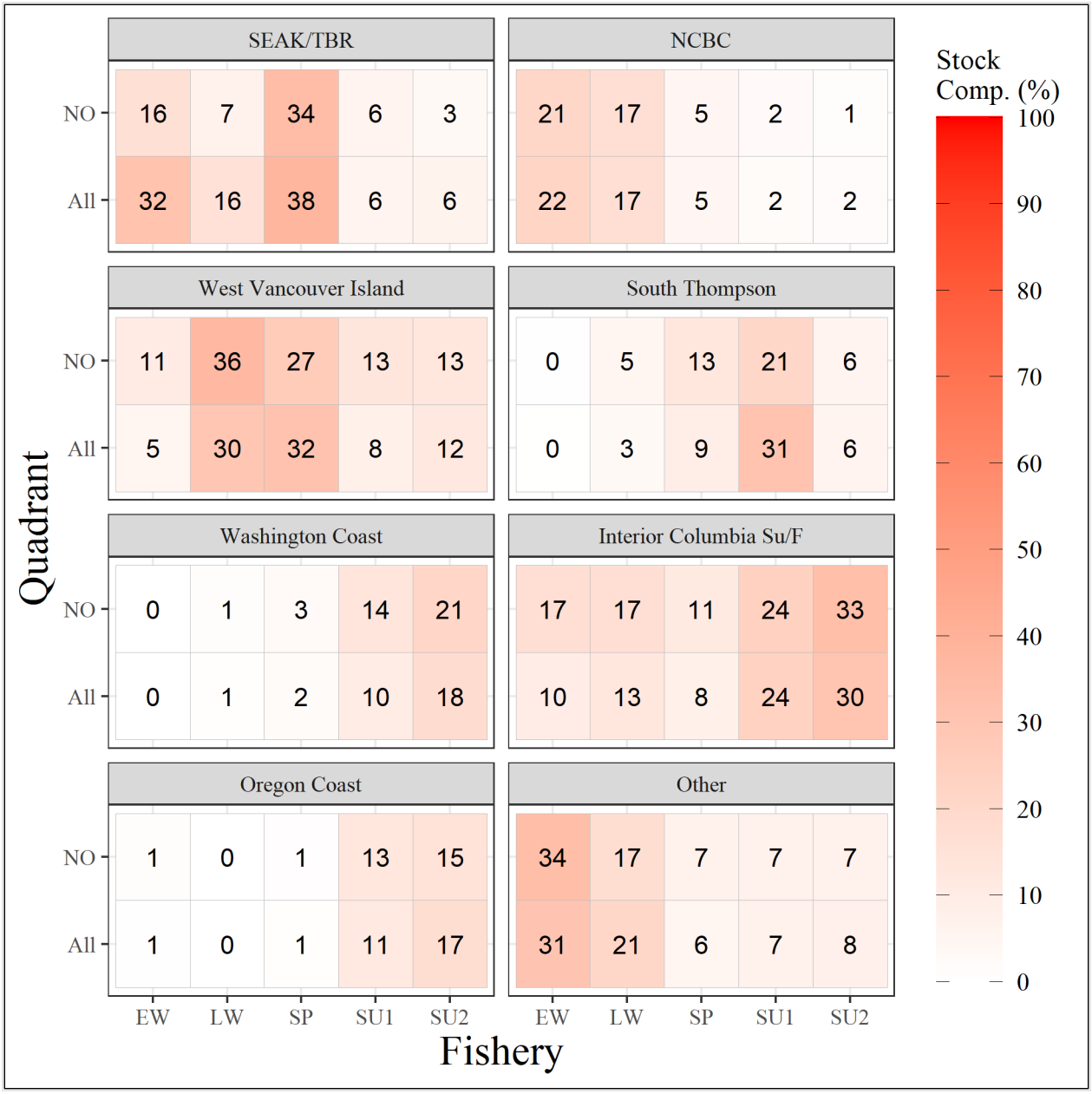


Figure 12.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the troll fishery harvest in Southeast Alaska for the northern quadrant (NO) and all quadrants by the seasonal fishery (All), AY 2021.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Fishery names are abbreviated as follows: early winter (EW), late winter (LW), spring (SP), summer retention period 1 (SU1), and summer retention period 2 (SU2).

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

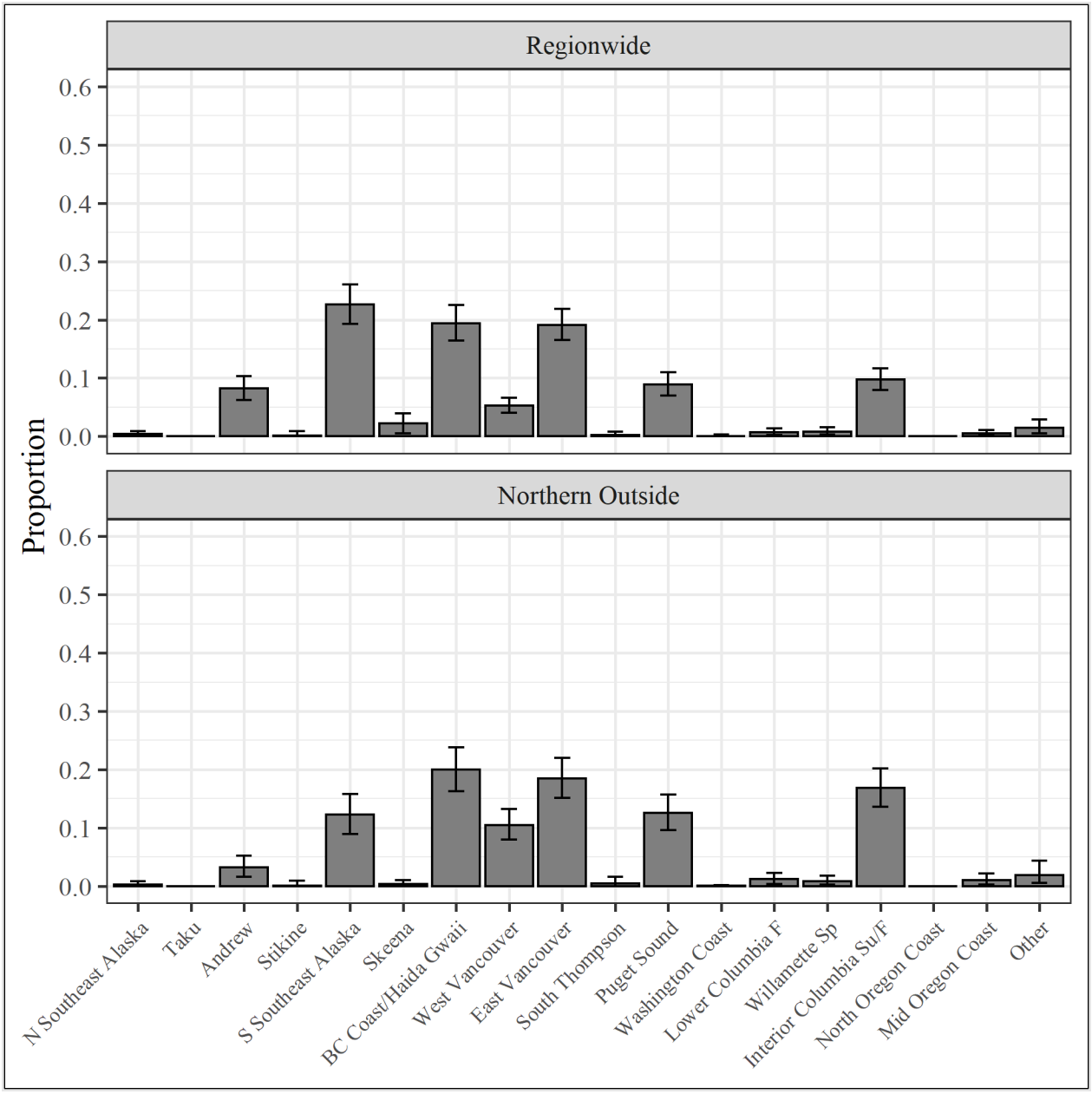


Figure 13.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) early winter troll fishery harvest in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

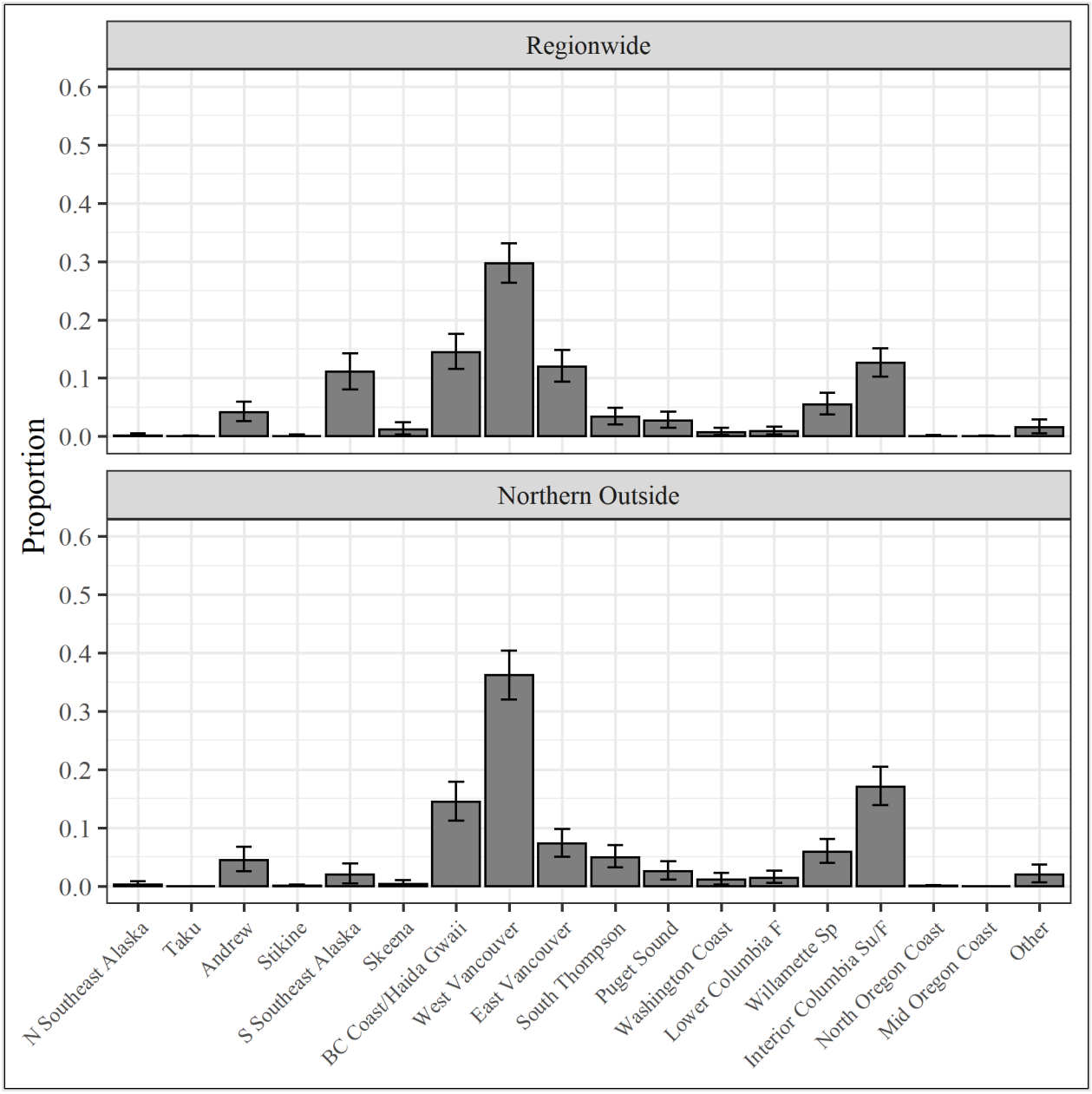


Figure 14.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) late winter troll fishery harvest in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

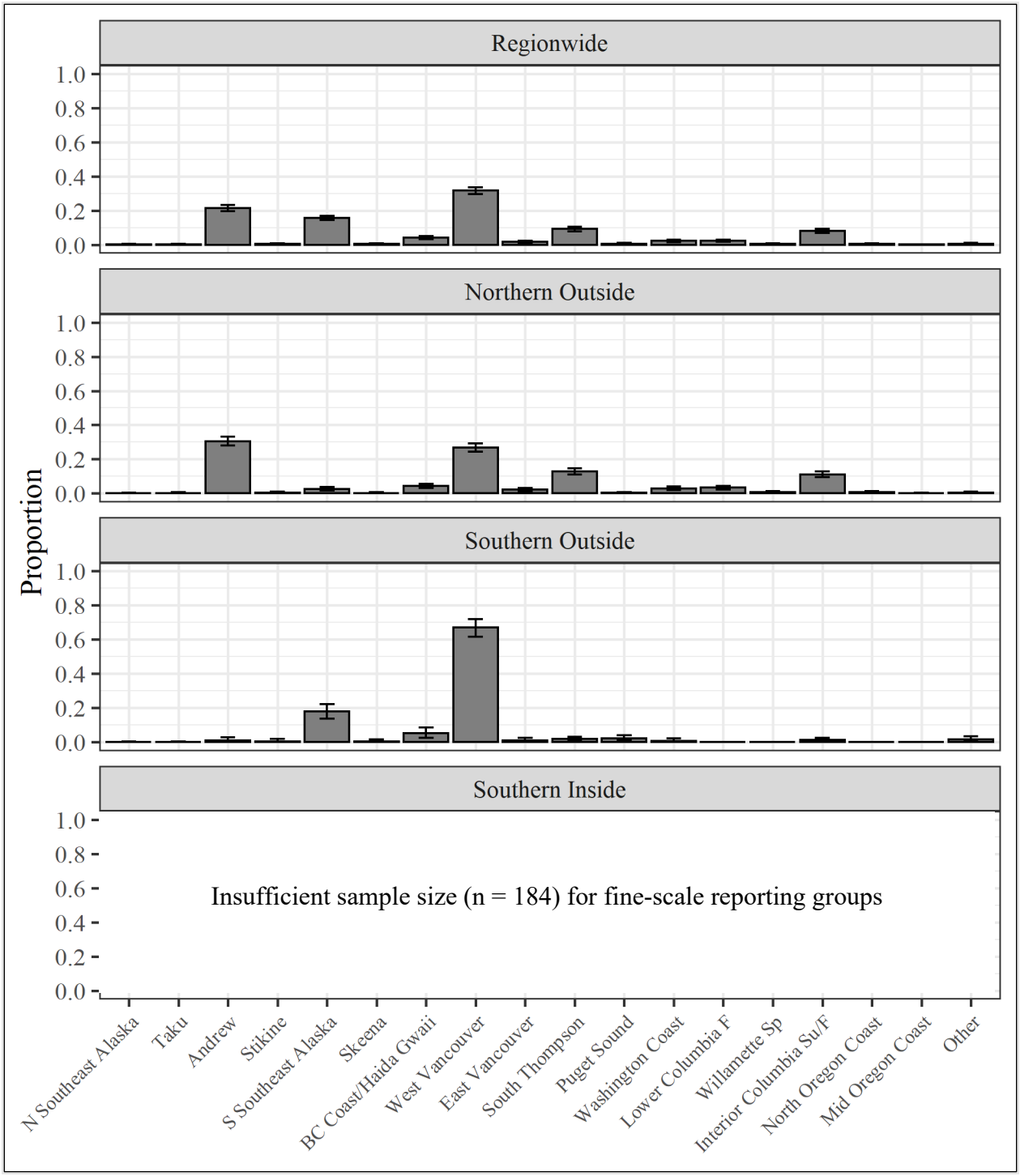


Figure 15.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the spring troll fishery harvest regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

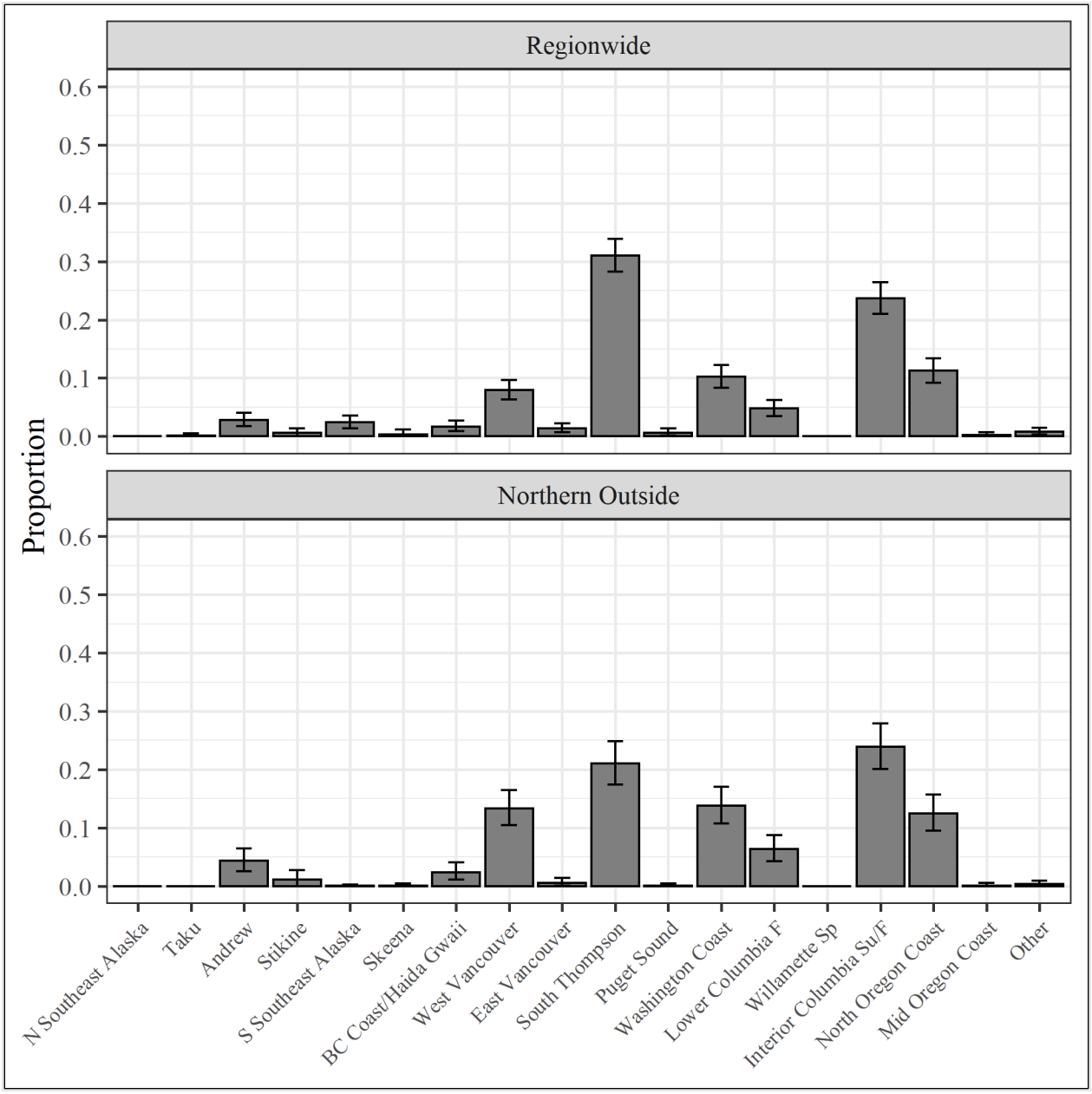


Figure 16.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) first retention period of the summer troll fishery harvest in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

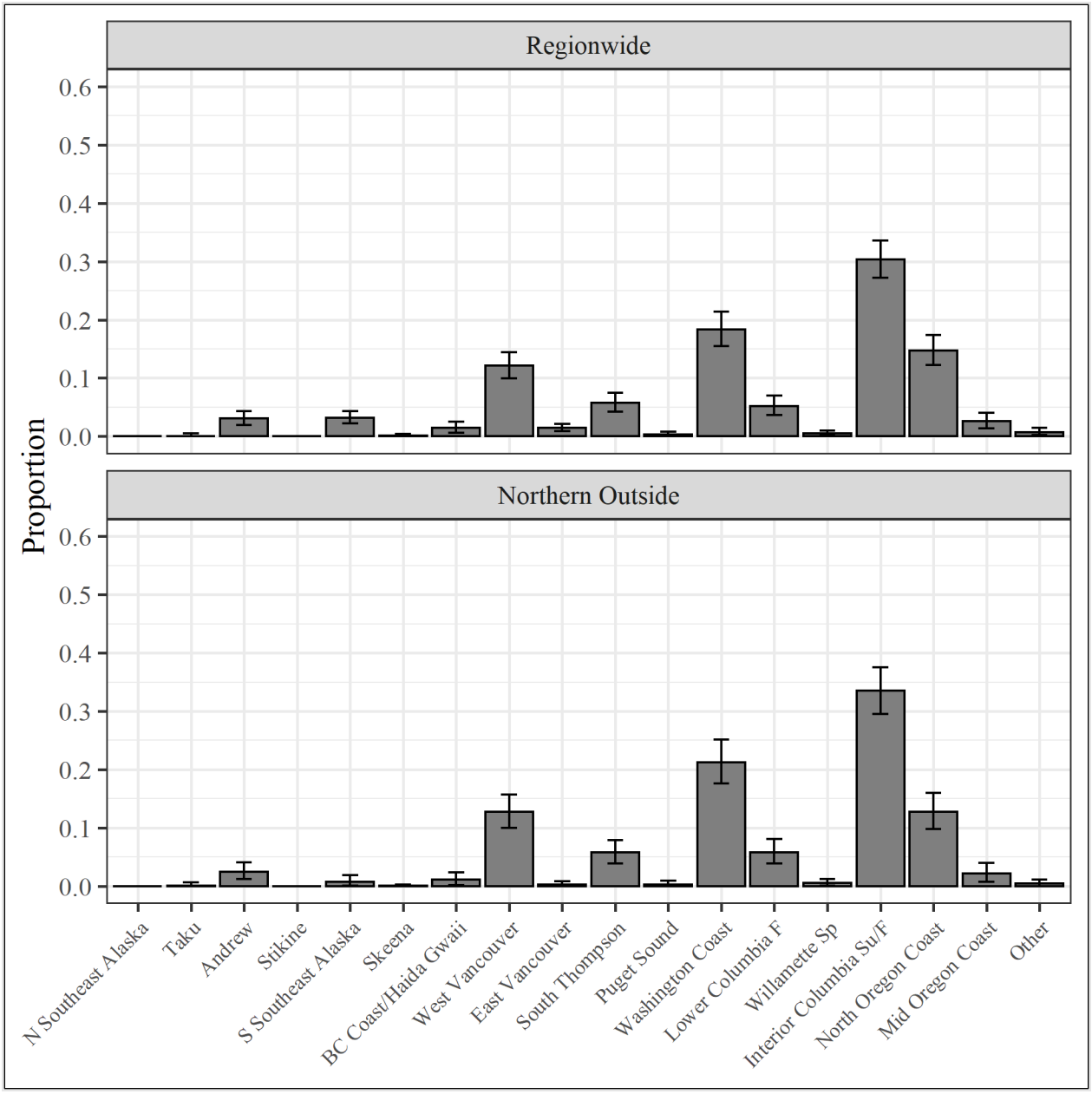


Figure 17.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) second retention period of the summer troll fishery harvest in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

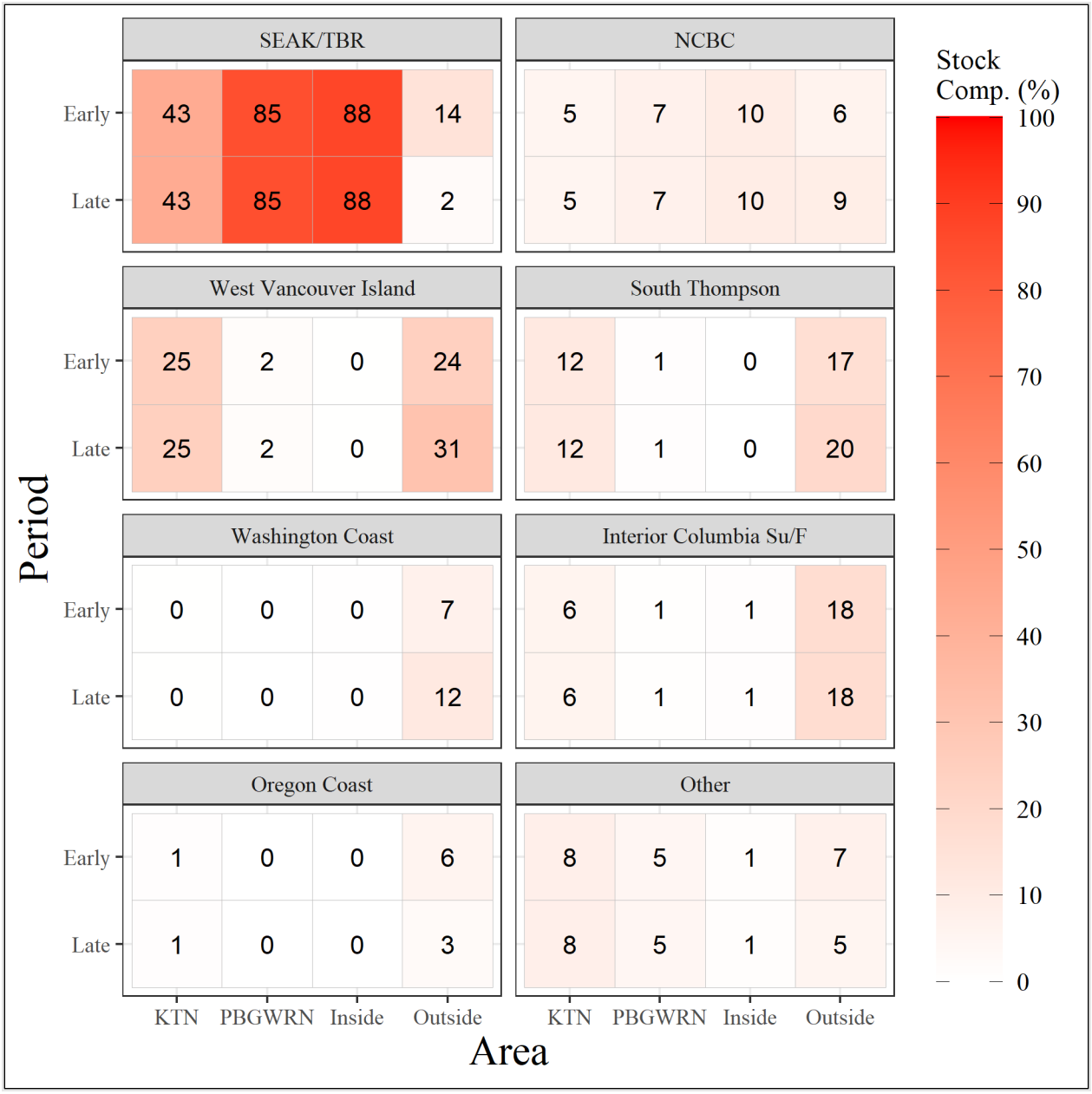


Figure 18.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the sport fishery harvest in Southeast Alaska by area and time period (for the Outside area only), AY 2021.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Area names are abbreviated as follows: Ketchikan (KTN) and Petersburg-Wrangell (PBGWRN).

*Note:* Period names for the Outside area are Early (biweeks 9–13) and Late (biweeks 14–18).

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

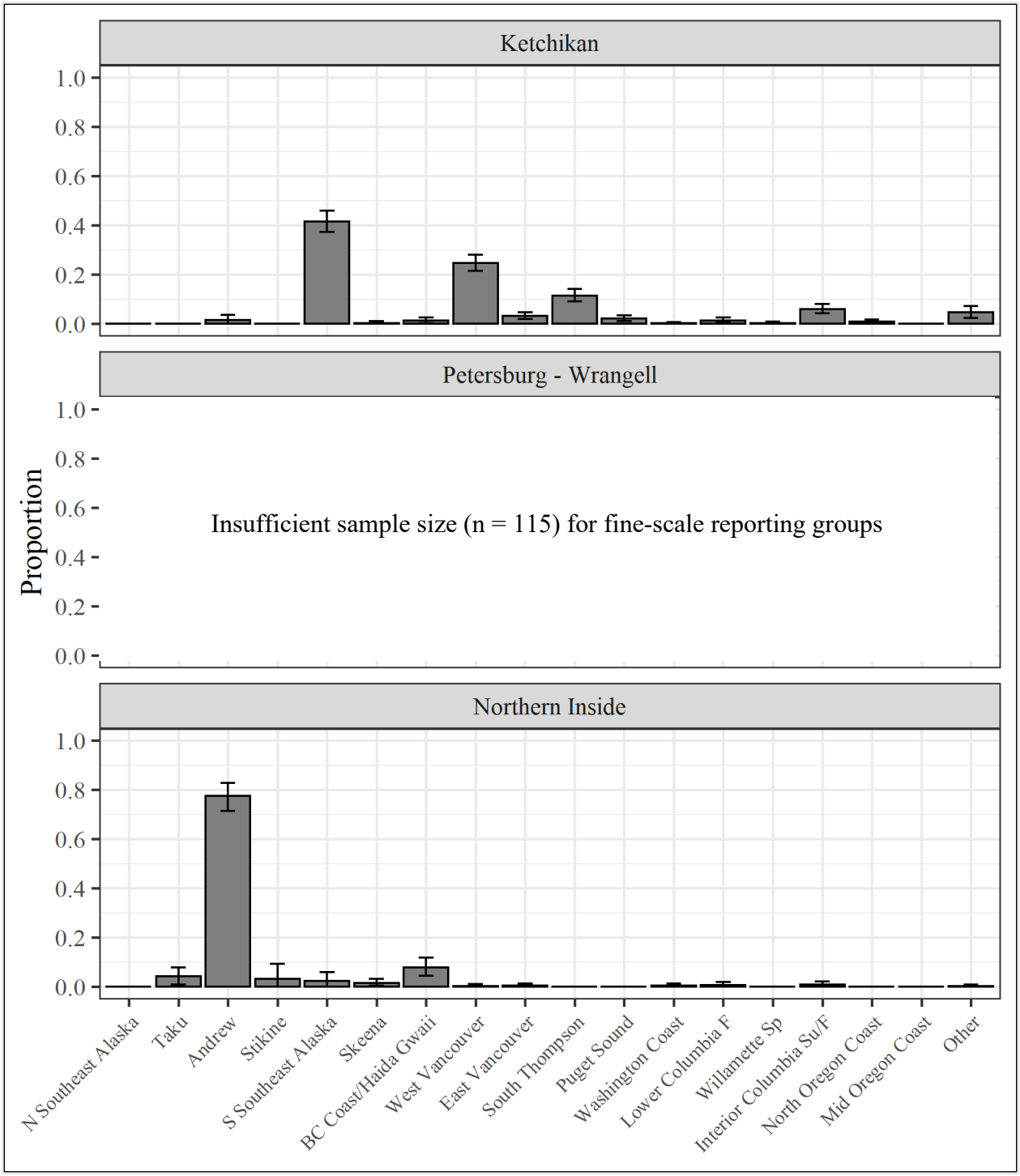


Figure 19.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the Ketchikan, Petersburg-Wrangell, and Northern Inside (Juneau, Haines, and Skagway) area sport fishery harvests in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

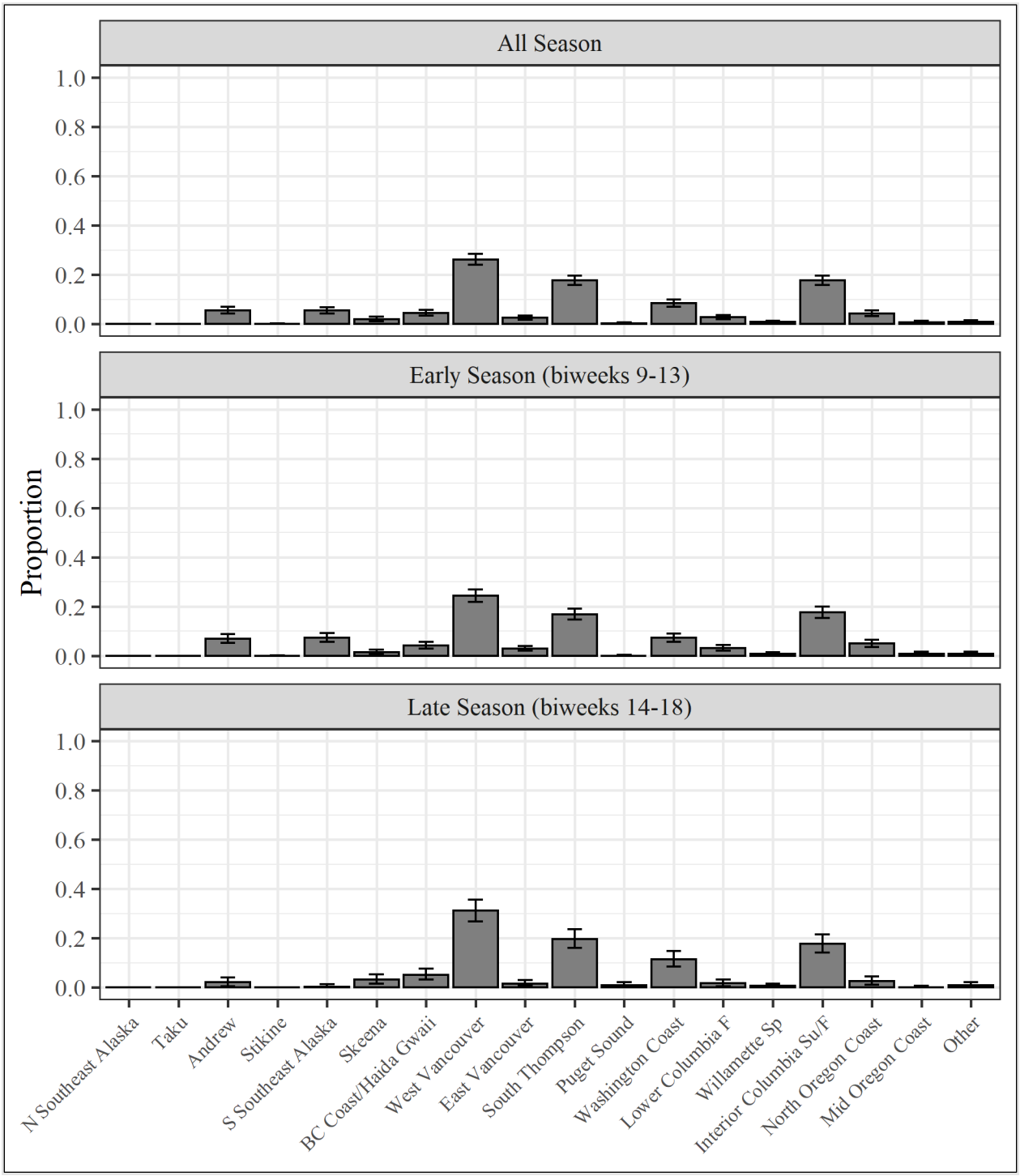


Figure 20.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) Outside area sport fishery harvest in Southeast Alaska, AY 2021.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

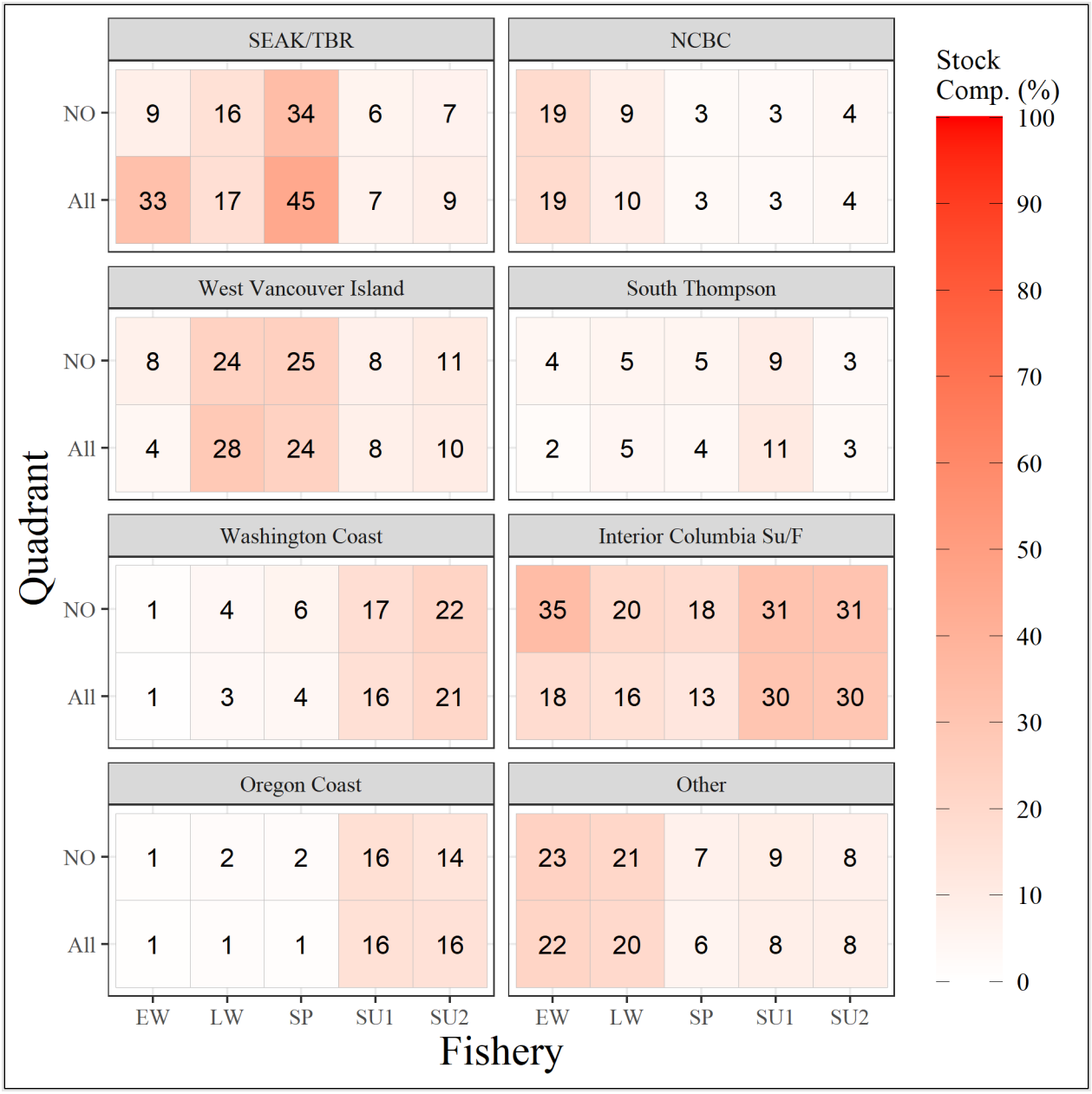


Figure 21.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the troll fishery harvest in Southeast Alaska for the northern quadrant (NO) and all quadrants by the seasonal fishery (All), AY 2022.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Fishery names are abbreviated as follows: early winter (EW), late winter (LW), spring (SP), summer retention period 1 (SU1), and summer retention period 2 (SU2).

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

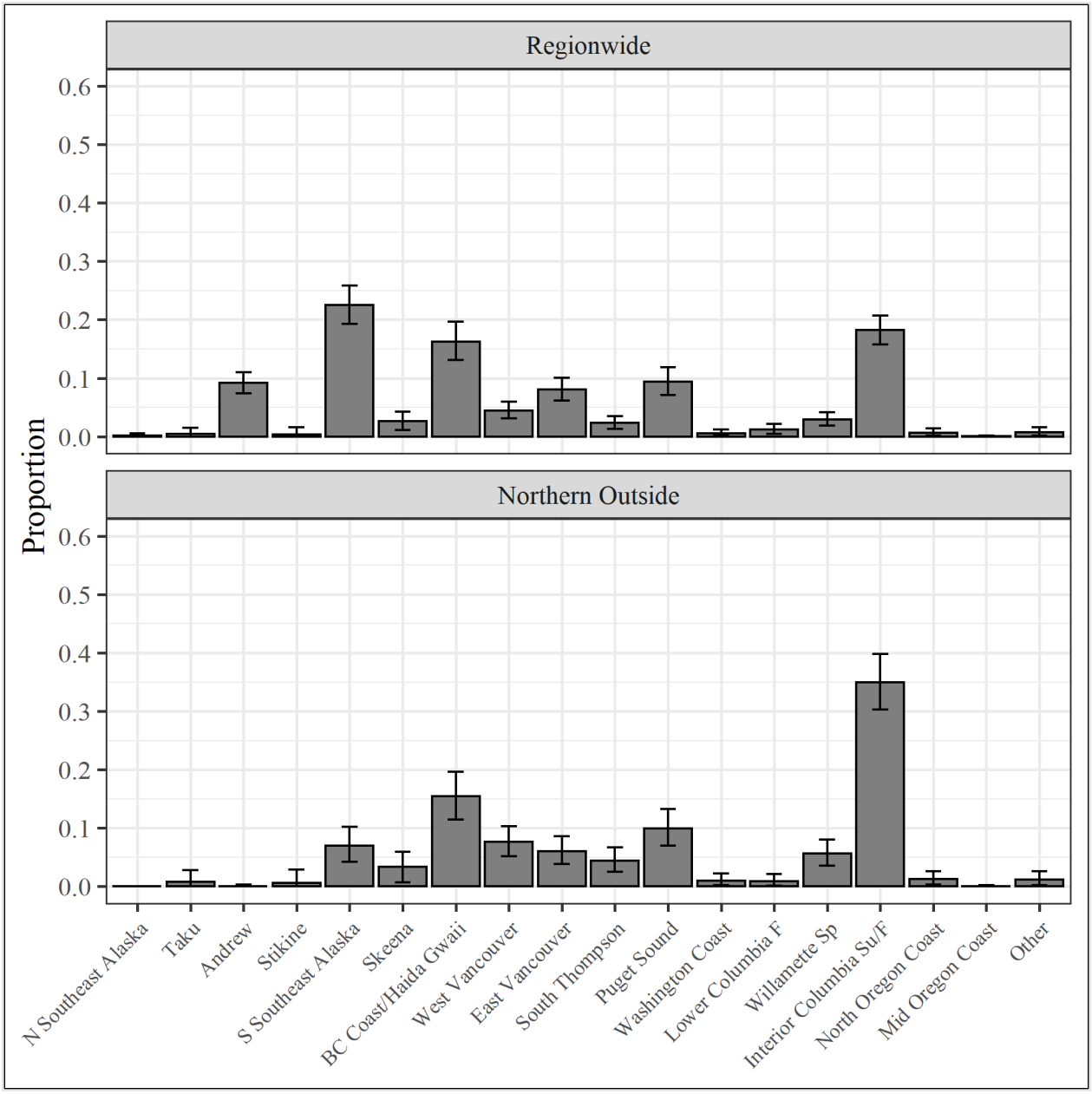


Figure 22.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) early winter troll fishery harvest in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

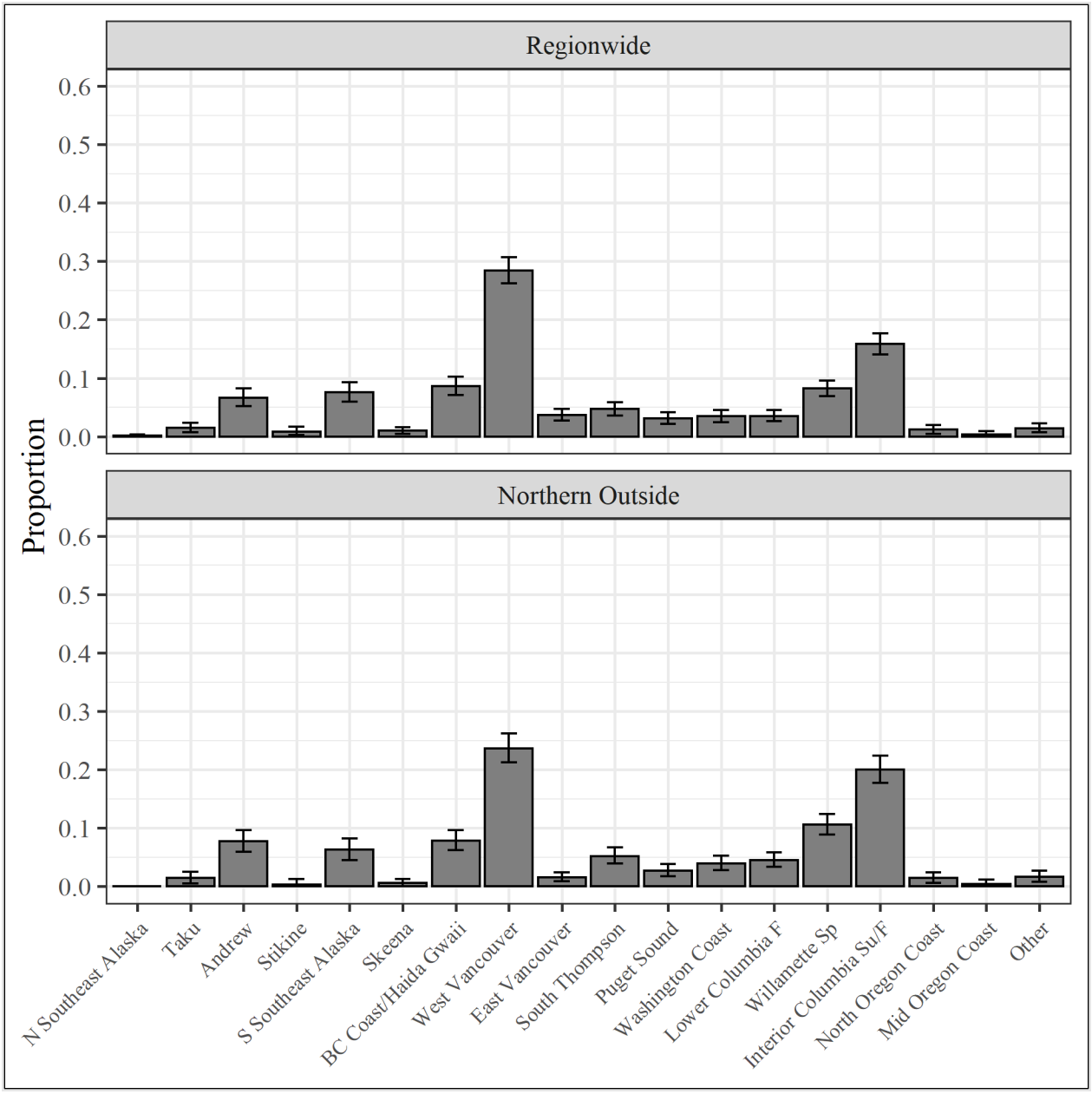


Figure 23.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) late winter troll fishery harvest in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

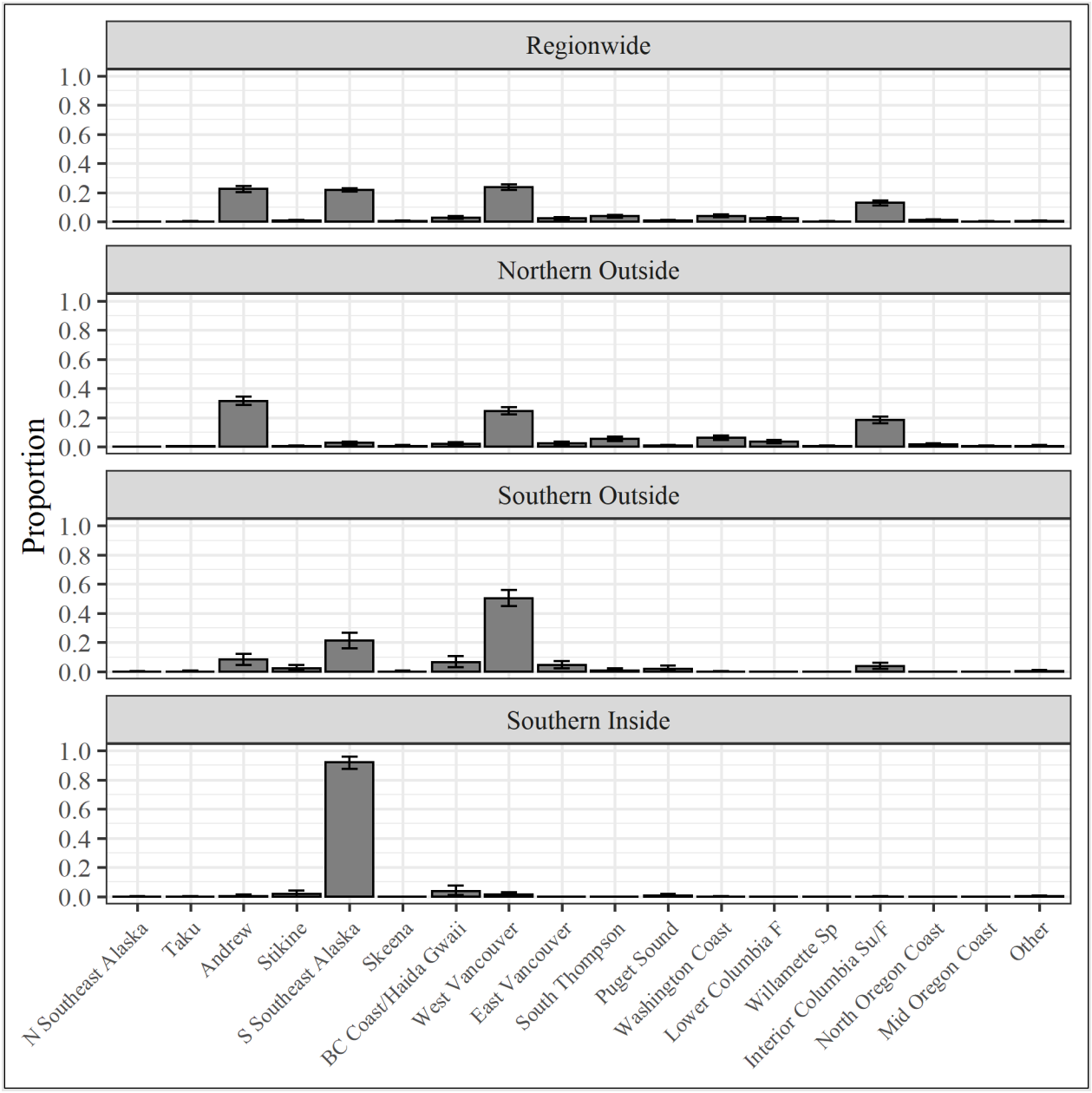


Figure 24.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the spring troll fishery harvest regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

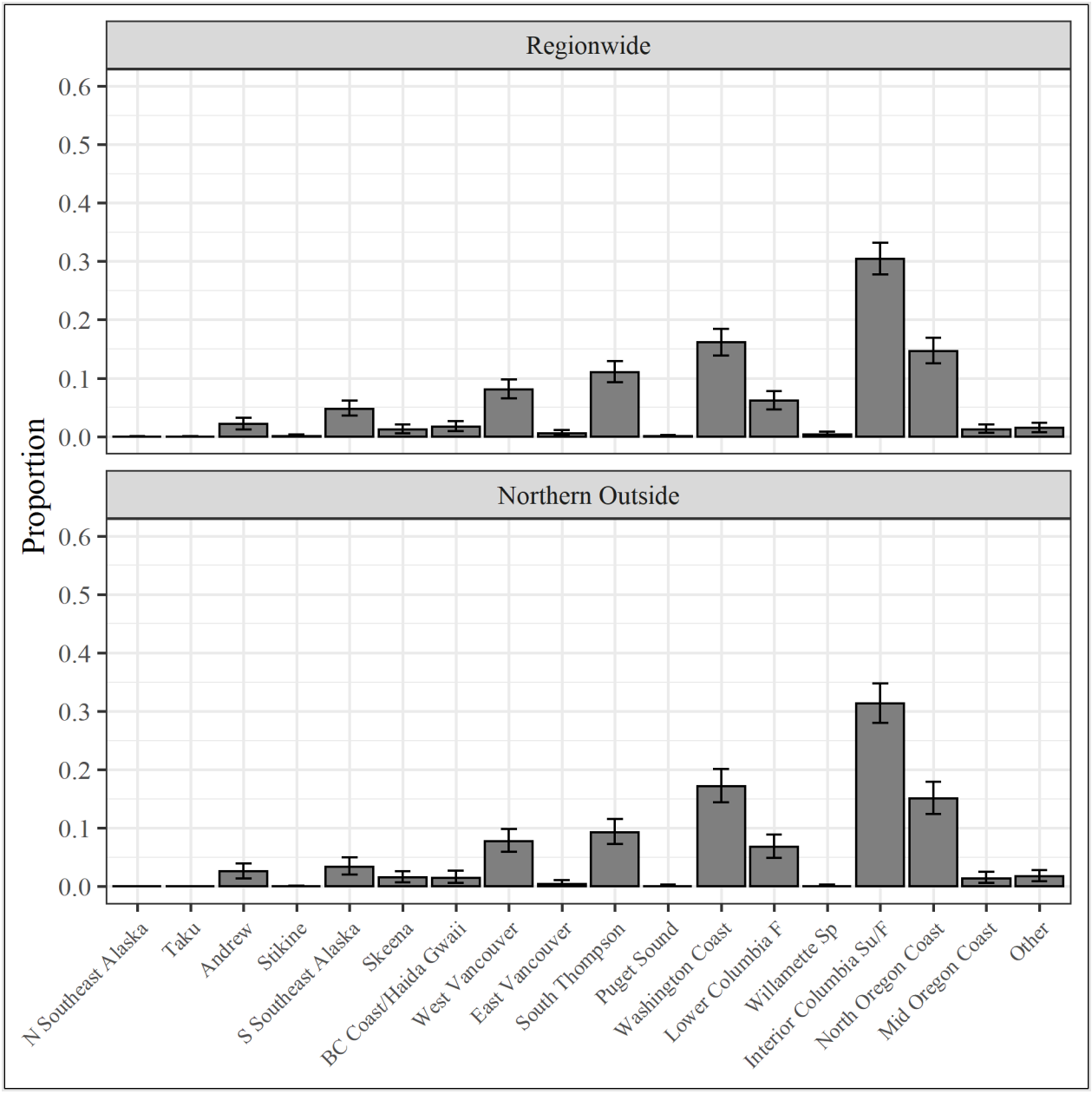


Figure 25.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) first retention period of the summer troll fishery harvest in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

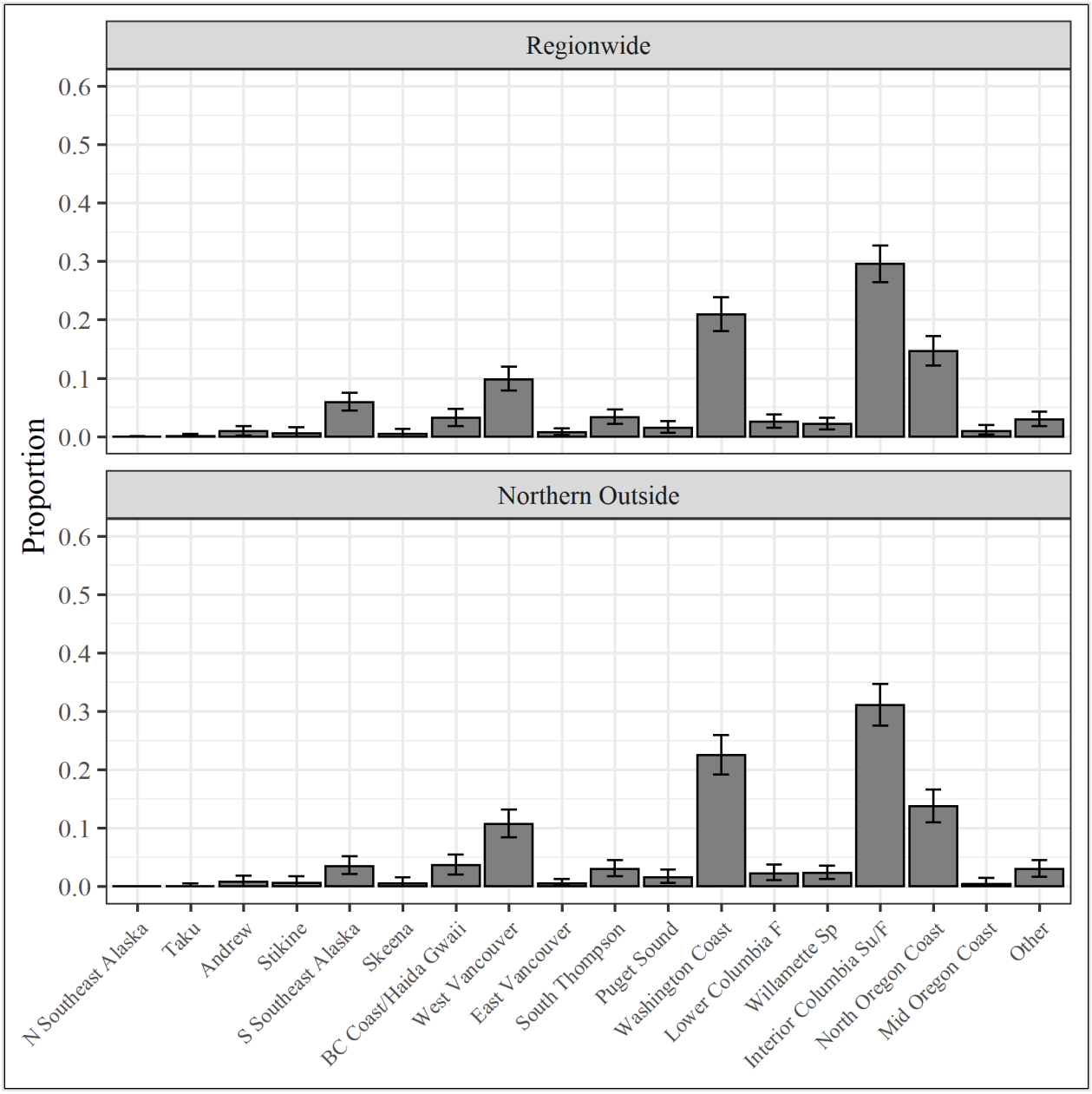


Figure 26.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the regionwide (upper) and Northern Outside quadrant (lower) second retention period of the summer troll fishery harvest in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

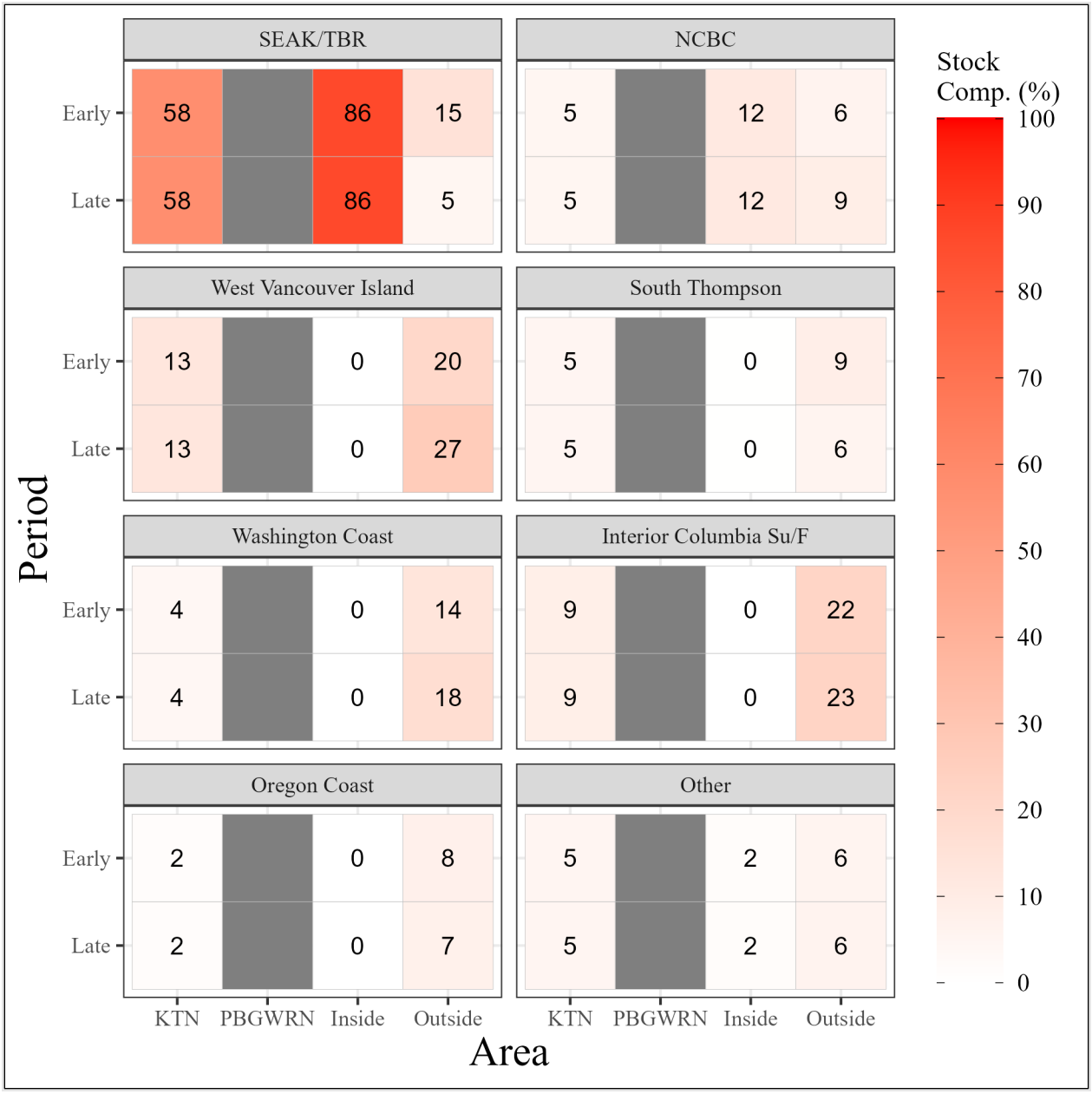


Figure 27.–Heat plot of mean contributions (%) of driver stock reporting groups of Chinook salmon to the sport fishery harvest in Southeast Alaska by area and time period (for the Outside area only), AY 2022.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note:* Area names are abbreviated as follows: Ketchikan (KTN) and Petersburg-Wrangell (PBGWRN).

*Note:* Period names for the Outside area are Early (biweeks 9–13) and Late (biweeks 14–18).

*Note:* There was insufficient sample size (n = 79) for driver stock reporting groups for Petersburg-Wrangell (PBGWRN).

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

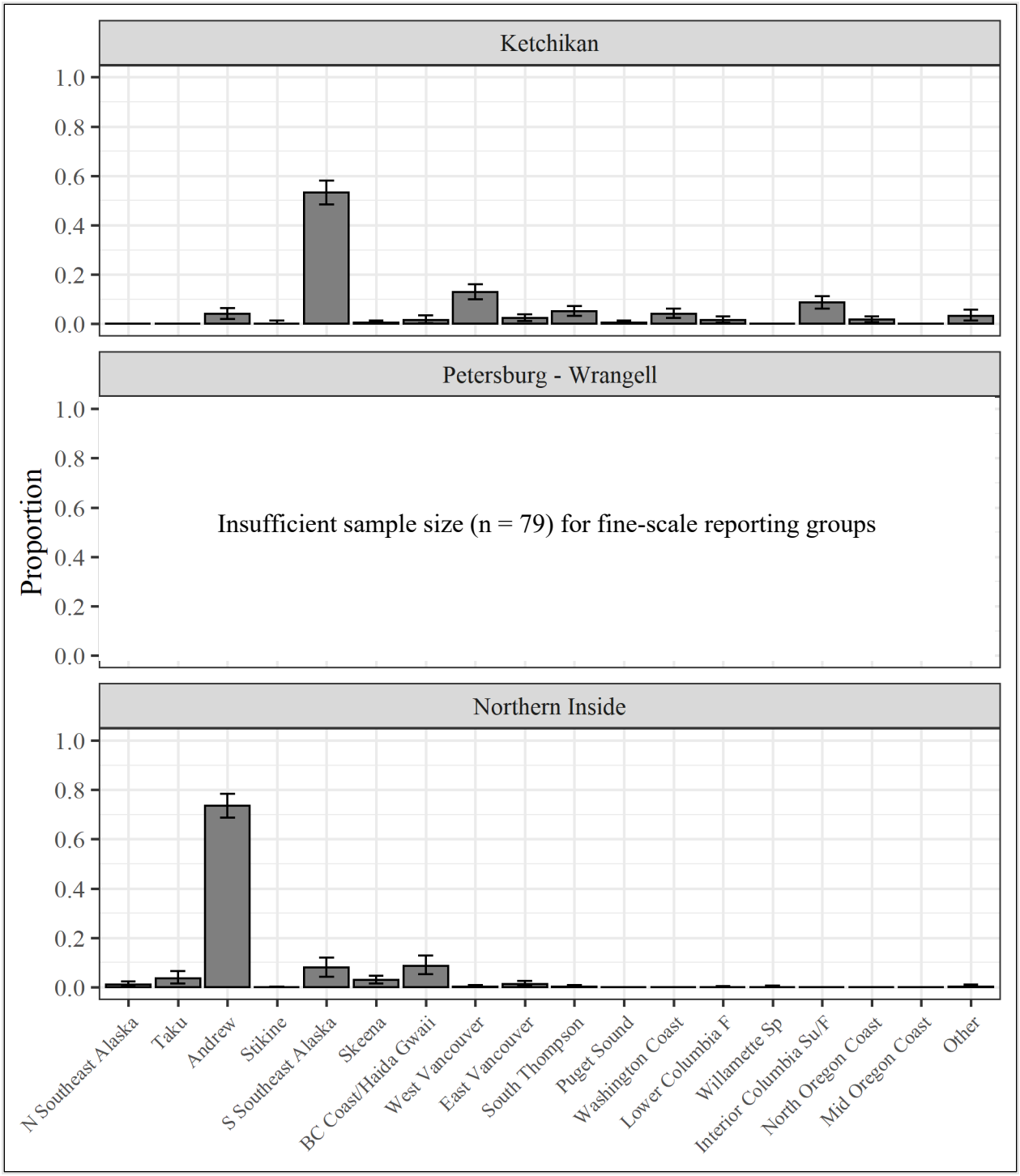


Figure 28.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the Ketchikan, Petersburg-Wrangell, and Northern Inside (Juneau, Haines, and Skagway) area sport fishery harvests in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

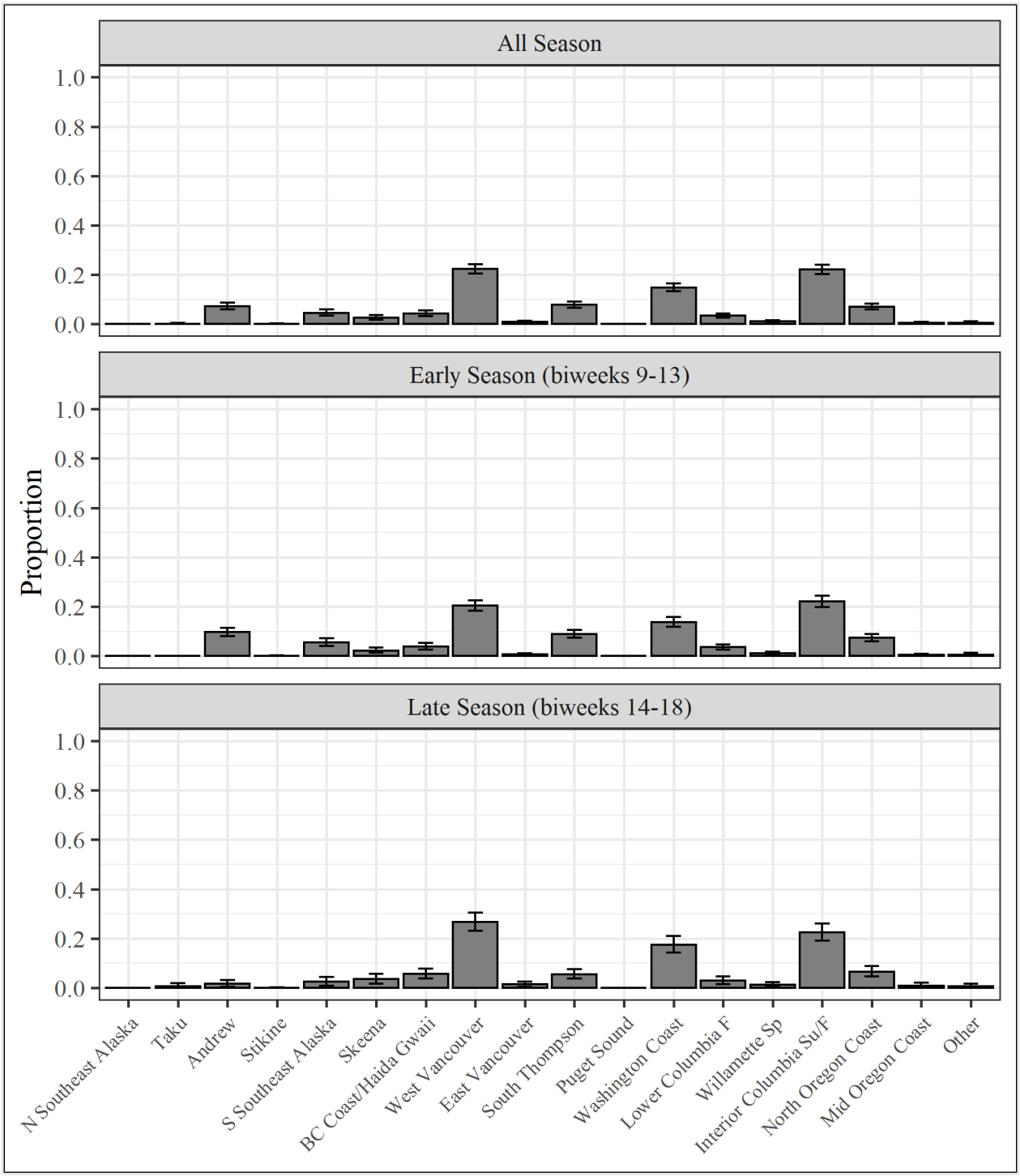


Figure 29.–Estimated contributions and 90% credibility intervals of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) Outside area sport fishery harvest in Southeast Alaska, AY 2022.

*Note*: Reporting groups are described in Table 1. The *Other* group consists of those reporting groups that do not contribute more than 5% in any seasonal fisheries. This group includes the *Situk*, *Alsek*, *Nass*, *Fraser*, *Lower Thompson*, *North Thompson*, *West Cascades Sp*, *Columbia Sp*, and *S Oregon/California* reporting groups.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

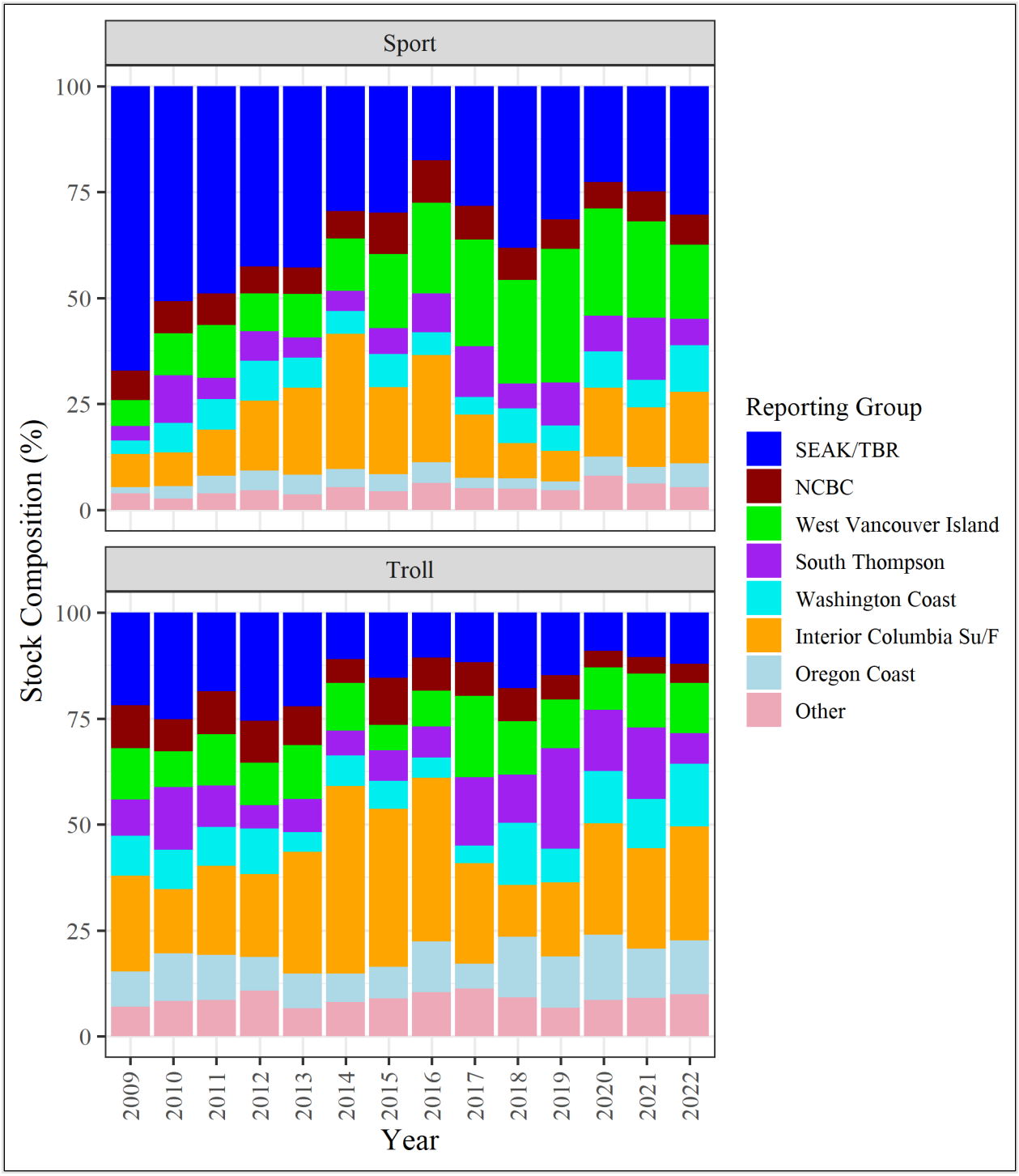


Figure 30.–Mean contributions (%) of driver stock reporting groups of Chinook salmon to the annual regionwide sport (upper) and troll (lower) fishery harvest in Southeast Alaska, AY 2009–2022.

*Note*: Reporting groups are described in Table 1. Driver stocks are aggregate stocks that consistently make up a large proportion (>5%) of all Chinook salmon harvested annually in Southeast Alaska fisheries, and thus are important stocks that help drive catch allocations under the Pacific Salmon Treaty.

*Note*: AY = Accounting year = October 1–September 30.

# APPENDIX A: BASELINE POPULATION

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

| Reporting group no. | 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 |

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Appendix A1.–Page 2 of 10.

| Reporting group no. | Fine-scale reporting group | Pop No.[a] | Population | N | Run time[b] | Origin[c] | Life stage | Collection date |
|---|---|---|---|---|---|---|---|---|
| 7 | *S 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.

| Reporting group no. | 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.

| Reporting group no. | 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.

| Reporting group no. | 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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| Reporting group no. | 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 | No data | 1998 |
| | | 193 | Skykomish River | 73 | Su | W | Adult | 1996, 2000 |
| | | 194 | Snoqualmie River | 49 | – | W | No data | 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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| Reporting group no. | 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 | No data | 2004 |
| | | 225 | Kalama Hatchery | 133 | Sp | H | No data | 2004 |
| | | 226 | Lewis Hatchery | 116 | Sp | H | No data | 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 | No data | 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 | No data | 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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| Reporting group no. | 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 | No data | 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 | No data | 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 | No data | 1994, 2002, 2003 |
| | | 280 | Wenaha Creek | 46 | Sp/Su | W | Juvenile | 2002 |
| | | 281 | Imnaha River | 132 | Sp/Su | W | No data | 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 | No data | 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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| Reporting group no. | 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 | No data | 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 | No data | 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 | No data | 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 | No data | 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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| Reporting group no. | 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 | W | H,W | Adult | 1992, 1993, 1994, 1995, 1997, 1998, 2001, 2003, 2004 |

*Note*: En dashes indicate no data.

[a] Population numbers and reporting group numbers correspond to the population and reporting group 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), W (wild), and Unk (unknown).

# APPENDIX B: ESTIMATED CONTRIBUTION

Appendix B1.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest, AY 2020.

| Fishery | Quadrant | Sample size | Reporting group | Mean | SD | Median | 90% CI 5% | 90% CI 95% |
|---|---|---|---|---|---|---|---|---|
| Early winter | All | 587 | *Alaska* | 0.259 | 0.018 | 0.259 | 0.229 | 0.290 |
| | | | *TBR* | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| | | | *Canada* | 0.500 | 0.023 | 0.500 | 0.463 | 0.537 |
| | | | *US South* | 0.240 | 0.019 | 0.239 | 0.210 | 0.271 |
| | NO | 297 | *Alaska* | 0.064 | 0.016 | 0.062 | 0.039 | 0.092 |
| | | | *TBR* | 0.002 | 0.005 | 0.000 | 0.000 | 0.012 |
| | | | *Canada* | 0.577 | 0.031 | 0.577 | 0.526 | 0.627 |
| | | | *US South* | 0.358 | 0.029 | 0.357 | 0.310 | 0.406 |
| Late winter | All | 560 | *Alaska* | 0.147 | 0.017 | 0.147 | 0.119 | 0.176 |
| | | | *TBR* | 0.013 | 0.007 | 0.012 | 0.004 | 0.026 |
| | | | *Canada* | 0.455 | 0.023 | 0.455 | 0.418 | 0.493 |
| | | | *US South* | 0.384 | 0.020 | 0.384 | 0.351 | 0.417 |
| | NO | 385 | *Alaska* | 0.040 | 0.013 | 0.039 | 0.021 | 0.063 |
| | | | *TBR* | 0.013 | 0.007 | 0.012 | 0.004 | 0.027 |
| | | | *Canada* | 0.429 | 0.027 | 0.429 | 0.385 | 0.474 |
| | | | *US South* | 0.517 | 0.026 | 0.517 | 0.474 | 0.560 |
| Spring | All | 1,522 | *Alaska* | 0.327 | 0.013 | 0.326 | 0.305 | 0.349 |
| | | | *TBR* | 0.007 | 0.003 | 0.006 | 0.003 | 0.012 |
| | | | *Canada* | 0.484 | 0.014 | 0.484 | 0.461 | 0.508 |
| | | | *US South* | 0.182 | 0.011 | 0.182 | 0.164 | 0.201 |
| | NO | 949 | *Alaska* | 0.305 | 0.017 | 0.304 | 0.277 | 0.332 |
| | | | *TBR* | 0.004 | 0.003 | 0.004 | 0.001 | 0.010 |
| | | | *Canada* | 0.467 | 0.018 | 0.467 | 0.438 | 0.497 |
| | | | *US South* | 0.224 | 0.014 | 0.223 | 0.200 | 0.248 |
| | SO | 385 | *Alaska* | 0.230 | 0.022 | 0.230 | 0.196 | 0.266 |
| | | | *TBR* | 0.005 | 0.006 | 0.002 | 0.000 | 0.016 |
| | | | *Canada* | 0.701 | 0.024 | 0.701 | 0.660 | 0.740 |
| | | | *US South* | 0.064 | 0.015 | 0.063 | 0.042 | 0.090 |
| | SI | 188 | *Alaska* | 0.843 | 0.029 | 0.844 | 0.792 | 0.889 |
| | | | *TBR* | 0.042 | 0.018 | 0.040 | 0.016 | 0.076 |
| | | | *Canada* | 0.103 | 0.025 | 0.101 | 0.066 | 0.146 |
| | | | *US South* | 0.012 | 0.009 | 0.010 | 0.000 | 0.030 |
| Summer retention 1 | All | 695 | *Alaska* | 0.035 | 0.008 | 0.034 | 0.024 | 0.049 |
| | | | *TBR* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 |
| | | | *Canada* | 0.357 | 0.020 | 0.357 | 0.325 | 0.389 |
| | | | *US South* | 0.608 | 0.019 | 0.608 | 0.576 | 0.640 |
| | NO | 374 | *Alaska* | 0.019 | 0.009 | 0.018 | 0.007 | 0.037 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| | | | *Canada* | 0.321 | 0.026 | 0.320 | 0.279 | 0.363 |
| | | | *US South* | 0.660 | 0.025 | 0.660 | 0.618 | 0.701 |
| Summer retention 2 | All | 764 | *Alaska* | 0.074 | 0.011 | 0.074 | 0.058 | 0.093 |
| | | | *TBR* | 0.002 | 0.003 | 0.001 | 0.000 | 0.009 |
| | | | *Canada* | 0.199 | 0.019 | 0.198 | 0.169 | 0.230 |
| | | | *US South* | 0.725 | 0.020 | 0.726 | 0.692 | 0.757 |
| | NO | 386 | *Alaska* | 0.047 | 0.012 | 0.046 | 0.028 | 0.068 |
| | | | *TBR* | 0.001 | 0.004 | 0.000 | 0.000 | 0.010 |
| | | | *Canada* | 0.195 | 0.022 | 0.194 | 0.161 | 0.232 |
| | | | *US South* | 0.757 | 0.023 | 0.757 | 0.719 | 0.793 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

Appendix B2.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest by season and quadrant, AY 2020.

| | Early winter regionwide ($n$ = 587) | | | | | Early winter Northern Outside ($n$ = 297) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.261 | 0.018 | 0.261 | 0.231 | 0.291 | 0.066 | 0.017 | 0.064 | 0.040 | 0.095 |
| *NCBC* | 0.197 | 0.019 | 0.197 | 0.168 | 0.229 | 0.221 | 0.026 | 0.220 | 0.179 | 0.265 |
| *West Vancouver* | 0.079 | 0.010 | 0.079 | 0.063 | 0.096 | 0.177 | 0.022 | 0.176 | 0.141 | 0.215 |
| *South Thompson* | 0.010 | 0.004 | 0.010 | 0.004 | 0.018 | 0.019 | 0.009 | 0.018 | 0.007 | 0.035 |
| *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| *Interior Columbia Su/F* | 0.109 | 0.012 | 0.109 | 0.090 | 0.129 | 0.228 | 0.025 | 0.228 | 0.188 | 0.271 |
| *Oregon Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.002 | 0.004 | 0.000 | 0.000 | 0.010 |
| *Other* | 0.341 | 0.021 | 0.341 | 0.307 | 0.375 | 0.285 | 0.028 | 0.284 | 0.240 | 0.331 |
| | Late winter regionwide ($n$ = 560) | | | | | Late winter Northern Outside ($n$ = 385) | | | | |
| *SEAK/TBR* | 0.161 | 0.017 | 0.160 | 0.133 | 0.189 | 0.053 | 0.014 | 0.053 | 0.032 | 0.078 |
| *NCBC* | 0.134 | 0.017 | 0.134 | 0.107 | 0.163 | 0.112 | 0.018 | 0.111 | 0.083 | 0.143 |
| *West Vancouver* | 0.217 | 0.017 | 0.217 | 0.190 | 0.246 | 0.255 | 0.022 | 0.254 | 0.219 | 0.293 |
| *South Thompson* | 0.016 | 0.006 | 0.015 | 0.008 | 0.026 | 0.017 | 0.007 | 0.016 | 0.007 | 0.030 |
| *Washington Coast* | 0.024 | 0.007 | 0.024 | 0.014 | 0.037 | 0.030 | 0.010 | 0.029 | 0.015 | 0.047 |
| *Interior Columbia Su/F* | 0.190 | 0.016 | 0.190 | 0.164 | 0.217 | 0.263 | 0.023 | 0.263 | 0.226 | 0.302 |
| *Oregon Coast* | 0.003 | 0.004 | 0.002 | 0.000 | 0.011 | 0.005 | 0.006 | 0.002 | 0.000 | 0.017 |
| *Other* | 0.255 | 0.020 | 0.254 | 0.223 | 0.288 | 0.265 | 0.024 | 0.265 | 0.226 | 0.306 |
| | Spring regionwide ($n$ = 1,522) | | | | | Spring Northern Outside ($n$ = 949) | | | | |
| *SEAK/TBR* | 0.333 | 0.013 | 0.333 | 0.312 | 0.356 | 0.309 | 0.017 | 0.309 | 0.282 | 0.337 |
| *NCBC* | 0.044 | 0.006 | 0.044 | 0.034 | 0.056 | 0.039 | 0.008 | 0.038 | 0.027 | 0.052 |
| *West Vancouver* | 0.281 | 0.012 | 0.281 | 0.261 | 0.302 | 0.245 | 0.015 | 0.245 | 0.221 | 0.270 |
| *South Thompson* | 0.129 | 0.010 | 0.129 | 0.112 | 0.146 | 0.157 | 0.013 | 0.156 | 0.136 | 0.179 |
| *Washington Coast* | 0.021 | 0.005 | 0.021 | 0.014 | 0.030 | 0.027 | 0.006 | 0.027 | 0.018 | 0.038 |
| *Interior Columbia Su/F* | 0.083 | 0.009 | 0.083 | 0.070 | 0.098 | 0.101 | 0.011 | 0.100 | 0.083 | 0.119 |
| *Oregon Coast* | 0.007 | 0.002 | 0.007 | 0.003 | 0.011 | 0.008 | 0.003 | 0.008 | 0.004 | 0.014 |
| *Other* | 0.101 | 0.009 | 0.101 | 0.087 | 0.117 | 0.115 | 0.012 | 0.114 | 0.096 | 0.134 |
| | Spring southern outside[a] ($n$ = 385) | | | | | Spring Southern Inside ($n$ = 188) | | | | |
| *SEAK/TBR* | 0.235 | 0.021 | 0.234 | 0.201 | 0.271 | 0.885 | 0.025 | 0.887 | 0.841 | 0.924 |
| *NCBC* | 0.072 | 0.015 | 0.071 | 0.048 | 0.099 | 0.035 | 0.017 | 0.033 | 0.012 | 0.066 |
| *West Vancouver* | 0.539 | 0.026 | 0.539 | 0.496 | 0.580 | 0.016 | 0.009 | 0.015 | 0.005 | 0.034 |
| *South Thompson* | 0.055 | 0.013 | 0.055 | 0.036 | 0.078 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Washington Coast* | 0.002 | 0.003 | 0.000 | 0.000 | 0.008 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Interior Columbia Su/F* | 0.037 | 0.010 | 0.036 | 0.022 | 0.056 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Oregon Coast* | 0.004 | 0.005 | 0.003 | 0.000 | 0.014 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 |
| *Other* | 0.056 | 0.013 | 0.055 | 0.035 | 0.079 | 0.063 | 0.019 | 0.061 | 0.034 | 0.096 |
| | Summer 1 regionwide ($n$ = 695) | | | | | Summer 1 Northern Outside ($n$ = 374) | | | | |
| *SEAK/TBR* | 0.035 | 0.008 | 0.035 | 0.024 | 0.049 | 0.019 | 0.009 | 0.018 | 0.007 | 0.037 |
| *NCBC* | 0.023 | 0.008 | 0.022 | 0.011 | 0.039 | 0.027 | 0.012 | 0.026 | 0.010 | 0.050 |
| *West Vancouver* | 0.055 | 0.009 | 0.054 | 0.040 | 0.071 | 0.058 | 0.012 | 0.057 | 0.039 | 0.080 |
| *South Thompson* | 0.268 | 0.017 | 0.267 | 0.240 | 0.297 | 0.222 | 0.022 | 0.221 | 0.187 | 0.258 |
| *Washington Coast* | 0.130 | 0.015 | 0.130 | 0.107 | 0.155 | 0.151 | 0.020 | 0.151 | 0.120 | 0.185 |
| *Interior Columbia Su/F* | 0.219 | 0.017 | 0.219 | 0.192 | 0.248 | 0.221 | 0.022 | 0.221 | 0.185 | 0.258 |
| *Oregon Coast* | 0.199 | 0.017 | 0.199 | 0.172 | 0.228 | 0.223 | 0.023 | 0.223 | 0.187 | 0.261 |
| *Other* | 0.070 | 0.011 | 0.070 | 0.052 | 0.090 | 0.078 | 0.015 | 0.077 | 0.054 | 0.104 |

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| | Summer 2 regionwide ($n$ = 764) | | | | | Summer 2 Northern Outside ($n$ = 386) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.076 | 0.011 | 0.075 | 0.059 | 0.095 | 0.048 | 0.012 | 0.047 | 0.029 | 0.070 |
| *NCBC* | 0.025 | 0.008 | 0.024 | 0.014 | 0.039 | 0.017 | 0.009 | 0.015 | 0.005 | 0.033 |
| *West Vancouver* | 0.106 | 0.014 | 0.106 | 0.084 | 0.131 | 0.115 | 0.016 | 0.115 | 0.089 | 0.143 |
| *South Thompson* | 0.048 | 0.010 | 0.047 | 0.033 | 0.065 | 0.048 | 0.012 | 0.047 | 0.030 | 0.068 |
| *Washington Coast* | 0.161 | 0.018 | 0.161 | 0.132 | 0.192 | 0.181 | 0.021 | 0.181 | 0.147 | 0.217 |
| *Interior Columbia Su/F* | 0.365 | 0.022 | 0.365 | 0.329 | 0.402 | 0.389 | 0.025 | 0.388 | 0.347 | 0.431 |
| *Oregon Coast* | 0.169 | 0.018 | 0.168 | 0.140 | 0.199 | 0.159 | 0.020 | 0.159 | 0.127 | 0.194 |
| *Other* | 0.050 | 0.010 | 0.049 | 0.034 | 0.069 | 0.043 | 0.012 | 0.042 | 0.025 | 0.064 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

[a] Results did not converge at 40,000 iterations in BAYES for the Washington Coast reporting groups. Results are an average of all 5 chains.

Appendix B3.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the early winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2020.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 587) | | | | | Northern Outside quadrant ($n$ = 297) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 3 | *N Southeast Alaska* | 0.007 | 0.003 | 0.006 | 0.002 | 0.013 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.075 | 0.012 | 0.074 | 0.056 | 0.095 | 0.015 | 0.009 | 0.013 | 0.003 | 0.032 |
| 6 | *Stikine* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.002 | 0.004 | 0.000 | 0.000 | 0.011 |
| 7 | *S Southeast Alaska* | 0.178 | 0.018 | 0.178 | 0.148 | 0.209 | 0.049 | 0.015 | 0.048 | 0.026 | 0.076 |
| 8 | *Nass* | 0.002 | 0.003 | 0.000 | 0.000 | 0.007 | 0.002 | 0.005 | 0.000 | 0.000 | 0.012 |
| 9 | *Skeena* | 0.020 | 0.007 | 0.020 | 0.009 | 0.033 | 0.027 | 0.013 | 0.026 | 0.007 | 0.050 |
| 10 | *BC Coast/Haida Gwaii* | 0.176 | 0.018 | 0.175 | 0.148 | 0.205 | 0.192 | 0.024 | 0.191 | 0.154 | 0.233 |
| 11 | *West Vancouver* | 0.079 | 0.010 | 0.079 | 0.063 | 0.096 | 0.177 | 0.022 | 0.176 | 0.141 | 0.215 |
| 12 | *East Vancouver* | 0.194 | 0.018 | 0.193 | 0.165 | 0.223 | 0.156 | 0.022 | 0.155 | 0.121 | 0.193 |
| 13 | *Fraser* | 0.019 | 0.007 | 0.018 | 0.009 | 0.032 | 0.004 | 0.004 | 0.002 | 0.000 | 0.011 |
| 14 | *Lower Thompson* | 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 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 16 | *South Thompson* | 0.010 | 0.004 | 0.010 | 0.004 | 0.018 | 0.019 | 0.009 | 0.018 | 0.007 | 0.035 |
| 17 | *Puget Sound* | 0.107 | 0.015 | 0.106 | 0.082 | 0.133 | 0.098 | 0.019 | 0.097 | 0.068 | 0.131 |
| 18 | *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| 19 | *West Cascades Sp* | 0.004 | 0.003 | 0.003 | 0.000 | 0.009 | 0.003 | 0.003 | 0.002 | 0.000 | 0.010 |
| 20 | *Lower Columbia F* | 0.013 | 0.006 | 0.012 | 0.005 | 0.024 | 0.014 | 0.008 | 0.013 | 0.003 | 0.029 |
| 21 | *Willamette Sp* | 0.005 | 0.003 | 0.004 | 0.001 | 0.010 | 0.010 | 0.006 | 0.009 | 0.003 | 0.022 |
| 22 | *Columbia Sp* | 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* | 0.109 | 0.012 | 0.109 | 0.090 | 0.129 | 0.228 | 0.025 | 0.228 | 0.188 | 0.271 |
| 24 | *North Oregon Coast* | 0.001 | 0.001 | 0.000 | 0.000 | 0.004 | 0.002 | 0.003 | 0.000 | 0.000 | 0.008 |
| 25 | *Mid Oregon Coast* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

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

Appendix B4.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the late winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2020.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 560) | | | | | Northern Outside quadrant ($n$ = 385) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | *N Southeast Alaska* | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 |
| 4 | *Taku* | 0.007 | 0.005 | 0.007 | 0.000 | 0.016 | 0.011 | 0.007 | 0.010 | 0.000 | 0.024 |
| 5 | *Andrew* | 0.023 | 0.009 | 0.022 | 0.010 | 0.039 | 0.013 | 0.009 | 0.012 | 0.000 | 0.030 |
| 6 | *Stikine* | 0.006 | 0.007 | 0.005 | 0.000 | 0.019 | 0.003 | 0.006 | 0.000 | 0.000 | 0.017 |
| 7 | *S Southeast Alaska* | 0.123 | 0.016 | 0.122 | 0.097 | 0.150 | 0.025 | 0.010 | 0.023 | 0.010 | 0.043 |
| 8 | *Nass* | 0.006 | 0.004 | 0.005 | 0.001 | 0.014 | 0.009 | 0.007 | 0.008 | 0.001 | 0.022 |
| 9 | *Skeena* | 0.010 | 0.006 | 0.009 | 0.002 | 0.022 | 0.005 | 0.007 | 0.001 | 0.000 | 0.020 |
| 10 | *BC Coast/Haida Gwaii* | 0.118 | 0.016 | 0.118 | 0.093 | 0.146 | 0.098 | 0.017 | 0.097 | 0.071 | 0.127 |
| 11 | *West Vancouver* | 0.217 | 0.017 | 0.217 | 0.190 | 0.246 | 0.255 | 0.022 | 0.254 | 0.219 | 0.293 |
| 12 | *East Vancouver* | 0.080 | 0.013 | 0.079 | 0.060 | 0.101 | 0.032 | 0.009 | 0.031 | 0.018 | 0.049 |
| 13 | *Fraser* | 0.004 | 0.003 | 0.003 | 0.000 | 0.009 | 0.006 | 0.005 | 0.005 | 0.000 | 0.014 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.005 | 0.003 | 0.004 | 0.001 | 0.011 | 0.008 | 0.005 | 0.007 | 0.002 | 0.018 |
| 16 | *South Thompson* | 0.016 | 0.006 | 0.015 | 0.008 | 0.026 | 0.017 | 0.007 | 0.016 | 0.007 | 0.030 |
| 17 | *Puget Sound* | 0.050 | 0.011 | 0.049 | 0.033 | 0.070 | 0.044 | 0.012 | 0.043 | 0.026 | 0.065 |
| 18 | *Washington Coast* | 0.024 | 0.007 | 0.024 | 0.014 | 0.037 | 0.030 | 0.010 | 0.029 | 0.015 | 0.047 |
| 19 | *West Cascades Sp* | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 | 0.005 | 0.005 | 0.004 | 0.000 | 0.014 |
| 20 | *Lower Columbia F* | 0.039 | 0.009 | 0.038 | 0.025 | 0.055 | 0.050 | 0.013 | 0.049 | 0.031 | 0.072 |
| 21 | *Willamette Sp* | 0.073 | 0.011 | 0.073 | 0.057 | 0.091 | 0.119 | 0.017 | 0.118 | 0.091 | 0.148 |
| 22 | *Columbia Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.190 | 0.016 | 0.190 | 0.164 | 0.217 | 0.263 | 0.023 | 0.263 | 0.226 | 0.302 |
| 24 | *North Oregon Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.001 | 0.003 | 0.000 | 0.000 | 0.009 |
| 25 | *Mid Oregon Coast* | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 | 0.003 | 0.005 | 0.000 | 0.000 | 0.015 |
| 26 | *S Oregon/California* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.002 | 0.003 | 0.000 | 0.000 | 0.007 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

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

Appendix B5.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the spring troll fishery regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2020.

| | | Regionwide ($n$ = 1,522) | | | | | Northern Outside quadrant ($n$ = 949) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| Reporting group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 | 0.002 | 0.001 | 0.001 | 0.000 | 0.004 |
| 4 | *Taku* | 0.002 | 0.002 | 0.002 | 0.000 | 0.006 | 0.003 | 0.002 | 0.002 | 0.000 | 0.008 |
| 5 | *Andrew* | 0.206 | 0.012 | 0.206 | 0.186 | 0.227 | 0.267 | 0.016 | 0.267 | 0.241 | 0.294 |
| 6 | *Stikine* | 0.004 | 0.002 | 0.004 | 0.002 | 0.009 | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| 7 | *S Southeast Alaska* | 0.119 | 0.007 | 0.119 | 0.108 | 0.132 | 0.035 | 0.008 | 0.035 | 0.023 | 0.050 |
| 8 | *Nass* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 9 | *Skeena* | 0.003 | 0.002 | 0.003 | 0.000 | 0.008 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 10 | *BC Coast/Haida Gwaii* | 0.040 | 0.006 | 0.040 | 0.031 | 0.051 | 0.036 | 0.007 | 0.035 | 0.025 | 0.048 |
| 11 | *West Vancouver* | 0.281 | 0.012 | 0.281 | 0.261 | 0.302 | 0.245 | 0.015 | 0.245 | 0.221 | 0.270 |
| 12 | *East Vancouver* | 0.025 | 0.004 | 0.025 | 0.019 | 0.031 | 0.022 | 0.004 | 0.021 | 0.015 | 0.029 |
| 13 | *Fraser* | 0.003 | 0.002 | 0.003 | 0.001 | 0.006 | 0.003 | 0.002 | 0.002 | 0.000 | 0.007 |
| 14 | *Lower Thompson* | 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 | 0.002 | 0.001 | 0.000 | 0.006 | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 |
| 16 | *South Thompson* | 0.129 | 0.010 | 0.129 | 0.112 | 0.146 | 0.157 | 0.013 | 0.156 | 0.136 | 0.179 |
| 17 | *Puget Sound* | 0.014 | 0.004 | 0.013 | 0.008 | 0.020 | 0.013 | 0.004 | 0.013 | 0.007 | 0.020 |
| 18 | *Washington Coast* | 0.021 | 0.005 | 0.021 | 0.014 | 0.030 | 0.027 | 0.006 | 0.027 | 0.018 | 0.038 |
| 19 | *West Cascades Sp* | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 | 0.002 | 0.002 | 0.002 | 0.000 | 0.007 |
| 20 | *Lower Columbia F* | 0.050 | 0.007 | 0.050 | 0.039 | 0.063 | 0.065 | 0.009 | 0.064 | 0.050 | 0.081 |
| 21 | *Willamette Sp* | 0.005 | 0.002 | 0.004 | 0.002 | 0.009 | 0.006 | 0.003 | 0.006 | 0.003 | 0.011 |
| 22 | *Columbia Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| 23 | *Interior Columbia Su/F* | 0.083 | 0.009 | 0.083 | 0.070 | 0.098 | 0.101 | 0.011 | 0.100 | 0.083 | 0.119 |
| 24 | *North Oregon Coast* | 0.005 | 0.002 | 0.005 | 0.002 | 0.009 | 0.005 | 0.003 | 0.005 | 0.002 | 0.010 |
| 25 | *Mid Oregon Coast* | 0.002 | 0.001 | 0.002 | 0.000 | 0.005 | 0.003 | 0.002 | 0.002 | 0.000 | 0.006 |
| 26 | *S Oregon/California* | 0.001 | 0.001 | 0.001 | 0.000 | 0.002 | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 |

-continued-

Appendix B5.–Page 2 of 2.

| Reporting group no. | Reporting group[a] | Southern Outside quadrant[b] ($n$ = 385) Mean | SD | Median | 90% CI 5% | 95% | Southern Inside quadrant ($n$ = 188) Mean | SD | Median | 90% CI 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Situk* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | |
| 2 | *Alsek* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | |
| 3 | *N Southeast Alaska* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 4 | *Taku* | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 | | | | | |
| 5 | *Andrew* | 0.012 | 0.006 | 0.011 | 0.004 | 0.022 | | | | | |
| 6 | *Stikine* | 0.004 | 0.006 | 0.001 | 0.000 | 0.015 | | | | | |
| 7 | *S Southeast Alaska* | 0.218 | 0.021 | 0.218 | 0.185 | 0.254 | | | | | |
| 8 | *Nass* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 9 | *Skeena* | 0.003 | 0.004 | 0.001 | 0.000 | 0.011 | | | | | |
| 10 | *BC Coast/Haida Gwaii* | 0.069 | 0.015 | 0.068 | 0.046 | 0.095 | | | | | |
| 11 | *West Vancouver* | 0.539 | 0.026 | 0.539 | 0.496 | 0.580 | | | | | |
| 12 | *East Vancouver* | 0.031 | 0.011 | 0.030 | 0.016 | 0.050 | | | | | |
| 13 | *Fraser* | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 | Insufficient sample size | | | | |
| 14 | *Lower Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 15 | *North Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 16 | *South Thompson* | 0.055 | 0.013 | 0.055 | 0.036 | 0.078 | | | | | |
| 17 | *Puget Sound* | 0.018 | 0.010 | 0.017 | 0.005 | 0.036 | | | | | |
| 18 | *Washington Coast* | 0.002 | 0.003 | 0.000 | 0.000 | 0.008 | | | | | |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 20 | *Lower Columbia F* | 0.002 | 0.002 | 0.002 | 0.000 | 0.007 | | | | | |
| 21 | *Willamette Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | |
| 22 | *Columbia Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 23 | *Interior Columbia Su/F* | 0.037 | 0.010 | 0.036 | 0.022 | 0.056 | | | | | |
| 24 | *North Oregon Coast* | 0.004 | 0.005 | 0.003 | 0.000 | 0.014 | | | | | |
| 25 | *Mid Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: There was insufficient sample size (n = 188) for fine-scale reporting groups for the spring troll Southern Inside Quadrant.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

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

[b] Results did not converge at 40,000 iterations in BAYES for the Washington Coast reporting groups. Results are an average of all 5 chains.

Appendix B6.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the first retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2020.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 695) | | | | | Northern Outside[b] ($n$ = 374) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.018 | 0.006 | 0.017 | 0.010 | 0.028 | 0.015 | 0.007 | 0.014 | 0.006 | 0.028 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 7 | *S Southeast Alaska* | 0.017 | 0.006 | 0.016 | 0.010 | 0.028 | 0.004 | 0.007 | 0.000 | 0.000 | 0.020 |
| 8 | *Nass* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.002 | 0.003 | 0.000 | 0.000 | 0.008 | 0.002 | 0.005 | 0.000 | 0.000 | 0.013 |
| 10 | *BC Coast/Haida Gwaii* | 0.022 | 0.008 | 0.021 | 0.010 | 0.035 | 0.025 | 0.011 | 0.024 | 0.009 | 0.045 |
| 11 | *West Vancouver* | 0.055 | 0.009 | 0.054 | 0.040 | 0.071 | 0.058 | 0.012 | 0.057 | 0.039 | 0.080 |
| 12 | *East Vancouver* | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 | 0.004 | 0.004 | 0.003 | 0.000 | 0.012 |
| 13 | *Fraser* | 0.004 | 0.003 | 0.003 | 0.000 | 0.010 | 0.004 | 0.004 | 0.002 | 0.000 | 0.013 |
| 14 | *Lower Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.005 | 0.004 | 0.004 | 0.000 | 0.012 | 0.006 | 0.006 | 0.005 | 0.000 | 0.016 |
| 16 | *South Thompson* | 0.268 | 0.017 | 0.267 | 0.240 | 0.297 | 0.222 | 0.022 | 0.221 | 0.187 | 0.258 |
| 17 | *Puget Sound* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | *Washington Coast* | 0.130 | 0.015 | 0.130 | 0.107 | 0.155 | 0.151 | 0.020 | 0.151 | 0.120 | 0.185 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.056 | 0.010 | 0.056 | 0.041 | 0.073 | 0.061 | 0.013 | 0.060 | 0.041 | 0.084 |
| 21 | *Willamette Sp* | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 22 | *Columbia Sp* | 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* | 0.219 | 0.017 | 0.219 | 0.192 | 0.248 | 0.221 | 0.022 | 0.221 | 0.185 | 0.258 |
| 24 | *North Oregon Coast* | 0.191 | 0.017 | 0.191 | 0.164 | 0.220 | 0.218 | 0.023 | 0.218 | 0.181 | 0.257 |
| 25 | *Mid Oregon Coast* | 0.008 | 0.006 | 0.007 | 0.000 | 0.019 | 0.005 | 0.006 | 0.003 | 0.000 | 0.017 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

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

[b] Results did not converge at 40,000 iterations in BAYES for the Fraser and Mid Oregon Coast reporting groups. Results are an average of all 5 chains..

Appendix B7.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the second retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2020.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 764) | | | | | Northern Outside ($n$ = 386) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 3 | *N Southeast Alaska* | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 4 | *Taku* | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 |
| 5 | *Andrew* | 0.023 | 0.008 | 0.022 | 0.012 | 0.038 | 0.021 | 0.009 | 0.020 | 0.008 | 0.038 |
| 6 | *Stikine* | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 |
| 7 | *S Southeast Alaska* | 0.048 | 0.009 | 0.047 | 0.035 | 0.063 | 0.023 | 0.010 | 0.021 | 0.009 | 0.040 |
| 8 | *Nass* | 0.003 | 0.003 | 0.003 | 0.001 | 0.009 | 0.002 | 0.003 | 0.001 | 0.000 | 0.008 |
| 9 | *Skeena* | 0.005 | 0.006 | 0.002 | 0.000 | 0.017 | 0.006 | 0.007 | 0.001 | 0.000 | 0.020 |
| 10 | *BC Coast/Haida Gwaii* | 0.016 | 0.006 | 0.015 | 0.008 | 0.027 | 0.009 | 0.006 | 0.007 | 0.001 | 0.021 |
| 11 | *West Vancouver* | 0.106 | 0.014 | 0.106 | 0.084 | 0.131 | 0.115 | 0.016 | 0.115 | 0.089 | 0.143 |
| 12 | *East Vancouver* | 0.015 | 0.005 | 0.014 | 0.008 | 0.025 | 0.011 | 0.006 | 0.010 | 0.003 | 0.022 |
| 13 | *Fraser* | 0.004 | 0.004 | 0.003 | 0.000 | 0.011 | 0.004 | 0.004 | 0.003 | 0.000 | 0.012 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.001 | 0.001 | 0.001 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.048 | 0.010 | 0.047 | 0.033 | 0.065 | 0.048 | 0.012 | 0.047 | 0.030 | 0.068 |
| 17 | *Puget Sound* | 0.002 | 0.001 | 0.002 | 0.000 | 0.004 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 18 | *Washington Coast* | 0.161 | 0.018 | 0.161 | 0.132 | 0.192 | 0.181 | 0.021 | 0.181 | 0.147 | 0.217 |
| 19 | *West Cascades Sp* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| 20 | *Lower Columbia F* | 0.026 | 0.008 | 0.025 | 0.014 | 0.040 | 0.026 | 0.009 | 0.025 | 0.013 | 0.043 |
| 21 | *Willamette Sp* | 0.001 | 0.001 | 0.001 | 0.000 | 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 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.365 | 0.022 | 0.365 | 0.329 | 0.402 | 0.389 | 0.025 | 0.388 | 0.347 | 0.431 |
| 24 | *North Oregon Coast* | 0.121 | 0.016 | 0.121 | 0.096 | 0.148 | 0.114 | 0.018 | 0.113 | 0.085 | 0.145 |
| 25 | *Mid Oregon Coast* | 0.047 | 0.012 | 0.046 | 0.030 | 0.068 | 0.045 | 0.013 | 0.044 | 0.026 | 0.069 |
| 26 | *S Oregon/California* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

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

Appendix B8.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest, AY 2020.

| Area | Period | Sample size | Reporting group | Mean | SD | Median | 90% CI 5% | 90% CI 95% |
|---|---|---|---|---|---|---|---|---|
| Ketchikan | All season | 273 | *Alaska* | 0.439 | 0.031 | 0.439 | 0.388 | 0.490 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.402 | 0.031 | 0.402 | 0.351 | 0.454 |
| | | | *US South* | 0.159 | 0.023 | 0.158 | 0.122 | 0.199 |
| Craig | All season | 699 | *Alaska* | 0.081 | 0.012 | 0.080 | 0.062 | 0.101 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.688 | 0.019 | 0.688 | 0.657 | 0.719 |
| | | | *US South* | 0.231 | 0.017 | 0.231 | 0.204 | 0.259 |
| Sitka | All season | 1,130 | *Alaska* | 0.067 | 0.008 | 0.067 | 0.054 | 0.081 |
| | | | *TBR* | 0.006 | 0.004 | 0.005 | 0.001 | 0.013 |
| | | | *Canada* | 0.391 | 0.015 | 0.391 | 0.366 | 0.415 |
| | | | *US South* | 0.536 | 0.015 | 0.536 | 0.511 | 0.561 |
| Petersburg-Wrangell | All season | 97 | *Alaska* | 0.731 | 0.052 | 0.733 | 0.640 | 0.812 |
| | | | *TBR* | 0.017 | 0.023 | 0.001 | 0.000 | 0.064 |
| | | | *Canada* | 0.199 | 0.044 | 0.196 | 0.131 | 0.275 |
| | | | *US South* | 0.054 | 0.023 | 0.050 | 0.022 | 0.097 |
| Northern Inside | All season | 270 | *Alaska* | 0.844 | 0.024 | 0.845 | 0.803 | 0.882 |
| | | | *TBR* | 0.033 | 0.014 | 0.032 | 0.014 | 0.059 |
| | | | *Canada* | 0.101 | 0.019 | 0.100 | 0.071 | 0.134 |
| | | | *US South* | 0.022 | 0.010 | 0.021 | 0.008 | 0.040 |
| Outside | All season | 1,858 | *Alaska* | 0.075 | 0.007 | 0.075 | 0.064 | 0.087 |
| | | | *TBR* | 0.001 | 0.001 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.507 | 0.012 | 0.507 | 0.487 | 0.527 |
| | | | *US South* | 0.417 | 0.012 | 0.417 | 0.397 | 0.436 |
| | Biweeks 9–13 | 686 | *Alaska* | 0.152 | 0.016 | 0.152 | 0.126 | 0.179 |
| | | | *TBR* | 0.003 | 0.004 | 0.000 | 0.000 | 0.010 |
| | | | *Canada* | 0.487 | 0.021 | 0.487 | 0.453 | 0.520 |
| | | | *US South* | 0.359 | 0.019 | 0.359 | 0.328 | 0.390 |
| | Biweeks 14–18 | 1,172 | *Alaska* | 0.032 | 0.006 | 0.032 | 0.023 | 0.043 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.519 | 0.015 | 0.519 | 0.494 | 0.544 |
| | | | *US South* | 0.449 | 0.015 | 0.449 | 0.424 | 0.473 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

Appendix B9.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest by area and season, AY 2020.

| | Ketchikan ($n$ = 273) | | | | | Petersburg-Wrangell ($n$ = 97) | | | | | Northern Inside ($n$ = 270) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.439 | 0.031 | 0.439 | 0.388 | 0.490 | | | | | | 0.877 | 0.021 | 0.878 | 0.842 | 0.910 |
| *NCBC* | 0.041 | 0.014 | 0.040 | 0.021 | 0.066 | | | | | | 0.081 | 0.017 | 0.080 | 0.054 | 0.111 |
| *West Vancouver* | 0.151 | 0.022 | 0.150 | 0.117 | 0.188 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *South Thompson* | 0.106 | 0.019 | 0.105 | 0.076 | 0.139 | | | | | | 0.004 | 0.004 | 0.003 | 0.000 | 0.013 |
| *Washington Coast* | 0.039 | 0.012 | 0.038 | 0.021 | 0.061 | | | | | | 0.014 | 0.008 | 0.012 | 0.002 | 0.029 |
| *Interior Columbia Su/F* | 0.084 | 0.017 | 0.083 | 0.057 | 0.114 | | | | | | 0.008 | 0.005 | 0.006 | 0.001 | 0.018 |
| *Oregon Coast* | 0.004 | 0.004 | 0.003 | 0.000 | 0.012 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Other* | 0.136 | 0.022 | 0.135 | 0.102 | 0.174 | | | | | | 0.016 | 0.008 | 0.015 | 0.006 | 0.031 |

| | Craig ($n$ = 699) | | | | | Sitka ($n$ = 1,130) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.081 | 0.012 | 0.080 | 0.062 | 0.101 | 0.073 | 0.008 | 0.073 | 0.060 | 0.087 |
| *NCBC* | 0.100 | 0.013 | 0.100 | 0.080 | 0.122 | 0.026 | 0.006 | 0.025 | 0.017 | 0.035 |
| *West Vancouver* | 0.471 | 0.019 | 0.470 | 0.439 | 0.502 | 0.230 | 0.013 | 0.230 | 0.210 | 0.251 |
| *South Thompson* | 0.062 | 0.010 | 0.062 | 0.047 | 0.078 | 0.114 | 0.010 | 0.114 | 0.099 | 0.130 |
| *Washington Coast* | 0.073 | 0.011 | 0.073 | 0.056 | 0.092 | 0.135 | 0.011 | 0.134 | 0.117 | 0.153 |
| *Interior Columbia Su/F* | 0.085 | 0.011 | 0.085 | 0.068 | 0.104 | 0.272 | 0.013 | 0.272 | 0.251 | 0.295 |
| *Oregon Coast* | 0.043 | 0.008 | 0.043 | 0.030 | 0.058 | 0.076 | 0.009 | 0.076 | 0.062 | 0.091 |
| *Other* | 0.085 | 0.011 | 0.084 | 0.067 | 0.104 | 0.074 | 0.008 | 0.074 | 0.061 | 0.088 |

| | Outside All Season ($n$ = 1,858) | | | | | Outside Biweeks 9–13 ($n$ = 686) | | | | | Outside Biweeks 14–18 ($n$ = 1,172) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.076 | 0.007 | 0.076 | 0.065 | 0.087 | 0.155 | 0.016 | 0.154 | 0.129 | 0.181 | 0.033 | 0.006 | 0.032 | 0.023 | 0.043 |
| *NCBC* | 0.058 | 0.006 | 0.057 | 0.048 | 0.068 | 0.081 | 0.013 | 0.080 | 0.061 | 0.103 | 0.045 | 0.007 | 0.044 | 0.034 | 0.057 |
| *West Vancouver* | 0.319 | 0.011 | 0.319 | 0.301 | 0.337 | 0.245 | 0.017 | 0.245 | 0.218 | 0.273 | 0.359 | 0.014 | 0.359 | 0.336 | 0.383 |
| *South Thompson* | 0.097 | 0.007 | 0.097 | 0.086 | 0.109 | 0.132 | 0.013 | 0.131 | 0.111 | 0.154 | 0.078 | 0.008 | 0.077 | 0.065 | 0.091 |
| *Washington Coast* | 0.108 | 0.008 | 0.107 | 0.095 | 0.121 | 0.104 | 0.013 | 0.104 | 0.084 | 0.126 | 0.109 | 0.010 | 0.109 | 0.093 | 0.126 |
| *Interior Columbia Su/F* | 0.203 | 0.010 | 0.203 | 0.187 | 0.219 | 0.150 | 0.014 | 0.150 | 0.128 | 0.174 | 0.232 | 0.013 | 0.232 | 0.212 | 0.253 |
| *Oregon Coast* | 0.060 | 0.006 | 0.059 | 0.050 | 0.070 | 0.056 | 0.010 | 0.055 | 0.041 | 0.072 | 0.062 | 0.008 | 0.062 | 0.049 | 0.076 |
| *Other* | 0.081 | 0.007 | 0.081 | 0.070 | 0.092 | 0.077 | 0.011 | 0.077 | 0.060 | 0.096 | 0.083 | 0.008 | 0.082 | 0.069 | 0.097 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: There was insufficient sample size (n = 97) for driver stock reporting groups for Petersburg-Wrangell.

*Note*: AY 2020 = Accounting year 2020 = October 1, 2019–September 30, 2020.

Appendix B10.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Petersburg-Wrangell, Northern Inside (Juneau, Haines, and Skagway), Craig, and Sitka areas of Southeast Alaska, AY 2020.

| | | Ketchikan ($n$ = 273) | | | | | Petersburg-Wrangell ($n$ = 97) | | | | | Northern Inside quadrant[b] ($n$ = 270) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.010 | 0.006 | 0.008 | 0.002 | 0.022 |
| 4 | *Taku* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.026 | 0.012 | 0.025 | 0.010 | 0.048 |
| 5 | *Andrew* | 0.002 | 0.006 | 0.000 | 0.000 | 0.015 | | | | | | 0.788 | 0.029 | 0.788 | 0.739 | 0.834 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.007 | 0.011 | 0.000 | 0.000 | 0.030 |
| 7 | *S Southeast Alaska* | 0.437 | 0.031 | 0.437 | 0.385 | 0.488 | | | | | | 0.047 | 0.018 | 0.045 | 0.020 | 0.078 |
| 8 | *Nass* | 0.017 | 0.009 | 0.015 | 0.005 | 0.034 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.004 | 0.004 | 0.003 | 0.000 | 0.011 | | | | | | 0.029 | 0.010 | 0.028 | 0.014 | 0.048 |
| 10 | *BC Coast/Haida Gwaii* | 0.021 | 0.010 | 0.019 | 0.006 | 0.039 | | | | | | 0.052 | 0.014 | 0.050 | 0.030 | 0.077 |
| 11 | *West Vancouver* | 0.151 | 0.022 | 0.150 | 0.117 | 0.188 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 12 | *East Vancouver* | 0.099 | 0.019 | 0.098 | 0.070 | 0.131 | | | | | | 0.015 | 0.007 | 0.014 | 0.005 | 0.029 |
| 13 | *Fraser* | 0.005 | 0.006 | 0.003 | 0.000 | 0.018 | Insufficient sample size | | | | | 0.000 | 0.002 | 0.000 | 0.000 | 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 |
| 15 | *North Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.106 | 0.019 | 0.105 | 0.076 | 0.139 | | | | | | 0.004 | 0.004 | 0.003 | 0.000 | 0.013 |
| 17 | *Puget Sound* | 0.032 | 0.012 | 0.031 | 0.014 | 0.055 | | | | | | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 |
| 18 | *Washington Coast* | 0.039 | 0.012 | 0.038 | 0.021 | 0.061 | | | | | | 0.014 | 0.008 | 0.012 | 0.002 | 0.029 |
| 19 | *West Cascades Sp* | 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 | 0.001 | 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 |
| 22 | *Columbia Sp* | 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* | 0.084 | 0.017 | 0.083 | 0.057 | 0.114 | | | | | | 0.008 | 0.005 | 0.006 | 0.001 | 0.018 |
| 24 | *North Oregon Coast* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 25 | *Mid Oregon Coast* | 0.004 | 0.004 | 0.003 | 0.000 | 0.012 | | | | | | 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 |

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Appendix B10.–Page 2 of 2.

| Reporting group no. | Reporting group[a] | Craig ($n$ = 699) Mean | SD | Median | 90% CI 5% | 95% | Sitka ($n$ = 1,130) Mean | SD | Median | 90% CI 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| 4 | *Taku* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.005 | 0.003 | 0.005 | 0.001 | 0.011 |
| 5 | *Andrew* | 0.021 | 0.007 | 0.021 | 0.011 | 0.033 | 0.042 | 0.007 | 0.042 | 0.031 | 0.054 |
| 6 | *Stikine* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| 7 | *S Southeast Alaska* | 0.059 | 0.011 | 0.059 | 0.042 | 0.078 | 0.025 | 0.006 | 0.025 | 0.016 | 0.035 |
| 8 | *Nass* | 0.008 | 0.006 | 0.006 | 0.001 | 0.019 | 0.005 | 0.003 | 0.005 | 0.000 | 0.011 |
| 9 | *Skeena* | 0.026 | 0.008 | 0.025 | 0.014 | 0.039 | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| 10 | *BC Coast/Haida Gwaii* | 0.067 | 0.011 | 0.067 | 0.050 | 0.086 | 0.020 | 0.005 | 0.020 | 0.012 | 0.029 |
| 11 | *West Vancouver* | 0.471 | 0.019 | 0.470 | 0.439 | 0.502 | 0.230 | 0.013 | 0.230 | 0.210 | 0.251 |
| 12 | *East Vancouver* | 0.046 | 0.008 | 0.046 | 0.033 | 0.060 | 0.016 | 0.004 | 0.016 | 0.011 | 0.023 |
| 13 | *Fraser* | 0.009 | 0.004 | 0.008 | 0.004 | 0.015 | 0.004 | 0.002 | 0.004 | 0.002 | 0.008 |
| 14 | *Lower Thompson* | 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 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.062 | 0.010 | 0.062 | 0.047 | 0.078 | 0.114 | 0.010 | 0.114 | 0.099 | 0.130 |
| 17 | *Puget Sound* | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | *Washington Coast* | 0.073 | 0.011 | 0.073 | 0.056 | 0.092 | 0.135 | 0.011 | 0.134 | 0.117 | 0.153 |
| 19 | *West Cascades Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.027 | 0.006 | 0.026 | 0.017 | 0.038 | 0.049 | 0.007 | 0.049 | 0.038 | 0.061 |
| 21 | *Willamette Sp* | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.004 | 0.002 | 0.004 | 0.002 | 0.008 |
| 22 | *Columbia Sp* | 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* | 0.085 | 0.011 | 0.085 | 0.068 | 0.104 | 0.272 | 0.013 | 0.272 | 0.251 | 0.295 |
| 24 | *North Oregon Coast* | 0.042 | 0.008 | 0.041 | 0.029 | 0.056 | 0.065 | 0.008 | 0.065 | 0.052 | 0.079 |
| 25 | *Mid Oregon Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.011 | 0.005 | 0.010 | 0.004 | 0.020 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: There was insufficient sample size (n = 97) for fine-scale reporting groups for Petersburg-Wrangell.

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

[b] Results did not converge at 40,000 iterations in BAYES for the S Oregon/California reporting groups. Results are an average of all 5 chains.

Appendix B11.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) sport fishery harvest in outside waters (Craig/Klawock, Sitka, Yakutat, Gustavus, and Elfin Cove) of Southeast Alaska, AY 2020.

| | | Total season ($n$ = 1,858) | | | | | Early season ($n$ = 686) | | | | | Late season ($n$ = 1,172) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 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* | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 |
| 4 | *Taku* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.002 | 0.003 | 0.000 | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.035 | 0.005 | 0.035 | 0.027 | 0.044 | 0.075 | 0.013 | 0.074 | 0.054 | 0.097 | 0.014 | 0.004 | 0.013 | 0.008 | 0.020 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 7 | *S Southeast Alaska* | 0.039 | 0.006 | 0.038 | 0.030 | 0.048 | 0.076 | 0.013 | 0.076 | 0.056 | 0.098 | 0.018 | 0.005 | 0.018 | 0.010 | 0.027 |
| 8 | *Nass* | 0.006 | 0.003 | 0.006 | 0.002 | 0.010 | 0.015 | 0.007 | 0.015 | 0.006 | 0.027 | 0.000 | 0.001 | 0.000 | 0.000 | 0.004 |
| 9 | *Skeena* | 0.015 | 0.004 | 0.014 | 0.008 | 0.022 | 0.017 | 0.009 | 0.017 | 0.002 | 0.033 | 0.013 | 0.004 | 0.013 | 0.007 | 0.020 |
| 10 | *BC Coast/Haida Gwaii* | 0.037 | 0.005 | 0.037 | 0.029 | 0.046 | 0.048 | 0.010 | 0.048 | 0.033 | 0.065 | 0.031 | 0.006 | 0.031 | 0.022 | 0.041 |
| 11 | *West Vancouver* | 0.319 | 0.011 | 0.319 | 0.301 | 0.337 | 0.245 | 0.017 | 0.245 | 0.218 | 0.273 | 0.359 | 0.014 | 0.359 | 0.336 | 0.383 |
| 12 | *East Vancouver* | 0.028 | 0.004 | 0.028 | 0.022 | 0.035 | 0.025 | 0.006 | 0.024 | 0.016 | 0.036 | 0.030 | 0.005 | 0.030 | 0.022 | 0.039 |
| 13 | *Fraser* | 0.006 | 0.002 | 0.006 | 0.003 | 0.009 | 0.004 | 0.003 | 0.003 | 0.001 | 0.009 | 0.007 | 0.003 | 0.007 | 0.004 | 0.012 |
| 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* | 0.097 | 0.007 | 0.097 | 0.086 | 0.109 | 0.132 | 0.013 | 0.131 | 0.111 | 0.154 | 0.078 | 0.008 | 0.077 | 0.065 | 0.091 |
| 17 | *Puget Sound* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 18 | *Washington Coast* | 0.108 | 0.008 | 0.107 | 0.095 | 0.121 | 0.104 | 0.013 | 0.104 | 0.084 | 0.126 | 0.109 | 0.010 | 0.109 | 0.093 | 0.126 |
| 19 | *West Cascades Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.041 | 0.005 | 0.041 | 0.034 | 0.050 | 0.043 | 0.008 | 0.042 | 0.030 | 0.057 | 0.041 | 0.006 | 0.041 | 0.031 | 0.051 |
| 21 | *Willamette Sp* | 0.005 | 0.002 | 0.005 | 0.002 | 0.008 | 0.006 | 0.003 | 0.005 | 0.002 | 0.011 | 0.004 | 0.002 | 0.004 | 0.002 | 0.008 |
| 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* | 0.203 | 0.010 | 0.203 | 0.187 | 0.219 | 0.150 | 0.014 | 0.150 | 0.128 | 0.174 | 0.232 | 0.013 | 0.232 | 0.212 | 0.253 |
| 24 | *North Oregon Coast* | 0.053 | 0.006 | 0.053 | 0.044 | 0.063 | 0.055 | 0.010 | 0.054 | 0.040 | 0.071 | 0.052 | 0.008 | 0.052 | 0.040 | 0.065 |
| 25 | *Mid Oregon Coast* | 0.006 | 0.003 | 0.006 | 0.002 | 0.011 | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.010 | 0.004 | 0.009 | 0.003 | 0.017 |
| 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*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

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

Appendix B12.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest, AY 2021.

| Fishery | Quadrant | Sample size | Reporting group | Mean | SD | Median | 90% CI | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | 5% | 95% |
| Early winter | All | 651 | *Alaska* | 0.312 | 0.022 | 0.312 | 0.277 | 0.348 |
| | | | *TBR* | 0.003 | 0.004 | 0.002 | 0.000 | 0.011 |
| | | | *Canada* | 0.473 | 0.023 | 0.473 | 0.435 | 0.512 |
| | | | *US South* | 0.211 | 0.016 | 0.211 | 0.185 | 0.238 |
| | NO | 373 | *Alaska* | 0.158 | 0.022 | 0.157 | 0.122 | 0.195 |
| | | | *TBR* | 0.004 | 0.005 | 0.002 | 0.000 | 0.014 |
| | | | *Canada* | 0.513 | 0.029 | 0.513 | 0.465 | 0.561 |
| | | | *US South* | 0.325 | 0.025 | 0.325 | 0.284 | 0.368 |
| Late winter | All | 486 | *Alaska* | 0.155 | 0.020 | 0.154 | 0.122 | 0.189 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 |
| | | | *Canada* | 0.619 | 0.025 | 0.619 | 0.578 | 0.661 |
| | | | *US South* | 0.225 | 0.020 | 0.225 | 0.194 | 0.259 |
| | NO | 360 | *Alaska* | 0.067 | 0.015 | 0.066 | 0.044 | 0.094 |
| | | | *TBR* | 0.001 | 0.003 | 0.000 | 0.000 | 0.005 |
| | | | *Canada* | 0.652 | 0.027 | 0.652 | 0.607 | 0.695 |
| | | | *US South* | 0.281 | 0.024 | 0.280 | 0.242 | 0.321 |
| Spring | All | 1,457 | *Alaska* | 0.375 | 0.012 | 0.375 | 0.355 | 0.395 |
| | | | *TBR* | 0.006 | 0.003 | 0.005 | 0.002 | 0.011 |
| | | | *Canada* | 0.474 | 0.013 | 0.474 | 0.453 | 0.495 |
| | | | *US South* | 0.145 | 0.009 | 0.145 | 0.130 | 0.161 |
| | NO | 1,040 | *Alaska* | 0.335 | 0.016 | 0.335 | 0.309 | 0.361 |
| | | | *TBR* | 0.006 | 0.004 | 0.006 | 0.001 | 0.013 |
| | | | *Canada* | 0.462 | 0.017 | 0.462 | 0.435 | 0.489 |
| | | | *US South* | 0.197 | 0.013 | 0.196 | 0.176 | 0.218 |
| | SO | 233 | *Alaska* | 0.188 | 0.026 | 0.187 | 0.147 | 0.233 |
| | | | *TBR* | 0.004 | 0.007 | 0.000 | 0.000 | 0.019 |
| | | | *Canada* | 0.765 | 0.028 | 0.766 | 0.717 | 0.810 |
| | | | *US South* | 0.043 | 0.014 | 0.041 | 0.023 | 0.067 |
| | SI | 184 | *Alaska* | 0.950 | 0.020 | 0.953 | 0.914 | 0.979 |
| | | | *TBR* | 0.006 | 0.010 | 0.000 | 0.000 | 0.029 |
| | | | *Canada* | 0.041 | 0.018 | 0.039 | 0.015 | 0.074 |
| | | | *US South* | 0.002 | 0.005 | 0.000 | 0.000 | 0.012 |
| Summer retention 1 | All | 705 | *Alaska* | 0.053 | 0.009 | 0.052 | 0.038 | 0.069 |
| | | | *TBR* | 0.007 | 0.005 | 0.007 | 0.001 | 0.016 |
| | | | *Canada* | 0.432 | 0.019 | 0.432 | 0.400 | 0.463 |
| | | | *US South* | 0.508 | 0.019 | 0.508 | 0.477 | 0.539 |
| | NO | 350 | *Alaska* | 0.044 | 0.012 | 0.043 | 0.026 | 0.066 |
| | | | *TBR* | 0.012 | 0.008 | 0.011 | 0.000 | 0.028 |
| | | | *Canada* | 0.377 | 0.027 | 0.377 | 0.334 | 0.421 |
| | | | *US South* | 0.567 | 0.027 | 0.567 | 0.522 | 0.611 |
| Summer retention 2 | All | 702 | *Alaska* | 0.063 | 0.009 | 0.062 | 0.049 | 0.078 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| | | | *Canada* | 0.215 | 0.018 | 0.215 | 0.187 | 0.244 |
| | | | *US South* | 0.721 | 0.018 | 0.722 | 0.691 | 0.751 |
| | NO | 377 | *Alaska* | 0.032 | 0.010 | 0.031 | 0.017 | 0.050 |
| | | | *TBR* | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| | | | *Canada* | 0.203 | 0.021 | 0.203 | 0.169 | 0.239 |
| | | | *US South* | 0.764 | 0.022 | 0.764 | 0.726 | 0.800 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.
*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

Appendix B13.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest by season and quadrant, AY 2021.

| | Early winter regionwide ($n$ = 651) | | | | | Early winter Northern Outside ($n$ = 373) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.315 | 0.022 | 0.315 | 0.280 | 0.351 | 0.162 | 0.022 | 0.161 | 0.126 | 0.200 |
| *NCBC* | 0.220 | 0.020 | 0.220 | 0.187 | 0.254 | 0.209 | 0.025 | 0.208 | 0.170 | 0.251 |
| *West Vancouver* | 0.053 | 0.008 | 0.052 | 0.040 | 0.067 | 0.105 | 0.016 | 0.104 | 0.080 | 0.133 |
| *South Thompson* | 0.002 | 0.003 | 0.001 | 0.000 | 0.008 | 0.004 | 0.006 | 0.001 | 0.000 | 0.016 |
| *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Interior Columbia Su/F* | 0.098 | 0.011 | 0.097 | 0.080 | 0.117 | 0.168 | 0.020 | 0.168 | 0.136 | 0.202 |
| *Oregon Coast* | 0.005 | 0.003 | 0.005 | 0.001 | 0.011 | 0.010 | 0.006 | 0.009 | 0.003 | 0.021 |
| *Other* | 0.306 | 0.019 | 0.306 | 0.275 | 0.339 | 0.341 | 0.026 | 0.340 | 0.299 | 0.384 |
| | Late winter regionwide ($n$ = 486) | | | | | Late winter Northern Outside ($n$ = 360) | | | | |
| *SEAK/TBR* | 0.156 | 0.020 | 0.155 | 0.123 | 0.190 | 0.068 | 0.015 | 0.067 | 0.044 | 0.094 |
| *NCBC* | 0.169 | 0.020 | 0.168 | 0.137 | 0.203 | 0.167 | 0.022 | 0.166 | 0.132 | 0.203 |
| *West Vancouver* | 0.297 | 0.021 | 0.296 | 0.263 | 0.331 | 0.362 | 0.026 | 0.361 | 0.320 | 0.404 |
| *South Thompson* | 0.033 | 0.009 | 0.032 | 0.021 | 0.049 | 0.050 | 0.012 | 0.049 | 0.032 | 0.070 |
| *Washington Coast* | 0.007 | 0.004 | 0.007 | 0.002 | 0.015 | 0.011 | 0.006 | 0.010 | 0.003 | 0.022 |
| *Interior Columbia Su/F* | 0.126 | 0.015 | 0.126 | 0.103 | 0.151 | 0.171 | 0.020 | 0.170 | 0.139 | 0.205 |
| *Oregon Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 |
| *Other* | 0.212 | 0.021 | 0.211 | 0.178 | 0.247 | 0.172 | 0.021 | 0.172 | 0.139 | 0.208 |
| | Spring regionwide ($n$ = 1,457) | | | | | Spring Northern Outside ($n$ = 1,040) | | | | |
| *SEAK/TBR* | 0.381 | 0.012 | 0.381 | 0.361 | 0.401 | 0.342 | 0.016 | 0.341 | 0.316 | 0.368 |
| *NCBC* | 0.047 | 0.007 | 0.047 | 0.037 | 0.059 | 0.045 | 0.007 | 0.045 | 0.034 | 0.058 |
| *West Vancouver* | 0.316 | 0.012 | 0.316 | 0.298 | 0.336 | 0.268 | 0.014 | 0.267 | 0.245 | 0.291 |
| *South Thompson* | 0.092 | 0.008 | 0.092 | 0.079 | 0.105 | 0.127 | 0.011 | 0.127 | 0.109 | 0.146 |
| *Washington Coast* | 0.022 | 0.004 | 0.022 | 0.015 | 0.029 | 0.029 | 0.006 | 0.029 | 0.021 | 0.040 |
| *Interior Columbia Su/F* | 0.080 | 0.008 | 0.080 | 0.068 | 0.093 | 0.112 | 0.011 | 0.111 | 0.095 | 0.130 |
| *Oregon Coast* | 0.006 | 0.002 | 0.006 | 0.003 | 0.011 | 0.009 | 0.003 | 0.009 | 0.004 | 0.015 |
| *Other* | 0.055 | 0.006 | 0.055 | 0.045 | 0.066 | 0.069 | 0.008 | 0.068 | 0.055 | 0.083 |
| | Spring southern outside ($n$ = 233) | | | | | Spring Southern Inside ($n$ = 184) | | | | |
| *SEAK/TBR* | 0.192 | 0.026 | 0.191 | 0.151 | 0.236 | 0.957 | 0.019 | 0.959 | 0.923 | 0.983 |
| *NCBC* | 0.064 | 0.020 | 0.062 | 0.034 | 0.100 | 0.030 | 0.017 | 0.028 | 0.007 | 0.061 |
| *West Vancouver* | 0.669 | 0.031 | 0.670 | 0.617 | 0.720 | 0.010 | 0.007 | 0.008 | 0.002 | 0.023 |
| *South Thompson* | 0.017 | 0.008 | 0.016 | 0.006 | 0.032 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Washington Coast* | 0.007 | 0.007 | 0.005 | 0.000 | 0.021 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Interior Columbia Su/F* | 0.013 | 0.007 | 0.012 | 0.004 | 0.026 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.001 | 0.004 | 0.000 | 0.000 | 0.008 |
| *Other* | 0.037 | 0.013 | 0.035 | 0.018 | 0.061 | 0.002 | 0.003 | 0.001 | 0.000 | 0.008 |
| | Summer 1 regionwide ($n$ = 705) | | | | | Summer 1 Northern Outside ($n$ = 350) | | | | |
| *SEAK/TBR* | 0.060 | 0.010 | 0.060 | 0.045 | 0.077 | 0.056 | 0.013 | 0.055 | 0.036 | 0.079 |
| *NCBC* | 0.022 | 0.007 | 0.021 | 0.012 | 0.035 | 0.024 | 0.009 | 0.023 | 0.011 | 0.041 |
| *West Vancouver* | 0.079 | 0.010 | 0.079 | 0.063 | 0.097 | 0.133 | 0.018 | 0.133 | 0.104 | 0.165 |
| *South Thompson* | 0.310 | 0.017 | 0.310 | 0.282 | 0.339 | 0.210 | 0.022 | 0.210 | 0.175 | 0.248 |
| *Washington Coast* | 0.102 | 0.012 | 0.102 | 0.083 | 0.123 | 0.138 | 0.019 | 0.137 | 0.107 | 0.171 |
| *Interior Columbia Su/F* | 0.237 | 0.016 | 0.236 | 0.210 | 0.264 | 0.239 | 0.024 | 0.238 | 0.201 | 0.279 |
| *Oregon Coast* | 0.115 | 0.013 | 0.114 | 0.094 | 0.136 | 0.126 | 0.019 | 0.125 | 0.096 | 0.158 |
| *Other* | 0.075 | 0.011 | 0.074 | 0.058 | 0.093 | 0.074 | 0.015 | 0.073 | 0.051 | 0.099 |

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| | Summer 2 regionwide ($n$ = 702) | | | | | Summer 2 Northern Outside ($n$ = 377) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.064 | 0.009 | 0.063 | 0.050 | 0.079 | 0.033 | 0.010 | 0.032 | 0.018 | 0.051 |
| *NCBC* | 0.019 | 0.007 | 0.019 | 0.010 | 0.031 | 0.012 | 0.007 | 0.011 | 0.003 | 0.026 |
| *West Vancouver* | 0.121 | 0.014 | 0.121 | 0.099 | 0.145 | 0.127 | 0.017 | 0.127 | 0.100 | 0.157 |
| *South Thompson* | 0.058 | 0.010 | 0.057 | 0.042 | 0.075 | 0.058 | 0.012 | 0.057 | 0.039 | 0.079 |
| *Washington Coast* | 0.183 | 0.018 | 0.183 | 0.155 | 0.214 | 0.213 | 0.023 | 0.212 | 0.176 | 0.251 |
| *Interior Columbia Su/F* | 0.304 | 0.019 | 0.304 | 0.272 | 0.336 | 0.335 | 0.025 | 0.335 | 0.295 | 0.376 |
| *Oregon Coast* | 0.173 | 0.016 | 0.173 | 0.148 | 0.200 | 0.150 | 0.019 | 0.149 | 0.119 | 0.183 |
| *Other* | 0.078 | 0.012 | 0.077 | 0.060 | 0.098 | 0.072 | 0.014 | 0.071 | 0.050 | 0.097 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

Appendix B14.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the early winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2021.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 651) | | | | | Northern Outside quadrant ($n$ = 373) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 | 0.001 | 0.000 | 0.004 | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 |
| 3 | *N Southeast Alaska* | 0.004 | 0.003 | 0.003 | 0.001 | 0.009 | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.082 | 0.012 | 0.082 | 0.062 | 0.103 | 0.033 | 0.011 | 0.031 | 0.016 | 0.052 |
| 6 | *Stikine* | 0.001 | 0.003 | 0.000 | 0.000 | 0.009 | 0.001 | 0.004 | 0.000 | 0.000 | 0.009 |
| 7 | *S Southeast Alaska* | 0.226 | 0.021 | 0.226 | 0.193 | 0.261 | 0.123 | 0.021 | 0.122 | 0.089 | 0.158 |
| 8 | *Nass* | 0.003 | 0.005 | 0.000 | 0.000 | 0.015 | 0.006 | 0.011 | 0.000 | 0.000 | 0.030 |
| 9 | *Skeena* | 0.023 | 0.010 | 0.023 | 0.005 | 0.040 | 0.003 | 0.004 | 0.002 | 0.000 | 0.011 |
| 10 | *BC Coast/Haida Gwaii* | 0.194 | 0.019 | 0.193 | 0.164 | 0.225 | 0.200 | 0.023 | 0.199 | 0.162 | 0.238 |
| 11 | *West Vancouver* | 0.053 | 0.008 | 0.052 | 0.040 | 0.067 | 0.105 | 0.016 | 0.104 | 0.080 | 0.133 |
| 12 | *East Vancouver* | 0.191 | 0.016 | 0.191 | 0.165 | 0.219 | 0.185 | 0.021 | 0.184 | 0.151 | 0.220 |
| 13 | *Fraser* | 0.005 | 0.003 | 0.005 | 0.002 | 0.011 | 0.007 | 0.005 | 0.006 | 0.001 | 0.015 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 |
| 16 | *South Thompson* | 0.002 | 0.003 | 0.001 | 0.000 | 0.008 | 0.004 | 0.006 | 0.001 | 0.000 | 0.016 |
| 17 | *Puget Sound* | 0.089 | 0.012 | 0.089 | 0.070 | 0.110 | 0.125 | 0.019 | 0.125 | 0.096 | 0.157 |
| 18 | *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 19 | *West Cascades Sp* | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 |
| 20 | *Lower Columbia F* | 0.007 | 0.004 | 0.006 | 0.002 | 0.014 | 0.012 | 0.006 | 0.011 | 0.004 | 0.023 |
| 21 | *Willamette Sp* | 0.008 | 0.004 | 0.008 | 0.003 | 0.015 | 0.008 | 0.005 | 0.007 | 0.002 | 0.018 |
| 22 | *Columbia Sp* | 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* | 0.098 | 0.011 | 0.097 | 0.080 | 0.117 | 0.168 | 0.020 | 0.168 | 0.136 | 0.202 |
| 24 | *North Oregon Coast* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 25 | *Mid Oregon Coast* | 0.005 | 0.003 | 0.005 | 0.001 | 0.011 | 0.010 | 0.006 | 0.009 | 0.003 | 0.021 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

Appendix B15.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the late winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2021.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 486) | | | | | Northern Outside Quadrant ($n$ = 360) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.000 | 0.001 | 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 |
| 3 | *N Southeast Alaska* | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 | 0.002 | 0.003 | 0.002 | 0.000 | 0.008 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.042 | 0.010 | 0.041 | 0.026 | 0.060 | 0.045 | 0.013 | 0.044 | 0.026 | 0.068 |
| 6 | *Stikine* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 |
| 7 | *S Southeast Alaska* | 0.111 | 0.019 | 0.111 | 0.081 | 0.143 | 0.020 | 0.011 | 0.018 | 0.005 | 0.039 |
| 8 | *Nass* | 0.013 | 0.007 | 0.012 | 0.004 | 0.026 | 0.019 | 0.009 | 0.018 | 0.006 | 0.035 |
| 9 | *Skeena* | 0.011 | 0.007 | 0.010 | 0.003 | 0.024 | 0.003 | 0.004 | 0.002 | 0.000 | 0.011 |
| 10 | *BC Coast/Haida Gwaii* | 0.144 | 0.018 | 0.143 | 0.115 | 0.175 | 0.144 | 0.020 | 0.144 | 0.113 | 0.179 |
| 11 | *West Vancouver* | 0.297 | 0.021 | 0.296 | 0.263 | 0.331 | 0.362 | 0.026 | 0.361 | 0.320 | 0.404 |
| 12 | *East Vancouver* | 0.120 | 0.017 | 0.119 | 0.093 | 0.148 | 0.073 | 0.015 | 0.072 | 0.050 | 0.098 |
| 13 | *Fraser* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| 14 | *Lower Thompson* | 0.000 | 0.001 | 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 |
| 16 | *South Thompson* | 0.033 | 0.009 | 0.032 | 0.021 | 0.049 | 0.050 | 0.012 | 0.049 | 0.032 | 0.070 |
| 17 | *Puget Sound* | 0.027 | 0.009 | 0.026 | 0.015 | 0.043 | 0.025 | 0.010 | 0.024 | 0.011 | 0.043 |
| 18 | *Washington Coast* | 0.007 | 0.004 | 0.007 | 0.002 | 0.015 | 0.011 | 0.006 | 0.010 | 0.003 | 0.022 |
| 19 | *West Cascades Sp* | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.009 | 0.004 | 0.008 | 0.003 | 0.017 | 0.014 | 0.007 | 0.013 | 0.005 | 0.026 |
| 21 | *Willamette Sp* | 0.054 | 0.012 | 0.054 | 0.037 | 0.075 | 0.059 | 0.013 | 0.058 | 0.040 | 0.081 |
| 22 | *Columbia Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.126 | 0.015 | 0.126 | 0.103 | 0.151 | 0.171 | 0.020 | 0.170 | 0.139 | 0.205 |
| 24 | *North Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 |
| 25 | *Mid Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

Appendix B16.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the spring troll fishery regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2021.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 1,457) | | | | | Northern Outside quadrant ($n$ = 1,040) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.001 | 0.001 | 0.001 | 0.000 | 0.002 | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 |
| 2 | *Alsek* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| 3 | *N Southeast Alaska* | 0.002 | 0.001 | 0.002 | 0.001 | 0.004 | 0.003 | 0.001 | 0.002 | 0.001 | 0.005 |
| 4 | *Taku* | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | 0.002 | 0.003 | 0.002 | 0.000 | 0.008 |
| 5 | *Andrew* | 0.215 | 0.011 | 0.215 | 0.197 | 0.233 | 0.305 | 0.015 | 0.305 | 0.280 | 0.331 |
| 6 | *Stikine* | 0.004 | 0.003 | 0.003 | 0.000 | 0.009 | 0.004 | 0.003 | 0.003 | 0.000 | 0.009 |
| 7 | *S Southeast Alaska* | 0.157 | 0.007 | 0.157 | 0.146 | 0.170 | 0.026 | 0.007 | 0.026 | 0.016 | 0.038 |
| 8 | *Nass* | 0.002 | 0.002 | 0.002 | 0.000 | 0.005 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |
| 9 | *Skeena* | 0.004 | 0.002 | 0.004 | 0.001 | 0.008 | 0.002 | 0.002 | 0.002 | 0.000 | 0.006 |
| 10 | *BC Coast/Haida Gwaii* | 0.041 | 0.006 | 0.041 | 0.032 | 0.052 | 0.042 | 0.007 | 0.042 | 0.031 | 0.054 |
| 11 | *West Vancouver* | 0.316 | 0.012 | 0.316 | 0.298 | 0.336 | 0.268 | 0.014 | 0.267 | 0.245 | 0.291 |
| 12 | *East Vancouver* | 0.017 | 0.004 | 0.017 | 0.011 | 0.023 | 0.022 | 0.005 | 0.021 | 0.014 | 0.030 |
| 13 | *Fraser* | 0.001 | 0.001 | 0.001 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.092 | 0.008 | 0.092 | 0.079 | 0.105 | 0.127 | 0.011 | 0.127 | 0.109 | 0.146 |
| 17 | *Puget Sound* | 0.006 | 0.002 | 0.006 | 0.003 | 0.010 | 0.003 | 0.002 | 0.003 | 0.001 | 0.006 |
| 18 | *Washington Coast* | 0.022 | 0.004 | 0.022 | 0.015 | 0.029 | 0.029 | 0.006 | 0.029 | 0.021 | 0.040 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 |
| 20 | *Lower Columbia F* | 0.023 | 0.004 | 0.023 | 0.017 | 0.031 | 0.033 | 0.006 | 0.033 | 0.024 | 0.044 |
| 21 | *Willamette Sp* | 0.006 | 0.002 | 0.006 | 0.003 | 0.009 | 0.008 | 0.003 | 0.008 | 0.004 | 0.013 |
| 22 | *Columbia Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.080 | 0.008 | 0.080 | 0.068 | 0.093 | 0.112 | 0.011 | 0.111 | 0.095 | 0.130 |
| 24 | *North Oregon Coast* | 0.006 | 0.002 | 0.005 | 0.003 | 0.009 | 0.008 | 0.003 | 0.008 | 0.004 | 0.013 |
| 25 | *Mid Oregon Coast* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.001 | 0.001 | 0.000 | 0.000 | 0.004 |
| 26 | *S Oregon/California* | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 |

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Appendix B16.–Page 2 of 2.

| Reporting group no. | Reporting group[a] | Southern Outside Quadrant ($n$ = 233) Mean | SD | Median | 90% CI 5% | 95% | Southern Inside Quadrant ($n$ = 184) Mean | SD | Median | 90% CI 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Situk* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 2 | *Alsek* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 3 | *N Southeast Alaska* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | | | | | |
| 4 | *Taku* | 0.000 | 0.003 | 0.000 | 0.000 | 0.002 | | | | | |
| 5 | *Andrew* | 0.010 | 0.009 | 0.009 | 0.000 | 0.027 | | | | | |
| 6 | *Stikine* | 0.003 | 0.006 | 0.000 | 0.000 | 0.017 | | | | | |
| 7 | *S Southeast Alaska* | 0.178 | 0.026 | 0.177 | 0.137 | 0.222 | | | | | |
| 8 | *Nass* | 0.009 | 0.008 | 0.007 | 0.000 | 0.024 | | | | | |
| 9 | *Skeena* | 0.003 | 0.006 | 0.000 | 0.000 | 0.016 | | | | | |
| 10 | *BC Coast/Haida Gwaii* | 0.052 | 0.018 | 0.050 | 0.026 | 0.085 | | | | | |
| 11 | *West Vancouver* | 0.669 | 0.031 | 0.670 | 0.617 | 0.720 | | | | | |
| 12 | *East Vancouver* | 0.009 | 0.007 | 0.007 | 0.001 | 0.024 | | | | | |
| 13 | *Fraser* | 0.004 | 0.003 | 0.003 | 0.000 | 0.011 | Insufficient sample size | | | | |
| 14 | *Lower Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 15 | *North Thompson* | 0.002 | 0.004 | 0.000 | 0.000 | 0.010 | | | | | |
| 16 | *South Thompson* | 0.017 | 0.008 | 0.016 | 0.006 | 0.032 | | | | | |
| 17 | *Puget Sound* | 0.021 | 0.010 | 0.020 | 0.008 | 0.039 | | | | | |
| 18 | *Washington Coast* | 0.007 | 0.007 | 0.005 | 0.000 | 0.021 | | | | | |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 20 | *Lower Columbia F* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 21 | *Willamette Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 22 | *Columbia Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 23 | *Interior Columbia Su/F* | 0.013 | 0.007 | 0.012 | 0.004 | 0.026 | | | | | |
| 24 | *North Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 25 | *Mid Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | | | | | |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: There was insufficient sample size (n = 184) for fine-scale reporting groups for the spring troll Southern Inside Quadrant.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

Appendix B17.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the first retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2021.

| Reporting group no. | Reporting group[a] | Regionwide[b] ($n$ = 705) | | | | | Northern Outside[b] ($n$ = 350) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.028 | 0.007 | 0.028 | 0.018 | 0.041 | 0.044 | 0.012 | 0.043 | 0.025 | 0.065 |
| 6 | *Stikine* | 0.006 | 0.004 | 0.006 | 0.000 | 0.014 | 0.012 | 0.008 | 0.011 | 0.000 | 0.027 |
| 7 | *S Southeast Alaska* | 0.024 | 0.007 | 0.024 | 0.014 | 0.035 | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 |
| 8 | *Nass* | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.004 | 0.004 | 0.003 | 0.000 | 0.012 | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| 10 | *BC Coast/Haida Gwaii* | 0.017 | 0.006 | 0.016 | 0.009 | 0.027 | 0.024 | 0.009 | 0.023 | 0.011 | 0.040 |
| 11 | *West Vancouver* | 0.079 | 0.010 | 0.079 | 0.063 | 0.097 | 0.133 | 0.018 | 0.133 | 0.104 | 0.165 |
| 12 | *East Vancouver* | 0.014 | 0.005 | 0.013 | 0.007 | 0.022 | 0.006 | 0.004 | 0.005 | 0.001 | 0.014 |
| 13 | *Fraser* | 0.002 | 0.001 | 0.001 | 0.000 | 0.005 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 14 | *Lower Thompson* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.004 | 0.003 | 0.004 | 0.001 | 0.009 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.310 | 0.017 | 0.310 | 0.282 | 0.339 | 0.210 | 0.022 | 0.210 | 0.175 | 0.248 |
| 17 | *Puget Sound* | 0.006 | 0.004 | 0.006 | 0.001 | 0.014 | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 |
| 18 | *Washington Coast* | 0.102 | 0.012 | 0.102 | 0.083 | 0.123 | 0.138 | 0.019 | 0.137 | 0.107 | 0.171 |
| 19 | *West Cascades Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.048 | 0.008 | 0.047 | 0.035 | 0.062 | 0.064 | 0.014 | 0.063 | 0.043 | 0.088 |
| 21 | *Willamette Sp* | 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 |
| 23 | *Interior Columbia Su/F* | 0.237 | 0.016 | 0.236 | 0.210 | 0.264 | 0.239 | 0.024 | 0.238 | 0.201 | 0.279 |
| 24 | *North Oregon Coast* | 0.112 | 0.013 | 0.112 | 0.092 | 0.134 | 0.125 | 0.019 | 0.124 | 0.095 | 0.157 |
| 25 | *Mid Oregon Coast* | 0.002 | 0.002 | 0.002 | 0.000 | 0.007 | 0.001 | 0.003 | 0.000 | 0.000 | 0.005 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

[b] Results did not converge at 40,000 iterations in BAYES for the Skeena reporting groups. Results are an average of all 5 chains.

Appendix B18.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the second retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2021.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 702) | | | | | Northern Outside ($n$ = 377) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| 5 | *Andrew* | 0.031 | 0.007 | 0.030 | 0.020 | 0.043 | 0.025 | 0.009 | 0.024 | 0.012 | 0.040 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 7 | *S Southeast Alaska* | 0.032 | 0.006 | 0.031 | 0.022 | 0.043 | 0.008 | 0.006 | 0.006 | 0.001 | 0.019 |
| 8 | *Nass* | 0.004 | 0.003 | 0.003 | 0.000 | 0.009 | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| 9 | *Skeena* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 |
| 10 | *BC Coast/Haida Gwaii* | 0.014 | 0.006 | 0.014 | 0.006 | 0.025 | 0.011 | 0.007 | 0.010 | 0.002 | 0.023 |
| 11 | *West Vancouver* | 0.121 | 0.014 | 0.121 | 0.099 | 0.145 | 0.127 | 0.017 | 0.127 | 0.100 | 0.157 |
| 12 | *East Vancouver* | 0.015 | 0.004 | 0.014 | 0.009 | 0.021 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 13 | *Fraser* | 0.002 | 0.002 | 0.002 | 0.000 | 0.007 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 14 | *Lower Thompson* | 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 | 0.001 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.058 | 0.010 | 0.057 | 0.042 | 0.075 | 0.058 | 0.012 | 0.057 | 0.039 | 0.079 |
| 17 | *Puget Sound* | 0.003 | 0.003 | 0.003 | 0.000 | 0.008 | 0.003 | 0.003 | 0.002 | 0.000 | 0.009 |
| 18 | *Washington Coast* | 0.183 | 0.018 | 0.183 | 0.155 | 0.214 | 0.213 | 0.023 | 0.212 | 0.176 | 0.251 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.052 | 0.010 | 0.051 | 0.036 | 0.070 | 0.058 | 0.013 | 0.057 | 0.038 | 0.081 |
| 21 | *Willamette Sp* | 0.005 | 0.003 | 0.004 | 0.001 | 0.010 | 0.005 | 0.004 | 0.004 | 0.001 | 0.013 |
| 22 | *Columbia Sp* | 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* | 0.304 | 0.019 | 0.304 | 0.272 | 0.336 | 0.335 | 0.025 | 0.335 | 0.295 | 0.376 |
| 24 | *North Oregon Coast* | 0.148 | 0.016 | 0.147 | 0.123 | 0.174 | 0.128 | 0.019 | 0.127 | 0.098 | 0.160 |
| 25 | *Mid Oregon Coast* | 0.026 | 0.008 | 0.025 | 0.013 | 0.041 | 0.022 | 0.010 | 0.021 | 0.008 | 0.040 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

Appendix B19.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest, AY 2021.

| Area | Period | Sample size | Reporting group | Mean | SD | Median | 90% CI 5% | 90% CI 95% |
|---|---|---|---|---|---|---|---|---|
| Ketchikan | All season | 469 | *Alaska* | 0.432 | 0.026 | 0.432 | 0.390 | 0.475 |
| | | | *TBR* | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.458 | 0.026 | 0.458 | 0.415 | 0.501 |
| | | | *US South* | 0.109 | 0.015 | 0.109 | 0.085 | 0.135 |
| Craig | All season | 559 | *Alaska* | 0.133 | 0.016 | 0.132 | 0.108 | 0.160 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| | | | *Canada* | 0.670 | 0.021 | 0.670 | 0.635 | 0.704 |
| | | | *US South* | 0.197 | 0.017 | 0.197 | 0.169 | 0.226 |
| Sitka | All season | 770 | *Alaska* | 0.104 | 0.012 | 0.104 | 0.085 | 0.125 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.477 | 0.019 | 0.477 | 0.446 | 0.508 |
| | | | *US South* | 0.418 | 0.018 | 0.418 | 0.388 | 0.449 |
| Petersburg-Wrangell | All season | 115 | *Alaska* | 0.844 | 0.041 | 0.848 | 0.771 | 0.906 |
| | | | *TBR* | 0.001 | 0.005 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.145 | 0.041 | 0.141 | 0.085 | 0.218 |
| | | | *US South* | 0.010 | 0.011 | 0.006 | 0.000 | 0.031 |
| Northern Inside | All season | 244 | *Alaska* | 0.800 | 0.035 | 0.802 | 0.740 | 0.853 |
| | | | *TBR* | 0.076 | 0.030 | 0.070 | 0.036 | 0.136 |
| | | | *Canada* | 0.103 | 0.024 | 0.101 | 0.067 | 0.144 |
| | | | *US South* | 0.021 | 0.010 | 0.020 | 0.008 | 0.040 |
| Outside | All season | 1,127 | *Alaska* | 0.111 | 0.010 | 0.111 | 0.094 | 0.128 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.539 | 0.016 | 0.539 | 0.513 | 0.565 |
| | | | *US South* | 0.350 | 0.015 | 0.350 | 0.326 | 0.374 |
| | Biweeks 9–13 | 824 | *Alaska* | 0.144 | 0.014 | 0.144 | 0.122 | 0.167 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.508 | 0.019 | 0.508 | 0.477 | 0.538 |
| | | | *US South* | 0.347 | 0.017 | 0.347 | 0.319 | 0.376 |
| | Biweeks 14–18 | 303 | *Alaska* | 0.024 | 0.011 | 0.022 | 0.008 | 0.043 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 |
| | | | *Canada* | 0.620 | 0.029 | 0.620 | 0.572 | 0.667 |
| | | | *US South* | 0.356 | 0.028 | 0.355 | 0.311 | 0.402 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

Appendix B20.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest by area and season, AY 2021.

| | Ketchikan ($n$ = 469) | | | | | Petersburg-Wrangell ($n$ = 115) | | | | | Northern Inside ($n$ = 244) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.433 | 0.026 | 0.432 | 0.391 | 0.475 | 0.845 | 0.041 | 0.849 | 0.772 | 0.907 | 0.876 | 0.025 | 0.877 | 0.832 | 0.914 |
| *NCBC* | 0.052 | 0.015 | 0.052 | 0.028 | 0.079 | 0.074 | 0.034 | 0.069 | 0.027 | 0.138 | 0.096 | 0.024 | 0.094 | 0.060 | 0.137 |
| *West Vancouver* | 0.247 | 0.020 | 0.247 | 0.215 | 0.281 | 0.018 | 0.013 | 0.015 | 0.003 | 0.043 | 0.003 | 0.004 | 0.001 | 0.000 | 0.011 |
| *South Thompson* | 0.115 | 0.015 | 0.115 | 0.091 | 0.141 | 0.009 | 0.009 | 0.006 | 0.000 | 0.026 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Washington Coast* | 0.002 | 0.003 | 0.001 | 0.000 | 0.007 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.005 | 0.004 | 0.003 | 0.000 | 0.013 |
| *Interior Columbia Su/F* | 0.060 | 0.011 | 0.059 | 0.042 | 0.080 | 0.007 | 0.009 | 0.005 | 0.000 | 0.025 | 0.009 | 0.006 | 0.007 | 0.001 | 0.021 |
| *Oregon Coast* | 0.009 | 0.004 | 0.008 | 0.003 | 0.017 | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Other* | 0.081 | 0.014 | 0.081 | 0.060 | 0.105 | 0.046 | 0.020 | 0.043 | 0.019 | 0.083 | 0.013 | 0.008 | 0.011 | 0.003 | 0.027 |

| | Craig ($n$ = 559) | | | | | Sitka ($n$ = 770) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.133 | 0.016 | 0.133 | 0.108 | 0.160 | 0.105 | 0.012 | 0.104 | 0.085 | 0.125 |
| *NCBC* | 0.105 | 0.014 | 0.104 | 0.082 | 0.129 | 0.049 | 0.009 | 0.048 | 0.034 | 0.064 |
| *West Vancouver* | 0.404 | 0.021 | 0.404 | 0.370 | 0.439 | 0.210 | 0.015 | 0.210 | 0.186 | 0.235 |
| *South Thompson* | 0.129 | 0.015 | 0.129 | 0.106 | 0.154 | 0.199 | 0.015 | 0.199 | 0.175 | 0.223 |
| *Washington Coast* | 0.066 | 0.011 | 0.065 | 0.048 | 0.085 | 0.095 | 0.012 | 0.094 | 0.076 | 0.114 |
| *Interior Columbia Su/F* | 0.093 | 0.013 | 0.092 | 0.073 | 0.114 | 0.215 | 0.015 | 0.215 | 0.190 | 0.240 |
| *Oregon Coast* | 0.014 | 0.006 | 0.013 | 0.006 | 0.024 | 0.064 | 0.010 | 0.064 | 0.049 | 0.082 |
| *Other* | 0.057 | 0.011 | 0.057 | 0.041 | 0.076 | 0.064 | 0.010 | 0.063 | 0.049 | 0.081 |

| | Outside All Season ($n$ = 1,127) | | | | | Outside Biweeks 9–13 ($n$ = 824) | | | | | Outside Biweeks 14–18 ($n$ = 303) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.112 | 0.010 | 0.111 | 0.095 | 0.129 | 0.145 | 0.013 | 0.144 | 0.123 | 0.167 | 0.024 | 0.011 | 0.023 | 0.009 | 0.044 |
| *NCBC* | 0.071 | 0.009 | 0.071 | 0.057 | 0.087 | 0.064 | 0.010 | 0.063 | 0.047 | 0.081 | 0.091 | 0.018 | 0.090 | 0.064 | 0.123 |
| *West Vancouver* | 0.262 | 0.013 | 0.262 | 0.241 | 0.284 | 0.244 | 0.015 | 0.244 | 0.219 | 0.269 | 0.312 | 0.027 | 0.311 | 0.269 | 0.356 |
| *South Thompson* | 0.177 | 0.012 | 0.177 | 0.158 | 0.196 | 0.169 | 0.013 | 0.169 | 0.147 | 0.191 | 0.197 | 0.023 | 0.197 | 0.160 | 0.237 |
| *Washington Coast* | 0.084 | 0.009 | 0.084 | 0.070 | 0.099 | 0.073 | 0.010 | 0.072 | 0.057 | 0.090 | 0.115 | 0.019 | 0.114 | 0.086 | 0.148 |
| *Interior Columbia Su/F* | 0.177 | 0.012 | 0.177 | 0.158 | 0.196 | 0.176 | 0.014 | 0.176 | 0.154 | 0.199 | 0.178 | 0.022 | 0.178 | 0.143 | 0.216 |
| *Oregon Coast* | 0.050 | 0.007 | 0.049 | 0.038 | 0.062 | 0.058 | 0.009 | 0.058 | 0.044 | 0.074 | 0.028 | 0.010 | 0.027 | 0.013 | 0.047 |
| *Other* | 0.067 | 0.008 | 0.067 | 0.054 | 0.081 | 0.072 | 0.010 | 0.072 | 0.057 | 0.089 | 0.054 | 0.014 | 0.053 | 0.033 | 0.078 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

Appendix B21.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Petersburg-Wrangell, Northern Inside (Juneau, Haines, and Skagway), Craig, and Sitka areas of Southeast Alaska, AY 2021.

| | | Ketchikan ($n$ = 469) | | | | | Petersburg-Wrangell ($n$ =115) | | | | | Northern Inside Quadrant ($n$ = 244) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reporting | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 |
| 2 | *Alsek* | 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 | 0.001 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.042 | 0.021 | 0.042 | 0.008 | 0.078 |
| 5 | *Andrew* | 0.016 | 0.012 | 0.015 | 0.000 | 0.037 | | | | | | 0.775 | 0.035 | 0.777 | 0.714 | 0.828 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.033 | 0.032 | 0.030 | 0.000 | 0.094 |
| 7 | *S Southeast Alaska* | 0.416 | 0.026 | 0.416 | 0.373 | 0.460 | | | | | | 0.024 | 0.019 | 0.021 | 0.000 | 0.059 |
| 8 | *Nass* | 0.036 | 0.014 | 0.036 | 0.015 | 0.060 | | | | | | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 |
| 9 | *Skeena* | 0.004 | 0.004 | 0.002 | 0.000 | 0.012 | | | | | | 0.017 | 0.008 | 0.015 | 0.006 | 0.032 |
| 10 | *BC Coast/Haida Gwaii* | 0.012 | 0.007 | 0.011 | 0.003 | 0.025 | | | | | | 0.079 | 0.022 | 0.077 | 0.045 | 0.118 |
| 11 | *West Vancouver* | 0.247 | 0.020 | 0.247 | 0.215 | 0.281 | | | | | | 0.003 | 0.004 | 0.001 | 0.000 | 0.011 |
| 12 | *East Vancouver* | 0.032 | 0.009 | 0.031 | 0.019 | 0.047 | | | | | | 0.004 | 0.005 | 0.003 | 0.000 | 0.013 |
| 13 | *Fraser* | 0.009 | 0.005 | 0.008 | 0.003 | 0.018 | | Insufficient sample size | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 14 | *Lower Thompson* | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | | | | | | 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 |
| 16 | *South Thompson* | 0.115 | 0.015 | 0.115 | 0.091 | 0.141 | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 17 | *Puget Sound* | 0.022 | 0.007 | 0.021 | 0.011 | 0.035 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 18 | *Washington Coast* | 0.002 | 0.003 | 0.001 | 0.000 | 0.007 | | | | | | 0.005 | 0.004 | 0.003 | 0.000 | 0.013 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.014 | 0.007 | 0.013 | 0.005 | 0.026 | | | | | | 0.008 | 0.006 | 0.006 | 0.001 | 0.019 |
| 21 | *Willamette Sp* | 0.003 | 0.003 | 0.002 | 0.000 | 0.008 | | | | | | 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 |
| 23 | *Interior Columbia Su/F* | 0.060 | 0.011 | 0.059 | 0.042 | 0.080 | | | | | | 0.009 | 0.006 | 0.007 | 0.001 | 0.021 |
| 24 | *North Oregon Coast* | 0.009 | 0.004 | 0.008 | 0.003 | 0.017 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 25 | *Mid Oregon Coast* | 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 | 0.000 | 0.000 | 0.000 | 0.000 |

-continued-

| Reporting group no. | Reporting group[a] | Craig (*n* = 559) Mean | SD | Median | 90% CI 5% | 95% | Sitka (*n* = 770) Mean | SD | Median | 90% CI 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 5 | *Andrew* | 0.032 | 0.009 | 0.031 | 0.018 | 0.048 | 0.069 | 0.011 | 0.069 | 0.052 | 0.088 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 |
| 7 | *S Southeast Alaska* | 0.101 | 0.015 | 0.101 | 0.078 | 0.126 | 0.035 | 0.009 | 0.034 | 0.021 | 0.050 |
| 8 | *Nass* | 0.008 | 0.005 | 0.007 | 0.002 | 0.017 | 0.004 | 0.004 | 0.003 | 0.000 | 0.011 |
| 9 | *Skeena* | 0.044 | 0.010 | 0.044 | 0.028 | 0.062 | 0.011 | 0.006 | 0.010 | 0.003 | 0.021 |
| 10 | *BC Coast/Haida Gwaii* | 0.052 | 0.010 | 0.052 | 0.037 | 0.070 | 0.034 | 0.007 | 0.034 | 0.023 | 0.047 |
| 11 | *West Vancouver* | 0.404 | 0.021 | 0.404 | 0.370 | 0.439 | 0.210 | 0.015 | 0.210 | 0.186 | 0.235 |
| 12 | *East Vancouver* | 0.032 | 0.008 | 0.032 | 0.021 | 0.046 | 0.017 | 0.005 | 0.017 | 0.010 | 0.026 |
| 13 | *Fraser* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.002 | 0.002 | 0.001 | 0.000 | 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 |
| 15 | *North Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.003 |
| 16 | *South Thompson* | 0.129 | 0.015 | 0.129 | 0.106 | 0.154 | 0.199 | 0.015 | 0.199 | 0.175 | 0.223 |
| 17 | *Puget Sound* | 0.010 | 0.005 | 0.009 | 0.003 | 0.019 | 0.002 | 0.003 | 0.001 | 0.000 | 0.009 |
| 18 | *Washington Coast* | 0.066 | 0.011 | 0.065 | 0.048 | 0.085 | 0.095 | 0.012 | 0.094 | 0.076 | 0.114 |
| 19 | *West Cascades Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.015 | 0.006 | 0.015 | 0.006 | 0.027 | 0.033 | 0.007 | 0.032 | 0.022 | 0.046 |
| 21 | *Willamette Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.009 | 0.004 | 0.009 | 0.004 | 0.016 |
| 22 | *Columbia Sp* | 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* | 0.093 | 0.013 | 0.092 | 0.073 | 0.114 | 0.215 | 0.015 | 0.215 | 0.190 | 0.240 |
| 24 | *North Oregon Coast* | 0.013 | 0.005 | 0.012 | 0.006 | 0.023 | 0.059 | 0.011 | 0.059 | 0.043 | 0.077 |
| 25 | *Mid Oregon Coast* | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 | 0.005 | 0.005 | 0.004 | 0.000 | 0.015 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |

*Note*: *n* = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: There was insufficient sample size (n = 115) for fine-scale reporting groups for Petersburg-Wrangell.

*Note*: AY 2021 = Accounting year 2021 = October 1, 2020–September 30, 2021.

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

Appendix B22.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) sport fishery harvest in outside waters (Craig/Klawock, Sitka, Yakutat, Gustavus, and Elfin Cove) of Southeast Alaska, AY 2021.

| | | Total season ($n$ = 1,127) | | | | | Early season ($n$ = 824) | | | | | Late season ($n$ = 303) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reporting | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 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 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.056 | 0.008 | 0.056 | 0.044 | 0.070 | 0.070 | 0.010 | 0.069 | 0.053 | 0.087 | 0.021 | 0.011 | 0.020 | 0.006 | 0.041 |
| 6 | *Stikine* | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 |
| 7 | *S Southeast Alaska* | 0.055 | 0.008 | 0.054 | 0.042 | 0.068 | 0.074 | 0.011 | 0.074 | 0.057 | 0.093 | 0.002 | 0.005 | 0.000 | 0.000 | 0.014 |
| 8 | *Nass* | 0.007 | 0.003 | 0.007 | 0.003 | 0.013 | 0.007 | 0.004 | 0.007 | 0.002 | 0.015 | 0.007 | 0.005 | 0.006 | 0.001 | 0.016 |
| 9 | *Skeena* | 0.019 | 0.006 | 0.018 | 0.011 | 0.029 | 0.014 | 0.007 | 0.013 | 0.005 | 0.026 | 0.032 | 0.012 | 0.031 | 0.015 | 0.054 |
| 10 | *BC Coast/Haida Gwaii* | 0.045 | 0.007 | 0.045 | 0.034 | 0.057 | 0.043 | 0.008 | 0.042 | 0.030 | 0.057 | 0.052 | 0.014 | 0.051 | 0.032 | 0.076 |
| 11 | *West Vancouver* | 0.262 | 0.013 | 0.262 | 0.241 | 0.284 | 0.244 | 0.015 | 0.244 | 0.219 | 0.269 | 0.312 | 0.027 | 0.311 | 0.269 | 0.356 |
| 12 | *East Vancouver* | 0.026 | 0.005 | 0.026 | 0.019 | 0.035 | 0.030 | 0.006 | 0.029 | 0.020 | 0.041 | 0.016 | 0.007 | 0.015 | 0.006 | 0.030 |
| 13 | *Fraser* | 0.002 | 0.001 | 0.001 | 0.000 | 0.004 | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.003 | 0.004 | 0.002 | 0.000 | 0.011 |
| 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 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.177 | 0.012 | 0.177 | 0.158 | 0.196 | 0.169 | 0.013 | 0.169 | 0.147 | 0.191 | 0.197 | 0.023 | 0.197 | 0.160 | 0.237 |
| 17 | *Puget Sound* | 0.003 | 0.002 | 0.003 | 0.000 | 0.007 | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.009 | 0.007 | 0.008 | 0.001 | 0.022 |
| 18 | *Washington Coast* | 0.084 | 0.009 | 0.084 | 0.070 | 0.099 | 0.073 | 0.010 | 0.072 | 0.057 | 0.090 | 0.115 | 0.019 | 0.114 | 0.086 | 0.148 |
| 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* | 0.028 | 0.006 | 0.027 | 0.019 | 0.037 | 0.031 | 0.007 | 0.031 | 0.021 | 0.043 | 0.018 | 0.008 | 0.017 | 0.006 | 0.033 |
| 21 | *Willamette Sp* | 0.008 | 0.003 | 0.008 | 0.004 | 0.014 | 0.009 | 0.004 | 0.008 | 0.003 | 0.015 | 0.007 | 0.005 | 0.006 | 0.001 | 0.016 |
| 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* | 0.177 | 0.012 | 0.177 | 0.158 | 0.196 | 0.176 | 0.014 | 0.176 | 0.154 | 0.199 | 0.178 | 0.022 | 0.178 | 0.143 | 0.216 |
| 24 | *North Oregon Coast* | 0.043 | 0.007 | 0.043 | 0.033 | 0.055 | 0.050 | 0.009 | 0.049 | 0.036 | 0.065 | 0.027 | 0.010 | 0.026 | 0.012 | 0.045 |
| 25 | *Mid Oregon Coast* | 0.006 | 0.004 | 0.006 | 0.000 | 0.013 | 0.008 | 0.005 | 0.008 | 0.000 | 0.017 | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

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

Appendix B23.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest, AY 2022.

| Fishery | Quadrant | Sample size | Reporting group | Mean | SD | Median | 90% CI 5% | 90% CI 95% |
|---|---|---|---|---|---|---|---|---|
| Early winter | All | 561 | *Alaska* | 0.319 | 0.019 | 0.319 | 0.287 | 0.350 |
| | | | *TBR* | 0.008 | 0.006 | 0.007 | 0.000 | 0.020 |
| | | | *Canada* | 0.343 | 0.024 | 0.343 | 0.304 | 0.382 |
| | | | *US South* | 0.330 | 0.020 | 0.330 | 0.298 | 0.363 |
| | NO | 288 | *Alaska* | 0.070 | 0.018 | 0.069 | 0.043 | 0.103 |
| | | | *TBR* | 0.015 | 0.012 | 0.013 | 0.000 | 0.037 |
| | | | *Canada* | 0.377 | 0.032 | 0.377 | 0.325 | 0.430 |
| | | | *US South* | 0.538 | 0.031 | 0.538 | 0.487 | 0.588 |
| Late winter | All | 1,088 | *Alaska* | 0.143 | 0.012 | 0.143 | 0.124 | 0.163 |
| | | | *TBR* | 0.023 | 0.006 | 0.022 | 0.014 | 0.033 |
| | | | *Canada* | 0.472 | 0.016 | 0.472 | 0.446 | 0.499 |
| | | | *US South* | 0.361 | 0.014 | 0.361 | 0.338 | 0.385 |
| | NO | 834 | *Alaska* | 0.140 | 0.014 | 0.140 | 0.118 | 0.163 |
| | | | *TBR* | 0.018 | 0.006 | 0.017 | 0.009 | 0.028 |
| | | | *Canada* | 0.398 | 0.018 | 0.398 | 0.368 | 0.429 |
| | | | *US South* | 0.444 | 0.017 | 0.444 | 0.415 | 0.473 |
| Spring | All | 1,456 | *Alaska* | 0.443 | 0.014 | 0.443 | 0.420 | 0.465 |
| | | | *TBR* | 0.009 | 0.003 | 0.009 | 0.005 | 0.015 |
| | | | *Canada* | 0.331 | 0.013 | 0.331 | 0.310 | 0.353 |
| | | | *US South* | 0.217 | 0.012 | 0.216 | 0.198 | 0.236 |
| | NO | 1,015 | *Alaska* | 0.339 | 0.018 | 0.339 | 0.310 | 0.368 |
| | | | *TBR* | 0.005 | 0.002 | 0.004 | 0.001 | 0.009 |
| | | | *Canada* | 0.351 | 0.017 | 0.350 | 0.323 | 0.379 |
| | | | *US South* | 0.306 | 0.017 | 0.306 | 0.279 | 0.334 |
| | SO | 222 | *Alaska* | 0.294 | 0.034 | 0.293 | 0.238 | 0.351 |
| | | | *TBR* | 0.024 | 0.013 | 0.022 | 0.008 | 0.047 |
| | | | *Canada* | 0.624 | 0.037 | 0.625 | 0.564 | 0.684 |
| | | | *US South* | 0.058 | 0.017 | 0.056 | 0.032 | 0.088 |
| | SI | 219 | *Alaska* | 0.923 | 0.025 | 0.926 | 0.879 | 0.961 |
| | | | *TBR* | 0.017 | 0.012 | 0.014 | 0.002 | 0.040 |
| | | | *Canada* | 0.053 | 0.022 | 0.050 | 0.021 | 0.093 |
| | | | *US South* | 0.007 | 0.006 | 0.005 | 0.001 | 0.019 |
| Summer retention 1 | All | 892 | *Alaska* | 0.069 | 0.009 | 0.069 | 0.054 | 0.085 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.239 | 0.015 | 0.239 | 0.214 | 0.265 |
| | | | *US South* | 0.691 | 0.016 | 0.691 | 0.663 | 0.717 |
| | NO | 530 | *Alaska* | 0.059 | 0.011 | 0.059 | 0.042 | 0.078 |
| | | | *TBR* | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 |
| | | | *Canada* | 0.222 | 0.019 | 0.221 | 0.192 | 0.254 |
| | | | *US South* | 0.718 | 0.020 | 0.719 | 0.685 | 0.751 |
| Summer retention 2 | All | 658 | *Alaska* | 0.073 | 0.010 | 0.073 | 0.057 | 0.091 |
| | | | *TBR* | 0.015 | 0.007 | 0.014 | 0.005 | 0.027 |
| | | | *Canada* | 0.187 | 0.017 | 0.186 | 0.159 | 0.216 |
| | | | *US South* | 0.726 | 0.019 | 0.726 | 0.694 | 0.756 |
| | NO | 481 | *Alaska* | 0.049 | 0.011 | 0.048 | 0.032 | 0.068 |
| | | | *TBR* | 0.017 | 0.008 | 0.016 | 0.005 | 0.031 |
| | | | *Canada* | 0.196 | 0.020 | 0.196 | 0.165 | 0.229 |
| | | | *US South* | 0.738 | 0.021 | 0.738 | 0.703 | 0.772 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

Appendix B24.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska troll fishery harvest by season and quadrant, AY 2022.

| | Early winter regionwide ($n$ = 561) | | | | | Early winter Northern Outside ($n$ = 288) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.327 | 0.020 | 0.327 | 0.295 | 0.360 | 0.085 | 0.020 | 0.084 | 0.055 | 0.121 |
| *NCBC* | 0.190 | 0.021 | 0.190 | 0.156 | 0.226 | 0.189 | 0.027 | 0.188 | 0.145 | 0.234 |
| *West Vancouver* | 0.044 | 0.009 | 0.044 | 0.031 | 0.060 | 0.076 | 0.016 | 0.075 | 0.052 | 0.103 |
| *South Thompson* | 0.023 | 0.007 | 0.022 | 0.013 | 0.035 | 0.044 | 0.013 | 0.043 | 0.025 | 0.066 |
| *Washington Coast* | 0.005 | 0.003 | 0.005 | 0.001 | 0.012 | 0.010 | 0.006 | 0.009 | 0.002 | 0.022 |
| *Interior Columbia Su/F* | 0.182 | 0.015 | 0.182 | 0.158 | 0.207 | 0.350 | 0.029 | 0.349 | 0.303 | 0.398 |
| *Oregon Coast* | 0.007 | 0.004 | 0.006 | 0.002 | 0.014 | 0.013 | 0.007 | 0.012 | 0.004 | 0.027 |
| *Other* | 0.221 | 0.020 | 0.221 | 0.189 | 0.254 | 0.233 | 0.027 | 0.233 | 0.191 | 0.278 |
| | Late winter regionwide ($n$ = 1,088) | | | | | Late winter Northern Outside ($n$ = 834) | | | | |
| *SEAK/TBR* | 0.166 | 0.012 | 0.166 | 0.146 | 0.187 | 0.158 | 0.014 | 0.158 | 0.135 | 0.182 |
| *NCBC* | 0.097 | 0.010 | 0.097 | 0.081 | 0.114 | 0.086 | 0.011 | 0.085 | 0.068 | 0.105 |
| *West Vancouver* | 0.284 | 0.014 | 0.284 | 0.262 | 0.307 | 0.237 | 0.015 | 0.236 | 0.212 | 0.262 |
| *South Thompson* | 0.047 | 0.007 | 0.047 | 0.036 | 0.059 | 0.052 | 0.008 | 0.052 | 0.039 | 0.067 |
| *Washington Coast* | 0.034 | 0.006 | 0.034 | 0.025 | 0.045 | 0.039 | 0.008 | 0.039 | 0.028 | 0.053 |
| *Interior Columbia Su/F* | 0.158 | 0.011 | 0.158 | 0.140 | 0.176 | 0.200 | 0.014 | 0.200 | 0.178 | 0.224 |
| *Oregon Coast* | 0.015 | 0.004 | 0.015 | 0.009 | 0.022 | 0.018 | 0.005 | 0.018 | 0.011 | 0.028 |
| *Other* | 0.198 | 0.013 | 0.198 | 0.178 | 0.219 | 0.209 | 0.014 | 0.209 | 0.186 | 0.233 |
| | Spring regionwide ($n$ = 1,456) | | | | | Spring Northern Outside ($n$ = 1,015) | | | | |
| *SEAK/TBR* | 0.452 | 0.014 | 0.452 | 0.430 | 0.474 | 0.344 | 0.018 | 0.344 | 0.315 | 0.373 |
| *NCBC* | 0.034 | 0.007 | 0.033 | 0.024 | 0.045 | 0.026 | 0.006 | 0.025 | 0.017 | 0.037 |
| *West Vancouver* | 0.237 | 0.011 | 0.236 | 0.219 | 0.255 | 0.246 | 0.015 | 0.245 | 0.222 | 0.270 |
| *South Thompson* | 0.037 | 0.006 | 0.037 | 0.028 | 0.048 | 0.053 | 0.009 | 0.052 | 0.039 | 0.068 |
| *Washington Coast* | 0.041 | 0.006 | 0.040 | 0.031 | 0.051 | 0.060 | 0.009 | 0.059 | 0.045 | 0.075 |
| *Interior Columbia Su/F* | 0.129 | 0.010 | 0.128 | 0.113 | 0.146 | 0.182 | 0.015 | 0.182 | 0.159 | 0.207 |
| *Oregon Coast* | 0.013 | 0.003 | 0.012 | 0.008 | 0.019 | 0.018 | 0.005 | 0.018 | 0.011 | 0.028 |
| *Other* | 0.059 | 0.007 | 0.058 | 0.048 | 0.070 | 0.072 | 0.009 | 0.071 | 0.057 | 0.087 |
| | Spring Southern Outside ($n$ = 222) | | | | | Spring Southern Inside ($n$ = 219) | | | | |
| *SEAK/TBR* | 0.318 | 0.035 | 0.318 | 0.261 | 0.376 | 0.940 | 0.023 | 0.943 | 0.899 | 0.974 |
| *NCBC* | 0.067 | 0.023 | 0.065 | 0.032 | 0.108 | 0.038 | 0.021 | 0.036 | 0.010 | 0.077 |
| *West Vancouver* | 0.504 | 0.034 | 0.504 | 0.449 | 0.560 | 0.014 | 0.008 | 0.012 | 0.004 | 0.029 |
| *South Thompson* | 0.008 | 0.007 | 0.007 | 0.000 | 0.022 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Interior Columbia Su/F* | 0.036 | 0.013 | 0.034 | 0.017 | 0.060 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| *Other* | 0.066 | 0.018 | 0.064 | 0.039 | 0.099 | 0.007 | 0.006 | 0.005 | 0.001 | 0.019 |
| | Summer 1 regionwide ($n$ = 892) | | | | | Summer 1 Northern Outside ($n$ = 530) | | | | |
| *SEAK/TBR* | 0.070 | 0.009 | 0.070 | 0.055 | 0.086 | 0.060 | 0.011 | 0.059 | 0.043 | 0.079 |
| *NCBC* | 0.030 | 0.007 | 0.029 | 0.019 | 0.042 | 0.030 | 0.009 | 0.029 | 0.018 | 0.046 |
| *West Vancouver* | 0.081 | 0.010 | 0.080 | 0.066 | 0.097 | 0.078 | 0.012 | 0.077 | 0.059 | 0.098 |
| *South Thompson* | 0.110 | 0.011 | 0.110 | 0.093 | 0.129 | 0.093 | 0.013 | 0.092 | 0.073 | 0.115 |
| *Washington Coast* | 0.161 | 0.014 | 0.161 | 0.139 | 0.185 | 0.171 | 0.017 | 0.171 | 0.144 | 0.201 |
| *Interior Columbia Su/F* | 0.304 | 0.017 | 0.304 | 0.277 | 0.332 | 0.313 | 0.021 | 0.313 | 0.280 | 0.348 |
| *Oregon Coast* | 0.159 | 0.014 | 0.159 | 0.137 | 0.182 | 0.164 | 0.017 | 0.164 | 0.137 | 0.193 |
| *Other* | 0.085 | 0.011 | 0.084 | 0.067 | 0.104 | 0.090 | 0.014 | 0.090 | 0.069 | 0.114 |

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| | Summer 2 regionwide ($n$ = 658) | | | | | Summer 2 Northern Outside ($n$ = 481) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.088 | 0.012 | 0.087 | 0.069 | 0.108 | 0.066 | 0.013 | 0.065 | 0.046 | 0.088 |
| *NCBC* | 0.038 | 0.010 | 0.037 | 0.023 | 0.056 | 0.043 | 0.012 | 0.042 | 0.025 | 0.063 |
| *West Vancouver* | 0.098 | 0.012 | 0.098 | 0.079 | 0.119 | 0.107 | 0.014 | 0.106 | 0.084 | 0.131 |
| *South Thompson* | 0.033 | 0.008 | 0.033 | 0.022 | 0.047 | 0.030 | 0.008 | 0.029 | 0.017 | 0.045 |
| *Washington Coast* | 0.209 | 0.018 | 0.209 | 0.180 | 0.239 | 0.225 | 0.020 | 0.224 | 0.192 | 0.259 |
| *Interior Columbia Su/F* | 0.296 | 0.019 | 0.295 | 0.265 | 0.327 | 0.310 | 0.022 | 0.310 | 0.275 | 0.347 |
| *Oregon Coast* | 0.156 | 0.015 | 0.155 | 0.131 | 0.182 | 0.141 | 0.017 | 0.141 | 0.114 | 0.170 |
| *Other* | 0.083 | 0.012 | 0.082 | 0.064 | 0.104 | 0.078 | 0.014 | 0.078 | 0.057 | 0.102 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

Appendix B25.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the early winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2022.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 561) | | | | | Northern Outside quadrant ($n$ = 288) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | *Alsek* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| 3 | *N Southeast Alaska* | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.004 | 0.005 | 0.002 | 0.000 | 0.015 | 0.007 | 0.010 | 0.004 | 0.000 | 0.028 |
| 5 | *Andrew* | 0.092 | 0.011 | 0.091 | 0.074 | 0.110 | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 |
| 6 | *Stikine* | 0.003 | 0.006 | 0.000 | 0.000 | 0.015 | 0.006 | 0.010 | 0.000 | 0.000 | 0.028 |
| 7 | *S Southeast Alaska* | 0.225 | 0.020 | 0.225 | 0.193 | 0.258 | 0.070 | 0.018 | 0.068 | 0.042 | 0.102 |
| 8 | *Nass* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 |
| 9 | *Skeena* | 0.026 | 0.009 | 0.026 | 0.011 | 0.043 | 0.033 | 0.015 | 0.033 | 0.006 | 0.059 |
| 10 | *BC Coast/Haida Gwaii* | 0.163 | 0.020 | 0.162 | 0.131 | 0.197 | 0.154 | 0.025 | 0.153 | 0.115 | 0.196 |
| 11 | *West Vancouver* | 0.044 | 0.009 | 0.044 | 0.031 | 0.060 | 0.076 | 0.016 | 0.075 | 0.052 | 0.103 |
| 12 | *East Vancouver* | 0.080 | 0.012 | 0.080 | 0.062 | 0.101 | 0.060 | 0.015 | 0.059 | 0.038 | 0.086 |
| 13 | *Fraser* | 0.003 | 0.002 | 0.002 | 0.000 | 0.007 | 0.004 | 0.004 | 0.003 | 0.000 | 0.011 |
| 14 | *Lower Thompson* | 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 | 0.002 | 0.002 | 0.000 | 0.007 | 0.004 | 0.004 | 0.003 | 0.000 | 0.013 |
| 16 | *South Thompson* | 0.023 | 0.007 | 0.022 | 0.013 | 0.035 | 0.044 | 0.013 | 0.043 | 0.025 | 0.066 |
| 17 | *Puget Sound* | 0.094 | 0.015 | 0.094 | 0.071 | 0.119 | 0.099 | 0.019 | 0.098 | 0.069 | 0.133 |
| 18 | *Washington Coast* | 0.005 | 0.003 | 0.005 | 0.001 | 0.012 | 0.010 | 0.006 | 0.009 | 0.002 | 0.022 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.012 | 0.005 | 0.011 | 0.005 | 0.022 | 0.009 | 0.006 | 0.007 | 0.001 | 0.021 |
| 21 | *Willamette Sp* | 0.029 | 0.007 | 0.029 | 0.018 | 0.042 | 0.056 | 0.014 | 0.055 | 0.035 | 0.081 |
| 22 | *Columbia Sp* | 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* | 0.182 | 0.015 | 0.182 | 0.158 | 0.207 | 0.350 | 0.029 | 0.349 | 0.303 | 0.398 |
| 24 | *North Oregon Coast* | 0.007 | 0.004 | 0.006 | 0.002 | 0.014 | 0.013 | 0.007 | 0.011 | 0.004 | 0.026 |
| 25 | *Mid Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

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

Appendix B26.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the late winter troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2022.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 1,088) | | | | | Northern Outside quadrant ($n$ = 834) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.015 | 0.005 | 0.014 | 0.007 | 0.024 | 0.015 | 0.006 | 0.014 | 0.005 | 0.025 |
| 5 | *Andrew* | 0.066 | 0.009 | 0.066 | 0.052 | 0.082 | 0.077 | 0.011 | 0.077 | 0.059 | 0.097 |
| 6 | *Stikine* | 0.008 | 0.005 | 0.007 | 0.002 | 0.017 | 0.003 | 0.005 | 0.000 | 0.000 | 0.013 |
| 7 | *S Southeast Alaska* | 0.076 | 0.010 | 0.075 | 0.059 | 0.093 | 0.063 | 0.011 | 0.062 | 0.045 | 0.082 |
| 8 | *Nass* | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 |
| 9 | *Skeena* | 0.010 | 0.003 | 0.010 | 0.005 | 0.016 | 0.006 | 0.004 | 0.006 | 0.001 | 0.013 |
| 10 | *BC Coast/Haida Gwaii* | 0.086 | 0.009 | 0.086 | 0.071 | 0.103 | 0.079 | 0.010 | 0.078 | 0.062 | 0.096 |
| 11 | *West Vancouver* | 0.284 | 0.014 | 0.284 | 0.262 | 0.307 | 0.237 | 0.015 | 0.236 | 0.212 | 0.262 |
| 12 | *East Vancouver* | 0.037 | 0.006 | 0.036 | 0.027 | 0.047 | 0.016 | 0.005 | 0.015 | 0.009 | 0.024 |
| 13 | *Fraser* | 0.005 | 0.002 | 0.005 | 0.002 | 0.009 | 0.005 | 0.003 | 0.004 | 0.001 | 0.010 |
| 14 | *Lower Thompson* | 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 | 0.002 | 0.002 | 0.000 | 0.005 | 0.003 | 0.002 | 0.003 | 0.001 | 0.007 |
| 16 | *South Thompson* | 0.047 | 0.007 | 0.047 | 0.036 | 0.059 | 0.052 | 0.008 | 0.052 | 0.039 | 0.067 |
| 17 | *Puget Sound* | 0.031 | 0.006 | 0.030 | 0.021 | 0.042 | 0.027 | 0.006 | 0.027 | 0.017 | 0.038 |
| 18 | *Washington Coast* | 0.034 | 0.006 | 0.034 | 0.025 | 0.045 | 0.039 | 0.008 | 0.039 | 0.028 | 0.053 |
| 19 | *West Cascades Sp* | 0.005 | 0.003 | 0.004 | 0.002 | 0.011 | 0.007 | 0.004 | 0.006 | 0.002 | 0.014 |
| 20 | *Lower Columbia F* | 0.035 | 0.006 | 0.035 | 0.026 | 0.045 | 0.045 | 0.008 | 0.045 | 0.033 | 0.058 |
| 21 | *Willamette Sp* | 0.082 | 0.008 | 0.082 | 0.069 | 0.096 | 0.106 | 0.011 | 0.106 | 0.089 | 0.124 |
| 22 | *Columbia Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.158 | 0.011 | 0.158 | 0.140 | 0.176 | 0.200 | 0.014 | 0.200 | 0.178 | 0.224 |
| 24 | *North Oregon Coast* | 0.012 | 0.004 | 0.011 | 0.005 | 0.019 | 0.014 | 0.006 | 0.014 | 0.006 | 0.025 |
| 25 | *Mid Oregon Coast* | 0.003 | 0.003 | 0.003 | 0.000 | 0.009 | 0.004 | 0.004 | 0.003 | 0.000 | 0.011 |
| 26 | *S Oregon/California* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

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

Appendix B27.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the spring troll fishery regionwide and in the Northern Outside, Southern Outside, and Southern Inside quadrants of Southeast Alaska, AY 2022.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 1,456) | | | | | Northern Outside quadrant ($n$ = 1,015) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 |
| 4 | *Taku* | 0.002 | 0.001 | 0.001 | 0.000 | 0.004 | 0.002 | 0.002 | 0.002 | 0.000 | 0.005 |
| 5 | *Andrew* | 0.224 | 0.012 | 0.224 | 0.204 | 0.245 | 0.314 | 0.017 | 0.314 | 0.285 | 0.343 |
| 6 | *Stikine* | 0.008 | 0.003 | 0.007 | 0.003 | 0.014 | 0.002 | 0.002 | 0.002 | 0.000 | 0.006 |
| 7 | *S Southeast Alaska* | 0.218 | 0.008 | 0.218 | 0.205 | 0.231 | 0.025 | 0.006 | 0.025 | 0.016 | 0.036 |
| 8 | *Nass* | 0.001 | 0.001 | 0.001 | 0.000 | 0.003 | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 |
| 9 | *Skeena* | 0.003 | 0.002 | 0.003 | 0.001 | 0.007 | 0.005 | 0.003 | 0.004 | 0.001 | 0.010 |
| 10 | *BC Coast/Haida Gwaii* | 0.029 | 0.006 | 0.029 | 0.020 | 0.040 | 0.020 | 0.005 | 0.019 | 0.012 | 0.029 |
| 11 | *West Vancouver* | 0.237 | 0.011 | 0.236 | 0.219 | 0.255 | 0.246 | 0.015 | 0.245 | 0.222 | 0.270 |
| 12 | *East Vancouver* | 0.023 | 0.004 | 0.023 | 0.017 | 0.030 | 0.025 | 0.005 | 0.024 | 0.017 | 0.034 |
| 13 | *Fraser* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.001 | 0.000 | 0.000 | 0.000 | 0.001 | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 |
| 16 | *South Thompson* | 0.037 | 0.006 | 0.037 | 0.028 | 0.048 | 0.053 | 0.009 | 0.052 | 0.039 | 0.068 |
| 17 | *Puget Sound* | 0.008 | 0.002 | 0.008 | 0.004 | 0.013 | 0.006 | 0.003 | 0.006 | 0.003 | 0.011 |
| 18 | *Washington Coast* | 0.041 | 0.006 | 0.040 | 0.031 | 0.051 | 0.060 | 0.009 | 0.059 | 0.045 | 0.075 |
| 19 | *West Cascades Sp* | 0.001 | 0.001 | 0.000 | 0.000 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |
| 20 | *Lower Columbia F* | 0.022 | 0.005 | 0.022 | 0.015 | 0.030 | 0.033 | 0.007 | 0.032 | 0.023 | 0.045 |
| 21 | *Willamette Sp* | 0.003 | 0.001 | 0.002 | 0.001 | 0.005 | 0.004 | 0.002 | 0.004 | 0.002 | 0.007 |
| 22 | *Columbia Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.129 | 0.010 | 0.128 | 0.113 | 0.146 | 0.182 | 0.015 | 0.182 | 0.159 | 0.207 |
| 24 | *North Oregon Coast* | 0.011 | 0.003 | 0.010 | 0.006 | 0.016 | 0.015 | 0.005 | 0.015 | 0.008 | 0.024 |
| 25 | *Mid Oregon Coast* | 0.002 | 0.001 | 0.002 | 0.000 | 0.005 | 0.003 | 0.002 | 0.003 | 0.001 | 0.007 |
| 26 | *S Oregon/California* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |

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| Reporting group no. | Reporting group[a] | Southern Outside quadrant ($n$ = 222) | | | | | Southern Inside quadrant ($n$ = 219) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 2 | *Alsek* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 3 | *N Southeast Alaska* | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 4 | *Taku* | 0.001 | 0.003 | 0.000 | 0.000 | 0.006 | 0.000 | 0.003 | 0.000 | 0.000 | 0.002 |
| 5 | *Andrew* | 0.082 | 0.023 | 0.080 | 0.047 | 0.121 | 0.002 | 0.006 | 0.000 | 0.000 | 0.014 |
| 6 | *Stikine* | 0.023 | 0.013 | 0.021 | 0.006 | 0.046 | 0.016 | 0.012 | 0.014 | 0.000 | 0.040 |
| 7 | *S Southeast Alaska* | 0.212 | 0.032 | 0.211 | 0.161 | 0.266 | 0.921 | 0.026 | 0.923 | 0.875 | 0.959 |
| 8 | *Nass* | 0.001 | 0.003 | 0.000 | 0.000 | 0.003 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.001 | 0.004 | 0.000 | 0.000 | 0.008 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 10 | *BC Coast/Haida Gwaii* | 0.065 | 0.023 | 0.064 | 0.031 | 0.106 | 0.038 | 0.021 | 0.035 | 0.010 | 0.076 |
| 11 | *West Vancouver* | 0.504 | 0.034 | 0.504 | 0.449 | 0.560 | 0.014 | 0.008 | 0.012 | 0.004 | 0.029 |
| 12 | *East Vancouver* | 0.045 | 0.015 | 0.043 | 0.023 | 0.072 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 13 | *Fraser* | 0.000 | 0.002 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 14 | *Lower Thompson* | 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 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.008 | 0.007 | 0.007 | 0.000 | 0.022 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 17 | *Puget Sound* | 0.020 | 0.011 | 0.018 | 0.006 | 0.040 | 0.006 | 0.006 | 0.004 | 0.000 | 0.017 |
| 18 | *Washington Coast* | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 21 | *Willamette Sp* | 0.000 | 0.001 | 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 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.036 | 0.013 | 0.034 | 0.017 | 0.060 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 24 | *North Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 25 | *Mid Oregon Coast* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.001 | 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 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

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

Appendix B28.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the first retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2022.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 892) | | | | | Northern Outside ($n$ = 530) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 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 | 0.001 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.021 | 0.006 | 0.021 | 0.012 | 0.032 | 0.026 | 0.008 | 0.025 | 0.014 | 0.039 |
| 6 | *Stikine* | 0.001 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 |
| 7 | *S Southeast Alaska* | 0.048 | 0.008 | 0.047 | 0.035 | 0.061 | 0.034 | 0.009 | 0.033 | 0.020 | 0.049 |
| 8 | *Nass* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.001 | 0.000 | 0.000 | 0.003 |
| 9 | *Skeena* | 0.012 | 0.004 | 0.012 | 0.006 | 0.020 | 0.015 | 0.006 | 0.014 | 0.007 | 0.026 |
| 10 | *BC Coast/Haida Gwaii* | 0.017 | 0.005 | 0.016 | 0.009 | 0.027 | 0.015 | 0.007 | 0.014 | 0.006 | 0.027 |
| 11 | *West Vancouver* | 0.081 | 0.010 | 0.080 | 0.066 | 0.097 | 0.078 | 0.012 | 0.077 | 0.059 | 0.098 |
| 12 | *East Vancouver* | 0.005 | 0.003 | 0.005 | 0.002 | 0.011 | 0.004 | 0.003 | 0.004 | 0.001 | 0.011 |
| 13 | *Fraser* | 0.010 | 0.004 | 0.009 | 0.004 | 0.017 | 0.013 | 0.005 | 0.012 | 0.005 | 0.022 |
| 14 | *Lower Thompson* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 15 | *North Thompson* | 0.004 | 0.003 | 0.003 | 0.001 | 0.008 | 0.004 | 0.003 | 0.003 | 0.000 | 0.010 |
| 16 | *South Thompson* | 0.110 | 0.011 | 0.110 | 0.093 | 0.129 | 0.093 | 0.013 | 0.092 | 0.073 | 0.115 |
| 17 | *Puget Sound* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |
| 18 | *Washington Coast* | 0.161 | 0.014 | 0.161 | 0.139 | 0.185 | 0.171 | 0.017 | 0.171 | 0.144 | 0.201 |
| 19 | *West Cascades Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 20 | *Lower Columbia F* | 0.061 | 0.010 | 0.061 | 0.046 | 0.078 | 0.068 | 0.012 | 0.067 | 0.049 | 0.089 |
| 21 | *Willamette Sp* | 0.004 | 0.002 | 0.004 | 0.001 | 0.008 | 0.001 | 0.001 | 0.000 | 0.000 | 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 |
| 23 | *Interior Columbia Su/F* | 0.304 | 0.017 | 0.304 | 0.277 | 0.332 | 0.313 | 0.021 | 0.313 | 0.280 | 0.348 |
| 24 | *North Oregon Coast* | 0.146 | 0.013 | 0.146 | 0.125 | 0.169 | 0.150 | 0.017 | 0.150 | 0.124 | 0.179 |
| 25 | *Mid Oregon Coast* | 0.012 | 0.005 | 0.012 | 0.006 | 0.021 | 0.014 | 0.006 | 0.013 | 0.006 | 0.025 |
| 26 | *S Oregon/California* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

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

Appendix B29.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the harvest for the second retention period of the summer troll fishery regionwide and in the Northern Outside quadrant of Southeast Alaska, AY 2022.

| Reporting group no. | Reporting group[a] | Regionwide ($n$ = 658) | | | | | Northern Outside ($n$ = 481) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | |
| | | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 0.005 | 0.003 | 0.005 | 0.001 | 0.012 | 0.006 | 0.004 | 0.005 | 0.001 | 0.014 |
| 2 | *Alsek* | 0.009 | 0.004 | 0.008 | 0.003 | 0.017 | 0.010 | 0.005 | 0.009 | 0.003 | 0.020 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 |
| 5 | *Andrew* | 0.009 | 0.005 | 0.008 | 0.002 | 0.018 | 0.008 | 0.005 | 0.007 | 0.001 | 0.018 |
| 6 | *Stikine* | 0.005 | 0.005 | 0.004 | 0.000 | 0.015 | 0.006 | 0.006 | 0.004 | 0.000 | 0.018 |
| 7 | *S Southeast Alaska* | 0.059 | 0.009 | 0.058 | 0.045 | 0.075 | 0.035 | 0.009 | 0.034 | 0.021 | 0.052 |
| 8 | *Nass* | 0.002 | 0.003 | 0.000 | 0.000 | 0.007 | 0.001 | 0.003 | 0.000 | 0.000 | 0.007 |
| 9 | *Skeena* | 0.005 | 0.004 | 0.003 | 0.000 | 0.013 | 0.005 | 0.005 | 0.004 | 0.000 | 0.015 |
| 10 | *BC Coast/Haida Gwaii* | 0.032 | 0.009 | 0.031 | 0.018 | 0.047 | 0.036 | 0.010 | 0.035 | 0.020 | 0.054 |
| 11 | *West Vancouver* | 0.098 | 0.012 | 0.098 | 0.079 | 0.119 | 0.107 | 0.014 | 0.106 | 0.084 | 0.131 |
| 12 | *East Vancouver* | 0.008 | 0.004 | 0.007 | 0.003 | 0.014 | 0.006 | 0.004 | 0.005 | 0.001 | 0.013 |
| 13 | *Fraser* | 0.010 | 0.004 | 0.009 | 0.004 | 0.018 | 0.011 | 0.005 | 0.011 | 0.004 | 0.021 |
| 14 | *Lower Thompson* | 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 | 0.001 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.033 | 0.008 | 0.033 | 0.022 | 0.047 | 0.030 | 0.008 | 0.029 | 0.017 | 0.045 |
| 17 | *Puget Sound* | 0.015 | 0.006 | 0.015 | 0.006 | 0.026 | 0.016 | 0.007 | 0.015 | 0.006 | 0.028 |
| 18 | *Washington Coast* | 0.209 | 0.018 | 0.209 | 0.180 | 0.239 | 0.225 | 0.020 | 0.224 | 0.192 | 0.259 |
| 19 | *West Cascades Sp* | 0.003 | 0.002 | 0.003 | 0.001 | 0.007 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.025 | 0.007 | 0.025 | 0.015 | 0.038 | 0.022 | 0.008 | 0.022 | 0.011 | 0.037 |
| 21 | *Willamette Sp* | 0.021 | 0.006 | 0.021 | 0.012 | 0.032 | 0.023 | 0.007 | 0.022 | 0.013 | 0.035 |
| 22 | *Columbia Sp* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 23 | *Interior Columbia Su/F* | 0.296 | 0.019 | 0.295 | 0.265 | 0.327 | 0.310 | 0.022 | 0.310 | 0.275 | 0.347 |
| 24 | *North Oregon Coast* | 0.146 | 0.015 | 0.146 | 0.122 | 0.172 | 0.137 | 0.017 | 0.137 | 0.110 | 0.166 |
| 25 | *Mid Oregon Coast* | 0.010 | 0.005 | 0.009 | 0.003 | 0.019 | 0.004 | 0.005 | 0.002 | 0.000 | 0.014 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

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

Appendix B30.–Estimated contributions of broad-scale reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest, AY 2022.

| Area | Period | Sample size | Reporting group | Mean | SD | Median | 90% CI 5% | 90% CI 95% |
|---|---|---|---|---|---|---|---|---|
| Ketchikan | All season | 343 | *Alaska* | 0.573 | 0.029 | 0.573 | 0.526 | 0.620 |
| | | | *TBR* | 0.002 | 0.005 | 0.000 | 0.000 | 0.014 |
| | | | *Canada* | 0.252 | 0.026 | 0.252 | 0.212 | 0.296 |
| | | | *US South* | 0.173 | 0.021 | 0.172 | 0.139 | 0.209 |
| Craig | All season | 308 | *Alaska* | 0.116 | 0.020 | 0.115 | 0.085 | 0.150 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.664 | 0.028 | 0.664 | 0.616 | 0.710 |
| | | | *US South* | 0.220 | 0.024 | 0.220 | 0.182 | 0.262 |
| Sitka | All season | 946 | *Alaska* | 0.120 | 0.012 | 0.120 | 0.102 | 0.140 |
| | | | *TBR* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| | | | *Canada* | 0.335 | 0.016 | 0.334 | 0.308 | 0.361 |
| | | | *US South* | 0.545 | 0.017 | 0.545 | 0.517 | 0.572 |
| Petersburg-Wrangell | All season | 79 | *Alaska* | 0.865 | 0.042 | 0.869 | 0.791 | 0.927 |
| | | | *TBR* | 0.002 | 0.008 | 0.000 | 0.000 | 0.007 |
| | | | *Canada* | 0.097 | 0.035 | 0.093 | 0.046 | 0.160 |
| | | | *US South* | 0.036 | 0.025 | 0.032 | 0.005 | 0.084 |
| Northern Inside | All season | 284 | *Alaska* | 0.826 | 0.030 | 0.828 | 0.774 | 0.874 |
| | | | *TBR* | 0.037 | 0.016 | 0.035 | 0.014 | 0.066 |
| | | | *Canada* | 0.132 | 0.026 | 0.131 | 0.092 | 0.178 |
| | | | *US South* | 0.005 | 0.004 | 0.003 | 0.000 | 0.013 |
| Outside | All season | 1,388 | *Alaska* | 0.119 | 0.010 | 0.119 | 0.103 | 0.136 |
| | | | *TBR* | 0.002 | 0.003 | 0.002 | 0.000 | 0.007 |
| | | | *Canada* | 0.384 | 0.014 | 0.384 | 0.361 | 0.407 |
| | | | *US South* | 0.495 | 0.014 | 0.495 | 0.472 | 0.517 |
| | Biweeks 9–13 | 989 | *Alaska* | 0.151 | 0.013 | 0.151 | 0.130 | 0.174 |
| | | | *TBR* | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| | | | *Canada* | 0.363 | 0.017 | 0.363 | 0.335 | 0.390 |
| | | | *US South* | 0.485 | 0.016 | 0.485 | 0.458 | 0.512 |
| | Biweeks 14–18 | 399 | *Alaska* | 0.041 | 0.012 | 0.040 | 0.022 | 0.063 |
| | | | *TBR* | 0.007 | 0.007 | 0.005 | 0.000 | 0.021 |
| | | | *Canada* | 0.435 | 0.026 | 0.435 | 0.392 | 0.478 |
| | | | *US South* | 0.518 | 0.026 | 0.518 | 0.475 | 0.560 |

*Note*: Successfully genotyped sample sizes, standard deviation (SD), and 90% credibility intervals (CI) are provided.

*Note*: Reporting groups are described in Table 1.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

Appendix B31.–Estimated contributions of driver stock reporting groups of Chinook salmon to the Southeast Alaska sport fishery harvest by area and season, AY 2022.

| | Ketchikan ($n$ = 344) | | | | | Petersburg-Wrangell ($n$ = 79) | | | | | Northern Inside ($n$ = 284) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.575 | 0.029 | 0.575 | 0.527 | 0.622 | | | | | | 0.863 | 0.026 | 0.865 | 0.818 | 0.904 |
| *NCBC* | 0.048 | 0.015 | 0.047 | 0.026 | 0.076 | | | | | | 0.116 | 0.025 | 0.114 | 0.077 | 0.159 |
| *West Vancouver* | 0.129 | 0.018 | 0.129 | 0.101 | 0.160 | | | | | | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| *South Thompson* | 0.051 | 0.012 | 0.050 | 0.033 | 0.072 | Insufficient sample size | | | | | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| *Washington Coast* | 0.042 | 0.012 | 0.041 | 0.024 | 0.062 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Interior Columbia Su/F* | 0.086 | 0.015 | 0.086 | 0.062 | 0.113 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| *Oregon Coast* | 0.017 | 0.008 | 0.016 | 0.007 | 0.031 | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Other* | 0.051 | 0.013 | 0.050 | 0.032 | 0.074 | | | | | | 0.017 | 0.008 | 0.016 | 0.006 | 0.032 |

| | Craig ($n$ = 308) | | | | | Sitka ($n$ = 946) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.116 | 0.020 | 0.115 | 0.085 | 0.150 | 0.121 | 0.012 | 0.120 | 0.102 | 0.140 |
| *NCBC* | 0.161 | 0.022 | 0.160 | 0.126 | 0.199 | 0.044 | 0.008 | 0.043 | 0.031 | 0.058 |
| *West Vancouver* | 0.388 | 0.028 | 0.388 | 0.342 | 0.434 | 0.201 | 0.013 | 0.201 | 0.180 | 0.223 |
| *South Thompson* | 0.078 | 0.016 | 0.077 | 0.053 | 0.106 | 0.080 | 0.009 | 0.080 | 0.065 | 0.095 |
| *Washington Coast* | 0.063 | 0.014 | 0.063 | 0.042 | 0.089 | 0.173 | 0.013 | 0.172 | 0.152 | 0.195 |
| *Interior Columbia Su/F* | 0.114 | 0.019 | 0.114 | 0.085 | 0.147 | 0.248 | 0.014 | 0.248 | 0.225 | 0.272 |
| *Oregon Coast* | 0.023 | 0.009 | 0.021 | 0.010 | 0.039 | 0.072 | 0.009 | 0.071 | 0.057 | 0.087 |
| *Other* | 0.056 | 0.014 | 0.055 | 0.035 | 0.081 | 0.062 | 0.008 | 0.061 | 0.048 | 0.076 |

| | Outside All Season ($n$ = 1,388) | | | | | Outside Biweeks 9–13 ($n$ = 989) | | | | | Outside Biweeks 14–18 ($n$ = 399) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.122 | 0.010 | 0.121 | 0.106 | 0.138 | 0.152 | 0.013 | 0.152 | 0.131 | 0.174 | 0.048 | 0.013 | 0.047 | 0.028 | 0.071 |
| *NCBC* | 0.070 | 0.009 | 0.070 | 0.057 | 0.085 | 0.062 | 0.010 | 0.061 | 0.046 | 0.079 | 0.091 | 0.016 | 0.091 | 0.066 | 0.120 |
| *West Vancouver* | 0.223 | 0.011 | 0.223 | 0.205 | 0.242 | 0.204 | 0.013 | 0.204 | 0.183 | 0.226 | 0.267 | 0.022 | 0.267 | 0.231 | 0.305 |
| *South Thompson* | 0.079 | 0.008 | 0.079 | 0.067 | 0.092 | 0.088 | 0.010 | 0.088 | 0.073 | 0.105 | 0.055 | 0.012 | 0.055 | 0.037 | 0.076 |
| *Washington Coast* | 0.149 | 0.010 | 0.148 | 0.132 | 0.166 | 0.138 | 0.012 | 0.137 | 0.119 | 0.157 | 0.175 | 0.020 | 0.175 | 0.143 | 0.210 |
| *Interior Columbia Su/F* | 0.222 | 0.011 | 0.222 | 0.203 | 0.241 | 0.221 | 0.014 | 0.220 | 0.198 | 0.243 | 0.226 | 0.021 | 0.225 | 0.192 | 0.261 |
| *Oregon Coast* | 0.076 | 0.008 | 0.076 | 0.064 | 0.089 | 0.077 | 0.009 | 0.077 | 0.063 | 0.092 | 0.075 | 0.014 | 0.074 | 0.053 | 0.099 |
| *Other* | 0.059 | 0.007 | 0.059 | 0.048 | 0.071 | 0.058 | 0.008 | 0.058 | 0.045 | 0.072 | 0.062 | 0.013 | 0.061 | 0.041 | 0.086 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: There was insufficient sample size (n = 79) for driver stock reporting groups for Petersburg-Wrangell.

*Note*: AY 2022 = Accounting year 2022 = October 1, 2021–September 30, 2022.

Appendix B32.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the sport fishery harvest in Ketchikan, Petersburg-Wrangell, Northern Inside (Juneau, Haines, and Skagway), Craig, and Sitka areas of Southeast Alaska, AY 2022.

| | | Ketchikan ($n$ = 344) | | | | | Petersburg-Wrangell ($n$ = 79) | | | | | Northern Inside quadrant ($n$ = 284) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.011 | 0.006 | 0.010 | 0.003 | 0.023 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | | | | | 0.037 | 0.016 | 0.035 | 0.014 | 0.066 |
| 5 | *Andrew* | 0.041 | 0.014 | 0.039 | 0.020 | 0.065 | | | | | | 0.736 | 0.029 | 0.736 | 0.686 | 0.783 |
| 6 | *Stikine* | 0.002 | 0.005 | 0.000 | 0.000 | 0.014 | | | | | | 0.000 | 0.002 | 0.000 | 0.000 | 0.001 |
| 7 | *S Southeast Alaska* | 0.532 | 0.029 | 0.532 | 0.484 | 0.580 | | | | | | 0.079 | 0.024 | 0.078 | 0.043 | 0.120 |
| 8 | *Nass* | 0.027 | 0.013 | 0.024 | 0.011 | 0.052 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.005 | 0.004 | 0.004 | 0.001 | 0.013 | | | | | | 0.029 | 0.010 | 0.028 | 0.014 | 0.047 |
| 10 | *BC Coast/Haida Gwaii* | 0.016 | 0.010 | 0.015 | 0.004 | 0.034 | | | | | | 0.087 | 0.023 | 0.085 | 0.052 | 0.128 |
| 11 | *West Vancouver* | 0.129 | 0.018 | 0.129 | 0.101 | 0.160 | | | | | | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| 12 | *East Vancouver* | 0.024 | 0.009 | 0.023 | 0.011 | 0.040 | | | | | | 0.013 | 0.007 | 0.011 | 0.004 | 0.025 |
| 13 | *Fraser* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | | Insufficient sample size | | | | 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 |
| 15 | *North Thompson* | 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 | 0.012 | 0.050 | 0.033 | 0.072 | | | | | | 0.002 | 0.003 | 0.000 | 0.000 | 0.009 |
| 17 | *Puget Sound* | 0.005 | 0.005 | 0.004 | 0.000 | 0.014 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 |
| 18 | *Washington Coast* | 0.042 | 0.012 | 0.041 | 0.024 | 0.062 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 19 | *West Cascades Sp* | 0.005 | 0.005 | 0.004 | 0.000 | 0.014 | | | | | | 0.003 | 0.003 | 0.001 | 0.000 | 0.009 |
| 20 | *Lower Columbia F* | 0.017 | 0.008 | 0.016 | 0.006 | 0.031 | | | | | | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 |
| 21 | *Willamette Sp* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.001 | 0.002 | 0.000 | 0.000 | 0.006 |
| 22 | *Columbia Sp* | 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* | 0.086 | 0.015 | 0.086 | 0.062 | 0.113 | | | | | | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 24 | *North Oregon Coast* | 0.017 | 0.007 | 0.016 | 0.007 | 0.030 | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 25 | *Mid Oregon Coast* | 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 | 0.000 | 0.000 | 0.000 | 0.000 | | | | | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

-continued-

Appendix B32.–Page 2 of 2.

| Reporting group no. | Reporting group[a] | Craig[b] ($n$ = 308) Mean | SD | Median | 90% CI 5% | 95% | Sitka ($n$ = 946) Mean | SD | Median | 90% CI 5% | 95% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *Situk* | 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 |
| 3 | *N Southeast Alaska* | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 4 | *Taku* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 5 | *Andrew* | 0.022 | 0.009 | 0.021 | 0.009 | 0.039 | 0.086 | 0.010 | 0.085 | 0.070 | 0.102 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 7 | *S Southeast Alaska* | 0.093 | 0.018 | 0.092 | 0.065 | 0.125 | 0.035 | 0.008 | 0.034 | 0.023 | 0.048 |
| 8 | *Nass* | 0.001 | 0.002 | 0.000 | 0.000 | 0.005 | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 |
| 9 | *Skeena* | 0.047 | 0.014 | 0.045 | 0.026 | 0.071 | 0.023 | 0.007 | 0.022 | 0.013 | 0.034 |
| 10 | *BC Coast/Haida Gwaii* | 0.114 | 0.020 | 0.113 | 0.083 | 0.148 | 0.021 | 0.006 | 0.020 | 0.012 | 0.031 |
| 11 | *West Vancouver* | 0.388 | 0.028 | 0.388 | 0.342 | 0.434 | 0.201 | 0.013 | 0.201 | 0.180 | 0.223 |
| 12 | *East Vancouver* | 0.033 | 0.010 | 0.032 | 0.018 | 0.051 | 0.009 | 0.003 | 0.008 | 0.004 | 0.015 |
| 13 | *Fraser* | 0.004 | 0.004 | 0.002 | 0.000 | 0.011 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 |
| 14 | *Lower Thompson* | 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 |
| 16 | *South Thompson* | 0.078 | 0.016 | 0.077 | 0.053 | 0.106 | 0.080 | 0.009 | 0.080 | 0.065 | 0.095 |
| 17 | *Puget Sound* | 0.001 | 0.004 | 0.000 | 0.000 | 0.005 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 18 | *Washington Coast* | 0.063 | 0.014 | 0.063 | 0.042 | 0.089 | 0.173 | 0.013 | 0.172 | 0.152 | 0.195 |
| 19 | *West Cascades Sp* | 0.001 | 0.003 | 0.000 | 0.000 | 0.008 | 0.002 | 0.002 | 0.001 | 0.000 | 0.005 |
| 20 | *Lower Columbia F* | 0.005 | 0.007 | 0.001 | 0.000 | 0.020 | 0.043 | 0.007 | 0.042 | 0.031 | 0.055 |
| 21 | *Willamette Sp* | 0.012 | 0.007 | 0.011 | 0.003 | 0.026 | 0.008 | 0.003 | 0.008 | 0.003 | 0.014 |
| 22 | *Columbia Sp* | 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* | 0.114 | 0.019 | 0.114 | 0.085 | 0.147 | 0.248 | 0.014 | 0.248 | 0.225 | 0.272 |
| 24 | *North Oregon Coast* | 0.021 | 0.009 | 0.020 | 0.009 | 0.037 | 0.069 | 0.009 | 0.069 | 0.055 | 0.085 |
| 25 | *Mid Oregon Coast* | 0.001 | 0.004 | 0.000 | 0.000 | 0.009 | 0.002 | 0.003 | 0.001 | 0.000 | 0.009 |
| 26 | *S Oregon/California* | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: There was insufficient sample size (n = 79) for fine-scale reporting groups for Petersburg-Wrangell.

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

Appendix B33.–Estimated contributions of fine-scale reporting groups of Chinook salmon to the total season, early season (biweeks 9–13), and late season (biweeks 14–18) sport fishery harvest in outside waters (Craig/Klawock, Sitka, Yakutat, Gustavus, and Elfin Cove) of Southeast Alaska, AY 2022.

| | | Total season ($n$ = 1,388) | | | | | Early season ($n$ = 989) | | | | | Late season ($n$ = 399) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 90% CI | | | | | 90% CI | | | | | 90% CI | |
| Reporting group no. | Reporting group[a] | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| 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* | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.006 | 0.007 | 0.004 | 0.000 | 0.020 |
| 5 | *Andrew* | 0.073 | 0.008 | 0.073 | 0.061 | 0.086 | 0.097 | 0.010 | 0.096 | 0.080 | 0.114 | 0.016 | 0.008 | 0.015 | 0.005 | 0.031 |
| 6 | *Stikine* | 0.000 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.002 | 0.000 | 0.000 | 0.003 | 0.000 | 0.003 | 0.000 | 0.000 | 0.002 |
| 7 | *S Southeast Alaska* | 0.046 | 0.008 | 0.046 | 0.034 | 0.059 | 0.055 | 0.010 | 0.054 | 0.040 | 0.071 | 0.025 | 0.011 | 0.024 | 0.008 | 0.044 |
| 8 | *Nass* | 0.000 | 0.001 | 0.000 | 0.000 | 0.002 | 0.000 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 |
| 9 | *Skeena* | 0.026 | 0.006 | 0.026 | 0.017 | 0.036 | 0.022 | 0.007 | 0.022 | 0.012 | 0.034 | 0.035 | 0.012 | 0.034 | 0.018 | 0.056 |
| 10 | *BC Coast/Haida Gwaii* | 0.044 | 0.007 | 0.044 | 0.033 | 0.056 | 0.039 | 0.009 | 0.038 | 0.025 | 0.054 | 0.056 | 0.013 | 0.056 | 0.037 | 0.078 |
| 11 | *West Vancouver* | 0.223 | 0.011 | 0.223 | 0.205 | 0.242 | 0.204 | 0.013 | 0.204 | 0.183 | 0.226 | 0.267 | 0.022 | 0.267 | 0.231 | 0.305 |
| 12 | *East Vancouver* | 0.008 | 0.003 | 0.008 | 0.005 | 0.013 | 0.006 | 0.003 | 0.006 | 0.003 | 0.011 | 0.014 | 0.006 | 0.013 | 0.005 | 0.026 |
| 13 | *Fraser* | 0.003 | 0.002 | 0.002 | 0.000 | 0.007 | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | 0.006 | 0.005 | 0.005 | 0.001 | 0.016 |
| 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 | 0.002 | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 16 | *South Thompson* | 0.079 | 0.008 | 0.079 | 0.067 | 0.092 | 0.088 | 0.010 | 0.088 | 0.073 | 0.105 | 0.055 | 0.012 | 0.055 | 0.037 | 0.076 |
| 17 | *Puget Sound* | 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 |
| 18 | *Washington Coast* | 0.149 | 0.010 | 0.148 | 0.132 | 0.166 | 0.138 | 0.012 | 0.137 | 0.119 | 0.157 | 0.175 | 0.020 | 0.175 | 0.143 | 0.210 |
| 19 | *West Cascades Sp* | 0.001 | 0.001 | 0.001 | 0.000 | 0.004 | 0.002 | 0.002 | 0.001 | 0.000 | 0.006 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 20 | *Lower Columbia F* | 0.034 | 0.005 | 0.034 | 0.026 | 0.043 | 0.036 | 0.006 | 0.036 | 0.026 | 0.047 | 0.029 | 0.010 | 0.028 | 0.015 | 0.047 |
| 21 | *Willamette Sp* | 0.011 | 0.003 | 0.011 | 0.007 | 0.017 | 0.011 | 0.003 | 0.010 | 0.006 | 0.017 | 0.012 | 0.006 | 0.012 | 0.004 | 0.023 |
| 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* | 0.222 | 0.011 | 0.222 | 0.203 | 0.241 | 0.221 | 0.014 | 0.220 | 0.198 | 0.243 | 0.226 | 0.021 | 0.225 | 0.192 | 0.261 |
| 24 | *North Oregon Coast* | 0.071 | 0.007 | 0.071 | 0.059 | 0.083 | 0.073 | 0.009 | 0.073 | 0.059 | 0.088 | 0.066 | 0.013 | 0.065 | 0.045 | 0.089 |
| 25 | *Mid Oregon Coast* | 0.005 | 0.003 | 0.005 | 0.002 | 0.010 | 0.004 | 0.002 | 0.004 | 0.001 | 0.008 | 0.009 | 0.006 | 0.008 | 0.000 | 0.021 |
| 26 | *S Oregon/California* | 0.001 | 0.001 | 0.000 | 0.000 | 0.003 | 0.001 | 0.002 | 0.000 | 0.000 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

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

Appendix B34.–Estimated contributions of driver stock reporting groups of Chinook salmon to the annual Southeast Alaska troll fishery harvest, AY 2009–2022.

| | AY 2009 ($n$ = 1,629) | | | | | AY 2010 ($n$ = 3,197) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.219 | 0.009 | 0.219 | 0.204 | 0.234 | 0.252 | 0.008 | 0.252 | 0.238 | 0.266 |
| *NCBC* | 0.101 | 0.008 | 0.101 | 0.089 | 0.115 | 0.075 | 0.006 | 0.075 | 0.066 | 0.085 |
| *West Vancouver* | 0.121 | 0.008 | 0.121 | 0.108 | 0.136 | 0.085 | 0.006 | 0.085 | 0.076 | 0.094 |
| *South Thompson* | 0.085 | 0.008 | 0.084 | 0.071 | 0.099 | 0.148 | 0.008 | 0.148 | 0.135 | 0.161 |
| *Washington Coast* | 0.094 | 0.009 | 0.094 | 0.08 | 0.11 | 0.092 | 0.007 | 0.092 | 0.081 | 0.104 |
| *Interior Columbia (Su/F)* | 0.226 | 0.012 | 0.226 | 0.206 | 0.246 | 0.152 | 0.008 | 0.152 | 0.139 | 0.165 |
| *Oregon Coast* | 0.084 | 0.009 | 0.083 | 0.069 | 0.099 | 0.112 | 0.007 | 0.112 | 0.1 | 0.125 |
| *Other* | 0.07 | 0.007 | 0.07 | 0.058 | 0.083 | 0.084 | 0.006 | 0.083 | 0.074 | 0.094 |
| | AY 2011 ($n$ = 5,198) | | | | | AY 2012 ($n$ = 3,288) | | | | |
| *SEAK/TBR* | 0.186 | 0.006 | 0.186 | 0.177 | 0.196 | 0.255 | 0.009 | 0.255 | 0.241 | 0.269 |
| *NCBC* | 0.101 | 0.005 | 0.101 | 0.093 | 0.11 | 0.099 | 0.007 | 0.099 | 0.088 | 0.111 |
| *West Vancouver* | 0.121 | 0.005 | 0.121 | 0.113 | 0.129 | 0.1 | 0.006 | 0.1 | 0.091 | 0.109 |
| *South Thompson* | 0.097 | 0.005 | 0.097 | 0.09 | 0.105 | 0.055 | 0.005 | 0.055 | 0.048 | 0.063 |
| *Washington Coast* | 0.092 | 0.005 | 0.092 | 0.085 | 0.1 | 0.109 | 0.007 | 0.108 | 0.097 | 0.12 |
| *Interior Columbia (Su/F)* | 0.21 | 0.006 | 0.21 | 0.2 | 0.22 | 0.194 | 0.008 | 0.194 | 0.181 | 0.208 |
| *Oregon Coast* | 0.107 | 0.005 | 0.107 | 0.099 | 0.114 | 0.08 | 0.006 | 0.08 | 0.07 | 0.091 |
| *Other* | 0.086 | 0.004 | 0.086 | 0.078 | 0.093 | 0.108 | 0.006 | 0.108 | 0.098 | 0.119 |
| | AY 2013 ($n$ = 2,095) | | | | | AY 2014 ($n$ = 3,465) | | | | |
| *SEAK/TBR* | 0.221 | 0.01 | 0.221 | 0.205 | 0.238 | 0.11 | 0.006 | 0.109 | 0.1 | 0.12 |
| *NCBC* | 0.091 | 0.008 | 0.091 | 0.079 | 0.104 | 0.056 | 0.005 | 0.056 | 0.049 | 0.064 |
| *West Vancouver* | 0.127 | 0.008 | 0.127 | 0.114 | 0.141 | 0.113 | 0.007 | 0.113 | 0.102 | 0.125 |
| *South Thompson* | 0.078 | 0.008 | 0.078 | 0.065 | 0.091 | 0.059 | 0.006 | 0.059 | 0.05 | 0.069 |
| *Washington Coast* | 0.047 | 0.007 | 0.046 | 0.036 | 0.058 | 0.071 | 0.008 | 0.071 | 0.059 | 0.085 |
| *Interior Columbia (Su/F)* | 0.287 | 0.012 | 0.287 | 0.267 | 0.308 | 0.443 | 0.013 | 0.443 | 0.422 | 0.464 |
| *Oregon Coast* | 0.083 | 0.009 | 0.083 | 0.069 | 0.098 | 0.067 | 0.008 | 0.067 | 0.055 | 0.08 |
| *Other* | 0.066 | 0.007 | 0.066 | 0.056 | 0.077 | 0.081 | 0.007 | 0.081 | 0.069 | 0.093 |
| | AY 2015 ($n$ = 2,816) | | | | | AY 2016 ($n$ = 3,850) | | | | |
| *SEAK/TBR* | 0.154 | 0.007 | 0.154 | 0.143 | 0.165 | 0.106 | 0.005 | 0.106 | 0.099 | 0.115 |
| *NCBC* | 0.111 | 0.008 | 0.111 | 0.099 | 0.124 | 0.078 | 0.005 | 0.078 | 0.071 | 0.086 |
| *West Vancouver* | 0.06 | 0.005 | 0.06 | 0.052 | 0.069 | 0.084 | 0.005 | 0.083 | 0.075 | 0.092 |
| *South Thompson* | 0.072 | 0.007 | 0.072 | 0.06 | 0.085 | 0.074 | 0.006 | 0.073 | 0.064 | 0.084 |
| *Washington Coast* | 0.067 | 0.008 | 0.066 | 0.054 | 0.08 | 0.048 | 0.006 | 0.047 | 0.038 | 0.057 |
| *Interior Columbia (Su/F)* | 0.373 | 0.013 | 0.373 | 0.352 | 0.393 | 0.386 | 0.01 | 0.386 | 0.369 | 0.403 |
| *Oregon Coast* | 0.074 | 0.009 | 0.073 | 0.06 | 0.088 | 0.12 | 0.008 | 0.12 | 0.107 | 0.133 |
| *Other* | 0.09 | 0.007 | 0.09 | 0.079 | 0.102 | 0.105 | 0.006 | 0.104 | 0.095 | 0.115 |
| | AY 2017 ($n$ = 3,128) | | | | | AY 2018 ($n$ = 3,638) | | | | |
| *SEAK/TBR* | 0.118 | 0.007 | 0.118 | 0.106 | 0.13 | 0.178 | 0.01 | 0.178 | 0.162 | 0.194 |
| *NCBC* | 0.079 | 0.007 | 0.079 | 0.068 | 0.091 | 0.078 | 0.009 | 0.078 | 0.064 | 0.093 |
| *West Vancouver* | 0.192 | 0.008 | 0.192 | 0.179 | 0.205 | 0.127 | 0.008 | 0.127 | 0.114 | 0.141 |
| *South Thompson* | 0.161 | 0.008 | 0.161 | 0.148 | 0.175 | 0.112 | 0.009 | 0.112 | 0.098 | 0.128 |
| *Washington Coast* | 0.041 | 0.005 | 0.041 | 0.033 | 0.05 | 0.147 | 0.011 | 0.147 | 0.13 | 0.165 |
| *Interior Columbia (Su/F)* | 0.237 | 0.01 | 0.237 | 0.221 | 0.254 | 0.123 | 0.009 | 0.123 | 0.109 | 0.138 |
| *Oregon Coast* | 0.059 | 0.006 | 0.059 | 0.049 | 0.07 | 0.143 | 0.01 | 0.142 | 0.126 | 0.16 |
| *Other* | 0.113 | 0.008 | 0.113 | 0.1 | 0.126 | 0.092 | 0.008 | 0.092 | 0.079 | 0.106 |

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Appendix B34.–Page 2 of 2.

| | AY 2019 ($n$ = 3,693) | | | | | AY 2020 ($n$ = 4,128) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.147 | 0.007 | 0.147 | 0.137 | 0.159 | 0.090 | 0.006 | 0.090 | 0.081 | 0.100 |
| *NCBC* | 0.058 | 0.006 | 0.058 | 0.049 | 0.069 | 0.039 | 0.005 | 0.039 | 0.031 | 0.048 |
| *West Vancouver* | 0.114 | 0.007 | 0.114 | 0.103 | 0.126 | 0.100 | 0.007 | 0.100 | 0.089 | 0.113 |
| *South Thompson* | 0.237 | 0.012 | 0.237 | 0.218 | 0.257 | 0.144 | 0.008 | 0.144 | 0.130 | 0.158 |
| *Washington Coast* | 0.080 | 0.008 | 0.080 | 0.067 | 0.094 | 0.124 | 0.010 | 0.124 | 0.108 | 0.140 |
| *Interior Columbia (Su/F)* | 0.175 | 0.011 | 0.175 | 0.158 | 0.193 | 0.262 | 0.012 | 0.262 | 0.243 | 0.282 |
| *Oregon Coast* | 0.121 | 0.010 | 0.121 | 0.105 | 0.138 | 0.154 | 0.010 | 0.154 | 0.138 | 0.172 |
| *Other* | 0.067 | 0.006 | 0.067 | 0.057 | 0.078 | 0.086 | 0.007 | 0.086 | 0.075 | 0.097 |

| | AY 2021 ($n$ = 4,001) | | | | | AY 2022 ($n$ = 4,655) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.105 | 0.006 | 0.105 | 0.096 | 0.115 | 0.121 | 0.006 | 0.121 | 0.112 | 0.131 |
| *NCBC* | 0.039 | 0.004 | 0.039 | 0.033 | 0.046 | 0.045 | 0.005 | 0.045 | 0.038 | 0.053 |
| *West Vancouver* | 0.127 | 0.007 | 0.127 | 0.116 | 0.139 | 0.119 | 0.006 | 0.119 | 0.109 | 0.129 |
| *South Thompson* | 0.168 | 0.009 | 0.168 | 0.154 | 0.182 | 0.072 | 0.006 | 0.072 | 0.063 | 0.082 |
| *Washington Coast* | 0.117 | 0.009 | 0.116 | 0.103 | 0.131 | 0.148 | 0.009 | 0.148 | 0.134 | 0.163 |
| *Interior Columbia (Su/F)* | 0.236 | 0.010 | 0.236 | 0.220 | 0.254 | 0.269 | 0.010 | 0.269 | 0.253 | 0.286 |
| *Oregon Coast* | 0.117 | 0.008 | 0.116 | 0.103 | 0.130 | 0.126 | 0.008 | 0.126 | 0.113 | 0.140 |
| *Other* | 0.091 | 0.007 | 0.090 | 0.080 | 0.102 | 0.099 | 0.007 | 0.099 | 0.089 | 0.111 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY = Accounting year = October 1–September 30.

Appendix B35.–Estimated contributions of driver stock reporting groups of Chinook salmon to the annual Southeast Alaska sport fishery harvest, AY 2009–2022.

| | AY 2009 ($n$ = 1,229) | | | | | AY 2010 ($n$ = 1,349) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.671 | 0.012 | 0.671 | 0.651 | 0.691 | 0.508 | 0.011 | 0.508 | 0.491 | 0.525 |
| *NCBC* | 0.07 | 0.008 | 0.07 | 0.057 | 0.085 | 0.075 | 0.009 | 0.075 | 0.061 | 0.091 |
| *West Vancouver* | 0.061 | 0.007 | 0.061 | 0.05 | 0.072 | 0.099 | 0.008 | 0.099 | 0.085 | 0.113 |
| *South Thompson* | 0.035 | 0.006 | 0.034 | 0.026 | 0.044 | 0.112 | 0.009 | 0.112 | 0.097 | 0.127 |
| *Washington Coast* | 0.031 | 0.005 | 0.031 | 0.023 | 0.04 | 0.07 | 0.008 | 0.07 | 0.057 | 0.083 |
| *Interior Columbia (Su/F)* | 0.078 | 0.007 | 0.078 | 0.067 | 0.09 | 0.08 | 0.008 | 0.08 | 0.067 | 0.094 |
| *Oregon Coast* | 0.015 | 0.004 | 0.014 | 0.009 | 0.021 | 0.028 | 0.006 | 0.028 | 0.019 | 0.038 |
| *Other* | 0.039 | 0.006 | 0.039 | 0.03 | 0.05 | 0.027 | 0.005 | 0.027 | 0.019 | 0.037 |
| | AY 2011 ($n$ = 1,795) | | | | | AY 2012 ($n$ = 1,619) | | | | |
| *SEAK/TBR* | 0.489 | 0.01 | 0.489 | 0.472 | 0.506 | 0.426 | 0.013 | 0.426 | 0.405 | 0.446 |
| *NCBC* | 0.075 | 0.007 | 0.075 | 0.063 | 0.088 | 0.063 | 0.009 | 0.063 | 0.05 | 0.079 |
| *West Vancouver* | 0.124 | 0.008 | 0.124 | 0.111 | 0.137 | 0.09 | 0.008 | 0.089 | 0.076 | 0.104 |
| *South Thompson* | 0.05 | 0.006 | 0.05 | 0.041 | 0.059 | 0.069 | 0.008 | 0.069 | 0.057 | 0.083 |
| *Washington Coast* | 0.072 | 0.007 | 0.072 | 0.061 | 0.084 | 0.095 | 0.009 | 0.095 | 0.081 | 0.111 |
| *Interior Columbia (Su/F)* | 0.11 | 0.008 | 0.11 | 0.098 | 0.122 | 0.165 | 0.01 | 0.164 | 0.148 | 0.182 |
| *Oregon Coast* | 0.041 | 0.005 | 0.041 | 0.032 | 0.05 | 0.046 | 0.007 | 0.046 | 0.035 | 0.058 |
| *Other* | 0.039 | 0.005 | 0.039 | 0.031 | 0.049 | 0.047 | 0.006 | 0.047 | 0.037 | 0.057 |
| | AY 2013 ($n$ = 1,736) | | | | | AY 2014 ($n$ = 2,052) | | | | |
| *SEAK/TBR* | 0.428 | 0.01 | 0.428 | 0.413 | 0.444 | 0.296 | 0.007 | 0.296 | 0.283 | 0.308 |
| *NCBC* | 0.063 | 0.007 | 0.062 | 0.052 | 0.074 | 0.064 | 0.006 | 0.064 | 0.054 | 0.074 |
| *West Vancouver* | 0.102 | 0.008 | 0.101 | 0.089 | 0.114 | 0.124 | 0.008 | 0.124 | 0.111 | 0.136 |
| *South Thompson* | 0.048 | 0.006 | 0.048 | 0.039 | 0.058 | 0.048 | 0.005 | 0.047 | 0.04 | 0.056 |
| *Washington Coast* | 0.071 | 0.007 | 0.07 | 0.059 | 0.082 | 0.053 | 0.006 | 0.053 | 0.045 | 0.063 |
| *Interior Columbia (Su/F)* | 0.206 | 0.01 | 0.206 | 0.19 | 0.223 | 0.319 | 0.01 | 0.319 | 0.303 | 0.336 |
| *Oregon Coast* | 0.046 | 0.006 | 0.046 | 0.036 | 0.056 | 0.043 | 0.005 | 0.042 | 0.035 | 0.051 |
| *Other* | 0.037 | 0.005 | 0.036 | 0.029 | 0.045 | 0.054 | 0.006 | 0.054 | 0.045 | 0.064 |
| | AY 2015 ($n$ = 1,913) | | | | | AY 2016 ($n$ = 1,921) | | | | |
| *SEAK/TBR* | 0.299 | 0.01 | 0.298 | 0.283 | 0.315 | 0.175 | 0.009 | 0.175 | 0.16 | 0.191 |
| *NCBC* | 0.098 | 0.008 | 0.098 | 0.085 | 0.112 | 0.1 | 0.009 | 0.1 | 0.085 | 0.115 |
| *West Vancouver* | 0.175 | 0.01 | 0.175 | 0.159 | 0.192 | 0.214 | 0.011 | 0.214 | 0.195 | 0.233 |
| *South Thompson* | 0.061 | 0.007 | 0.061 | 0.05 | 0.074 | 0.092 | 0.009 | 0.092 | 0.078 | 0.107 |
| *Washington Coast* | 0.078 | 0.008 | 0.078 | 0.065 | 0.091 | 0.053 | 0.007 | 0.053 | 0.043 | 0.065 |
| *Interior Columbia (Su/F)* | 0.205 | 0.011 | 0.204 | 0.186 | 0.223 | 0.254 | 0.013 | 0.254 | 0.233 | 0.275 |
| *Oregon Coast* | 0.041 | 0.007 | 0.041 | 0.031 | 0.052 | 0.049 | 0.007 | 0.049 | 0.038 | 0.061 |
| *Other* | 0.044 | 0.006 | 0.043 | 0.034 | 0.054 | 0.063 | 0.008 | 0.063 | 0.051 | 0.076 |
| | AY 2017 ($n$ = 2,809) | | | | | AY 2018 ($n$ = 1,947) | | | | |
| *SEAK/TBR* | 0.283 | 0.009 | 0.283 | 0.269 | 0.297 | 0.381 | 0.009 | 0.381 | 0.366 | 0.397 |
| *NCBC* | 0.079 | 0.007 | 0.079 | 0.069 | 0.091 | 0.077 | 0.007 | 0.077 | 0.065 | 0.089 |
| *West Vancouver* | 0.252 | 0.008 | 0.252 | 0.238 | 0.266 | 0.244 | 0.009 | 0.244 | 0.229 | 0.259 |
| *South Thompson* | 0.119 | 0.006 | 0.119 | 0.109 | 0.13 | 0.059 | 0.005 | 0.059 | 0.05 | 0.068 |
| *Washington Coast* | 0.042 | 0.004 | 0.042 | 0.035 | 0.049 | 0.081 | 0.006 | 0.081 | 0.071 | 0.091 |
| *Interior Columbia (Su/F)* | 0.149 | 0.007 | 0.149 | 0.138 | 0.16 | 0.084 | 0.006 | 0.084 | 0.074 | 0.094 |
| *Oregon Coast* | 0.024 | 0.003 | 0.024 | 0.019 | 0.029 | 0.024 | 0.004 | 0.024 | 0.018 | 0.03 |
| *Other* | 0.052 | 0.005 | 0.052 | 0.044 | 0.06 | 0.05 | 0.005 | 0.05 | 0.042 | 0.06 |

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| | AY 2019 ($n$ = 2,306) | | | | | AY 2020 ($n$ = 2,498) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.315 | 0.008 | 0.315 | 0.302 | 0.327 | 0.227 | 0.007 | 0.227 | 0.216 | 0.238 |
| *NCBC* | 0.070 | 0.006 | 0.070 | 0.060 | 0.080 | 0.061 | 0.006 | 0.061 | 0.052 | 0.071 |
| *West Vancouver* | 0.315 | 0.009 | 0.315 | 0.300 | 0.330 | 0.254 | 0.008 | 0.254 | 0.240 | 0.268 |
| *South Thompson* | 0.102 | 0.006 | 0.102 | 0.091 | 0.113 | 0.084 | 0.006 | 0.084 | 0.075 | 0.093 |
| *Washington Coast* | 0.059 | 0.005 | 0.059 | 0.051 | 0.068 | 0.086 | 0.006 | 0.086 | 0.076 | 0.096 |
| *Interior Columbia (Su/F)* | 0.072 | 0.006 | 0.072 | 0.063 | 0.081 | 0.163 | 0.007 | 0.163 | 0.151 | 0.175 |
| *Oregon Coast* | 0.022 | 0.003 | 0.021 | 0.016 | 0.028 | 0.045 | 0.005 | 0.045 | 0.038 | 0.053 |
| *Other* | 0.046 | 0.005 | 0.046 | 0.038 | 0.054 | 0.080 | 0.006 | 0.080 | 0.071 | 0.090 |

| | AY 2021 ($n$ = 1,955) | | | | | AY 2022 ($n$ = 2,095) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 90% CI | | | | | 90% CI | |
| Reporting group | Mean | SD | Median | 5% | 95% | Mean | SD | Median | 5% | 95% |
| *SEAK/TBR* | 0.248 | 0.009 | 0.248 | 0.234 | 0.263 | 0.304 | 0.009 | 0.304 | 0.290 | 0.318 |
| *NCBC* | 0.071 | 0.007 | 0.071 | 0.060 | 0.084 | 0.071 | 0.007 | 0.071 | 0.059 | 0.083 |
| *West Vancouver* | 0.227 | 0.010 | 0.227 | 0.210 | 0.244 | 0.174 | 0.008 | 0.174 | 0.161 | 0.188 |
| *South Thompson* | 0.147 | 0.009 | 0.146 | 0.132 | 0.162 | 0.062 | 0.006 | 0.062 | 0.053 | 0.072 |
| *Washington Coast* | 0.064 | 0.007 | 0.064 | 0.053 | 0.076 | 0.110 | 0.007 | 0.110 | 0.099 | 0.123 |
| *Interior Columbia (Su/F)* | 0.141 | 0.009 | 0.141 | 0.127 | 0.156 | 0.168 | 0.008 | 0.168 | 0.155 | 0.182 |
| *Oregon Coast* | 0.038 | 0.005 | 0.038 | 0.030 | 0.048 | 0.056 | 0.005 | 0.056 | 0.047 | 0.065 |
| *Other* | 0.063 | 0.006 | 0.063 | 0.053 | 0.074 | 0.054 | 0.006 | 0.053 | 0.045 | 0.063 |

*Note*: $n$ = successfully genotyped sample size, SD = standard deviation, and 90% CI = 90% credibility intervals.

*Note*: Reporting groups are described in Table 1.

*Note*: AY = Accounting year = October 1–September 30.