Fishery Management Report No. 23-06

2021 Prince William Sound Area Finfish Management Report

by

Heather Scannell

Jeremy Botz

Kyle Gatt

Jennifer Morella

Joshua Buza

and

Rachel Ertz

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

Symbols and Abbreviations

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	′
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	″
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

FISHERY MANAGEMENT REPORT NO. 23-06

2021 PRINCE WILLIAM SOUND AREA FINFISH MANAGEMENT REPORT

by
Heather Scannell, Jeremy Botz, Kyle Gatt, Jennifer Morella, Joshua Buza, and Rachel Ertz
Alaska Department of Fish and Game, Division of Commercial Fisheries, Cordova

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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Heather Scannell, Jeremy Botz, Jennifer Morella, Joshua Buza, and Rachel Ertz
Alaska Department of Fish and Game, Division of Commercial Fisheries,
PO Box 669, Cordova AK

Kyle Gatt
Alaska Department of Fish and Game, Division of Commercial Fisheries
43961 Kalifornsky Beach Rd Ste B, Soldotna AK

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ABSTRACT

This is the 2021 edition of the management report describing commercial fishery management and results that is produced each year for salmon and herring in the Prince William Sound Management Area. This report also describes subsistence and personal use salmon fisheries. In 2021, approximately 63 million salmon were harvested in the Prince William Sound commercial salmon fishery: 9,000 Chinook *Oncorhynchus tshawytscha*, 1.09 million sockeye *O. nerka*, 256,600 coho *O. kisutch*, 59.57 million pink *O. gorbuscha*, and 2.07 million chum salmon *O. keta*. An additional 7.72 million salmon were sold for hatchery cost recovery. During 2021, 477 drift gillnet, 24 set gillnet, and 212 purse seine permit holders harvested salmon. The estimated value, including hatchery sales, was approximately $120.66 million. Exvessel values were $25.84 million from drift gillnets, $967,000 from set gillnets, and $71.22 million from purse seines. Revenue from hatchery cost recovery and raceway sales was $22.63 million. Approximately 2,835 subsistence and 7,222 personal use permits were issued, and there was a total combined harvest of 210,000 salmon. The commercial fishery for Pacific herring *Clupea pallasii* was closed in 2021 for the 21st consecutive year because age structure and projected available surplus in the spawning biomass did not support a fishery.

Keywords: Pacific salmon *Oncorhynchus*, Pacific herring *Clupea pallasii*, harvest, hatchery, 2021, annual management report AMR, Copper River, Prince William Sound, exvessel value, commercial, personal use, subsistence

INTRODUCTION

OVERVIEW OF MANAGEMENT AREA

The Prince William Sound management area, registration Area E, encompasses all coastal waters and inland drainages entering the north central Gulf of Alaska between Cape Suckling and Cape Fairfield. This area includes the Bering River, Copper River, and all of Prince William Sound (PWS), with a total adjacent land area of approximately 38,000 square miles (Figure 1). The salmon management area is divided into 11 districts that correspond to the local geography and distribution of the 5 species of salmon (*Oncorhynchus*) harvested in the commercial fisheries (Figure 1).

Six private nonprofit (PNP) hatcheries contribute to the area's fisheries (Figure 1). Five are operated by the regional aquaculture association, Prince William Sound Aquaculture Corporation (PWSAC). Gulkana Hatchery (GH; located between Paxson and Summit Lakes) augments production of sockeye salmon *O. nerka* to the Copper River. Cannery Creek Hatchery (CCH; located on the north shore of PWS in Unakwik Inlet) and Armin F. Koernig Hatchery (AFK; located in southwestern PWS on the east shore of Evans Island) produce pink salmon *O. gorbuscha.* Wally H. Noerenberg Hatchery (WNH; located in northwestern PWS on the south shore of Esther Island) produces pink, chum *O. keta*, and coho *O. kisutch* salmon. Main Bay Hatchery (MBH; located in western PWS at the head of Main Bay) produces sockeye salmon. The sixth hatchery is the Solomon Gulch Hatchery (SGH), operated by the Valdez Fisheries Development Association (VFDA); it is located on the south shore of Port Valdez and produces pink and coho salmon.

COMMERCIAL SALMON FISHERIES

The management objective for all districts is achieving escapement goals, where established, and allowing for the orderly harvest of all wild and enhanced salmon stocks surplus to spawning requirements, inriver goals, and hatchery cost-recovery and broodstock needs. In addition, the Alaska Department of Fish and Game (ADF&G) follows regulatory plans to manage fisheries and to work cooperatively with PNP hatcheries in achieving cost-recovery and broodstock objectives.

ADF&G forecasts PWS wild salmon runs, whereas PWSAC and VFDA forecast hatchery runs. Hatchery forecasts are contained in the annual hatchery management plans, which also contain production goals, broodstock development, and harvest management of PWS hatchery returns (unpublished Alaska Department of Fish and Game manuscripts obtained from Lorna Wilson, Assistant Private Non-Profit Hatchery Coordinator, Juneau, Alaska, hereafter cited in text as "ADF&G *unpublished*"). Following each season, private nonprofit hatchery permit holders in Alaska are required (AS 16.10.470) to submit an annual report to ADF&G that includes details of egg takes, releases, and adult returns (ADF&G *unpublished*), and these reports are summarized in Wilson (2023).

Legal gear for commercial salmon fishing is purse seine, drift gillnet, and set gillnet. The maximum number of commercial limited entry permits in Area E is defined in 20 AAC 05.320. Drift gillnet permits are the most numerous (536) and are allowed in the Bering River, Copper River, Unakwik, Coghill, and Eshamy Districts, and Port Chalmers Subdistrict when allowed through the allocation plan. Set gillnet gear (28 permits) is allowed only in the Eshamy District. Purse seine gear (267 permits) is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague, and Southeastern Districts.

PRINCE WILLIAM SOUND MANAGEMENT AND SALMON ENHANCEMENT ALLOCATION PLAN

In December 2005, the board modified the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370). The modifications allocated only fish produced by PWSAC and removed wild stocks and fish produced by VFDA. Additionally, a 5-year rolling-average exvessel value is now used rather than annual value percentages. The set gillnet gear group is allocated 4% of the 5-year average value of PWSAC-enhanced salmon stocks. Drift gillnet and purse seine gear groups each receive 50% of the remaining value of PWSAC-enhanced salmon stocks. If the set gillnet gear group catches 5% or more of the previous 5-year average value of PWSAC-enhanced stocks, the set gillnet group will be limited to no more than 36 hours of fishing time per week beginning July 10 in the following year. If the drift gillnet gear group harvest value is calculated to be 45% or less, then in the year following the calculation, the drift gillnet gear group shall have exclusive access to the Port Chalmers Subdistrict from June 1 through July 30. If the purse seine gear group harvest value is calculated to be 45% or less, then in the year following the calculation, the purse seine gear group shall have exclusive access to the Esther Subdistrict from June 1 through July 20.

In addition, the *Prince William Sound Management and Salmon Enhancement Allocation Plan* limits the time and area open to specific gear groups. For example, the Southwestern District, except within the Armin F. Koernig Hatchery Special Harvest Area and Terminal Harvest Area, is closed to purse seine fishing prior to July 18 to ensure that early season chum and sockeye salmon bound for other districts reach their intended destinations (5 AAC 24.370(e)(2)(A)). Furthermore, the purse seine gear group is allowed to fish in the Coghill District after July 21 when the harvest is predominantly pink salmon (5 AAC 24.370(e)(5)(B)). There are also regulatory provisions that allow for enhanced chum salmon to be harvested prior to July 21 within the Esther Subdistrict of the Coghill District when the available surplus is not being adequately harvested by the drift gillnet fleet.

2021 SALMON SEASON HARVEST SUMMARY

The 2021 Prince William Sound management area commercial salmon harvest was approximately 63 million fish composed of 9,000 Chinook *O. tshawytscha*, 1.09 million sockeye, 256,600 coho, 59.57 million pink, and 2.07 million chum salmon (Table 1; Figure 2). An additional 7.72 million fish were harvested in the hatchery cost-recovery fisheries, 9,700 were taken for homepack, and 27 were donated (Table 1). Exvessel values from the 2021 commercial fisheries, excluding hatchery sales, were $71.22 million (73%) for purse seine, $25.84 million (26%) for drift gillnet, and $967,000 (<1%) for set gillnet (Table 2; Figure 3). The gillnet subareas average price per pound paid for Chinook salmon ($3.41–$13.54) was well above the 10-year (2011–2020) average ($3.22–$6.91; Table 3). Depending on gear and reporting area, the average price per pound paid for sockeye ($1.59–$3.46), coho ($0.67–$1.84), pink ($0.34–$0.35), and chum ($0.67–$0.83) salmon was generally above the 10-year (2011–2020) average (Table 3). The purse seine average earnings per permit was $336,000, which was the second highest in the last 10 years (2011–2020) and 35% above that same 10-year average of $221,000 (Table 4). Drift gillnet ($54,200) and set gillnet ($40,300) earnings per permit were the second lowest in the past 10 years (2011–2020); drift gillnet earnings were 31% below the 10-year (2011–2020) average of $79,100; and set gillnet earnings were 50% below the 10-year (2011–2020) average of $80,600 (Table 4).

2021 GILLNET SALMON SEASON SUMMARY

Overview

The PWS gillnet fishery had historically weak Chinook salmon harvests and below-average sockeye, coho, and chum salmon harvests. Early on, Copper River sockeye and Chinook salmon runs were well below average in terms of harvest and inriver passage, prompting an extended fishery closure. Following that early-season closure, when Chinook salmon passage was nearly complete and sockeye salmon run strength improved, the fishery was able to maintain a regular fishing schedule from mid-June through the end of the season. In western PWS gillnet fisheries, below-average, hatchery-produced sockeye and chum salmon runs with large hatchery cost-recovery goals prompted irregular fishing opportunity through June and July. The hatchery chum salmon run in western PWS was 10% above forecast and the hatchery sockeye salmon run was 33% below forecast; 32% of the chum run and 37% of the sockeye run were harvested for hatchery cost recovery and broodstock (ADF&G *unpublished*). The season ended with below-average coho salmon runs to the Copper River and Bering River districts, which resulted in conservative management of those fisheries. Fortunately, strong grounds prices for Chinook, sockeye, chum, and coho salmon helped boost the season total 2021 exvessel value for the drift gillnet fleet to more than double the 2020 value (Tables 3 and 4).

Fishery participation was low in 2021. A total of 477 drift gillnet permit holders sold 8,300 Chinook, 897,300 sockeye, 191,500 coho, 954,500 pink, and 1.34 million chum salmon, for a combined total of 3.39 million salmon. A total of 24 set gillnet permit holders sold 9 Chinook, 79,200 sockeye, 57 coho, 24,800 pink, and 12,400 chum salmon, for a combined total of 116,500 salmon (Table 1).

The gillnet fishery harvest and exvessel value in 2021 were historically low. The drift gillnet exvessel harvest value of $25.84 million was 37% below the 10-year (2011–2020) average of $40.87 million (Table 4), and comparable to levels seen in the early 2000s (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022). Drift gillnet average permit

earnings were $54,200 compared to a 10-year (2011–2020) average of $79,100 (Table 4; Figure 3). The set gillnet exvessel harvest value of $967,000 was 58% below the 10-year (2011–2020) average of $2.28 million, and average permit earnings were $40,300 compared to a 10-year (2011–2020) average of $80,600 (Table 4).

Copper River District

The Copper River District is defined as all waters of the Gulf of Alaska between Hook Point and Point Martin with a seaward boundary defined by a line between a point 3 miles south of Hook Point, and another point 3 miles south of Pinnacle Rock (Figure 1).

ADF&G, with direction from the Alaska Board of Fisheries, manages salmon runs to the Copper River District to assure a sustained yield and meet all user group allocations, as outlined in the *Copper River District Salmon Management Plan* (5 AAC 24.360). In 2003, the Chinook salmon spawning escapement goal was changed from a range of 28,000–55,000 to 24,000 or more fish (Table 5; Bue et al. 2002). To increase the likelihood of achieving the Chinook salmon escapement goal, at a December 2011 meeting, the Alaska Board of Fisheries amended the *Copper River King Salmon Management Plan* (5 AAC 24.361) to limit the number of commercial openings inside of the barrier islands in statistical weeks 20 and 21 to no more than 1 during this 2-week period

The Copper River District is managed using 3 primary assessment tools: (1) fish counts at the Miles Lake sonar site, (2) aerial escapement surveys of lower delta systems, and, to a lesser extent, (3) weekly anticipated harvest estimates (forecasts) with environmental conditions such as river height considered. ADF&G relies primarily on the inriver passage index provided by Adaptive Resolution Imaging Sonar (ARIS) units at Miles Lake to manage the commercial fishery and provide upriver escapement and fishery allocations. Aerial surveys in the upper river, otoliths (marked thermally or with strontium chloride), weirs, and salmon counting towers provide additional information useful for meeting the objectives of the *Copper River District Salmon Management Plan*.

The current SEG range is 360,000–750,000 wild sockeye salmon for the upper Copper River (Table 5; Moffitt et al. 2014). By regulation (5 AAC 24.360), ADF&G must also provide for an inriver run goal (IRRG) of salmon to the Copper River. This IRRG consists of 7 components and can vary each year because 4 of those components are variable. These components are listed below, along with the number of salmon in 2021:

- The lower bound of the spawning escapement goal (fixed): 360,000 sockeye salmon
- Other salmon (fixed): 17,500 salmon
- Subsistence harvest (variable): 73,500 salmon
- Personal use harvest (variable): 116,500 salmon
- Sport fishery (fixed): 15,000 salmon
- Gulkana Hatchery broodstock (variable): 20,000 sockeye salmon
- Gulkana Hatchery surplus (variable): 2,600 sockeye salmon
- Total: 605,000–995,000 salmon

ADF&G manages for a daily inriver objective that is the apportioned number of salmon (based on historical run timing) that need to pass the Miles Lake sonar to meet the overall IRRG. For 6 of the 7 IRRG components, the daily inriver objective is calculated using run timing of both wild and hatchery salmon. The subsistence harvest component is calculated using only wild stock run

timing. This is required by AS 16.05.940(34), which states: "subsistence uses means the noncommercial, customary and traditional uses of wild, renewable resources".

In the past 10 years, annual harvests of Chinook salmon in the Copper River District have been much more variable than in the 15 previous years. Average Chinook salmon commercial harvest dropped from an average of 28,800 per year (1996–2020) to 13,800 per year (2011–2020; Appendix A4). Historically small Chinook salmon runs in 2014, 2016, 2020, and 2021 (Appendix A3) resulted in missed escapement goals and commercial catches that all ranked in the lowest 15 years since 1975 (Appendix A4).

Annual sockeye salmon harvests have been somewhat more stable over the 25-year period since 1996 but dropped to historic lows in the past 4 years. The second smallest annual commercial sockeye salmon harvest since 1988 was in 2018, and the fourth smallest was in 2020 (Appendix A4). These recent, historically weak runs prompted emergency disaster relief fund requests from the gillnet fleet in 2020, with results pending as of this writing (Appendix A2; J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022).

The coho salmon commercial harvest has varied widely over the last 25 years, from 18,700 in 1997 to 504,400 fish in 2002 (Appendix A4). In the most recent 10 years, however, the coho salmon fishery has helped to stabilize the economic impacts of low Chinook and sockeye salmon harvests. For instance, during the 2018 and 2020 seasons, when drift gillnet Chinook and sockeye salmon harvest values were near all-time lows, coho salmon harvests provided an infusion of $6.10 million (2018) and $2.77 million (2020) exvessel value into the economy (Table 4; Appendix A4).

2021 Preseason Outlook and Harvest Strategy

For 2021, ADF&G forecasted below-average harvests of Chinook salmon (13,000 fish) and sockeye salmon (844,000 fish) in the Copper River District (Haught 2021). Due to the below-average Chinook salmon forecast, closed waters described in 5 AAC 24.350(1)(B) were anticipated to be utilized beyond statistical weeks 20 (May 10–16) and 21 (May 17–23). The 2021 inriver goal (minimum inriver passage objective) was 571,780 salmon by July 28, which was the season ending date for sonar counting at Miles Lake (Appendix A6).

The Copper River District management objective is to have a fishing schedule of 2 evenly spaced periods per week starting on the first Monday or Thursday around May 15. Fishing schedules are adjusted inseason to account for variations in river flow, run timing, run strength, fishing effort, and other factors. During years when Miles Lake sonar is not operational before the first opening, early season management of the Copper River District is based on actual and anticipated harvest data. The anticipated catch is based on the current year midpoint harvest forecast and the 1998–2007 harvest timing (the most recent years of harvest timing analysis). By late May, Miles Lake sonar is usually operational, and sonar counts and commercial harvest information become the primary factors governing the management of the fishery. By mid-June, aerial indices of sockeye salmon escapement in Copper River Delta systems are also considered when scheduling commercial fishing periods. Because of the many spawning systems in the Copper River Delta, an actual weekly escapement index of selected systems is compared to a weekly escapement index based on historical run timing. The SEG range for Copper River Delta sockeye salmon stocks is 55,000–130,000 fish (Table 5; Bue et al. 2002). On August 15, the ADF&G's management priority switches to coho salmon management.

Coho salmon fishery management typically begins the third week of August, and the historical precedent is to provide an initial 24-hour period once per week. If harvest or aerial survey numbers warrant, the duration of this fishing period may be increased to 36, 48, or 60 hours, or a second fishing period may be added during the week. Aerial escapement indices for the early portion of the coho salmon run likely underestimates salmon abundance because other species of salmon remain in tributaries, salmon distribute or redistribute outside of survey index areas, and water conditions create poor visibility. Additionally, inclement fall weather often makes regular weekly survey flights challenging. The SEG for the Copper River Delta coho salmon is 32,000–67,000 fish (Table 5; Bue et al. 2002).

Sockeye and Chinook Salmon Fishery Season Summary

The 2021 sockeye salmon runs to the Copper River were low, resulting in conservative management to ensure escapements were within sockeye salmon escapement goals. The 2021 Copper River sockeye salmon total run was 1.32 million fish, of which 74% were wild Upper Copper River fish, 6% were hatchery Upper Copper River fish, and 21% were Copper River Delta fish (Appendix A2). Of these 1.32 million fish, 405,000 (31%) were commercially harvested, 3,630 (<1%) were retained as homepack, 5,340 (<1%) were harvested in the Copper River District subsistence fishery, and 210,000 (16%) were harvested in state and federal freshwater fisheries. Only Copper River District subsistence, Chitina Subdistrict state and federal subsistence harvest, and Copper River Delta sport harvest were above the 10-year (2011–2020) average. Upper Copper River sockeye salmon spawning escapement was 511,223 fish, which was 42% above the 360,000-fish lower bound of the SEG but 24% below the recent 10-year (2011–2020) average; and Copper River Delta sockeye salmon escapement was 174,000, which was 37% above the recent 10-year (2011–2020) average (Appendix A1).

In 2021, the sockeye salmon run produced by the GH totaled 74,200 fish (Appendices A2 and E3). This was double the PWSAC total run forecast of 47,500 fish (ADF&G *unpublished*). A total of 9,560 sockeye salmon were reported as collected for broodstock or escaped into the watershed (Appendices A1 and E3). Of those fish, 6,000 were harvested for broodstock and an estimated 3,560 sockeye salmon returned to release locations but were not harvested (ADF&G *unpublished*).

The 2021 Copper River Chinook salmon run was weak and the lower-bound SEG was not achieved. The total run was 30,100 Chinook salmon, of which 7,510 (25%) were commercially harvested, 641 (2%) were harvested through educational and subsistence permits in the Copper River District, and 278 (1%) were retained by commercial permit holders as homepack. A total of 3,640 (12%) were harvested in inriver fisheries, and the remaining 18,021 (60%) represent spawning escapement (Appendix A3). Spawning escapement was 25% below the lower bound SEG of 24,000 for Copper River Chinook salmon.

Miles Lake sonar became operational on May 16, starting with north bank sonar enumerating for approximately half a day. South bank sonar deployment was later than recent years due to shore ice. The first salmon were counted on May 16, when the north bank passed 36 fish. On May 18, the Miles Lake north bank sonar began counting 24 hours a day, and on May 26 south bank sonar began counting 24 hours a day, signifying full counting capacity on both banks. On July 28, the last day of operation, the 2021 cumulative Miles Lake sonar count was 751,262 salmon, which was 31% above the lower end of the inriver passage objective for the date (Figure 4; Appendices A6 and A7).

Aerial surveys for the Copper River and the Copper River Delta extend from mid-June to mid-October and serve as important metrics of escapement abundance and distribution. The Copper River Delta aerial escapement survey weekly index for full surveys was below the lower end of the objective range for only the 2nd week of coverage of coverage and within or above for the remainder of the season (Appendix A9). The final escapement index count for the Copper River Delta systems was 87,100 sockeye salmon, which was within the SEG range of 55,000–130,000 fish (Table 5; Appendix A9). Since 2011, the escapement index has ranged from a low of 51,600 in 2016 to a high of 87,100 in 2021 (Appendix A10). In 2021, 2 aerial surveys of upper Copper River index streams were conducted to evaluate the distribution of sockeye salmon, the fifth lowest (2018 was the lowest) total peak count index since 2006 (Appendix A11).

Commercial fishing time in 2021 was greatly reduced because of weak runs of both Chinook and sockeye salmon. Sockeye salmon harvest was well below anticipated levels for the first 2 fishing periods (May 17 and 20) and signified that a shift to a conservative (once a week or less) fishing schedule was in order, even though Chinook salmon harvest was above the semiweekly anticipated harvest point estimate in these 2 fishing periods (Appendix A8). Large spring tidal events of nearly 15 feet peaked around May 24, which coincided with a potential third opening. These large tidal cycles typically contribute to salmon movement and passage and frequently correlate to above-average commercial harvests and counts at the Miles Lake sonar station. These large tides, along with cool weather and late ice-out in the river, contributed to the increased harvest risk of continuing 2 fishing periods a week through a period that was likely to be the peak of the sockeye and Chinook salmon runs through the district. These factors provided justification for keeping the commercial fishery on a conservative footing—short-duration fishing periods and no more than 1 fishing period every week or 2 for the early season.

Even with above-anticipated harvest of Chinook salmon earlier in the season, short fishing periods, and skipping a fishing period that would have normally been fished, fishing opportunity for Chinook salmon in inside waters was not warranted due to the high potential of a small run based on low brood-year escapement and poor runs in recent years. As an additional step to bolster Chinook salmon conservation efforts, the inside closure area was expanded from the start of the season through mid-June to include inside waters east of Kokinhenik Bar, essentially closing most waters inside barrier islands east of Copper Sands (between Egg Island and Pete Dahl channels). The further reduction in the channelized shallow-water fishing area reduced Chinook salmon harvest potential and supported the need for elevated conservation measures. From mid-June through the start of July, waters of the standard closure area were closed (Appendix A5) to account for any remaining Chinook salmon run overlap.

Early season Miles Lake sonar passage remained below the cumulative minimum inriver passage objective into the second week of June. This was in part likely due to the delayed deployment of the north bank and, to a greater extent, south bank sonars. Even with management consideration for potential assumed passage along the south bank during the first 10 days of counts, cumulative passage remained well below minimum objectives. By June 2, cumulative counts were nearly 86,000 fish below minimum objectives. From this point, sonar counts improved, and the cumulative count deficit was made up by June 12 (Figure 4; Appendix A6). Reaching the cumulative minimum inriver passage objective by mid-June meant that the early segments of the sockeye and Chinook salmon runs were likely well represented in overall inriver passage. The costs of attaining this level of inriver passage was restricting the commercial fishery to 48 hours

of fishing through the first month of the fishery with an extended closure timed to coincide with historical peak harvest timing in late May and early June (Appendix A5).

The trend of significantly-below-expected inriver passage through mid-June, as mentioned above, and below or near anticipated commercial harvest were the primary catalysts for conservative management through this period. The third fishing period on May 24 compared to the fifth fishing period on June 14 resulted in a harvest trend that did not warrant a shift away from conservative management. Chinook and sockeye salmon harvests from the third fishing period (May 24) were 2,130 Chinook and 33,600 sockeye salmon, and during the fifth fishing period (June 14) Chinook salmon harvest declined to 443 fish and sockeye salmon harvest remained at a similar level, 32,400 fish. Fishing effort remained above 300 permits from May 24 to June 14 (Appendix A5), signifying that high harvest potential needed to remain a strong management consideration through this period.

In mid-June, the commercial harvest pattern stabilized at near or slightly above anticipated levels, and the Miles Lake sonar passage began to stay consistently above the daily and cumulative objective range (Appendix 6). Those two factors combined to prompt a shift to a regular schedule of 2 fishing periods per week (Appendix A5). The Copper River Delta sockeye salmon aerial survey escapement index became an increasingly stronger management driver as the fishery progressed later in the season. Aerial surveys fluctuated around the minimum objective from mid-June through early July but then improved to near the upper end of the weekly objective starting in mid-July (Appendix A9). This supported increasing fishing opportunity from 12-hour and 24-hour periods to an alternating schedule of 36-hour and 24-hour periods by early July (Appendix A5). This translated to 480 hours of fishing from mid-June through the start of the coho salmon fishery in mid-August. A total of 278,300 sockeye salmon were harvested during this period, 69% of the total sockeye salmon harvest for the season (Appendix A5). The average (2011–2020) total harvest percent for this late phase in the season (June 15 to August 15) is 43% with a range of 27% to 56% (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022).

Commercial fishery decision making is also driven to varying degrees by numbers of SrCl2-marked Gulkana Hatchery (GH) fish harvested in the commercial fishery. Through the historical average period of peak abundance (last week of June through first week of July), GH sockeye salmon represented about 12% of the harvest. GH sockeye salmon were elevated in abundance in the fishery 1.5 weeks later, representing an average of 32% of the harvest on July 16. The small hatchery and wild sockeye salmon runs meant that the number of GH fish in the harvest remained low even with this high proportional representation (Appendix E2). The GH contribution to the sockeye salmon commercial harvest was 47,200 fish, or 12% of the Copper River District harvest (Appendix E2), which was about one-quarter the recent 10-year (2011–2020) average of 188,648 fish (Appendix E3). This low harvest was on fish that came from fry releases in 2017 and 2018 that were both below the 10-year (2011–2020) average (Appendix E4). MBH contributed 8,080 fish, or 2% of the Copper River District harvest (Appendix E2). The number of wild sockeye salmon in the Copper River District commercial harvest was 349,000, or 86% of the total sockeye salmon catch (Appendix E2).

Sockeye salmon harvest was above semiweekly harvest projections during 10 commercial fishing periods in 2021, all after mid-June (Appendix A9). From the first fishing period on May 18 until the start of the coho salmon fishery on August 17, the commercial fishery was prosecuted on a schedule that ranged from 1 short-duration (12-hour) period a week or less to 2 extended-duration (24–36 hours) periods a week. This varied schedule amounted to a total of 540 hours fished for the

entirety of the Chinook and sockeye salmon season—on par with the recent 5-year (2016–2020) average of 515 hours (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2021). The Chinook and sockeye salmon fishery had a preliminary exvessel value of $8.81 million (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022). In an average year, like 2019, this fishery can be worth $22.74 million (Morella et al. 2021).

A total of 448 drift gillnet permits were active in the Copper River District in 2021 (Appendix A5), a continuation of the steady decline in effort seen over the last 3 years (Botz et al. 2021; Morella et al. 2021). Fishing effort peaked May 24 with 394 permits fished during a 12-hour opening. Participation in the fishery fluctuated from this peak to a low of 23 permits fished on the August 2 fishing period. This drop in participation was likely from a combination of low Chinook and sockeye salmon abundance during the first 2 months of the fishery (Appendix A5), and drift gillnetters leaving the Copper River District to participate in fisheries on the western side of PWS (primarily near MBH and WNH).

Harvests of Chinook and sockeye salmon were low in 2021. The total commercial harvest of 7,500 Chinook salmon was 43% below the previous 10-year (2011–2020) average harvest of 13,063 fish, and an additional 280 Chinook salmon were retained as homepack, which is also well below the 10-year average of 714 fish (Appendices A3–A5 and A8). Chinook salmon harvest peaked on May 17 when 2,230 Chinook salmon were harvested during a 12-hour fishing period (Appendix A5). The total Copper River District sockeye salmon commercial harvest of 404,600 fish was 68% less than the previous 10-year (2011–2020) average harvest of 1.25 million sockeye salmon, and additional 3,600 sockeye salmon were retained as homepack, which is less than half the most recent 10-year average of 7,807 fish (Appendices A1, A4, A5, and A8). Sockeye salmon harvest peaked during the June 17−18 fishing period when 39,800 sockeye salmon were harvested over 24 hours (Appendix A5).

The age structure of both Chinook and sockeye salmon in 2021 was similar to prior years. In 2021, most of the commercially harvested sockeye salmon were age-5 fish (64%), followed by age-4 (26%) and age-6 (9%) fish (Table 6). In 2021, most of the commercially harvested Chinook salmon were also age-5 fish (58%), followed by lower numbers of age-4 (31%) and age-6 (8%) fish (Table 7). Historically, 5-year-old sockeye salmon make up 70–85% and 5-year-old Chinook salmon make up 50–80% of their respective runs in the Copper River. Over the last 40 years a sizeable decline in average length-at-age has been observed in the age-5 Chinook and sockeye salmon harvested in the Copper River District commercial fishery (Figures 5 and 6). A decline in length over time was also observed in the other Copper River Chinook and sockeye salmon age classes.

Coho Salmon Fishery Season Summary

The 2021 coho salmon run was estimated to be 252,000 fish, which includes all documented harvest and Copper River Delta escapement but does not include upriver spawning escapement because the number of coho salmon migrating upriver is not assessed. In the Copper River District, a total of 146,000 (58%) coho salmon were harvested commercially; 1,390 (1%) were reported retained as homepack in the commercial fishery; 233 (<1%) fish were harvested from the Copper River District in the subsistence gillnet fishery; and an estimated 13,300 (5%) were harvested in state and federal freshwater fisheries (Appendix A12). The Copper River Delta spawning escapement index of 45,485 coho salmon was within the SEG index range of 32,000–67,000

(Table 5; Appendix A13). This index value is from peak aerial surveys and was just above the recent 10-year (2011–2020) average of 44,509 fish (Appendix A14).

The 2021 coho salmon commercial harvest of 147,000 was 33% less than the harvest projection of 219,000 fish (Appendix A8). Despite a less than anticipated commercial harvest, the coho salmon run substantially increased the exvessel value for the commercial fishery, highlighting the importance of this late-season fishery. The coho salmon fishery provided nearly 20% of the Copper River District exvessel value in 2021. With average grounds price of $1.84/pound (Table 3) and an average fish weight of 7.44 pounds (Appendix A5), the total preliminary exvessel value of this fishery was $2.01 million.

Coho salmon harvest did not exceed sockeye salmon harvest until the August 12 fishing period, when 4,340 coho and 3,830 sockeye salmon were harvested by 55 permit holders (Appendix A5). The August 16 fishing period yielded a harvest that was less than 20% of the forecasted semiweekly weekly harvest of 40,800 coho salmon (Appendices A5 and A8). The below-forecasted semiweekly harvest numbers for the fishing period supported a continued conservative management approach, especially when considering the high fishery participation potential due to a poor Chinook and sockeye salmon season. An aerial escapement survey was not flown until early September (Appendix A13) due to poor survey conditions, and 2 weeks later than the typical mid-August first survey. Over the past decade, the first round of coho salmon aerial surveys in mid-August have often been well below the weekly target and, considering the poor harvest in August, coho salmon were likely well below weekly escapement targets throughout August (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022).

Effort for coho salmon peaked in the August 30–31 fishing period when 228 permit holders delivered 36,900 coho salmon. Harvest peaked during the next fishing period, September 6–7, when 212 permit holders delivered 39,500 coho salmon (Appendix A5). Effort remained high from mid-August through the third week of September, averaging 163 permit holders per fishing period. Harvest averaged 38,200 coho salmon per fishing period during the last week of August through the first week of September before declining rapidly for the remainder of the season (Appendices A5 and A8). The average historical harvest for this late August/early September period (106,000 coho salmon) indicated that 2021 harvest was tracking well below historical averages (Appendix A8). An aerial survey flown during the week ending September 4, under good observational conditions, documented 9,365 coho salmon in index streams, which was just over 50% below the lower index target for the week (Appendix A13).

The combination of below-forecasted semiweekly harvest and below-target escapement signified that the fishery should remain on a schedule of 1 fishing period per week and did not support extending fishing duration beyond the historical 24-hour schedule (Appendices A8 and A13). The management concern was fishing effort remaining high while the run could potentially tail off early, and therefore it was crucial to build additional escapement from this segment of the run. The aerial survey for the week ending September 11 resulted in a count of 22,520 coho salmon, which fell between the lower and average target for the week and meant that escapement was improving but did not provide assurance that the total peak count for the season was going be within the SEG (Appendix A13). Despite a decline in harvest and fishing effort between the fishing periods starting September 6 and 13 the conservative, 1 fishing period per week management strategy remained in effect until the end of September (Appendix A5). Inclement weather prevented any further aerial surveys in September, but the combination of likely escapement improvements during the conservative fishing schedule and fishing effort declining to less than 20 permits supported

expanded fishing time for the remainder of the season (Appendices A5, A8, and A13). Total peak count index of 45,485 coho salmon was near the lower end of the escapement goal range of 32,000–67,000 fish. The 2021 Copper River Delta peak count index was on par with the 10-year (2010–2020) average of 44,500 fish (Appendices A13 and A14).

The majority of the coho salmon harvested commercially (52%) were 4-year-old and 3-year-old (47%) fish, and 5-year-old (2%) fish made up the rest of the harvest (Table 8). This age structure was similar to historical harvests from the Copper River District fishery.

Bering River District

The Bering River District includes the waters of the Gulf of Alaska between the eastern edge of the Copper River District and Cape Suckling (Figure 1).

Preseason Outlook and Harvest Strategy

The Bering River District is generally managed concurrently with the Copper River District when Bering River District sockeye and coho salmon escapement aerial surveys indicate that commercial fishing is warranted. Historically, this district has opened to sockeye salmon harvest in early June. Given there has been little available sockeye salmon surplus to escapement needs in recent years, ADF&G announced preseason that the district would probably not open to a targeted sockeye salmon fishery until escapement levels were within the weekly escapement index range.

During a typical season in the Bering River District, it is often difficult to estimate the harvest inseason due to inaccurate reporting from the fishing grounds. Often, a gillnetter will deliver catch from the Bering River District to a tender in the Copper River District, and the harvest will be reported in the Copper River District. This error is often, but not always, resolved when fish tickets are entered.

Sockeye Salmon Season Summary

The 2021 Bering River District sockeye salmon fishery was prosecuted in a similar manner to the 2018–2020 fisheries. Inseason aerial survey escapement estimates trended near or below the anticipated inseason weekly index and the fishery remained closed or restricted to the western edge of the district throughout the sockeye salmon season. To reduce enforcement concerns associated with the line fishery on the eastern edge of the Copper River District, a small western section of the Bering River District was opened concurrently with Copper River District fishing periods from May 17–25 (Appendix A17). Between May 26 and August 15, the Bering River District was closed to commercial fishing due to an increase in Bering Lake sockeye salmon harvest potential and insufficient escapement to support a targeted fishery. Bering Lake escapement, with minimal fishing effort over the last 10 years, has indicated minimal salmon surplus to escapement needs. The first aerial survey of the Bering River District was flown during the week ending June 19. Only 610 sockeye salmon were observed during this survey. The weekly escapement index range was 3,250–7,150 sockeye salmon, warranting continued closure of the district to commercial fishing. The next survey was flown during the week ending July 3 and resulted in an escapement count of 4,650 fish, which was closer but still below the lower end of the weekly escapement index range of 6,090–13,400 sockeye salmon (Appendix A18). Considering the amount of fishing effort that could have shifted from Copper River District, and the continued weakness of the sockeye salmon run, no directed fishery on the tail end of the run was anticipated for the remainder of the sockeye season.

Sockeye salmon escapement peaked in mid-July and early August and inclement weather prevented additional surveys during the overlap between sockeye and coho salmon runs. The escapement indices peaked at 11,124 sockeye salmon the week ending August 7 (near the average objective for the week; Appendix A21); survey conditions were good during this survey. The final sockeye salmon escapement index for the Bering River was 13,774 fish, which was approximately 1,200 fish below the lower bound SEG of 15,000 fish (Appendix A18). Total sockeye salmon harvest in the district was 243 fish compared to the 10-year (2011–2020) average harvest of 3,900 fish (Appendix A16 and A17). Most of this harvest occurred during the early season, prior to Bering River District run timing, when the western edge of the district was opened to target Copper River bound sockeye salmon.

Coho Salmon Season Summary

Late-season weather conditions prohibited several aerial surveys in the Bering River District. Run timing of the Bering River District coho salmon run was average, and final escapement was within the SEG range for the district (Appendix A18). The commercial fishery harvest of 42,100 coho salmon was consistent with the 10-year (2011–2020) average of 61,600 fish (Appendix A16).

Coho salmon fishing opportunity in the Bering River District followed the same schedule as the Copper River District. Fishing time was progressively expanded moving into the end of the season as escapement improved and fishing effort declined. Harvest from the period that began August 23 was 626 coho salmon, with 7 permit holders participating in the fishery. This fishing effort was low for this time of the season and about one-tenth of the peak effort in early September. This low level of effort in mid- to late August relative to early September is not unusual because most effort is focused on earlier timed coho salmon stocks in the Copper River District. Harvest and effort picked up quickly over the next 2 weeks when an average of 54 permit holders delivered an average total of 14,800 coho salmon per fishing period (Appendix A16). Harvest declined during the second week of September when 8,760 coho salmon were harvested in the single fishing period by 25 permit holders. The number of fish harvested was approximately 10,000 fish less than the previous week in September and effort was one-third the previous week. This decrease in effort and harvest indicated that run entry was probably significantly past peak (Appendix A16).

Inclement weather prevented a comprehensive survey of Bering River District index systems until late September. When a survey under good observational conditions was finally flown during the week ending September 25, 18,050 coho salmon were observed compared to a projected range of 4,200–10,700 fish (Appendix A18). This survey showed surplus to the weekly objective but was timed late in the run with limited potential for additional run entry and was still below the overall average objective within the SEG. This survey confirmed the pattern of low run entry that was apparent in the commercial fishery and supported the 1 period per week management strategy used to date. Observed escapement in 2021 also peaked during the week ending September 25. Aerial survey indices in some index systems would probably have been higher in early September, but poor weather and high turbidity prevented several surveys from taking place. The total drainage escapement index for the season was 19,450 coho salmon and was between the lower end and average of the SEG range of 13,000–33,000 (Appendix A18).

Commercial fishing effort in the Bering River District coho salmon fisheries was high due to productive fishing in the adjoining eastern portion of the Copper River District. Harvest and effort followed a similar pattern to actual and historical aerial survey observations but peaked 2 weeks before the peak observation timing (J. Botz, PWS Area Management Biologist, ADF&G, Cordova,

unpublished data, 2022). A total of 84 permit holders fished during the season, and peak coho salmon harvest and fishing effort occurred during the 24-hour period that began September 6 when 72 permit holders harvested 18,400 fish. Effort declined to 21 permits fished and 3,180 coho salmon were harvested during the fishing period that started on September 20 (Appendix A16).

Coghill District

The Coghill District is in northwestern PWS and encompasses waters north and west of Perry and Culross Islands, including waters surrounding Esther Island and waters of southern Port Wells north to Harriman and College Fjords. Most commercial fishing in the Coghill District targets hatchery salmon from WNH and wild sockeye salmon returning to Coghill Lake (eastern College Fjord). The hatchery is located on Lake Bay at the southern end of Esther Island (Figure 1) and has annual production goals of approximately 250,000 coho, 9.50 million pink, and 3.00 million chum salmon.

Preseason Outlook and Harvest Strategy

The 2021 Coghill Lake sockeye salmon total run forecast was 190,000–375,000 fish (282,000 fish point estimate; Haught 2021). Meeting the median historical escapement estimate of 30,000 sockeye salmon (SEG range of 20,000–60,000; Table 5) would leave 252,000 fish (forecast range 160,000–345,000) available for commercial harvest (Table 9). The WNH enhanced chum salmon run was forecast to be 1.68 million fish. PWSAC's cost-recovery and broodstock requirements were projected to be 793,000 chum salmon, leaving 887,000 chum salmon for commercial harvest. An estimated run of 89,000 coho salmon was expected to return to WNH, of which 2,700 were anticipated to be harvested for broodstock, leaving the remaining 86,300 fish available for commercial harvest (ADF&G *unpublished*).

Early-to-midseason management of the Coghill District is driven by Coghill Lake sockeye salmon escapement and WNH chum salmon run strength. Coghill District chum, sockeye, pink, and coho salmon fisheries are open to drift gillnet permit holders during all fishing periods and to purse seine permit holders beginning July 21 when the harvest is predominantly pink salmon. The drift gillnet chum and sockeye salmon fisheries are generally prosecuted in moderate duration (36–48 hours) fishing periods, with 2 fishing periods per week concurrent with other gillnet fisheries. The pink salmon purse seine and drift gillnet fishery generally consists of short (12 to 14 hours) fishing periods prosecuted as frequently as every day. PWSAC, in consultation with the ADF&G, typically elects to complete a high percentage (80–90%) of their pink and chum salmon cost recovery harvest goals before recommending commercial harvest openings in terminal areas.

Season Summary

The Coghill River weir escapement counts are critical to the early season management of the Coghill District. The Coghill weir was operated from June 11 through July 26, except for a three-day period from June 25 to 27 when high water prohibited counts. Daily sockeye salmon passage peaked on July 17, when 9,581 fish passed the weir (Figure 7; Appendix B1). A total of 101,083 sockeye salmon were counted, and the sockeye salmon escapement goal for Coghill River was exceeded (SEG range of 20,000–60,000; Table 5; Appendices B1 and B2). The Coghill River sockeye escapement goal has been achieved every year since 2017, preceded by poor returns from 2013 through 2016 in which the goal was not met in three out of four years. The 2016 escapement was the second lowest since 1972 (Appendix B2) and the parent year of 33% of the 2021 run (age 1.3 and 2.2 fish; Table 10). The remaining brood years, 2015, 2017, and 2018, made up 16%, 39%,

and 12% of the escapement past the weir, respectively. In addition to sockeye salmon, a total of 350,862 pink salmon passed the Coghill River weir in 2021 (Appendix B1). However, the weir is not used to assess pink salmon escapement because much of the pink salmon escapement occurs after the weir is removed and significant spawning occurs below the weir site. Aerial surveys are used to assess pink and chum salmon escapements.

The 2021 total Coghill District commercial drift gillnet harvest was 494 Chinook, 192,000 sockeye, 1,960 coho, 666,000 pink, and 1.19 million chum salmon. A total of 359 permit holders participated in the Coghill drift gillnet fishery (Table 1; Appendices B3 and B5). The total combined purse seine and drift gillnet salmon harvest for Coghill District was 198,000 sockeye (99% drift gillnet), 2,870 coho (68% drift gillnet), 4.85 million pink (14% drift gillnet), and 1.19 million chum salmon (99% drift gillnet; Table 1; Appendices B3−B5).

In 2021, PWSAC reported a WNH chum salmon purse seine cost-recovery harvest of 620,400 fish, raceway sales of 19,600 fish, and broodstock carcass sales of 226,600 fish (Appendix E5). The broodstock goal for chum salmon was 218,000 fish (ADF&G *unpublished*). The broodstock goal for chum salmon was 218,000 fish (ADF&G *unpublished*). Of the chum salmon collected for broodstock, 160,000 were viable. PWSAC reported harvesting 158 viable coho salmon as part of broodstock collection, which was significantly short of the 2,700 fish goal (ADF&G *unpublished*).

Based on otolith thermal marking data, hatchery-origin salmon made up an estimated 28% of the sockeye, 72% of the pink, and 99% of the commercial chum salmon harvests in the Coghill District, (Appendices E6–E8). An estimated 56,300 (28%) MBH and 142,000 (72%) wild sockeye salmon were harvested in the Coghill District commercial fishery for a total of 198,000 sockeye salmon (Appendix E6). Of the 4.85 million pink salmon harvested in this district in the commercial fishery, 2.38 million (49%) were of WNH origin, 1.07 million (22%) were of CCH origin, 44,900 (1%) were of SGH origin, and 1,300 (<1%) were of AFK origin (Appendix E7). Of the 1.19 million chum salmon harvested in the Coghill District commercial fishery, 1.10 million (93%) were of WNH origin, 50,100 (4%) were of AFK origin, and 28,700 (2.4%) were of PC origin (Appendix E8).

The Coghill District drift gillnet fishery began on May 31 with semi-weekly openings concurrent with the Eshamy District (Appendices B3 and C3). A general schedule of two openings per week, 24–36 hours in duration, was maintained through June 22. The Esther subdistrict, WNH Special Harvest Area (SHA), and Terminal Harvest Area (THA) remained closed through the first seven periods to facilitate chum salmon cost recovery and broodstock acquisition. From June 24 through July 21, fishing time and area were liberalized to increase harvest potential of Coghill Lake sockeye salmon as escapement remained at the upper end of daily passage goals. Despite increased fishing opportunities and high fleet participation (Appendix B3), Coghill Lake sockeye salmon escapement was 68% above the upper end of the SEG of 60,000 fish (Table 5; Appendices B1 and B2). Drift gillnet fishing opportunities following July 21 were daily until the district was closed on September 16 (Appendix B3).

Peak effort by the drift gillnet fleet occurred on June 28 when 305 permit holders harvested 23,900 sockeye and 136,000 chum salmon (Appendix B3). Sockeye salmon peak harvest was 41,700 fish during the 84-hour period that started on July 1 and peak chum salmon harvest was 334,000 fish during the 60-hour period that started on July 5 (Appendix B3). Sockeye salmon harvest by the drift gillnet fleet in the Coghill District in 2021 was 9% above the 10-year average (2011–2020) of 177,000 fish. Conversely, the drift gillnet fleet's 2021 chum and coho salmon harvests were

13% and 95% below the 10-year averages (2011–2020) of 1.37 million and 44,900 fish, respectively (Appendix B5).

Unakwik District

The Unakwik District, located in the northern portion of Unakwik Inlet, is the smallest district in the PWS management area (Figure 1). Both drift gillnet and purse seine gear are allowed during all fishing periods. This district was established for management of sockeye salmon runs to Cowpen and Miners lakes. Cannery Creek Hatchery, a pink salmon hatchery, sits near the glacial moraine that spans the inlet at the southern boundary of the district. Escapement is counted by aerial surveys; however, water is quite turbid in Miners Lake.

Preseason Outlook and Harvest Strategy

The Unakwik district is managed conservatively to allow for uncertainty in sockeye salmon stock assessment. The management strategy in this district has been to provide 2 periods per week from mid-June through mid- to late July, concurrent with other districts. Fishing opportunity is largely based on abundance indices, harvest data and escapement aerial surveys, and the amount of fishing effort in the district.

Season Summary

The Unakwik District opened to drift gillnet and purse seine commercial salmon harvest for the 2021 fishing season on June 17. Fishing opportunities were concurrent with other gillnet districts in PWS until the district was closed for the season on July 20 (Appendix B6). The total 2021 Unakwik District drift gillnet harvest was 5,990 sockeye, 409 pink, and 219 chum salmon, which was above the 10-year (2011–2020) averages for all species (Appendix B7).

Eshamy District

The Eshamy District, in western PWS, is approximately 15 miles in length and 1 mile wide along its length, and open to all Area E drift and set gillnet permits (Figure 1). It is the only district in PWS where set gillnet gear is allowed. The Main Bay Subdistrict was established to allow permit holders to harvest enhanced sockeye salmon while minimizing the harvest of salmon bound for other areas in PWS and harvest wild sockeye salmon returning to Eshamy Lake. From 1967 to 2011, ADF&G had maintained a weir in the Eshamy River but was discontinued after the 2011 season due to budget cuts. A remote video weir was deployed at the outlet of Eshamy Lake from 2012 to 2017 but only provided partial escapement counts due to the inability to keep the weir fish tight without staff on site. In 2021, for the first time in 10 years, the Eshamy River weir was fully operational.

Preseason Outlook and Harvest Strategy

No preseason forecast of the sockeye salmon run to Eshamy Lake was developed in 2021. PWSAC projected the total run of enhanced sockeye salmon to MBH to be 1.08 million fish, of which 8,940 fish were required for broodstock and the remaining 1.06 million fish would be available for harvest in the commercial fishery (Table 9; ADF&G *unpublished*). This MBH run was from fry releases in 2016 and 2017 (Appendix E14).

During years in which the set gillnet gear group catches 5.0% or more of the previous 5-year average exvessel value of enhanced salmon, the set gillnet gear group is limited to no more than

36 hours per week beginning on July 10. In 2021, the set gillnet group was above the 5.0% allocation and was limited to 36 hours per week.

Season Summary

The 2021 total commercial fishery harvest in the Eshamy District was 260 Chinook, 373,200 sockeye, 1,900 coho, 278,800 pink, and 146,000 chum salmon (Table 1; Appendix C5). A total of 308 drift gillnet permit holders and 24 set gillnet permit holders participated in this fishery (Appendices C3 and C4). For the three most valuable species, the drift gillnet gear group accounted for 79% of sockeye, 91% of chum, and 91% of pink salmon harvested in the Eshamy District. Sockeye salmon harvest was well below the 10-year (2011–2020) average for both the drift gillnet (down 58%) and set gillnet (down 67%) gear groups (Appendix C6). Chum salmon harvests were below the 2011−2020 average for both the drift and set gillnet gear groups (down 19% and 56%, respectively). Pink salmon harvests were above average for the drift gillnet gear group (up 53%) but below average for the set gillnet gear group (down 4%; Appendix C5).

MBH harvested 256,000 sockeye salmon for cost recovery and 9,500 sockeye salmon for broodstock (of which 6,460 were viable; Appendix E12; ADF&G *unpublished*). The cost-recovery harvest was the largest since 2007 (Appendix E13).

The majority of sockeye (94%) and chum (95%) salmon harvested in the Eshamy District were hatchery fish. Based on otolith thermal marks, all hatchery sockeye salmon were of MBH origin. Hatchery chum salmon were predominantly of WNH (46%) and AFK (46%) origin (Appendices E9 and E11). Pink salmon harvested in the Eshamy district were minimally sampled for otolith thermal marks (two events in mid-July); these two samples resulted in 100% wild origin harvest contributions; and the earlier and later harvests were assumed to be of wild origin based on these samples (Appendix E10). The 2021 sockeye salmon run was 32% below the MBH run forecast and 29% below the 10-year (2011–2020) average of 1.03 million fish (Table 9; Appendix E13).

Sockeye salmon began arriving in the Eshamy District in late May and a consistent schedule of two 12- to 36-hour commercial fishing periods per week began on May 31. The Main Bay Subdistrict remained closed throughout much of the early portion of the season (Appendices C3 and C4) to facilitate hatchery cost recovery and broodstock acquisition. Based on early season harvest levels indicating that the MBH run was coming in under forecast, a nearly two-week closure of the commercial fishery (July 2−12; Appendices C3 and C4) was necessary to provide additional fish for PWSAC cost recovery. PWSAC completed cost recovery on July 13, resulting in a liberalization of time and area within the Eshamy District in proceeding periods. Because daily escapement counts at Coghill Lake were strong (Appendix B1), there was minimal concern about harvesting sockeye salmon bound for Coghill Lake in the Eshamy district. Per the Prince William Sound Management and Salmon Enhancement Allocation Plan (5 AAC 24.370 (f)), the set gillnet fleet was limited to 36 hours per week starting July 10. A consistent schedule of two 24-hour periods per week of the entire district was maintained from July 19 until the district's closure on September 9 (Appendices C3 and C4).

Participation in the Eshamy District was at moderate levels in 2021. Peak effort for the drift gillnet gear group occurred during the 12-hour period on June 24 with 160 drift gillnet permit holders participating (Appendix C3). For the set gillnet gear group, effort peaked at 24 permits fished during the 12-hour period on July 1 (Appendix C4). Peak sockeye and pink salmon harvests occurred on July 15, when 108 drift gillnet permit holders and 16 set gillnet permit holders harvested 84,000 sockeye salmon and 55,200 pink salmon (Appendices C3 and C4). Chum salmon

harvest peaked on June 24, when 160 drift gillnet permit holders and 19 set gillnet permit holders harvested 34,600 chum salmon (Appendices C3 and C4).

The Eshamy weir was operated from July 18 through August 30. Passage of Eshamy River sockeye salmon was far below anticipated levels, with cumulative passage averaging 68% below minimum target levels through July and August (Figure 8; Appendix C1). Peak sockeye salmon escapement occurred between August 13 and 15 when 1,742 fish passed the weir, representing one-quarter of the total escapement in 2021 (Figure 8; Appendix C1). Total escapement by August 30 was 7,001 sockeye salmon (Appendix C1), not meeting the lower end of the escapement goal (BEG 13,000–28,000) and 73% below the previous long-term average (2002–2011; Appendix C3). Additionally, 30 Chinook, 39 coho, 10,788 pink, and 212 chum salmon passed the Eshamy weir in 2021 (Appendix C1).

Wild sockeye salmon harvest proportions were relatively low, averaging less than 6% in periods for which samples were collected. Wild sockeye salmon harvest proportions peaked at 15% during the fishing periods that started July 13. Starting August 2, all harvested sockeye salmon in the Eshamy District were apportioned to wild stocks. The overall proportion of wild sockeye salmon harvested in the Eshamy District was 6% (Appendix E9).

2021 Purse Seine Salmon Season Summary

The general purse seine districts are managed to achieve wild pink and chum salmon escapement goals by district and allow the orderly harvest of surplus wild and enhanced stocks. Run projections are the basis for early inseason management of all districts. Escapement of pink and chum salmon is monitored throughout the season by weekly aerial surveys of 134 index streams. Pink and chum salmon escapement trends, of both wild and enhanced stocks, determine the area and duration of fishing periods within districts. Inseason modifications to harvest projections, season opening dates, and strategies for weekly fishing periods occur as fisheries develop and escapement goals are achieved.

2021 Preseason Outlook and Harvest Strategy

The 2021 pink salmon total run forecast for PWS was 57.38 million fish and was made up of 20.59 million VFDA fish, 17.60 million PWSAC fish and 19.19 million wild fish. Assuming cost recovery and broodstock needs for VFDA (3.49 million) and PWSAC (4.49 million) and a cumulative SEG of 1,121,000–2,555,000 fish, 47.55 million pink salmon were expected to be available for commercial harvest (Table 5; Haught 2021; ADF&G *unpublished*).

The 2021 chum salmon total run forecast in PWS was 2.66 million fish, of which 2.15 million (81%) were from PWSAC hatchery production. PWSAC's hatchery chum salmon forecast estimated a potential commercial seine harvest of 150,000 fish at AFK and 320,000 fish at Port Chalmers (ADF&G *unpublished*). Based on ADF&G's wild chum salmon forecast of 508,000 fish, there was potential for a commercial seine harvest of 308,000 wild chum salmon. ADF&G managed for each district's escapement goal—aiming for each district's long-term average—for a combined total escapement of 200,000 fish (Haught 2021).

Pink and Chum Salmon Fishery Season Summary

The 2021 PWS purse seine commercial harvest of 59.48 million fish was within 4% of the 5-year, odd-year (2011–2019) average of 57.31 million fish (Russell et al. 2021). Harvest was composed of 700 Chinook, 109,200 sockeye, 65,000 coho, 58.59 million pink, and 719,500 chum salmon

(Tables 1 and 12). The purse seine commercial harvest of pink salmon ranked third overall for odd-year commercial seine harvests since 2000. Purse seine fishery participation was at a 5-year low with 212 permit holders reporting deliveries in 2021 (Tables 1 and 4). Pink salmon thermal marked otolith contribution estimates from commercial harvests were 31% SGH, 32% PWSAC, and 37% wild stock fish (Appendix E17).

Aerial escapement surveys in PWS began the last week in June, targeting early season wild chum salmon in the Eastern and Northern District. Surveys were flown into mid-September to ensure that the broad range in pink and chum salmon run timing was represented in the escapement index. The 2021 wild pink and chum salmon runs were on time and consistent. Wild pink salmon escapement indices in 2021 supported openings outside of hatchery subdistricts starting in mid-July and running through the remainder of the season. The PWS pink salmon escapement aerial index was 3,007,254 fish, with all districts well above the lower end of their escapement goals (Table 11). Wild chum salmon escapements and harvests were below the 10-year (2011–2020) average across PWS, with 4 out of the 5 districts not achieving the lower end of its escapement goal (Table 11). During aerial surveys of all districts, it was difficult to identify and count chum salmon given the amount of wild pink salmon staging in the bays and mouths of most streams.

Overall, the total observed pink salmon run in 2021 was 69.41 million fish (harvest, broodstock, and escapement), which was 21% above the forecast of 57.38 million fish (Table 9; Appendix D1). The hatchery runs were near or above forecasted estimates, and the wild stock run came in above the forecast. Based on otolith contributions and hatchery operator annual reports the total VFDA run of 20.36 million fish was 1% below the forecast and was 5% above the 5-year, odd-year average (2011-2019 of 19.32 million fish (Table 9; Appendix D1). In total, 9.6% (1.96 million) of the VDFA run was collected for cost recovery and broodstock (ADF&G *unpublished*). The total run of 23.82 million PWSAC pink salmon was 35% above the forecast, and 16% below the 5-year, odd-year (2011–2019) average of 28.28 million fish (Table 9; Appendix D1). In total, 20% (4.88 million) of the PWSAC run was collected for cost recovery and broodstock (ADF&G *unpublished*). The total run of 25.23 million wild pink salmon was above the 5-year, odd-year (2011–2019) average of 20.79 million and was the second largest odd-year return since 2000 (Appendix D1).

Eastern District

The 2021 commercial fishery harvest in the Eastern District was driven by strong runs of both SGH and wild stocks. From July 8 through September 16 there were 45 fishing periods with 207 permit holders reporting deliveries (Table 1; Appendix E15). Commercial harvest in the district was 190 Chinook, 22,400 sockeye, 34,000 coho, 22.91 million pink and 100,100 chum salmon (Table 1). Commercial pink salmon harvest included 64% SGH, 33% wild, 2%WNH and 1% CCH fish (Appendix E15).

Early season Eastern District management focused on early wild chum salmon escapement to the district and the SGH pink salmon return. The 2021 SGH pink salmon run began returning to Valdez Arm in late June and cost-recovery fishing began on July 1. Pink salmon run entry and cost recovery harvest remained steady, those indicators coupled with strong wild pink salmon stock escapement trends, resulted in a commercial fishery period on July 8 in the Eastern District. On July 11, VFDA completed their cost-recovery goal and recommended fishing periods within the Port of Valdez and Valdez Arm on July 12th, 13th, and 14th; during these fishing periods 600 deliveries resulted in the harvest of 4.83 million pink salmon, of which 96% were SGH stock. To

begin assessing and securing broodstock needs VFDA recommended a fishing closure in the Valdez Arm and Port of Valdez. From that point forward, the run entry of SGH pink salmon remained strong and aerial escapement surveys throughout July and August indicated that wild pink salmon was above anticipated levels throughout the district. This allowed for a consistent schedule of 3–4 fishing periods per week in general district waters from July 16 onward, through the end of the season in early September. To provide protection to wild chum salmon, area restrictions in specific bays and Salmon Harvest Task Force (SHTF) markers were used throughout the season to focus the fleet on surplus wild pink salmon.

The Eastern District commercial fishing season ended after Labor Day weekend in the Port of Valdez when VFDA recommended a fishing period targeting SGH coho salmon. SGH coho salmon are managed as a sport fish but the commercial fleet inadvertently harvests them throughout PWS. Of the estimated 59,500 SGH coho salmon harvest in commercial fisheries, there were 34,000 harvested by the purse seine fleet in the Eastern District; it is assumed that most of those fish are SGH stock, however there are smaller wild stock runs that likely contributed to the overall coho salmon harvest.

The 2021 SGH pink salmon run forecast was for 20.59 million fish, of which 3.49 million were needed for broodstock and cost recovery. An estimated 1.33 million SGH pink salmon were harvested for VFDA cost recovery, and an additional 97,000 fish were harvested for cost recovery via the SGH fishway, for a total cost-recovery harvest of 1.43 million pink salmon (ADF&G *unpublished*). VFDA reported that 580,500 pink salmon were utilized at SGH for broodstock compared to a preseason anticipated goal of 408,700 fish, and an estimated 55,000 fish went unharvested, leaving 18.35 million fish available for commercial harvest (ADF&G *unpublished*). Pink salmon egg-take operations at SGH were successful in 2021, however egg-take efforts were hampered by mortality due to flooding events, high male counts and immature eggs. VFDA reached their 2021 pink salmon egg-take goal of 270 million eggs at SGH on August 30.

The 2021 SGH coho salmon run was also below the projected forecast of 87,000 fish with an estimated total return of 66,500 (ADF&G *unpublished*). VFDA reached its 2021 coho salmon egg-take goal of 2 million eggs at SGH on October 25 (ADF&G *unpublished*). VFDA harvested 2,500 coho salmon for cost recovery from the SGH fishway and utilized an additional 4,000 fish for broodstock (Appendix E1; ADF&G *unpublished*).

In the Eastern District, escapement goals were reached for pink salmon but not for chum salmon in 2021.The Eastern District pink salmon escapement index of 729,000 fish was within the odd-year SEG index range of 346,000–863,000 fish and less than the odd-year mean index (2001–2019) of 819,161 (Table 11; Appendix D2). Chum salmon escapement indices were below expected ranges for the 2021 season, and the escapement index of 58,965 fish was below the district's lower bound SEG of 79,000 fish and below the mean index (2011–2020) of 113,740 fish (Table 11; Appendix D3).

Northern District

The CCH pink salmon came in above forecasted levels and was complimented by a strong, wild stock return to the Northern District. There were 35 Northern District commercial fishing periods in 2021 with 190 purse seine permit holders reporting deliveries (Appendix E16; Table 1). Commercial harvest in the district consisted of 50 Chinook, 19,000 sockeye, 6,300 coho, 10.68 million pink and 13,000 chum salmon (Table 1). Northern District pink salmon harvest included 36% CCH, 32% wild, 18% SGH, 13% WNH and 1% AFK fish (Appendix E16).

Portions of the Northern District were opened to commercial fishing concurrently with the Eastern District on July 13 to target SGH pink salmon and disperse the fleet. Consistent opportunity was provided on the eastern side of the Northern District to target SGH pink salmon, and when aerial survey data indicated a strong wild return to the district, additional area throughout the district was provided. During this time SHTF markers were used to protect wild chum salmon. In early August, management shifted to more conservative area restrictions to keep the fleet focused on surplus wild stocks while supporting PWSAC's cost recovery efforts in the CCH SHA. As with many areas in PWS, aerial escapement surveys indicated a strong and steady wild pink salmon return for most of the season which allowed for consistent fishing opportunity until early August. In early August conservative management was used to facilitate PWSAC cost recovery efforts at CCH. PWSAC finished their cost recovery efforts on August 14 and recommended a fishing period in the CCH Subdistrict and THA and SHA on August 15 to target surplus fish, predominantly males, before shifting to broodstock management. Harvest from that fishing period was the peak for the season with total of 1.31 million pink salmon being harvested, of which 74% were CCH stock (Appendix E16).

The 2021 CCH pink salmon forecast was for 6.00 million fish, of which 1.65 million would be needed for cost-recovery and broodstock (ADF&G *unpublished*). Based on contribution estimates and PWSAC's postseason annual report, the actual CCH pink salmon run was 10.00 million fish. An estimated 551,900 pink salmon were harvested for PWSAC cost recovery, and an additional 96,300 fish were harvested for cost recovery via the CCH fishway, for a total cost-recovery harvest of 648,200 pink salmon. PWSAC reported that 573,000 pink salmon were utilized at CCH for broodstock compared to a preseason anticipated goal of 604,000 fish, and an estimated 240,000 fish went unharvested, leaving 8.80 million fish available for commercial harvest (ADF&G *unpublished*). Pink salmon egg-take operations at CCH were successful in 2021, however egg-take efforts were impacted by high male counts, immature eggs, and sea lion predation. PWSAC reached their 2021 pink salmon egg-take goal of 187 million eggs at CCH on September 10.

In the Northern District, escapement goals were reached for pink salmon but not for chum salmon. The Northern District pink salmon escapement index of 464,350 fish was above the upper end of the odd-year SEG index range of 111,000–208,000 fish and greater than the odd-year mean index (2001–2019) of 318,199 fish (Table 11; Appendix D2). Despite early season area restrictions, chum salmon escapement indices were below expected ranges for the 2021 season, and the escapement index of 20,404 fish was below the district's lower bound SEG of 28,000 fish and below the mean index (2011–2020) of 29,375 fish (Table 11; Appendix D3).

Coghill District

The Coghill District shifted to purse seine management on July 21, when the WNH chum run was over, and the harvestable surplus was predominantly pink salmon (5 AAC 24.370(e)(5)(B)). The WNH pink salmon run exceeded preseason expectations and was complimented by strong wild stocks runs returning to the district. The purse seine fleet had 48 commercial fishing periods in 2021 with 114 purse seine permit holders reporting deliveries (Appendix E7; Table 1). Purse seine commercial harvest in the district consisted of 2 Chinook, 5,500 sockeye, 900 coho, 4.18 million pink and 1,600 chum salmon (Table 1). Coghill District pink salmon harvest included 49% WNH, 28% wild, 22% CCH, 13% WNH, 1% SGH and 0% AFK fish (Appendix E7).

The purse seine fishery in the Coghill District began at midnight on July 21, targeting Coghill River sockeye, this fishing period was concurrent with a previously announced drift gillnet fishing

period. The first purse seine fishing period targeting both wild and enhanced pink salmon occurred on July 25. Following that period, PWSAC recommended that hatchery subdistricts be closed to begin cost recovery fishing at WNH on July 27. Due to a strong return of wild stocks to the district the department was able to provide consistent commercial fishing opportunity outside of hatchery subdistricts. On August 12, with PWSAC cost recovery nearing completion and issues with the barrier seine, PWSAC recommended a clean-up fishery in the WNH SHA to target surplus pink salmon. The WNH barrier seine continued to have issues which resulted in PWSAC recommending continued fishing pressure through the remainder of the season to slow run entry into the facility. PWSAC finished their cost-recovery efforts on August 14 and recommended a fishing period in the WNH THA and SHA on August 15 to target surplus fish, predominantly males, before shifting to broodstock management. Harvest from that fishing period was the peak for the season with total of 905,000 pink salmon being harvested, of which 30% were WNH stock (Appendices B4 and E7).

The 2021 WNH pink salmon forecast was for 6.60 million fish, of which 1.57 million would be needed for cost-recovery and broodstock (ADF&G *unpublished*). Based on contribution estimates and PWSAC's post-season annual report, the actual WNH pink salmon run was 9.44 million fish. An estimated 892,400 pink salmon were harvested for PWSAC cost recovery, and an additional 23,000 fish were harvested for cost recovery via the WNH fishway, for a total cost-recovery harvest of 915,300 million pink salmon. PWSAC reported that 533,800 pink salmon were utilized at WNH for broodstock compared to a preseason anticipated goal of 419,000 fish, and an estimated 35,000 fish went unharvested, leaving 7.95 million fish available for commercial harvest (ADF&G *unpublished*). Pink salmon egg-take operations at WNH were successful in 2021; however, egg-take efforts were impacted by high male counts, immature eggs, and sea lion predation. PWSAC reached their 2021 pink salmon egg-take goal of 148 million eggs at WNH on September 8.

In the Coghill District, escapement goals were reached for pink salmon but not for chum salmon. The pink salmon escapement index of 300,227 fish was above the upper end of the odd-year SEG index range of 54,000–233,000 fish but less than the odd-year mean index (2001–2019) of 341,431 fish (Table 11; Appendix D2). Chum salmon escapement indices were below expected ranges for the 2021 season, and the escapement index of 2,395 fish was below the district's lower bound SEG of 10,000 fish and below the mean index (2011–2020) of 11,225 fish (Table 11; Appendix D3). Consistent with the rest of PWS, high counts of pink salmon throughout the season made species apportionment from aerial surveys difficult during the 2021 season.

Northwestern District

The overall pink salmon return to the Northwestern District was later than recent years and although it was a strong wild run, entry into the district was inconsistent and sporadic. Due to that irregular run timing, management was conservative throughout much of the season and relied on SHTF markers to ensure escapement. Commercial harvest in the district consisted of 15 Chinook, 3,400 sockeye, 260 coho, 707,500 pink and 3,000 chum salmon (Table 1). There were 35 Northwestern District commercial fishing periods in 2021 with 43 purse seine permit holders reporting deliveries (Table 1). Northwestern District pink salmon harvest included 80% wild, 16% WNH, 2% CCH, <1% AFK, and <1% SGH fish (Appendix E17).

In the Northwestern District, escapement goals were reached for both pink and chum salmon. The pink salmon escapement index of 368,406 fish was above the upper end of the odd-year SEG index range of 64,000–144,000 fish and greater than the odd-year mean index (2001–2019) of 195,990

fish (Table 11; Appendix D2). Chum salmon escapement indices were near expected ranges for the 2021 season, and the escapement index of 6,979 fish was nearly equal to the district's lower bound SEG of 7,000 fish but below the mean index (2011–2020) of 7,571 fish (Table 11; Appendix D3).

Southwestern District

The Southwestern District is closed to commercial fishing prior to July 18 except for the AFK THA and SHA, which may be opened to target enhanced chum salmon returning to that facility (5 AAC 24.370(e)(2)(A)). On or after July 18, based on the strength of the pink salmon run, the district may be opened to the purse seine fleet (5 AAC 24.370(e)(2)(B)). In 2021, the strength of the wild stock return resulted in consistent fishing opportunity, however, area available to the fleet fluctuated based on PWSAC recommendations. There were 50 Southwestern District commercial fishing periods in 2021 with 178 purse seine permit holders reporting deliveries (Appendix E18; Table 1). Commercial harvest in the district was 70 Chinook, 49,100 sockeye, 16,500 coho, 12.46 million pink, and 296,600 chum salmon (Table 1). The Southwestern District pink salmon harvest included 37% wild fish, 23% WNH fish, 20% CCH fish, 15% AFK fish, and 5% SGH fish (Appendices E17 and E18). This distribution of stocks is the result of conducting the fishery in the primary migration corridor for pink salmon traveling to other areas of PWS.

The 2021 commercial harvest of 296,600 chum salmon in the Southwestern District was above the 2011–2020 average harvest of 252,000 fish (Appendix D5). Southwestern District chum salmon harvest included 83% AFK, 9% WNH, 4% Port Chalmers, and 4% wild fish (Appendix E19). The AFK chum salmon harvest of 245,000 fish was 63% above the preseason forecast of 150,000 fish (Appendix E19). Prior to this season, the AFK chum salmon program had produced fewer returns than the preseason forecast in 9 of the past 10 years (2011–2020; H. Scannell, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022). Additionally, a total of 33,100 sockeye salmon were harvested in the commercial chum salmon fishery (June 1–July 18).

The first commercial fishing period targeting pink salmon in the Southwestern District was on July 22, when 1.03 million pink salmon were harvested. Harvest from that period consisted of 67% wild, 16% SGH, 9% WNH, 6% AFK, and 1% CCH (Appendix E18). That harvest composition provided guidance to both the department and PWSAC on the strength of wild and enhanced pink salmon entering PWS. PWSAC began cost-recovery harvests at all their facilities, including AFK on July 27. To aid PWSAC with their cost-recovery efforts, conservative management was implemented, and area was restricted within the Southwestern District. Peak harvest occurred on August 16 when 1.48 million fish were harvested, of which 11% were AFK pink salmon (Appendix E18). Run entry into the district remained strong, and consistent fishing opportunities were provided. For the week following cost recovery (August 15–23), 5.6 million pink salmon were harvested throughout the district. Although run entry through the district continued to be strong, run entry into AFK began to slow and PWSAC recommended conservative management measures in order for them to start building and securing broodstock. Conservative management in the form of area restrictions was used for the remainder of the season.

The 2021 AFK pink salmon forecast was for 5.00 million fish, of which 1.27 million would be needed for cost-recovery and broodstock (Table 9; ADF&G *unpublished*). Based on contribution estimates and PWSAC's post-season annual report, the actual AFK pink salmon run was 4.59 million fish. An estimated 1.78 million pink salmon were harvested for PWSAC cost recovery, and an additional 95,400 fish were harvested for cost recovery via the AFK fishway, for a total

cost-recovery harvest of 1.88 million pink salmon. PWSAC reported that 340,700 pink salmon were utilized at AFK for broodstock compared to a preseason anticipated goal of 398,000 fish, and an estimated 62,000 fish went unharvested, leaving 2.30 million fish available for commercial harvest (ADF&G *unpublished*). Pink salmon egg-take operations at AFK were successful in 2021, but egg-take efforts were prolonged due to high male counts and immature eggs. PWSAC reached their 2021 pink salmon egg-take goal of 190 million eggs at AFK on September 6.

Southwestern District pink salmon escapement was met in 2021. The observed escapement index of 339,920 fish was above the upper-end, odd-year SEG range of 112,000–231,000 fish, and greater than the odd-year mean index (2001–2019) of 255,031 fish (Table 11; Appendix D2).

Montague District

The 2021 Montague District commercial seine harvest was 380 Chinook, 6,700 sockeye, 6,600 coho, 6.88 million pink, and 296,000 chum salmon (Table 1). Based on the Prince William Sound Management and Allocation Plan (5 AAC 24.370), the purse seine fleet had exclusive access to the Port Chalmers Subdistrict remote release chum salmon fishery in 2021. The 5-year rolling average allocation calculation specified in the allocation plan was 49% drift gillnet and 51% purse seine, meaning that these 2 gear groups were close to parity and no allocative correction action would be required for either gear group. The 2021 preseason forecast for chum salmon returning to Port Chalmers Subdistrict was 320,000 fish, all of which were projected to be available for commercial harvest (ADF&G *unpublished*).

Fishing to target enhanced chum salmon at Port Chalmers began on May 31 with a weekly schedule of 2–3 purse seine fishing periods, this schedule continued until wild pink stocks began returning to the district on July 19 (Appendices B8 and E21). Area within the subdistrict was restricted throughout the chum salmon season to decrease the purse seine harvest of salmon bound for other districts. The 2021 chum salmon harvest during peak historical run timing for Port Chalmers chum salmon run (June 1–July 30) was 289,8000 fish, 8% below forecast and below the 5-year (2016–2020) average of 579,800fish (Appendix B9). Out of a total Montague District commercial harvest of 296,000 chum salmon, thermal mark contributions estimated 211,500 (71%) were released at Port Chalmers, 50,000 (17%) were released at WNH, and 24,000 (8%) were released at AFK. Wild chum salmon harvest composed 4% (11,000 fish) of the total harvest (Appendix E20).

The first purse seine fishery targeting pink salmon in the Montague District began on July 8, when the entire Port Chalmers Subdistrict was opened to gauge pink salmon run strength and composition. During the that period 163,600 pink salmon were harvested, and breakdown from that harvest was 59% SGH and 41% wild fish (Appendix E21). Peak harvest occurred on August 16 when 1.04 million fish were harvested, of which 41% were wild pink salmon (Appendix E21). There were 48 Montague District seine fishing periods in 2021 with 144 purse seine permit holders reporting deliveries (Table 1; Appendix E21). The Montague District's 2021 pink salmon commercial harvest was 53% wild, 16% CCH, 16% SGH, 11% WNH, and 4% AFK fish (Appendix E21).

Montague District pink salmon escapement was met in 2021. The observed escapement index of 242,151 fish was within the district's odd-year SEG range of 143,000–330,000 fish but the below the odd-year mean index (2001–2019) of 353,011 fish (Table 11; Appendix D2).

Southeastern District

The 2021 purse seine fishery in the Southeastern District was managed conservatively throughout much of the season due to later than anticipated run timing to the district which impacted early season escapement indices. Escapement trends improved by late July and limited fishing opportunity was provided through the remainder of the season. Commercial harvest in the district consisted of 41 purse seine permit holders harvesting 4 Chinook, 660 sockeye, 500 coho, 765,200 pink, and 9,200 chum salmon (Table 1). Southeastern District pink salmon harvest included 98% wild, 1% SGH, 1% CCH, <1% WNH, and 0% AFK (Appendix E17).

In the Southeastern District, escapement goals were reached for both pink and chum salmon. The observed escapement index of 544,906 pink salmon was above the district's odd-year SEG range of 286,000–515,000 fish but below the odd-year mean index (2001–2019) of 947,236 (Table 11; Appendix D2). Chum salmon escapement indices were above expected ranges for the 2021 season, and the escapement index of 46,391 fish was above the district's lower bound SEG of 11,000 fish and above the mean index (2011–2020) of 34,014 fish (Table 11; Appendix D3).

SUBSISTENCE, PERSONAL USE, AND COMMERCIAL HOMEPACK FISHERIES

The Prince William Sound management area includes all waters of Alaska between the longitudes of Cape Fairfield and Cape Suckling (Figure 1). State of Alaska subsistence fishing requires permits for targeting salmon and all freshwater finfish species in the PWS area. For a detailed history of regulations governing the subsistence fisheries within the Copper River and Prince William Sound, see Botz and Somerville (2011).

State and federal salmon fisheries occur throughout the management area, with state saltwater salmon subsistence and commercial homepack harvest permitted in every commercial fishing district, and state freshwater subsistence and personal use and federal freshwater subsistence fisheries focused around the Copper River. State subsistence salmon fisheries are open to all Alaska residents, but federal subsistence salmon fisheries are only open to qualified rural residents. Personal use salmon fishing is open to all Alaska residents only in the Chitina Subdistrict. Commercial fishery participants may withhold a portion of their catch as *homepack*. This is defined in 5 AAC 39.010: "A person engaged in commercial fishing may retain fish from lawfully taken commercial catch for that person's own use…" All commercially caught finfish not sold must be reported on a fish ticket.

LOWER COPPER RIVER AND PRINCE WILLIAM SOUND

Subsistence salmon fishing is allowed 7 days per week in the Copper River District and General PWS subsistence districts from May 15 until 2 days before the opening of the commercial fishery. Boundary lines for Copper River District and General PWS District subsistence fishing are the same as those in the commercial fishery (Appendix F1). When the commercial season has commenced, subsistence fishing is allowed on Saturday from 6:00 AM to 10:00 PM and during commercial fishing periods. Regulation stipulates that 2 days following the closure of the Copper River District and general PWS districts to commercial salmon fishing for the season, subsistence fishing is allowed 7 days a week until October 31. Within the Copper River District, drift gillnets are the only legal subsistence gear; nets may have a maximum length of 50 fathoms with a maximum mesh size of 6 inches prior to July 15. Within PWS general subsistence districts,

50-fathom gillnet or seine may be used for subsistence fishing depending on the legal commercial gear standard within a commercial fishing district.

In PWS saltwater salmon subsistence fisheries, 632 subsistence permits were issued. The total harvest in these subsistence fisheries was 7,590 salmon (J. Botz, PWS Area Management Biologist, ADF&G, Cordova, unpublished data, 2022). In the Copper River District, a harvest of 620 Chinook, 5,340 sockeye, and 230 coho salmon were reported from the 278 subsistence permit holders that reported fishing. The Copper River District total subsistence harvest of 6,200 salmon was nearly 50% above the 10-year (2011–2020) average (Appendix F2). This larger-than-average harvest in a year with poor Chinook and sockeye salmon runs to the Copper River was likely due to minimal homepack harvest opportunity, necessitating more subsistence fishery participation by commercial fishery participants to meet subsistence needs. In addition, in the PWS general subsistence fishing area, 45 permit holders reported a harvest of 8 Chinook, 1,280 sockeye, 33 pink, and 20 chum salmon. Notably, the sockeye salmon subsistence harvest continued its upward annual trend in the PWS general subsistence area, a slight increase over the previous year's subsistence harvest and almost 7 times the 2011–2020 average (Appendix F3).

Since 2010, commercial fishery participants retained more Chinook and sockeye salmon from their commercial harvest as homepack during seasons of average to larger runs, whereas in seasons with weak returns, such as 2018, 2020, and 2021, homepack retention declined. For example, due to a poor Copper River sockeye salmon run in 2018, the commercial fishery was closed for 41 days and Chinook and sockeye salmon homepack harvest dropped 80–90% below average. In 2020, poor Copper River sockeye and Chinook salmon runs led to a more than 2-week closure and homepack harvest for these species again dropped, 65–85% below average (Appendix A1 and A3). Overall, in Area E commercial salmon fisheries in 2021, 288 permit holders reported retaining 8,100 salmon for homepack from their commercial catches (Appendix F4). On a homepack harvest-per-permit basis in 2021, the most chum salmon were harvested by drift gillnetters, the most Chinook and coho salmon were harvested by purse seiners, and the most sockeye and pink salmon were harvested by set gillnetters. Drift gillnetters retained for homepack an average of 22 salmon per permit, set gillnetters 113 salmon per permit, and purse seiners 29 salmon per permit. The 2021 commercial homepack was low due to a weak run and conservative management, and overall homepack harvest was 43% below the 10-year (2011–2020) average (Appendix F4).

The federal subsistence salmon fishery in the western portion of the Copper River Delta is administered by the United States Forest Service. In 2005, the federal government began issuing permits allowing subsistence harvests on federal lands in PWS and the lower Copper River area. Legal gear types are dip net, rod and reel, and spear. In 2021, an estimated total of 74 federal permits were issued; 27 permits were fished, and an estimated 19 sockeye and 449 coho salmon were harvested (Appendix F5).

TATITLEK AND CHENEGA AREA SUBSISTENCE FISHERIES

Two subsistence areas were established in 1988 to provide opportunities for customary and traditional use of salmon by residents of the Tatitlek and Chenega villages. The Chenega area includes the entirety of the Southwestern District, as described in 5 AAC 24.200(i), as well as a portion of the Montague District along the northwestern shore of Green Island from the westernmost tip to the northernmost tip of the island (5 AAC 01.648(a)). The Tatitlek subsistence area is located south of the Valdez Nonsubsistence Area described in 5 AAC 99.015(a)(5) and encompasses portions of the Northern and Eastern districts (5 AAC 01.648(b); Appendix F1).

Permit holders can fish in these areas from May 15, 7 days per week, until 2 days before the initial commercial fishing period in the associated commercial fishing districts. When the commercial fishing season is established, area and time within the subsistence areas is defined by the area and time in the associated commercial fishing district. Starting in 2018, subsistence fishing was also allowed during the commercial fishing season on Saturday from 6:00 AM to 10:00 PM. Following a 2-day wait after the closure of the commercial fishing season in the associated commercial fishing district, subsistence fisheries are open 7 days per week until October 31.

In 2021, 44 permits were issued for the Chenega subsistence area, of which 11 were returned by users after the season to report harvest information. Three permit holders reported fishing and a total of 1 sockeye and 25 pink salmon were harvested. In the Tatitlek area, 17 permits were issued, of which 4 were returned. Of those returned permits, 1 reported fishing and the harvest was 25 sockeye salmon (Appendix F6).

UPPER COPPER RIVER

The upper Copper River state subsistence salmon fisheries occur in the Glennallen Subdistrict and near the mouth of the Tanada River close to the old Batzulnetas village site (Appendix F7). Federal subsistence salmon fisheries occur in the Chitina and Glennallen subdistricts and are administered by the United States Park Service (Appendices F7 and F9). In 2021, the combined upriver subsistence and personal use sockeye salmon harvest (federal and state) totaled 207,000 fish, which was 20,000 fewer fish than the 2011–2020 average. In contrast to 2020, increased inriver abundance of sockeye salmon in 2021 and less conservative upriver fisheries management resulted in increased harvest. From 2011 to 2020, the combined upriver subsistence and personal use sockeye salmon harvest (federal and state) ranged from 127,000 fish in 2020 to 334,000 fish in 2015, for a 10-year (2011–2020) average of 224,000 sockeye salmon (Appendix A1). Even with the low sockeye salmon harvests in 2018 and 2020, the 2011–2020 average harvests in the subsistence and personal use fisheries are within the inriver goal ranges for these fisheries.

Glennallen Subdistrict Subsistence Fishery

The Glennallen Subdistrict is that portion of the mainstem Copper River upstream of the McCarthy Bridge to the mouth of the Slana River (Appendix F7). This subdistrict is historically open June 1 through September 30 for continuous fishing. Fish wheels and dip nets are legal gear. Participants must be Alaska residents and are allowed 1 permit per household per year, and the permit identifies the single gear type to be used. Total annual harvest per permit is 30 salmon for a household of 1, 60 salmon for a household of 2, and 10 additional salmon for each additional household member. If additional salmon are requested by the permit holder, the permitted limit cannot exceed 200 salmon for a household of 1, or 500 salmon for a household of 2 or more (5 AAC 01.645). No more than 5 Chinook salmon may be taken by each dip net permit holder. Both tips of caudal fin must be clipped on all harvested salmon. Subsistence permits with completed harvest information must be returned to ADF&G by October 31 of each year.

In 2021, a total of 1,205 dip net permits and 313 fish wheel permits were issued to subsistence users in the Glennallen Subdistrict. Of these, 299 (18%) permits were not returned. A combined total estimate of 1,690 Chinook, 42,600 sockeye, and 166 coho salmon were harvested in the Glennallen Subdistrict. Comparatively, the 10-year (2011–2020) average was 2,530 Chinook, 60,500 sockeye, and 170 coho salmon for this subdistrict. Fish wheel effort has been declining over the last 10 years (2011–2020), with an average number of 481 permits issued. The number of dip net permits issued has remained steady over the past few years. The number of permits issued

in 2021 is 9% more than the 10-year (2011–2020) average of 1,109 dip net permits (Appendix F9). Historically, sockeye salmon dominate the harvest, representing 95% of the estimated harvest in the Glennallen Subdistrict subsistence fishery over the previous 10 years (2011–2020), followed by Chinook and coho salmon (Appendices A1, A3, A12, and F9). Harvest from the Glennallen Subdistrict subsistence fisheries was 8% GH sockeye salmon (J. Morella, PWS Area Research Biologist, ADF&G, Cordova, unpublished data, 2022).

In 2002, the federal government began issuing permits allowing subsistence harvests on federal lands in the Glennallen Subdistrict. Legal types of fishing gear are dip net, fish wheel, rod and reel, and spear. In 2021, a total of 355 federal permits were issued for the Glennallen Subdistrict, of which 294 permits were returned. A total of 418 Chinook, 55% below the 2016–2020 average, were reported harvested. The 12,300-fish sockeye salmon harvest was 16% below the 2016–2020 average (Appendix F5).

Batzulnetas Subsistence Fishery

The Batzulnetas fishery, as described in 5 AAC 01.647(i), encompasses all waters from the regulatory markers near the mouth of Tanada Creek and approximately one-half mile downstream from that mouth, and in Tanada Creek between ADF&G regulatory markers identifying the open waters of the creek. Salmon may be taken by emergency order starting June 1 when fishing periods are limited to one 48-hour period per week; beginning in July, fishing time is increased to one 84-hour period each week until September 1, when the fishery closes. There was 1 permit issued in 2021 and 120 sockeye salmon reported as harvested (Appendix A1).

Chitina Subdistrict Personal Use Fishery

The Chitina Subdistrict is the portion of the mainstem Copper River from the downstream edge of the McCarthy Road Bridge to a marker 200 yards above Haley Creek (Appendix F8). The fishery here is designated a personal use fishery. Regulations for the Chitina Subdistrict personal use fishery remain similar to the Glennallen subsistence fishery regulations, with 3 exceptions: (1) permit holders are required to possess a sport fishing license, (2) permit holders are only allowed to take salmon using dip net, and (3) permit holders are limited to 1 Chinook salmon per household. In December 2014, the Alaska Board of Fisheries changed annual bag limits from 15 salmon for a household of 1 and 30 salmon for a household of 2 or more individuals to 25 salmon for the head of a household and 10 salmon for each dependent of the permit holder. In addition, the Alaska Board of Fisheries removed the allowance for supplemental permits. Previously, when ADF&G had determined that there was a weekly harvestable surplus of at least 50,000 salmon in the Chitina Subdistrict (based on Miles Lake sonar counts, followed by an assumed 2-week travel time), 10 additional fish were given to permit holders who had already achieved their annual limit. If inseason adjustments to the fishery are needed due to fluctuations in salmon escapement, an emergency order is issued.

In 2021, there were 9 emergency orders issued to adjust the dip net fishery. The first period started on Thursday, June 10, and the last period closed on Tuesday, August 31. The fishery was then open continuously from Wednesday, September 1, to Thursday, September 30, per regulatory mandate. Lower-than-projected Chinook salmon commercial harvest rates and escapement indices from the Native Village of Eyak's fish wheel mark–recapture program led to the fishery being closed to the retention of Chinook salmon starting Monday, June 21. There were 7,222 permits issued for the Chitina personal use fishery in 2021. Of these, 541 (7%) were not returned. The number of permits issued was 24% below the 2011–2020 average of 9,466 permits issued

(Appendix F11). This drop in participation is probably due to 2 strongly influential fishery participation drivers in 2021: (1) the COVID-19 pandemic reducing participation through elevated safety protocols for social interactions, and (2) near record low Chinook and below-average sockeye salmon abundance resulting in reduced harvest potential. Expanded harvest for the Chitina Subdistrict personal use fishery in 2021 was 832 Chinook, 143,000 sockeye, and 439 coho salmon. The 10-year (2010–2019) average expanded harvests were 1,190 Chinook, 148,000 sockeye, and 2,010 coho salmon (Appendices A1, A3, A12, and F9). The sockeye salmon harvest in 2021 was near the 10-year (2011–2020) average and was largely the result of inriver fish abundance being close to most years represented in this average. Harvest from the Chitina Subdistrict personal use fishery was 9% GH sockeye salmon (J. Morella, PWS Area Research Biologist, ADF&G, Cordova, unpublished data, 2022).

In 2002, the federal government began issuing permits allowing subsistence harvests on federal lands in the Chitina Subdistrict. Federal subsistence users can use either a dip net or fish wheel in the Chitina Subdistrict. In 2021, an estimated total of 194 federal permits were issued, of which 168 were returned. The reported harvest was 98 Chinook and 5,420 sockeye salmon (Appendix F5).

COMMERCIAL HERRING FISHERIES

The PWS herring management area encompasses all coastal waters of the Gulf of Alaska between Cape Suckling and Cape Fairfield, extending offshore to lat 59°N. The PWS herring management year goes from late summer one year through early summer the next year. A total of 5 herring fisheries may occur annually. During the spring season, 2 fisheries target herring for sac roe using either purse seine or gillnet gear, and 2 spawn-on-kelp fisheries harvest either naturally occurring spawn-on-kelp or spawn-on-kelp suspended in pounds. In the fall, a food/bait fishery may occur. Of the 5 herring fisheries, only the wild spawn-on-kelp and the food/bait fishery are open entry fisheries. Each of these fisheries is managed depending on observed herring population size and age structure. For additional background, including a review of historical and recent PWS herring management, harvest strategies, and harvest by fishery and gear, see Botz et al. (2013).

The Prince William Sound Herring Management Plan (5 AAC 27.365) is intended to provide an optimum sustained yield and an equitable allocation for all user groups in PWS. The management objective for PWS herring is to target fisheries on high-quality herring and to maintain a threshold spawning biomass. When Pacific herring *Clupea pallasii* spawning biomass allows for a commercial fishery, an annual harvest level is determined for each of the 5 commercial fisheries: purse seine sac roe, gillnet sac roe, spawn-on-kelp not in pounds, spawn-on-kelp in pounds, and herring food/bait fishery. There has not been a commercial herring fishery in PWS since 1999.

2021 SEASON SUMMARY

Based on herring stock assessment information, all Pacific herring fisheries were closed in 2021. An age structured assessment model estimated that the 2021 median prefishery biomass was 20,000 tons[1,2] (the regulatory threshold is 22,000 tons; 5 AAC 27.365(b)). Aerial surveys showed 25.55 mile-days of spawn, the highest estimate since 2014 (Figure 9; Appendices G1 and G2).

[1] The Alaska Board of Fisheries requires that inseason catch and aerial survey biomass estimates be calculated and reported in short tons. The English short ton = 2,000 lb or 907.2 kg.

[2] The metric tonne (1,000 kg or 2,205 lb) = tons/1.1023.

Net sampling, aerial surveys, and acoustic data were used in 2021 to assess herring biomass, disease prevalence, age composition, and growth. Sampling was conducted aboard the *R/V Solstice*-based and by private vessels contracted by the Prince William Sound Science Center. Samples were collected from 8 locations: Blight Island, Canoe Pass, Double Bay, Graveyard Point, Hells Hole, Kayak Island, Port Etches, and Zaikof Bay. Age sex, and length were processed and summarized from over 3,000 herring collected during 2021 spring sampling (Figure 9). The Prince William Sound Science Center collected acoustics data, resulting in a 2021 PWS herring acoustic biomass estimate of 6,000 tons. PWS herring, as well as other herring stocks statewide, saw a large component of age-5 fish in 2021. Overall spawning age composition of PWS samples collected were 14% age-3, 14% age-4, 67% age-5, 3% age-6, 2% age-7, and <1% age-8 or older fish (Appendix G3).

ADF&G conducted 58 hours of spring aerial surveys during 20 flights from March 28 to April 29, 2021. PWS herring schools observed in 2020 and 2021 were more widespread and numerous than in recent years. Spawn was documented at Red Head (March 28), Hells Hole and Knowles Bay (April 1–7), Tatitlek (April 21–29), Boulder Bay (April 18–19), near Blight Island (April 18–22), Port Etches (April 21–22), Hawkins cutoff (April 18), Canoe Pass (April 19), Zaikof Bay (April 19–20), Stockdale Harbor (April 20–21), Graveyard Point (April 20–21), and near Kayak Island (April 16-17). Total 2021 PWS herring mile-days of spawn were estimated at 25.55 mile-days (Figure 9; Appendix G3).

2022 HERRING SEASON OUTLOOK

Given the PWS herring spawning population, current fish size, and age structure, a commercial harvest will not occur in 2022. Funding was provided by the *Exxon Valdez* Trustee Council for 2016 through 2021. ADF&G will continue to monitor the PWS herring biomass to assess growth and recruitment as funding is available.

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Permanent employees with the Division of Commercial Fisheries

Name	Job Class	Project / Title
Dave Anderson	Boat Off. III	Captain, R/V *Solstice*
Jeremy Botz	FB III	Gillnet Management Biologist
Jennifer Morella	FB III	Finfish Area Research Biologist
Lisa Laird	Prog. Tech.	Office Administration
Heather Scannell	FB III	Seine Management Biologist
Kyle Gatt	FB II	Asst. Finfish Research & Management Biologist
Justin Nuzzi	VT	Vessel Technician, R/V *Solstice*
Shannon Royse	PS II	Publications Specialist II

Seasonal employees with the Division of Commercial Fisheries

Name	Job Class	Project / Title
Allen Cox	FWT III	Otolith Recovery – Valdez
Brian Zhang	FWT II	Coghill Lake Weir
Casey Somerville	FWT II	Otolith Recovery – Cordova/Miles Lake Crew
Cassidy Somerville	FTW II	Age, Weight, and Length Technician
Cathy Pegau	Office Asst. I	Fish Ticket Clerk/ Office Admin.
Chatham Warga	Boat Off. I	R/V Solstice Boat Officer
Chloe Bee	FWT II	Otolith Laboratory Technician
Chris Iannazzone	FWT II	Age, Weight, and Length Technician
Dave Craig	FWT II	Otolith Recovery – Cordova
David Warren	FWT II	Otolith Recovery – Cordova
Henry Masters	FB I	Field Crew Leader
Iris Fletcher	FTW II	Miles Lake Sonar Technician
Jane Allen-Schmid	FWT III	Otolith Laboratory Technician
Jon Syder	FWT II	Miles Lake Sonar Technician
Josh Buza	FB I	Otolith Laboratory Supervisor
Kathleen Weibl	Office Asst. I	Fish Ticket Clerk/Office Admin.
Melanie O'Rourke	FWT III	Otolith Recovery Crew Leader
Penelope Haas	FWT II	Coghill Lake Weir
Rachel Ertz	FB I	Age, Weight, and Length Crew Leader
Riley Somerville	FWT II	Otolith Recovery – Cordova
Sarah Maynard	FWT II	Otolith Recovery – Valdez
Scott Pegau	FWT II	Otolith Laboratory Technician
Shane Shepherd	FB I	Miles Lake Crew Leader/Herring Research

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TABLES AND FIGURES

Table 1.–Prince William Sound Area commercial fishery salmon harvest by gear type and district, 2021.

District	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	207	192	22,412	33,911	22,913,808	100,146	23,070,469
Northern	190	52	19,014	6,294	10,678,381	12,963	10,716,704
Coghill	114	2	5,506	917	4,180,861	1,600	4,188,886
Northwestern	43	15	3,443	257	707,552	2,966	714,233
Southwestern	178	72	49,099	16,544	12,460,881	296,641	12,823,237
Montague	144	380	6,686	6,556	6,879,217	295,939	7,188,778
Southeastern	41	4	660	502	765,176	9,176	775,518
Unakwik	4	0	2,375	0	154	18	2,547
Purse seine total	212	717	109,195	64,981	58,586,030	719,449	59,480,372
Bering River	86	20	243	42,058	0	443	42,764
Copper River	458	7,512	404,638	145,625	33,744	8,518	600,008
Coghill	359	494	192,461	1,957	666,347	1,192,380	2,053,639
Eshamy	308	251	293,994	1,875	254,010	133,608	683,738
Unakwik	9	4	5,987	0	409	219	6,619
Drift gillnet total	477	8,281	897,323	191,515	954,510	1,335,168	3,386,797
Eshamy	24	9	79,220	57	24,755	12,413	116,454
Set gillnet total		9	79,220	57	24,755	12,413	116,454
Commercial fishery total		9,007	1,085,738	256,553	59,565,295	2,067,030	62,983,623
Solomon Gulch		0	0	6,700	1,961,675	0	1,968,375
Cannery Creek		0	0	0	1,217,346	0	1,217,346
Wally Noerenberg		0	0	0	1,465,142	622,683	2,087,825
Main Bay		0	255,837	0	0	80	255,917
Armin F. Koernig		0	0	0	2,194,688	6	2,194,694
Port Chalmers		0	0	0	0	0	0
Hatchery total[a]		0	255,837	6,700	6,838,851	622,769	7,724,157
Test fishery		0	0	0	0	0	0
Homepack		459	6,094	1,590	1,149	422	9,714
Confiscated fish		0	0	0	0	0	0
Donated fish		0	23	4	0	0	27
Misc. total		459	6,117	1,594	1,149	422	9,741
Prince William Sound total		9,466	1,347,692	264,847	66,405,295	2,690,221	70,717,521

[a] Hatchery sales for hatchery operating costs.

Table 2.–Weight, price, and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound Area, 2021.

Fishery	Species	Number	Pounds	Average weight	Average price	Value
Purse seine	Chinook	717	8,808	12.28	$1.65	$14,533
	Sockeye	109,195	544,227	4.98	$1.59	$865,321
	Coho	64,981	458,055	7.05	$0.67	$306,897
	Pink	58,586,030	188,935,065	3.22	$0.35	$66,127,273
	Chum	719,449	4,818,240	6.70	$0.81	$3,902,774
	Total	59,480,372	194,764,395			$71,216,798
Drift gillnet	Chinook	8,281	106,104	12.81	$13.25	$1,405,878
	Sockeye	897,323	4,784,096	5.33	$2.66	$12,725,695
	Coho	191,515	1,442,212	7.53	$1.84	$2,653,670
	Pink	954,510	3,522,231	3.69	$0.34	$1,197,558
	Chum	1,335,168	9,141,461	6.85	$0.86	$7,861,657
	Total	3,386,797	18,996,104			$25,844,458
Set gillnet	Chinook	9	131	14.56	$3.41	$447
	Sockeye	79,220	457,999	5.78	$1.88	$861,038
	Coho	57	398	6.98	$1.41	$561
	Pink	24,755	94,842	3.83	$0.34	$32,246
	Chum	12,413	87,412	7.04	$0.83	$72,552
	Total	116,454	640,782			$966,844
Hatchery sales	Chinook	0	0	0.00	$0.00	$0
	Sockeye	255,837	1,305,912	5.10	$2.70	$3,525,962
	Coho	6,700	34,602	5.16	$0.10	$3,460
	Pink	6,838,851	17,560,187	2.57	$0.88	$15,452,965
	Chum	655,769	3,877,339	5.91	$0.94	$3,644,699
	Total	7,757,157	22,778,040			$22,627,086
Combined	Chinook	9,007	115,043			$1,420,858
	Sockeye	1,341,575	7,092,234			$17,978,016
	Coho	263,253	1,935,267			$2,964,588
	Pink	66,404,146	210,112,325			$82,810,042
	Chum	2,722,799	17,924,452			$15,481,682
	Total	70,740,780	237,179,321			$120,655,186

Table 3.–Average price paid to permit holders for salmon, Prince William Sound Area, 1995–2021.

	Chinook salmon		Sockeye salmon			Coho salmon			Pink salmon			Chum salmon		
	Gillnet		Gillnet			Gillnet			Gillnet			Gillnet		
Year	Copper and Bering	PWS	Copper and Bering	PWS	Purse seine	Copper and Bering	PWS	Purse seine	Copper and Bering	PWS	Purse seine	Copper and Bering	PWS	Purse seine
1995	$2.19	$0.79	$1.67	$1.07	$0.86	$0.52	$0.37	$0.39	NA	$0.18	$0.18	NA	$0.39	$0.28
1996	$1.96	$0.68	$1.38	$0.85	$0.73	$0.53	$0.24	$0.36	NA	$0.04	$0.07	NA	$0.14	$0.13
1997	$2.00	$1.00	$0.88	$0.85	$0.85	$0.30	$0.25	$0.30	NA	$0.07	$0.12	NA	$0.25	$0.30
1998	$2.07	$1.25	$1.49	$1.11	$1.01	$0.46	$0.41	$0.31	NA	$0.14	$0.12	NA	$0.21	$0.27
1999	$3.44	$0.50	$1.84	$0.89	$0.98	$0.58	$0.23	$0.49	NA	$0.06	$0.10	NA	$0.15	$0.27
2000	$4.02	$4.04	$1.72	$1.38	$0.90	$0.57	$0.56	$0.42	NA	$0.11	$0.15	NA	$0.26	$0.28
2001	$3.30	$1.94	$1.35	$0.77	$0.74	$0.32	$0.20	$0.26	NA	$0.05	$0.13	NA	$0.38	$0.37
2002	$3.34	$1.26	$1.29	$1.14	$0.57	$0.35	$0.09	$0.25	NA	$0.05	$0.09	NA	$0.15	$0.15
2003	$3.48	$0.00	$1.16	$0.80	$0.71	$0.48	$0.48	$0.42	NA	$0.06	$0.07	NA	$0.17	$0.17
2004	$4.69	$1.38	$1.81	$0.85	$0.55	$0.69	$0.28	$0.42	NA	$0.04	$0.10	NA	$0.23	$0.18
2005	$4.70	$0.00	$1.79	$0.92	$0.54	$0.83	$0.69	$0.10	NA	$0.05	$0.08	NA	$0.28	$0.18
2006	$5.03	$1.20	$1.83	$1.15	$1.05	$0.92	$0.67	$0.60	NA	$0.11	$0.16	NA	$0.37	$0.33
2007	$4.50	$2.70	$1.81	$1.04	$0.82	$0.90	$0.30	$0.59	NA	$0.11	$0.17	NA	$0.33	$0.37
2008	$5.96	$1.04	$3.12	$1.24	$1.17	$1.23	$1.24	$1.12	$0.27	$0.33	$0.34	$0.21	$0.55	$0.57
2009	$5.29	$2.06	$2.09	$1.42	$1.32	$1.30	$1.13	$0.42	$0.22	$0.27	$0.24	$0.28	$0.52	$0.53
2010	$5.50	$2.13	$2.58	$1.72	$1.79	$1.27	$0.58	$0.70	$0.29	$0.34	$0.35	$0.36	$0.80	$0.78
2011	$5.66	$3.97	$2.08	$1.56	$1.43	$1.24	$1.09	$1.04	$0.31	$0.40	$0.45	$0.38	$0.90	$0.86
2012	$5.39	$1.44	$1.94	$1.40	$1.42	$1.10	$1.04	$0.69	$0.29	$0.38	$0.42	$0.28	$0.66	$0.68
2013	$5.79	$2.83	$2.47	$1.86	$1.69	$1.39	$1.29	$0.95	$0.27	$0.35	$0.42	$0.11	$0.57	$0.59
2014	$6.43	$2.94	$2.44	$1.97	$1.90	$1.17	$1.00	$0.81	$0.13	$0.30	$0.29	$0.22	$0.68	$0.65
2015	$5.76	$1.33	$2.42	$1.40	$1.38	$0.74	$0.19	$0.29	$0.10	$0.17	$0.20	$0.19	$0.53	$0.49
2016	$6.06	$3.93	$2.57	$1.82	$1.54	$1.47	$0.97	$0.79	$0.16	$0.19	$0.28	$0.41	$0.56	$0.60
2017	$7.29	$3.06	$3.71	$1.85	$1.61	$1.41	$1.14	$0.94	$0.29	$0.28	$0.35	$0.21	$0.70	$0.70
2018	$12.09	$8.98	$2.85	$2.74	$1.97	$1.62	$1.51	$0.99	$0.37	$0.40	$0.40	$0.89	$0.91	$0.91
2019	$8.72	$1.82	$2.90	$2.01	$1.81	$1.40	$1.37	$1.06	$0.25	$0.28	$0.30	$0.11	$0.44	$0.52
2020	$5.94	$1.86	$3.00	$1.73	$1.43	$1.40	$0.92	$0.89	$0.27	$0.29	$0.30	$0.15	$0.46	$0.45
2021	$13.54	$3.41	$3.46	$1.88	$1.59	$1.84	$1.41	$0.67	$0.35	$0.34	$0.35	$0.67	$0.83	$0.81
Average (2011–2020)	$6.91	$3.22	$2.64	$1.83	$1.62	$1.29	$1.05	$0.85	$0.24	$0.30	$0.34	$0.30	$0.64	$0.65

Note: These prices are based on weighted average prices given voluntarily by processors and hatchery operators and do not represent prices reported in the Commercial Operators Annual Report (COAR). These prices are estimates and do not reflect postseason adjustments and bonuses. Caution should be used when estimating values from these prices.

Table 4.–Estimated exvessel value of the total commercial salmon harvest by gear type and previous 10-year average, Prince William Sound Area, 2011–2021.

Purse seine Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011–2020
Chinook	$6,120	$3,279	$15,444	$11,317	$6,990	$879	$4,872	$4,517	$3,145	$11,016	$14,533	$6,758
Sockeye	$560,497	$1,449,007	$796,220	$646,931	$1,766,313	$551,225	$1,113,442	$623,322	$1,599,774	$275,770	$865,321	$938,250
Coho	$633,076	$117,259	$1,608,923	$192,659	$83,371	$194,322	$529,613	$613,107	$2,466,094	$201,808	$306,897	$664,023
Pink	$35,834,331	$37,732,043	$100,334,069	$36,393,753	$60,318,284	$9,196,452	$57,750,324	$29,845,804	$44,112,963	$19,504,631	$66,127,273	$43,102,265
Chum	$691,520	$2,450,017	$2,157,525	$1,901,811	$1,436,478	$1,603,442	$11,881,118	$7,405,991	$3,773,440	$3,128,839	$3,902,774	$3,643,018
	$37,725,543	$41,751,606	$104,912,182	$39,146,471	$63,611,435	$11,546,319	$71,279,369	$38,492,741	$51,955,416	$23,122,063	$71,216,798	$48,354,315
Drift gillnet Species												
Chinook	$2,148,066	$1,352,540	$973,720	$1,175,457	$2,250,068	$1,344,847	$2,087,540	$1,562,084	$3,086,883	$486,239	$1,405,878	$1,646,744
Sockeye	$36,356,087	$37,444,516	$29,389,403	$40,966,814	$29,962,566	$20,497,184	$18,059,297	$13,710,079	$30,115,053	$5,307,058	$12,725,695	$26,180,806
Coho	$2,031,963	$1,646,222	$3,986,567	$5,138,204	$862,745	$5,955,839	$5,085,403	$6,096,579	$2,489,766	$2,773,557	$2,653,670	$3,606,684
Pink	$1,025,474	$1,659,983	$2,465,469	$1,361,065	$569,851	$76,420	$1,093,388	$896,292	$803,665	$1,027,964	$1,197,558	$1,097,957
Chum	$8,669,206	$13,170,829	$11,654,134	$3,728,785	$3,426,951	$6,902,037	$12,453,314	$14,963,757	$7,681,028	$723,392	$7,861,657	$8,337,343
	$50,230,797	$55,274,091	$48,469,293	$52,370,325	$37,072,182	$34,776,326	$38,778,942	$37,228,790	$44,176,395	$10,318,210	$25,844,458	$40,869,535
Set gillnet Species												
Chinook	$1,832	$230	$3,015	$769	$1,239	$2,695	$428	$1,114	$528	$181	$447	$1,203
Sockeye	$2,993,318	$2,454,505	$2,278,575	$2,887,961	$1,888,979	$1,993,811	$1,432,904	$2,284,793	$2,435,437	$837,264	$861,038	$2,148,755
Coho	$2,297	$509	$2,556	$451	$1,015	$54	$1,013	$572	$1,159	$46	$561	$967
Pink	$21,931	$28,480	$17,062	$35,588	$14,827	$5,826	$42,543	$35,918	$51,771	$37,304	$32,246	$29,125
Chum	$163,884	$121,995	$188,004	$106,662	$69,027	$99,124	$85,157	$74,877	$108,410	$13,916	$72,552	$103,106
	$3,183,261	$2,605,720	$2,489,211	$3,031,431	$1,975,088	$2,101,510	$1,562,046	$2,397,273	$2,597,305	$888,710	$966,844	$2,283,155
Hatchery sales Species												
Chinook	$0	$59	$0	$0	$0	$0	$0	$0	$0	$0	$0	$6
Sockeye	$0	$7,749	$110	$0	$1,160,000	$300	$0	$0	$75,500	$1,309,465	$3,525,962	$255,312
Coho	$280,215	$217	$214,752	$19,035	$30,000	$15,987	$312,040	$123,541	$139,416	$45,557	$3,460	$118,076
Pink	$11,867,472	$12,381,620	$8,765,309	$10,482,055	$9,873,200	$8,456,683	$11,634,771	$11,928,271	$12,833,172	$11,819,555	$15,452,965	$11,004,211
Chum	$2,802,681	$2,952,252	$3,424,927	$1,573,976	$3,457,442	$5,740,327	$4,651,425	$4,260,448	$6,667,469	$3,252,179	$3,644,699	$3,878,313
	$14,950,368	$15,341,896	$12,405,098	$12,075,066	$14,520,642	$14,213,297	$16,598,236	$16,312,260	$19,640,057	$16,426,756	$22,627,086	$15,248,368

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Table 4.–Page 2 of 2.

Other[a] Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average 2011–2020
Chinook	$0	$0	$0	$0	$0	0	0	$0	$0	$0	$0	$0
Sockeye	$159	$0	$0	$0	$241	0	0	$0	$0	$0	$0	$40
Coho	$0	$0	$0	$0	$0	0	0	$0	$0	$0	$0	$0
Pink	$27	$0	$0	$0	$0	0	0	$0	$0	$0	$0	$3
Chum	$1,090	$243	$0	$0	$2,979	0	0	$0	$0	$0	$0	$431
	$1,275	$243	$0	$0	$3,220	$0	$0	$0	$0	$0	$0	$474
Combined value ($) Species												
Chinook	2,156,018	1,356,108	992,179	1,187,543	2,258,297	1,348,421	2,092,841	1,567,715	3,090,556	497,436	1,420,858	1,654,711
Sockeye	39,910,061	41,355,777	32,464,308	44,501,706	34,778,099	23,042,520	20,605,642	16,618,194	34,225,764	7,729,557	17,978,016	29,523,163
Coho	2,947,551	1,764,207	5,812,798	5,350,349	977,131	6,166,202	5,928,068	6,833,799	5,096,435	3,020,968	2,964,588	4,389,751
Pink	48,749,235	51,802,126	111,581,909	48,272,461	70,776,162	17,735,381	70,521,027	42,706,285	57,801,571	32,389,454	82,810,042	55,233,561
Chum	12,328,381	18,695,336	17,424,590	7,311,234	8,392,877	14,344,930	29,071,014	26,705,073	18,230,347	7,118,326	15,481,682	15,962,211
	106,091,246	114,973,554	168,275,784	106,623,293	117,182,566	62,637,454	128,218,593	94,431,065	118,444,673	50,755,741	120,655,186	106,763,397
Average earnings												
Purse seine	$206,151	$186,391	$497,214	$176,335	$289,143	$54,982	$311,264	$164,499	$218,300	$104,625	$335,928	$220,890
Drift gillnet	$97,916	$105,889	$92,853	$99,753	$71,293	$67,266	$74,863	$73,141	$86,791	$21,101	$54,181	$79,086
Set gillnet	$109,768	$89,852	$88,900	$104,532	$63,713	$72,466	$53,864	$92,203	$96,196	$34,181	$40,285	$80,567
No. permits fished												
Purse seine	183	224	211	222	220	210	229	234	238	221	212	219
Drift gillnet	513	522	522	525	520	517	518	509	509	489	477	514
Set gillnet	29	29	28	29	31	29	29	26	27	26	24	28

[a] Confiscated fish.

Table 5.–Escapement goals and escapements for Prince William Sound Area salmon stocks, 2012–2021.

System	2021 Goal range Lower	Upper	Type	Initial year	Escapement 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CHINOOK SALMON														
Prince William Sound														
Copper River	24,000		LB SEG	2003	27,846	29,013	20,689	26,751	12,430	33,644	42,678	35,080	21,586	18,021
CHUM SALMON														
Prince William Sound[a,b]														
Eastern District	79,000		LB SEG	2018	94,986	146,349	90,445	104,437	116,685	76,836	109,598	56,846	103,849	58,965
Northern District	28,000		LB SEG	2018	23,273	40,475	27,385	41,253	10,410	33,437	18,407	11,690	23,542	20,404
Coghill District	10,000		LB SEG	2018	13,896	14,086	9,491	14,929	976	13,210	13,617	3,437	8,998	2,395
Northwestern District	7,000		LB SEG	2018	9,360	4,995	5,041	7,060	3,954	7,118	15,563	3,258	7,405	6,979
Southeastern District	11,000		LB SEG	2018	28,374	33,678	29,362	44,095	13,919	26,330	10,164	19,451	26,909	46,391
COHO SALMON														
Prince William Sound														
Copper River Delta	32,000	67,000	SEG	2003	36,735	34,630	44,040	42,065	76,200	43,760	53,800	36,420	36,425	45,485
Bering River	13,000	33,000	SEG	2003	15,605	18,820	26,475	15,550	26,150	30,650	26,525	10,015	25,825	19,450
PINK SALMON														
Prince William Sound[a,c]														
All districts combined (even year)	eliminated			2012										
All districts combined (odd year)	eliminated			2012										
Eastern District (even year)	203,000	328,000	SEG	2018	268,432		250,381		594,778		309,325		206,152	
Eastern District (odd year)	346,000	863,000	SEG	2018		1,266,630		1,440,254		557,545		445,075		729,369
Northern District (even year)	96,000	127,000	SEG	2018	91,187		95,134		133,460		111,174		105,226	
Northern District (odd year)	111,000	208,000	SEG	2018		299,054		708,920		395,437		195,169		464,350
Coghill District (even year)	37,000	110,000	SEG	2018	170,752		60,921		63,986		70,881		88,401	
Coghill District (odd year)	54,000	233,000	SEG	2018		625,991		775,488		181,153		153,129		300,227
Northwestern District (even year)	52,000	93,000	SEG	2018	114,518		66,350		168,272		111,194		77,828	
Northwestern District (odd year)	64,000	144,000	SEG	2018		201,836		438,944		250,989		91,267		368,406
Eshamy District (even year)	1,000	4,000	SEG	2018	1,052		12,167		NA[d]		16,594		7,250	
Eshamy District (odd year)	5,000	31,000	SEG	2018		12,145		68,988		2,836		1,402		17,925
Southwestern District (even year)	62,000	105,000	SEG	2018	79,774		73,104		NA[d]		81,100		64,470	
Southwestern District (odd year)	112,000	231,000	SEG	2018		337,952		644,158		172,930		33,340		339,920
Montague District (even year)	36,000	72,000	SEG	2018	70,695		23,136		NA[d]		135,208		84,238	
Montague District (odd year)	143,000	330,000	SEG	2018		365,807		559,994		205,252		25,385		242,151
Southeastern District (even year)	88,000	153,000	SEG	2018	213,071		141,845		107,769		293,275		138,330	
Southeastern District (odd year)	286,000	515,000	SEG	2018		1,137,736		1,529,543		372,960		290,452		544,906

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Table 5.–Page 2 of 2.

System	2020 Goal Range Lower	Upper	Type	Initial Year	Escapement 2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
SOCKEYE SALMON														
Prince William Sound														
Upper Copper River	360,000	750,000	SEG	2012	954,010	860,253	864,169	930,145	513,126	4461,268	478,760	718,876	362,445	511,223
Copper River Delta	55,000	130,000	SEG	2003	66,850	75,705	64,205	66,665	51,550	56,950	58,470	61,825	55,620	87,075
Bering River	15,000	33,000	SEG	2012	18,290	23,900	14,885	22,705	16,390	19,115	13,300	17,630	15,795	13,774
Coghill Lake	20,000	60,000	SEG	2012	74,978	17,231	21,836	13,684	8,708	50,462	62,295	32,247	53,901	101,083
Eshamy Lake[e]	13,000	28,000	BEG	2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	7,001

Note: NA = data not available; LB SEG = lower-bound SEG.

[a] All PWS chum and pink salmon goals were revised in 2017 using a different index approach than previously used. Escapement values presented here use the new index based on a reduced set of survey streams. Prior to 2012, the pink salmon escapement goals for PWS combined all districts for both even and odd years.

[b] No estimates for chum salmon escapements are included for the Unakwik, Eshamy, Southwestern, or Montague Districts because there are no escapement goals for those districts.

[c] The estimates for pink salmon (odd year) do not include Unakwik District escapements, due to absence of an escapement goal and an average escapement estimate of a few thousand fish.

[d] Fewer than 3 surveys were flown for almost all the index streams in the Eshamy, Southwestern, and Montague districts in 2016, so they were not used in calculating the area-under-the-curve index.

[e] Eshamy River weir was not operated in 2012–2020. A pilot project to assess the use of video for monitoring in 2013–2016 did not provide a comparable total escapement estimate.

Table 6.–Estimated age and sex composition of sockeye salmon harvested in the Copper River District drift gillnet fishery, 2021.

		Brood year and age class									
		2018		2017		2016		2015			
		0.2	1.1	0.3	1.2	1.3	2.2	1.4	2.3	3.2	Total
Strata combined	5/16–9/25										
Sampling dates	5/16–7/26										
Sample size	2,402										
	Sample size	43	5	251	380	1,525	29	4	165	3	2,405
	Percentage of sample	1	0	11	15	63	1	0	9	0	100
	No. in harvest	5,759	902	42,414	59,744	254,841	5,462	722	34,379	415	404,638
	Standard error	977	403	2,760	2,674	4,223	1,069	350	2,631	267	

Table 7.–Estimated age and sex composition of Chinook salmon harvested in the Copper River District commercial fishery, 2021.

		Brood year and age class										
		2018		2017			2016		2015		2014	
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	2.4	Total
Strata combined:	5/16–9/25											
Sampling dates:	5/17–6/14											
Sample size:	366											
	Weighted harvest	63	49	155	1,771	172	2,955	976	404	148	76	6,769
Total	Percentage of sample	1	1	2	26	3	44	14	6	2	1	97
	Number in harvest	65	51	161	1,834	178	3,060	1,011	418	154	79	7,011
	Standard error	40	82	60	137	101	143	133	104	110	103	

Table 8.–Estimated age and sex composition of coho salmon harvested in the Copper River District drift gillnet fishery, 2021.

		Brood year and age class			
		2017	2016	2015	
		1.1	2.1	3.1	Total
Strata combined	06/18–09/24				
Sampling dates	08/18–09/15				
Harvest sampled	170,114				
	Sample size	296	306	24	626
Female	Percentage of sample	23.3%	27.9%	2.8%	54.0%
	Number in harvest	39,589	47,467	4,745	91,801
	Sample size	295	232	16	543
Male	Percentage of sample	24.5%	19.6%	1.9%	46.0%
	Number in harvest	41,743	33,380	3,191	78,313
	Sample size	591	538	40	1,169
Total	Percentage of sample	47.8%	47.5%	4.7%	100.0%
	Number in harvest	81,332	80,847	7,935	170,114
	Standard error	3,205	3,258	1,525	

Table 9.–Preseason projections for the 2021 commercial salmon fisheries by district and species in thousands of fish, Prince William Sound Area.

		Chinook		Sockeye		Coho[a]		Pink		Chum	
District/facility[b]	Forecast type[c]	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range
Copper River[d]	Commercial harvest	13	0–29	844	429–1,945	218					
Bering River[e]	Commercial harvest			4		61					
Coghill[f]	Commercial harvest			252	160–345						
Eshamy[f]	No forecast			NA	NA–NA						
Unakwik[g]	Commercial harvest			3							
General districts	Commercial harvest							19,187		508	
Total wild stock		36	15–58	1,103	589–2,290	279		19,187		508	
SGH	Total run					87		20,593	10,296–30,890		
AFK	Total run							5,000	2,500–7,500	150	100–200
WNH[h]	Total run					89	55–155	6,600	3,200–11,800	1,680	1,500–1,870
CCH	Total run							6,000	4,000–8,100		
MBH	Total run			1,076	941–1,211						
GH	Total run			51	28–73						
Total hatchery				1,127	969–1,284	176	55–155	38,193	19,996–58,290	1,830	1,600–2,070
Total hatchery and wild		13		2,230		455		57,380	57,380	2,338	

Note: All values are in thousands. NA = not available. Harvest estimates are made only for areas and species that constitute a significant portion of the catch. Prince William Sound Area hatchery facility abbreviations are as follows: SGH (Solomon Gulch Hatchery), AFK (Armin F. Koernig Hatchery), WNH (Wally Noerenberg Hatchery), CCH (Cannery Creek Hatchery), MBH (Main Bay Hatchery), and GH (Gulkana Hatchery).

[a] ADF&G provides harvest forecasts for Copper River and Bering River Districts coho salmon runs.

[b] Formal forecast procedures are used for estimating wild stock runs of pink and chum salmon in PWS. Hatchery contributions are based on known fry releases and average marine survival rates.

[c] Alaska Department of Fish and Game (ADF&G) provides common property fishery (CPF) harvest forecasts for all wild stocks and Gulkana Hatchery sockeye salmon. Hatchery operators provide commercial harvest forecasts for PWS hatchery runs and Gulkana Hatchery sockeye salmon. Harvest projections do not include salmon harvested by hatcheries for cost recovery.

[d] Formalized sibling model forecast procedures are used for Copper River sockeye salmon runs. Copper River Chinook and coho salmon harvest estimates are based on the mean annual harvest (5-year mean for Chinook and 10-year mean for coho salmon).

[e] Bering River coho and sockeye salmon harvest estimates are based on 10-year mean annual harvest.

[f] Formalized sibling model forecast procedures are used for Coghill and Eshamy Districts sockeye salmon runs. Coghill District wild pink and chum salmon harvests are included in the "General (PWS) districts" projection.

[g] Unakwik District sockeye salmon harvest estimate is based on the 10-year mean annual harvest.

[h] Wally Noerenberg Hatchery chum and coho salmon harvest estimates include all on-site and remote release runs.

Table 10.–Estimated age composition of sockeye salmon escaped through Coghill Weir, 2021.

		Brood Year and Age Class						
		2018	2017		2016		2015	
		1.1	1.2	2.1	1.3	2.2	2.3	Total
Strata								
Combined:	6/13–7/17							
Sampling dates:	6/18–7/17							
Sample size:	1,058							
Total	Percentage of sample	11.5%	37.3%	2.1%	30.9%	2.5%	15.7%	100.0%
	Number in escapement	11,592	37,737	2,143	31,183	2,519	15,909	101,083
	Standard error	609	581	760	565	223	581	

Table 11.–Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 2021.

Pink salmon [a]

District	Escapement midpoint	Odd-year escapement goal range	2001–2019 Odd-year mean index	2021 Escapement index	Deviation from midpoint
Eastern	604,500	346,000–863,000	819,161	729,369	20.7%
Northern	159,500	111,000–208,000	318,199	464,350	191.1%
Coghill	143,500	54,000–233,000	341,431	300,227	109.2%
Northwestern	104,000	64,000–144,000	195,990	368,406	254.2%
Eshamy	18,000	5,000–31,000	15,068	17,925	-0.4%
Southwestern	171,500	112,000–231,000	255,031	339,920	98.2%
Montague	236,500	143,000–330,000	353,011	242,151	2.4%
Southeastern	400,500	286,000–515,000	947,236	544,906	36.1%
Total	1,838,000	1,121,000–2,555,000	3,245,126	3,007,254	63.6%

Chum salmon [a]

District	Escapement Goal	2011–2020 Mean index	2021 Escapement lower bound	Deviation from lower bound
Eastern	79,000 and up	113,740	58,965	-25.4%
Northern	28,000 and up	29,375	20,404	-27.1%
Coghill	10,000 and up	11,225	2,395	-76.1%
Northwestern	7,000 and up	7,571	6,979	-0.3%
Southeastern	11,000 and up	34,014	46,391	321.7%
Total	135,000 and up	195,925	135,134	0.1%

[a] All PWS chum and pink salmon goals were revised in 2017 using a different index approach than previously used. Escapement values presented here use the new index based on a reduced set of survey streams. Prior to 2012, the pink salmon escapement goals for PWS combined all districts for both even and odd years.

Table 12.–Prince William Sound commercial purse seine salmon harvest by day, 2021.

			Chinook		Sockeye		Coho		Pink		Chum	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
05/31	14	14	0	0	0	0	0	0	0	0	1,727	11,948
06/03	17	17	1	20	75	490	0	0	5	24	9,677	68,375
06/04[a]												
06/05	29	29	18	235	83	429	0	0	210	1,104	25,983	190,303
06/06[a]												
06/07	30	31	30	306	230	1,231	0	0	373	1,665	37,694	239,620
06/08[a]												
06/10	32	33	37	502	106	573	0	0	57	215	10,665	74,926
06/12	40	41	54	622	294	1,467	1	4	79	346	17,190	109,085
06/13	3	3	1	4	53	258	0	0	5	29	2,556	15,954
06/14	42	43	22	268	447	2,367	0	0	142	550	22,025	157,978
06/15	5	5	21	213	46	275	0	0	109	545	3,297	26,348
06/17	39	40	79	940	577	2,798	0	0	72	344	18,769	132,937
06/18	15	15	0	0	12	66	0	0	0	0	5,319	34,779
06/19	51	51	18	214	1,557	7,855	0	0	34	157	25,785	172,241
06/21	49	52	4	54	4,504	23,710	0	0	106	426	33,935	230,407
06/22	11	11	0	0	111	615	0	0	5	27	5,341	36,051
06/23	3	3	0	0	0	0	0	0	0	0	832	5,419
06/24	61	64	2	24	5,397	28,854	0	0	310	1,387	50,130	341,814
06/26	53	55	6	72	6,441	30,321	7	64	4,855	17,987	54,373	375,500
06/27	19	19	0	0	1,460	7,138	1	3	2,312	8,921	16,542	107,191
06/28	62	66	5	85	2,822	13,606	7	76	42,429	142,974	50,254	351,836
06/29	23	24	0	0	432	2,320	0	0	34,032	124,328	18,226	113,439
06/30	3	3	0	0	22	106	0	0	1,504	5,003	299	2,227
07/01	74	74	35	529	5,319	26,787	3	19	23,218	86,989	48,316	312,093
07/02	14	14	5	71	849	4,568	0	0	1,867	7,383	4,446	29,007
07/03	53	53	5	97	3,126	14,944	0	0	35,864	121,476	25,798	164,047
07/04	14	14	41	574	502	2,717	0	0	20,032	72,144	6,418	41,398
07/05	53	57	6	87	2,200	12,187	0	0	41,955	150,145	15,955	104,556
07/06	9	9	0	0	209	1,102	0	0	4,766	16,917	2,175	14,652
07/08	181	189	54	868	5,210	25,292	182	1,116	1,075,452	3,735,535	27,959	180,867

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			Chinook		Sockeye		Coho		Pink		Chum	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
07/09	10	10	4	32	31	161	2	12	20,532	68,102	4,617	31,673
07/10	11	11	0	0	194	974	8	50	2,650	8,876	12,153	74,967
07/1[a]1												
07/12	186	295	1	7	760	3,811	30	192	3,229,161	10,590,261	4,769	30,740
07/13	171	204	10	107	730	3,808	150	1,158	1,542,003	5,066,216	10,649	66,971
07/14	169	178	2	21	894	4,868	54	355	767,314	2,477,784	10,094	64,457
07/15	7	8	0	0	72	376	0	0	54,748	190,881	353	2,422
07/16	186	210	3	36	217	1,671	31	179	1,618,293	5,230,617	701	3,988
07/17	173	217	3	31	280	1,503	38	230	1,902,456	6,239,576	3,464	23,566
07/18	189	256	7	37	503	2,539	97	532	2,444,524	7,861,239	1,982	12,332
07/19	178	258	9	89	4,426	23,055	1,042	7,398	2,752,098	9,073,691	4,512	31,520
07/20	162	167	1	20	256	1,359	55	341	796,418	2,565,921	677	4,559
07/21	18	19	0	0	1,526	7,577	7	34	149,612	499,618	266	1,929
07/22	196	241	25	304	9,245	46,978	1,029	6,828	2,449,888	7,890,146	7,754	52,221
07/23	11	11	0	0	746	2,985	1	5	55,216	188,644	32	229
07/24	184	232	38	622	5,528	26,261	1,428	9,056	2,378,691	7,920,291	12,152	83,430
07/25	128	132	2	50	1,671	7,996	752	5,147	659,276	2,190,376	6,543	44,982
07/26	159	159	6	36	1,707	8,568	747	5,022	670,867	2,135,428	8,478	57,178
07/27[a]	2	2										
07/28	194	279	13	229	8,277	40,145	1,751	10,847	3,245,072	10,317,062	11,707	75,631
07/30	195	225	68	621	5,118	25,490	1,343	9,147	1,875,673	6,179,535	10,143	69,564
08/01	195	208	22	311	5,806	28,219	2,110	14,510	1,733,380	5,632,590	9,966	73,609
08/02[a]												
08/03	199	240	9	106	4,160	20,698	1,135	7,428	2,471,842	7,742,057	9,725	70,792
08/05	118	119	16	96	502	2,373	860	5,464	385,489	1,258,662	6,680	43,115
08/09[a]												
08/10	186	205	3	40	2,237	10,779	3,459	21,964	1,807,285	5,719,988	14,044	89,341
08/11[a]												
08/12	186	228	0	0	1,093	5,447	1,674	11,082	2,113,709	6,741,832	4,893	32,109
08/13	186	240	0	0	1,794	8,571	1,733	11,658	2,748,616	8,736,112	1,562	10,701
08/15	182	290	0	0	434	2,188	881	5,172	3,485,185	11,151,359	1,058	6,882

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Table 12.–Page 3 of 3.

			Chinook		Sockeye		Coho		Pink		Chum	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
08/16	193	265	2	31	1,351	6,495	2,925	18,981	3,449,659	10,772,323	1,377	8,693
08/18	193	274	3	22	1,349	6,634	2,566	17,744	3,113,075	9,974,702	713	4,510
08/20	188	225	1	10	1,113	5,488	3,843	25,308	2,299,193	7,372,708	4,882	31,053
08/21	178	185	15	62	759	3,758	2,764	19,802	1,426,526	4,576,062	721	4,386
08/22	146	154	2	30	522	2,565	2692	18328	953,191	3,001,628	1,121	7,238
08/23	152	169	0	0	752	3,748	3,622	26,663	1,461,473	4,606,790	527	3,550
08/24	129	135	0	0	630	3,063	2,724	20,111	952,257	3,044,375	535	3,433
08/25	117	122	1	12	893	4,343	3,260	23,029	731,921	2,377,961	316	2,120
08/26	89	91	1	12	373	1,859	2,586	17,371	496,971	1,611,771	321	1,875
08/27	62	64	0	0	257	1,253	1,317	8,681	354,775	1,143,273	119	738
08/28	44	45	0	0	145	709	708	4,920	191,277	618,472	70	490
08/29	27	27	0	0	96	485	407	2,934	162,594	520,564	278	1,580
08/30	17	17	0	0	121	634	575	4,377	164,243	549,674	40	262
08/31	12	12	0	0	62	300	463	3,439	102,667	356,324	16	97
09/01[a]												
09/02[a]												
09/07	5	7	0	0	0	0	13,825	110,425	0	0	19	97
Total	212	7,480	717	8,808	109,195	544,227	64,981	458,055	58,586,030	188,935,065	719,449	4,818,240
Average Weight				12.28		4.98		7.05		3.22		6.70

[a] Fewer than three permits were fished. Period results are confidential.

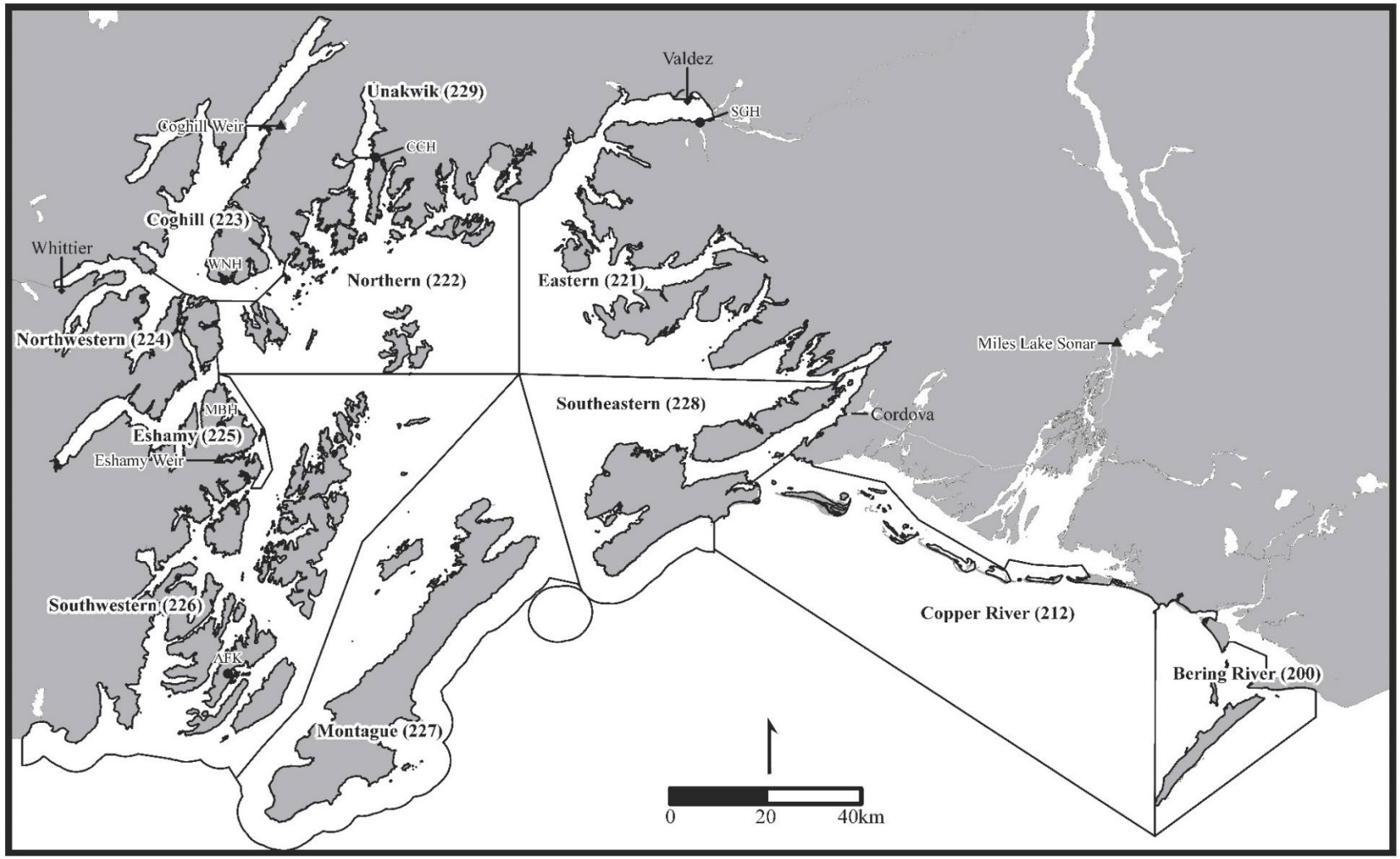

Figure 1.–Prince William Sound Area showing commercial fishing districts, salmon hatcheries (Wally Noerenberg Hatchery [WNH], Cannery Creek Hatchery [CCH], Solomon Gulch Hatchery [SGH], Main Bay Hatchery [MBH], Armin F. Koernig Hatchery [AFK]), weir locations, and Miles Lake sonar camp.

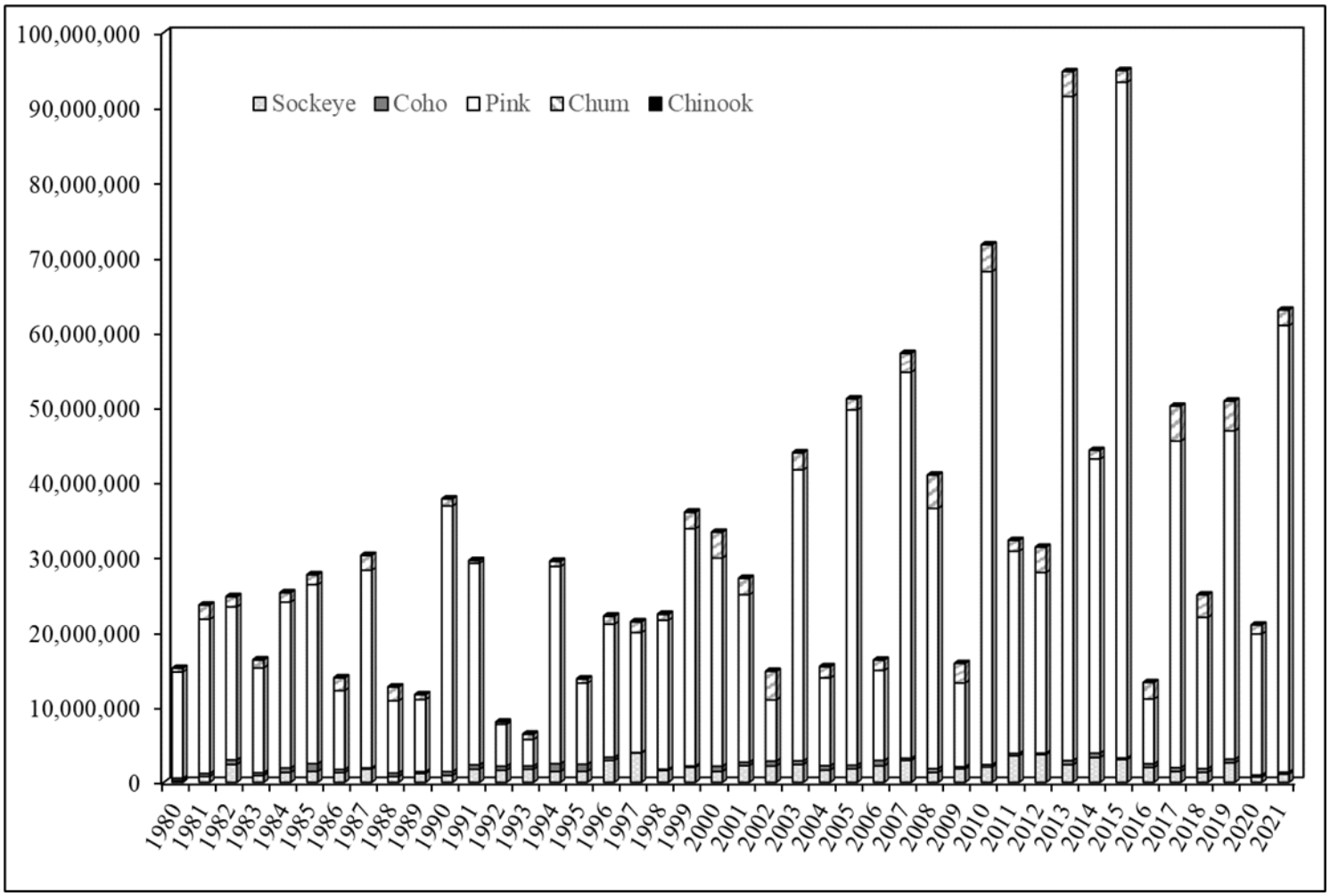

Figure 2.–Commercial salmon harvests in Prince William Sound Area, 1980–2021.

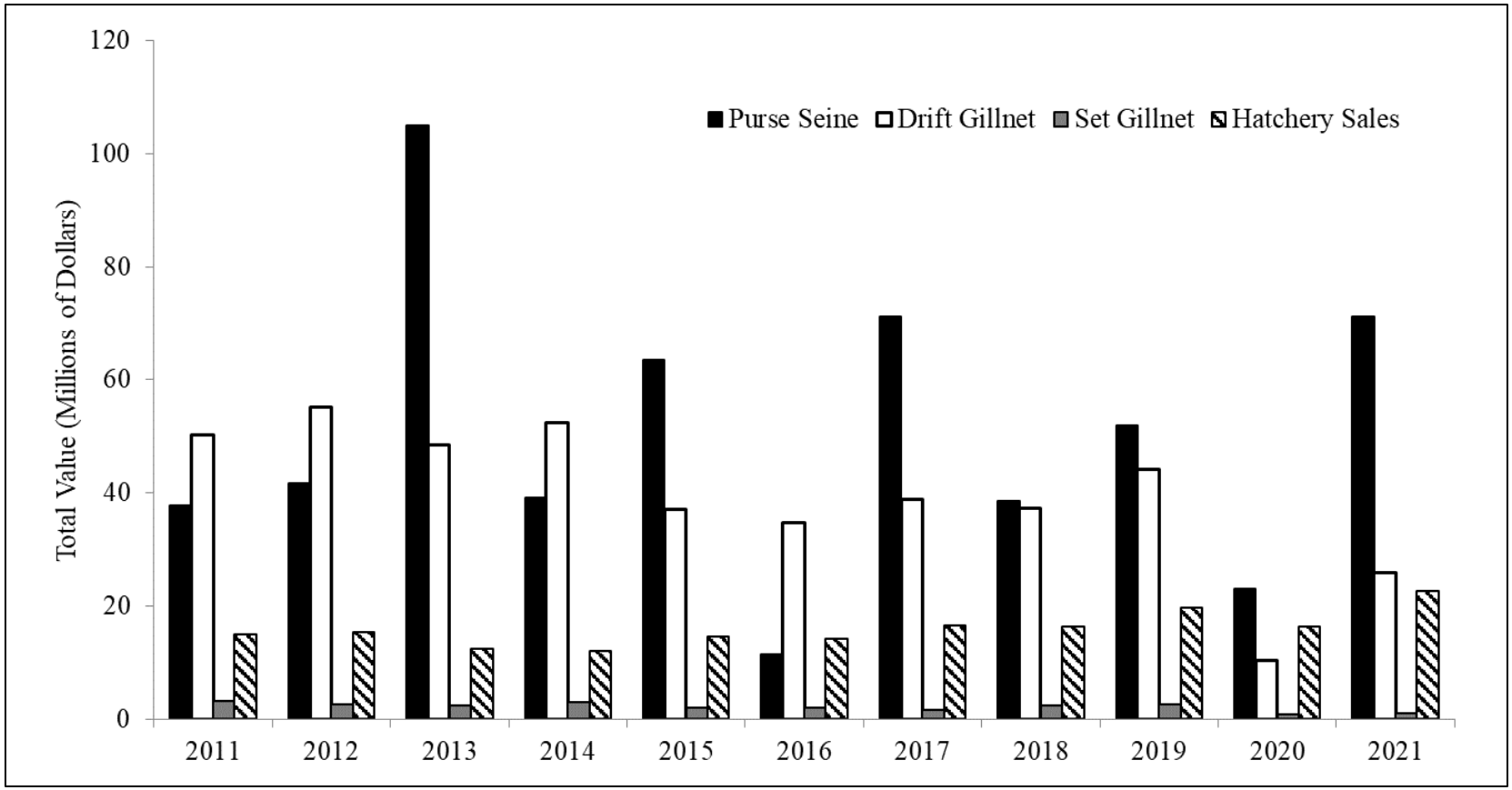

Figure 3.–Exvessel value of the commercial salmon harvest in the Prince William Sound Area by permit type, 2011–2021.

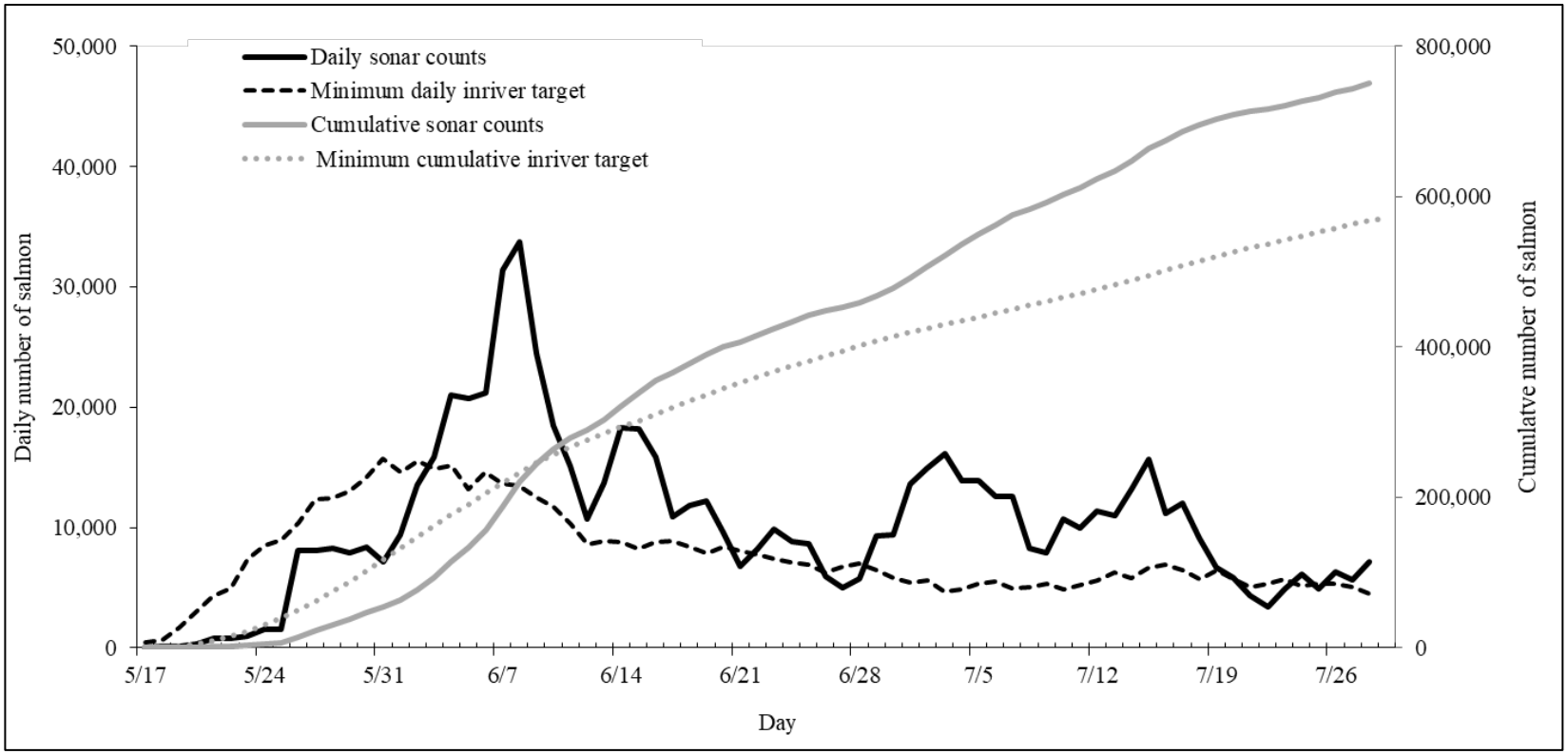

Figure 4.–Minimum daily and cumulative sonar target versus actual daily and cumulative salmon passage, Miles Lake Sonar, 2021.

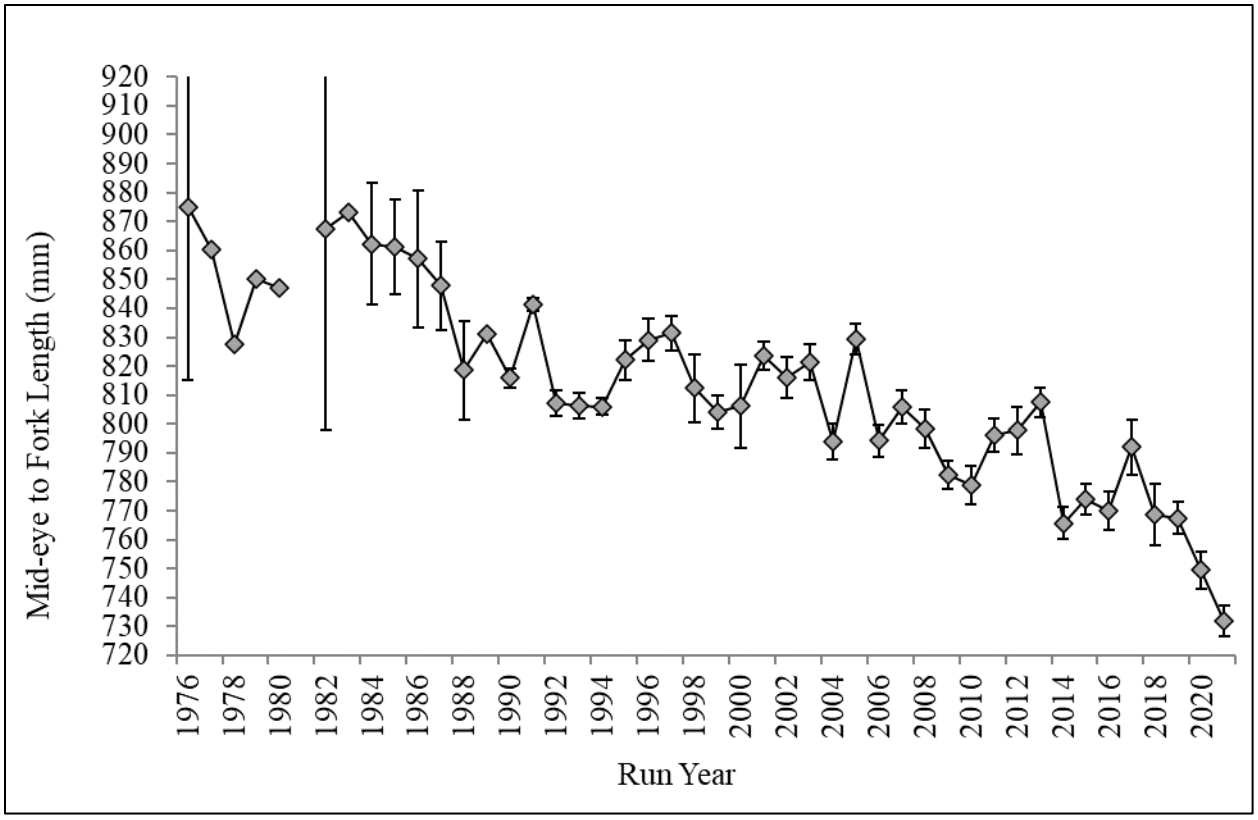

Figure 5.–Length at age (1.3) Copper River drift gillnet Chinook salmon, 1976–2021.

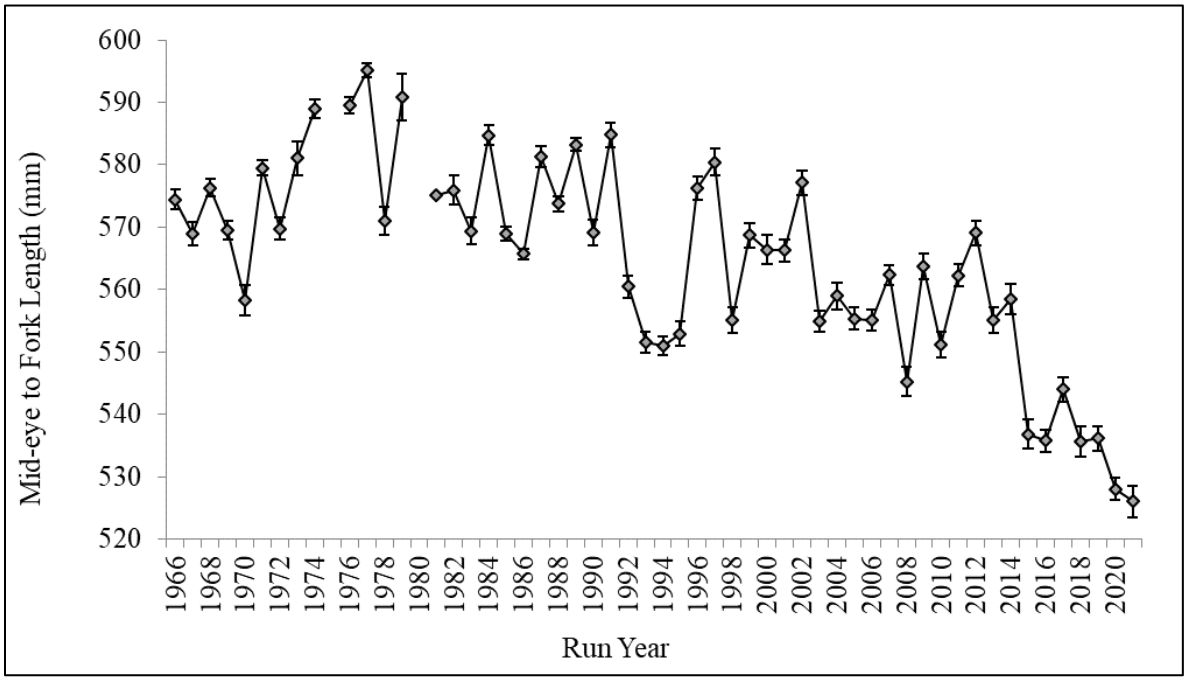

Figure 6.–Length at age (1.3) Copper River drift gillnet sockeye salmon, 1966–2021.

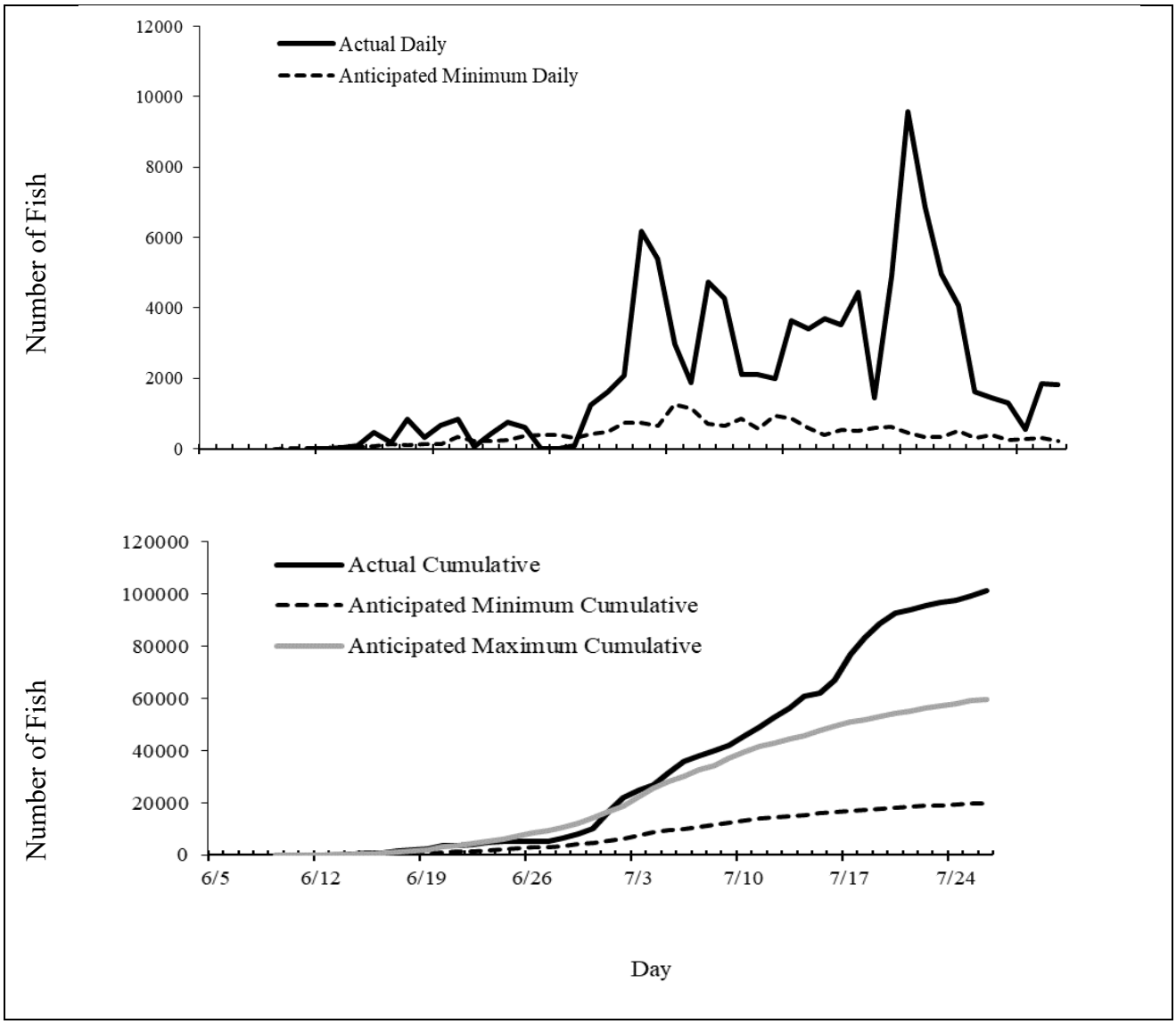

Figure 7.–Anticipated daily and cumulative sockeye salmon escapement based on 3-day running averages compared to actual escapement through Coghill River weir, 2021.

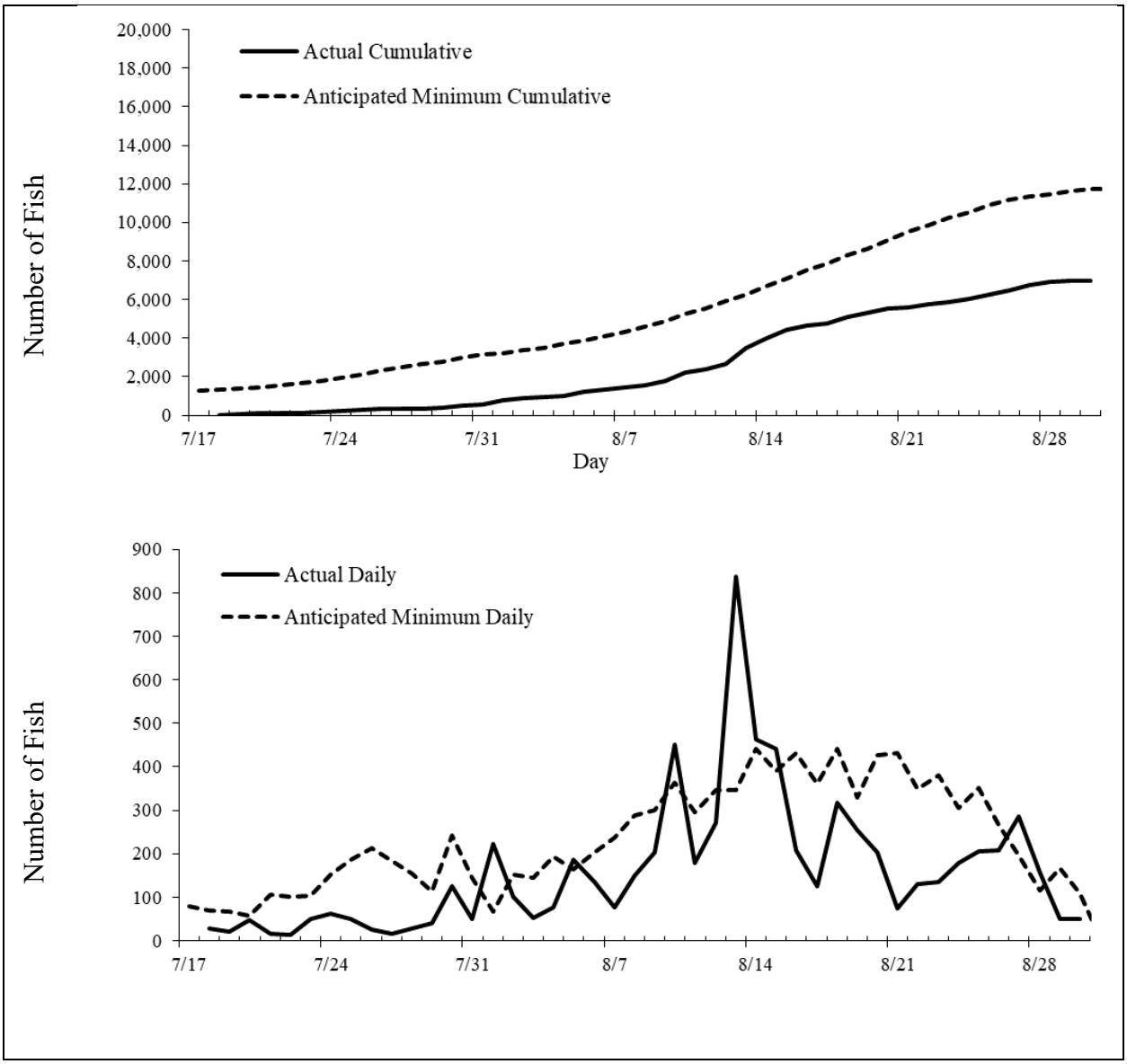

Figure 8.–Anticipated daily and cumulative salmon escapement versus actual escapement through the Eshamy River weir, 2021.

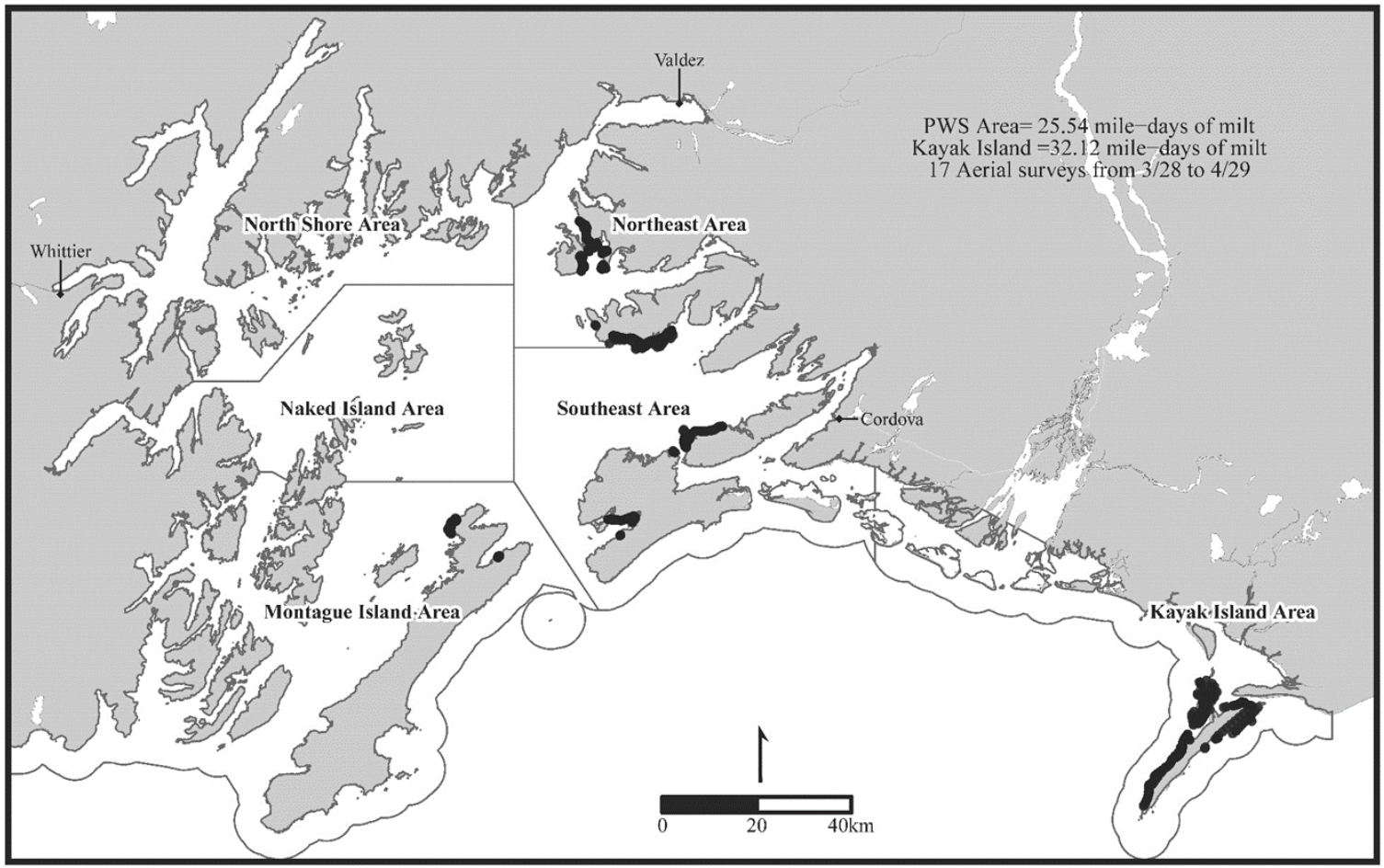

Figure 9.–Prince William Sound area showing commercial herring areas (bold grey lines) and locations of spawning herring (black dots) observed during aerial surveys in 2021.

APPENDIX A: COPPER RIVER AND BERING RIVER DISTRICTS

Appendix A1.–Total estimated sockeye salmon runs to the Copper River by end user or destination, 2011–2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average, 2011–2020
Commercial harvest[a]	2,052,432	1,866,541	1,608,117	2,050,007	1,750,762	1,175,100	586,079	46,524	1,283,736	102,269	404,638	1,252,157
Commercial, homepack[a]	9,070	7,985	9,448	12,072	10,590	9,598	8,289	1,545	8,016	1,455	3,625	7,807
Commercial, donated[a]	0	0	0	0	0	0	0	0	0	0	15	0
Educational drift gillnet permit[a]	23	200	152	186	91	203	217	6	18	7	6	110
Subsistence (Cordova, drift gillnet)[b]	1,783	4,270	5,639	1,675	1,403	1,075	2,448	5,189	6,163	7,091	5,338	3,674
Federal subsistence (PWS/Chugach Nat'l Forest, dip net, spear, rod and reel)[b]	35	64	102	76	152	234	127	96	116	41	19	104
Subsistence (Batzulnetas, dip net, fish wheel or spear)[b]	9	101	862	146	0	0	254	468	209	67	120	212
Subsistence (Glennallen Subdistrict, dip net, fish wheel or spear)[c]	59,622	76,305	73,728	75,501	81,800	62,474	41,570	39,359	60,257	34,577	42,638	60,519
Federal subsistence (Glennallen Subdistrict, dip net, fish wheel or spear)[c]	16,145	15,718	17,789	23,889	26,753	19,181	18,415	16,736	17,718	11,234	14,847	18,358
Personal use reported (Chitina Subdistrict, dip net)[c]	128,052	127,143	180,663	157,215	223,080	148,982	132,694	77,051	171,203	78,022	143,301	142,411
Federal subsistence (Chitina Subdistrict, dip net)[c]	2,056	1,427	2,199	1,636	2,404	1,925	1,828	3,430	4,479	3,406	5,415	2,479
Upriver sport harvest[d]	7,727	23,404	26,611	18,005	9,489	7,555	9,589	2,943	7,346	3,483	2,500	11,615
Delta sport harvest[d]	838	764	386	87	130	246	200	58	2,033	413	835	516
Upriver spawning escapement[e]	607,142	953,502	860,258	864,131	930,145	513,126	461,268	478,760	718,876	362,445	511,223	674,965
Delta spawning escapement[f]	153,014	133,700	151,410	128,410	132,390	103,100	113,900	116,940	122,930	111,240	174,150	126,703
Hatchery broodstock/excess[g]	59,589	65,348	72,369	53,737	40,123	32,341	17,083	30,306	15,552	10,786	9,562	39,723
Total sockeye salmon run size	3,097,537	3,276,472	3,009,733	3,386,773	3,209,312	2,075,140	1,393,961	819,411	2,418,652	726,536	1,318,232	2,341,353

[a] Numbers are from fish ticket data. Homepack numbers for sockeye salmon are voluntarily reported but are legally required.

[b] Data are reported harvest from returned state and federal subsistence permits.

[c] Data are expanded harvest from returned state and federal subsistence permits.

[d] Upriver and Copper River Delta sport harvest data are from statewide sport fish harvest surveys.

[e] Beginning in 1999, sockeye salmon spawning escapement was based on the total number of fish past the Miles Lake sonar minus the Chinook salmon inriver midpoint abundance estimate, upriver subsistence, personal use, sport, hatchery broodstock, and on-site hatchery surplus.

[f] Delta spawning escapement estimated by doubling the peak aerial survey index.

[g] Hatchery broodstock and on-site excess are from the PWSAC annual reports (ADF&G *unpublished*).

Appendix A2.–Total estimated sockeye salmon runs to the Copper River by origin, 2011–2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2011–2020)
Upriver wild contribution[a]	2,004,078	2,503,278	2,224,817	2,633,272	2,679,815	1,608,098	1,115,036	629,071	2,067,025	553,904	956,965	1,801,839
Delta wild contribution[b]	512,515	333,445	351,004	350,493	310,313	259,227	213,834	126,691	285,333	136,153	273,797	287,901
Gulkana contribution[c]	580,944	439,749	433,912	403,008	219,184	207,815	65,090	63,649	66,295	36,479	87,535	251,613
Total sockeye salmon run size	3,097,537	3,276,472	3,009,733	3,386,773	3,209,312	2,075,140	1,393,961	819,411	2,418,652	726,536	1,318,297	2,341,353

[a] Beginning in 1999, the upriver wild sockeye salmon contribution was estimated as the sum of the total number of sockeye salmon past the Miles Lake sonar (total number of fish past the Miles Lake sonar minus the Chinook salmon inriver abundance estimate) and sockeye salmon captured in the Copper River commercial and subsistence harvests minus Gulkana Hatchery contributions to the Copper River commercial and subsistence fisheries, Copper River Delta wild stock, and Copper River Delta sport harvests.

[b] Delta wild sockeye salmon contribution was estimated as the total Copper River district harvest multiplied by proportion Copper River Delta sockeye salmon (delta escapement divided by the total number of sockeye salmon that passed the Miles Lake sonar plus Copper River Delta escapement) plus the Copper River Delta escapement and Copper River Delta sport harvest.

[c] Gulkana Hatchery sockeye salmon contributions from 1995 to 2003 are based on coded wire tag recovery; contributions from 2004 to 2021 are based on strontium marks from commercial, personal use, subsistence samples applied to reported harvest, and the historical average of mainstem and upper Copper River sport harvest multiplied by Gulkana Hatchery percent in personal use and subsistence fisheries. Gulkana Hatchery personal use and subsistence contribution estimates were calculated with expanded harvest.

Appendix A3.–Total estimated Chinook salmon run to the Copper River by end user or destination, 2011–2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2011–2020)
Commercial harvest[a]	18,500	11,764	8,826	10,207	22,506	12,348	13,834	7,618	19,148	5,880	7,512	13,063
Commercial, homepack[a]	1,282	853	564	768	1,145	727	744	85	742	225	278	714
Commercial, donated[a]	0	0	0	0	0	0	0	0	0	0	0	0
Educational drift gillnet permit[a]	6	6	55	36	50	86	50	40	31	14	17	37
Subsistence (Cordova, drift gillnet)[b]	212	237	854	153	167	73	778	1,356	808	657	624	530
Subsistence (Batzulnetas, dip net, fish wheel, or spear)[b]	0	0	5	0	0	0	2	0	0	0	0	1
Subsistence (Glennallen Subdistrict, dip net, fish wheel, or spear)[c]	2,319	2,095	2,148	1,365	2,212	2,075	2,906	4,531	3,429	2,222	1,685	2,530
Federal subsistence (Glennallen Subdistrict, dip net, fish wheel, or spear)[c]	799	403	372	439	416	446	468	2,662	946	670	505	762
Personal use harvests (Chitina Subdistrict, dip net)[c]	1,067	567	744	719	1,570	711	1,961	1,273	2,611	751	832	1,197
Federal subsistence (Chitina Subdistrict, dip net)[c]	15	6	19	15	14	20	15	100	83	96	113	38
Sport harvest[d]	1,753	459	285	931	1,343	327	1,731	1,320	1,565	968	500	1,068
Upriver spawning escapement[e]	27,936	27,922	29,013	20,689	26,751	12,430	33,644	42,678	35,080	21,586	18,201	27,773
Total estimated Chinook salmon run size	53,889	44,312	42,885	35,322	56,174	29,243	56,133	61,663	64,443	33,069	30,087	47,713

[a] Numbers are from fish ticket data.

[b] Data are reported harvest from returned state and federal subsistence permits.

[c] Data are expanded harvest from returned state and federal subsistence permits.

[d] Upriver Chinook salmon sport harvest only; there is no Copper River Delta Chinook salmon sport harvest. The sport harvest numbers are generated from the statewide sport fish harvest survey.

[e] Upriver Chinook salmon spawning escapement was estimated using the inriver abundance estimate and subtracting subsistence, personal use, and sport Chinook salmon harvests. Beginning in 1999, inriver abundance estimates were calculated using mark–recapture studies; prior to 1999 inriver abundance estimates were calculated using aerial and foot surveys.

Appendix A4.–Total salmon harvest by species in the Copper River District commercial fishery, 1975–2021.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1975	19,644	335,384	53,805	236	807	409,876
1976	31,479	865,195	111,900	3,392	178	1,012,144
1977	21,722	602,737	131,356	23,185	335	779,335
1978	29,062	249,872	220,338	3,512	2,233	505,017
1979	17,678	80,528	194,885	1,295	107	294,493
1980	8,454	18,908	225,299	3,966	198	256,825
1981	20,178	477,662	310,154	23,952	1,799	833,745
1982	47,362	1,177,632	454,763	7,154	1,177	1,688,088
1983	50,022	626,735	234,243	7,345	2,217	920,562
1984	38,957	900,043	382,432	32,194	6,935	1,360,561
1985	42,214	927,553	587,990	19,061	5,966	1,582,784
1986	40,670	780,808	295,980	3,016	17,614	1,138,088
1987	41,001	1,180,782	111,599	31,635	14,796	1,379,813
1988	30,741	576,950	315,568	2,775	11,022	937,056
1989	30,863	1,025,923	194,454	25,877	5,845	1,282,962
1990	21,702	844,778	246,797	1,596	7,545	1,122,418
1991	34,787	1,206,811	385,086	1,246	20,220	1,648,150
1992	39,810	970,938	291,627	1,664	5,807	1,309,846
1993	29,727	1,398,234	281,469	9,579	13,002	1,732,011
1994	47,812	1,153,167	677,654	12,079	19,069	1,909,781
1995	67,363	1,271,822	542,658	19,809	56,100	1,957,752
1996	57,815	2,356,365	193,042	6,372	25,533	2,639,127
1997	52,516	2,955,431	18,656	8,483	2,465	3,037,551
1998	70,238	1,343,127	108,246	20,833	5,024	1,547,468
1999	63,452	1,683,892	153,097	10,206	25,389	1,936,036
2000	32,005	881,419	304,944	9,804	5,366	1,233,538
2001	40,459	1,325,690	256,638	9,387	2,789	1,634,963
2002	39,511	1,249,769	504,410	3,677	31,653	1,829,020
2003	48,797	1,192,164	363,489	12,934	10,110	1,627,494
2004	38,735	1,048,603	467,861	5,175	3,386	1,563,760
2005	35,395	1,333,532	263,584	35,008	3,522	1,671,041
2006	31,060	1,498,407	318,422	30,847	17,206	1,895,942
2007	40,114	1,903,976	117,522	80,751	9,758	2,152,121
2008	11,978	323,067	203,198	1,490	1,293	541,026
2009	10,333	903,196	208,543	16,820	8,696	1,147,588
2010	10,551	643,278	211,647	21,167	15,776	902,419
2011	19,782	2,061,502	128,054	24,064	13,394	2,246,796
2012	12,617	1,874,526	131,298	6,062	27,376	2,051,879
2013	9,390	1,617,565	245,234	65,495	10,222	1,947,906
2014	10,975	2,062,079	316,922	11,761	43,705	2,445,442
2015	23,651	1,761,352	138,404	84,858	15,724	2,023,989
2016	13,075	1,184,698	368,983	35,116	5,523	1,607,395
2017	14,578	594,368	308,232	69,675	13,019	999,872
2018	7,703	48,069	306,538	10,857	3,185	376,352
2019	19,890	1,291,752	79,147	215,599	23,070	1,629,458
2020	6,105	103,724	170,114	716	1,383	282,042
2021	7,790	408,278	147,018	34,468	8,580	606,134
Average (2011–2020)	13,777	1,259,964	219,293	52,432	15,649	1,561,113
Average (1996–2020)	28,829	1,329,662	235,449	31,891	12,978	1,638,809

Appendix A5.–Drift gillnet harvest by species and period in the Copper River District commercial fishery in 2021.

Period	Date	AA Dates[a]	Hours	Permits Fished	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1[b]	5/17	5/6	12	385	443	2,232	27,721	8,456	43,473	0	0	0	0	191	1,253
2[b]	5/20	5/19	12	293	352	1,303	17,332	12,566	64,034	0	0	0	0	318	1,916
3[b]	5/24	5/21	12	394	471	2,132	26,805	33,602	171,937	0	0	0	0	1,615	10,476
4[b]	6/9	6/8	12	349	432	607	7,740	39,235	202,884	7	53	72	282	2,040	12,952
5[b]	6/14	6/10	12	335	402	443	5,830	32,432	166,825	127	830	68	252	2,075	11,833
6[b]	6/17–6/18	6/16	24	289	424	491	6,489	39,830	205,790	271	1,669	253	859	1,099	6,693
7[c]	6/21	6/19	12	199	237	141	2,443	21,071	108,077	62	340	231	766	521	3,113
8[c]	6/24–6/25	6/23	24	82	111	74	1,461	14,405	77,844	8	38	25	109	11	62
9[c]	6/28–6/29	6/26	24	90	135	74	1,578	27,039	147,099	4	32	41	155	21	129
10[c]	7/1–7/2	6/30	36	133	214	76	1,341	32,653	173,837	22	86	87	307	30	198
11	7/5–7/6	7/3	24	109	138	32	609	17,685	94,457	21	107	493	1,657	18	107
12	7/8–7/9	7/7	36	75	119	95	937	22,285	121,698	36	229	382	1,549	11	73
13	7/12–7/13	7/10	24	47	55	10	143	5,482	29,544	3	23	36	49	3	20
14	7/15–7/16	7/14	36	100	180	24	349	29,688	159,964	36	247	1,402	4,864	52	326
15	7/19–7/20	7/17	24	113	126	16	192	13,180	69,185	106	582	4,269	13,191	20	133
16	7/22–7/23	7/21	36	52	64	14	150	9,721	50,921	161	1,000	3,458	11,747	82	587
17	7/26–7/27	7/24	24	59	65	1	9	7,767	40,523	420	2,580	6,269	20,674	209	1,381
18	7/29–7/30	7/28	36	60	83	4	47	12,693	67,414	757	4,242	5,495	18,785	158	978
19	8/2–8/3	7/28	24	23	29	2	27	7,137	37,567	868	5,233	792	2,684	1	7
20	8/5–8/6	8/4	36	67	96	4	43	11,913	65,231	3,630	22,681	8,177	27,874	86	464
21	8/9–8/10	8/4	24	38	40	1	10	1,945	10,352	1,029	6,404	607	1,937	2	12
22	8/12–8/13	8/11	36	55	67	1	12	3,829	20,619	4,337	25,956	923	3,110	4	24
23	8/16–8/17	8/11	24	104	114	3	9	2,557	13,059	6,669	46,429	1,322	4,129	12	65
24	8/23–8/24	8/18	24	182	217	3	33	935	4,736	22,046	159,472	54	183	1	5
25	8/30–8/31	8/25	24	228	310	5	67	159	860	36,908	276,933	9	29	0	0
26	9/6–9/7	9/1	24	212	310	1	13	12	62	39,509	302,103	3	9	0	0
27	9/13–9/14	9/8	24	155	189	0	0	0	0	18,114	140,211	0	0	0	0
28	9/20–9/21	9/15	24	99	126	1	11	1	5	10,446	84,921	0	0	0	0
29	9/27–9/28	9/22	36	17	17	0	0	0	0	1,421	11,469	0	0	0	0
30–33	9/30–10/12	9/27	144	0	0	No Harvest Reported									
Total				448	5,566	7,790	101,401	408,278	2,147,997	147,018	1,093,870	34,468	115,201	8,580	52,807
Average Weights							13.02		5.26		7.44		3.34		6.15

[a] Queries made through the ADF&G Commercial Fishery Announcements site (http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main) will provide results sorted by publication date.

[b] Waters of the inside closure area described in 5 AAC 24.350(1)(A) were expanded and closed for the entire fishing period; see corresponding news release for more detail.

[c] Waters of the inside closure area described in 5 AAC 24.350(1)(A) were closed for the entire fishing period; see corresponding news release for more detail.

Appendix A6.–Daily salmon counts at Miles Lake sonar, 2021.

		Daily sonar counts					Minimum Inriver Passage Objective		Maximum Inriver Passage Objective	
Date	North Bank	South Bank	Daily	Cumulative	600 Count	Projected Daily	Daily	Cumulative	Daily	Cumulative
05/16[a]	36	na	36	36	na	na	464	536	4,896	7,597
05/17[b]	77	na	77	113	na	na	689	1,225	7,022	14,619
05/18	114	na	114	227	na	na	1,642	2,867	8,111	22,730
05/19	138	na	138	365	24	96	2,977	5,844	12,103	34,832
05/20	334	na	334	699	42	168	4,270	10,113	13,993	48,826
05/21	818	na	818	1,517	126	504	4,932	15,045	14,799	63,625
05/22	800	na	800	2,317	187	748	7,359	22,404	17,121	80,745
05/23	969	na	969	3,286	199	796	8,508	30,913	20,268	101,014
05/24	1,502	na	1,502	4,788	168	672	8,998	39,911	20,401	121,415
05/25	1,504	na	1,504	6,292	259	1,036	10,410	50,321	21,442	142,857
05/26	4,344	3,790	8,134	14,426	337	1,348	12,324	62,645	23,222	166,080
05/27	4,182	3,896	8,078	22,504	1,781	7,124	12,405	75,050	25,926	192,006
05/28	2,094	6,193	8,287	30,791	1,763	7,052	13,038	88,088	23,943	215,949
05/29	2,251	5,622	7,873	38,664	1,535	6,140	14,120	102,208	25,519	241,468
05/30	2,487	5,881	8,368	47,032	1,199	4,796	15,764	117,972	24,459	265,928
05/31	2,955	4,191	7,146	54,178	1,077	4,308	14,559	132,530	24,955	290,883
06/01	3,923	5,484	9,407	63,585	2,149	8,596	15,517	148,047	21,739	312,622
06/02	4,259	9,248	13,507	77,092	3,015	12,060	14,872	162,919	23,946	336,568
06/03	6,775	9,073	15,848	92,940	2,244	8,976	15,174	178,093	22,544	359,112
06/04	7,417	13,602	21,019	113,959	4,567	18,268	13,218	191,311	22,153	381,265
06/05	7,189	13,499	20,688	134,647	5,380	21,520	14,560	205,871	20,692	401,957
06/06	7,761	13,439	21,200	155,847	4,243	16,972	13,708	219,579	19,254	421,210
06/07	11,319	20,102	31,421	187,268	6,270	25,080	13,470	233,049	16,954	438,164
06/08	9,504	24,217	33,721	220,989	9,767	39,068	12,581	245,630	14,085	452,249
06/09	7,907	16,553	24,460	245,449	4,970	19,880	11,707	257,338	14,601	466,849
06/10	5,823	12,633	18,456	263,905	4,723	18,892	10,309	267,646	14,502	481,352
06/11	4,970	10,174	15,144	279,049	3,382	13,528	8,564	276,210	13,578	494,930
06/12	3,603	7,072	10,675	289,724	2,431	9,724	8,878	285,088	14,482	509,412
06/13	3,624	10,059	13,683	303,407	2,251	9,004	8,818	293,906	14,676	524,088
06/14	7,717	10,532	18,249	321,656	3,724	14,896	8,256	302,162	13,856	537,945

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	Daily sonar counts						Minimum Inriver Passage Objective		Maximum Inriver Passage Objective	
Date	North Bank	South Bank	Daily	Cumulative	600 Count	Projected Daily	Daily	Cumulative	Daily	Cumulative
06/15	5,042	13,163	18,205	339,861	4,652	18,608	8,806	310,968	12,870	550,815
06/16	4,338	11,539	15,877	355,738	3,263	13,052	8,924	319,891	13,776	564,591
06/17	4,813	6,083	10,896	366,634	2,588	10,352	8,425	328,317	13,163	577,754
06/18	4,114	7,708	11,822	378,456	1,787	7,148	7,825	336,142	12,717	590,471
06/19	3,849	8,405	12,254	390,710	2,280	9,120	8,376	344,518	12,227	602,698
06/20	3,140	6,406	9,546	400,256	2,901	11,604	8,004	352,522	11,623	614,320
06/21	1,816	4,985	6,801	407,057	1,751	7,004	7,732	360,255	11,412	625,732
06/22	1,630	6,524	8,154	415,211	1,510	6,040	7,434	367,689	10,266	635,999
06/23	2,821	7,006	9,827	425,038	2,017	8,068	7,067	374,756	11,005	647,003
06/24	3,066	5,815	8,881	433,919	1,972	7,888	6,939	381,695	11,547	658,550
06/25	2,358	6,308	8,666	442,585	1,884	7,536	6,242	387,937	10,648	669,199
06/26	1,355	4,547	5,902	448,487	1,685	6,740	6,691	394,629	9,615	678,814
06/27	723	4,258	4,981	453,468	1,330	5,320	7,021	401,650	9,000	687,814
06/28	770	4,937	5,707	459,175	1,666	6,664	6,475	408,124	9,269	697,083
06/29	1,684	7,626	9,310	468,485	2,167	8,668	5,847	413,971	7,655	704,738
06/30	2,586	6,836	9,422	477,907	2,521	10,084	5,472	419,443	7,962	712,700
07/01	4,252	9,338	13,590	491,497	2,341	9,364	5,636	425,079	8,798	721,498
07/02	3,703	11,227	14,930	506,427	3,618	14,472	4,654	429,734	9,128	730,626
07/03	2,682	13,415	16,097	522,524	4,039	16,156	4,841	434,575	8,079	738,704
07/04	1,847	12,086	13,933	536,457	2,732	10,928	5,349	439,924	8,361	747,066
07/05	1,667	12,255	13,922	550,379	4,278	17,112	5,550	445,474	8,810	755,876
07/06	3,039	9,571	12,610	562,989	2,833	11,332	4,912	450,386	8,038	763,914
07/07	2,012	10,566	12,578	575,567	3,123	12,492	5,084	455,471	8,613	772,527
07/08	1,324	6,928	8,252	583,819	2,793	11,172	5,357	460,827	9,261	781,788
07/09	2,453	5,424	7,877	591,696	1,311	5,244	4,888	465,715	10,328	792,116
07/10	3,618	7,107	10,725	602,421	1,846	7,384	5,237	470,952	9,614	801,730
07/11	4,006	5,977	9,983	612,404	2,082	8,328	5,631	476,583	10,924	812,654
07/12	4,699	6,670	11,369	623,773	2,739	10,956	6,280	482,863	11,344	823,998
07/13	5,047	5,947	10,994	634,767	1,966	7,864	5,846	488,709	10,661	834,659
07/14	5,130	8,100	13,230	647,997	3,472	13,888	6,642	495,351	9,330	843,990

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Date	Daily sonar counts						Minimum Inriver Passage Objective		Maximum Inriver Passage Objective	
	North Bank	South Bank	Daily	Cumulative	600 Count	Projected Daily	Daily	Cumulative	Daily	Cumulative
07/15	6,947	8,745	15,692	663,689	3,180	12,720	6,898	502,249	10,640	854,630
07/16	4,849	6,326	11,175	674,864	3,028	12,112	6,482	508,731	9,345	863,974
07/17	4,782	7,265	12,047	686,911	2,630	10,520	5,673	514,404	8,302	872,276
07/18	2,797	6,322	9,119	696,030	2,049	8,196	6,470	520,874	8,702	880,978
07/19	1,912	4,744	6,656	702,686	1,523	6,092	5,682	526,556	9,309	890,287
07/20	1,912	3,969	5,881	708,567	2,070	8,280	5,048	531,604	8,413	898,700
07/21	1,738	2,592	4,330	712,897	1,409	5,636	5,291	536,895	8,715	907,415
07/22	1,359	2,027	3,386	716,283	735	2,940	5,660	542,555	8,765	916,179
07/23	2,248	2,628	4,876	721,159	1,258	5,032	5,115	547,670	8,314	924,493
07/24	2,484	3,608	6,092	727,251	1,656	6,624	5,299	552,969	7,380	931,873
07/25	1,877	3,007	4,884	732,135	1,156	4,624	5,329	558,298	6,479	938,352
07/26	2,448	3,873	6,321	738,456	1,770	7,080	5,055	563,353	5,786	944,138
07/27	3,020	2,664	5,684	744,140	1,042	4,168	4,488	567,841	5,096	949,233
07/28	4,222	2,900	7,122	751,262	1,331	5,324	3,939	571,780	4,343	953,576

Note: Anticipated counts are not available prior to 15 May because the sonar has only been deployed prior to this date during three years (2003, 2004, 2005).

[a] North bank was deployed for 12 hours.

[b] North bank was deployed for 15 hours.

Appendix A7.–Inriver salmon passage at the Miles Lake sonar, 1978–2021.

Year	Total	Rank
1978	107,011	1
1979	328,090	2
1980	374,091	3
1981	576,681	10
1982	517,885	6
1983	592,563	11
1984	618,732	14
1985	466,190	4
1986	481,628	5
1987	523,022	7
1988	528,940	8
1989	643,367	18
1990	624,922	15
1991	593,185	12
1992	604,898	13
1993	819,700	27
1994	738,011	24
1995	637,293	17
1996	907,267	33
1997	1,164,791	39
1998	865,896	31
1999	850,597	29
2000	636,837	16
2001	878,205	32
2002	830,263	28
2003	747,091	25
2004	684,103	19
2005	855,125	30
2006	959,706	37
2007	919,601	35
2008	718,344	22
2009	709,748	21
2010	923,811	36
2011	914,231	34
2012	1,294,400	42
2013	1,267,060	41
2014	1,218,418	40
2015	1,346,100	43
2016	801,593	26
2017	723,426	23
2018	701,577	20
2019	1,039,354	38
2020	530,313	9
2021	751,262	26
2011–2020 Average	983,647	

Appendix A8.–Expected and actual semiweekly sockeye and Chinook salmon harvest and weekly coho salmon harvest in the Copper River District drift gillnet fishery, 2021.

Semiweekly date		Fishing time (hours)	Forecasted sockeye salmon harvest[a]	Actual sockeye salmon harvest	Forecasted Chinook salmon harvest[b]	Actual Chinook salmon harvest	Forecasted coho salmon harvest[c]	Actual coho salmon harvest
05/15	Sat	0	4,090	0	251	0	2	0
05/19	Wed	12	27,129	8,456	1,072	2,232	–	–
05/22	Sat	12	29,297	12,566	960	1,303	13	0
05/26	Wed	12	56,079	33,602	1,179	2,132	–	–
05/29	Sat	0	46,568	0	1,311	0	24	0
06/02	Wed	0	48,593	0	1,066	0	–	–
06/05	Sat	0	33,196	0	589	0	44	0
06/09	Wed	12	39,831	39,235	818	607	–	–
06/12	Sat	0	29,980	0	477	0	128	7
06/16	Wed	12	39,764	32,432	513	443	–	–
06/19	Sat	24	25,741	39,830	238	491	820	398
06/23	Wed	12	37,536	21,071	192	141	–	–
06/26	Sat	24	26,757	14,405	103	74	750	70
06/30	Wed	24	40,266	27,039	93	74	–	–
07/03	Sat	36	23,833	32,653	42	76	421	26
07/07	Wed	24	39,171	17,685	34	32	–	–
07/10	Sat	36	18,434	22,285	15	95	671	57
07/14	Wed	24	24,974	5,482	14	10	–	–
07/17	Sat	36	15,430	29,688	8	24	844	39
07/21	Wed	24	16,437	13,180	8	16	–	–
07/24	Sat	36	8,212	9,721	3	14	968	267
07/28	Wed	24	5,960	7,767	2	1	–	–
07/31	Sat	36	4,600	12,693	2	4	1,560	1,177
08/04	Wed	24	3,628	7,137	2	2	–	–
08/07	Sat	36	1,956	11,913	1	4	5,908	4,498
08/11	Wed	24	2,061	1,945	1	1	–	–

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Semiweekly date		Fishing time (hours)	Forecasted sockeye salmon harvest[a]	Actual sockeye salmon harvest	Forecasted Chinook salmon harvest[b]	Actual Chinook salmon harvest	Forecasted coho salmon harvest[c]	Actual coho salmon harvest
08/15	Sat	36	1,103	3,829	1	1	16,989	5,366
08/19	Wed	24	590	2,557	1	3	–	–
08/22	Sat	0	214	0	1	0	40,782	6,669
08/26	Wed	24	174	935	1	3	–	–
08/29	Sat	0	198	0	1	0	54,368	22,046
09/02	Wed	24	57	159	2	5	–	–
09/05	Sat	0	51	0	0	0	51,487	36,908
09/09	Wed	24	42	12	0	1	–	–
09/12	Sat	0	25	0	0	0	33,506	39,509
09/16	Wed	24	6	0	0	0	–	–
09/19	Sat	0	17	0	0	0	8,158	18,114
09/23	Wed	24	3	1	0	1	–	–
09/26	Sat	0	0	0	0	0	1,426	10,446
09/30	Wed	36	0	0	0	0	–	–
10/03	Sat	36	0	0	0	0	230	1,421
10/07	Wed	36	0	0	0	0	–	–
10/10	Sat	36	0	0	0	0	11	0
10/13	Wed	36	0	0	0	0	–	–
Total		864	652,000	408,278	9,000	7,790	219,109	147,018

[a] Sockeye salmon forecasted harvest was based on the midpoint preseason forecast (652,000) and the 1998–2007 harvest timing.

[b] Chinook salmon forecasted harvest was based on the preseason harvest forecast (9,000) and the 1998–2007 harvest timing. This harvest forecast is the total run forecast minus the lower bound sustainable escapement goal (SEG) multiplied by the mean commercial exploitation rate. Therefore, the Chinook salmon harvest should be considered a maximum harvest because the escapement goal is a lower-bound SEG.

[c] Coho salmon projected harvest was based on the midpoint preseason harvest forecast (219,109) and the 1973–2009 harvest timing.

Appendix A9.–Aerial escapement indices by statistical week and location for sockeye salmon returning to the Copper River Delta, 2021.

System[a]	Weekly escapement indices (statistical week ending date listed)[b]										Site[c]	System[d]	Anticipated (by drainage)
	06/19	07/03	07/17	07/31	08/07	09/04	09/11	09/25	10/02	10/09			
Eyak River													
Eyak River	50	200	2,200	2,600	200	0	0	NS	0	NS	200	10,900	9,972–23,571
West Shore Beaches	0	200	400	900	1,700	200	0	0	0	NS	1,700		
East Shore Beaches	3,000	2,000	3,200	5,150	6,400	2,300	2,700	500	450	NS	6,400		
Middle Arm Beaches[e]	200	150	400	500	2,300	6,500	4,000	2,000	600	NS	2,300		
North Shore Beaches	0	0	60	50	300	50	0	0	0	NS	300		
Hatchery Creek Delta	0	0	75	300	100	50	800	200	0	NS	100	250	
Hatchery Creek	0	0	0	30	150	100	100	0	0	NS	150		
Power Creek Delta	0	150	0	300	50	500	300	0	0	NS	50	400	
Power Creek	0	0	50	150	350	100	650	300	150	NS	350		
Ibeck Creek													
Ibeck Creek	NS	NS	NS	NS	NS	0	0	NS	0	NS	0	0	
Alaganik Slough													
Alaganik Slough	0	200	200	100	20	0	0	NS	0	NS	20	2,895	8,359–19,758
McKinley Lake	0	0	1,800	250	300	550	600	NS	350	NS	300		
Salmon Creek West Fork	0	0	0	520	50	0	0	NS	0	NS	50		
Salmon Creek East Fork	0	0	0	1,110	2,525	700	300	NS	0	NS	2,525		
26/27 Mile Creek													
26/27 Mile Creek	0	2,500	2,700	1,250	2,200	150	400	NS	0	NS	2,700	2,700	2,182–5,157
39 Mile Creek													
39 Mile Creek	NS	0	5,100	NS	6,100	6,100	3,500	NS	NS	500	6,100	6,100	5,772–13,642
Goat Mountain													
Goat Mountain Creek	650	1,000	1,300	NS	150	0	0	NS	NS	0	1,300	1,300	549–1,298
Pleasant Creek													
Pleasant Creek	4,000	4,900	8,620	NS	1,700	0	0	NS	NS	0	8,620	8,620	1,075–2,542
Martin River													
Martin River – Lower	150	NS	425	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Ragged Point River	70	400	3,050	NS	1,600	50	0	NS	NS	0	1,600	5,000	
Ragged Point Lake Outlet	0	0	0	NS	300	500	800	NS	NS	0	300		
Ragged Point Lake	0	0	0	NS	3,100	4,500	3,000	NS	NS	4,000	3,100		
Martin River–Upper[e]	450	100	550	NS	320	0	0	0	NS	0	320	320	
Martin Lake Outlet	200	0	0	NS	200	50	0	0	NS	0	200	7,400	17,598–41,596
Martin Lake	2,000	3,200	1,000	NS	3,300	1,200	700	0	NS	50	3,300		

-continued-

System[a]	Weekly escapement indices (statistical week ending date listed)[b] 06/19	07/03	07/17	07/31	08/07	09/04	09/11	09/25	10/02	10/09	Site[c]	System[d]	Anticipated (by drainage)
Martin Lake feeders	0	2,800	8,300	NS	3,900	250	50	0	NS	25	3,900		
Pothole River	NS	NS	NS	NS	900	200	0	0	NS	0	900	1,700	
Pothole Lake	NS	NS	NS	NS	800	3,000	500	800	NS	400	800		
Little Martin River	0	50	290	NS	50	0	0	NS	NS	0	290	1,590	
Little Martin Lake	0	0	1,300	NS	1,000	1,200	0	NS	NS	0	1,300		
Tokun													
Tokun Springs	0	1,100	500	NS	300	100	0	NS	NS	0	500	32,800	5,352–12,649
Tokun River	100	300	900	NS	900	500	200	NS	NS	20	900		
Tokun Lake Outlet	6,500	1,000	9,900	NS	200	0	0	NS	NS	0	9,900		
Tokun Lake	300	2,500	21,500	NS	2,000	8,000	3,500	NS	NS	6,000	21,500		
Martin River Slough													
Martin River Slough	50	5,100	2,200	NS	750	600	0	0	NS	0	5,100	5,100	4,141–9,787
Total	17,720	27,850	76,020	13,210	44,215	37,450	22,100	3,800	1,550	10,995	87,075	87,075	
Lower target	14,273	28,229	31,424	32,568	24,976	17,446	12,467	6,776	4,373	2,611			55,000
Avg anticipated escapement	21,902	43,318	48,222	49,977	38,326	26,772	19,131	10,398	6,711	4,006			84,400
Upper target	33,736	66,722	74,276	76,979	59,034	41,236	29,467	16,016	10,337	6,170			130,000

Note: NS signifies that no survey was flown.

[a] The system represents the majority of known sockeye salmon spawning locations within the Copper River Delta.

[b] The surveys provide information about the relative strength of escapement among years and within a year, time to spawning sites and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement but have served that purpose in the absence of any other escapement estimating method.

[c] Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the count that minimizes possible duplicate of counts across dates is selected.

[d] The sum of the indices by site within a system.

[e] Site typically has a protracted run timing or 2 temporally segregated spawning populations at 1 location. Aerial counts from more than one day may be used in the escapement index if the surveyor indicates these counts represented different fish.

Appendix A10.–Copper River and Bering River area sockeye salmon escapement indices, 2011–2021.

Stream/Lake[a]	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2011–2020)
Eyak Lake	22,775	23,350	19,205	20,400	14,400	12,700	10,800	7,550	16,455	12,300	10,900	15,994
Hatchery Creek	100	1,000	300	300	1,400	500	1,800	500	700	700	250	730
Power Creek	2,600	3,300	1,000	750	1,450	3,200	800	1,000	1,000	2,200	400	1,730
Ibeck Creek	475	870	200	400	800	50	0	0	10	0	0	281
McKinley Lake	3,950	7,750	5,700	5,575	1,800	700	2,200	3,020	500	3,400	320	3,460
Salmon Creek	1,910	75	2,200	75	5,500	3,800	5,100	250	1,750	2,250	2,575	2,291
26/27 Mile Creek	870	350	950	750	920	900	700	1,300	2,820	1,500	2,700	1,106
39 Mile Creek	1,500	3,000	2,000	1,075	2,400	2,500	2,200	3,600	6,500	4,600	6,100	2,938
Goat Mountain	50	1,925	300	900	950	200	300	475	400	900	1,300	640
Pleasant Creek	7,600	2,300	5,900	4,700	8,300	2,020	8,050	3,800	7,600	950	8,620	5,122
Martin River	2,300	0	150	500	0	1,000	300	3,500	1,800	2,200	320	1,175
Ragged Pt. River/Lake	2,700	2,500	3,500	1,700	3,000	3,200	2,100	2,800	3,300	2,150	5,000	2,695
Martin Lake	10,200	3,850	22,000	16,085	100	10,100	6,050	10,400	14,700	12,300	7,400	10,579
Pothole Lake	0	6,900	900	250	15,420	0	900	25	20	150	1,700	2,457
Little Martin Lake	3,700	3,510	5,800	2,050	6,000	1,530	1,900	2,850	50	1,500	1,590	2,889
Tokun Lake/River	9,637	5,500	4,000	5,825	2,650	5,550	8,800	15,100	2,600	7,220	32,800	6,688
Martin River Slough	2,000	670	1,600	2,870	1,575	3,600	4,500	2,300	1,620	1,300	5,100	2,204
Copper River Delta total	72,367	66,850	75,705	64,205	66,665	51,550	56,500	58,470	61,825	55,620	87,075	62,976
Upper Copper River[b]	607,142	953,502	860,258	864,131	930,145	513,126	461,268	478,760	718,876	362,445	506,284	674,965
Copper River District total	679,509	1,020,352	935,963	928,336	996,810	564,676	517,768	537,230	780,701	418,065	593,359	737,941
Bering River/Lake	15,060	15,950	19,100	13,600	20,400	15,300	15,750	11,400	15,850	14,000	10,000	15,641
Shepherd Creek	4,800	1,400	750	750	625	700	2,075	100	500	170	550	1,187
Stillwater Creek	175	170	1,200	100	500	100	900	650	300	125	800	422
Kushtaka Lake	530	370	850	35	180	190	90	700	40	1,300	224	429
Katalla River	7,965	400	2,000	400	1,000	100	300	450	940	200	2,200	1,376
Bering River Area total	28,530	18,290	23,900	14,885	22,705	16,390	19,115	13,300	17,630	15,795	13,774	19,054
Copper River/Bering River Area total	722,442	1,055,762	989,544	963,714	1,018,465	581,486	539,529	550,471	798,981	419,787	607,133	764,018

[a] This table is based on peak aerial survey indices and sonar counts for the majority of known sockeye salmon spawning areas in the Copper and Bering River deltas. These indices are not intended to provide a true estimate of total escapement but rather a comparable index, based upon the best data available, across years.

[b] Upriver escapement index from Miles Lake sonar counts minus Chinook salmon inriver abundance estimate, upriver harvests, and hatchery escapement and broodstock.

Appendix A11.–Aerial survey indices of sockeye salmon escapement to the upper Copper River drainage, 2006–2021.

Location	Yearly survey indices[a]																Projected indices[b]
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Mentasta Lake	7,790	8,507	3,379	3,320	2,870	27,000	9,000	6,000	10,100	4,230	2,700	10,000	320	1,900	3,500	6,600	3,277
Fish Creek–Mentasta	3,700	323	1,440	680	400	91	300	900	350	800	175	600	125	300	55	400	963
Bad Crossing 1 & 2	620	1,683	520	1,691	1,390	742	261	4,100	470	4,650	5	2,625	12	3,450	59	5,350	2,604
Suslota Lake	1,300	30	86	320	6	350	55	500	2,500	5,500	2,300	200	0	50	35	3	1,416
Tanada Lake	30	563	986	1,290	NS	800	1,715	2,600	1,000	1,100	1,300	1,150	51	60	100	570	3,849
Dickey Lake	185	71	37	20	3	59	26	30	251	300	80	5	30	200	6	10	115
Keg Creek	190	0	1	423	0	0	15	15	10	5	0	20	25	45	30	0	725
Swede Lake	2,570	731	343	109	320	137	400	60	175	160	85	30	12	200	55	16	531
Mahlo Creek	5,000	14,512	10,261	11,735	4,570	292	10,100	3,800	7,600	6,700	650	1,300	1,300	1,700	1,900	890	2,648
Mendeltna Creek	700	473	727	1,945	1,550	760	1,085	850	300	1,050	335	166	200	20	99	300	2,470
St. Anne Creek	6,560	11,970	14,000	8,123	2,420	1,751	5,800	3,200	1,650	2,600	515	770	450	985	80	20	4,888
Tonsina Lake	20	20	3	0	NS	0	15	0	0	0	0	10	0	10	0	10	1,080
Long Lake	1,400	505	382	14	10	290	375	5	10	20	0	1	0	0	0	0	1,577
Tana River	1,392	312	434	19	100	40	410	65	145	83	97	50	0	30	5	4	1,345
Salmon Creek (Bremner)	790	750	3,500	530	340	276	1,000	1,500	610	400	400	300	300	400	85	160	825
Fish Lake	7,250	1,066	158	0	89	1,008	35	20	4	6	60	0	0	0	0	64	6,418
Mud Creek–Summit Lake	1,800	2,705	11,410	0	2,759	211	870	600	320	225	100	90	150	20	77	95	7,445
Paxson Inlet–Mud Creek	2,470	9,317	4,665	2,720	2,301	1,520	7,900	9,900	3,100	850	500	3,500	300	700	392	950	6,560
Mud Creek and Lake	310	2	10	0	20	2	10	11	100	30	6	0	20	5	10	0	172
Paxson Lake Outlet	270	324	596	0	560	1,700	350	2,000	350	125	100	50	400	20	18	100	2,661
Totals	44,347	53,864	52,938	32,939	19,708	37,029	39,722	36,156	29,045	28,834	9,408	20,867	3,695	10,095	6,506	15,542	51,569

Note: NS = no survey

[a] Escapement numbers are based on peak aerial survey indices and weir counts from the majority of known spawning areas in the upper Copper River drainage. The indices are not intended to provide true estimates of escapement for these stocks but rather a comparable index, based on the best data available, across years. Missing counts are generally a result of bad weather, high water, or other factors that prevented surveys for a given year.

[b] Calculated using the 1983–1992 average.

Appendix A12.–Total estimated coho salmon run to the Copper River by end user or destination and the previous 10–year average, 2011–2021.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2011–2020)
Commercial harvest[a]	127,511	130,261	244,985	315,776	136,981	367,630	306,287	303,957	78,292	168,524	145,625	218,020
Commercial, homepack[a]	543	1,037	249	1,146	1,423	1,353	1,945	2,581	855	1,590	1,389	1,272
Commercial, donated[a]	0	0	0	0	0	0	0	0	0	0	4	0
Educational drift gillnet permit[a]	0	0	0	0	0	0	0	0	0	0	0	0
Subsistence (Cordova, drift gillnet)[b]	34	0	1	0	10	2	43	195	330	326	233	94
Federal subsistence (PWS/Chugach Nat'l Forest, dip net, spear, rod and reel)[b]	542	428	329	610	893	555	514	265	671	373	0	529
Subsistence (Batzulnetas, fish wheel, dip net or spear)[b]	0	NA	NA	0	0	0	0	0	0	0	0	0
Subsistence (Glennallen Subdistrict, dip net or fish wheel)[c]	372	335	144	233	77	45	68	151	204	67	166	170
Federal subsistence (Glennallen Subdistrict, dip net or fish wheel)[d]	NA	78	24	23	14	11	1	0	0	1	0	17
Personal use (Chitina Subdistrict, dip net)[c]	1,702	1,385	797	1,129	841	1,182	715	1,436	1,064	815	439	1,107
Federal subsistence (Chitina Subdistrict, dip net)[d]	8	8	8	68	15	41	9	31	22	23	3	23
Delta sport harvest[e]	14,283	15,230	17,053	16,137	24,515	13,094	9,559	12,998	13,791	9,498	12,096	14,616
Upriver sport harvest[e]	21	0	0	89	0	0	23	387	0	0	129	52
Upriver spawning escapement[f]	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown	unknown
Delta spawning escapement[g]	76,290	74,020	69,360	86,020	83,330	152,400	87,520	107,600	74,040	72,850	90,970	88,343
Total estimated coho salmon run size	221,306	222,782	332,950	421,231	248,099	536,313	406,684	429,601	169,269	254,067	251,503	324,241

[a] Numbers are from fish ticket data.

[b] Data are reported harvest from returned state and federal subsistence permits.

[c] Data are expanded harvest from returned state and federal subsistence permits.

[d] Data are expanded harvest (2011–2021) from returned state and federal subsistence permits.

[e] Upper Copper River and Copper River Delta sport harvest data are from statewide sport fish harvest surveys.

[f] Numbers of upriver coho salmon spawners are not assessed.

[g] The Copper River Delta spawning escapement index is calculated by doubling the final peak aerial survey index.

Appendix A13.–Aerial escapement indices by statistical week and location for the coho salmon run to Copper River Delta, 2021.

Drainage	System[b]	Weekly escapement indices (statistical week ending date)[a] 9/4	9/11	9/25	10/2	10/9	Site[c]	System[d]	Projected (by drainage)
Eyak River	Eyak River	0	25	NS	500	NS	NS	5,650	6,916
	East Shore Beaches	300	600	100	100	NS	100	—	—
	West Shore Beaches	0	500	350	200	NS	350	—	—
	Middle Arm Beaches	300	300	500	700	NS	500	—	—
	North Shore Beaches	0	0	100	50	NS	100	—	—
	Hatchery Creek Delta	0	0	100	200	NS	100	—	—
	Hatchery Creek	0	0	1,000	1,400	NS	1,000	—	—
	Power Creek Delta	0	0	500	200	NS	500	—	—
	Power Creek	0	200	3,000	2,200	NS	3,000	—	—
Ibeck Creek	Ibeck Creek	700	2,200	NS	7,500	NS	7,500	7,500	6,227
Scott River	Scott Lake	0	0	NS	NS	NS	0	0	1,429
	Scott River	0	0	NS	NS	NS	0	—	—
	Elsner Lake [e]	0	10	NS	100	NS	100	—	—
Alaganik Slough	Alaganik Slough	100	0	NS	400	NS	400	1,585	2,591
	18/20 Mile Creek	175	50	NS	800	NS	800	—	—
	McKinley Lake	0	0	NS	0	NS	0	—	—
	Salmon Creek West Fork	0	20	NS	0	NS	20	—	—
	Salmon Creek East Fork	0	365	NS	150	NS	365	—	—
26/27 Mile Creek	26/27 Mile Creek	25	0	NS	800	NS	800	800	829
39 Mile Creek	39 Mile Creek	550	600	NS	NS	4,500	4,500	4,500	3,831
Goat Mountain Cr.	Goat Mountain Creek	20	150	NS	NS	1,500	1,500	1,500	1,181
Pleasant Creek	Pleasant Creek	475	3,800	NS	NS	920	3,800	3,800	—
Martin River	Martin River – Lower	NS	NS	NS	NS	NS	0	14,850	6,522
	Ragged Point River	100	150	NS	NS	350	350	—	849
	Ragged Point Lake Outlet	0	50	NS	NS	0	50	—	—
	Ragged Point Lake	0	0	NS	NS	0	0	—	—
	Martin River – Upper	1,800	4,400	3,000	NS	1,400	3,000	—	—

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Drainage	System[b]	Weekly escapement indices (statistical week ending date)[a] 9/4	9/11	9/25	10/2	10/9	Site[c]	System[d]	Projected (by drainage)
Martin River (cont.)	Martin Lake Outlet	200	1,500	1,000	NS	100	1,000	—	1,936
	Martin Lake	50	550	500	NS	1,725	500	—	
	Martin Lake Feeders	0	0	1,200	NS	1,150	1,200	—	
	Pothole River	450	350	3,500	NS	2,200	3,500	—	1,370
	Pothole Lake	0	0	200	NS	0	200	—	
	Little Martin River	2,000	3,700	NS	NS	5,000	5,000	—	5,413
	Little Martin Lake	0	50	NS	NS	0	50	—	
Tokun	Tokun Springs	400	200	NS	NS	200	400	1,000	1,376
	Tokun River	20	250	NS	NS	600	600	—	—
	Tokun Lake Outlet	0	0	NS	NS	0	0	—	—
	Tokun Lake	0	0	NS	NS	0	0	—	—
Martin River Slough	Martin River Slough	1,700	2,500	4,300	NS	2,350	4,300	4,300	9,531
Copper River aerial survey daily total		9,365	22,520	19,350	15,300	21,995	45,485	45,485	
Lower SEG		21,447	18,286	15,542	17,896	8,474	—	—	32,000
Average SEG (average anticipated escapement)		9,134	33,510	28,571	24,284	27,962	13,241	—	50,000
Upper SEG		44,904	38,285	32,540	37,470	17,743	—	—	67,000

Note: NS signifies that no survey was flown. System was flown during the next statistical week on Bering River District survey.

[a] The surveys provide information about the relative strength of escapement among years and within a year, time to spawning sites, and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement but have served that purpose in the absence of any other escapement estimation method.

[b] The system represents the majority of known coho salmon spawning locations in the Copper River Delta.

[c] Where the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for further sites upstream, the count that minimizes possible duplication of counts across dates is selected.

[d] The sum of the index counts by site within the index systems.

[e] This stream is not included in the estimated deltawide escapement; it is a non-index stream.

Appendix A14.–Copper River Delta and Bering River coho salmon escapement indices, 2011–2021.

Stream/Lake[a,b]	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2011–2020)
Eyak Lake	640	3,950	3,880	4,450	5,075	3,200	900	6,850	1,020	3,000	1,050	3,297
Hatchery Creek	2,000	100	40	1,300	950	500	550	1,600	3,500	300	1,100	1,084
Power Creek	2,520	150	50	760	225	4,500	1,050	1,750	6,600	1,000	3,500	1,861
Ibeck Creek	14,200	7,600	9,150	12,500	8,100	31,500	8,100	6,500	3,500	8,800	7,500	10,995
Scott & Elsner River[c]	380	575	50	360	100	200	200	400	600	820	100	369
18/20 Mile	310	450	120	400	600	250	700	600	1,150	220	800	480
McKinley Lake	75	100	400	450	300	650	200	150	600	1,350	400	428
Salmon Creek	1,620	1,300	850	1,950	1,900	2,500	2,350	1,450	3,400	1,700	385	1,902
26/27 Mile	1,150	475	1,800	1,600	290	4,000	2,700	200	2,500	1,200	800	1,592
39 Mile	2,800	2,400	2,300	2,600	1,700	7,500	1,700	3,100	850	500	4,500	2,545
Goat Mountain	210	400	900	1,200	350	250	700	550	300	75	1,500	494
Pleasant Creek	245	440	1,500	1,110	400	1,850	1,650	6,050	1,700	2,300	3,800	1,725
Martin River	2,100	1,420	350	3,820	4,475	6,000	1,200	8,050	350	5,575	3,000	3,334
Ragged Point River/Lake	1,100	4,000	2,500	1,050	3,600	1,050	1,160	1,450	510	850	400	1,727
Martin Lake	450	2,350	2,750	2,150	3,250	1,100	1,750	1,400	600	2,600	2,700	1,840
Pothole Lake	1,400	2,300	120	550	750	800	2,500	750	2,220	1,500	3,700	1,289
Little Martin Lake	4,500	4,700	3,800	2,900	4,750	2,300	9,300	5,100	1,900	860	5,050	4,011
Tokun River/Lake	1,350	3,200	620	1,175	1,050	900	1,400	2,350	320	370	1,000	1,274
Martin River Slough	1,475	1,400	3,500	4,075	4,300	7,350	5,850	5,900	5,400	4,225	4,300	4,348
Copper River Delta total	38,525	37,310	34,680	44,400	42,165	76,400	43,960	54,200	37,020	36,425	45,485	44,509
Katalla River	1,430	950	800	1,550	1,000	750	3,300	4,700	800	5,700	1,700	2,098
Bering River/Lake	5,520	5,700	7,750	10,675	4,300	2,300	3,150	11,750	1,740	8,500	10,300	6,139
Dick Creek	2,050	2,000	2,800	1,300	1,750	0	700	500	500	1,000	1,400	1,260
Shepherd Creek	20	150	0	0	0	8,000	NS	0	600	NS	0	1,096
Nichawak River	6,800	3,750	3,800	6,500	5,100	8,500	10,500	2,700	1,000	3,500	2,300	5,215
Gandil River	820	500	1,100	1,500	700	300	1,000	250	550	600	300	732
Controller Bay	2,250	2,555	2,570	4,950	2,700	6,300	12,000	6,625	4,825	6,525	3,450	5,130
Bering River Area total	18,890	15,605	18,820	26,475	15,550	26,150	30,650	26,525	10,015	25,825	19,450	21,451
Copper River/Bering total	57,415	52,915	53,500	70,875	57,715	102,550	74,610	80,725	47,035	62,250	64,935	65,959

[a] This table is based on peak aerial survey index counts from the majority of known coho salmon spawning areas in the Copper and Bering River deltas. These indices are not intended to provide a true estimate of total escapement but a comparable index, based upon the best data available, across years.

[b] The stream/lake in this table represents combined survey sites corresponding to the system designations for the current year survey results.

[c] Not an index stream

Appendix A15.–Total commercial harvest by species in the Bering River District, 1979–2021.

Year		Chinook	Sockeye	Coho	Pink	Chum	Total
1979		385	139,015	114,046	6,895	23,094	283,435
1980		0	0	108,872	0	0	108,872
1981	[a]	200	55,585	82,626	9,882	8,307	156,600
1982		254	129,667	144,752	47	333	275,053
1983		610	179,273	117,669	851	4,615	303,018
1984		330	91,784	214,632	309	20,408	327,463
1985	[b]	215	26,561	419,276	214	9,642	455,908
1986	[b]	128	19,038	115,809	15	243	135,233
1987	[c]	34	16,926	15,864	54	7	32,885
1988	[c]	19	7,152	86,539	23	181	93,914
1989	[c]	30	9,225	26,952	7	2	36,216
1990	[c]	14	8,332	42,952	2	1	51,301
1991	[c]	28	19,181	110,951	4	195	130,359
1992	[c]	21	19,721	125,616	4	1	145,363
1993	[c]	130	33,951	115,833	82	22	150,018
1994	[c]	133	27,926	259,003	34	63	287,159
1995	[c]	55	21,585	282,045	26	229	303,940
1996	[c]	142	37,712	93,763	0	30	131,647
1997	[c]	26	9,651	97	2	0	9,776
1998	[c]	77	8,439	12,284	5	2	20,807
1999	[c]	44	13,717	9,954	204	96	24,015
2000	[c]	8	1,279	56,329	0	0	57,616
2001	[c]	78	5,450	2,715	0	0	8,243
2002	[c]	15	235	108,522	0	0	108,772
2003	[c]	157	18,318	59,481	33	0	77,989
2004	[c]	87	13,166	95,605	2	21	108,881
2005	[c]	279	77,464	43,030	9,327	14	130,114
2006	[c]	247	36,873	56,713	54	39	93,926
2007	[c]	90	16,470	9,305	6	1	25,872
2008	[c]	51	1,181	40,380	8	1	41,621
2009	[c]	15	4,157	45,542	1	5	49,720
2010	[c]	0	51	80,642	2	0	80,695
2011	[c]	1	6	19,966	8	0	19,981
2012	[c]	2	0	46,324	1	0	46,327
2013	[c]	20	3,321	46,959	2	16	50,318
2014	[c]	0	50	97,679	4	0	97,733
2015	[c]	13	2,137	12,116	10	1	14,277
2016	[c]	52	9,809	80,094	22	122	90,099
2017	[c]	36	2,578	119,295	105	15	122,029
2018	[c]	5	34	121,341	11	121	121,512
2019	[c]	94	21,099	7,418	262	202	29,075
2020	[c]	9	9	65,113	10	0	65,141
2021	[c]	20	243	42,135	0	443	42,841
Average, 2011–2020		23	3,904	61,631	44	48	65,649
Average, 1996–2020		62	11,328	53,227	403	27	65,047

[a] In 1980, fishing was prohibited before August 11.

[b] A new Kayak Island Subdistrict management plan allowed an earlier opening date (June 10) and set a closure of the subdistrict on July 10 or when a total of 93,000 sockeye salmon were harvested.

[c] The Alaska Board of Fisheries closed the Kayak Island Subdistrict due to interceptions of nonlocal stocks.

Appendix A16.–Drift gillnet harvest by species and period in the Bering River District commercial fishery in 2021.

Period	Date	AA Date[a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/17	5/6	12	0	0					No Harvest Reported					
2	5/20	5/19	12	0	0					No Harvest Reported					
3	5/24	5/21	12	3	4	20	296	238	1,463	0	0	0	0	443	3,342
4	8/16–8/17	8/11	24	0	0					No Harvest Reported					
5	8/23–8/24	8/18	24	7	8	0	0	0	0	626	4,881	0	0	0	0
6	8/30–8/31	8/25	24	35	63	0	0	4	19	11,115	89,245	0	0	0	0
7	9/6–9/7	9/1	24	72	119	0	0	1	5	18,449	144,495	0	0	0	0
8	9/13–9/14	9/8	24	25	44	0	0	0	0	8,764	61,083	0	0	0	0
9	9/20–9/21	9/15	24	21	29	0	0	0	0	3,181	26,296	0	0	0	0
10	9/27–9/28	9/22	36	0	0					No Harvest Reported					
11	9/30–10/1	9/27	36	0	0					No Harvest Reported					
12	10/4–10/5	9/27	36	0	0					No Harvest Reported					
13	10/7–10/8	9/27	36	0	0					No Harvest Reported					
14	10/11–10/12	9/27	36	0	0					No Harvest Reported					
Total				84	267	20	296	243	1,487	42,135	326,000	0	0	443	3,342
Average Weights							14.80		6.12		7.74		0.00		7.54

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement available through ADF&G's Commercial Fishery Announcements page at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound. Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by Publication Date.

Appendix A17.–Aerial escapement indices by statistical week and location for sockeye salmon returning to the Bering River District, 2021.

Drainage	System[b]	Weekly escapement indices (statistical week ending date listed)[a] 6/19	7/3	7/17	8/7	9/25	10/9	Site[c]	System[d]	Anticipated (by drainage)
Bering River	Bering River	10	500	0	0	0	0	500	10,000	28,701
	Bering Lake	600	1,600	1,360	2,200	200	0	2,200		
	Dick Creek	0	2,500	6,800	7,300	0	0	7,300		
	Shepherd Cr. Lagoon	NS	NS	NS	0	NS	NS	0	550	
	Shepherd Creek	NS	NS	NS	500	NS	NS	500		
	Carbon Creek	NS	NS	NS	50	NS	NS	50		
	Clear Creek	NS	NS	NS	800	NS	NS	800	800	
	Kushtaka Lake	NS	NS	NS	24	NS	NS	24	224	
	Shockum Creek	NS	NS	NS	200	NS	NS	200		
Katalla River	Katalla River[e]	0	50	2,200	50	0	0	2,200	2,200	
Bering River District weekly index		610	4,650	10,360	11,124	200	0	13,774	13,774	
Lower objective		3,251	6,092	11,051	8,409	21	0			15,000
Average objective		5,202	9,747	17,682	13,454	34	0			24,000
Upper objective		7,153	13,402	24,313	18,499	46	0			33,000

Note: NS signifies that no survey was flown.

[a] Surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites, and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement but have served that purpose in the absence of any other escapement estimation method.

[b] Survey systems represent the majority of known sockeye salmon spawning locations in the Bering River drainage.

[c] When the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the index count which minimizes duplicate counts across dates is selected.

[d] The sum of the index counts by site within a system.

[e] This stream is not included in the indexed escapement for the Bering River drainage; it is a non-index stream

Appendix A18.–Aerial escapement indices by statistical week and location for coho salmon returning to the Bering River District, 2021.

Drainage	System[b]	Weekly escapement indices (statistical week ending date listed)[a] 9/25	10/9	Site[c]	System[d]	Projected (by drainage)
Bering River	Bering River[e]	700	300	700	10,300	7,720
	Bering Lake	9,600	4,000	9,600	0	
	Dick Creek	1,400	850	1,400	1,400	
	Shepherd Creek – Lagoon	NS	NS	0	0	
	Shepherd Creek	NS	NS	0	0	
	Carbon Creek[f]	NS	NS	0	0	
Katalla River	Katalla River	1,100	1,700	1,700	1,700	4,993
Lower Bering River	Gandil River	250	300	300	300	2,910
	Nichawak River	2,300	800	2,300	2,300	
Controller Bay	Campbell River	2,200	2,950	2,950	3,450	7,378
	Edwardes River	300	200	300	0	
	Okalee River	200	200	200	0	
	Other Clear Streams[f]	0	0	0	0	
Bering River District weekly index		18,050	11,300	19,450	19,450	
Lower objective		4,199	1,042			13,000
Average objective		7,429	1,844			23,000
Upper objective		10,659	2,645			33,000

Note: NS signifies that no survey was flown.

[a] Surveys provide information about the relative strength of escapement among years and within a year, time for spawning sites, and relative escapement strength among sites. The indices are not intended to provide an actual estimate of escapement but have served that purpose in the absence of any other escapement estimation method.

[b] Survey systems represent the majority of known coho salmon spawning locations in the Bering River drainage.

[c] When the survey site is a terminal spawning area, the peak count is used. However, if the site is a schooling area for migratory fish bound for sites further upstream, the index count which minimizes duplicate counts across dates is selected.

[d] The sum of the index counts by site within a system.

[e] Counts include coho salmon observed in the Don Miller Hill tributaries.

[f] This stream is not included in the indexed escapement deltawide; it is a non-index stream.

APPENDIX B: COGHILL DISTRICT, UNAKWIK DISTRICT AND PORT CHALMERS SUBDISTRICT

Appendix B1.–Daily and cumulative salmon escapement through the Coghill River weir, 2021.

	Sockeye salmon		Pink salmon	
Date	Daily	Cumulative	Daily	Cumulative
6/11	0	0	0	0
6/12	7	7	0	0
6/13	31	38	0	0
6/14	90	128	0	0
6/15	452	580	0	0
6/16	167	747	0	0
6/17	841	1,588	0	0
6/18	318	1,906	0	0
6/19	665	2,571	0	0
6/20	844	3,415	0	0
6/21	72	3,487	0	0
6/22	423	3,910	0	0
6/23	761	4,671	0	0
6/24	619	5,290	0	0
6/25[a]	0	5,290	0	0
6/26[a]	0	5,290	0	0
6/27[a]	99	5,389	0	0
6/28	1,251	6,640	2	2
6/29	1,612	8,252	0	2
6/30	2,080	10,332	0	2
7/1	6,162	16,494	0	2
7/2	5,404	21,898	0	2
7/3	2,971	24,869	3	5
7/4	1,886	26,755	19	24
7/5	4,737	31,492	107	131
7/6	4,257	35,749	157	288
7/7	2,093	37,842	220	508
7/8	2,097	39,939	351	859
7/9	1,978	41,917	347	1,206
7/10	3,645	45,562	1,444	2,650
7/11	3,409	48,971	1,098	3,748
7/12	3,693	52,664	1,868	5,616
7/13	3,533	56,197	1,296	6,912
7/14	4,452	60,649	1,479	8,391
7/15	1,443	62,092	3,674	12,065
7/16	4,891	66,983	8,802	20,867
7/17	9,581	76,564	19,330	40,197
7/18	6,875	83,439	21,635	61,832
7/19	4,973	88,412	33,981	95,813
7/20	4,080	92,492	36,007	131,820
7/21	1,605	94,097	44,979	176,799
7/22	1,456	95,553	49,958	226,757
7/23	1,301	96,854	41,551	268,308
7/24	556	97,410	28,042	296,350
7/25	1,843	99,253	24,865	321,215
7/26	1,830	101,083	29,647	350,862

[a] Coghill Weir counts are incomplete due to high water.

Appendix B2.–Salmon escapement by species in the Coghill District, 1972–2021.

Year	Sockeye[a]	Pink[b]	Chum[b]
1972	51,000	30,960	28,160
1973	55,000	493,780	72,610
1974	22,333	56,940	29,280
1975	34,855	452,430	3,640
1976	9,056	53,908	31,398
1977	31,562	320,680	79,957
1978	42,284	67,084	15,966
1979	48,281	125,544	7,823
1980	142,253	148,066	20,919
1981	156,112	140,436	2,389
1982	180,314	309,202	21,586
1983	38,783	284,164	55,127
1984	63,622	365,226	13,500
1985	163,311	238,728	14,514
1986	71,095	109,798	16,300
1987	187,263	67,761	22,472
1988	72,052	42,985	42,536
1989	37,751	48,802	22,434
1990	8,949	45,558	20,494
1991	9,752	84,790	7,055
1992	29,642	23,122	7,583
1993	9,232	41,666	7,404
1994	7,264	65,648	14,176
1995	30,382	46,029	11,596
1996	38,693	104,781	19,669
1997	35,517	52,961	3,101
1998	28,923	85,968	22,764
1999	59,311	168,816	5,057
2000	28,446	223,646	20,488
2001	38,558	148,665	13,388
2002	28,323	54,882	7,430
2003	75,427	375,147	19,729
2004	30,569	36,717	5,000
2005	30,313	528,264	11,979
2006	23,479	145,511	15,900
2007	70,001	197,405	14,052
2008	29,298	145,177	39,660
2009	23,186	125,907	5,208
2010	24,312	355,108	51,589
2011	102,359	257,020	16,368
2012	72,678	172,611	10,281
2013	17,231	640,414	11,369
2014	21,836	63,290	9,491
2015	13,584	801,201	15,444
2016	8,708	171,362	15,444
2017	50,312	187,159	13,666
2018[c]	30,954	70,881	13,617

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Year	Sockeye[a]	Pink[b]	Chum[b]
2019	32,247	153,129	3,437
2020	53,901	88,401	8,998
2021	101,083	300,227	2,395
Average (2011–2020)	38,920	269,143	15,428

[a] Escapement count of sockeye salmon past the Coghill River weir.

[b] Pink and chum escapements indexed for streams by aerial survey. Historical data revised in 1990.

[c] Sockeye salmon escapement total likely incomplete due to 2 weir washouts and extended periods of nonoperation.

Appendix B3.–Coghill District commercial common property drift gillnet salmon harvest by period, 2021.

Period	Date	AA date[a]	Hours	Permits fished	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/31–6/1	5/19	36	43	100	17	157	24	132	0	0	0	0	10,983	78,830
2	6/3–6/4	6/2	36	128	302	31	366	72	409	70	533	0	0	30,029	213,961
3	6/7–6/8	6/4	24	126	177	130	910	308	1,550	0	0	0	0	10,138	70,458
4	6/10–6/11	6/9	36	68	107	29	276	479	2,654	0	0	0	0	3,621	25,815
5	6/14–6/15	6/12	24	11	17	6	43	661	4,080	0	0	0	0	272	2,071
6	6/17–6/18	6/16	36	73	107	47	416	4,468	24,677	2	12	4	18	2,779	20,470
7	6/21–6/22	6/19	24	127	199	22	199	5,838	32,128	2	11	14	54	17,019	120,294
8	6/24–6/26	6/23	48	198	674	34	326	13,541	76,102	3	23	12	53	242,641	1,663,493
9	6/28–6/30	6/26	48	305	834	17	200	23,910	128,981	8	39	57	216	136,123	913,141
10	7/1–7/4	6/30	84	273	1,032	14	152	41,653	226,656	18	116	2,625	10,223	209,070	1,430,818
11	7/5–7/7	7/3	60	284	1,166	41	359	37,149	201,388	11	82	20,801	79,729	333,674	2,320,594
12	7/8–7/11	7/7	84	274	905	84	704	26,842	146,261	54	359	56,909	227,186	151,110	1,041,432
13	7/12–7/14	7/10	60	207	444	14	114	11,176	60,701	232	1,595	64,809	250,329	27,358	185,466
14	7/15–7/18	7/14	84	90	299	3	22	14,808	77,295	108	725	77,821	302,515	11,748	77,064
15	7/19–7/21	7/17	60	76	151	3	38	5,260	30,315	71	511	42,556	185,913	2,322	16,577
16	7/22	7/21	14	50	57	0	0	1,130	6,346	48	311	13,355	52,558	693	5,090
17	7/23	7/21	14	15	15	0	0	307	1,722	3	19	4,088	15,401	87	604
18	7/24	7/23	14	27	38	2	19	1,067	6,080	51	350	18,604	72,614	500	3,768
19	7/25	7/23	14	9	10	0	0	217	1266	9	64	2671	10164	51	390
20	7/26	7/25	14	4	6	0	0	102	563	6	41	1,169	6,053	52	320
21	7/27	7/25	14	9	9	0	0	73	442	4	24	1,181	4,993	47	317
22	7/28	7/27	14	21	35	0	0	985	5,563	41	290	23,631	87,901	529	3,678
23	7/30	7/29	14	7	9	0	0	250	1,499	10	72	2,696	10,778	50	396
24	7/31	7/29	14	5	7	0	0	60	357	8	53	1,696	6,783	47	373
25	8/1	7/31	12	18	32	0	0	396	2,343	49	272	17,141	69,454	202	1,540
26	8/2	7/31	12	0	0	No Harvest Reported									
27	8/3	8/2	12	38	51	0	0	761	4,136	48	338	21,187	78,136	490	3,236
28	8/4	8/2	12	7	7	0	0	49	259	9	68	493	1,739	73	481
29	8/5	8/4	12	8	8	0	0	68	411	14	95	615	2,455	121	976
30	8/6	8/4	12	7	8	0	0	56	323	13	98	331	1,326	50	401
31	8/7	8/6	12	3	3	0	0	40	240	7	49	193	769	37	290

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Period	Date	AA date[a]	Hours	Permits fished	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
32–35	8/8–8/11	8/6–8/8	48	0	0	No Harvest Reported									
36	8/12	8/11	12	29	41	0	0	78	419	43	281	30,095	104,121	148	1,036
37	8/13	8/11	12	21	24	0	0	107	603	32	215	10,853	41,305	111	802
38	8/14	8/12	12	0	0	No Harvest Reported									
39	8/15	1/14	12	22	40	0	0	26	137	12	81	37,945	128,696	13	87
40	8/16	8/15	12	10	12	0	0	102	569	44	310	6,405	25,598	52	377
41	8/18	8/17	12	45	82	0	0	127	746	77	527	61,142	209,698	58	383
42	8/20	8/19	12	39	70	0	0	83	429	93	620	55,137	186,052	27	189
43	8/21	8/20	12	26	35	0	0	55	329	73	464	25,690	87,505	12	84
44	8/22	8/21	12	15	19	0	0	34	190	65	465	16,370	56,156	20	131
45	8/23	8/22	12	14	18	0	0	29	155	102	773	14,295	50,813	6	49
46	8/24	8/23	12	15	22	0	0	24	130	134	933	16,971	59,017	9	58
47	8/25	8/23	12	14	20	0	0	31	177	197	1,322	12,820	44,176	3	18
48	8/26	8/23	12	7	10	0	0	15	78	60	413	3,489	13,947	4	34
49	8/27	8/26	12	2	2	Confidential[b]									
50–61	8/28–9/8	8/26–9/3	144	0	0	No Harvest Reported									
62	9/09–9/16	9/8	168	9	9	0	0	0	0	125	765	0	0	0	0
Total				359	7,213	494	4,301	192,461	1,048,841	1,957	13,324	666,347	2,486,346	1,192,380	8,205,598
Average Weights							8.7		5.4		6.8		3.7		6.9

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Required parameters for searching the ADF&G Commercial Fishery Announcements are as follows: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[b] Fewer than 3 permits were fished. Period results are confidential.

Appendix B4.–Purse seine harvest by species and period in the Coghill District commercial fishery in 2021.

Period	Date	AA date[a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
15	7/19–7/21	7/20	20	18	19	0	0	1,526	7,577	7	34	149,612	499,618	266	1,929
16	7/22	7/21	14	0	0	No Harvest Reported									
17	7/23	7/21	14	11	11	0	0	746	2,985	1	5	55,216	188,644	32	229
18	7/24	7/23	14	13	17	0	0	443	2,205	9	56	245,672	848,380	413	2,356
19	7/25	7/23	14	6	6	0	0	578	2,762	0	0	27,667	101,911	101	632
20	7/26	7/25	14	7	7	0	0	645	3,403	0	0	35,558	122,988	136	873
21	7/27	7/25	14	2	2	Confidential[b]									
22	7/28	7/27	14	3	4	0	0	334	1,670	0	0	64,979	202,982	136	879
23–24	7/30–7/31	7/29	28	0	0	No Harvest Reported									
25	8/1	7/31	12	6	6	0	0	199	925	0	0	51,732	158,922	88	500
26	8/2	7/31	12	1	1	Confidential[b]									
27	8/3	8/2	12	2	2	Confidential[b]									
28–32	8/4–8/8	8/2–8/6	60	0	0	No Harvest Reported									
33	8/9	8/8	12	1	2	Confidential[b]									
34	8/10	8/8	12	3	3	0	0	71	410	31	225	23,666	71,423	45	357
35	8/11	8/8	12	1	1	Confidential[b]									
36	8/12	8/11	12	31	48	0	0	54	305	61	320	512,732	1,556,334	35	198
37–38	8/13–8/14	8/11–8/12	24	0	0	No Harvest Reported									
39	8/15	8/14	12	44	78	0	0	8	27	0	0	904,910	3,019,953	3	11
40	8/16	8/15	12	0	0	No Harvest Reported									
41	8/18	8/17	12	47	68	0	0	30	149	34	232	706,733	2,275,606	17	121
42	8/20	8/19	12	45	53	0	0	65	328	62	412	491,757	1,645,119	45	306
43	8/21	8/20	12	39	41	0	0	43	246	53	368	257,391	843,001	40	262
44	8/22	8/21	12	26	26	2	30	55	266	45	304	182,772	591,280	10	76
45	8/23	8/22	12	23	27	0	0	25	113	45	318	128,700	413,042	21	126
46	8/24	8/23	12	11	11	0	0	21	107	20	125	112,083	362,209	0	0
47	8/25	8/23	12	8	8	0	0	83	360	258	1,560	93,023	292,461	41	216
48	8/26	8/23	12	2	2	Confidential[b]									
50	8/28	8/26	12	0	0	No Harvest Reported									

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Period	Date	AA date[a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
52	8/30	8/26	12	1	1					Confidential[b]					
53	8/31	8/30	12	1	1					Confidential[b]					
54–62	9/01–9/16	8/30–9/8	264	0	0					No Harvest Reported					
Total				114	450	2	30	5,506	26,662	917	5,766	4,180,861	13,614,023	1,600	10,087
Average weight							15		4.84		6.3		3.3		6.3

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Periods 1– 14 and 38–39 were open to drift gillnet only. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[b] Fewer than 3 permits were fished. Period results are confidential.

Appendix B5.–Commercial salmon harvest by species and gear type in the Coghill District, 2011–2021.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
			Drift gillnet			
2011	220	198,376	79,419	722,248	1,092,917	2,093,180
2012	147	383,289	7,724	1,125,888	2,256,983	3,774,031
2013	259	93,734	62,968	2,450,108	2,100,394	4,707,463
2014	76	159,167	151,723	1,096,425	642,964	2,050,355
2015	93	74,416	6,094	655,320	778,112	1,816,842
2016	82	63,125	5	8,962	1,530,937	1,603,111
2017	74	111,718	14,165	635,519	2,210,178	2,971,654
2018	336	186,978	4,306	286,356	1,802,402	2,280,378
2019	104	389,051	120,152	301,333	1,049,441	1,860,081
2020	334	111,403	2,475	651,099	229,406	994,717
2021	494	192,461	1,957	666,347	1,192,380	2,055,512
Average (2011–2020)	173	177,126	44,903	793,326	1,369,373	2,415,181
			Purse seine			
2011	4	843	16,565	1,674,736	166	1,692,314
2012	15	16,055	10,203	3,987,252	284,931	4,298,457
2013	33	1,978	7,573	6,690,850	70,271	6,770,705
2014	0	299	8,536	901,916	325	911,076
2015	0	2,120	1,215	5,601,620	121,213	5,726,168
2016	0	44	6	4,583	100,547	105,180
2017	0	5,043	205	417,327	856,613	1,279,188
2018	0	2,315	6,347	687,095	4,148	699,905
2019	0	1,608	280	43,154	10,523	55,565
2020	12	1,445	407	1,108,848	6,721	1,117,433
2021	2	5,506	917	4,180,861	1,600	4,188,886
Average (2011–2020)	6	3,175	5,134	2,111,738	145,546	2,265,599
			Combined purse seine and drift gillnet			
2011	224	199,219	95,984	2,396,984	1,093,083	3,785,494
2012	162	436,182	10,993	3,430,252	2,455,993	6,333,582
2013	292	95,712	70,541	9,140,958	2,170,665	11,478,168
2014	76	159,466	160,259	1,998,341	643,289	2,961,431
2015	93	76,536	7,309	6,256,940	899,325	7,240,203
2016	82	63,169	11	13,545	1,631,484	1,708,291
2017	74	116,761	14,370	1,052,846	3,066,791	4,250,842
2018	336	189,293	10,653	973,451	1,806,550	2,980,283
2019	104	390,659	120,432	344,487	1,059,964	1,915,646
2020	346	112,848	2,882	1,759,947	236,127	2,112,150
2021	496	197,967	2,874	4,847,208	1,193,980	6,244,398
Average (2011–2020)	179	183,985	49,343	2,736,775	1,506,327	4,476,609

Appendix B6.–Commercial salmon harvest by period and gear type in the Unakwik District, 2021.

Period	Date	AA date [a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Drift gillnet															
1	6/17–6/18	6/16	24	0	0	No Harvest Reported									
2	6/21–6/22	6/19	24	2	2	Confidential[b]									
3	6/24–6/25	6/23	24	1	1	Confidential[b]									
4	6/28–6/29	6/26	24	2	2	Confidential[b]									
5	7/01–7/02	6/30	24	3	3	0	0	1,289	6,180	0	0	0	0	61	379
6	7/05–7/06	7/3	24	3	3	2	24	1,019	5,340	0	0	79	248	87	479
7	7/08–7/09	7/7	24	2	2	Confidential[b]									
8	7/12–7/13	7/10	24	4	4	0	0	1,094	5,751	0	0	36	137	1	6
9	7/15–7/16	7/14	24	1	1	Confidential[b]									
10	7/19–7/20	7/17	24	2	2	Confidential[b]									
Total				9	20	4	44	5,987	30,267	0	0	409	2,353	219	1,250
Purse seine															
1	6/17–6/18	6/16	24	1	1	Confidential[b]									
2	6/21–6/22	6/19	24	0	0	No Harvest Reported									
3	6/24–6/25	6/23	24	0	0	No Harvest Reported									
4	6/28–6/29	6/26	24	1	1	Confidential[b]									
5	7/1–7/2	6/30	24	2	2	Confidential[b]									
6	7/5–7/6	7/3	24	4	4	0	0	1,006	5,921	0	0	153	596	18	127
7	7/8–7/9	7/7	24	0	0	No Harvest Reported									
8	7/12–7/13	7/10	24	0	0	No Harvest Reported									
9	7/15–7/16	7/14	24	0	0	No Harvest Reported									
10	7/19–7/20	7/17	24	0	0	No Harvest Reported									
Total				4	7	0	0	2,375	12,783	0	0	154	604	18	127

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. All periods were open to drift gillnet and purse seine; however, no purse seine harvest was reported for any period. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[b] Fewer than 3 permits were fished. Period results are confidential.

Appendix B7.–Commercial salmon harvest by species and gear type in the Unakwik District, 2011–2021.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
			Drift gillnet			
2011	0	1,390	0	1	30	1,421
2012	0	6,207	4	246	264	6,723
2013	1	776	0	203	217	1,008
2014	0	459	0	3	30	492
2015	1	2,958	0	55	23	3,037
2016	0	259	0	0	481	740
2017	0	551	0	196	56	803
2018	0	3,505	1	36	16	3,558
2019	2	7,657	0	2,114	1,015	10,788
2020	9	764	0	2	4	779
2021	4	5,987	0	409	219	6,619
Average (2011–2020)	0	2,453	1	286	214	2,935
			Purse seine			
2011	0	0	0	0	0	0
2012	0	370	0	18	148	536
2013	0	2,815	1	8,199	159	3,056
2014	1	686	0	2	243	932
2015	7	1,994	0	346	245	2,592
2016			Confidential[a]			
2017			Confidential[a]			
2018	0	0	0	0	0	0
2019	0	1,810	0	1,938	773	4,521
2020	0	0	0	0	0	0
2021	0	2,375	0	154	18	2,547
Average (2011–2020)	1	959	0	1,313	196	1,455
			Combined purse seine and drift gillnet			
2011	0	1,390	0	1	30	1,421
2012	0	6,577	4	264	412	7,257
2013	1	3,591	1	284	187	4,064
2014	1	1,145	0	5	273	1,424
2015	8	4,952	0	401	268	5,629
2016	0	259	0	0	481	740
2017[a]			Confidential[a]			
2018	0	3,505	1	36	16	3,558
2019	2	9,467	0	4,052	1,788	15,309
2020	9	764	0	2	4	779
2021	4	8,362	0	563	237	9,166
Average (2011–2020)	2	3,517	1	561	384	4,465

[a] Fewer than 3 permits fished. Results are confidential.

Appendix B8.–Port Chalmers Subdistrict commercial purse seine harvest of salmon by period, 2021.

Period	Date	AA date [a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/31–6/2	5/19	48	12	12	0	0	0	0	0	0	0	0	1,623	11,168
2	6/3–6/4	5/19	36	9	11	1	20	36	218	0	0	8	39	6,788	48,652
3	6/5–6/6	5/19	36	20	22	24	284	79	400	0	0	228	1,192	24,475	182,747
4	6/7–6/9	6/4	48	25	25	30	306	180	979	0	0	356	1,609	27,160	178,508
5	6/10–6/11	6/4	36	22	22	37	502	33	156	0	0	44	157	7,482	53,193
6	6/12–6/13	6/4	36	22	22	16	193	19	86	0	0	34	123	8,463	50,096
7	6/14–6/16	6/12	48	28	29	42	477	105	568	0	0	239	1,030	15,501	116,477
8	6/17–6/18	6/12	36	22	22	26	350	8	47	0	0	29	114	6,736	46,413
9	6/19–6/20	6/12	36	22	22	17	197	4	25	0	0	2	10	9,731	66,644
10	6/21–6/23	6/19	48	26	29	0	0	1	5	0	0	11	49	11,556	82,688
11	6/24–6/25	6/19	36	27	27	2	24	70	384	0	0	163	697	20,851	146,564
12	6/26–6/27	6/19	36	30	30	6	72	243	1,246	3	24	6,150	23,079	23,886	171,018
13	6/28–6/30	6/26	48	37	42	3	59	269	1,344	0	0	67,882	233,035	38,006	262,814
14	7/1–7/2	6/26	36	52	54	40	600	319	1,632	3	19	23,619	89,307	28,805	184,015
15	7/3–7/4	6/26	36	40	40	43	615	627	3,335	0	0	55,498	192,256	16,234	100,137
16	7/5–7/7	7/3	48	40	42	6	87	728	3,870	0	0	45,877	164,134	8,155	54,758
17	7/8–7/9	7/6	38	24	30	4	32	562	2,803	135	844	163,576	559,787	14,380	93,030
18	7/10–7/11	7/9	36	5	5	0	0	35	172	0	0	2,391	8,037	5,943	31,002
19	7/12–7/15	7/10&7/13	84	11	14	0	0	306	1,731	0	0	111,257	410,840	9,982	63,219
20	7/17–7/18	7/16	36	29	61	0	0	246	1,287	47	223	671,971	2,191,551	3,585	23,938
21	7/19	7/17	14	25	51	0	0	101	583	130	863	683,869	2,241,730	85	564
22	7/28	7/27	14	11	17	0	0	211	966	44	299	292,945	812,440	373	2,641
23	8/3	8/2	12	23	25	0	0	111	592	69	471	240,812	779,381	124	800
24	8/10	8/8	12	30	32	0	0	64	335	237	1,707	225,879	652,690	71	503
25	8/12	8/11	12	15	18	0	0	63	325	90	648	255,600	841,728	27	204
26	8/16	8/15	12	23	33	1	26	96	450	282	1,899	437,590	1,362,642	71	418
27	8/18	8/17	12	5	6	0	0	20	90	169	1,165	97,650	306,492	31	167
28	8/20	8/19	12	19	25	0	0	51	215	140	1,037	304,472	972,847	66	421
29	8/21	8/20	12	28	28	0	0	67	330	368	2,778	232,727	724,652	43	249
30	8/22	8/21	12	18	18	0	0	24	134	217	1,832	105,797	327,398	17	133
31	8/23	8/22	12	2	2					Confidential[b]					
32	8/24	8/23	12	1	1					Confidential[b]					

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Period	Date	AA date [a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
33	8/25	8/23	12	2	2	Confidential[b]									
34	8/26	8/23	12	1	1	Confidential[b]									
35–48	8/27–9/16	8/26–9/8	324	0	0	No Harvest Reported									
Total				131	820	298	3,844	4,686	24,352	1,982	14,159	4,037,897	12,937,016	290,254	1,973,206
Average Weight							12.90		5.20		7.14		3.20		6.80

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[b] Fewer than 3 permits were fished. Period results are confidential.

Appendix B9.–Total commercial harvest by species in the Port Chalmers Subdistrict, June 1–July 30, 2015–2021.

			Numbers of fish					
Year	Permits	Gear type	Chinook	Sockeye	Coho	Pink	Chum	Total
2015	102	Drift gillnet	87	9,751	697	58,371	166,949	235,855
2016	132	Drift gillnet	81	3,009	13	19,360	196,377	218,840
2017	143	Purse seine	97	7,045	527	990,829	528,381	1,526,879
2018	139	Purse seine	137	6,015	585	346,820	452,585	806,142
2019	218	Drift gillnet	43	4,913	20	18,270	1,571,659	1,594,905
2020	129	Purse seine	288	2,185	155	32,032	562,744	597,404
2021	131	Purse seine	297	4,182	362	2,126,149	289,800	2,420,790
Average (2015–2020)			122	5,486	333	244,280	579,783	830,004

APPENDIX C: ESHAMY DISTRICT

Appendix C1. –Anticipated daily and cumulative salmon escapement versus actual escapement through the Eshamy River weir, 2021.

	Sockeye salmon						Pink salmon		Chum salmon	
	BEG (13,000 to 28,000)									
	Actual		Projected minimum		Projected maximum		Actual		Actual	
Date	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/18	27	27	69	1,177	149	2,536	3	3	10	10
7/19	21	48	67	1,244	144	2,680	1	4	9	19
7/20	47	95	57	1,301	123	2,803	13	17	25	44
7/21	16	111	105	1,406	225	3,028	2	19	8	52
7/22	14	125	102	1,508	219	3,248	25	44	12	64
7/23	50	175	104	1,611	223	3,471	23	67	12	76
7/24	62	237	152	1,763	327	3,798	41	108	11	87
7/25	51	288	185	1,948	398	4,196	18	126	3	90
7/26	26	314	212	2,160	456	4,652	11	137	2	92
7/27	15	329	184	2,343	395	5,047	16	153	8	100
7/28	27	356	155	2,498	334	5,381	6	159	3	103
7/29	40	396	112	2,611	242	5,623	4	163	0	103
7/30	126	522	242	2,853	521	6,145	8	171	1	104
7/31	50	572	144	2,997	311	6,456	8	179	1	105
8/1	222	794	66	3,063	142	6,598	22	201	10	115
8/2	100	894	151	3,214	325	6,923	17	218	4	119
8/3	52	946	144	3,358	310	7,233	23	241	1	120
8/4	76	1,022	194	3,551	417	7,650	17	258	1	121
8/5	187	1,209	165	3,717	356	8,005	33	291	8	129
8/6	136	1,345	202	3,919	435	8,441	102	393	15	144
8/7	77	1,422	237	4,156	511	8,951	143	536	9	153
8/8	150	1,572	289	4,445	623	9,574	201	737	7	160
8/9	202	1,774	300	4,745	646	10,220	190	927	4	164
8/10	452	2,226	364	5,108	784	11,003	533	1,460	9	173
8/11	179	2,405	296	5,405	638	11,641	377	1,837	6	179
8/12	272	2,677	347	5,752	748	12,389	222	2,059	6	185
8/13	837	3,514	347	6,099	747	13,137	1,540	3,599	8	193
8/14	464	3,978	440	6,539	948	14,085	392	3,991	12	205
8/15	441	4,419	391	6,930	843	14,928	300	4,291	3	208
8/16	208	4,627	431	7,362	929	15,856	265	4,556	1	209
8/17	126	4,753	362	7,723	779	16,635	378	4,934	2	211

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	Sockeye salmon						Pink salmon		Chum salmon	
	BEG (13,000 to 28,000)									
	Actual		Projected minimum		Projected maximum		Actual		Actual	
Date	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
8/17	126	4,753	362	7,723	779	16,635	378	4,934	2	211
8/18	317	5,070	441	8,164	950	17,585	354	5,288	1	212
8/19	254	5,324	329	8,494	709	18,294	267	5,555	0	212
8/20	203	5,527	427	8,921	920	19,214	365	5,920	0	212
8/21	73	5,600	432	9,353	930	20,144	123	6,043	0	212
8/22	130	5,730	349	9,702	752	20,896	300	6,343	0	212
8/23	136	5,866	380	10,082	819	21,715	347	6,690	0	212
8/24	179	6,045	304	10,386	655	22,370	579	7,269	0	212
8/25	205	6,250	350	10,736	754	23,125	679	7,948	0	212
8/26	209	6,459	267	11,003	574	23,699	580	8,528	0	212
8/27	285	6,744	196	11,198	421	24,120	671	9,199	0	212
8/28	157	6,901	115	11,313	248	24,368	566	9,765	0	212
8/29	50	6,951	167	11,481	360	24,728	327	10,092	0	212
8/30	50	7,001	109	11,590	235	24,963	696	10,788	0	212

Appendix C2.–Salmon escapement by species past the Eshamy River weir, 1967–2021.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1967	0	10,821	192	10,433	1	21,447
1968	1	68,048	450	919	1	69,419
1969	0	61,196	96	3,095	2	64,389
1970	0	11,460	25	387	0	11,872
1971[a]	0	954	97	3,179	0	4,230
1972[b]	0	28,683	0	0	0	28,683
1973	0	10,202	205	1,698	0	12,105
1974[b]	0	633	0	0	0	633
1975[b]	0	1,724	0	0	0	1,724
1976[b]	0	19,367	0	0	0	19,367
1977	0	11,746	230	32,080	0	44,056
1978	0	12,580	20	552	0	13,152
1979	0	12,169	5	3,654	1	15,829
1980	5	44,263	128	963	2	45,361
1981	1	23,048	249	5,956	13	29,267
1982	0	6,782	79	1,056	79	7,996
1983	0	10,348	40	7,047	4	17,439
1984	2	36,121	881	3,970	0	40,974
1985	0	26,178	96	6,271	0	32,545
1986	2	6,949	55	1,004	31	8,041
1987[c]	0	0	0	0	0	0
1988	2	31,747	48	1,205	1	33,003
1989	1	57,232	0	7,782	210	65,225
1990	0	14,477	43	2,209	5	16,734
1991	2	46,229	907	31,241	17	78,396
1992	1	36,237	52	3,004	5	39,299
1993	1	42,893	92	3,435	9	46,430
1994	1	64,660	1,184	12,061	87	77,993
1995	7	21,701	1,076	18,601	407	41,792
1996	2	5,271	108	7,959	9	13,349
1997	2	39,015	111	15,142	18	54,288
1998[c]	0	0	0	0	0	0
1999	1	27,057	194	32,756	3	60,011
2000	2	22,653	151	20,515	381	43,702
2001	0	55,187	335	21,027	176	76,725
2002	0	40,478	14	4,843	1,072	46,407
2003	2	39,845	0	2,440	335	42,622
2004	0	13,443	0	1,518	0	14,961
2005	1	23,523	46	11,024	529	35,123
2006	0	41,823	201	3,585	608	46,217
2007	0	16,646	831	29,409	243	46,673
2008	0	18,494	27	2,060	20	20,601
2009	1	24,025	147	3,849	416	28,438
2010	0	16,291	114	2,268	84	18,757
2011	0	24,129	0	2,879	35	27,043
2012–2020[c]	0	0	0	0	0	0
2021	30	7,001	39	10,788	212	18,070
Average (2002–2011)	0	25,870	138	6,388	334	32,684

[a] Estimate may be low due to holes in the weir; actual escapement is estimated to be greater than 3,000 sockeye salmon.

[b] Passage of salmon other than sockeye salmon was not recorded.

[c] The Eshamy weir was not in operation.

Appendix C3.–Total drift gillnet commercial salmon harvest by period in the Eshamy District, 2021.

Period	Date	AA date[a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/31–6/1	5/19	36	27	54	2	28	127	673	0	0	1	4	7,441	50,670
2	6/3–6/4	6/2	36	52	113	15	214	288	1,582	1	5	0	0	12,361	84,968
3	6/7–6/8	6/4	24	113	161	104	879	783	4,091	0	0	1	6	11,646	71,626
4	6/10–6/11	6/9	24	57	84	31	260	1,268	7,005	3	16	2	7	4,636	32,043
5	6/14–6/15	1/12	24	69	139	40	299	8,453	46,240	2	10	3	10	3,977	25,912
6	6/17–6/18	6/16	24	95	178	14	115	11,777	62,990	2	14	4	20	6,884	45,278
7	6/21	6/19	12	110	191	11	123	21,649	114,769	4	25	2	9	11,044	70,904
8	6/24	6/23	12	160	301	14	149	50,009	258,238	0	0	59	231	33,164	219,941
9	6/28	6/26	12	138	238	3	38	48,168	246,074	0	0	23	84	16,979	109,691
10	7/1	6/30	12	135	208	1	10	31,320	165,215	2	13	185	738	11,639	74,990
11	7/13–7/14	7/12	24	82	140	7	53	15,120	78,428	187	1,364	20,668	71,088	4,701	29,576
12	7/15–7/16	7/14	36	108	309	8	62	75,623	422,286	314	2,090	52,514	197,801	6,176	43,399
13	7/19–7/20	7/17	24	82	131	0	0	8,974	48,425	373	2,490	44,656	174,555	1,291	8,620
14	7/22–7/23	7/21	24	30	46	0	0	6,812	37,216	37	241	6,992	26,706	99	589
15	7/26–7/27	7/24	24	46	86	1	6	4,717	26,769	239	1,568	28,583	106,734	692	4,643
16	7/29–7/30	7/28	24	18	25	0	0	4,567	22,987	75	540	3,426	11,362	49	304
17	8/2–8/3	7/28	24	33	52	0	0	1,723	9,026	178	1,273	14,435	52,570	369	2,413
18	8/5–8/6	8/4	24	7	9	0	0	186	1,106	21	137	1,876	7,495	17	131
19	8/9–8/10	8/4	24	21	42	0	0	1,176	6,401	161	1,130	27,564	92,923	312	2,036
20	8/12–8/13	8/11	24	0	0					No Harvest Reported					
21	8/16–8/17	8/11	24	27	57	0	0	1,005	5,901	178	1,297	42,013	143,989	106	712
22	8/23–8/24	8/18	24	7	15	0	0	249	1,251	98	778	11,003	33,009	25	135
23	8/30–8/31	8/25	24	0	0					No Harvest Reported					
24	9/6–9/7	9/1	24	0	0					No Harvest Reported					
Total				308	2,579	251	2,236	293,994	1,566,673	1,875	12,991	254,010	919,341	133,608	878,581
Average Weight						8.91		5.3		6.9		3.6		6.6	

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by Publication Date.

Appendix C4.–Total set gillnet commercial salmon harvest by period in the Eshamy District, 2021.

Period	Date	AA date[a]	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	5/31–6/1	5/19	36	8	11	0	0	13	70	0	0	0	0	250	1,889
2	6/3–6/4	6/2	36	9	18	1	12	44	247	0	0	0	0	460	2,967
3	6/7–6/8	6/4	24	16	25	2	36	198	1,174	0	0	0	0	311	2,126
4	6/10–6/11	6/9	24	17	27	2	36	258	1,545	0	0	0	0	506	3,450
5	6/14–6/15	1/12	24	21	59	0	0	3,064	18,025	0	0	0	0	312	2,038
6	6/17–6/18	6/16	24	20	56	1	14	3,331	19,147	0	0	1	4	559	3,822
7	6/21	6/19	12	21	59	1	9	5,195	30,673	0	0	2	15	933	6,345
8	6/24	6/23	12	19	40	0	0	4,908	26,115	0	0	0	0	1,415	9,522
9	6/28	6/26	12	23	78	2	24	16,304	93,491	0	0	3	13	3,125	22,478
10	7/1	6/30	12	24	71	0	0	14,248	80,660	0	0	36	142	2,627	18,384
11	7/13–7/14	7/12	24	17	52	0	0	8,390	48,375	3	20	2,724	10,025	715	5,198
12	7/15–7/16	7/14	36	16	52	0	0	8,359	49,539	5	33	2,701	10,816	456	3,581
13	7/19–7/20	7/17	24	14	53	0	0	8,197	49,148	26	184	5,996	23,974	467	3,711
14	7/22–7/23	7/21	24	7	14	0	0	917	5,508	1	6	928	3,708	27	197
15	7/26–7/27	7/24	24	9	38	0	0	4,602	27,649	9	61	4,607	18,588	110	787
16	7/29–7/30	7/28	24	5	10	0	0	493	2,756	0	0	1,405	4,789	28	187
17	8/2–8/3	7/28	24	5	14	0	0	413	2,292	6	42	3,001	10,756	73	483
18	8/5–8/6	8/4	24	3	4	0	0	61	361	1	7	365	1,456	9	64
19	8/9–8/10	8/4	24	3	8	0	0	148	783	5	37	1,413	4,542	25	144
20	8/12–8/13	8/11	24	0	0					No Harvest Reported					
21	8/16–8/17	8/11	24	1	6					Confidential[b]					
22	8/23–8/24	8/18	24	1	2					Confidential[b]					
23	8/30–8/31	8/25	24	0	0					No Harvest Reported					
24	9/6–9/7	9/1	24	0	0					No Harvest Reported					
Total				24	697	9	131	79,220	457,999	57	398	24,755	94,842	12,413	87,412
Average Weight						14.56		5.8		7.0		3.8		7.0	

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable advisory announcement (AA) available through ADF&G's Commercial Fishery Announcements at http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main. Required parameters for searching the ADF&G Commercial Fishery Announcements include the following: Effective Year = 2021; Species Group = Salmon; Management Area = Prince William Sound.

[a] Queries made through the ADF&G Commercial Fishery Announcements will provide results sorted by publication date.

[b] Fewer than 3 permits were fished. Period results are confidential.

Appendix C5.–Total commercial salmon harvest by species and gear type in the Eshamy District, 2011–2021.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
			Drift gillnet			
2011	129	901,279	6,159	78,762	95,991	1,082,320
2012	52	987,678	192	88,951	254,774	1,331,647
2013	74	336,061	1,724	62,176	184,334	584,369
2014	35	761,315	607	189,940	77,719	1,029,616
2015	92	860,637	4,611	178,336	85,864	1,129,540
2016	40	443,723	362	51,872	78,409	574,484
2017	63	424,049	3,733	321,935	103,445	853,225
2018	131	823,344	3,407	303,572	131,246	1,261,700
2019	105	469,905	1,083	265,080	125,207	861,380
2020	188	358,068	930	316,963	70,666	746,815
2021	251	293,994	1,875	254,010	133,608	683,738
Average (2011–2020)	91	636,606	2,281	185,759	120,766	945,510
			Set gillnet			
2011	37	312,659	612	17,629	25,350	356,287
2012	14	294,632	97	17,311	24,368	336,422
2013	59	203,019	360	19,114	42,630	265,182
2014	22	259,568	65	35,681	20,921	316,257
2015	61	265,575	839	29,070	21.696	295,567
2016	33	218,013	13	8,011	20,831	246,901
2017	7	181,949	216	37,633	17,583	237,388
2018	7	180,945	103	22,784	9,948	213,787
2019	14	225,676	182	54,899	38,534	319,305
2020	7	91,826	23	35,136	4,069	131,054
2021	9	79,220	57	24,755	12,413	116,454
Average (2011–2020)	26	223,386	251	27,727	20,426	264,615
			Combined set gillnet and drift gillnet			
2011	166	1,213,938	6,771	96,391	121,341	1,438,607
2012	66	1,282,310	289	106,262	279,142	1,668,069
2013	133	539,080	2,084	81,290	226,964	849,551
2014	57	1,020,883	672	225,621	98,640	1,345,873
2015	153	1,126,212	5,450	207,406	107,560	1,425,107
2016	73	661,736	375	59,883	99,240	821,385
2017	70	605,998	3,949	359,568	121,028	1,090,613
2018	138	1,004,289	3,510	326,356	141,194	1,475,487
2019	119	695,581	1,265	319,979	163,741	1,180,685
2020	195	449,894	953	352,099	74,735	877,869
2021	260	373,214	1,932	278,765	146,021	800,192
Average (2011–2020)	117	859,992	2,532	213,486	143,359	1,210,125

APPENDIX D: PURSE SEINE FISHERIES PINK AND CHUM SALMON ESCAPEMENT

Appendix D1.–Prince William Sound pink salmon returns by origin, 2000–2021.

	Estimated pink salmon returns					
	Hatcheries					
Year	SGH	AFK	WNH	CCH	Wild	Total
2000	12,113,551	6,904,559	8,856,119	6,573,795	7,360,000	41,808,024
2001	15,932,656	4,865,879	7,126,101	2,108,028	8,800,000	38,832,664
2002	5,149,430	7,929,788	5,616,803	1,588,501	1,230,000	21,514,522
2003	17,784,817	7,065,581	17,843,002	8,349,320	7,389,184	58,431,904
2004	11,296,792	5,230,138	2,704,549	2,761,140	4,900,000	26,892,619
2005	17,833,484	10,121,228	9,221,716	13,595,157	12,540,000	63,311,585
2006	9,021,053	5,216,231	3,977,073	2,969,543	1,794,000	22,977,900
2007	23,967,744	15,760,177	7,519,098	7,430,043	10,333,079	65,010,141
2008	15,617,999	6,112,588	8,701,656	11,013,594	2,232,000	43,677,837
2009	1,222,473	10,703,437	3,223,164	3,258,244	2,825,000	21,232,318
2010	18,399,595	13,768,753	17,309,257	19,768,346	4,320,000	73,565,951
2011	13,830,644	3,199,541	6,647,472	4,743,895	9,230,000	37,651,552
2012	11,330,663	3,763,888	5,687,710	3,478,658	4,320,000	28,580,919
2013	22,183,858	20,222,117	17,479,441	15,959,517	22,250,000	98,094,933
2014	25,445,746	4,476,859	7,609,619	4,537,866	2,500,000	44,570,090
2015	34,751,413	10,854,375	17,537,606	10,183,238	31,680,000	105,006,632
2016	8,057,516	1,471,867	744,035	707,850	3,520,000	14,501,268
2017	14,543,144	4,968,436	2,508,749	6,736,574	22,430,000	51,186,903
2018	10,002,010	3,307,954	2,296,808	3,656,259	5,980,000	25,243,031
2019	11,282,485	6,071,637	4,025,313	10,274,004	18,380,000	50,033,439
2020	8,624,211	1,293,916	4,185,154	3,057,366	6,534,128	23,694,775
2021	20,363,732	4,310,394	9,464,883	10,045,817	25,227,494	69,412,320
Odd year average (2011–2019)	19,318,309	9,063,221	9,639,716	9,579,446	20,794,000	68,394,692
Even year average (2012–2020)	12,692,029	2,862,897	4,104,665	3,087,600	4,570,826	27,318,017

Appendix D2.–Prince William Sound pink salmon escapement indices by district, 1995–2021.

Year	Eastern	Northern[a]	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1995	396,696	84,447	46,029	50,582	10,182	82,490	183,448	336,310	1,190,184
1996	584,236	218,022	104,781	86,709	3,000	63,337	92,966	330,285	1,483,336
1997	345,725	65,260	52,961	53,740	914	112,010	206,943	585,135	1,422,688
1998	377,700	213,288	85,968	97,485	4,644	280,335	161,275	199,410	1,420,105
1999	622,502	214,732	168,816	52,340	6,900	163,347	381,054	853,180	2,462,871
2000	554,984	168,247	223,646	66,078	4,286	131,648	227,881	282,258	1,659,028
2001	436,585	163,573	148,665	102,294	2,963	176,503	314,323	655,480	2,000,386
2002	226,068	138,204	54,882	50,981	1,397	35,554	71,461	364,630	943,177
2003	975,327	255,059	375,147	103,931	5,206	130,356	320,494	691,769	2,857,289
2004	724,663	158,958	79,010	51,306	2,300	108,192	183,891	687,903	1,996,223
2005	1,025,756	570,079	528,264	401,640	32,396	272,572	566,002	1,330,407	4,727,116
2006	248,592	208,397	145,511	127,836	11,247	118,205	149,798	178,009	1,187,595
2007	374,723	156,063	197,405	68,667	9,461	116,130	142,769	443,914	1,509,133
2008	193,844	141,396	145,177	141,787	579	70,291	56,999	112,347	862,419
2009	454,960	119,747	125,907	127,261	9,790	239,357	263,770	488,831	1,829,623
2010	490,952	287,570	335,108	211,709	9,585	126,489	144,821	310,676	1,916,910
2011	982,837	167,408	257,020	147,128	4,368	232,302	598,918	1,537,438	3,927,419
2012	301,709	106,568	172,611	117,795	1,052	90,156	77,756	258,047	1,125,693
2013	1,266,783	329,434	640,414	203,444	12,145	348,012	411,373	1,472,633	4,684,239
2014[b]	270,244	105,843	63,290	67,030	12,400	83,581	24,917	185,072	812,376
2015[c]	1,605,058	779,600	801,201	454,427	70,068	789,725	649,144	2,032,492	7,181,714
2016[d]	663,113	152,509	171,362	171,633	NA	NA	NA	169,660	1,326,535
2017[d]	624,502	445,858	187,159	259,842	2,880	212,009	237,927	528,948	2,499,125
2018	309,325	113,383	70,881	111,194	16,594	81,100	135,208	293,275	1,130,960
2019	445,075	195,169	153,129	91,267	1,402	33,340	25,385	290,452	1,235,219
2020	206,152	105,226	88,401	77,828	7,250	64,470	84,238	138,330	771,895
2021	729,369	471,417	300,227	368,406	17,925	339,920	242,151	544,906	3,014,321
Even–year average (2002–2020)	363,466	151,805	132,623	112,910	6,934	86,449	103,232	269,795	1,207,378
Odd–year average (2001–2019)	819,161	318,199	341,431	195,990	15,068	255,031	353,011	947,236	3,245,126

Note: This does not represent the total spawning escapement but rather a comparable annual index.

[a] Northern District totals include both Northern and Unakwik District counts combined.

[b] Only 17 of 33 index streams in the Montague District were surveyed often enough (≥3) in 2014 to use with the area-under-the-curve methodology.

[c] AUC counts adjusted for the average proportion of the 214 index streams represented by the 129 index streams surveyed 3 or more times in 2015.

[d] Escapement index total includes indices from Eastern, Northern, Coghill, Northwestern, and Southeastern districts. Only Eastern, Northern, and Northwestern districts had reasonable temporal survey coverage. The Coghill and Southeastern districts had limited temporal coverage, but the indices were within the SEG range, so they are included in the total.

Appendix D3.–Prince William Sound chum salmon escapement indices by district, 1995–2021. Escapement indices do not represent the total spawning escapement but rather a comparable annual index.

Year	Eastern	Northern[a]	Coghill	Northwestern	Southeastern
1995	75,655	28,899	11,596	4,883	23,200
1996	137,908	55,568	19,669	24,405	47,334
1997	93,146	19,429	3,101	8,387	43,274
1998	86,227	28,867	22,764	7,553	52,103
1999	242,713	36,691	5,057	4,544	36,181
2000	196,253	23,655	20,488	10,150	34,969
2001	198,683	75,473	13,388	6,373	37,526
2002	94,046	30,531	7,430	16,194	104,906
2003	198,921	44,272	19,729	12,736	116,131
2004	108,833	42,456	9,685	10,371	42,344
2005	113,135	30,657	11,979	12,696	25,547
2006	109,403	52,069	15,900	25,860	26,739
2007	123,814	49,669	14,052	10,778	60,464
2008	74,740	38,791	39,660	28,051	21,614
2009	100,309	22,063	6,150	12,293	106,284
2010	91,514	38,207	51,589	30,074	85,138
2011	196,933	52,474	16,368	11,447	91,218
2012	61,969	14,680	10,281	7,072	20,467
2013	119,110	34,240	11,369	4,746	35,942
2014	93,491	27,680	9,491	5,041	30,177
2015[b]	112,142	43,179	15,444	7,321	52,031
2016[b]	93,491	27,680	9,491	5,831	30,177
2017[b]	85,618	34,516	13,666	7,381	49,421
2018	109,598	18,407	13,617	15,563	10,164
2019	56,846	11,690	3,437	3,258	19,451
2020	103,849	23,542	8,998	7,405	26,909
2021	58,965	20,404	2,395	6,979	46,391
Average (2011–2020)	107,072	27,115	10,368	7,333	36,191

Note: Current goals are district-specific lower-bound sustainable escapement goals: Coghill >8,000; Eastern >50,000; Northern/Unakwik >20,000; Northwestern >5,000; Southeastern >8,000. This does not represent the total spawning escapement but rather a comparable annual index.

[a] Northern District totals include both Northern and Unakwik District counts combined.

[b] Area-under-the-curve counts adjusted for the average proportion of the 214 index streams represented by the 129 index streams.

Appendix D4.–Prince William Sound commercial pink salmon harvest for all gear types, by district, 1995–2021.

Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1995	4,235,638	3,656,119	1,078,693	0	88,830	1,707,745	18,239	11,418	10,796,682
1996	6,076,471	5,042,415	1,543,869	0	35,691	5,052,789	0	0	17,751,235
1997	4,534,365	3,162,822	2,030,586	0	222,934	5,929,544	65,107	28,040	15,973,398
1998	2,231,061	5,037,668	3,228,761	0	134,984	8,435,431	430,252	350,081	19,848,238
1999	12,305,629	4,981,085	3,542,130	0	170,525	9,524,043	189,641	914,907	31,627,960
2000	9,819,466	4,093,620	3,359,542	17,223	514,258	9,308,399	87,634	549,763	27,749,905
2001	16,050,235	404,899	957,042	0	495,325	3,072,848	807,010	534,538	22,321,897
2002	355,964	594,245	1,277,637	0	186,786	5,710,938	32,857	1,075	8,159,502
2003	14,945,744	5,911,904	11,484,334	0	90,102	5,789,419	60,287	514,452	38,796,242
2004	9,512,987	45,355	43,690	0	107,487	1,628,219	102,352	260,992	11,701,082
2005	20,516,356	10,259,182	3,318,888	0	236,634	11,381,417	844,658	770,570	47,327,705
2006	5,712,890	1,331,776	1,373,036	0	110,625	3,269,037	144,417	21,805	11,963,586
2007	22,059,138	6,221,016	2,400,004	0	56,618	17,907,847	878,371	1,869,245	51,392,239
2008	10,829,504	8,548,368	7,439,560	0	123,780	7,548,950	216,013	0	34,706,175
2009	95,071	2,064,871	1,305,714	0	81,790	7,481,863	87,952	36,698	11,153,959
2010	16,423,602	17,916,866	14,252,563	0	134,734	16,978,392	15,985	19,293	65,741,435
2011	13,308,509	2,782,875	2,397,044	252,337	96,399	6,807,127	784,603	504,828	26,933,722
2012	10,611,728	3,677,106	3,433,740	87,010	106,269	5,722,240	200,600	225,255	24,063,948
2013	25,566,365	17,062,817	9,141,077	110,432	81,290	33,510,249	441,913	2,570,809	88,484,952
2014	19,853,828	5,024,240	1,998,341	70,684	225,641	8,958,165	3,044,491	19,949	39,195,339
2015	42,432,142	13,559,066	6,256,940	0	207,409	23,763,243	1,589,439	2,235,414	90,043,653
2016	7,536,833	417,218	13,556	172,360	59,894	345,842	19,360	37,970	8,603,033
2017	17,632,123	7,420,481	1,051,864	1,513,365	359,688	11,574,563	3,235,571	676,089	43,463,744
2018	10,296,388	2,626,739	974,408	184,091	326,431	4,912,297	395,459	443,118	20,158,931
2019	20,017,274	8,944,664	344,574	729,579	320,133	10,081,361	315,396	2,815,872	43,568,853
2020	8,964,070	3,425,006	1,760,360	921,426	352,730	2,739,176	268,006	378,859	18,809,633
2021	22,913,848	10,678,944	4,847,275	707,552	279,083	12,460,881	6,879,217	765,176	59,531,976
Average (2011–2020)	17,621,926	6,494,021	2,737,190	404,128	213,588	10,841,426	1,029,484	990,816	40,332,581

Note: Includes purse seine, drift gillnet, and set gillnet harvests from all Prince William Sound districts; Unakwik harvests are included in the Northern District totals. Does not include hatchery cost recovery, confiscated, or test fish harvests.

Appendix D5.–Prince William Sound commercial chum salmon harvest for all gear types, by district, 1995–2021.

Year	Eastern	Northern	Coghill	Northwestern	Eshamy	Southwestern	Montague	Southeastern	Total
1995	52,113	5,812	382,256	0	19,905	8,334	32	40	468,492
1996	340,398	11,432	613,432	0	32,828	13,222	0	0	1,011,312
1997	446,757	5,054	723,116	3	43,243	6,656	185,400	3,252	1,413,481
1998	107,854	57,088	368,921	0	557	4,063	204,536	4,685	747,704
1999	105,981	11,346	1,292,977	0	24,221	11,303	628,952	83,147	2,157,927
2000	240,299	9,894	1,645,145	581	39,828	428,665	992,253	71,565	3,428,230
2001	258,569	9,602	1,146,253	0	28,373	229,670	442,317	44,493	2,159,277
2002	9,811	9,516	2,455,237	0	127,271	54,845	1,071,478	32,776	3,760,934
2003	113,154	12,432	1,478,537	0	22,323	25,624	566,535	13,148	2,231,753
2004	102,067	322	921,002	0	53,609	338	342,968	49,560	1,469,866
2005	32,423	14,895	1,156,770	0	6,945	3,759	238,516	4,329	1,457,637
2006	113,079	51,650	563,802	0	40,724	107,569	445,762	17,171	1,339,757
2007	81,077	10,127	1,474,826	0	106,061	42,445	741,020	13,997	2,469,553
2008	20,808	38,583	2,317,589	0	305,120	517,449	1,233,909	0	4,433,458
2009	4,752	15,618	1,336,662	0	336,928	234,996	672,918	2,887	2,604,761
2010	14,383	2,464	2,515,238	0	610,573	166,464	243,606	0	3,552,728
2011	29,251	2,381	1,092,952	1,083	121,341	62,616	103,678	11,797	1,425,099
2012	102,192	2,152	2,457,115	37	279,149	164,913	325,417	35,560	3,366,535
2013	94,277	6,513	2,170,633	171	226,970	275,290	483,728	40,929	3,298,511
2014	101,443	2,511	643,327	5,884	98,664	66,261	187,016	12,749	1,117,855
2015	143,320	8,099	899,332	0	107,622	176,773	168,721	13,532	1,517,399
2016	56,570	7,386	1,631,485	4,126	99,249	210,600	196,688	325	2,206,429
2017	293,242	90,858	3,066,829	45,126	121,049	445,083	540,388	51,827	4,654,402
2018	197,459	8,619	1,806,642	7,576	141,413	355,623	452,791	27,717	2,997,840
2019	522,862	31,335	1,060,108	9,602	163,838	545,263	1,572,646	38,173	3,943,827
2020	54,688	5,780	236,202	12,051	74,793	222,231	592,049	1,161	1,198,955
2021	100,146	13,217	1,194,305	2,966	146,027	296,653	295,939	9,176	2,058,429
Average (2011–2020)	159,530	16,563	1,506,462	8,566	143,410	252,465	462,312	23,377	2,572,686

Note: Includes purse seine, drift gillnet, and set gillnet harvests from all Prince William Sound districts; Unakwik harvests are included in the Northern District totals. Does not include hatchery cost recovery, confiscated, or test fish harvests.

APPENDIX E: SALMON ENHANCEMENT

Appendix E1.–Historical harvest contributions, thermally marked otolith releases, and total returns of coho salmon to Prince William Sound hatcheries, brood years 1992–2018.

Solomon Gulch Hatchery

Brood year	Return year	Fry release	Hatchery contribution to the CF[a]	Hatchery contribution to subs/CPU harvest[b]	Hatchery contribution to sport harvest[c]	Hatchery contribution to broodstock esc.[d]	Hatchery contribution to cost recovery[e]	Total hatchery return	Estimated marine survival
1992	1995	915,087	78,006	0	37,474	16,045	21,592	153,117	16.73%
1993	1996	1,325,316	87,360	38	43,467	21,772	13,713	166,350	12.55%
1994	1997	1,875,823	47,500	45	36,520	13,605	9,818	107,488	5.73%
1995	1998	1,315,183	23,717	321	37,126	3,880	19,068	84,112	6.40%
1996	1999	1,748,486	67,232	541	36,310	2,541	12,679	119,303	6.82%
1997	2000	1,863,528	342,490	468	68,014	1,625	24,887	437,484	23.48%
1998	2001	1,625,599	147,000	230	60,975	1,778	25,595	235,578	14.49%
1999	2002	1,519,328	25,017	136	31,017	21,323	8,000	85,493	5.63%
2000	2003	1,821,889	63,132	185	78,162	17,379	4,087	162,945	8.94%
2001	2004	1,275,145	26,711	315	59,331	2,585	9,897	98,839	7.75%
2002	2005	1,442,274	129,966	286	67,000	2,102	30,686	230,040	15.95%
2003	2006	1,968,366	210,382	18	61,298	2,455	16,172	290,325	14.75%
2004	2007	1,511,592	58,299	0	74,616	3,564	17,748	154,227	10.20%
2005	2008	1,973,604	154,383	0	59,313	3,101	22,356	239,153	12.12%
2006	2009	1,828,100	914	131	43,651	3,955	17,424	66,075	3.61%
2007	2010	1,525,927	2,918	189	70,531	2,847	43,722	120,207	7.88%
2008	2011	1,915,058	28,412	883	50,801	7,145	38,285	125,526	6.55%
2009	2012	2,111,389	914	75	12,873	2,458	454	16,774	0.79%
2010	2013	1,879,768	153,819	277	55,844	7,071	39,946	256,957	13.67%
2011	2014	1,657,016	1,327	103	6,044	1,804	1,139	10,416	0.63%
2012	2015	1,810,315	32,108	40	24,920	2,722	14,571	74,361	4.11%
2013	2016	1,869,354	7,034	0	31,390	2,722	14,571	55,717	2.98%
2014	2017	1,913,395	6,440	0	10,284	4,623	1,620	22,967	1.20%
2015	2018	1,929,471	5,751	0	26,454	9,790	1,620	43,615	2.26%
2016	2019	1,929,471	67,296	0	38,108	1,018	3,190	109,612	5.68%
2017	2020	1,788,449	10,419	0	19,309	5,765	18,475	53,968	3.02%
2018	2021	1,878,493	40,175	0	27,957	4,010	3,046	66,540	3.58%

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Wally Noerenberg Hatchery									
Brood year	Return year	Fry release	Hatchery contribution to the CF[a]	Hatchery contribution to subs/homepack harvest[b]	Hatchery contribution to sport harvest[c]	Hatchery contribution to broodstock esc.[d]	Hatchery contribution to cost recovery[e]	Total hatchery return	Estimated marine survival
1992	1995	1,483,936	34,680	57	1,690	4,964	5,152	46,543	3.14%
1993	1996	2,063,934	26,245	8	3,851	4,081	39,506	73,690	3.57%
1994	1997	275,406	5,626	26	2,084	5,674	0	13,410	4.87%
1995	1998	203,651	2,800	35	3,327	1,541	0	7,703	3.78%
1996	1999	407,715	338	66	2,658	2,533	0	5,595	1.37%
1997	2000	1,068,338	111,256	197	7,963	2,551	0	121,966	11.42%
1998	2001	375,670	2,488	98	15,490	3,277	0	21,353	5.68%
1999	2002	219,967	3,215	105	21,283	2,389	0	26,991	12.27%
2000	2003	485,834	9,624	133	21,444	1,314	0	32,515	6.69%
2001	2004	920,858	9,333	37	19,852	150	637	30,009	3.26%
2002	2005	989,383	53,257	178	34,587	11,450	19	99,492	10.06%
2003	2006	1,057,922	113,997	20	19,973	17,079	0	151,069	14.28%
2004	2007	1,052,897	84,867	36	31,745	2,129	11,975	130,752	12.42%
2005	2008	1,850,000	116,641	90	19,738	2,609	267	139,345	7.53%
2006	2009	1,930,000	20,209	52	16,751	2,064	0	39,076	2.02%
2007	2010	226,000	5,215	9	20,569	1,399	0	27,192	12.03%
2008	2011	3,490,000	95,267	274	26,062	7,374	678	129,655	3.72%
2009	2012	3,480,000	10,276	123	7,625	558	0	18,582	0.53%
2010	2013	1,018,000	69,824	64	21,185	2,293	0	93,366	9.17%
2011	2014	3,210,000	165,600	292	11,314	6,584	10,877	194,667	6.06%
2012	2015	907,000	6,592	292	18,438	3,084	0	28,406	3.13%
2013	2016	370,000	347	292	100	245	0	984	0.27%
2014	2017	3,090,000	14,406	0	100	3,814	0	18,320	0.59%
2015	2018	2,241,000	NA	0	100	2,380	0	2,480	0.11%
2016	2019	2,091,000	194,717	0	100	2,226	0	197,043	9.42%
2017	2020	1,886,822	0	0	100	5,149	0	5,249	0.28%
2018	2021	3,167,000	113	0	0	1,285	5,000	6,398	0.36%

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Note: NA = no estimate available.

[a] Commercial fishery (CF)

[b] Subsistence and commercial homepack.

[c] No hatchery contribution sampling occurs in the sport fishery. These estimates apply a fixed proportion of Solomon Gulch Hatchery or Wally Noerenberg Hatchery production to sport harvest by reporting area.

[d] Broodstock escapements include all fish remaining after commercial harvests—i.e., fish used for brood, watershed spawners, predation behind the barrier seine, and fish remaining in front of the hatchery.

[e] Hatchery cost recovery is the whole fish purse seine and raceway effort and does not include carcass sales from viable broodstock.

Appendix E2.–Sockeye salmon hatchery and wild stock contributions to the Copper River drift gillnet commercial common property fishery by period, 2021.

			Origin							
			Gulkana		Main Bay		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Number	Percent	Total	Number	Percent	Total
1[a]	5/17	12	0	0.00%	0	0.00%	0	8,418	100.00%	8,418
2[a]	5/20	12	0	0.00%	0	0.00%	0	12,547	100.00%	12,547
3[a]	5/24	12	0	0.00%	0	0.00%	0	33,539	100.00%	33,539
4[a]	6/9	12	0	0.00%	0	0.00%	0	39,063	100.00%	39,063
5	6/14	12	339	1.05%	678	2.11%	1,017	31,193	96.84%	32,210
6	6/17–6/18	24	0	0.00%	3,272	8.33%	3,272	35,995	91.67%	39,267
7	6/21	12	774	3.70%	2,065	9.88%	2,839	18,069	86.42%	20,908
8	6/24–6/25	24	1,047	7.29%	748	5.21%	1,795	12,567	87.50%	14,362
9	6/28–6/29	24	3,600	13.40%	0	0.00%	3,600	23,258	86.60%	26,858
10	7/1–7/2	36	3,703	11.46%	1,010	3.13%	4,713	27,604	85.42%	32,317
11	7/5–7/6	24	2,542	14.58%	0	0.00%	2,542	14,892	85.42%	17,434
12	7/8–7/9	36	5,318	24.14%	253	1.15%	5,571	16,460	74.71%	22,031
13	7/12–7/13	24	1,194	21.88%	0	0.00%	1,194	4,263	78.13%	5,457
14	7/15–7/16	36	9,377	31.91%	0	0.00%	9,377	20,003	68.09%	29,380
15[b]	7/19–7/20	24	3,935	30.66%	0	0.00%	3,935	8,899	69.34%	12,834
16	7/22–7/23	36	2,830	29.41%	0	0.00%	2,830	6,791	70.59%	9,621
17	7/26–7/27	24	1,709	22.22%	0	0.00%	1,709	5,983	77.78%	7,692
18	7/29–7/30	36	4,004	32.29%	0	0.00%	4,004	8,395	67.71%	12,399
19	8/2–8/3	24	2,493	35.29%	0	0.00%	2,493	4,571	64.71%	7,064
20	8/5–8/6	36	3,647	30.67%	0	0.00%	3,647	8,246	69.33%	11,893
21	8/9–8/10	24	322	16.67%	0	0.00%	322	1,608	83.33%	1,930
22	8/12–8/13	36	149	3.90%	50	1.30%	198	3,623	94.81%	3,821
23	8/16–8/17	24	128	5.08%	0	0.00%	128	2,399	94.92%	2,527
24[c]	8/23–8/24	24	46	5.00%	0	0.00%	46	865	95.00%	910
25[c]	8/30–8/31	24	8	5.00%	0	0.00%	8	151	95.00%	159
26[c]	9/6–9/7	24	1	5.00%	0	0.00%	1	11	95.00%	12
27[d]	9/13–9/14	24	0	0.00%	0	0.00%	0	0	0.00%	0
28[d]	9/20–9/21	24	0	0.00%	0	0.00%	0	0	0.00%	0
29[d]	9/27–9/28	36	0	0.00%	0	0.00%	0	0	0.00%	0
Total			47,165	11.66%	8,076	2.00%	55,242	349,411	86.35%	404,653

Note: Total harvest data from fish ticket reporting as of November 15, 2021. MBH = Main Bay Hatchery. The MBH15A, MBH15B, MBH15C, MBH15D, and MBH15E marks were not observed in 2021 samples.

[a] No samples collected; assumed wild origin.

[b] No samples collected; proportions are an average of the previous and following periods sampled.

[c] No samples collected; proportions are from the previous period sampled.

Appendix E3.–Gulkana Hatchery sockeye salmon harvests and total contribution, 1981–2021.

	Hatchery contributions				
Year	Commercial[a]	Subsistence/ personal use[b]	Sport[c]	Broodstock/ escapement[d]	Total hatchery run
1981	3,600	478	13	4,650	8,736
1982	3,600	322	6	5,740	9,666
1983	6,600	1,167	23	8,396	16,177
1984	5,318	450	14	4,846	10,623
1985	31,955	2,121	114	24,021	58,170
1986	30,404	2,667	113	25,408	58,592
1987	47,347	3,071	184	25,505	76,105
1988	92,552	9,351	257	94,563	196,726
1989	175,643	13,734	531	120,872	310,781
1990	64,917	7,203	209	55,431	127,760
1991	102,009	9,449	220	63,400	175,078
1992	87,120	11,455	257	84,000	182,832
1993	149,844	14,812	370	17,600	182,625
1994	94,656	9,157	158	40,736	144,707
1995	147,844	15,289	342	45,733	209,208
1996	314,916	16,144	849	151,762	483,671
1997	266,724	8,857	189	92,745	368,515
1998	524,985	31,824	1,038	106,954	664,801
1999	945,287	42,281	868	109,663	1,098,099
2000	366,372	34,113	1,006	75,385	476,876
2001	196,326	35,699	356	75,620	308,001
2002	335,451	28,305	586	62,361	426,665
2003	138,056	19,513	284	45,024	202,845
2004	59,540	27,117	184	6,618	93,438
2005	95,897	28,031	225	92,455	216,583
2006	163,691	26,860	182	97,192	287,906
2007	94,232	9,656	97	28,648	132,625
2008	21,669	19,175	229	44,865	85,916
2009	59,948	29,355	376	43,409	133,047
2010	207,915	68,180	816	157,980	434,608
2011	487,916	33,113	326	59,589	580,917
2012	330,402	43,549	450	65,348	439,688
2013	318,212	45,800	541	72,369	436,788
2014	297,943	44,918	222	53,737	396,990
2015	137,414	48,887	85	40,123	226,509
2016	157,035	18,156	533	32,341	208,065
2017	32,292	10,492	216	17,083	32,292
2018	6,174	25,594	574	29,930	62,272
2019	39,882	11,664	532	15,600	67,678
2020	9,810	8,423	66	10,786	29,085
2021	47,588	29,733	653	9,562	87,536
Average (2011–2020)	181,708	29,060	382	39,691	250,835

[a] Commercial contribution are from strontium marks (2004–current); coded wire tags (1995–2003); and fry to adult survival, age composition at return, and exploitation rate (1977–1994).

[b] Subsistence and personal use contributions are from strontium marks (2004–current); coded wire tags (1995–2003); and fry to adult survival, age composition at return, and exploitation rate (1977–1994).

[c] Sport fishery contributions are the sum of sport harvest from Copper River mainstem and Gulkana River multiplied by Gulkana Hatchery contribution percentage to the Glennallen subsistence and Chitina personal use fisheries for that year.

[d] Broodstock and escapement contributions are based on survey of release sites and hatchery reporting.

Appendix E4.–Gulkana Hatchery salmon fry releases, 1976–2021.

	Chinook salmon			Sockeye salmon					
Release year	Monsoon Lake	Gulkana River (E. Fork)	Total Chinook salmon released	Gulkana I & II (Paxson Lake)	Summit Lake	Crosswind Lake	Harding Lake	Ten Mile Lake	Total sockeye salmon released
1976	ND	ND	ND	626,007	ND	ND	ND	101,600	727,607
1977	ND	ND	ND	516,326	ND	ND	ND	112,248	628,574
1978	ND	ND	ND	479,864	ND	ND	ND	104,058	583,922
1979	ND	ND	ND	940,666	ND	ND	ND	99,589	1,040,255
1980	ND	ND	ND	1,105,397	1,340,660	ND	ND	ND	2,446,057
1981	ND	ND	ND	3,388,682	1,860,491	ND	ND	ND	5,249,173
1982	ND	ND	ND	5,985,270	2,047,947	ND	ND	ND	8,033,217
1983	ND	ND	ND	5,470,056	4,312,628	ND	ND	ND	9,782,684
1984	ND	ND	ND	6,079,838	4,739,293	ND	ND	ND	10,819,131
1985	ND	ND	ND	10,130,942	9,296,882	1,419,095	ND	ND	20,846,919
1986	ND	ND	ND	8,586,509	14,999,085	ND	ND	ND	23,585,594
1987	ND	ND	ND	9,905,907	12,491,826	ND	ND	ND	22,397,733
1988	ND	1,388	1,388	6,389,963	12,026,642	2,487,396	503,375	ND	21,407,376
1989	15,977		15,977	10,870,655	12,004,491	3,130,373	515,046	ND	26,520,565
1990	ND	ND	ND	14,127,313	6,445,011	4,906,005	505,305	ND	25,983,634
1991	26,209	ND	26,209	11,288,721	6,109,833	5,469,759	ND	ND	22,868,313
1992	30,488	34,842	65,330	11,640,000	7,049,000	8,420,000	ND	ND	27,109,000
1993	ND	ND	ND	5,866,230	2,661,549	5,627,346	ND	ND	14,155,125
1994	ND	ND	ND	11,008,964	7,637,009	9,144,382	ND	ND	27,790,355
1995	ND	ND	ND	12,345,894	7,418,311	9,973,600	ND	ND	29,737,805
1996	ND	ND	ND	12,241,896	8,400,148	9,732,911	ND	ND	30,374,955
1997	ND	ND	ND	12,286,366	8,987,213	10,516,107	ND	ND	31,789,686
1998	ND	ND	ND	11,589,845	10,162,655	10,512,299	ND	ND	32,264,799
1999	ND	ND	ND	11,551,836	9,191,217	9,984,392	ND	ND	30,727,445
2000	ND	ND	ND	10,705,795	3,300,504	8,331,080	ND	ND	22,337,379
2001	ND	ND	ND	7,870,334	493,516	5,585,665	ND	ND	13,949,515
2002	ND	ND	ND	11,922,685	5,805,231	8,174,754	ND	ND	25,902,670
2003	ND	ND	ND	11,284,330	6,599,519	8,360,966	ND	ND	26,244,815
2004	ND	ND	ND	12,408,512	6,574,962	8,359,115	ND	ND	27,342,589
2005	ND	ND	ND	3,308,065	ND	3,703,295	ND	ND	7,011,360
2006	ND	ND	ND	5,523,920	4,681,325	10,017,211	ND	ND	20,222,456
2007	ND	ND	ND	6,000,000	6,000,000	10,000,000	ND	ND	22,000,000
2008	ND	ND	ND	6,000,000	6,000,000	9,980,000	ND	ND	21,980,000
2009	ND	ND	ND	6,000,000	6,000,000	10,000,000	ND	ND	22,000,000
2010	ND	ND	ND	6,010,000	6,000,000	10,000,000	ND	ND	22,010,000
2011	ND	ND	ND	6,000,000	5,980,000	10,000,000	ND	ND	21,980,000
2012	ND	ND	ND	7,340,000	5,950,000	9,570,000	ND	ND	22,860,000
2013	ND	ND	ND	6,000,000	6,000,000	6,560,000	ND	ND	18,560,000
2014	ND	ND	ND	6,000,000	6,000,000	10,000,000	ND	ND	22,000,000
2015	ND	ND	ND	5,997,000	5,990,000	10,000,000	ND	ND	21,987,000
2016	ND	ND	ND	6,004,000	ND	10,000,000	ND	ND	16,004,000
2017	ND	ND	ND	4,660,000	ND	9,690,000	ND	ND	14,350,000
2018	ND	ND	ND	5,962,463	ND	4,252,400	ND	ND	10,214,863
2019	ND	ND	ND	6,057,999	ND	8,427,130	ND	ND	14,485,129
2020	ND	ND	ND	5,962,155	ND	8,912,385	ND	ND	14,874,540
2021	ND	ND	ND	4,920,706	ND	6,306,358	ND	ND	11,227,064
Average (2011–2020)				5,998,362	2,992,000	7,741,192			17,732,853

Appendix E5.–Daily chum and coho salmon sales and sex ratios, sales summary, and broodstock summary at the Wally Noerenberg Hatchery, 2021.

	Chum salmon				Coho salmon	
Date	Sales harvest[a]	Sales harvest cumulative	Broodstock[b]	Broodstock cumulative	Sales harvest	Sales harvest cumulative
6/9	12,610	12,610	0	0	ND	ND
6/10–6/14	0	12,610	0	0	ND	ND
6/15	14,903	27,513	0	0	ND	ND
6/16	27,089	54,602	0	0	ND	ND
6/17	4,790	59,392	0	0	ND	ND
6/18–6/21	0	59,392	0	0	ND	ND
6/22	37,728	97,120	0	0	ND	ND
6/23	0	97,120	0	0	ND	ND
6/24	72,559	169,679	0	0	ND	ND
6/25–6/26	0	169,679	0	0	ND	ND
6/27	121,570	291,249	0	0	ND	ND
6/28	4,920	296,169	0	0	ND	ND
6/29	39,834	336,003	0	0	ND	ND
6/30–7/6	0	336,003	0	0	ND	ND
7/7	11,386	347,389	11,401	11,401	ND	ND
7/8	14,573	361,962	14,631	26,032	ND	ND
7/9	37,425	399,387	9,330	35,362	ND	ND
7/10	0	399,387	0	35,362	ND	ND
7/11	12,408	411,795	12,439	47,801	ND	ND
7/12	14,792	426,587	15,045	62,846	ND	ND
7/13	11,522	438,109	11,655	74,501	ND	ND
7/14	14,248	452,357	14,334	88,835	ND	ND
7/15	14,580	466,937	14,857	103,692	ND	ND
7/16	13,340	480,277	13,439	117,131	ND	ND
7/17	16,510	496,787	16,642	133,773	ND	ND
7/18	11,076	507,863	11,320	145,093	ND	ND
7/19	14,717	522,580	14,920	160,013	ND	ND
7/20	17,542	540,122	17,672	177,685	ND	ND
7/21	19,058	559,180	19,058	196,743	ND	ND
7/22	19,465	578,645	19,465	216,208	ND	ND
7/23	16,340	594,985	16,340	232,548	ND	ND
7/24	18,281	613,266	18,281	250,829	ND	ND
7/25	0	613,266	10,675	261,504	ND	ND
7/26	6,675	619,941	0	261,504	ND	ND
7/27–7/28	0	619,941	0	261,504	ND	ND
7/29	2,081	622,022	0	261,504	ND	ND
7/30	0	622,022	0	261,504	ND	ND
7/31	148	622,170	0	261,504	ND	ND
8/1	0	622,170	0	261,504	ND	ND
8/2	78	622,248	0	261,504	ND	ND
8/3–8/4	0	622,248	0	261,504	ND	ND
8/5	293	622,541	0	261,504	ND	ND
8/6	142	622,683	0	261,504	ND	ND

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Hatchery escapement summary[c]	Chum salmon	Coho salmon
Purse seine whole fish harvest	620,377	0
Raceway harvest[d]	11,037	0
Viable broodstock (spawned, eggs in incubators)	160,256	158
Unviable broodstock (green/over-ripe/bad)	8,561	44
Unspawned fish (e.g., excess males/females)	17,629	144
Holding mortalities (raceway, pen mortalities)	5,816	939
Estimated unharvested return[e]	10,000	5,000
Estimated total run to hatchery site	833,676	6,285

Sales summary	Chum salmon	Coho salmon
Purse seine whole fish sales	620,377	0
Raceway sales[f]	19,598	0
Carcass sales[g]	226,598	0
Total sales	866,573	0

Note: ND = No data available

[a] Daily whole fish from purse seine and raceway harvests as reported inseason and on fish tickets.

[b] Broodstock daily totals from PWSAC egg-take log.

[c] Determined by fish tickets, PWSAC egg-take log, and annual report (ADF&G *unpublished*).

[d] Raceway harvest includes whole fish as well as roe extraction not conducted as egg take.

[e] Fish remaining in saltwater and freshwater after all hatchery harvest is complete.

[f] Sum of raceway harvest, unviable broodstock, and unspawned fish.

[g] Represents the sale of "viable broodstock" carcasses.

Appendix E6.–Sockeye salmon hatchery and wild stock contributions to the Coghill District commercial common property fishery by period, 2021.

			Origin					
			Main Bay		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Total	Number	Percent	Total
1[a]	5/31–6/1	36	20	82.0%	20	4	18.0%	24
2[a]	6/3–6/4	36	59	82.0%	59	13	18.0%	72
3[a]	6/7–6/8	24	253	82.0%	253	55	18.0%	308
4[a]	6/10–6/11	36	393	82.0%	393	86	18.0%	479
5	6/14–6/15	24	541	81.8%	541	120	18.2%	661
6	6/17–6/18	36	3,310	74.1%	3,310	1,158	25.9%	4,468
7	6/21–6/22	24	674	11.5%	674	5,164	88.5%	5,838
8[b]	6/24–6/26	48	3,489	25.8%	3,489	10,052	74.2%	13,541
9	6/28–6/30	48	9,564	40.0%	9,564	14,346	60.0%	23,910
10	7/1–7/4	84	3,968	9.5%	3,968	37,693	90.5%	41,661
11[b]	7/5–7/7	60	10,685	28.8%	10,685	26,464	71.2%	37,149
12	7/8–7/11	84	12,884	48.0%	12,884	13,958	52.0%	26,842
13	7/12–7/14	60	3,439	30.8%	3,439	7,737	69.2%	11,176
14[c]	7/15–7/18	84	4,556	30.8%	4,556	10,252	69.2%	14,808
15[c]	7/19–7/21	60	2,088	30.8%	2,088	4,698	69.2%	6,786
16[c]	7/22	14	348	30.8%	348	782	69.2%	1,130
17[d]	7/23	14	0	0.0%	0	1,053	100.0%	1,053
18[d]	7/24	14	0	0.0%	0	1,510	100.0%	1,510
19[d]	7/25	14	0	0.0%	0	795	100.0%	795
20[d]	7/26	14	0	0.0%	0	747	100.0%	747
21[d]	7/27	14	0	0.0%	0	380	100.0%	380
22[d]	7/28	14	0	0.0%	0	1,319	100.0%	1,319
23[d]	7/30	14	0	0.0%	0	250	100.0%	250
24[d]	7/31	14	0	0.0%	0	60	100.0%	60
25[d]	8/1	12	0	0.0%	0	595	100.0%	595
26[d, e]	8/2	12						
27[d]	8/3	12	0	0.0%	0	867	100.0%	867
28[d]	8/4	12	0	0.0%	0	49	100.0%	49
29[d]	8/5	12	0	0.0%	0	68	100.0%	68
30[d]	8/6	12	0	0.0%	0	56	100.0%	56
31[d]	8/7	12	0	0.0%	0	40	100.0%	40
32[e]	8/8	12	0	0.0%	0	0	0.0%	0
33[d, e]	8/9	12						
34[d]	8/10	12	0	0.0%	0	71	100.0%	71
35[e, f]	8/11	12						
36[d]	8/12	12	0	0.0%	0	132	100.0%	132
37[d]	8/13	12	0	0.0%	0	107	100.0%	107
38[f]	8/14	12	0	0.0%	0	0	0.0%	0
39[d]	8/15	12	0	0.0%	0	34	100.0%	34
40[d]	8/16	12	0	0.0%	0	102	100.0%	102
41[d]	8/18	12	0	0.0%	0	157	100.0%	157
42[d]	8/20	12	0	0.0%	0	148	100.0%	148
43[d]	8/21	12	0	0.0%	0	98	100.0%	98
44[d]	8/22	12	0	0.0%	0	89	100.0%	89
45[d]	8/23	12	0	0.0%	0	54	100.0%	54
46[d]	8/24	12	0	0.0%	0	45	100.0%	45

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			Origin					
			Main Bay		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Total	Number	Percent	Total
47[d]	8/25	12	0	0.0%	0	114	100.0%	114
48[d]	8/26	12	0	0.0%	0	31	100.0%	31
49[a]	8/27	12	0	0.0%	0	11	100.0%	11
50[c,f]	8/28	12	0	0.0%	0	0	0.0%	0
51–61[d,c]	8/29–9/15	12						
62	9/9–916	168	0	0.0%	0	0	0.0%	0
Total			56,269	28.4%	56,269	141,706	71.6%	197,975

Note: Total harvest data from fish ticket reporting as of November 15, 2021. MBH = Main Bay hatchery. The MBH15A, MBH15B, MBH15C, MBH15D, and MBH15E marks were not observed in 2021 samples. Samples were not processed for SrCl mark identification, so the Gulkana Hatchery contribution is unknown. All fish without a thermal mark are assumed to be of wild origin.

[a] No samples collected; proportions are from the following period sampled.

[b] No samples collected; proportions are the average of the previous and following periods sampled.

[c] No samples collected; proportions are from the previous sampled period.

[d] No samples collected; wild origin assumed.

[e] Fewer than 3 permits fished; results are confidential.

[f] No harvest reported.

Appendix E7.–Pink salmon hatchery and wild stock contributions to the Coghill District commercial drift gillnet and purse seine fisheries by period, 2021.

			Origin												
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a]	5/31-6/1	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
2[a]	6/3-6/4	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
3[a]	6/7-6/8	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
4[a]	6/10-6/11	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
5[a]	6/14-6/15	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
6[b]	6/17-6/18	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	4	100.0%	4
7[b]	6/21-6/22	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	14	100.0%	14
8[b]	6/24-6/26	48	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	12	100.0%	12
9[b]	6/28-6/30	48	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	57	100.0%	57
10[b]	7/1-7/4	84	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2,625	100.0%	2,625
11[b]	7/5-7/7	60	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	20,801	100.0%	20,801
12	7/8-7/11	84	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	56,909	100.0%	56,909
13	7/12-7/14	60	1,490	2.3%	0	0.0%	0	0.0%	0	0.0%	1,490	63,319	97.7%	64,809
14[c]	7/15-7/18	84	3,891	5.0%	0	0.0%	778	1.0%	0	0.0%	4,669	73,152	94.0%	77,821
15	7/19-7/21	60	14,310	7.4%	0	0.0%	2,044	1.1%	0	0.0%	16,355	175,813	91.5%	192,168
16[c]	7/22	14	497	3.7%	0	0.0%	141	1.1%	0	0.0%	639	12,716	95.2%	13,355
17[c]	7/23	14	2,208	3.7%	0	0.0%	628	1.1%	0	0.0%	2,836	56,468	95.2%	59,304
18	7/24	14	0	0.0%	0	0.0%	2,782	1.1%	0	0.0%	2,782	261,494	98.9%	264,276
19[c]	7/25	14	0	0.0%	0	0.0%	160	0.5%	0	0.0%	160	30,178	99.5%	30,338
20	7/26	14	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	36,727	100.0%	36,727
21[c]	7/27	14	0	0.0%	182	1.6%	3,215	28.2%	61	0.5%	3,458	7,946	69.7%	11,404
22[c]	7/28	14	0	0.0%	1,414	1.6%	24,980	28.2%	471	0.5%	26,866	61,744	69.7%	88,610
23[c]	7/30	14	0	0.0%	43	1.6%	760	28.2%	14	0.5%	817	1,879	69.7%	2,696
24[c]	7/31	14	0	0.0%	27	1.6%	478	28.2%	9	0.5%	514	1,182	69.7%	1,696
25	8/1	12	0	0.0%	2,198	3.2%	38,833	56.4%	733	1.1%	41,763	27,110	39.4%	68,873
26[c, d]	8/2	12												
27	8/3	12	3,978	11.1%	2,652	7.4%	0	0.0%	0	0.0%	6,630	29,171	81.5%	35,801
28[c]	8/4	12	55	0.0%	37	0.0%	0	0.0%	0	0.0%	91	402	81.5%	493
29[c]	8/5	12	34	5.6%	23	3.7%	298	48.4%	0	0.0%	355	260	42.3%	615
30[c]	8/6	12	18	5.6%	12	3.7%	160	48.4%	0	0.0%	191	140	42.3%	331

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			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
31[c]	8/7	12	11	5.6%	7	3.7%	93	48.4%	0	0.0%	111	82	0.0%	193
32[a]	8/8	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
33[c, d]	8/9	12												
34[c]	8/10	12	1,315	5.6%	877	3.7%	11,455	48.4%	0	0.0%	13,647	10,019	0.0%	23,666
35[c, d]	8/11	12												
36	8/12	12	0	0.0%	0	0.0%	525,503	96.8%	0	0.0%	525,503	17,324	0.0%	542,827
37[c]	8/13	12	0	0.0%	3,618	33.3%	6,861	63.2%	0	0.0%	10,479	374	0.0%	10,853
38[a]	8/14	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
39	8/15	12	0	0.0%	628,570	66.7%	279,364	29.6%	0	0.0%	907,934	34,921	0.0%	942,855
40[c]	8/16	12	0	0.0%	3,011	47.0%	3,140	49.0%	0	0.0%	6,152	253	0.0%	6,405
41	8/18	12	0	0.0%	210,155	27.4%	525,388	68.4%	0	0.0%	735,543	32,332	4.2%	767,875
42	8/20	12	6,434	1.2%	90,077	16.5%	276,664	50.6%	0	0.0%	373,175	173,719	31.8%	546,894
43[c]	8/21	12	2,831	1.0%	42,462	15.0%	186,833	66.0%	0	0.0%	232,126	50,955	15.9%	283,081
44[c]	8/22	12	1,991	1.0%	29,871	15.0%	131,434	66.0%	0	0.0%	163,296	35,846	10.5%	199,142
45	8/23	12	1,430	1.0%	18,589	13.0%	115,826	81.0%	0	0.0%	135,845	7,150	10.5%	142,995
46[e]	8/24	12	1,291	1.0%	16,777	13.0%	104,534	81.0%	0	0.0%	122,601	6,453	10.5%	129,054
47[e]	8/25	12	1,058	1.0%	13,760	13.0%	85,733	81.0%	0	0.0%	100,551	5,292	10.5%	105,843
48[e]	8/26	12	241	1.0%	3,135	13.0%	19,536	81.0%	0	0.0%	22,913	1,206	10.5%	24,119
49[e]	8/27	12	201	1.0%	2,610	13.0%	16,264	81.0%	0	0.0%	19,075	1,004	10.5%	20,079
50[a]	8/28	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
51-61[b, d]	8/29-9/8	12						Confidential						
62[a]	9/9-916	168	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Totals			44,926	0.9%	1,071,226	22.1%	2,377,886	49.1%	1,296	0.0%	3,495,334	1,351,874	27.9%	4,847,208

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No harvest reported.

[b] No samples collected; wild origin assumed.

[c] No samples collected; proportions are the average of the previous and following periods sampled.

[d] Fewer than 3 permits fished; results are confidential.

[e] No samples collected; proportions are from the previous sampled period.

Appendix E8.–Chum salmon hatchery and wild stock contributions to the Coghill District commercial drift gillnet and purse seine harvest, 2021.

			Origin									
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a]	5/31–6/1	36	10,611	96.6%	0	0.0%	186	1.7%	5,806	186	1.7%	10,983
2	6/3–6/4	36	29,011	96.6%	0	0.0%	509	1.7%	14,656	509	1.7%	30,029
3	6/7–6/8	24	10,138	100.0%	0	0.0%	0	0.0%	16,477	0	0.0%	10,138
4	6/10–6/11	36	2,701	74.6%	0	0.0%	345	9.5%	6,606	575	15.9%	3,621
5	6/14–6/15	24	153	56.3%	9	3.1%	68	25.0%	11,550	43	15.6%	272
6	6/17–6/18	36	1,710	61.5%	0	0.0%	786	28.3%	10,944	285	10.3%	2,779
7	6/21–6/22	24	15,495	91.0%	0	0.0%	1,524	9.0%	10,818	0	0.0%	17,019
8	6/24–6/26	48	232,316	95.7%	2,581	1.1%	7,735	3.2%	38,291	0	0.0%	242,641
9	6/28–6/30	48	128,882	94.7%	4,344	3.2%	2,896	2.1%	10,386	0	0.0%	136,123
10	7/1–7/4	84	202,326	96.8%	4,496	2.2%	2,248	1.1%	16,062	0	0.0%	209,070
11	7/5–7/7	60	294,627	88.3%	10,649	3.2%	28,398	8.5%	19,568	0	0.0%	333,674
12	7/8–7/11	84	136,165	90.1%	6,642	4.4%	4,982	3.3%	13,336	3,321	2.2%	151,110
13	7/12–7/14	60	26,436	96.6%	0	0.0%	307	1.1%	18,853	615	2.2%	27,358
14[b]	7/15–7/18	84	11,352	96.6%	0	0.0%	132	1.1%	18,930	264	2.2%	11,748
15[b]	7/19–7/21	60	2,501	96.6%	110	4.2%	29	1.1%	9,540	58	2.2%	2,588
16[c]	7/22	14	0	0.0%	0	0.0%	0	0.0%	1,190	693	100.0%	693
17[c]	7/23	14	0	0.0%	0	0.0%	0	0.0%	0	119	100.0%	119
18[c]	7/24	14	0	0.0%	0	0.0%	0	0.0%	0	913	100.0%	913
19[c]	7/25	14	0	0.0%	0	0.0%	0	0.0%	0	152	0.0%	152
20[c]	7/26	14	0	0.0%	0	0.0%	0	0.0%	0	188	100.0%	188
21[c]	7/27	14	0	0.0%	0	0.0%	0	0.0%	0	97	0.0%	97
22[c]	7/28	14	0	0.0%	0	0.0%	0	0.0%	0	665	100.0%	665
23[c]	7/30	14	0	0.0%	0	0.0%	0	0.0%	0	50	100.0%	50
24[c]	7/31	14	0	0.0%	0	0.0%	0	0.0%	0	47	100.0%	47
25[c]	8/1	12	0	0.0%	0	0.0%	0	0.0%	0	290	100.0%	290
26[c, d]	8/2	12										
27[c]	8/3	12	0	0.0%	0	0.0%	0	0.0%	0	553	100.0%	553
28[c]	8/4	12	0	0.0%	0	0.0%	0	0.0%	0	73	0.0%	73
29[c]	8/5	12	0	0.0%	0	0.0%	0	0.0%	0	121	100.0%	121
30[c]	8/6	12	0	0.0%	0	0.0%	0	0.0%	0	50	100.0%	50

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			Origin								
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
31[c]	8/7	12	0	0.0%	0	0.0%	0	0.0%	0	37	100.0%	37
32[e]	8/8	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
33[c, d]	8/9	12										
34[c]	8/10	12	0	0.0%	0	0.0%	0	0.0%	0	45	100.0%	45
35[d, e]	8/11	12										
36[c]	8/12	12	0	0.0%	0	0.0%	0	0.0%	0	183	100.0%	183
37[c]	8/13	12	0	0.0%	0	0.0%	0	0.0%	0	111	100.0%	111
38[e]	8/14	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
39[c]	8/15	12	0	0.0%	0	0.0%	0	0.0%	0	16	100.0%	16
40[c]	8/16	12	0	0.0%	0	0.0%	0	0.0%	0	52	100.0%	52
41[c]	8/18	12	0	0.0%	0	0.0%	0	0.0%	0	75	100.0%	75
42[c]	8/20	12	0	0.0%	0	0.0%	0	0.0%	0	72	100.0%	72
43[c]	8/21	12	0	0.0%	0	0.0%	0	0.0%	0	52	100.0%	52
44[c]	8/22	12	0	0.0%	0	0.0%	0	0.0%	0	30	100.0%	30
45[c]	8/23	12	0	0.0%	0	0.0%	0	0.0%	0	27	100.0%	27
46[c]	8/24	12	0	0.0%	0	0.0%	0	0.0%	0	9	100.0%	9
47[c]	8/25	12	0	0.0%	0	0.0%	0	0.0%	0	44	100.0%	44
48[c]	8/26	12	0	0.0%	0	0.0%	0	0.0%	0	22	100.0%	22
49[c]	8/27	12	0	0.0%	0	0.0%	0	0.0%	0	3	100.0%	3
50[e]	8/28	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
51–61[c, d]	8/29–9/15	12										
62[e]	9/9–916	168	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Totals			1,104,424	92.5%	28,722	2.4%	50,144	4.2%	1,183,290	10,682	0.9%	1,193,972

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No harvest reported.

[b] No samples collected; wild origin assumed.

[c] No samples collected; proportions are the average of the previous and following periods sampled.

[d] Fewer than 3 permits fished; results are confidential.

[e] No samples collected; proportions are from the previous sampled period.

Appendix E9.–Sockeye salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2021.

			Origin					
			Main Bay		Hatchery	Wild		
Period	Dates	Hours	Number	Percent	Total	Number	Percent	Total
1[a, b]	5/31–6/1	36						
2[a]	6/3–6/4	36	0	0.0%	0	332	100.0%	332
3[a]	6/7–6/8	24	961	98.0%	961	20	2.0%	981
4[c]	6/10–6/11	24	1,495	98.0%	1,495	31	2.0%	1,526
5	6/14–6/15	24	11,282	98.0%	11,282	235	2.0%	11,517
6	6/17–6/18	24	14,613	96.7%	14,613	495	3.3%	15,108
7	6/21	12	25,288	94.2%	25,288	1,556	5.8%	26,844
8	6/24	12	52,720	96.0%	52,720	2,197	4.0%	54,917
9	6/28	12	62,436	96.8%	62,436	2,036	3.2%	64,472
10	7/1	12	43,543	95.6%	43,543	2,025	4.4%	45,568
11	7/13–7/14	24	19,984	85.0%	19,984	3,527	15.0%	23,510
12	7/15–7/16	36	81,649	97.2%	81,649	2,333	2.8%	83,982
13[d]	7/19–7/20	24	16,656	97.0%	16,656	515	3.0%	17,171
14[d]	7/22–7/23	24	7,497	97.0%	7,497	232	3.0%	7,729
15[d]	7/26–7/27	24	9,039	97.0%	9,039	280	3.0%	9,319
16[d]	7/29–7/30	24	4,908	97.0%	4,908	152	3.0%	5,060
17[a]	8/2–8/3	24	0	0.0%	0	2,136	100.0%	2,136
18[a]	8/5–8/6	24	0	0.0%	0	247	100.0%	247
19[a]	8/9–8/10	24	0	0.0%	0	1,324	100.0%	1,324
20[a]	8/12–8/13	24	0	0.0%	0	0	0.0%	0
21[a]	8/16–8/17	24	0	0.0%	0	1,068	100.0%	1,068
22[a]	8/23–8/24	24	0	0.0%	0	263	100.0%	263
23[a]	8/30–8/31	24	0	0.0%	0	0	0.0%	0
24[a]	9/6–9/7	24	0	0.0%	0	0	0.0%	0
Total			352,071	94.3%	352,071	21,143	5.7%	373,214

Note: Total harvest data from fish ticket reporting as of November 15, 2021. MBH = Main Bay Hatchery. The MBH15A, MBH15B, MBH15C, MBH15D, MBH15E, MBH18C, MBH18D, and MBH18E marks were not observed in 2021 samples. Samples were not processed for SrCl mark identification, so the Gulkana Hatchery contribution is unknown. All fish without a thermal mark are assumed to be of wild origin.

[a] No samples collected; wild origin assumed.

[b] Fewer than 3 permits fished; results are confidential.

[c] No samples collected; proportions are from the following sampled period.

[d] No samples collected; proportions are from the previous sampled period.

Appendix E10.–Pink salmon hatchery and wild stock contributions to the Eshamy District commercial fishery by period, 2021.

			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Total	Number	Percent	Total
1[a, b]	5/31–6/1	36												
2[c]	6/3–6/4	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
3[a]	6/7–6/8	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1	0.0%	1
4[a]	6/10–6/11	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2	0.0%	2
5[a]	6/14–6/15	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3	100.0%	3
6[a]	6/17–6/18	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	5	100.0%	5
7[a]	6/21	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	4	100.0%	4
8[a]	6/24	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	59	100.0%	59
9[a]	6/28	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	26	100.0%	26
10[a]	7/1	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	221	100.0%	221
11	7/13–7/14	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	23,392	100.0%	23,392
12	7/15–7/16	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	55,215	100.0%	55,215
13[a]	7/19–7/20	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	50,652	100.0%	50,652
14[a]	7/22–7/23	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	7,920	100.0%	7,920
15[a]	7/26–7/27	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	33,190	100.0%	33,190
16[a]	7/29–7/30	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	4,831	100.0%	4,831
17[a]	8/2–8/3	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	17,436	100.0%	17,436
18[a]	8/5–8/6	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2,241	100.0%	2,241
19[a]	8/9–8/10	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	28,977	100.0%	28,977
20[c]	8/12–8/13	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
21[a]	8/16–8/17	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	43,313	100.0%	43,313
22[a]	8/23–8/24	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	11,276	100.0%	11,276
23[c]	8/30–8/31	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
24[c]	9/6–9/7	24	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			0	0.0%	0	0.0%	0	0.0%	0	0.0%	104,819	278,765	100.0%	278,765

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No samples collected; wild origin assumed.

[b] Fewer than 3 permits fished; results are confidential.

[c] No harvest reported.

Appendix E11.–Chum salmon hatchery and wild stock contributions to the Eshamy District commercial fishery by period, 2021.

			Origin								
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Total	Number	Percent	Total
1[a]	5/31–6/1	36										
2	6/3–6/4	36	8,692	67.8%	217	23.7%	3,042	23.7%	11,952	869	6.8%	12,821
3	6/7–6/8	24	9,207	77.0%	0	16.0%	1,913	16.0%	11,120	837	7.0%	11,957
4	6/10–6/11	24	3,673	71.4%	147	22.9%	1,175	22.9%	4,995	147	2.9%	5,142
5	6/14–6/15	24	1,775	41.4%	0	44.8%	1,923	44.8%	3,697	592	13.8%	4,289
6	6/17–6/18	24	3,424	46.0%	298	41.0%	3,052	41.0%	6,773	670	9.0%	7,443
7	6/21	12	4,962	41.4%	0	57.1%	6,844	57.1%	11,806	171	1.4%	11,977
8	6/24	12	14,238	41.2%	814	52.9%	18,307	52.9%	33,359	1,220	3.5%	34,579
9	6/28	12	5,505	27.4%	0	71.4%	14,360	71.4%	19,865	239	1.2%	20,104
10	7/1	12	5,455	38.2%	839	52.9%	7,553	52.9%	13,846	420	2.9%	14,266
11[b]	7/13–7/14	24	2,071	38.2%	319	52.9%	2,867	52.9%	5,257	159	2.9%	5,416
12[b]	7/15–7/16	36	2,536	38.2%	390	52.9%	3,511	52.9%	6,437	195	2.9%	6,632
13[b]	7/19–7/20	24	672	38.2%	103	52.9%	931	52.9%	1,706	52	2.9%	1,758
14[c]	7/22–7/23	24	0	0.0%	0	0.0%	0	0.0%	0	126	100.0%	126
15[c]	7/26–7/27	24	0	0.0%	0	0.0%	0	0.0%	0	802	100.0%	802
16[c]	7/29–7/30	24	0	0.0%	0	0.0%	0	0.0%	0	77	100.0%	77
17[c]	8/2–8/3	24	0	0.0%	0	0.0%	0	0.0%	0	442	100.0%	442
18[c]	8/5–8/6	24	0	0.0%	0	0.0%	0	0.0%	0	26	100.0%	26
19[c]	8/9–8/10	24	0	0.0%	0	0.0%	0	0.0%	0	337	100.0%	337
20[d]	8/12–8/13	24	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
21[c]	8/16–8/17	24	0	0.0%	0	0.0%	0	0.0%	0	111	100.0%	111
22[c]	8/23–8/24	24	0	0.0%	0	0.0%	0	0.0%	0	25	100.0%	25
23[d]	8/30–8/31	24	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
24[d]	9/6–9/7	24	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			67,684	46.4%	3,388	2.3%	67,302	46.1%	138,374	7,647	5.2%	146,021

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] Fewer than 3 permits fished; results are confidential.

[b] No samples collected; proportions are from the previous sampled period.

[c] No samples collected; wild origin assumed.

[d] No harvest reported.

Appendix E12.–Daily sockeye salmon sales and sex ratios, sales summary, and broodstock summary at the Main Bay Hatchery, 2021.

Date	Sales harvest[a]	Sales harvest cumulative	Broodstock[b]	Broodstock cumulative
6/17	8,339	8,339	0	0
6/18–6/19	10,561	18,900		0
6/20	22,986	41,886		0
6/21	8,356	50,242		0
6/22	22,564	72,806		0
6/23	10,475	83,281		0
6/24		83,281		0
6/25	20,475	103,756		0
6/26		103,756		0
6/27	10,820	114,576		0
6/28	18,761	133,337		0
6/29	14,574	147,911		0
6/30	5,682	153,593		0
7/1	9,486	163,079		0
7/2	15,529	178,608		0
7/3		178,608		0
7/4	15,671	194,279		0
7/5	10,563	204,842		0
7/6	17,420	222,262		0
7/7	8,887	231,149		0
7/8		231,149		0
7/9	9,454	240,603		0
7/10		240,603		0
7/11	14,233	254,836		0
7/12		254,836		0
7/13		254,836		0
7/14	5,476	260,312		0
7/13–7/30		260,312		0
8/1		260,312	206	206
8/2		260,312	6	212
8/3		260,312	210	422
8/4		260,312	6	428
8/5		260,312	597	1,025
8/6		260,312	17	1,042
8/7		260,312	593	1,635
8/8		260,312	20	1,655
8/9		260,312	788	2,443
8/10		260,312	3	2,446
8/11		260,312	797	3,243
8/12		260,312	15	3,258
8/13		260,312	1,025	4,283
8/14		260,312	83	4,366
8/15		260,312	1,025	5,391
8/16		260,312	69	5,460
8/17		260,312	1,067	6,527
8/18		260,312	39	6,566
8/19		260,312	800	7,366
8/20		260,312	1,569	8,935

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Sockeye salmon	
Hatchery escapement summary[c]	Broodstock totals
Purse seine whole fish harvest	255,837
Raceway harvest[d]	0
Viable broodstock (spawned, eggs in incubators)	6,459
Unviable broodstock (green/over–ripe/bad)	151
Unspawned fish (e.g., excess males/females)	2,507
Holding mortalities (raceway, pen mortalities)	406
Estimated unharvested return[e]	0
Estimated total run to hatchery site	265,360

Sales summary	
Purse seine whole fish sales	255,837
Raceway sales[f]	0
Carcass sales[g]	0
Total sales	255,837

[a] Whole fish from purse seine and raceway sales.

[b] Broodstock daily harvest numbers include viable broodstock, unviable broodstock, unspawned fish, and holding mortalities.

[c] Determined by fish tickets, PWSAC egg-take log, and annual report (ADF&G *unpublished*).

[d] Raceway harvest includes whole fish as well as roe extraction not conducted as egg take.

[e] Fish remaining in saltwater and fresh water after all hatchery harvest is complete.

[f] Sum of raceway harvest, unviable broodstock, and unspawned fish.

[g] Represents the sale of "viable broodstock" carcasses.

Appendix E13.–Main Bay sockeye salmon harvests and total contribution, 1990–2021.

	Hatchery contributions[a]					
Year	Commercial	Subsistence/ homepack	Sport	Broodstock/ escapement	Cost recovery	Total hatchery contribution
1990	9,000	8	0	0	0	9,008
1991	480,200	260	0	4,700	0	485,160
1992	368,427	395	0	6,185	158,893	533,900
1993	208,709	656	0	8,020	97,594	314,979
1994	214,737	181	0	72,335	85,511	372,764
1995	134,778	114	0	11,148	62,782	208,822
1996	406,100	120	935	7,979	83,430	498,564
1997	845,871	147	1,031	16,498	236,031	1,099,578
1998	128,702	133	1,746	10,596	111,026	252,203
1999	143,511	187	2,207	7,104	0	153,008
2000	339,305	75	1,835	5,426	0	346,641
2001	770,884	170	2,861	10,508	50,458	834,881
2002	846,534	17	3,566	7,352	93,794	951,263
2003	1,047,133	229	4,731	6,878	366,768	1,425,739
2004	355,821	506	4,160	17,578	279,139	657,205
2005	233,089	531	2,884	44,366	188,904	469,774
2006	668,780	203	2,568	15,854	350,742	1,038,147
2007	819,244	290	6,290	20,285	321,330	1,167,439
2008	835,241	344	3,482	15,659	0	854,727
2009	756,130	244	5,473	10,815	131,553	903,971
2010	1,347,644	1,013	2,980	18,196	0	1,366,340
2011	1,274,096	983	3,291	12,810	0	1,291,180
2012	1,271,314	1,542	3,033	19,173	40	1,295,103
2013	639,157	1,333	5,420	189,059	0	834,969
2014	1,189,499	3,485	9,361	84,324	0	1,281,347
2015	1,331,675	2,332	5,574	31,255	180,516	1,551,352
2016	778,515	1,777	3,947	9,846	0	794,085
2017	552,059	3,404	5,663	48,535	0	609,661
2018	1,034,159	48	3,158	11,640	0	1,047,347
2019	862,311	2,706	6,162	9,269	8,987	880,567
2020	494,934	3,011	4,901	9,735	232,337	744,918
2021	446,944	4,298	6,721	15,498	255,837	729,298
Average (2011–2020)	942,772	2,286	5,261	42,565	42,188	1,033,053

[a] Commercial harvest estimates are from otolith marks. Sport harvest is the previous 5-year averages from PWS sport fishing surveys and commercial harvest contribution proportions. Subsistence/homepack estimates are derived from commercial harvest proportions. Broodstock/escapement and hatchery cost recovery are assumed to be 100% Main Bay Hatchery origin.

Appendix E14.–Main Bay Hatchery salmon fry releases, 1983–2021.

	Sockeye salmon					Pink salmon	Chum salmon
Release year	Primary return years[b]	Coghill Lake stock	Eshamy Lake stock	Eyak Lake stock	Total released[a]	Total released	Total released
1983	—	—	—	—	—	25,751,531	8,644,179
1984	—	—	—	—	—	41,945,403	7,490,291
1985	—	—	—	—	—	29,286,498	11,033,065
1986	—	—	—	—	—	32,728,663	5,258,175
1987	—	—	—	—	—	2,660,000	76,646,750
1988	1990, 1991	330,025	—	—	330,025	—	—
1989	1991, 1992	3,925,357	—	—	3,925,357	10,200,000	—
1990	1992, 1993	2,616,498	—	—	2,616,498	—	—
1991	1993, 1994	1,960,774	1,843,176	—	3,803,950	—	—
1992	1994, 1995	1,546,929	2,475,390	47,609	4,069,928	—	—
1993	1995, 1996	3,288,689	966,750	63,822	4,319,261	—	—
1994	1996, 1997	3,289,824	691,633		3,981,457	—	—
1995	1997, 1998	4,049,763	1,546,011	90,348	5,686,122	—	—
1996	1998, 1999	4,194,174	114,475	82,514	4,391,163	—	—
1997	1999, 2000	239,023	845,190	131,503	1,215,716	—	—
1998	2000, 2001	—	2,485,000	181,000	2,666,000	—	—
1999	2001, 2002	—	4,165,786	2,913,460	7,079,246	—	—
2000	2002, 2003	8,401,117	—	—	8,401,117	—	—
2001	2003, 2004	7,612,350	—	—	7,612,350	—	—
2002	2004, 2005	7,858,190	—	—	7,858,190	—	—
2003	2005, 2006	6,576,535	—	—	6,576,535	—	—
2004	2006, 2007	9,057,829	—	—	9,057,829	—	—
2005	2007, 2008	10,868,642	—	—	10,868,642	—	—
2006	2008, 2009	9,516,461	—	—	9,516,461	—	—
2007	2009, 2010	9,393,000	—	—	9,393,000	—	—
2008	2010, 2011	9,384,000	—	—	9,384,000	—	—
2009	2011, 2012	9,419,000	—	—	9,419,000	—	—
2010	2012, 2013	8,160,000	—	—	8,160,000	—	—
2011	2013, 2014	8,680,000	—	—	8,680,000	—	—
2012	2014, 2015	11,040,000	—	—	11,040,000	—	—
2013	2015, 2016	11,500,000	—	—	11,500,000	—	—
2014	2016, 2017	11,460,000	—	—	11,460,000	—	—
2015	2017, 2018	10,730,000	—	—	10,730,000	—	—
2016	2018, 2019	10,040,000	—	—	10,040,000	—	—
2017	2019, 2020	10,504,000	—	—	10,504,000	—	—
2018	2020, 2021	10,240,000	—	—	10,240,000	—	—
2019	2021, 2022	10,240,000	—	—	10,240,000	—	—
2020	2022,2023	11,080,000	—	—	11,080,000	—	—
2021	2023,2024	10,725,328	—	—	10,725,328	—	—
Average (2011–2020)		10,551,400			10,551,400		

[a] Totals do not include releases at other locations, such as Coghill, Davis, Eshamy, Eyak, Marsha, Pass, Solf, or Esther Pass.

Appendix E15.–Pink salmon hatchery and wild stock contributions to the Eastern District commercial fishery by period, 2021.

			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1	7/8	14	726,871	78.1%	0	0.0%	0	0.0%	0	0.0%	726,871	203,524	21.9%	930,395
2	7/12	14	3,000,851	94.7%	0	0.0%	0	0.0%	0	0.0%	3,000,851	168,587	5.3%	3,169,438
3	7/13	14	925,748	96.9%	0	0.0%	0	0.0%	0	0.0%	925,748	29,863	3.1%	955,611
4[a]	7/14	14	672,215	95.7%	0	0.0%	0	0.0%	0	0.0%	672,215	30,056	4.3%	702,271
5	7/16	14	1,530,342	94.6%	0	0.0%	0	0.0%	0	0.0%	1,530,342	87,951	5.4%	1,618,293
6[a]	7/17	14	1,302,560	87.7%	0	0.0%	0	0.0%	0	0.0%	1,302,560	182,547	12.3%	1,485,107
7	7/18	14	1,769,606	80.9%	0	0.0%	0	0.0%	0	0.0%	1,769,606	419,117	19.1%	2,188,723
8	7/19	14	1,072,584	77.7%	0	0.0%	0	0.0%	0	0.0%	1,072,584	308,551	22.3%	1,381,135
9[a]	7/20	14	491,038	61.7%	0	0.0%	8,657	1.1%	0	0.0%	499,695	296,723	37.3%	796,418
10	7/22	14	372,365	45.7%	0	0.0%	17,732	2.2%	0	0.0%	390,097	425,560	52.2%	815,657
11	7/24	14	619,368	50.0%	12,904	1.0%	25,807	2.1%	0	0.0%	658,079	580,658	46.9%	1,238,736
12[a]	7/25	14	332,603	52.7%	13,368	2.1%	6,579	1.0%	0	0.0%	352,550	279,059	44.2%	631,609
13	7/26	14	351,448	55.3%	20,276	3.2%	0	0.0%	0	0.0%	371,723	263,586	41.5%	635,309
14	7/28	14	146,646	19.1%	8,147	1.1%	0	0.0%	0	0.0%	154,793	611,027	79.8%	765,820
15	7/30	14	300,661	25.0%	0	0.0%	0	0.0%	0	0.0%	300,661	901,984	75.0%	1,202,645
16	8/1	12	269,995	38.3%	37,499	5.3%	7,500	1.1%	0	0.0%	314,995	389,993	55.3%	704,988
17	8/3	12	327,876	48.4%	7,452	1.1%	89,421	13.2%	0	0.0%	424,748	253,359	37.4%	678,107
18	8/5	12	212,822	55.2%	12,047	3.1%	4,016	1.0%	0	0.0%	228,884	156,605	40.6%	385,489
19	8/10	12	123,652	12.8%	82,435	8.5%	20,609	2.1%	0	0.0%	226,696	741,915	76.6%	968,611
20	8/12	12	78,091	16.7%	29,284	6.3%	19,523	4.2%	0	0.0%	126,898	341,650	72.9%	468,548
21	8/13	12	2,424	1.8%	7,271	5.5%	2,424	1.8%	0	0.0%	12,119	121,191	90.9%	133,310
22	8/15	12	10,190	3.0%	40,760	11.9%	213,991	62.7%	0	0.0%	264,942	76,425	22.4%	341,367
23	8/16	12	13,503	9.4%	18,004	12.5%	3,001	2.1%	0	0.0%	34,507	109,523	76.0%	144,030
24	8/18	12	2,201	1.3%	13,203	7.9%	0	0.0%	0	0.0%	15,404	151,835	90.8%	167,239
25	8/20	12	0	0.0%	6,964	4.8%	0	0.0%	0	0.0%	6,964	137,534	95.2%	144,498
26[b]	8/21	12	0	0.0%	3,576	5.0%	0	0.0%	0	0.0%	3,576	67,951	95.0%	71,527
27[b]	8/22	12	0	0.0%	3,559	5.0%	0	0.0%	0	0.0%	3,559	67,622	95.0%	71,181
28[b]	8/23	12	0	0.0%	2,242	5.0%	0	0.0%	0	0.0%	2,242	42,602	95.0%	44,844
29[b]	8/24	12	0	0.0%	921	5.0%	0	0.0%	0	0.0%	921	17,490	95.0%	18,410
30[b]	8/25	12	0	0.0%	738	5.0%	0	0.0%	0	0.0%	738	14,017	95.0%	14,755

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			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
31[b]	8/26	12	0	0.0%	1,342	5.0%	0	0.0%	0	0.0%	1,342	25,506	95.0%	26,848
32[b]	8/27	12	0	0.0%	333	5.0%	0	0.0%	0	0.0%	333	6,332	95.0%	6,665
33[b]	8/28	12	0	0.0%	218	5.0%	0	0.0%	0	0.0%	218	4,143	95.0%	4,361
34[b]	8/29	12	0	0.0%	93	5.0%	0	0.0%	0	0.0%	93	1,770	95.0%	1,863
35[c]	8/30	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
36[c]	8/31	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
37[c]	9/1	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
38[c]	9/2	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
39[c]	9/3	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
40[c]	9/4	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
41[c]	9/5	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
42[c]	9/6	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
43[c]	9/7	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
44[c]	9/8	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
45[c]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			14,655,660	64.0%	322,637	1.4%	419,258	1.8%	0	0.0%	15,397,555	7,516,253	32.8%	22,913,808

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No samples collected; proportions are the average of the previous and following periods sampled.

[b] No samples collected; proportions are from the previous period sampled.

[c] No harvest reported.

Appendix E16.–Pink salmon hatchery and wild stock contributions to the Northern District commercial fishery by period, 2021.

			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a, b]	7/12	14						No Effort						
2	7/13	14	494,768	84.4%	0	0.0%	0	0.0%	0	0.0%	494,768	91,624	15.6%	586,392
3	7/19	14	352,267	56.3%	19,570	3.1%	6,523	1.0%	0	0.0%	378,361	247,891	39.6%	626,252
4	7/22	14	159,124	35.8%	9,360	2.1%	23,401	5.3%	0	0.0%	191,884	252,726	56.8%	444,610
5	7/24	14	329,584	42.4%	33,803	4.3%	67,607	8.7%	16,902	0.0%	447,896	329,584	42.4%	777,480
6	7//28	14	203,032	40.9%	53,429	10.8%	21,372	4.3%	0	0.0%	277,833	219,061	44.1%	496,894
7	7/30	14	91,139	13.5%	105,161	15.6%	210,321	31.3%	21,032	3.1%	427,653	245,375	36.5%	673,028
8	8/1	12	15,594	3.1%	114,356	22.9%	150,741	30.2%	10,396	2.1%	291,087	207,919	41.7%	499,006
9	8/3	12	108,731	10.2%	434,926	40.9%	229,544	21.6%	0	0.0%	773,201	289,951	27.3%	1,063,152
10	8/12	12	7,438	2.1%	33,470	9.5%	22,313	6.3%	0	0.0%	63,221	290,071	82.1%	353,292
11	8/13	12	24,210	5.2%	256,626	55.2%	101,682	21.9%	9,684	2.1%	392,202	72,630	15.6%	464,832
12	8/15	12	27,330	2.1%	970,208	74.0%	95,654	7.3%	0	0.0%	1,093,192	218,638	16.7%	1,311,830
13	8/16	12	48,929	6.3%	530,065	68.4%	89,703	11.6%	8,155	1.1%	676,853	97,858	12.6%	774,711
14	8/18	12	0	0.0%	206,653	54.3%	56,728	14.9%	32,416	8.5%	295,797	85,092	22.3%	380,889
15	8/20	12	0	0.0%	165,564	25.3%	137,970	21.1%	0	0.0%	303,533	351,823	53.7%	655,356
16[c]	8/21	12	0	0.0%	192,810	51.7%	41,391	11.1%	0	0.0%	234,200	138,653	37.2%	372,853
17[c]	8/22	12	0	0.0%	93,965	51.7%	20,172	11.1%	0	0.0%	114,137	67,572	37.2%	181,709
18	8/23	12	0	0.0%	127,424	78.2%	1,874	1.1%	0	0.0%	129,298	33,730	20.7%	163,028
19[c]	8/24	12	0	0.0%	76,896	61.0%	19,122	15.2%	3,285	2.6%	99,303	26,848	21.3%	126,151
20[c]	8/25	12	0	0.0%	122,074	61.0%	30,357	15.2%	5,215	2.6%	157,646	42,621	21.3%	200,267
21	8/26	12	0	0.0%	100,622	43.8%	67,082	29.2%	11,979	5.2%	179,683	50,311	21.9%	229,994
22[c]	8/27	12	0	0.0%	55,471	59.1%	20,242	21.6%	3,537	3.8%	79,250	14,635	15.6%	93,885
23	8/28	12	0	0.0%	39,674	74.4%	7,439	14.0%	1,240	2.3%	48,353	4,959	9.3%	53,312
24[c]	8/29	12	0	0.0%	25,647	84.0%	2,623	8.6%	355	1.2%	28,625	1,913	6.3%	30,538
25	8/30	12	0	0.0%	44,454	93.5%	1,533	3.2%	0	0.0%	45,987	1,533	3.2%	47,520
26[b]	8/31	12												
27[d]	9/1	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
28[d]	9/2	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
29[d]	9/3	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
30[d]	9/4	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0

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			Origin										
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
31[d]	9/5	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
32[d]	9/6	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
33[d]	9/7	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
34[d]	9/8	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
35[d]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Totals			1,912,510	17.9%	3,820,212	35.8%	1,428,054	13.4%	124,196	1.2%	7,284,971	3,393,410	31.8%	10,678,381

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No samples collected; proportions are from the following period sampled.

[b] Fewer than 3 permits fished; results are confidential.

[c] No samples collected; proportions are the average of the previous and following periods sampled.

[d] No harvest reported.

Appendix E17.–Pink salmon hatchery and wild stock contributions to Prince William Sound, Bering, and Copper River commercial fishery, 2021.

		Origin											
		Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Districts		Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
Bering River	200[a]	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Copper River	212	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	33,744	100.0%	33,744
Eastern	221	14,655,660	64.0%	322,637	1.4%	419,258	1.8%	0	0.0%	15,397,555	7,516,253	32.8%	22,913,808
Northern	222	1,912,510	17.9%	3,820,212	35.8%	1,428,054	13.4%	124,196	1.2%	7,284,971	3,393,410	31.8%	10,678,381
Coghill	223	44,926	0.9%	1,071,226	22.1%	2,377,886	49.1%	1,296	0.0%	3,495,334	1,351,874	27.9%	4,847,208
Northwestern	224	5,376	0.1%	14,787	2.1%	115,005	16.3%	3,316	0.1%	138,484	569,068	80.4%	12,460,881
Eshamy	225	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	278,765	100.0%	278,765
Southwestern	226	613,692	4.9%	2,452,699	19.7%	2,886,829	23.2%	1,917,122	15.4%	7,870,341	4,590,540	36.8%	12,460,881
Montague	227	1,116,111	16.2%	1,117,155	16.2%	720,451	10.5%	263,231	3.8%	3,216,948	3,662,269	53.2%	6,879,217
Southeastern	228	6,447	0.8%	6,088	0.8%	3,606	0.5%	1,803	0.2%	17,944	747,232	97.7%	765,176
Unakwik	229[a]	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	243	100.0%	243
Total		18,354,722	30.8%	8,804,803	14.8%	7,951,089	13.3%	2,310,963	3.9%	37,421,577	22,143,398	37.0%	59,564,975

Note: Total harvest data from fish ticket reporting as of November 15, 2021. Homepack harvests are excluded.

[a] No samples collected; wild origin assumed.

Appendix E18.–Pink salmon hatchery and wild stock contributions to the Southwestern District commercial fishery by period, 2021.

			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a]	5/31–6/2	48												
2	6/3–6/4	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
3[b]	6/5–6/6	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	6	100.0%	6
4	6/7–6/9	48	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	17	100.0%	17
5	6/10–6/11	36	3	21.1%	0	0.0%	0	0.0%	0	0.0%	3	10	78.9%	13
6	6/12–6/13	36	5	21.1%	0	0.0%	0	0.0%	0	0.0%	5	20	78.9%	25
7	6/14–6/16	48	3	21.1%	0	0.0%	0	0.0%	0	0.0%	3	9	78.9%	12
8	6/17–6/18	36	3	21.1%	0	0.0%	0	0.0%	0	0.0%	3	12	78.9%	15
9	6/19–6/20	36	7	21.1%	0	0.0%	0	0.0%	0	0.0%	7	25	78.9%	32
10	6/21–6/23	48	21	21.1%	0	0.0%	0	0.0%	0	0.0%	21	79	78.9%	100
11	6/24–6/25	24	31	21.1%	0	0.0%	0	0.0%	0	0.0%	31	116	78.9%	147
12	6/26–6/27	24	215	21.1%	0	0.0%	0	0.0%	0	0.0%	215	802	78.9%	1,017
13	6/28–6/29	24	375	21.1%	0	0.0%	0	0.0%	0	0.0%	375	1,403	78.9%	1,778
14	7/1–7/2	36	619	42.2%	0	0.0%	0	0.0%	0	0.0%	619	846	57.8%	1,465
15	7/3–7/4	36	115	29.0%	2	0.5%	19	0.0%	13	3.2%	149	249	62.6%	398
16	7/5–7/6	24	200	29.0%	4	0.5%	33	0.0%	22	3.2%	259	432	62.6%	691
17	7/8	14	584	29.0%	11	0.5%	95	0.0%	64	3.2%	753	1,260	62.6%	2,013
18	7/10	14	79	29.0%	1	0.5%	13	0.0%	9	3.2%	102	171	62.6%	273
19[a, c]	7/12–7/13	24												
20[c]	7/14–7/15	24	2,475	29.0%	45	0.5%	404	0.0%	269	3.2%	3,194	5,340	62.6%	8,534
21[a, c]	7/17–7/18	36												
22[d]	7/19	14	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
23[e]	7/22	14	162,703	15.8%	10,847	1.1%	97,622	9.5%	65,081	6.3%	336,252	694,199	67.4%	1,030,451
24[e]	7/28	14	200,400	14.6%	71,572	5.2%	257,657	18.8%	229,029	16.7%	758,658	615,515	44.8%	1,374,173
25[e]	8/1	12	34,515	13.7%	13,275	5.3%	31,860	12.6%	18,585	7.4%	98,234	153,988	61.1%	252,222
26[e]	8/13	12	45,273	2.1%	226,366	10.5%	362,185	16.8%	679,097	31.6%	1,312,921	837,553	38.9%	2,150,474
27[e]	8/15	12	39,346	4.2%	157,281	17.0%	226,008	24.4%	195,693	21.1%	618,329	308,749	33.3%	927,078
28[e]	8/16	12	94,511	6.4%	346,540	23.4%	472,554	31.9%	157,518	10.6%	1,071,122	409,547	27.7%	1,480,669
29[e]	8/18	12	12,763	1.0%	229,736	18.8%	472,236	38.5%	178,684	14.6%	893,419	331,841	27.1%	1,225,260
30[e]	8/20	12	3,269	1.1%	49,039	15.8%	81,732	26.3%	49,039	15.8%	183,080	127,502	41.1%	310,582
31[e]	8/21	12	2,894	1.0%	70,759	25.6%	82,426	29.8%	27,576	10.0%	183,656	92,714	33.5%	276,370
32[e]	8/22	12	2,993	1.0%	101,773	35.4%	95,786	33.3%	11,973	4.2%	212,526	74,833	26.0%	287,359
33[e]	8/23	12	5,852	0.5%	380,360	33.9%	280,881	25.0%	81,924	7.3%	749,016	374,508	33.3%	1,123,524

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			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
34[e]	8/24	12	0	0.0%	222,843	32.3%	115,016	16.7%	71,885	10.4%	409,743	280,350	40.6%	690,093
35[e]	8/25	12	0	0.0%	147,055	37.0%	89,062	22.4%	41,424	10.4%	277,541	120,129	30.2%	397,670
36[e]	8/26	12	0	0.0%	90,227	41.7%	60,903	28.1%	22,557	10.4%	173,686	42,858	19.8%	216,544
37[e]	8/27	12	0	0.0%	111,201	47.4%	59,877	25.5%	24,440	10.4%	195,518	39,104	16.7%	234,622
38[e]	8/28	12	0	0.0%	70,977	53.1%	30,618	22.9%	13,917	10.4%	115,512	18,092	13.5%	133,604
39[e]	8/29	12	610	0.6%	54,174	49.3%	22,951	20.9%	14,258	13.0%	91,993	17,804	16.2%	109,797
40[e]	8/30	12	1,097	1.1%	44,989	45.6%	18,654	18.9%	15,362	15.6%	80,102	18,654	18.9%	98,756
41[e]	8/31	12	1,647	1.9%	37,875	43.4%	19,761	22.6%	13,174	15.1%	72,457	14,821	17.0%	87,278
42[a, e]	9/1	12												
43[a, d]	9/2	12												
44[d]	9/3	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
45[d]	9/4	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
46[d]	9/5	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
47[d]	9/6	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
48[d]	9/7	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
49[d]	9/8	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
50[d]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Totals			613,692	4.9%	2,452,699	19.7%	2,886,829	23.2%	1,917,122	15.4%	7,870,341	4,590,540	36.8%	12,460,881

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] Fewer than 3 permits fished; results are confidential.

[b] No samples collected; proportions are the average of the previous and following periods sampled.

[c] No samples collected; proportions are from the following period sampled.

[d] No harvest reported.

[e] No samples collected; wild origin assumed.

Appendix E19.–Chum salmon hatchery and wild stock contributions to commercial fisheries by period and mark identification, Southwestern District, 2021.

			Origin									
			Port Chalmers		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a]	5/31–6/2	48										
2	6/3–6/4	36	131	4.0%	1,051	32.0%	2,101	64.00%	3,283	0	0.0%	3,283
3[b]	6/5–6/6	36	112	3.0%	1,128	30.3%	2,408	64.65%	3,648	76	2.0%	3,724
4	6/7–6/9	48	219	2.0%	3,073	28.6%	7,023	65.31%	10,315	439	4.1%	10,754
5	6/10–6/11	36	222	7.0%	518	16.3%	2,444	76.77%	3,183	0	0.0%	3,183
6	6/12–6/13	36	489	5.4%	3,177	35.1%	5,132	56.76%	8,798	244	2.7%	9,042
7	6/14–6/16	48	327	3.3%	655	6.7%	8,839	90.00%	9,821	0	0.0%	9,821
8	6/17–6/18	36	370	2.4%	3,519	22.9%	10,728	69.79%	14,630	741	4.8%	15,371
9	6/19–6/20	36	610	3.8%	2,642	16.5%	12,599	78.48%	15,851	203	1.3%	16,054
10	6/21–6/23	48	0	0.0%	3,399	11.9%	24,813	86.90%	28,212	340	1.2%	28,552
11	6/24–6/25	24	723	2.5%	2,530	8.6%	25,647	87.59%	28,918	361	1.2%	29,279
12	6/26–6/27	24	990	2.1%	2,970	6.3%	42,073	89.46%	46,039	990	2.1%	47,029
13	6/28–6/29	24	1,813	6.0%	906	3.0%	27,641	91.04%	30,360	0	0.0%	30,360
14	7/1–7/2	36	4,228	17.6%	0	0.0%	19,729	82.35%	23,957	0	0.0%	23,957
15	7/3–7/4	36	1,031	6.5%	516	3.2%	13,912	87.05%	15,466	516	3.2%	15,982
16	7/5–7/6	24	302	3.0%	453	4.5%	8,501	85.37%	9,203	754	7.6%	9,957
17	7/8	14	427	3.4%	569	4.5%	11,707	92.46%	12,662	0	0.0%	12,662
18	7/10	14	372	3.4%	496	4.5%	10,039	91.01%	11,031	0	0.0%	11,031
19[a, c]	7/12–7/13	24										
20[c]	7/14–7/15	24	237	3.4%	316	4.5%	6,389	91.01%	7,020	0	0.0%	7,020
21[a, c]	7/17–7/18	36										
22[d]	7/19	14	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
23[e]	7/22	14	0	0.0%	0	0.0%	0	0.00%	0	1,821	100.0%	1,821
24[e]	7/28	14	0	0.0%	0	0.0%	0	0.00%	0	1,581	100.0%	1,581
25[e]	8/1	12	0	0.0%	0	0.0%	0	0.00%	0	400	100.0%	400
26[e]	8/13	12	0	0.0%	0	0.0%	0	0.00%	0	550	100.0%	550
27[e]	8/15	12	0	0.0%	0	0.0%	0	0.00%	0	13	100.0%	13
28[e]	8/16	12	0	0.0%	0	0.0%	0	0.00%	0	215	100.0%	215
29[e]	8/18	12	0	0.0%	0	0.0%	0	0.00%	0	244	100.0%	244
30[e]	8/20	12	0	0.0%	0	0.0%	0	0.00%	0	116	100.0%	116
31[e]	8/21	12	0	0.0%	0	0.0%	0	0.00%	0	60	100.0%	60
32[e]	8/22	12	0	0.0%	0	0.0%	0	0.00%	0	28	100.0%	28
33[e]	8/23	12	0	0.0%	0	0.0%	0	0.00%	0	242	100.0%	242

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			Origin									
			Port Chalmers		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
34[e]	8/24	12	0	0.0%	0	0.0%	0	0.00%	0	273	100.0%	273
35[e]	8/25	12	0	0.0%	0	0.0%	0	0.00%	0	95	100.0%	95
36[e]	8/26	12	0	0.0%	0	0.0%	0	0.00%	0	147	100.0%	147
37[e]	8/27	12	0	0.0%	0	0.0%	0	0.00%	0	62	100.0%	62
38[e]	8/28	12	0	0.0%	0	0.0%	0	0.00%	0	38	100.0%	38
39[e]	8/29	12	0	0.0%	0	0.0%	0	0.00%	0	10	100.0%	10
40[e]	8/30	12	0	0.0%	0	0.0%	0	0.00%	0	30	100.0%	30
41[e]	8/31	12	0	0.0%	0	0.0%	0	0.00%	0	10	100.0%	10
42[a, e]	9/1	12										
43[a, d]	9/2	12										
44[d]	9/3	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
45[d]	9/4	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
46[d]	9/5	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
47[d]	9/6	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
48[d]	9/7	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
49[d]	9/8	12	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
50[d]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.00%	0	0	0.0%	0
Total			12,772	4.3%	27,751	9.4%	244,959	82.73%	285,482	10,626	3.6%	296,109

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] Fewer than 3 permits fished; results are confidential.

[b] No samples collected; proportions are the average of the previous and following periods sampled.

[c] No samples collected; proportions are from the following period sampled.

[d] No harvest reported.

[e] No samples collected; wild origin assumed.

Appendix E20.–Chum salmon hatchery and wild stock contributions to commercial fisheries by period and mark identification, Montague District, 2021.

			Origin								
			Port Chalmers		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1	5/31–6/2	48	573	35.3%	477	29.4%	191	11.8%	1,241	382	23.5%	1,623
2	6/3–6/4	36	1,961	28.9%	3,168	46.7%	603	8.9%	5,732	1,056	15.6%	6,788
3	6/5–6/6	36	5,917	24.2%	15,599	63.7%	2,421	9.9%	23,937	538	2.2%	24,475
4	6/7–6/9	48	5,524	20.3%	16,112	59.3%	3,683	13.6%	25,319	1,841	6.8%	27,160
5	6/10–6/11	36	4,632	61.9%	713	9.5%	2,138	28.6%	7,482	0	0.0%	7,482
6	6/12–6/13	36	6,740	63.0%	2,577	24.1%	1,189	11.1%	10,506	198	1.9%	10,704
7	6/14–6/16	48	8,986	58.0%	5,616	36.2%	674	4.3%	15,276	225	1.4%	15,501
8	6/17–6/18	36	7472	85.7%	712	8.2%	534	6.1%	8,717	0	0.0%	8,717
9	6/19–6/20	36	9,731	100.0%	0	0.0%	0	0.0%	9,731	0	0.0%	9,731
10	6/21–6/23	48	10,810	93.5%	746	6.5%	0	0.0%	11,556	0	0.0%	11,556
11	6/24–6/25	36	19,113	91.7%	0	0.0%	1,738	8.3%	20,851	0	0.0%	20,851
12	6/26–6/27	36	20,303	85.0%	0	0.0%	1,194	5.0%	21,497	2,389	10.0%	23,886
13	6/28–6/30	48	37,289	97.1%	1,130	2.9%	0	0.0%	38,419	0	0.0%	38,419
14	7/1–7/2	36	16,548	57.4%	2,451	8.5%	9,193	31.9%	28,192	613	2.1%	28,805
15	7/3–7/4	36	14,881	91.7%	0	0.0%	0	0.0%	14,881	1,353	8.3%	16,234
16[a]	7/5–7/7	48	7,742	94.9%	73	0.9%	0	0.0%	7,815	340	4.2%	8,155
17	7/8–7/9	38	14,123	98.2%	257	1.8%	0	0.0%	14,380	0	0.0%	14,380
18[b]	7/10–7/11	36	5,837	98.2%	106	1.8%	0	0.0%	5,943	0	0.0%	5,943
19[b]	7/12–7/15	84	9,804	98.2%	178	1.8%	0	0.0%	9,982	0	0.0%	9,982
20[b]	7/17–7/18	36	3,521	98.2%	64	1.8%	0	0.0%	3,585	0	0.0%	3,585
21[c]	7/19	14	0	0.0%	0	0.0%	0	0.0%	0	213	100.0%	213
22[c]	7/28	14	0	0.0%	0	0.0%	0	0.0%	0	437	100.0%	437
23[c]	8/3	12	0	0.0%	0	0.0%	0	0.0%	0	289	100.0%	289
24[c]	8/10	12	0	0.0%	0	0.0%	0	0.0%	0	263	100.0%	263
25[c]	8/12	12	0	0.0%	0	0.0%	0	0.0%	0	118	100.0%	118
26[c]	8/16	12	0	0.0%	0	0.0%	0	0.0%	0	217	100.0%	217
27[c]	8/18	12	0	0.0%	0	0.0%	0	0.0%	0	82	100.0%	82
28[c]	8/20	12	0	0.0%	0	0.0%	0	0.0%	0	213	100.0%	213
29[c]	8/21	12	0	0.0%	0	0.0%	0	0.0%	0	72	100.0%	72
30[c]	8/22	12	0	0.0%	0	0.0%	0	0.0%	0	47	100.0%	47
31[c, d]	8/23	12										
32[c, d]	8/24	12										
33[c]	8/25	12	0	0.0%	0	0.0%	0	0.0%	0	7	100.0%	7

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			Origin								
			Port Chalmers		Wally Noerenberg		Armin F Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
34[c, d]	8/26	12										
35[e]	8/27	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
36[e]	8/28	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
37[e]	8/29	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
38[e]	8/30	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
39[e]	8/31	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
40[e]	9/1	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
41[e]	9/2	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
42[e]	9/3	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
43[e]	9/4	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
44[e]	9/5	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
45[e]	9/6	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
46[e]	9/7	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
47[e]	9/8	12	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
48[e]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			211,507	71.5%	49,979	16.9%	23,557	8.0%	285,043	10,896	3.7%	295,939

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No samples collected; proportions are from the previous and following period sampled.

[b] No samples collected; proportions are an average of the previous period sampled.

[c] No samples collected; wild origin assumed.

[d] Fewer than 3 permits fished; results are confidential.

[e] No harvest reported.

Appendix E21.–Pink salmon hatchery and wild stock contributions to commercial fisheries by period and mark identification, Montague District, 2021.

			Origin											
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
1[a]	5/31–6/2	48	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
2[b]	6/3–6/4	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	8	0.0%	8
3[b]	6/5–6/6	36	9	4.0%	0	0.0%	0	0.0%	0	0.0%	9	219	96.0%	228
4	6/7–6/9	48	15	0.0%	0	0.0%	0	0.0%	0	0.0%	15	341	0.0%	356
5[c]	6/10–6/11	36	1	2.0%	0	0.0%	0	0.0%	0	0.0%	1	43	98.0%	44
6[c]	6/12–6/13	36	1	2.0%	0	0.0%	0	0.0%	0	0.0%	1	58	98.0%	59
7	6/14–6/16	48	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	239	100.0%	239
8[c]	6/17–6/18	36	9	0.0%	0	0.0%	0	0.0%	0	0.0%	9	48	0.0%	57
9[c]	6/19–6/20	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2	0.0%	2
10[c]	6/21–6/23	48	2	16.0%	0	0.0%	0	0.0%	0	0.0%	2	9	84.0%	11
11[c]	6/24–6/25	36	26	16.0%	0	0.0%	0	0.0%	0	0.0%	26	137	84.0%	163
12[c]	6/26–6/27	36	984	16.0%	0	0.0%	0	0.0%	0	0.0%	984	5,166	84.0%	6,150
13	6/28–6/30	48	24,059	31.6%	0	0.0%	0	0.0%	0	0.0%	24,059	52,128	68.4%	76,187
14	7/1–7/2	36	12,952	54.8%	0	0.0%	0	0.0%	0	0.0%	12,952	10,667	45.2%	23,619
15	7/3–7/4	36	26,593	47.9%	0	0.0%	0	0.0%	0	0.0%	26,593	28,905	52.1%	55,498
16	7/5–7/7	48	24,850	54.2%	0	0.0%	0	0.0%	0	0.0%	24,850	21,027	45.8%	45,877
17	7/8–7/9	38	97,123	59.4%	0	0.0%	0	0.0%	0	0.0%	97,123	66,453	40.6%	163,576
18[c]	7/10–7/11	36	1,244	52.0%	0	0.0%	13	0.5%	38	1.6%	1,295	1,096	45.8%	2,391
19	7/12–7/15	84	49,711	44.7%	0	0.0%	1,184	1.1%	3,551	3.2%	54,445	56,812	51.1%	111,257
20	7/17–7/18	36	293,987	43.8%	7,000	1.0%	0	0.0%	7,000	1.0%	307,987	363,984	54.2%	671,971
21	7/19	14	352,634	49.0%	0	0.0%	7,503	1.0%	0	0.0%	360,137	360,137	50.0%	720,274
22	7/28	14	71,633	20.0%	17,908	5.0%	22,385	6.3%	0	0.0%	111,927	246,240	0.0%	358,167
23	8/3	12	53,426	10.5%	26,713	5.3%	21,371	4.2%	5,343	1.1%	106,853	400,697	78.9%	507,550
24	8/10	12	14,335	3.4%	33,448	8.0%	28,670	6.8%	28,670	6.8%	105,124	315,371	75.0%	420,495
25	8/12	12	34,534	5.3%	96,694	14.7%	89,787	13.7%	27,627	4.2%	248,642	407,496	62.1%	656,138
26	8/16	12	43,413	4.2%	358,157	34.4%	195,358	18.8%	21,706	2.1%	618,635	423,276	40.6%	1,041,911
27	8/18	12	0	0.0%	123,074	19.4%	79,119	12.5%	52,746	8.3%	254,940	378,014	59.7%	632,954
28	8/20	12	7,062	1.1%	240,092	35.8%	148,292	22.1%	56,492	8.4%	451,938	218,908	32.6%	670,846
29[c]	8/21	12	4,720	1.1%	141,595	31.6%	84,957	18.9%	37,759	8.4%	269,031	179,354	40.0%	448,385
30	8/22	12	2,423	1.1%	62,994	27.4%	36,343	15.8%	19,383	8.4%	121,142	109,028	47.4%	230,170
31[d,e]	8/23	12												

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			Origin										
			Solomon Gulch		Cannery Creek		Wally Noerenberg		Armin F. Koernig		Hatchery	Wild		
Period	Date	Hours	Number	Percent	Number	Percent	Number	Percent	Number	Percent	total	Number	Percent	Total
32[d,e]	8/24	12												
33[d]	8/25	12	261	1.1%	6,782	27.4%	3,913	15.8%	2,087	8.4%	13,043	11,739	47.4%	24,782
34[d,e]	8/26	12												
35[a]	8/27	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
36[a]	8/28	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
37[a]	8/29	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
38[a]	8/30	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
39[a]	8/31	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
40[a]	9/1	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
41[a]	9/2	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
42[a]	9/3	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
43[a]	9/4	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
44[a]	9/5	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
45[a]	9/6	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
46[a]	9/7	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
47[a]	9/8	12	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
48[a]	9/9–9/16	168	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			1,116,111	16.2%	1,117,155	16.2%	720,451	10.5%	263,231	3.8%	3,216,948	3,662,269	53.2%	6,879,217

Note: Total harvest data from fish ticket reporting as of November 15, 2021.

[a] No harvest reported.

[b] No samples collected; proportions are from the following period sampled.

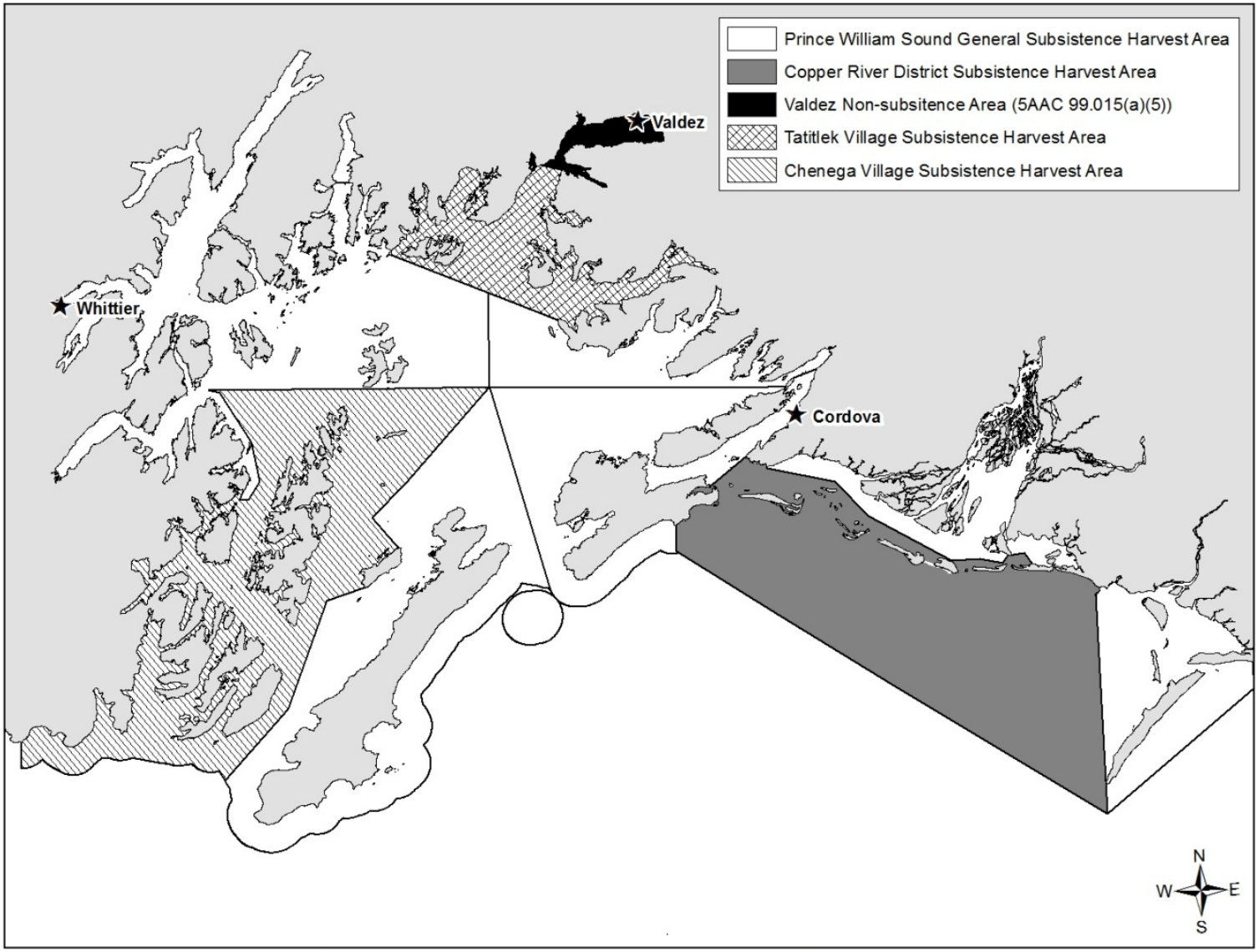
[c] No samples collected; proportions are an average of the previous and following periods sampled.

[d] No samples collected; proportions are from the previous period sampled.

[e] Fewer than 3 permits fished; results are confidential.

APPENDIX F: SUBSISTENCE AND COMMERCIAL HOMEPACK SALMON HARVEST

Appendix F1.–Map of Prince William Sound subsistence areas.



For illustration only and not to be used for navigational purposes

Appendix F2.–Salmon harvest and effort in the Copper River District subsistence drift gillnet fishery, 1961–2021.

	Permits				Reported harvest			
Year	Issued	Returned	Fished	Not fished[a]	Chinook	Sockeye	Coho	Total
1961	14	0	0	0	60	137	99	296
1962	14	0	0	0	44	135	3	182
1963	8	0	0	0	3	13	157	173
1964	5	0	0	2	14	0	0	14
1965	31	20	15	5	12	459	85	556
1966	45	31	21	10	47	175	0	222
1967	61	56	37	19	83	153	0	236
1968	17	15	7	8	11	36	0	47
1969	49	33	20	13	16	63	85	164
1970	32	27	24	3	66	179	0	245
1971	29	26	17	9	10	32	4	46
1972	104	80	75	5	149	569	53	771
1973	94	89	89	NA	153	326	180	659
1974	9	5	3	2	5	4	2	11
1975	2	2	2	NA	0	5	0	5
1976	27	14	14	NA	1	10	0	11
1977	23	22	22	NA	10	71	0	81
1978	34	28	9	19	37	18	12	67
1979	49	41	21	20	45	26	17	88
1980	39	35	18	17	19	27	17	63
1981	72	51	30	21	48	145	104	297
1982	108	90	48	42	60	634	106	800
1983	87	73	31	42	79	107	57	243
1984	118	104	57	47	68	324	135	527
1985	94	94	67	27	88	261	83	432
1986	88	85	57	28	86	348	47	481
1987	95	89	39	50	49	359	14	422
1988	114	97	57	40	59	226	42	327
1989	75	64	32	32	56	339	51	446
1990	88	76	40	39	60	469	82	611
1991	129	115	71	44	136	830	38	1,004
1992	126	114	67	47	142	785	42	969
1993	111	93	50	43	120	428	29	577
1994	101	97	60	37	164	474	67	705
1995	126	113	72	41	154	692	31	877
1996	176	158	101	57	276	969	47	1,292
1997	269	243	165	78	200	1,001	1,777	2,978
1998	245	231	144	87	295	850	680	1,825
1999	294	275	175	100	353	1,330	682	2,365
2000	416	400	293	107	689	4,360	44	5,093
2001	468	439	288	151	826	3,072	70	3,968
2002	355	331	199	132	549	3,067	28	3,644
2003	384	365	225	140	710	1,607	36	2,353
2004	511	482	321	161	1,106	1,822	46	2,974
2005	237	224	121	103	260	830	15	1,105

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	Permits				Reported harvest			
Year	Issued	Returned	Fished	Not fished[a]	Chinook	Sockeye	Coho	Total
2006	421	399	300	121	779	4,355	1	5,135
2007	469	440	295	145	1,145	6,148	15	7,308
2008	506	480	248	232	470	3,969	53	4,492
2009	323	293	128	165	212	1,764	22	1,998
2010	325	314	139	175	276	1,980	27	2,283
2011	273	263	113	150	212	1,783	34	2,029
2012	378	357	204	153	237	4,270	0	4,507
2013	531	492	321	171	854	5,639	1	6,494
2014	288	269	101	168	153	1,675	0	1,828
2015	241	231	97	134	167	1,403	10	1,580
2016	195	189	77	112	73	1,075	2	1,150
2017	450	416	265	151	778	2,448	43	3,269
2018	684	630	437	193	1,356	5,189	195	6,740
2019	573	555	347	208	808	6,163	330	7,301
2020	ND	ND	344	ND	657	7,091	326	8,074
2021	ND	ND	278	ND	624	5,338	233	6,195
Average (2011–2020)	401	378	231	160	530	3,674	94	4,297

[a] As reported on returned permits.

Appendix F3.–Salmon harvest and effort in the Prince William Sound general area subsistence fishery, 1966–2021.

	Permits				Reported harvest[a]						
Year	Issued	Returned	Fished	Not fished[b]	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
1966	3	3	0	0	0	3	19	20	50	0	92
1967	4	3	0	0	0	0	4	4	0	0	8
1968	4	3	0	0	0	0	20	156	0	22	198
1969	7	3	0	0	0	0	16	0	0	0	16
1970	1	1	0	0	0	0	0	0	0	0	0
1971	3	2	0	0	0	0	0	46	0	0	46
1972	0	0	0	0	0	0	0	0	0	0	0
1973	19	16	0	0	0	0	289	0	0	0	289
1974	3	1	0	0	0	0	0	0	0	0	0
1975	2	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0
1977	4	4	0	0	0	0	0	0	0	0	0
1978	3	2	0	0	0	0	0	0	0	0	0
1979	15	2	0	0	0	0	0	0	0	0	0
1980	26	15	0	0	0	7	6	0	0	0	13
1981	12	8	0	0	0	3	29	0	2	0	34
1982	35	27	0	0	0	84	4	31	24	0	143
1983	26	21	0	0	0	22	36	9	79	0	146
1984	8	8	0	0	0	10	0	11	2	0	23
1985	22	16	0	0	1	27	16	14	26	0	84
1986	25	14	0	0	0	5	15	0	0	0	20
1987	18	17	0	0	5	31	6	0	16	0	58
1988	7	7	0	0	2	51	7	10	9	0	79
1989	11	7	0	0	0	0	0	0	3	0	3
1990	8	7	0	0	0	0	7	4	0	0	11
1991	9	5	2	3	0	2	0	0	0	0	2
1992	10	6	1	5	0	20	0	0	0	0	20
1993	6	6	4	2	1	104	10	0	0	0	115
1994	5	4	2	2	0	0	0	0	0	0	0
1995	4	2	0	2	0	0	0	0	0	0	0
1996	10	7	0	7	0	0	0	0	0	0	0
1997	4	3	1	2	0	3	0	0	0	0	3
1998	4	3	0	3	0	0	0	0	0	0	0
1999	3	3	0	3	0	0	0	0	0	0	0
2000	3	3	0	3	0	0	0	0	0	0	0
2001	5	5	0	5	0	0	0	0	0	0	0
2002	11	9	2	7	0	31	0	9	7	0	47
2003	3	3	0	3	0	48	0	0	3	0	51
2004	12	11	5	6	0	8	0	0	3	0	11
2005	14	13	1	12	0	4	0	0	0	0	4
2006	11	9	2	7	0	20	0	30	0	0	50
2007	3	3	1	2	0	30	0	0	0	0	30

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	Permits				Reported harvest[a]						
Year	Issued	Returned	Fished	Not fished[b]	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
2008	11	10	4	6	1	32	0	0	0	0	33
2009	1	1	0	1	0	0	0	0	0	0	0
2010	2	2	1	1	0	0	0	0	0	0	0
2011	4	4	3	1	29	40	1	5	10	0	85
2012	14	12	6	6	0	40	0	0	22	0	62
2013	8	8	7	1	0	12	0	0	24	5	41
2014	23	21	2	19	0	3	0	0	0	0	3
2015	25	23	10	13	4	115	0	0	3	0	122
2016	5	5	1	4	0	1	0	0	0	0	1
2017	6	5	3	2	0	16	0	0	0	0	16
2018	26	24	8	16	1	103	22	9	19	0	154
2019	44	43	16	27	8	406	0	3	14	0	431
2020	ND	ND	41	ND	0	1,180	1	20	12	0	1,213
2021	ND	ND	45	ND	8	1,277	0	33	20	1	1,339
Average (2011–2020)	17	16	10	10	4	192	2	4	10	1	213

[a] Reported harvest only and includes harvest from Prince William Sound, exclusive of the Copper River District and customary and traditional subsistence locations within PWS.

[b] As reported on returned permits.

Appendix F4.–Area E salmon retained from the commercial harvest for homepack by species and gear type, 2005–2021.

	Number of permits			Number of Chinook			Number of sockeye			Number of coho			Number of pink			Number of chum		
Year	Purse seine	Drift gillnet	Set gillnet	Purse seine	Drift gillnet	Set gillnet	Purse seine	Drift gillnet	Set gillnet	Purse seine	Drift gillnet	Set gillnet	Purse seine	Drift gillnet	Set gillnet	Purse seine	Drift gillnet	Set gillnet
2005	0	226	0	0	767	0	0	1,897	0	0	226	0	0	21	0	0	27	0
2006	1	264	0	2	779	0	0	1,598	0	0	166	0	0	10	0	0	5	0
2007	1	279	0	1	1,028	0	0	2,086	1	0	353	0	0	43	0	0	102	0
2008	2	236	1	3	611	1	0	2,349	72	0	449	0	0	53	0	0	14	0
2009	0	325	3	0	876	0	0	6,474	7	0	767	0	0	61	0	0	67	0
2010	4	351	1	0	957	0	2	8,126	55	51	1,117	0	0	21	0	0	152	0
2011	8	350	2	0	1,344	2	73	9,740	268	350	802	0	0	82	0	0	184	0
2012	20	403	7	11	929	0	143	10,344	318	78	1,220	0	83	3,546	0	55	1,240	0
2013	1	379	7	0	633	24	50	10,532	228	25	288	0	0	248	0	0	81	0
2014	11	405	8	7	806	10	168	13,218	301	17	1,463	0	0	191	0	11	120	0
2015	8	385	9	5	1,179	9	401	11,607	965	23	1,500	0	0	169	0	4	123	20
2016	9	364	8	9	758	10	316	10,507	696	60	1,639	0	13	708	0	7	57	0
2017	29	408	8	37	788	6	218	10,197	1,306	177	2,448	0	287	615	19	28	209	2
2018	32	366	13	24	156	3	556	5,433	304	123	3,829	65	91	1,320	0	10	134	191
2019	33	379	11	45	789	11	867	9,914	763	755	1,260	0	8	1,424	5	42	382	0
2020	29	332	6	164	278	2	341	3,582	329	121	2,062	0	87	1,068	0	8	181	0
2021	52	222	14	177	82	8	720	3,844	1,337	246	353	0	327	316	241	57	392	2
Average (2011–2020)	18	377	8	30	766	8	313	9,507	548	173	1,651	7	57	937	2	17	271	21

Appendix F5.–Salmon harvest and effort in the PWS and upper Copper River federal subsistence fisheries, 2011–2021.

	Permits				Reported Harvest[a]			
Year	Issued	Returned	Fished	Not fished[b]	Chinook	Sockeye	Coho	Total
	Chitina Subdistrict							
2011	84	68	42	26	13	1,766	8	1,787
2012	89	80	33	47	6	1,332	8	1,346
2013	99	85	39	46	17	1,999	8	2,024
2014	113	103	49	54	14	1,549	68	1,631
2015	111	100	52	48	13	2,231	14	2,258
2016	128	95	43	52	16	1,549	33	1,598
2017	132	104	47	57	12	1,454	7	1,473
2018	132	117	58	59	92	3,144	28	3,264
2019	181	161	0	0	74	3,984	20	4,078
2020	215	187	95	92	76	3,229	23	3,328
2021	194	168	102	66	98	5,415	3	5,516
Average (2016–2020)	158	133	49	52	54	2,672	22	2,748
	Glennallen Subdistrict							
2011	280	240	173	67	701	14,163	53	14,917
2012	277	244	169	75	371	14,461	78	14,910
2013	274	236	160	76	331	15,834	24	16,189
2014	314	279	206	73	397	21,614	23	22,034
2015	325	286	210	76	384	24,695	13	25,092
2016	320	246	176	75	369	15,884	9	16,262
2017	338	283	212	71	399	15,691	1	16,091
2018	335	300	199	101	2,432	15,287	0	17,719
2019	343	304	0	0	838	15,703	0	16,541
2020	376	330	185	145	623	10,884	1	11,508
2021	355	294	173	121	418	12,296	0	12,714
Average (2016–2020)	342	293	154	78	932	14,690	2	15,624
	PWS/Chugach Subdistrict							
2011	66	55	29	26	0	35	542	577
2012	63	53	31	22	0	64	428	492
2013	65	46	23	17	0	102	329	431
2014	88	76	41	0	0	76	610	686
2015	94	68	47	15	0	152	893	1,045
2016	110	92	51	41	0	234	555	789
2017	97	83	49	34	0	127	514	641
2018	97	92	40	52	3	96	265	364
2019	120	89	54	35	0	116	671	787
2020	90	43	25	18	0	41	373	414
2021	74	64	27	37	0	19	449	468
Average (2016–2020)	103	80	44	36	1	123	476	599

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						Total federal subsistence harvests		
2011	430	363	244	119	714	15,964	603	17,281
2012	429	377	233	144	377	15,857	514	16,748
2013	438	367	222	139	348	17,935	361	18,644
2014	515	458	296	127	411	23,239	701	24,351
2015	530	454	309	139	397	27,078	920	28,395
2016	558	433	270	168	385	17,667	597	18,649
2017	567	470	308	162	411	17,272	522	18,205
2018	564	509	297	212	2,527	18,527	293	21,347
2019	644	554	54	35	912	19,803	691	21,406
2020	681	560	305	255	699	14,154	397	15,250
2021	623	526	302	224	516	17,730	452	18,698
Average (2016–2020)	603	505	247	166	987	17,485	500	18,971

[a] Reported harvest only.

[b] As reported on returned permits.

Appendix F6.–Salmon harvest and effort in the Tatitlek and Chenega subsistence fisheries, 2001–2021.

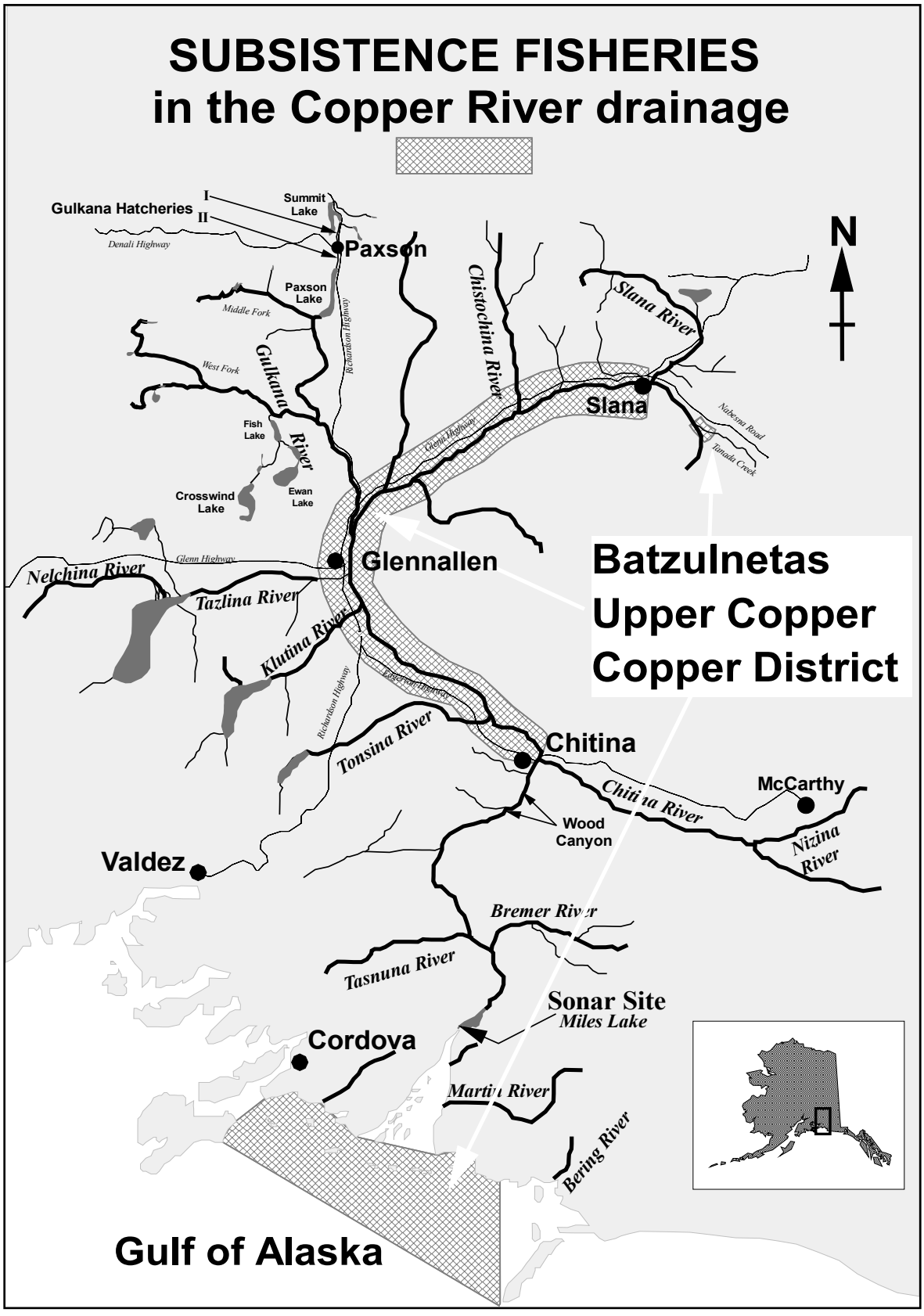
	Permits				Reported harvest[a]						
Year	Issued	Returned	Fished	Not fished[b]	Chinook	Sockeye	Coho	Pink	Chum	Unk.	Total
				Tatitlek							
2001	14	9	8	1	0	114	230	60	12	0	416
2002	19	6	5	1	0	375	136	28	36	0	575
2003	15	8	6	2	0	81	185	20	12	0	298
2004	18	12	9	3	2	322	315	46	28	0	713
2005	16	3	2	1	0	98	286	200	16	0	600
2006	12	2	1	1	0	3	18	35	25	0	81
2007	14	0	0	0	NR	NR	NR	NR	NR	NR	0
2008	2	1	1	0	0	60	0	0	0	0	60
2009	12	4	3	1	0	170	131	0	0	0	301
2010	8	5	5	0	0	165	142	50	10	0	367
2011	10	4	4	0	0	922	536	0	22	0	1,480
2012	32	7	6	1	15	728	75	0	0	0	818
2013	22	11	8	3	0	613	277	0	129	0	1,019
2014	7	5	2	3	0	46	103	0	0	0	149
2015	16	4	4	0	12	110	143	0	8	0	273
2016	5	5	0	5	0	0	0	0	0	0	0
2017	7	5	4	1	0	45	55	0	0	0	100
2018	24	6	2	4	0	143	0	0	4	10	157
2019	5	4	3	1	0	100	37	0	2	0	139
2020	6	4	4	0	2	43	27	37	7	0	116
2021	17	4	1	3	0	25	0	0	0	0	25
Average (2011–2020)	13	6	4	2	3	275	125	4	17	1	425
				Chenega							
2001	16	9	8	1	2	119	92	95	146	0	454
2002	10	5	4	1	10	142	123	83	60	0	418
2003	13	7	5	2	6	219	156	149	147	0	677
2004	8	5	4	1	3	535	44	56	84	0	722
2005	13	8	6	2	10	516	84	124	174	0	908
2006	11	6	4	2	0	159	1	28	111	0	299
2007	4	3	2	1	2	293	27	4	55	0	381
2008	15	3	1	2	4	97	75	70	30	0	276
2009	4	4	3	1	2	168	26	5	84	0	285
2010	9	5	5	0	0	55	0	6	87	0	148
2011	17	11	8	3	2	134	26	50	60	0	272
2012	23	14	6	8	0	603	20	0	77	1	701
2013	13	4	3	1	0	19	0	0	63	0	82
2014	10	5	2	3	0	0	0	10	0	0	10
2015	21	4	1	3	56	0	35	0	12	0	103
2016	7	6	1	5	0	32	1	0	0	0	33
2017	6	3	2	1	0	105	0	0	61	0	166
2018	22	1	1	0	0	13	2	0	40	0	55
2019	2	2	1	1	0	0	0	0	0	0	0
2020	12	10	1	8	0	5	0	0	11	0	16
2021	44	11	3	8	0	1	0	25	0	0	26
Average (2011–2020)	13	6	3	3	6	91	8	6	32	0	144

Note: NR = no harvest reported.

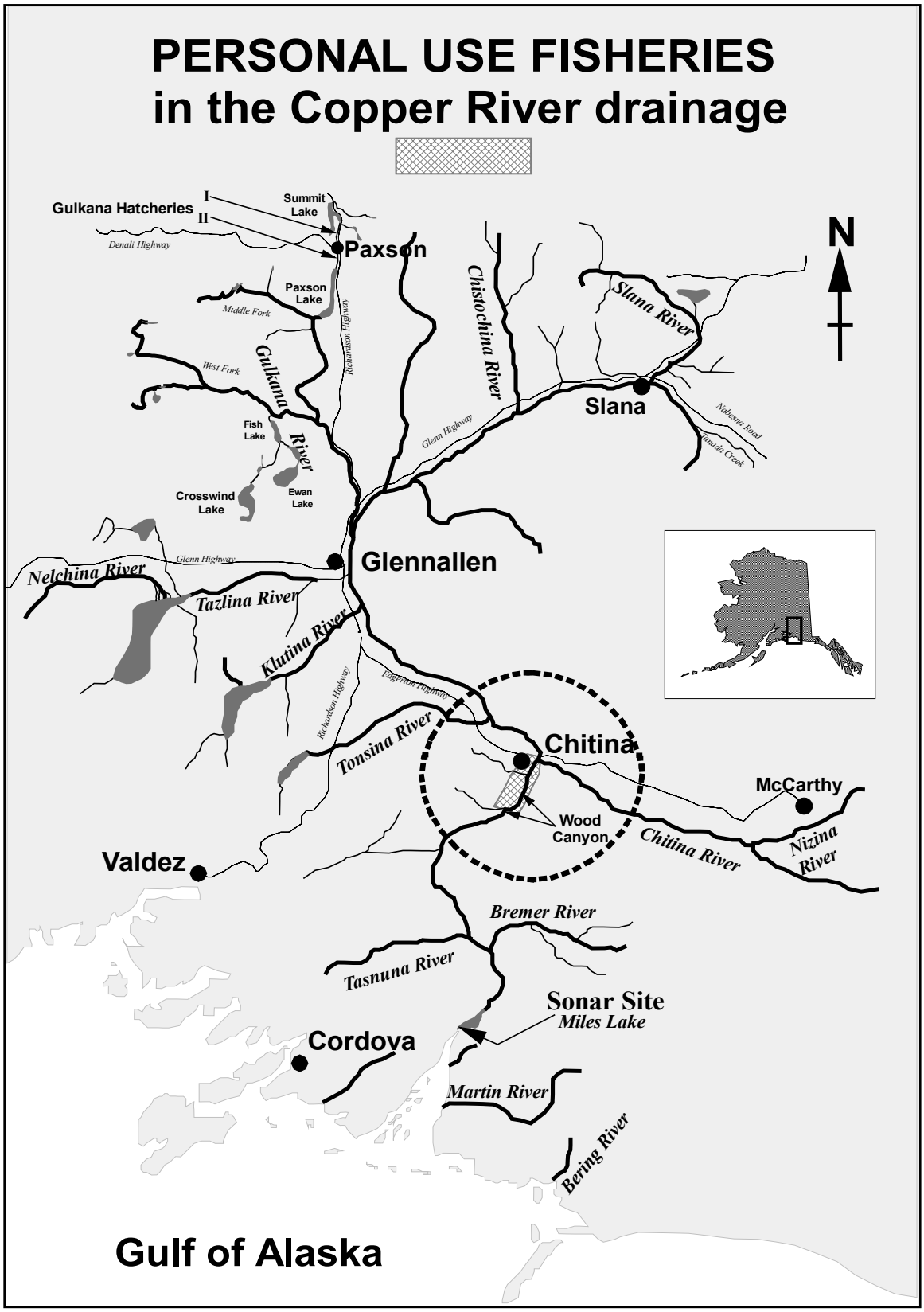
[a] Reported harvest only.

[b] As reported on returned subsistence permits.

Appendix F7.–Map of the subsistence salmon fisheries on the Copper River.



Appendix F8.–Map of the personal use salmon fishery on the Copper River.



Appendix F9.–Personal use and subsistence salmon harvests by year, district and gear types for the Upper Copper River subsistence and personal use fisheries, 2004–2021.

					Reported harvest				Expanded harvest					
			Permits		Salmon				Salmon				Other species	
Year	District	Gear	Issued	Returned	Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total	Steelhead	Other
2004	Glennallen	Dip net	330	262	273	4,851	76	5,200	310	5,315	112	5,737	3	0
	Glennallen	Fish wheel	626	594	2,893	47,279	465	50,637	3,036	50,195	465	53,696	61	0
	Chitina	Dip net	8,386	6,855	2,108	93,182	2,304	97,594	2,495	107,312	2,860	112,667	0	509
	Total		9,342	7,711	5,274	145,312	2,845	153,431	5,841	162,822	3,437	172,100	64	509
2005	Glennallen	Dip net	363	303	264	6,305	0	6,569	310	7,486	0	7,796	0	0
	Glennallen	Fish wheel	598	557	1,816	54,661	97	56,574	1,919	56,727	154	58,800	19	0
	Chitina	Dip net	8,230	6,937	1,773	106,797	1,562	110,132	2,043	120,013	1,869	123,925	0	478
	Total		9,191	7,797	3,853	167,763	1,659	173,275	4,272	184,226	2,023	190,521	19	478
2006	Glennallen	Dip net	338	273	266	6,243	10	6,519	335	7,170	10	7,515	0	1
	Glennallen	Fish wheel	646	605	2,178	46,516	200	48,894	2,434	50,540	202	53,176	0	82
	Chitina	Dip net	8,566	6,762	2,071	102,443	1,886	106,400	2,663	123,261	2,715	128,639	0	464
	Total		9,550	7,640	4,515	155,202	2,096	161,813	5,432	180,971	2,927	189,330	0	547
2007	Glennallen	Dip net	467	383	432	8,155	28	8,615	496	9,416	28	9,940	0	1
	Glennallen	Fish wheel	707	654	2,674	53,322	203	56,199	2,780	56,298	210	59,288	0	55
	Chitina	Dip net	8,490	7,187	2,388	112,753	1,492	116,633	2,694	125,126	1,742	129,562	0	660
	Total		9,664	8,224	5,494	174,230	1,723	181,447	5,970	190,840	1,980	198,790	0	716
2008	Glennallen	Dip net	536	447	445	6,517	35	6,997	496	7,177	35	7,708	0	0
	Glennallen	Fish wheel	650	600	1,793	33,687	447	35,927	1,885	35,980	458	38,323	0	75
	Chitina	Dip net	8,258	6,861	1,690	70,597	2,346	74,633	1,999	81,359	2,711	86,069	0	407
	Total		9,444	7,908	3,928	110,801	2,828	117,557	4,380	124,516	3,204	132,100	0	482
2009	Glennallen	Dip net	469	391	342	6,030	8	6,380	394	6,950	19	7,363	0	1
	Glennallen	Fish wheel	621	575	1,988	37,708	186	39,882	2,099	39,899	209	42,207	0	72
	Chitina	Dip net	7,958	6,908	199	81,432	1,452	83,083	214	90,035	1,712	91,961	0	267
	Total		9,048	7,874	2,529	125,170	1,646	129,345	2,707	136,884	1,940	141,531	0	340

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			Permits		Reported harvest				Expanded harvest					
					Salmon				Salmon				Other species	
Year	District	Gear	Issued	Returned	Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total	Steelhead	other
2010	Glennallen	Dip net	620	510	126	384	0	0	9,970	7,757	0	17,727	0	325
	Glennallen	Fish wheel	701	647	1,360	54,490	228	56,078	1,427	57,717	228	59,372	0	148
	Chitina	Dip net	9,970	7,757	587	116,790	1,592	118,969	700	138,487	2,013	141,200	0	365
	Total		11,291	8,914	2,073	171,664	1,820	175,047	12,097	203,961	2,241	218,299	0	838
2011	Glennallen	Dip net	617	530	681	13,034	63	13,778	734	14,454	68	15,256	0	0
	Glennallen	Fish wheel	689	625	1,518	41,009	283	42,810	1,585	45,168	304	47,057	0	164
	Chitina	Dip net	9,217	7,566	924	114,164	1,512	116,600	1,067	128,052	1,702	130,821	0	444
	Total		10,523	8,721	3,123	168,207	1,858	173,188	3,386	187,674	2,074	193,134	0	608
2012	Glennallen	Dip net	867	699	516	17,860	50	18,426	591	21,198	59	21,848	0	4
	Glennallen	Fish wheel	660	612	1,407	50,269	229	51,905	1,504	55,107	276	56,887	0	112
	Chitina	Dip net	10,016	8,030	496	109,777	1,132	111,405	567	127,143	1,385	129,095	0	267
	Total		11,543	9,341	2,419	177,906	1,411	181,736	2,662	203,448	1,720	207,830	0	383
2013	Glennallen	Dip net	808	667	794	22,924	55	23,773	902	25,879	79	26,860	4	0
	Glennallen	Fish wheel	531	494	1,169	44,201	63	45,433	1,246	47,849	64	49,159	22	25
	Chitina	Dip net	10,424	8,482	620	151,658	719	152,997	744	180,663	797	182,204	0	700
	Total		11,763	9,643	2,583	218,783	837	222,203	2,892	254,391	941	258,224	26	725
2014	Glennallen	Dip net	1,148	918	551	24,736	169	25,456	675	29,914	174	30,763	0	3
	Glennallen	Fish wheel	508	461	652	42,027	57	42,736	690	45,587	59	46,336	0	29
	Chitina	Dip net	11,618	9,332	652	137,179	854	138,685	719	157,215	1,129	159,063	0	329
	Total		13,274	10,711	1,855	203,942	1,080	206,877	2,084	232,716	1,362	236,162	0	361
2015	Glennallen	Dip net	1,128	909	1,087	29,092	26	30,205	1,297	35,416	32	36,745	0	0
	Glennallen	Fish wheel	503	455	870	43,316	45	44,231	915	46,384	45	47,344	0	234
	Chitina	Dip net	12,635	10,509	1,305	186,485	797	188,587	1,570	223,080	841	225,491	0	1,341
	Total		14,266	11,873	3,262	258,893	868	263,023	3,782	304,880	918	309,580	0	1,575

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			Permits		Reported harvest				Expanded harvest					
					Salmon				Salmon				Other species	
Year	District	Gear	Issued	Returned	Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total	Steelhead	other
2016	Glennallen	Dip net	1,300	1,030	833	22,525	20	23,378	1,002	26,301	20	27,323	0	0
	Glennallen	Fish wheel	469	413	930	31,703	25	32,658	1,073	36,173	25	37,271	0	424
	Chitina	Dip net	11,394	9,302	563	126,528	1,027	128,118	711	148,982	1,182	150,875	0	605
	Total		13,163	10,745	2,326	180,756	1,072	184,154	2,786	211,456	1,227	215,469	0	1,029
2017	Glennallen	Dip net	1,264	1,005	1,695	16,499	51	18,245	2,014	19,599	61	21,674	0	5
	Glennallen	Fish wheel	368	316	751	18,495	6	19,252	892	21,971	7	22,870	7	557
	Chitina	Dip net	9,490	7,665	1,709	113,202	532	115,443	1,961	132,694	715	135,370	0	673
	Total		11,122	8,986	4,155	148,196	589	152,940	4,867	174,264	783	179,914	7	1,235
2018	Glennallen	Dip net	1,312	1,045	1,243	14,637	92	15,972	1,459	17,028	117	18,604	3	4
	Glennallen	Fish wheel	347	311	2,747	19,353	33	22,133	3,072	22,331	34	25,437	10	15
	Chitina	Dip net	4,982	4,026	1,069	65,202	1,234	67,505	1,273	77,051	1,436	79,760	0	375
	Total		6,641	5,382	5,059	99,192	1,359	105,610	5,804	116,410	1,587	123,801	13	394
2019	Glennallen	Dip net	1,354	1,062	1,603	29,838	111	31,552	1,913	37,791	186	39,890	0	5
	Glennallen	Fish wheel	359	321	1,474	20,163	18	21,655	1,516	22,466	18	24,000	0	20
	Chitina	Dip net	8,070	6,639	2,251	147,256	927	150,434	2,611	171,203	1,064	174,878	0	609
	Total		9,783	8,022	5,328	197,257	1,056	203,641	6,040	231,460	1,268	238,768	0	634
2020	Glennallen	Dip net	1,290	1,046	970	18,042	34	19,046	1,012	19,036	36	20,084	0	1
	Glennallen	Fish wheel	375	320	1,121	14,407	30	15,558	1,210	15,541	31	16,782	0	36
	Chitina	Dip net	6,810	6,070	678	70,755	639	72,072	751	78,022	815	79,588	0	230
	Total		8,475	7,436	2,769	103,204	703	106,676	2,973	112,599	882	116,454	0	267
2021	Glennallen	Dip net	1,205	1,119	969	24,178	148	25,295	1,041	26,292	148	27,481	0	2
	Glennallen	Fish wheel	313	298	554	15,590	18	16,162	644	16,346	18	17,008	0	18
	Chitina	Dip net	7,222	6,681	794	136,477	404	137,675	832	143,301	439	144,572	0	434
	Total		8,740	8,098	2,317	176,245	570	179,132	2,517	185,939	605	189,061	0	454
Average (2011–2020)	Glennallen	Dip net	1,109	891	997	20,919	67	21,983	1,160	24,662	83	25,905	1	2
	Glennallen	Fish wheel	481	433	1,264	32,494	79	33,837	1,370	35,858	86	37,314	4	162
	Chitina	Dip net	9,466	7,762	1,027	122,221	937	124,185	1,197	142,411	1,107	144,715	0	557
	Total		11,055	9,086	3,288	175,634	1,083	180,005	3,728	202,930	1,276	207,934	5	721

APPENDIX G: HERRING

Appendix G1.–Annual Pacific herring biomass indices for Prince William Sound Area harvest management years 1974–2021.

Harvest management year	Use and harvest mortality (tons)[a]	Aerial survey estimate Mile-days of spawn[b]	Peak spring acoustic biomass estimate (tons)
1973–1974	6,375	96.0	ND
1974–1975	5,854	54.0	ND
1975–1976	2,584	41.2	ND
1976–1977	2,267	78.2	ND
1977–1978	1,391	50.8	ND
1978–1979	4,138	89.0	ND
1979–1980	6,323	95.5	ND
1980–1981	14,124	144.0	ND
1981–1982	7,861	85.5	ND
1982–1983	3,181	93.5	ND
1983–1984	6,604	104.8	ND
1984–1985	7,679	156.7	ND
1985–1986	11,180	146.8	ND
1986–1987	6,281	186.8	ND
1987–1988	9,871	269.8	ND
1988–1989	[c]	228.1	ND
1989–1990	10,103	164.4	ND
1990–1991	15,196	71.5	ND
1991–1992	20,752	119.8	ND
1992–1993	2,360	50.3	ND
1993–1994	151	23.1	ND
1994–1995	0	28.2	14,639
1995–1996	0	37.3	25,346
1996–1997	5,170	64.3	44,083
1997–1998	3,849	62.0	19,456
1998–1999	49	40.7	22,397
1999–2000	0	31.7	8,024
2000–2001	0	14.8	7,035
2001–2002	0	23.6	11,791
2002–2003	0	26.1	29,864
2003–2004	0	30.4	21,046
2004–2005	0	31.7	16,800[f]
2005–2006	0	21.7	7,600[f]
2006–2007	0	18.3	10,700[f]
2007–2008	0	33.2	23,300[f]
2008–2009	0	29.8	16,900[f]
2009–2010	0	32.7	28,500[f]
2010–2011	0	26.2	24,000[f]
2011–2012	0	39.3	30,000[f]
2012–2013	0	29.3	24,200[f]
2013–2014	0	36.6	22,000[f]
2014–2015	0	21.6	NA[g]
2015–2016	0	9.89	3,453

-continued-

Harvest management year	Use and harvest mortality (tons)[a]	Aerial survey estimate	Peak spring acoustic biomass estimate (tons)
		Mile–days of spawn[b]	
2016–2017	0	8.12	9,896
2017–2018	0	4.52	3,646
2018–2019	0	12.68	8,448
2019–2020	0	23.68	19,841
2020–2021	0	25.55	6,000

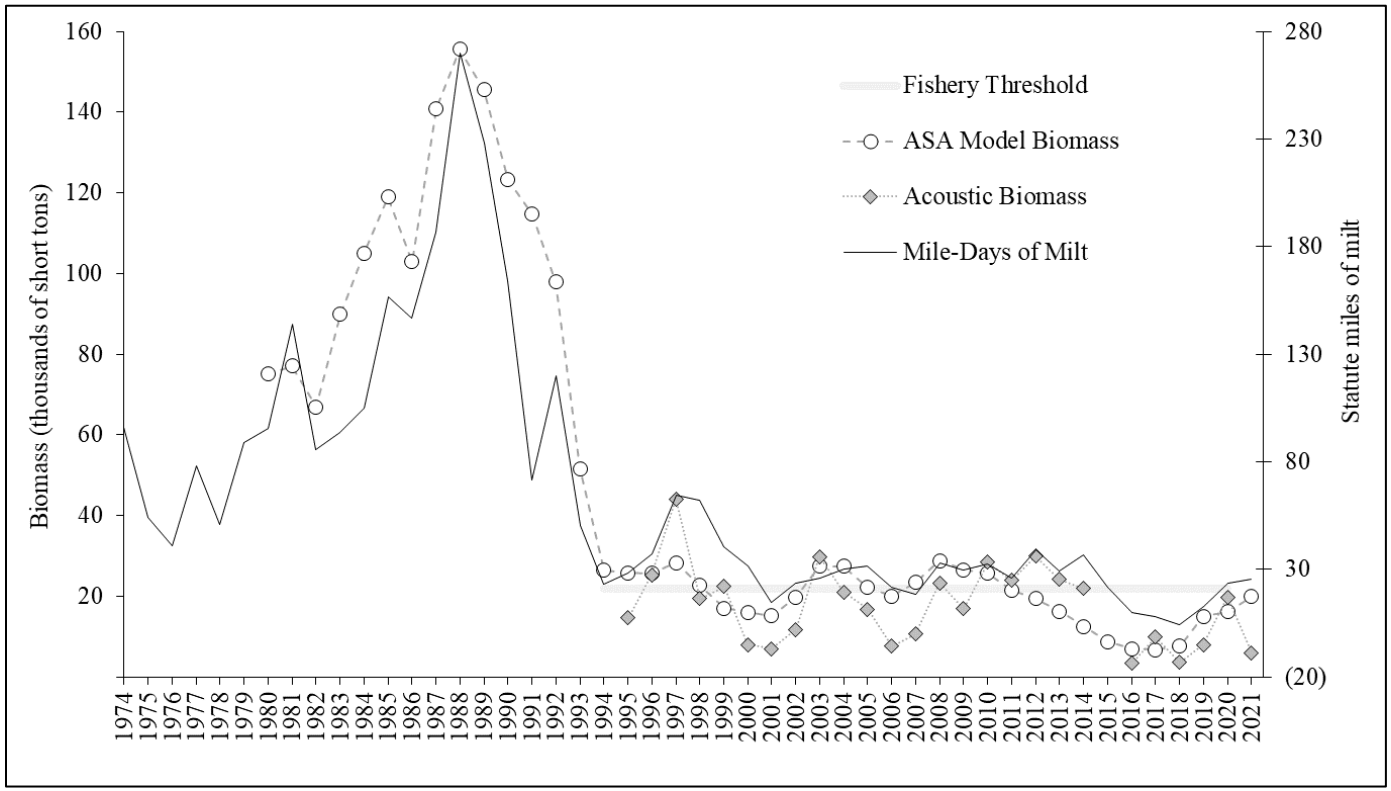
Note: All biomass estimates are in short tons (2,000 lb) and all linear extent of milt estimates are in statute miles. ND = no data.

[a] Represents the common property seine and gillnet sac roe harvest, and equivalent use of herring in closed pound spawn-on-kelp fisheries.

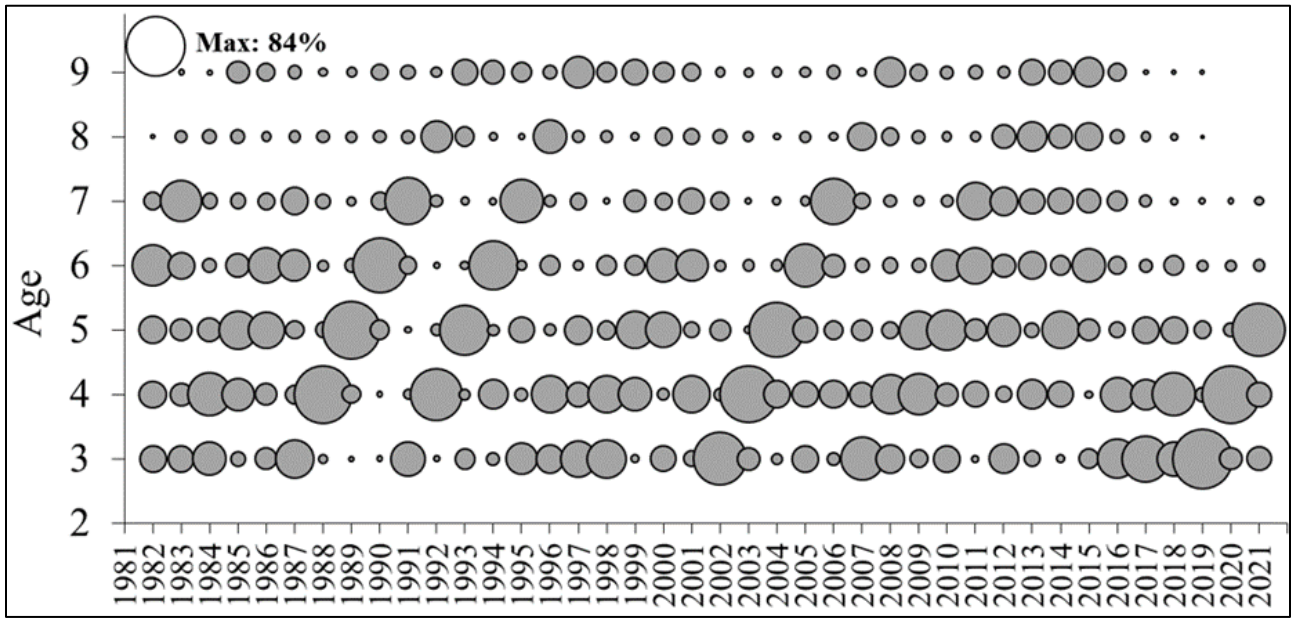
[b] Sum of the daily observed linear miles of herring milt calculated in ArcMap from digitized hand-annotated paper maps and data collected electronically.

[c] All herring commercial fisheries in PWS were closed in the spring of 1989 because of the potential for the contamination of harvests from the T/V *Exxon Valdez* oil spill.

Appendix G2.–Prince William Sound Area annual Pacific herring biomass indices by management year, 1974–2021.



Appendix G3.–Spring Prince William Sound Pacific herring age composition by year, 1982–2021.



Note: Circle size indicates percent contribution of age class to spawning population (see upper left for scale).