

Fishery Management Report No. 21-19

2019 Prince William Sound Area Finfish Management Report

by

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H_A
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient (multiple)	R
milliliter	mL	west	W	correlation coefficient (simple)	r
millimeter	mm	copyright	©	covariance	cov
		corporate suffixes:		degree (angular)	°
Weights and measures (English)		Company	Co.	degrees of freedom	df
cubic feet per second	ft ³ /s	Corporation	Corp.	expected value	E
foot	ft	Incorporated	Inc.	greater than	>
gallon	gal	Limited	Ltd.	greater than or equal to	≥
inch	in	District of Columbia	D.C.	harvest per unit effort	HPUE
mile	mi	et alii (and others)	et al.	less than	<
nautical mile	nmi	et cetera (and so forth)	etc.	less than or equal to	≤
ounce	oz	exempli gratia (for example)	e.g.	logarithm (natural)	ln
pound	lb	Federal Information Code	FIC	logarithm (base 10)	log
quart	qt	id est (that is)	i.e.	logarithm (specify base)	log ₂ , etc.
yard	yd	latitude or longitude	lat or long	minute (angular)	'
		monetary symbols (U.S.)	\$, ¢	not significant	NS
Time and temperature		months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H_0
day	d	registered trademark	®	percent	%
degrees Celsius	°C	trademark	™	probability	P
degrees Fahrenheit	°F	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	α
degrees kelvin	K	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
hour	h	U.S.C.	United States Code	second (angular)	"
minute	min	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
second	s			standard error	SE
Physics and chemistry				variance	
all atomic symbols				population sample	Var
alternating current	AC			sample	var
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				

FISHERY MANAGEMENT REPORT NO. 21-19

**2019 PRINCE WILLIAM SOUND AREA
FINFISH MANAGEMENT REPORT**

by

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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ii
LIST OF APPENDICES	iii
ABSTRACT	1
INTRODUCTION.....	1
Overview of Management Area and Commercial Salmon and Herring Fisheries.....	1
SALMON SEASON SUMMARY BY DISTRICT	3
Copper River District.....	3
Preseason Outlook and Harvest Strategy	4
Sockeye and Chinook Salmon Fishery Season Summary.....	4
Coho Salmon Fishery Season Summary.....	8
Bering River District	9
Preseason Outlook and Harvest Strategy	9
Sockeye Salmon Season Summary	9
Coho Salmon Season Summary.....	10
Coghill District	10
Preseason Outlook and Harvest Strategy	10
Season Summary	11
Unakwik District	12
Preseason Outlook and Harvest Strategy	12
Season Summary	12
Eshamy District	12
Preseason Outlook and Harvest Strategy	12
Season Summary	12
Port Chalmers Subdistrict.....	14
Preseason Outlook and Harvest Strategy	14
Season Summary	14
GENERAL PURSE SEINE DISTRICTS.....	14
2019 Season Summary	14
Eastern District	15
Northern District.....	16
Coghill District	17
Northwestern District	18
Southwestern District	18
Montague District.....	19
Southeastern District.....	19
PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE, PERSONAL USE, AND HOMEPACK FISHERIES	20
Lower Copper River and Prince William Sound.....	20
Tatitlek and Chenega Area Subsistence Fisheries	21
Upper Copper River.....	21

TABLE OF CONTENTS

	Page
Glennallen Subdistrict Subsistence Fishery	22
Batzulnetas Subsistence Fishery	22
Chitina Subdistrict Personal Use Fishery	22
2019 PRINCE WILLIAM SOUND HERRING FISHERIES	23
Season Summary	23
2019–2020 Herring Season Outlook.....	24
ACKNOWLEDGEMENTS.....	24
Permanent Employees with the Division of Commercial Fisheries.....	24
Seasonal Employees with the Division of Commercial Fisheries	24
REFERENCES CITED	28
TABLES AND FIGURES.....	29
APPENDIX A: COPPER RIVER	43
APPENDIX B: COGHILL DISTRICT, UNAKWIK DISTRICT AND PORT CHALMERS SUBDISTRICT	73
APPENDIX C: ESHAMY DISTRICT	87
APPENDIX D: PURSE SEINE FISHERIES PINK AND CHUM SALMON ESCAPEMENT.....	93
APPENDIX E: SALMON ENHANCEMENT	103
APPENDIX F: SUBSISTENCE AND COMMERCIAL HOMEPACK SALMON HARVEST	137
APPENDIX G: HERRING.....	157

LIST OF TABLES

Table	Page
1 Prince William Sound Area commercial salmon harvest by gear type and district, 2019.....	30
2 Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound Area, 2019.....	31
3 Average price paid to permit holders for salmon, Prince William Sound Area, 1995–2019.....	33
4 Estimated exvessel value of the total commercial salmon harvest by gear type and previous 10-year average, Prince William Sound Area, 2009–2019.....	34
5 Spawning escapement goals for Prince William Sound Area salmon stocks, 2019.....	36
6 Preseason harvest projections for the 2019 common property salmon fishery by district and species, Prince William Sound Area.....	38

LIST OF FIGURES

Figure	Page
1 Prince William Sound Area showing commercial fishing districts, salmon hatcheries, weir locations, and Miles Lake sonar camp.....	39
2 Prince William Sound Area showing commercial fishing districts and statistical reporting areas.....	40
3 Commercial salmon harvests in Prince William Sound Area, 1980–2019.....	41
4 Exvessel value of the commercial salmon harvest in the Prince William Sound Area by gear type, 2008–2019.....	42

LIST OF APPENDICES

Appendix	Page
A1 Total estimated sockeye salmon runs to the Copper River by end user or destination and the 10-year average, 2009–2019.	44
A2 Total estimated sockeye salmon runs to the Copper River by origin and the previous 10-year average, 2009–2019.	46
A3 Total estimated Chinook salmon run to the Copper River by end user or destination and the previous 10-year average, 2009–2019.	47
A4 Total commercial common property salmon harvest by species in the Copper River District, 1974–2019.	48
A5 Copper River District commercial common property drift gillnet salmon harvest by period, 2019.	49
A6 Daily salmon counts at Miles Lake sonar, 2019.	50
A7 Minimum and maximum inriver sonar goal and water stage height compared to actual daily salmon passage, Miles Lake sonar, 2019.	53
A8 Inriver salmon passage at the Miles Lake sonar, 1978–2019.	54
A9 Forecasted and actual semi-weekly sockeye and Chinook salmon harvest and weekly coho salmon harvest in the Copper River District drift gillnet fishery, 2019.	55
A10 Aerial escapement indices by statistical week and location for sockeye salmon returning to the Copper River Delta, 2019.	57
A11 Copper River and Bering River area sockeye salmon escapement indices, 2009–2019.	59
A12 Aerial survey indices of sockeye salmon escapement to the upper Copper River drainage, 2004–2019.	60
A13 Estimated age and sex composition of sockeye salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2019.	61
A14 Estimated age and sex composition of Chinook salmon harvested in the Copper River District commercial common property drift.	62
A15 Total estimated coho salmon run to the Copper River by end user or destination and the previous 10-year average, 2009–2019.	63
A16 Aerial escapement indices by statistical week and location for the coho salmon run to Copper River Delta, 2019.	64
A17 Copper River Delta and Bering River coho salmon escapement indices, 2009–2019.	66
A18 Estimated age and sex composition of coho salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2019.	67
A19 Total commercial common property salmon harvest by species in the Bering River District, 1974–2019.	68
A20 Bering River District commercial common property drift gillnet salmon harvest by period, 2019.	69
A21 Aerial escapement indices by statistical week and location for sockeye salmon returning to the Bering River District, 2019.	70
A22 Aerial escapement indices by statistical week and location for coho salmon returning to the Bering River District, 2019.	71
B1 Daily and cumulative salmon escapement through the Coghill River weir, 2019.	74
B2 Anticipated cumulative and daily sockeye salmon escapement based on three-year running averages compared to actual escapement through Coghill River weir, 2019.	75
B3 Salmon escapement by species in the Coghill District, 1972–2019.	76
B4 Coghill District commercial common property drift gillnet salmon harvest by period, 2019.	77
B5 Coghill District commercial common property purse seine salmon harvest by period, 2019.	79
B6 Commercial common property salmon harvest by species in the Coghill District, 2009–2019.	80
B7 Estimated age composition of sockeye escaped through Coghill Weir, 2019.	81
B8 Commercial common property salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, 2019.	82
B9 Commercial common property salmon harvest by species in the Unakwik District, 2009–2019.	83
B10 Port Chalmers subdistrict commercial common property drift gillnet harvest of salmon by period, 2019.	84
B11 Total commercial common property harvest by species in the Port Chalmers Subdistrict, June 1–July 30, 2014–2019.	85

LIST OF APPENDICES

Appendix	Page
C1 Total drift gillnet commercial common property salmon harvest by period in the Eshamy District, 2019.....	88
C2 Total set gillnet commercial common property salmon harvest by period in the Eshamy District, 2019.	89
C3 Total commercial common property salmon harvest by species in the Eshamy District, 2008–2019.....	90
C4 Estimated age composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fishery, 2019.	91
D1 Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 2019.	94
D2 Prince William Sound commercial common property purse seine salmon harvest by day, 2019.	95
D3 Area E commercial salmon harvest by species, excluding Copper River and Bering River districts, 1995–2019.....	98
D4 Prince William Sound commercial common property pink salmon harvest for all gear types, by district, 1995–2019.....	99
D5 Prince William Sound commercial common property chum salmon harvest for all gear types, by district, 1995–2019.....	100
D6 Prince William Sound pink salmon escapement indices by district, 1995–2019.	101
D7 Prince William Sound chum salmon escapement indices by district, 1995–2019.....	102
E1 Historical harvest contributions, thermally marked otolith releases, and total returns of coho salmon to Prince William Sound hatcheries, brood years 1990–2016.....	104
E2 Sockeye salmon hatchery and wild stock contributions to the Copper River drift gillnet commercial common property fishery by period, 2019.	106
E3 Gulkana Hatchery sockeye salmon harvests and total contribution, 1979–2019.	107
E4 Gulkana Hatchery salmon fry releases, 1974–2019.	108
E5 Daily chum and coho salmon sales and sex ratios, sales summary, and broodstock summary at the Wally Noerenberg Hatchery, 2019.....	109
E6 Sockeye salmon hatchery and wild stock contributions to the Coghill District commercial common property fishery by period, 2019.	111
E7 Pink salmon hatchery and wild stock contributions to the Coghill District commercial common property fishery by period, 2019.	113
E8 Chum salmon hatchery and wild stock contributions to the Coghill District commercial common property harvest, 2019.....	115
E9 Sockeye salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.	117
E10 Pink salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.	118
E11 Chum salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.	119
E12 Daily salmon sales and sex ratios, sales summary, and broodstock summary at Main Bay Hatchery, 2019. .	121
E13 Main Bay sockeye salmon harvests and total contribution, 1990–2019.....	122
E14 Main Bay Hatchery salmon fry releases, 1983–2019.....	123
E15 Pink salmon hatchery and wild stock contributions to the Eastern District commercial common property fishery by period, 2019.	124
E16 Pink salmon hatchery and wild stock contributions to the Northern District commercial common property fishery by period, 2019.	126
E17 Pink salmon hatchery and wild stock contributions to Prince William Sound, Bering, and Copper River commercial common property fishery, 2019.....	127
E18 Sockeye salmon hatchery and wild stock contributions to the Southwestern District commercial common property fishery by period, 2019.	128
E19 Pink salmon hatchery and wild stock contributions to the Southwestern District commercial common property fishery by period, 2019.	130
E20 Chum salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Southwestern District, 2019.	132
E21 Chum salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Montague District, 2019.....	134

LIST OF APPENDICES

Appendix	Page
E22 Pink salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Montague District, 2019.....	135
F1 Map of Prince William Sound Subsistence areas.	138
F2 Salmon harvest and effort in the Copper River District subsistence drift gillnet fishery, 1961–2019.	139
F3 Salmon harvest and effort in the Prince William Sound general area subsistence fishery, 1966–2019.	141
F4 Area E commercial homepack and subsistence harvests by permit holder community of residence, 2019.....	143
F5 Salmon retained from the commercial harvest for personal use (homepack) by district, species, and gear type, in Prince William Sound and the Copper River and Bering River districts, 1999–2019.....	144
F6 Salmon harvest and effort in the PWS and upper Copper River Federal subsistence fisheries, 2009–2019.....	146
F7 Salmon harvest and effort in the Tatitlek and Chenega subsistence fisheries, 1999–2019.	148
F8 Map of the subsistence salmon fisheries on the Copper River.	150
F9 Salmon harvest and effort in the Batzulnetas subsistence harvests, 1987–2019.	151
F10 Map of the personal use salmon fishery on the Copper River.....	152
F11 Personal use and subsistence salmon harvests by year, district and gear types for the Upper Copper River subsistence and personal use fisheries, 2004–2019.	153
G1 Annual Pacific herring biomass indices for Prince William Sound Area harvest management years 1974–2019.....	158
G2 Prince William Sound Area annual Pacific herring biomass indices by management year, 1974–2019.....	160
G3 Spring PWS Pacific herring age composition by year, 1982–2019. Circle size indicates percent contribution of age class to spawning population.....	161
G4 Location of spawning herring and miles of spawn observed during aerial surveys in the Prince William Sound Area, 2019.....	162

ABSTRACT

The 2019 Prince William Sound (PWS) management area commercial common property fishery salmon harvest was approximately 50.85 million fish. The harvest included 19,200 Chinook *Oncorhynchus tshawytscha*, 2.58 million sockeye *O. nerka*, 503,000 coho *O. kisutch*, 43.78 million pink *O. gorbuscha*, and 3.97 million chum salmon *O. keta*. An additional 6.38 million salmon were sold for hatchery cost recovery. The estimated value, including hatchery sales, was approximately \$118.37 million. During the 2019 season, 509 drift gillnet, 27 set gillnet, and 238 purse seine permit holders recorded at least 1 landing. Drift gillnet exvessel value was an estimated \$44.18 million; set gillnet exvessel value was an estimated \$2.60 million, and purse seine exvessel value was an estimated \$51.96 million. Revenue generated from hatchery cost recovery and raceway sales was approximately \$18.60 million. The PWS management area personal use and subsistence salmon fisheries (including upper Copper River personal use and subsistence fisheries) harvested approximately 268,000 fish. Approximately 2,838 subsistence and 8,070 personal use permits were issued. The commercial Pacific herring *Clupea pallasii* fishery in the PWS management area was closed in 2019 for the 19th consecutive year because age structure and available surplus in the spawning biomass did not support a fishery.

Keywords: Pacific salmon *Oncorhynchus* spp., Pacific herring *Clupea pallasii*, harvest, hatchery, 2019, annual management report AMR, Copper River, Prince William Sound

INTRODUCTION

OVERVIEW OF MANAGEMENT AREA AND COMMERCIAL SALMON AND HERRING FISHERIES

The Prince William Sound (PWS) management area, salmon net gear registration Area E, encompasses all coastal waters and inland drainages entering the north-central Gulf of Alaska between Cape Suckling and Cape Fairfield (Figure 1). Area E is divided into 11 districts that correspond to the local geography and distribution of the 5 species of Pacific salmon *Oncorhynchus* harvested in the commercial fishery (Figure 2). The management objective for all districts is to achieve salmon spawning escapement goals while allowing the orderly harvest of fish surplus to spawning requirements. The Alaska Department of Fish and Game (ADF&G) follows regulatory plans to manage fisheries and allows private nonprofit (PNP) hatcheries to achieve cost-recovery and broodstock objectives.

Six hatcheries contribute to the area's fisheries. These include Gulkana, Cannery Creek, Armin F. Koernig, Wally Noerenberg, and Main Bay hatcheries and are operated by Prince William Sound Aquaculture Corporation (PWSAC). Gulkana Hatchery (GH) in Paxson augments the production of sockeye salmon *Oncorhynchus nerka* to the Copper River. Cannery Creek Hatchery (CCH), located on the north shore of PWS, and Armin F. Koernig Hatchery (AFK) in southwestern PWS produce pink salmon *O. gorbuscha*; Wally Noerenberg Hatchery (WNH) in northwestern PWS produces pink, chum *O. keta*, and coho *O. kisutch* salmon; and Main Bay Hatchery (MBH) in western PWS produces sockeye salmon. Valdez Fisheries Development Association (VFDA) produces pink and coho salmon at the Solomon Gulch Hatchery (SGH) in Port Valdez.

ADF&G forecasts PWS wild salmon runs, but hatchery run forecasts are provided by PWSAC and VFDA and are summarized in their hatchery annual management plans (e.g., PWSAC 2019a, 2019b; VFDA 2019a, 2019b). A hatchery annual management plan guides production goals, broodstock development, and harvest management of PWS hatchery returns (e.g., PWSAC 2019a; VFDA 2019a). PWS hatchery permit holders are required (AS 16.10.470) to submit an annual report to ADF&G that includes details of egg takes, releases, and adult returns (e.g., PWSAC 2019b; VFDA 2019b), and these reports are summarized in Wilson (2020).

Salmon may be harvested using purse seine, drift gillnet, and set gillnet, but not all districts allow all gear types. Drift gillnets are the most numerous and are allowed in the Bering River, Copper River, Coghill District, Unakwik District, and Eshamy District. Set gillnet gear is allowed only in the Eshamy District. Purse seine gear is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague, and Southeastern Districts.

The *Prince William Sound Management and Allocation Plan* (5 AAC 24.370) aims to provide a fair and reasonable allocation of the harvest of enhanced salmon across gear types and thereby ease the conflict between user groups. ADF&G calculates the exvessel value percentages for each gear group using the Commercial Operators Annual Report (e.g., COAR 2019) area-specific prices and weights, and ADF&G harvest estimates of PWSAC enhanced fish by species and gear type. If the set gillnet gear group exceeds 5% of the 5-year average value of PWSAC enhanced stocks, they are limited to no more than 36 hours of fishing time per week beginning July 10 in the year following this calculation. If the drift gillnet gear group harvest value is 45% or less, then in the year following the calculation, the drift gillnet gear group shall have exclusive access to the Port Chalmers Subdistrict to harvest enhanced salmon returns from June 1 through July 30, during fishing periods established by emergency order (EO). If the purse seine gear group harvest value is 45% or less, then in the year following the current calculations, the purse seine gear group shall have exclusive access to the Esther Subdistrict to harvest enhanced salmon returns from June 1 through July 20, during fishing periods established by EO.

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 while maintaining 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.

The 2019 PWS management area commercial common property fishery (CCPF) harvest was 50.85 million fish (Table 1). This harvest included 19,235 Chinook *O. tshawytscha*, 2.58 million sockeye, 503,000 coho, 43.78 million pink, and 3.97 million chum salmon (Table 1). An additional 6.38 million fish were harvested in the hatchery cost-recovery fishery (Table 1). Exvessel values from the 2019 CCPF were \$51.96 million (52.62%) for purse seine, \$44.18 million (44.75%) for drift gillnet, and \$2.60 million (2.63%) for set gillnet (Table 2; Figure 4). The average price per pound paid to commercial fishery participants for Chinook, sockeye, and coho salmon was above the 10-year average (Table 3). The average price per pound paid to fishers for pink and chum salmon was below the 10-year average (Table 3). The purse seine exvessel value was the fifth highest in the last 10 years and above the 10-year average (Table 4). Drift gillnet and set gillnet exvessel value were above the 10-year average (Table 4).

No commercial herring fisheries occurred in 2019 because the spring estimated spawning biomass was 13,670 tons¹², which was well below the regulatory minimum spawning biomass of 22,000 tons. Aerial surveys resulted in the highest estimate of annual mile-days of spawn since 2015 (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.

SALMON SEASON SUMMARY BY DISTRICT

COPPER RIVER DISTRICT

The Copper River District includes all waters of the Gulf of Alaska between Hook Point and Point Martin (Figure 1). The 10-year average commercial harvest from the Copper River District was 12,500 Chinook, 1.27 million sockeye, and 235,000 coho salmon. The 25-year average harvest was 31,500 Chinook, 1.37 million sockeye, and 274,000 coho salmon. The 2019 harvest was 19,100 Chinook, 1.28 million sockeye, and 78,300 coho salmon (Appendix A4).

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

Management tools such as inriver sonar, aerial surveys, Chinook salmon mark–recapture estimates, and harvest data provide fishery managers with indices of abundance used to manage Copper River fisheries. 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. Additionally, upper river aerial surveys, thermal and strontium chloride marked otolith, weir, and tower data provide information about ADF&G’s success in meeting the objectives of the *Copper River District Salmon Management Plan*.

The Copper River District commercial fishing season opens in mid-May, and commercial fishing periods are established by EO. Fishing time has been steadily reduced over the years in response to the increased efficiency of the commercial fleet and reallocations by the BOF.

The current sustainable escapement goal (SEG) range is 360,000–750,000 wild sockeye salmon for the upper Copper River (Table 5; Moffitt et al. 2014).

The components of the 2019 inriver goals from 5 AAC 24.360 were as follows:

- Spawning escapement: 360,000–750,000
- Other salmon: 17,500 salmon
- Subsistence harvest: 70,400 salmon
- Personal use harvest: 125,600 salmon
- Sport fishery: 15,000 salmon
- Gulkana Hatchery broodstock: 19,800 sockeye salmon (estimated annually)
- Gulkana Hatchery surplus: 9,400 sockeye salmon (estimated annually)
- Total: 618,000–1.01 million

The daily inriver objective is the number of salmon that need to pass the Miles Lake sonar to meet the overall inriver goal. For 6 of the 7 inriver goal components, the daily inriver objective is calculated using both wild and enhanced salmon run timing. The subsistence harvest component is calculated using only wild stock run timing as required by AS 16.05.940(34), which states that

“subsistence uses means the noncommercial, customary and traditional uses of wild, renewable resources”.

Preseason Outlook and Harvest Strategy

The 2019 commercial harvest forecast for the Copper River District was 25,000 Chinook, 756,000 sockeye, and 235,000 coho salmon (Appendix A9). The GH enhanced sockeye salmon run was forecast by ADF&G to be 109,000 fish. The 2019 inriver goal was 588,000 salmon by July 28, the season end date for sonar counting at Miles Lake (Appendix A6).

When Miles Lake sonar is not operational before the first opening, early season management of the Copper River District is based on harvest data. Environmental conditions, fishing effort, and salmon distribution, both temporal and spatial, are also considered. In late May, 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 sockeye and coho salmon systems are 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).

Coho salmon management typically begins the third week of August. 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 during the early portion of the coho salmon run probably underestimated salmon abundance. Other salmon species remain in tributaries, salmon distribution or redistribution outside of survey index areas, and water conditions create poor visibility, all of which make accurate counts problematic. Additionally, stormy fall weather made weekly survey flights difficult. The SEG range for the Copper River Delta is 32,000–67,000 coho salmon (Table 5; Bue et al. 2002).

Sockeye and Chinook Salmon Fishery Season Summary

The 2019 Copper River sockeye salmon total run was 2.42 million fish, of which 1.28 million (53.1%) commercially harvested and sold, 254,000 (10.5%) harvested by upriver subsistence and personal use fishers, and an estimated 6,700 (0.3%) harvested by upriver sport anglers. Other harvest categories represented <1% of the total run and were lower than the 10-year average in their respective categories except for the Copper River District subsistence harvest, which was nearly double the 10-year average. Upriver and Copper River Delta wild sockeye salmon escapement was 720,000 (29.8%) and 123,000 (5.1%) fish, respectively, and 15,600 (0.6%) fish returned to the GH release sites (Appendix A1). Overall, 2.07 million (85.6%) sockeye salmon originated from upriver wild stock systems, 283,000 (11.7%) were from Copper River Delta wild stock systems, and 65,400 (2.7%) were from the GH (Appendix A2).

The 2019 Chinook salmon total run was 64,500 fish, of which 19,100 (29.7%) were commercially harvested and sold, 839 (1.3%) were harvested through educational, and subsistence permits in the Copper River District, and 742 (1.2%) were retained by commercial permit holders as homepack. Homepack fish are defined in 5 AAC 39.010 as finfish retained from lawfully taken commercial catch for that permit holder’s use. A total of 7,070 (11.0%) were harvested by upriver personal use and subsistence users, an estimated 1,130 (1.8%) were harvested by sport anglers, and the

remaining 35,600 (55.1%) represent spawning escapement (Appendix A3). Spawning escapement was 48.2% above the lower bound SEG of 24,000 for Copper River Chinook salmon.

The Copper River CCPF sockeye salmon harvest of 1.28 million was 1.3% above the 10-year average of 1.27 million sockeye salmon. The commercial harvest of 19,100 Chinook salmon was 53.5% above the 10-year average of 12,500 fish. The overall commercial harvest of Chinook salmon was the 14th lowest, but the overall commercial sockeye salmon harvest was the 15th highest since 1974 (Appendix A4). Harvest was strongest in the eastern half of the district, and this is consistent with the continued trend of the bulk of the Copper River's discharge coming out on the eastern side of the delta. Fishing effort was concentrated onshore, but there were occasions when substantial fishing effort occurred in the outer extent of the district off Cape St. Elias.

A total of 490 of 532 drift gillnet permits were active in the Copper River District in 2019. Fishing effort peaked during the third fishing period that began May 23 when 441 permit holders fished, but harvest did not peak until the sixth period when 135,000 sockeye salmon were caught (Appendix A5). Based on otolith mark analysis, an estimated 39,900 GH sockeye salmon were harvested in the Copper River District commercial fishery in 2019, which was the fourth-lowest harvest in the last 30 years (Appendix E2). This was well below the 10-year average commercial harvest of 187,000 sockeye salmon (Appendix E3). Additionally, 33,300 MBH sockeye salmon were estimated in the Copper River District commercial harvest (Appendix E2).

In 2019, the sockeye salmon run produced by the GH totaled 66,962 fish (Appendix E3), which was 38.6% below the PWSAC total run forecast of 109,000 fish (PWSAC 2019a). A reported 15,600 sockeye salmon were collected for broodstock or escaped into the watershed (Appendix E3). Of these fish, 9,790 were harvested for broodstock, and an estimated 5,770 sockeye salmon returned to release locations and were not harvested (PWSAC 2019b).

Miles Lake sonar became operational on May 8, and the north bank operated daily for short periods. The first salmon were enumerated on May 11, when the north and south banks passed 6 fish each. The Miles Lake sonar became fully operational, both sonar sites counting 24 hours a day, on May 15 (Appendices A6 and A7). The 2019 cumulative Miles Lake sonar count on July 28, the last day of operation, was 1,039,270 salmon, which was above the inriver goal range and the sixth-largest passage estimate since 1978 (Appendices A6–A8). The final escapement index count for the Copper River Delta systems was 61,825 sockeye salmon which was within the SEG range of 55,000–130,000 fish (Table 5; Appendix A10). Since 2009, the escapement index has ranged from a low of 51,600 in 2016 to a high of 82,800 in 2010 (Appendix A11). In 2019, 2 aerial surveys of upper Copper River index streams were conducted to evaluate the distribution of sockeye salmon and observed the third-lowest total peak count index since 2004 (Appendix A12).

Regulation 5 AAC 24.361 states that ADF&G will manage all Copper River fisheries (commercial, sport, personal use, and subsistence) to achieve a sustainable escapement goal (SEG) of 24,000 or more Chinook salmon. The 2019 Copper River Chinook salmon total run forecast was 43,000 fish (range 19,000–66,000 fish). Due to this low Chinook salmon forecast, closed waters described in 5 AAC 24.350(1)(B) were in effect during the first 7 fishing periods. Closed waters were also expanded to include inside waters east of Kokinhenik Bar, closing most waters inside barrier islands east of Copper Sands during the sixth and seventh fishing periods. The channelized shallow water fishing area reduction was intended to reduce Chinook salmon harvest potential while allowing a more aggressive sockeye salmon fishery in outside waters. These closures were maintained through June 9 for all or a portion of the first 7 fishing periods (Appendix A5). Upriver

sport, personal use, and subsistence fisheries were not restricted in 2019. Chinook salmon harvest in the commercial fishery was above semi-weekly harvest forecast targets for the 2 commercial fishing periods during the first month of the fishery (Appendix A9). Upriver harvest was also higher than expected for the time fished (Mark Somerville, Sport Fish Biologist, ADF&G, Glennallen, personal communication; February 2020).

The first Copper River District commercial fishing period on Thursday, May 16, was for 12 hours and 424 commercial drift gillnet permit holders fished. Harvest from this period was 21,800 sockeye salmon and 2,600 Chinook salmon. The sockeye salmon harvest for this fishing period was nearly on par with the anticipated harvest of 23,400 fish (Appendices A5 and A9). Processors reported paying a grounds base price of up to approximately \$14.00 per pound for Chinook and \$10.00 per pound for sockeye salmon. Harvest increased during the following 12-hour period when 430 permit holders landed and sold 55,000 sockeye and 1,800 Chinook salmon (Appendices A5 and A9). Increased sockeye salmon run entry through the east and central portion of the district, outside of the barrier islands, accounted for most of the harvest.

Spring tides with a tidal exchange of nearly 17 feet peaked around May 20, the second opening day. These large tidal cycles typically contribute to salmon movement and passage, frequently correlating to above-average commercial harvests and counts at the Miles Lake sonar station. Along with warm weather and early ice-out in the river, these tides contributed to increased inriver passage on the front side of the tidal peak, resulting in counts near the maximum inriver daily objective by May 25 (Appendices A6 and A7).

The third period was announced Wednesday, May 22, and Miles Lake sonar counted for 7 full days. With a cumulative sonar count of 41,200 salmon compared to a maximum inriver passage objective of 26,400 salmon, the significant level of passage above the objective provided support for the increased likelihood of an average to large run (Appendix A7). In response, fishing time for the third period was increased to 24 hours. Sockeye salmon harvest of 63,400 fish from this period was 26.3% more than the forecasted semi-weekly harvest. Chinook salmon harvest of 2,500 fish was roughly 100 fish above forecasted semi-weekly harvest (Appendices A5 and A9). Sustained inriver passage was above the minimum passage objectives, and the fishery continued to be liberalized over the coming fishing periods. The frequent fishing schedule increased harvest potential, and the Chinook salmon inside closure area was maintained during the fourth and fifth fishing periods and expanded to include inside waters east of Coffee Creek during the sixth and seventh fishing periods.

Sockeye salmon harvest from the fourth through seventh fishing periods was above the forecasted semi-weekly harvest. It was cumulatively more than double the total forecasted semi-weekly harvest over this period. Chinook salmon harvest averaged 2,200 fish during these 4 fishing periods and climbed above the forecasted semi-weekly harvest target during the seventh fishing period (Appendix A9).

The harvest trend of above forecast sockeye and near forecast Chinook salmon harvest continued into the first half of June. Sockeye salmon harvest steadily declined to 62,400 fish during the period starting June 13. The fishing effort also declined by nearly 40 permits from the previous fishing period (Appendix A5). Chinook salmon harvest declined in early June, and the individual period harvest was consistently less than the forecasted semi-weekly harvest (Appendix A9). This decline, combined with Miles Lake's sonar passage that largely stayed within the daily objective

range through the middle of June, prompted a continuation of longer fishing periods, which averaged 36 hours per period for the first half of the month (Appendices A5–A7).

The fishery participation fluctuated from more than 400 permits in early June to a range of 71 to 245 permits from June 20 through the middle of July. This trend in participation was a combination of sockeye salmon harvest dropping off to an average of 45,600 fish per fishing period from an average of 82,400 fish during the first month of the fishery (Appendix A5), and fishers leaving the Copper River District to participate in fisheries on the western side of PWS (primarily near MBH and WNH).

The aerial survey program on the Copper River Delta began the second week of June. Aerial surveys were an increasingly important sockeye salmon management tool during late June and throughout most of July. The Copper River Delta aerial escapement survey weekly index was below the lower end of the objective range during the week ending June 15 (Appendix A10). Fishing time decreased from 36 hours to 24 hours per period for 2 fishing periods on June 13 and June 17 to match exploitation potential to high fishing effort (more than 300 permit holders fished per period to date) and enumerate adequate sockeye salmon escapement into delta systems (Appendices A5 and A10). Additionally, GH contribution estimates were a critical management tool during June and July and allowed tracking of hatchery run strength relative to wild stock run strength.

Fishing time and area were primarily based on inseason indices of available wild stock surplus and the abundance of GH sockeye salmon. The decision to maintain a consistent and moderately aggressive fishing schedule was tied to low but increasing numbers of GH sockeye salmon and higher than expected Copper River Delta sockeye salmon escapement indices starting in late June (Appendices A5 and A10). This strategy was also supported by the historical run timing of the wild and enhanced stocks and increasing numbers of SrCl₂ marked GH fish harvested in the commercial fishery. GH sockeye salmon represented about 4% of the harvest through the historical average period of peak abundance. GH sockeye salmon were near peak abundance in the fishery 1–2 weeks later, representing an average of 19.6% of the harvest from July 8 through 16. The GH sockeye salmon proportions in the commercial harvest remained elevated through the end of July. 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. Higher than expected sonar passage and near objective aerial survey indices (during surveys with good observational conditions), along with strong wild stock sockeye salmon contributions in the fishery, allowed the continuation of 24- and 36-hour periods through the end of July (Appendices A6, A7, A10, and E2).

The sockeye salmon aerial survey escapement index fluctuated around the minimum objective during August, which allowed a schedule of two 24-hour periods per week through the beginning of coho salmon season (mid-August; Appendices A5 and A10). Fleet participation was relatively consistent from mid-July through mid-August, from an average of 94 permit holders fishing (July 15–30) to an average of 87 permit holders fishing (August 1–13). Low fleet participation in the fishery in late July and early August was largely the result of low harvest rates and high fuel prices.

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. Most of the sockeye salmon harvested commercially (77.6%) were 5-year-old fish from brood year 2014, followed by 4-year-old fish (14.8%) and 6-year-old fish (7.0%) (Appendix A13). Most commercially harvested Chinook

salmon were 5-year-old fish (73.7%), followed by 6-year-old fish (15.4%) and 4-year-old fish (9.5%; Appendix A14).

Coho Salmon Fishery Season Summary

The 2019 coho salmon run was estimated to be 167,000 fish but does not include upriver spawning escapement because the number of coho salmon migrating upriver is not assessed. In the Copper River District, 78,300 coho salmon were harvested and sold commercially; 855 were retained as homepack; 330 fish were harvested from the Copper River District in the subsistence gillnet fishery, and 11,500 were harvested by sport anglers on the Copper River Delta near Cordova. In the upper Copper River fisheries, 1,060 fish were harvested in personal use and subsistence dip net Chitina Subdistrict fisheries, 204 fish were harvested in the Glennallen Subdistrict dip net and fish wheel subsistence fisheries, and 137 fish were harvested in upriver sport fisheries. Finally, 480 coho salmon were harvested in the federally managed Copper River Delta subsistence fishery (Appendices A15). The Copper River Delta spawning escapement index of 37,000 coho salmon was within the SEG index range of 32,000–67,000 (Appendix A16). This index value was the second-lowest in the last 10 years (Table 5; Appendix A17).

The coho salmon commercial harvest of 78,300 was a third of the harvest projection of 235,000 fish (Appendix A9). Peak fishing effort for the coho salmon season occurred on August 26 when 212 permit holders delivered 30,300 coho salmon. Peak harvest occurred during the final fishing period, September 2, when 211 permit holders delivered an average of 30,400 coho salmon (Appendix A5).

Coho salmon harvest did not exceed sockeye salmon harvest until the August 19 fishing period when 11,800 coho and 1,300 sockeye salmon were harvested by 135 permit holders (Appendix A5). This period yielded a harvest that was 73.9% below the forecasted semi-weekly weekly harvest of 45,200 coho salmon (Appendices A5 and A9). This shift in harvest composition was almost a week later than the historical August 15 average. The below forecast semi-weekly harvest numbers for the fishing period supported a continued conservative management approach. An aerial survey flown, under poor survey conditions, during the week of August 17 did not yield any coho salmon counts (Appendix A16). Effort remained low over the next 2 weeks of the fishery, averaging just over 200 permit holders per fishing period, but harvest increased to an average of 30,300 per fishing period. The average historical harvest for these 2 weeks was 47,700 coho salmon and indicated that harvest was still tracking below historical averages. An aerial survey flown during the week ending August 31, under good observational conditions, documented 8,800 coho salmon in index streams, which was half of the lower index target for the date. The combination of below-forecasted semi-weekly harvest and escapement prompted a conservative approach to determine the next commercial fishery opening. The weekly survey indices remained below the weekly lower escapement targets until the end of September and necessitated the continued closure of the commercial fishery. The last weekly survey in September increased index system counts to 20,600 coho salmon, which was within the weekly target range of 15,500–32,500 fish. Season total peak counts through the end of September were well below the numbers required to achieve the lower end of the escapement goal (Appendices A5, A9, and A16).

Inclement weather in the Copper River Delta hampered the aerial survey program for most of October. The final aerial survey of the season was not conducted until the week ending October 26. During this survey, 26,000 coho salmon were observed, which was below the target range of 9,840–20,600 fish. Enough peak index system counts were observed during this last survey to

boost the total peak count index to 37,000 coho salmon, which was at the lower end of the escapement goal range of 32,000–67,000 fish. The 2019 Copper River Delta peak count index was 18.5% below the 10-year average of 45,400 fish (Appendices A16 and A17).

Commercially harvested coho salmon were 4-year-old fish (49.1%), 3-year-old fish (47.2%), and 5-year-old fish (3.7%) (Appendix A18).

BERING RIVER DISTRICT

Preseason Outlook and Harvest Strategy

Historically, this district has opened to sockeye salmon harvest in early June and is managed concurrently with the Copper River District. Given that 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 until escapement levels were within the weekly escapement index range.

Sockeye Salmon Season Summary

A small western section of the Bering River District was opened concurrently with Copper River District fishing periods between May 16 and June 11 to reduce enforcement concerns associated with the line fishery on the eastern edge of the Copper River District. Between June 12 and June 30, the Bering River District was closed to commercial fishing due to an increase in run timing overlap with Bering Lake sockeye salmon. Bering Lake escapement and minimal salmon fishing effort over the last 10 years have indicated minimal surplus available to meet escapement needs. The first aerial survey of the Bering River District was flown during the week ending June 15 and observed 310 sockeye salmon, well below the weekly escapement index range of 3,250–7,150 sockeye salmon, and supported the continued district closure. The next survey was flown during the week ending June 29 and resulted in an escapement count of 13,400 fish, which was near the upper end of the weekly escapement index range of 6,090–13,400 sockeye salmon (Appendix A21). Because the escapement count was near the upper range of the escapement index, the district fishery was opened, concurrent with the Copper River District, on July 1. Sockeye salmon harvest during the Bering River District fishery in July and early August was <200 fish (Appendix A20).

The third through fifth aerial surveys, during weeks ending July 6, July 13, and July 20, were all flown under good observational conditions and observed similar numbers of fish districtwide. The escapement indices for these individual surveys ranged between 15,400 and 16,200 sockeye salmon, which was just below the average index for each survey of 17,600–17,700 fish. Sockeye salmon escapement declined rapidly through August; 4,530 sockeye salmon were observed during the week ending August 3, but 900 were observed by the week ending August 31. The August surveys were below the lower count target for each survey, but the surveys were well outside of historical peak timing when counts tend to be more variable (Appendix A21).

During a typical season in the Bering River District, it is often difficult to estimate the harvest inseason due to inaccurate reporting. Bering River District catches are often delivered to a tender in the Copper River District, and the harvest will be reported in the Copper River District. This error is often resolved when fish tickets are entered.

The final sockeye salmon escapement index was 17,600 fish, which was 2,600 fish above the lower bound SEG of 15,000 fish. Total sockeye salmon harvest in the district was 21,000 fish, most of which occurred early in the season when the western portion of the district was open to target Copper River District bound fish (Appendices A20 and A21).

Coho Salmon Season Summary

Late-season weather conditions prohibited several aerial surveys in the Bering River District. The Bering River District coho salmon run was on time, and the final escapement was below the SEG range for the district (Appendix A22). The commercial harvest of 7,420 was the third lowest since 1977 and was 88.9% below the 10-year average (Appendix A19).

Coho salmon fishing opportunity in the Bering River District followed the schedule implemented in the Copper River District. Harvest and effort followed a similar pattern to aerial survey observations but peaked 4 to 6 weeks before the highest escapement observation. The Bering River District experienced low fishing pressure during the 2019 season, and, in a similar vein to the Copper River District, the fishery remained closed for the season after September 3 due to early season low harvest and continued low escapement indices. A total of 76 permit holders fished during the season. The peak coho salmon fishing effort of 15 permits fished was during the 24-hour period that began August 26, when the peak harvest of 4,570 coho salmon occurred. Harvest and effort declined to 5 permits fished and 1,980 coho salmon harvested during the final fishing period of the season on September 2 (Appendix A20).

Harvest from the period that began August 19 was 817 coho salmon by 7 permit holders. The low effort was not unusual for this period because most effort is focused on earlier-timed coho salmon stocks in the Copper River District in mid-to-late August. Harvest and effort picked up during the following week (Appendix A20). Due to weather and low water levels, a comprehensive survey of Bering River District index systems was impossible until late August. When a survey was finally flown during the week ending August 31, 1,080 coho salmon were observed, which was below the objective of 8,730–22,200 fish (Appendix A22). This survey corroborated the pattern of weak run entry apparent in the commercial fishery, in both the Copper River and Bering River Districts, and indicated a more conservative management approach was probably warranted. Harvest declined during the first week of September when 1,980 coho salmon were harvested in a single 24-hour fishing period by 5 permit holders. The aerial survey flown the week ending September 7 yielded an index of 3,100 coho salmon, which was well below the lower end of the objective of 8,800–22,300 fish for the week (Appendix A22). No fishing period was scheduled for the following week because of the low survey count. A pattern of low aerial survey indices continued for the rest of the season, and the commercial fishery remained closed.

The peak observed escapement in 2019 occurred during the week ending September 28, when 7,180 coho salmon were observed in index systems. The total drainage escapement index for the season was 9,590 coho salmon and was below the SEG range of 13,000–33,000 (Appendix A22).

COGHILL DISTRICT

Preseason Outlook and Harvest Strategy

The 2019 Coghill Lake sockeye salmon total run forecast was 280,000–666,000 (473,000 fish point estimate). Meeting the median historical escapement estimate of 30,000 sockeye salmon (SEG range of 20,000–60,000; Table 5) would leave 443,000 fish (forecast range 250,000–636,000) available for the common property fishery (Haught and Vega 2019). The WHN enhanced chum salmon run was forecast to be 1.99 million fish. PWSAC's projection for cost-recovery and broodstock requirements was approximately 843,000 chum salmon, leaving 1.15 million chum salmon for the CCPF. An estimated run of 230,000 coho salmon was expected to return to WNH,

of which 2,700 were anticipated to be harvested for broodstock, leaving the remaining 227,300 fish available to the CCPF (PWSAC 2019a).

Season Summary

Early season management of the Coghill District is primarily based on Coghill Lake sockeye salmon escapement past the Coghill River weir. Due to frequent high-water events washing out the weir in prior years, the picket weir was replaced with a resistance board weir in 2019. Escapement assessment began on June 19. Peak daily sockeye salmon passage occurred July 5, when 2,162 fish passed the weir (Appendices B1 and B2). Enumeration concluded on July 28. The dominant age class of sockeye salmon that escaped through the weir was age 1.3 (Appendix B7). A total of 32,247 sockeye salmon were counted, and the sockeye salmon escapement goal for Coghill River was met (SEG range of 20,000–60,000; Table 5; Appendix B3). In 2019, the Coghill River weir counted 33,923 pink salmon (Appendix B1); however, the weir was not used to assess pink salmon escapement goals because most of the pink salmon escapement occurred after the weir is removed. Aerial surveys are used to assess pink and chum salmon escapement goals. Escapement goals were met for pink salmon in the Coghill District but were not met for chum salmon in the Coghill District (Appendix D1).

The total Coghill District commercial drift gillnet harvest was 389,100 sockeye, 120,200 coho, 301,300 pink, and 1.05 million chum salmon by 326 permit holders in 2019 (Table 1; Appendices B4 and B6). The total combined CCPF purse seine and drift gillnet salmon harvest for Coghill District was 390,700 sockeye (98.6% drift gillnet), 120,400 coho (99.8% drift gillnet), 344,500 pink (87.47% drift gillnet), and 1.06 million chum salmon (99.0% drift gillnet; Table 1; Appendix B6).

In 2019, PWSAC reported a WNH chum salmon purse seine cost-recovery harvest of 1.19 million fish, raceway sales of 107,500, and broodstock carcass sales of 141,300 (Appendix E5). The broodstock goal for chum salmon was 201,000 fish (PWSAC 2019a). Of the fish collected for broodstock, 141,300 were viable. PWSAC reported harvesting 1,400 viable coho salmon as part of broodstock collection, which was short of the 2,700 fish goal (PWSAC 2019a-b).

Based on otolith thermal mark data, enhanced salmon made up an estimated 42.7% of the sockeye, 22.3% of the pink, and 97.1% of the chum salmon harvested by the CCPF in the Coghill District (Appendices E6–E8). An estimated 166,900 (42.7%) MBH and 223,700 (57.3%) wild sockeye salmon were harvested in the Coghill District commercial fishery for a total of 390,600 sockeye salmon (Appendix E6). Of the 344,487 pink salmon harvested in this district by the CCPF, 19,900 (5.8%) were released at WNH, 2,100 (0.6%) were released at CCH, 35,500 (10.3%) were released at SGH, and 19,300 (5.6%) were released at AFK (Appendix E7). Of the 1.06 million chum salmon harvested in the Coghill District in the CCPF, 1.03 million (97.1%) were of hatchery origin (Appendix E8).

The Coghill District drift gillnet fishery began on June 3 with 2 weekly openings concurrent with the Eshamy District. The first 2 fishing periods were 36 hours that excluded the Esther Subdistrict, WNH special harvest area (SHA), and terminal harvest area (THA). Periods 3 and 4 were 24 hours in duration. Beginning June 17, fishing time was liberalized to a schedule of one 60-hour opener and one 84-hour opener each week (Appendix B4). Fishing in the Coghill District briefly closed between July 4 and July 6 because the daily escapement fell below the minimum daily projected counts for 6 consecutive days (Appendix B2).

Peak drift gillnet fishing effort occurred during the 60-hour period beginning on July 3 when 193 permit holders harvested 58,700 sockeye and 223,500 chum salmon (Appendix B4). This period was also the peak drift gillnet chum salmon harvest (Appendix B4). Overall, 389,100 sockeye and 1.05 million chum salmon were harvested by 326 drift gillnet permit holders during the 2019 season. This was 266.2% and 64.6% of the 10-year average harvest of 146,170 sockeye and 1.63 million chum salmon, respectively. The 2019 harvest of 120,200 coho salmon by the drift gillnet fleet was 342.2% of the 10-year average of 35,100 fish (Appendix B6).

UNAKWIK DISTRICT

Preseason Outlook and Harvest Strategy

The Unakwik District, located in the northern portion of Unakwik Inlet, is the smallest district in the PWS management area. 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. CCH, a pink salmon hatchery, borders the southern boundary of the district. Escapement enumeration is by aerial survey; however, water is quite turbid in Miners Lake. The management strategy in this district has been adjusted in recent years, and period duration was reduced to allow for uncertainty in sockeye salmon stock assessment.

Season Summary

The Unakwik District opened for the 2019 fishing season on June 13 and followed a schedule concurrent with other districts in PWS until the district was closed for the season on July 12 (Appendix B8). The total 2019 Unakwik District drift gillnet CCPF harvest was 7,700 sockeye, 2,100 pink, and 1,000 chum salmon and was above the 10-year averages for all species (Appendix B9).

ESHAMY DISTRICT

Preseason Outlook and Harvest Strategy

No preseason forecast of the sockeye salmon run to Eshamy Lake was developed in 2019, and there has been no escapement monitoring since 2017 due to budget cuts. PWSAC projected the total run of enhanced sockeye salmon to MBH would be 1.38 million fish, of which 8,900 fish were required for broodstock, and the remaining 1.37 million fish would be available for harvest in the CCPF (Table 6; PWSAC 2019a).

Season Summary

The 2019 total Eshamy District CCPF harvest was 120 Chinook, 695,600 sockeye, 1,300 coho, 320,000 pink, and 164,000 chum salmon (Table 1; Appendix C3). A total of 336 drift gillnet permit holders and 27 set gillnet permit holders participated in the Eshamy District fishery in 2019 (Appendices C1 and C2). Drift gillnet harvests of 469,900 sockeye were below the 10-year average of 701,800 sockeye salmon. The drift gillnet harvest of 265,100 pink salmon was above the most 10-year average of 147,000 pink salmon (Appendix C3). The chum salmon drift gillnet harvest of 125,200 was below the most 10-year average of 181,900 fish. The sockeye salmon set gillnet harvest of 225,700 fish was below the most 10-year average of 235,100. The set gillnet harvests of 38,500 chum salmon were above the 10-year average of 29,300 fish (Appendix C3). The 54,900 pink salmon harvest by the set gillnet gear group was above the most 10-year average of 20,800

fish (Appendix C3). PWSAC harvested 9,000 sockeye salmon for broodstock, of which 6,500 were viable (Appendix E12; PWSAC 2019b).

Thermal marked otolith contributions estimated that 84.1% (585,300) of the sockeye salmon commercially harvested in the Eshamy District in 2019 were of MBH origin (Appendix E9). The 2019 run was below MBH run forecast and below the 10-year average (Appendices E13). Only 4.3% of chum salmon harvested in the Eshamy District in 2019 were from wild stocks, and the remaining chum salmon harvest was attributed to AFK (24.6%), WNH (64.6%), and Port Chalmers (6.5%; Appendix E11). Pink salmon harvested in the Eshamy District were predominantly wild stocks (90.2%), and most fish were assumed to be returning to streams outside of the district (Appendix E10).

Sockeye salmon began arriving at the MBH in late May, and a schedule of 2 commercial fishing periods per week began on June 3. The entire Eshamy District was initially opened to commercial fishing for a 36-hour period to allow the fleet to focus on the enhanced run to MBH while the run timing overlap with Eshamy River wild sockeye salmon was minimal. Coghill Lake sockeye salmon daily escapement was adequate, so there was minimal concern of harvesting wild fish bound for Coghill Lake in the Eshamy District. Therefore, fishing time was kept at 36 hours until July 29 when fishing in the Eshamy District was limited to 2 weekly periods of 24 hours due to decreasing wild stock abundance indices. From July 29 until September 6, the Eshamy District was limited to 2 weekly periods of 24 hours (Appendices C1 and C2). Beginning August 15, waters in the southern portion of the Eshamy District remained closed during 1 of the 2 periods each week to conserve wild sockeye salmon bound for Eshamy Lake. This continued until the district closed for the season on September 6.

Peak sockeye salmon harvest occurred during a 36-hour period beginning June 24 when 24 set gillnet permit holders harvested 17,300 sockeye salmon and 224 drift gillnet permit holders harvested 63,000 sockeye salmon (Appendices C1 and C2). Chum salmon harvest peaked during a 36-hour period beginning on June 17 when 22 set gillnet permit holders harvested 5,500 chum salmon and 148 drift gillnet permit holders harvested 21,700 chum salmon (Appendices C1 and C2). The total CCPF chum salmon harvest for the Eshamy District was 164,000 fish. Peak pink salmon harvest occurred during the 24-hour period beginning August 15 when 32 drift gillnet and 1 set gillnet permit holders caught a total of 60,500 pink salmon (Appendices C1 and C2). Peak effort in the district for the drift gillnet fleet occurred during the 24-hour period beginning June 24 when 224 permit holders participated. The set gillnet group had a peak effort of 24 permit holders during the 36-hour periods beginning June 24 and June 27.

Wild sockeye salmon stock harvest proportions fluctuated throughout the season, beginning at low proportions during the large harvests in June. Wild sockeye salmon proportions increased to a peak of 43.8% on July 18 (Appendix E9). After August 8, all harvested sockeye salmon in the Eshamy District are apportioned to wild stocks. The overall proportion of wild sockeye salmon harvest in the Eshamy District was 15.9%. The estimated age composition of sockeye salmon harvested in the Eshamy District was 51.3% 4-year-old, 38.9% 5-year-old, and 9.4% 3-year-old fish (Appendix C4).

PORT CHALMERS SUBDISTRICT

Preseason Outlook and Harvest Strategy

The 2019 PWSAC chum salmon forecast for Port Chalmers Subdistrict was 250,000 fish (PWSAC 2019a). The 5-year rolling average allocation calculation used to guide 2019 fisheries management was 56.9% purse seine, 43.1% drift gillnet, and 4.7% set gillnet. Based on the *Prince William Sound Management and Allocation Plan* (5 AAC 24.370), the drift gillnet fleet had exclusive access to the Port Chalmers Subdistrict from June 1 to July 30 in 2019.

Season Summary

The total 2019 Port Chalmers Subdistrict drift gillnet harvest was 43 Chinook, 4,900 sockeye, 20 coho, 18,300 pink, and 1.57 million chum salmon (Appendix B10). A total of 218 drift gillnet permit holders reported deliveries (Appendix B10). The 2019 chum salmon harvest was 628.7% above forecast and 513.3% above the 5-year average of 306,200 fish (Appendix B11; PWSAC 2019a). Out of a total Montague District CCPF harvest of 1.57 million chum salmon, thermal mark contributions estimated 1.53 million (97.4%) were released at Port Chalmers, 21,400 (1.4%) were released at WNH, and 8,500 (0.5%) were released at AFK. Wild chum salmon harvest made up 0.7% (11,800 fish) of the total harvest (Appendix E21). Port Chalmers Subdistrict was open 7 days per week for the duration of the drift gillnet fishery from June 3 until July 30. Drift gillnet harvest peaked during the June 20–23 period when 283,600 chum salmon were harvested by 130 permit holders (Appendix B10).

GENERAL PURSE SEINE DISTRICTS

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 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 wild salmon escapement goals are met.

The 2019 pink salmon total run forecast for PWS was 66.02 million fish and was made up of 23.56 million wild stock, 22.30 million PWSAC hatchery fish, and 20.16 million VFDA fish. Assuming cost recovery and broodstock needs for VFDA (3.43 million) and PWSAC (2.87 million) and a cumulative SEG of 1,121,000–2,555,000, then 57.88 million pink salmon were expected to be available for CCPF harvest (PWSAC 2019a, VFDA 2019a, and Haught and Vega 2019)

The 2019 chum salmon forecast total run in PWS was 3.10 million fish, of which 2.57 million (83%) were from PWSAC hatchery production and 330,000 fish were returning to the Armin F. Koernig hatchery (AFK; PWSAC 2019a). Based on ADF&G's wild chum salmon forecast of 527,000 fish, there was a potential for a common property harvest of 327,000 wild chum salmon. ADF&G managed each district's escapement goal, aiming for each district's long-term average for a combined total escapement of 200,000 fish (Table 5; Haught and Vega 2019).

2019 SEASON SUMMARY

The 2019 CCPF harvest of 43.57 million pink salmon in PWS was above the 2009–2018 average harvest (Appendix D4) but was 25% below the 57.88 million CCPF preseason forecast (PWSAC

2019a; VFDA 2019a; Haught and Vega 2019). The purse seine CCPF salmon harvest was 44.56 million fish and was made up of 238 Chinook, 179,900 sockeye, 296,200 coho, 42.93 million pink, and 1.16 million chum salmon (Table 1; Appendix D2). The PWS purse seine CCPF fishery participation was 238 permit holders (Table 4). The total PWS pink salmon CPF harvest was 48.51 million fish, including 4.94 million fish for hatchery cost recovery (2.95 million for PWSAC and 1.98 million for VFDA) (Table 1; Appendix D3). Pink salmon thermal marked otolith contribution estimates from CCPF harvests were 39.7% PWSAC fish, 38.9% wild stock, and 21.3% SGH fish (Appendix E17).

The 2019 season was one of the warmest summers on record in Alaska, and PWS experienced a prolonged drought and heatwave throughout the 2019 season, which led to warm water, and low stream flows across PWS for most of July, August, and September. Aerial surveys to assess early chum and pink salmon escapements in the Eastern and Northern Districts began in mid-June. In July, surveys began in all other purse seine districts. Inseason pink and chum salmon escapement estimates were above thresholds in most districts during early July, but salmon escapements started to decline across PWS in mid-July. The decline in escapements in PWS was due to the warm water and low flow conditions, which complicated wild stock management because it delayed CCPF opportunities from July 21 through August 5. After salmon started to arrive at streams in sufficient numbers in early August, CCPF opportunities were expanded by time and area to target surplus wild pink salmon. However, aerial surveys indicated that arriving pink salmon were unable to enter streams because of low flow conditions, and substantial pre-spawn mortality events were documented at most streams throughout PWS. Although aerial survey data indicated that pink salmon escapement indices were above the SEG in most districts, given the amount of pre-spawn mortality observed, escapement goals were probably not achieved. The 2019 PWS pink salmon escapement aerial index was 1.24 million (Appendix D1). Chum salmon escapements were below average across PWS, and only the Southeastern District achieved the escapement goal (Appendix D1).

Hatchery pink salmon represented an estimated 63.2% of the total run of 49.99 million fish (harvest, broodstock, and escapement); VFDA contributed 22.56%, and PWSAC contributed 40.68%. Wild stock pink salmon harvest of 17.15 million fish combined with an escapement index of 1.23 million resulted in an estimated wild pink salmon return of 18.38 million fish. Cost-recovery and broodstock harvest of 1.98 million fish was 17.2% of the total pink salmon run of 11.28 million fish to SGH (VFDA 2019b). PWSAC cost-recovery and broodstock harvest of 2.94 million fish was 14.5% of the total PWSAC pink salmon run of 20.34 million PWSAC hatchery fish (PWSAC 2019b).

EASTERN DISTRICT

The 2019 VFDA pink salmon forecast was 20.16 million fish, of which 408,000 pink salmon were needed for broodstock, and 3.03 million were needed for cost recovery, leaving 16.72 million pink salmon for CCPF harvest (VFDA 2019a). The Eastern District pink salmon escapement indices were below the odd-year average (1999-2017) and the escapement midpoint for the 2019 season, but the observed escapement index of 445,100 fish was within the odd-year SEG index range of 346,000–863,000 fish (Appendices D1 and D6). The Eastern District chum salmon escapement indices were below the projected range for the 2019 season, and the escapement index of 56,800 fish was below the district's lower bound SEG of 79,000 fish (Appendices D1 and D7).

Cost-recovery harvest for VFDA pink salmon began on June 22 and was conducted throughout Port Valdez in 2019. Initial VFDA cost-recovery progress was slow, but pink salmon run entry and cost-recovery progress steadily increased from June 28 through July 4. On July 2, 73% of VFDA's cost-recovery goal had been harvested and was on track to be completed by July 4. VFDA recommended a 14-hour period on July 5 in Port Valdez and Valdez Arm to target SGH enhanced pink salmon. Eastern District CCPF targeting VFDA pink salmon started on July 5, and harvested 2.40 million fish, then opened every other day until July 11. Starting on July 12, VFDA recommended extended closures between CCPF opportunities within Port Valdez and Valdez Arm to aid SGH broodstock collection. Aerial surveys conducted on July 16 and July 22 indicated wild stock escapements were below the projected ranges for eastern PWS; subsequent fisheries were focused in Port Valdez and Valdez Arm through August 7 to target SGH enhanced pink salmon (Appendix E15). From August 8 until the end of the season, CCPF periods were only open 2 to 3 times a week to allow adequate wild stock escapement. The total Eastern District pink salmon CCPF harvest was 20.02 million fish. VFDA pink salmon contributed nearly 43.8% or 8.76 million of the total Eastern District CCPF harvest (Appendix E15). The PWS total VFDA return (CCPF, cost recovery, and broodstock) was 11.34 million fish and was below the forecast of 20.16 million fish (Table 1 and 6; Appendix E17).

A total of 1.35 million pink salmon were harvested for VFDA cost recovery, and an additional 155,800 fish were harvested via the SGH fishway for a total cost-recovery harvest of 1.50 million pink salmon. VFDA reported that 478,700 pink salmon were utilized at SGH for broodstock, and an additional 15,000 fish went unharvested (VFDA 2019b). Pink salmon egg-take operations at SGH were successful in 2019. VFDA reached the 2019 pink salmon egg-take goal at SGH on August 23, which was comparable to the 10-year average end date of August 21 (VFDA 2019a).

The 2019 SGH coho salmon run was also below forecast, and few surplus fish were available for CCPF harvest. Enhanced coho salmon runs are experiencing declining survival rates and have been less than the SGH preseason forecast in 7 out of the past 10 years (Appendix E1). VFDA reached its 2019 coho salmon egg-take goal at SGH on October 17. VFDA harvested 3,190 coho salmon for cost recovery from the SGH fishway and utilized an additional 818 fish for broodstock (VFDA 2019b).

There were 46 Eastern District CCPF fishing periods in 2019, and 238 purse seine permit holders reported deliveries (Table 1; Appendix E15). Eastern District CCPF harvest was 113 Chinook, 81,200 sockeye, 217,900 coho, 20.02 million pink, and 522,900 chum salmon (Table 1). Eastern District CCPF pink salmon harvest included 43.8% VFDA fish, 38.5% wild fish, and 17.8% PWSAC fish (Appendix E15).

NORTHERN DISTRICT

The 2019 CCH pink salmon forecast was 8.40 million fish, of which 357,000 pink salmon were needed for broodstock, and 703,000 were needed for cost recovery, leaving 7.34 million pink salmon for CCPF harvest (PWSAC 2019a). The Northern District pink salmon escapement indices were less than the odd-year average (1999–2017) for most of the 2019 season, but the observed escapement index of 153,100 fish was within the district's odd-year SEG index range 111,000–208,000 fish (Appendices D1 and D6). The Northern District chum salmon escapement indices were below the projected range for the 2019 season, and the escapement index of 11,700 fish was below the district's lower bound SEG of 28,000 fish (Appendices D1 and D7).

The Northern District CCPF began with one 14-hour period on July 15 to provide additional opportunity on SGH pink salmon. Aerial surveys indicated below average wild stocks returning to northern PWS for most of the season. Northern District pink salmon harvest opportunities were limited for much of July due to inadequate wild stock escapement but did increase during August, when pink salmon started arriving at CCH and wild stock areas. Peak pink salmon harvest occurred during the period beginning August 21 and 1.24 million fish were harvested, of which 57.9% were CCH stock (Appendix E16). During August, CCPF periods occurred 2 to 3 times a week to allow adequate wild stock escapement and hatchery broodstock acquisition.

During 2019, PWSAC harvested 425,100 CCH pink salmon for cost recovery, and an additional 44,400 pink salmon were harvested via the CCH fishway. PWSAC utilized 514,000 fish at CCH for broodstock, and an additional 50,000 fish went unharvested (PWSAC 2019b). Pink salmon egg-take operations at CCH finished on September 17; however, PWSAC did not achieve its egg-take goal (PWSAC 2019b). The 2019 CCH pink salmon run of 10.30 million fish was above PWSAC's preseason projection of 8.40 million fish (Table 1 and 6; Appendix E17).

There were 29 Northern District CCPF periods in 2019, and 179 purse seine permit holders reported deliveries (Appendix E16; Table 1). Northern District CCPF harvest was 9 Chinook, 16,700 sockeye, 32,600 coho, 8.94 million pink, and 29,500 chum salmon (Table 1). Northern District pink salmon harvest included 53% CCH fish, 25.8% wild fish, 13% WNH fish, 4.8% AFK fish, and 3.4% SGH fish (Appendix E16). The 2019 CCH pink salmon CCPF harvest of 9.36 million fish was above the PWSAC's total preseason projection of 7.34 million fish (Appendix E17; PWSAC 2019a).

COGHILL DISTRICT

The 2019 WNH pink salmon forecast was 5.00 million fish, of which 283,000 pink salmon were needed for broodstock and 419,000 were needed for cost recovery, leaving 4.29 million pink salmon for CCPF harvest (PWSAC 2019a). The Coghill District pink salmon escapement indices were less than the odd-year average (1999–2017), but the observed escapement index of 153,129 fish was within the district's odd-year SEG index range of 54,000–233,000 fish (Appendices D1 and D6). The Coghill District chum salmon escapement index of 3,437 fish was below the district's lower bound SEG of 10,000 fish (Appendices D1 and D7).

The Coghill District purse seine fishery began on August 8 with a 6-hour period. Aerial surveys indicated below average wild stocks returning to northern areas of PWS for most of the season. Coghill District pink salmon harvest opportunities were limited during July due to cost recovery at WNH and low wild stock escapement. Fishing opportunities increased in wild stock areas during August when pink salmon started to arrive. WNH hatchery subdistricts were closed throughout August to build broodstock. Pink salmon seine harvest peaked on August 21, and 12,000 fish were harvested, of which were 42.2% wild (Appendices B5 and E7). During August, CCPF periods occurred 2 to 3 times a week to allow adequate wild stock escapement.

During 2019, PWSAC harvested a total of 632,300 pink salmon for cost recovery, and an additional 160 fish were harvested via the WNH fishway, for a total cost-recovery harvest of 632,460 pink salmon. PWSAC reported that 497,400 pink salmon were utilized at WNH for broodstock, and an additional 1,500 fish went unharvested (PWSAC 2019b). Pink salmon egg-take operations at WNH were successful in 2019. PWSAC reached its 2019 pink salmon egg-take goal at WNH on September 15 and took an additional 20 million eggs to address the shortfall at

AFK (PWSAC 2019b). The 2019 WNH pink salmon run of 4.05 million fish was less than PWSAC's preseason projection of 5.00 million fish (Table 1 and 6; Appendix E17).

Coghill District purse seine CCPF harvest by 20 permit holders was 0 Chinook, 1,600 sockeye, 280 coho, 43,200 pink, and 10,500 chum salmon (Table 1). Coghill District pink salmon harvest included 77.7% wild fish, 10.3% SGH fish, 5.8% WNH fish, 5.6% AFK fish, and 0.6% CCH fish (Appendix E7).

NORTHWESTERN DISTRICT

The Northwestern District pink salmon escapement indices were less than the odd-year average (1999–2017) for the 2019 season, and the pink salmon observed escapement index of 91,267 fish was above the odd-year SEG range of 64,000–144,000 fish. (Appendices D1 and D6). Northwestern District chum salmon escapement indices were below the expected ranges for the 2019 season, and the chum salmon escapement index of 3,258 fish was below the district's lower bound SEG of 7,000 fish (Appendices D1 and D7).

Northwestern District purse seine CCPF harvest by 45 permit holders was 35 Chinook, 30,100 sockeye, 3,900 coho, 729,600 pink, and 9,600 chum salmon (Table 1). Northwestern District pink salmon harvest included 76.8% wild fish, 10.9% WNH fish, 8.9% AFK fish, 3.3% CCH fish, and 0.1% SGH fish (Appendix E17).

SOUTHWESTERN DISTRICT

The 2019 AFK pink salmon forecast was 8.9 million fish, 363,000 pink salmon were needed for broodstock, and 745,000 were needed for cost recovery, leaving 7.79 million pink salmon for CCPF harvest. PWSAC's 2019 preseason forecast for chum salmon returning to AFK was 330,000 fish, all of which were projected to be available for CCPF harvest (PWSAC 2019a).

Poor weather led to limited survey opportunities in August and September, and few fish were observed entering streams due to drought conditions. Southwestern District pink salmon escapement indices were below the odd-year average (1999–2017) for the 2019 season, and the pink salmon escapement index of 33,300 fish was below the district's odd-year SEG range of 112,000–231,000 fish (Appendices D1 and D6).

Fishing to target enhanced chum salmon at AFK THA and SHA started June 3 with a weekly schedule of two 48-hour purse seine fishing periods, which continued until June 24. From June 24 through July 1, fishing periods were gradually reduced from two 48-hour periods to three 12-hour periods a week to limit incidental catch of wild salmon destined for other areas of PWS. The AFK THA and SHA harvest from June 1 through July 21 was 532,600 chum salmon (including 6,700 wild stock chum salmon; Appendix E20), and 36,400 sockeye salmon (including 6,000 wild stock sockeye salmon assumed to be Coghill origin based on run timing (Appendix E18)). The 2019 commercial harvest of 545,263 chum salmon in the Southwestern District was above the 2009–2018 average harvest (Appendix D5).

Pink salmon Southwestern District CCPF total harvest was 10.08 million fish (Appendix E19). This mixed-stock harvest was made up of 39.2% AFK, 28.1% wild, 21.2% CCH, 10.0% WNH, and 1.4% SGH fish. This distribution of stocks is the result of conducting the fishery in the Southwestern District, which is the primary migration corridor for pink salmon traveling to other areas of PWS.

The purse seine fishery targeting pink salmon in the Southwestern District began on August 8 with a 6-hour period to gauge hatchery and wild pink salmon run entry into the Southwestern District. PWSAC began cost-recovery at AFK on July 30 and finished on August 5. During August, the Southwestern District pink salmon CCPF periods occurred 2 to 3 times a week to allow adequate wild stock escapement and broodstock acquisition. Peak harvest occurred on August 13 when 1.54 million fish were harvested, of which 58.3% were AFK pink salmon (Appendix E19).

PWSAC harvested a total of 642,000 pink salmon for cost recovery, and an additional 36,700 fish were harvested via the AFK fishway, for a total cost-recovery harvest of 678,700 pink salmon. PWSAC reported that 304,000 pink salmon were utilized at AFK for broodstock, and an additional 51,000 fish went unharvested (PWSAC 2019b). Pink salmon egg-take operations at AFK finished on September 14; however, PWSAC did not achieve its egg-take goal (PWSAC 2019b). The 2019 AFK pink salmon run of 6.04 million fish was 32% less than PWSAC's preseason projection of 8.90 million fish (Table 1 and 6; Appendix E17).

There were 44 Southwestern District CCPF periods in 2019, and 185 purse seine permit holders reported deliveries (Appendix E19; Table 1). The 2019 Southwestern District CCPF harvest was 71 Chinook, 42,800 sockeye, 29,900 coho, 10.08 million pink, and 545,300 chum salmon (Table 1). The 2019 Southwestern District chum salmon harvest included 88.7% AFK, 6.1% Port Chalmers, 2.4% WNH, and 2.8% wild fish (Appendix E20). Southwestern District sockeye salmon harvest in 2019 included 77.1% MBH fish and 22.9% wild fish (Appendix E18). The total CCPF harvest estimate of 483,600 AFK enhanced chum salmon was above the preseason forecast harvest of 330,000 fish (Table 6; Appendix E20).

MONTAGUE DISTRICT

Poor weather led to limited survey opportunities in August and September, and few fish were observed entering streams due to drought conditions. Montague District pink salmon escapement indices were below the odd-year average (1999–2017) for the 2019 season, and the observed escapement index of 25,385 fish was below the district's odd-year SEG range of 143,000–330,000 fish (Appendices D1 and D6). There is no chum salmon escapement goal for the Montague District.

The purse seine fishery targeting pink salmon in the Montague District began on August 8. Due to limited aerial survey data, the Montague District pink salmon CCPF consisted of 1 to 2 periods a week during August. Peak harvest occurred on August 19 when 166,000 fish were harvested, of which 82.5% were wild pink salmon (Appendix E22).

There were 33 Montague District seine CCPF periods in 2019, and 26 purse seine permit holders reported deliveries (Table 1; Appendix E22). The 2019 Montague District CCPF seine harvest was 106 sockeye, 710 coho, 297,100 pink, and 538 chum salmon (Table 1). The Montague District's 2019 pink salmon CCPF harvest included 82.1% wild, 11.1% AFK, 4.1% CCH, 1.5% SGH, and 1.2% WNH fish (Appendix E22).

SOUTHEASTERN DISTRICT

The Southeastern District pink salmon escapement indices were less than the odd-year average (1999-2017) for most of the 2019 season but were within the expected escapement goal range (Appendices D1 and D6). The Southeastern District pink salmon escapement index of 290,500 fish was within the district's odd-year SEG range of 286,000–515,000 fish. The Southeastern

District chum salmon escapement index of 19,450 fish was above the district's lower bound SEG of 10,000 fish (Appendix D1).

The purse seine fishery in the Southeastern District was opened concurrently with Eastern District fisheries throughout the season targeting wild and hatchery stocks. The Southeastern District pink salmon CCPF occurred 2 to 3 times a week in August to allow adequate wild stock escapement.

The 2019 Southeastern District CCPF harvest by 69 permit holders was 10 Chinook, 5,600 sockeye, 11,000 coho, 2.82 million pink, and 38,200 chum salmon (Table 1). The Southeastern District pink salmon harvest included 94.0% wild fish, 2.3% CCH fish, 1.9% AFK fish, 1.5% SGH fish, and 0.3% WNH fish (Appendix E17).

PRINCE WILLIAM SOUND AND COPPER RIVER SUBSISTENCE, PERSONAL USE, AND HOMEPACK FISHERIES

The PWS Subsistence Management Area includes all waters of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling. State of Alaska subsistence fishing permits are not required for marine finfish other than salmon. Lingcod *Ophiodon elongatus* may be taken for subsistence purposes only from July 1 through December 31. Herring smelt (*Hypomesus*, *Mallotus*, and *Thaleichthys* spp.), rockfish *Sebastes* spp., and other groundfish may also be harvested for subsistence purposes in PWS. Herring spawn-on-kelp may be taken for subsistence purposes as described in 5 AAC 01.610(d)(1)(2); therein, herring spawn-on-kelp may be taken above water from March 15 through June 15 or harvested using dive gear only during fishing periods open for the wild herring spawn-on-kelp commercial fishery. For a detailed history of regulation governing the subsistence fisheries within the Copper River and PWS, see Botz and Somerville (2011).

LOWER COPPER RIVER AND PRINCE WILLIAM SOUND

Subsistence 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 gear, and 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 depending on the legal, commercial gear standard within a commercial fishing district.

In 2019, 573 subsistence permits were issued for the Copper River District, of which 18 (3.1%) were not returned, and 208 permit holders reported not fishing. A harvest of 800 Chinook, 6,200 sockeye, and 300 coho salmon were reported from the 347 permit holders that reported fishing (Appendix F2). In addition, 44 subsistence permits were issued for the PWS general subsistence district, of which 43 were returned, 27 permit holders reported not fishing, and 16 permit holders reported a harvest of 8 Chinook, 400 sockeye, 0 coho, 3 pink, and 14 chum salmon (Appendix F3).

Overall, 742 Alaska residences in 26 communities received permits for the PWS saltwater subsistence fisheries and harvested 7,900 fish (Appendix F4).

Overall, in Area E in 2019, 417 commercial permit holders from 25 Alaska communities and the other 49 states reported retaining 16,300 salmon for homepack from their commercial catches (Appendix F4). On a harvest-per-permit basis in 2019, the most Chinook and pink salmon were harvested per drift gillnetters, the most coho and chum salmon were harvested per purse seiners, and the most sockeye salmon were harvested per set gillnetters. Drift gillnetters harvested an average of 36 salmon per permit, set gillnetters 71 salmon per permit, and purse seiners 53 salmon per permit (Appendix F5).

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 2019, an estimated total of 101 federal permits were issued; 47 permits were fished, and an estimated 70 sockeye and 480 coho salmon were harvested (Appendix F6).

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 2019, 2 permits were issued for the Chenega subsistence area, of which 2 were returned. One permit holder reported fishing and harvested no salmon. In the Tatitlek area, 5 permits were issued, of which 4 were returned. Of those returned permits, 3 reported fishing, and 1 reported not fishing for a total harvest of 100 sockeye, 37 coho, and 2 chum salmon (Appendix F7).

UPPER COPPER RIVER

In 2019, the combined upriver subsistence and personal use sockeye salmon harvest (federal and state) totaled 254,000 fish, which was almost 80,000 fish less than the 2015 record harvest. From 2009 to 2018, the combined upriver subsistence and personal use sockeye salmon harvest (federal and state) ranged from 137,000 fish (in 2018) to 334,000 fish (in 2015), for a 10-year average of 222,000 sockeye salmon (Appendix A1). A steadily increasing trend in subsistence and personal use harvest is reflected annually through additions to the inriver goal within the allocated ranges for each fishery.

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 F8). 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, if additional salmon were requested by the permit holder, cannot exceed 200 salmon for a household of 1 and 500 salmon for a household of 2 or more. No more than 5 Chinook salmon may be taken by each dip net permit holder. Both tips of the 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 2019, a total of 1,354 dip net permits and 359 fish wheel permits were issued to subsistence users in the Glennallen Subdistrict. Of these, 330 (19.3%) permits were not returned. A combined total estimate of 3,400 Chinook, 60,300 sockeye, and 200 coho salmon were harvested in the Glennallen Subdistrict. Comparatively, the 10-year average was 3,400 Chinook, 62,300 sockeye, and 200 coho salmon for this subdistrict. Fish wheel effort has been declining over the last 10 years, with an average number of 540 permits issued. The number of dip net permits issued has increased over the past few years. The number of permits issued in 2019 is 29.6% more than the 10-year average of 953 dip net permits (Appendix F11). Historically, sockeye salmon dominate the harvest, representing 94.3% of the estimated harvest in the Glennallen Subdistrict subsistence fishery over the previous 10 years, followed by Chinook and coho salmon (Appendices A1, A3, A15, and F11). Harvest from the Glennallen Subdistrict subsistence fisheries was 4.7% GH sockeye salmon (Appendix E3).

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 2019, a total of 343 federal permits were issued for the Glennallen Subdistrict. Of these, 304 permits were returned. A total of 840 Chinook, within 50 fish of the 5-year average, were reported harvested. The 15,700 sockeye salmon harvest was below the 5-year average (Appendix F6).

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, as established by EO, 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 2019, and 200 sockeye salmon reported as harvested (Appendices A1 and F9).

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 F10). 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 BOF 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 BOF removed the allowance of supplemental permits for 10 additional fish that were given to permit holders that already achieved their annual limit when ADF&G determined a weekly harvestable surplus of 50,000 salmon were in the Chitina Subdistrict. Inseason adjustments to the fishery, as needed by fluctuations in salmon escapement, are made by EO.

In 2019, there were 10 EOs issued to adjust the dip net fishery. The first period started on Friday, June 7, and the last period closed on Saturday, August 31. The fishery was then open continuously from August 15 to September 30. Higher than projected Chinook salmon commercial harvest rates and escapement indices from Native Village of Eyak's fish wheel mark-recapture program led to the Chinook salmon harvest being allowed the entire season. There were 8,070 permits issued for the Chitina personal use fishery in 2019. Of these, 1,431 (17.7%) were not returned. The number of permits issued was above the 10-year average of 9,770 permits issued (Appendix F11). The expanded harvest for the Chitina Subdistrict personal use fishery in 2019 was 2,600 Chinook, 171,200 sockeye, and 1,100 coho salmon. The 10-year average expanded harvests were 953 Chinook, 140,300 sockeye, and 1,300 coho salmon (Appendices A1, A3, A15, and F11). Harvest from the Chitina Subdistrict personal use fishery was 4.7% GH sockeye salmon (Appendix E3).

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 2019, an estimated total of 181 federal permits were issued, of which 161 were returned. The reported harvest was 70 Chinook, 3,980 sockeye, and 20 coho salmon (Appendix F6).

2019 PRINCE WILLIAM SOUND 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 59°N latitude. 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).

SEASON SUMMARY

Based on herring stock assessment information, all Pacific herring fisheries were closed in 2019. An age structured assessment model estimated the 2019 median pre-fishery biomass to be 13,670 tons, below the regulatory threshold of 22,000 tons. Aerial survey estimates of mile-days of spawn and biomass also indicated the population was below the regulatory threshold (Appendices G1 and G2).

Net sampling and aerial surveys were used in 2019 to assess herring biomass, disease prevalence, age composition, and growth. In April 2019, the ADF&G vessel R/V *Solstice* searched for herring to sample for age, sex, size, and disease assessment. Broad scale surveys were conducted in eastern PWS, including Cedar Bay, Sheep Bay, Port Gravina, Port Fidalgo, Rocky Bay, and Zaikoff Bay from April 3 to April 10, 2019. During vessel surveys of PWS, herring samples were collected

using purse seine near Hinchinbrook Island at Double Bay (April 5), Canoe Pass (April 6), and Whiskey Cove (April 6), and near Montague Island at Rocky Bay (April 7). Over 2,600 herring were collected and processed for age, sex, and size in 2019. The Prince William Sound Science Center collected acoustics data, resulting in a 2019 PWS herring biomass estimate of 8,450 tons. PWS herring, as well as other stocks statewide, saw a large recruitment of age-3 fish in 2019. Age composition of samples collected with purse seine and cast net were dominated by 3-year-old fish and an overall observed spawning age composition of 84.4% age-3, 4.8% age-4, 7.1% age-5, and 2.7% age-6 (Appendix G3).

ADF&G conducted 58 hours of spring aerial surveys during 19 flights from March 19 to May 3, 2019. PWS herring schools observed in 2019 were more widespread and numerous than in recent years. Spawn was documented on the north shore of Hawkins Island near Canoe Passage (March 26); between Hells Hole and Knowles Bay (April 1–May 3); on the southeast shore of Green Island (April 5); in Port Fidalgo (April 16–May 3); in Rocky Bay (May 3); and near Kayak and Wingham Island (March 31–April 16). Total PWS herring mile-days of spawn were estimated at 12.7 mile-days, the most since 2015 (Appendices G1 and G4).

2019–2020 HERRING SEASON OUTLOOK

Given the PWS herring spawning population, current fish size, and age structure, a commercial harvest will not occur in 2020. Funding was provided by the *Exxon Valdez* Trustee Council for 2016 through 2019. ADF&G will continue to monitor the PWS herring biomass to assess growth and recruitment as funding is available.

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TABLES AND FIGURES

Table 1.—Prince William Sound Area commercial salmon harvest by gear type and district, 2019.

District	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	238	113	81,187	217,881	20,017,274	522,862	20,839,317
Northern	179	9	16,671	32,625	8,940,604	29,505	9,019,414
Coghill	20	0	1,608	280	43,154	10,523	55,565
Northwestern	45	35	30,146	3,844	729,579	9,602	773,206
Southwestern	185	71	42,773	29,847	10,081,361	545,263	10,699,315
Montague	26	0	106	710	297,126	538	298,480
Southeastern	69	10	5,584	11,044	2,815,872	38,173	2,870,683
Unakwik	5	0	1810	0	1938	773	0
Purse seine total		238	179,885	296,231	42,926,908	1,157,239	44,555,980
Bering River	78	83	21,006	7,418	262	202	28,971
Copper River	484	18,659	1,283,822	78,292	214,411	23,010	1,618,194
Coghill	326	98	389,051	120,152	301,333	1,049,441	1,860,075
Eshamy	336	103	469,905	1,083	265,080	125,207	861,378
Montague	218	38	4,913	20	18,270	1,572,108	1,595,349
Unakwik	11	2	7,657	0	2114	1015	10,788
Drift gillnet total		18,983	2,176,354	206,965	801,470	2,770,983	5,974,755
Eshamy	27	14	225,676	182	54,899	38,534	319,305
Set gillnet total		14	225,676	182	54,899	38,534	319,305
CCPF Total		19,235	2,581,915	503,378	43,783,277	3,966,756	50,850,040
Solomon Gulch		0	0	5068	1,982,585	0	1,987,653
Cannery Creek		0	0	0	902,599	0	902,599
Wally Noerenberg		0	0	17,886	1,091,998	1,407,994	2,517,878
Main Bay		0	8,987	0	0	0	8,987
Armin F. Koernig		0	0	0	959,018	0	959,018
Port Chalmers		0	0	0	0	6,330	6,330
Hatchery total ^a		0	8,987	22,954	4,936,200	1,414,324	6,382,465
Test fishery		0	0	0	0	0	0
Home pack		839	11,544	2,015	1,437	424	16,259
Confiscated fish		0	0	0	0	0	0
Donated fish		0	0	0	0	0	0
Misc. total		839	11,544	2,015	1,437	424	16,259
Prince William Sound total		20,074	2,602,446	528,347	48,720,914	5,381,504	57,248,764

^a Hatchery sales for hatchery operating costs.

Table 2.—Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound Area, 2019.

Purse seine						
Species	Fish ticket number	Fish ticket pounds	Average weight	Price	Value	
Chinook	238	2,808	11.80	\$1.12	\$3,145	
Sockeye	179,885	883,853	4.91	\$1.81	\$1,599,774	
Coho	296,231	2,326,504	7.85	\$1.06	\$2,466,094	
Pink	42,926,908	147,043,209	3.43	\$0.30	\$44,112,963	
Chum	1,157,239	7,256,616	6.27	\$0.52	\$3,773,440	
	44,560,501	157,512,990			\$51,955,416	
Drift gillnet						
Species	Number	Pounds	Average weight	Price	Value	
Chinook	18,983	356,453	18.78	\$8.66	\$3,086,883	
Sockeye	2,176,354	11,809,825	5.43	\$2.55	\$30,115,053	
Coho	206,965	1,804,178	8.72	\$1.38	\$2,489,766	
Pink	801,470	2,976,536	3.71	\$0.27	\$803,665	
Chum	2,770,983	17,456,883	6.30	\$0.44	\$7,681,028	
	5,974,755	34,403,875			\$44,176,395	
Set gillnet						
Species	Number	Pounds	Average weight	Price	Value	
Chinook	14	260	18.57	\$2.03	\$528	
Sockeye	225,676	1,182,251	5.24	\$2.06	\$2,435,437	
Coho	182	1,195	6.57	\$0.97	\$1,159	
Pink	54,899	215,713	3.93	\$0.24	\$51,771	
Chum	38,534	235,674	6.12	\$0.46	\$108,410	
	319,305	1,635,093			\$2,597,305	
Hatchery sales						
Species	Number	Pounds	Average weight	Average price	Value	
Chinook	0	0	0	\$0.00	\$0	
Sockeye	8,987	37,750	4.20	\$2.00	\$75,500	
Coho	22,954	139,416	6.07	\$1.00	\$139,416	
Pink	4,936,200	17,110,896	3.47	\$0.75	\$12,833,172	
Chum	1,414,324	8,231,443	5.82	\$0.81	\$6,667,469	
	6,382,465	25,519,505			\$19,640,057	

-continued-

Table 2.—Page 2 of 2.

Combined						
Species	Number	Pounds	Average weight	Price	Value	
Chinook	19,235	359,521	18.93	\$8.60	\$3,090,556	
Sockeye	2,590,902	13,913,679	5.37	\$2.46	\$34,225,764	
Coho	526,332	4,271,293	8.12	\$1.19	\$5,096,435	
Pink	48,719,477	167,346,355	3.43	\$0.35	\$57,801,571	
Chum	5,381,080	33,180,615	.17	\$0.55	\$18,230,347	
	57,236,788	219,071,463			\$118,369,173	
Subtotal				No. of permits	Average earnings	
Gear type	Value of catch					
Purse seine	\$51,955,416			238	\$218,300	
Drift gillnet	\$44,176,395			509	\$86,791	
Set gillnet	\$2,597,305			27	\$96,196	
Subtotal						
Value of CPF catch		\$98,729,116				
Hatchery		\$19,640,057				
Grand Total		\$118,369,173				

Note: Number and pounds from fish ticket data. Value from statewide season summary. Personal use/homepack not included.

Table 3.—Average price paid to permit holders for salmon, Prince William Sound Area, 1995–2019.

Year	Chinook salmon		Sockeye salmon			Coho salmon			Pink salmon			Chum salmon		
	Gillnet		Gillnet		Purse seine	Gillnet		Purse seine	Gillnet		Purse seine	Gillnet		Purse seine
	Copper and Bering	PWS	Copper and Bering	PWS		Copper and Bering	PWS		Copper and Bering	PWS		Copper and Bering	PWS	
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
Average, 2009–2018	\$6.53	\$3.27	\$2.52	\$1.77	\$1.61	\$1.27	\$0.99	\$0.76	\$0.24	\$0.31	\$0.34	\$0.33	\$0.68	\$0.68

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, 2009–2019.

Purse seine												Average,
Species	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2009–2018
Chinook	\$985	\$634	\$6,120	\$3,279	\$15,444	\$11,317	\$6,990	\$879	\$4,872	\$4,517	\$3,145	\$5,504
Sockeye	\$584,595	\$705,231	\$560,497	\$1,449,007	\$796,220	\$646,931	\$1,766,313	\$551,225	\$1,113,442	\$623,322	\$1,599,774	\$879,678
Coho	\$22,522	\$48,476	\$633,076	\$117,259	\$1,608,923	\$192,659	\$83,371	\$194,322	\$529,613	\$613,107	\$2,466,094	\$404,333
Pink	\$7,890,237	\$78,063,374	\$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	\$45,335,867
Chum	\$1,123,335	\$1,019,498	\$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	\$3,167,074
	\$9,621,674	\$79,837,212	\$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	\$49,792,455
Drift gillnet												
Species												
Chinook	\$956,053	\$1,025,380	\$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	\$1,487,576
Sockeye	\$17,386,798	\$18,486,735	\$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	\$26,225,948
Coho	\$3,197,336	\$3,523,008	\$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	\$3,752,387
Pink	\$363,373	\$3,446,356	\$1,025,474	\$1,659,983	\$2,465,469	\$1,361,065	\$569,851	\$76,420	\$1,093,388	\$896,292	\$803,665	\$1,295,767
Chum	\$9,227,837	\$11,973,968	\$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	\$9,617,082
	\$31,131,396	\$38,455,447	\$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	\$42,378,759
Set gillnet												
Species												
Chinook	\$1,302	\$756	\$1,832	\$230	\$3,015	\$769	\$1,239	\$2,695	\$428	\$1,114	\$528	\$1,338
Sockeye	\$1,451,897	\$3,103,081	\$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	\$2,276,982
Coho	\$241	\$250	\$2,297	\$509	\$2,556	\$451	\$1,015	\$54	\$1,013	\$572	\$1,159	\$896
Pink	\$3,419	\$20,573	\$21,931	\$28,480	\$17,062	\$35,588	\$14,827	\$5,826	\$42,543	\$35,918	\$51,771	\$22,617
Chum	\$197,332	\$450,989	\$163,884	\$121,995	\$188,004	\$106,662	\$69,027	\$99,124	\$85,157	\$74,877	\$108,410	\$155,705
	\$1,654,191	\$3,575,649	\$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	\$2,457,538
Hatchery sales												
Species												
Chinook	\$0	\$0	\$0	\$59	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6
Sockeye	\$1,088,363	\$0	\$0	\$7,749	\$110	\$0	\$1,160,000	\$300	\$0	\$0	\$75,500	\$225,652
Coho	\$145,267	\$44,808	\$280,215	\$217	\$214,752	\$19,035	\$30,000	\$15,987	\$312,040	\$123,541	\$139,416	\$118,586
Pink	\$5,208,870	\$8,911,203	\$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	\$9,950,945
Chum	\$1,816,012	\$2,894,835	\$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	\$3,357,432
	\$8,258,512	\$11,850,846	\$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	\$13,652,622

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Table 4.–Page 2 of 2.

Other Species	2009	2010	2011 ^a	2012 ^a	2013 ^a	2014	2015	2016	2017 ^a	2018	2019	Average, 2009–2018
Chinook	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	\$0	\$0
Sockeye	\$0	\$0	\$0	\$16	\$159	\$0	\$0	\$0	241	0	\$0	\$42
Coho	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	\$0	\$0
Pink	\$0	\$0	\$0	\$11,123	\$27	\$0	\$0	\$0	0	0	\$0	\$1,115
Chum	\$0	\$0	\$0	\$1,169	\$1,090	\$243	\$0	\$0	2,979	0	\$0	\$548
	\$0	\$0	\$0	\$12,308	\$1,275	\$243	\$0	\$0	\$3,220	\$0	\$0	\$1,705
Average Earnings												
Purse seine	\$352,212	\$518,423	\$216,813	\$206,151	\$186,391	\$497,214	\$176,335	\$289,143	\$54,982	\$311,264	\$164,499	\$280,893
Drift gillnet	\$57,262	\$75,255	\$96,784	\$97,916	\$105,889	\$92,853	\$99,753	\$71,293	\$67,266	\$74,863	\$73,141	\$83,913
Set gillnet	\$59,737	\$132,431	\$109,768	\$109,768	\$89,852	\$88,900	\$104,532	\$63,713	\$72,466	\$53,864	\$92,203	\$88,503
Number of Permits Fished												
Purse seine	141	154	174	183	224	211	222	220	210	229	234	197
Drift gillnet	507	511	519	513	522	522	525	520	517	518	509	517
Set gillnet	25	27	29	29	29	28	29	31	29	29	26	29

^a Confiscated fish.

Table 5.—Spawning escapement goals for Prince William Sound Area salmon stocks, 2019.

Species/stock	Goal		Long-term target ^a	Type ^b	Year implemented ^c	Evaluation method
	Lower	Upper				
<u>Chinook salmon</u>						
Copper River	24,000 and up		27,000	SEG ^d	2003	Mark-recapture
<u>Coho salmon</u>						
Bering River	13,000	– 33,000	Not used	SEG	2003	Aerial surveys
Copper River Delta	32,000	– 67,000	Not used	SEG	2003	Aerial surveys
<u>Sockeye salmon</u>						
Bering River	15,000	– 33,000	Not used	SEG	2012	Aerial surveys
Upper Copper River ^e	360,000	– 750,000	450,000	SEG	2012	DIDSON sonar
Copper River Delta ^f	55,000	– 130,000	84,500	SEG	2003	Aerial surveys
Coghill Lake	20,000	– 60,000	Not used	SEG	2012	Weir
Eshamy Lake	13,000	– 28,000	Not used	BEG	2009	Video
<u>Pink salmon ^g</u>						
<u>Even-year broodline</u>						
Eastern District	250,000	– 580,000	390,000	SEG	2017	Aerial surveys
Northern/Unakwik Districts	140,000	– 210,000	160,000	SEG	2017	Aerial surveys
Coghill District	60,000	– 150,000	100,000	SEG	2017	Aerial surveys
Northwestern District	70,000	– 140,000	100,000	SEG	2017	Aerial surveys
Eshamy District	3,000	– 11,000	6,000	SEG	2017	Aerial surveys
Southwestern District	70,000	– 160,000	130,000	SEG	2017	Aerial surveys
Montague District	50,000	– 140,000	70,000	SEG	2017	Aerial surveys
Southeastern District	150,000	– 310,000	200,000	SEG	2017	Aerial surveys
<u>Odd-year broodline</u>						
Eastern District	310,000	– 640,000	410,000	SEG	2017	Aerial surveys
Northern/Unakwik Districts	90,000	– 180,000	130,000	SEG	2017	Aerial surveys
Coghill District	60,000	– 250,000	130,000	SEG	2017	Aerial surveys
Northwestern District	50,000	– 110,000	80,000	SEG	2017	Aerial surveys
Eshamy District	4,000	– 11,000	9,000	SEG	2017	Aerial surveys
Southwestern District	70,000	– 190,000	120,000	SEG	2017	Aerial surveys
Montague District	140,000	– 280,000	210,000	SEG	2017	Aerial surveys
Southeastern District	270,000	– 620,000	360,000	SEG	2017	Aerial surveys

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Table 5.–Page 2 of 2.

Species/stock	Goal		Long-term target ^a	Type ^b	Year implemented ^c	Evaluation method
	Lower	Upper				
Chum salmon ^h						
Eastern District	79,000 and up		103,100	SEG ^d	2017	Aerial surveys
Northern District	28,000 and up		40,100	SEG ^d	2017	Aerial surveys
Coghill District	10,000 and up		18,750	SEG ^d	2017	Aerial surveys
Northwestern District	7,000 and up		13,000	SEG ^d	2017	Aerial surveys
Southeastern District	11,000 and up		25,000	SEG ^d	2017	Aerial surveys

Note: DIDSON is dual-frequency identification sonar.

- ^a Managed for escapements that on average match the historical average escapement listed. However, long-term targets for pink salmon are the median escapement values.
- ^b Goal types include biological escapement goal (BEG) and sustainable escapement goal (SEG) as defined in 5 AAC 39.222 *Policy for the management of sustainable salmon fisheries*.
- ^c Goals are generally adopted the year before they are implemented.
- ^d Goals are lower bound SEG goals (5 AAC 39.222).
- ^e The Upper Copper River is managed for an inriver goal evaluated by the Miles Lake sonar. Upriver harvests and hatchery contributions are subtracted to estimate the spawning escapement.
- ^f Copper River Delta sockeye salmon goal is managed for escapements that, on average, match the long-term escapement index of 84,500.
- ^g Pink and chum salmon escapements are indexed by the area under the curve (AUC) of weekly aerial surveys adjusted for stream life.
- ^h There are no chum salmon goals for Unakwik, Eshamy, Southwestern, or Montague Districts, but streams are surveyed.

Table 6.—Preseason projections for the 2019 common property salmon fishery by district and species, Prince William Sound Area.

District/facility ^a	Forecast type ^b	Chinook		Sockeye		Coho ^c		Pink		Chum	
		Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range
Copper River ^d	CPF harvest	31	9 - 53	955	550 - 1,360	235					
Bering River ^e	CPF harvest			2		67					
Coghill ^f	CPF harvest			443	250 - 636						
Eshamy ^f	No Forecast			NA	NA - NA						
Unakwik ^g	CPF harvest			3	1 - 5						
General Districts	CPF harvest							21,730			327
Total wild stock		31	9 - 53	1,403	801 - 2,001	302		21,730			327
SGH	Total Run					87		20,160	10,080 - 30,240		
AFK	Total Run							8,900	1,300 - 11,400	330	250 - 410
WNH ^h	Total Run					233	162 - 304	5,000	900 - 12,400	1,990	1,780 - 2,200
CCH	Total Run							8,400	2,100 - 10,100		
MBH	Total Run			1,378	1,203 - 1,553						
GH	Total Run			98	71 - 125						
Total hatchery				1,476	1,274 - 1,678	320	162 - 304	42,460	14,380 - 64,140	2,570	2,250 - 2,890
Total hatchery and wild		31		2,879		622		66,020			3,097

Note: All values are in thousands. NA is 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 include 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 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.
- ^b 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 CPF forecasts for PWS hatchery runs and Gulkana Hatchery sockeye salmon. Harvest projections do not include salmon harvested by hatcheries for cost recovery.
- ^c ADF&G provides commercial common property (CCPF) harvest forecasts for Copper River and Bering River Districts coho salmon runs.
- ^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 for Chinook and 10-year 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's 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.

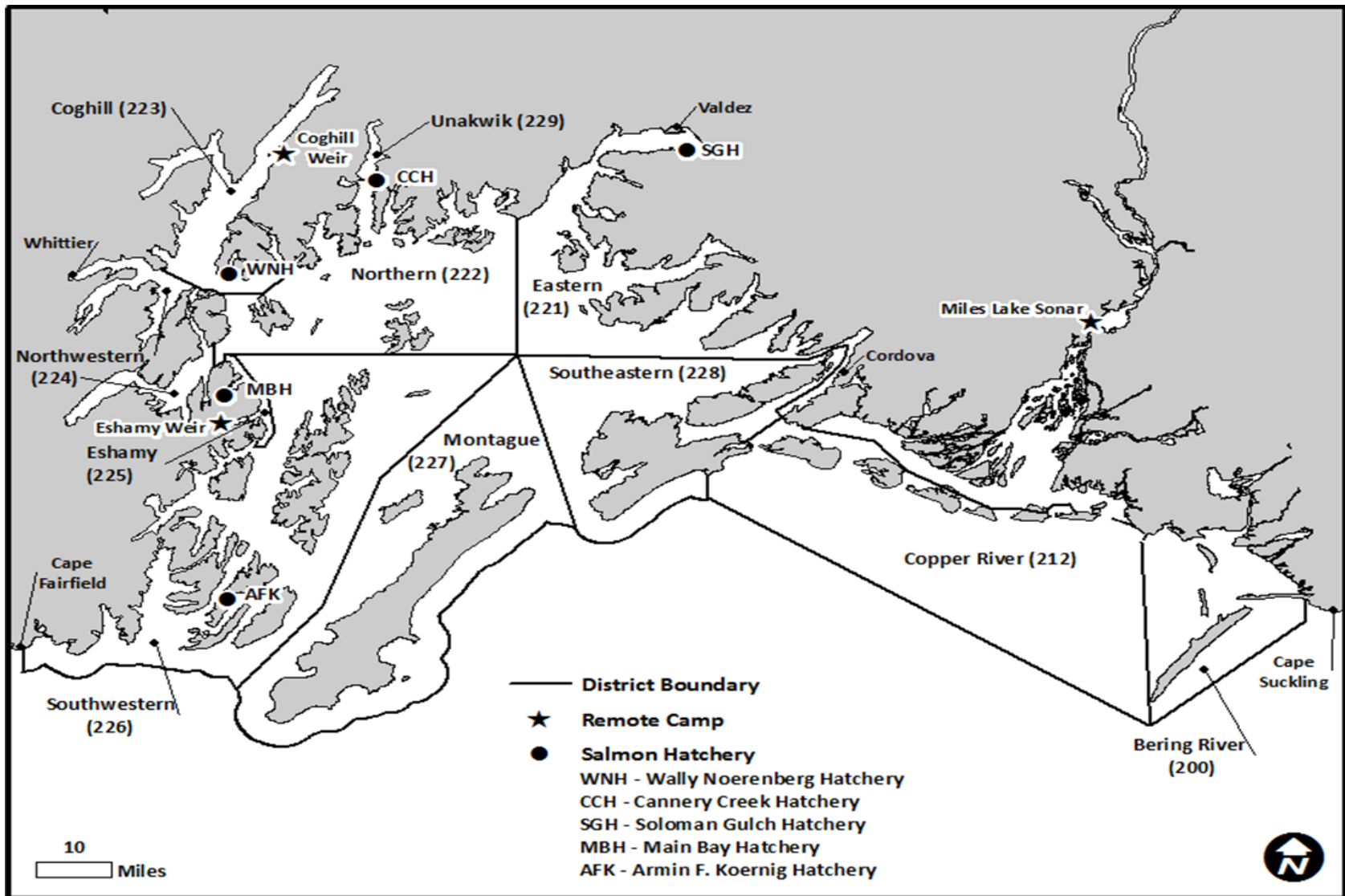


Figure 1.—Prince William Sound Area showing commercial fishing Districts, salmon hatcheries, weir locations, and Miles Lake sonar camp.

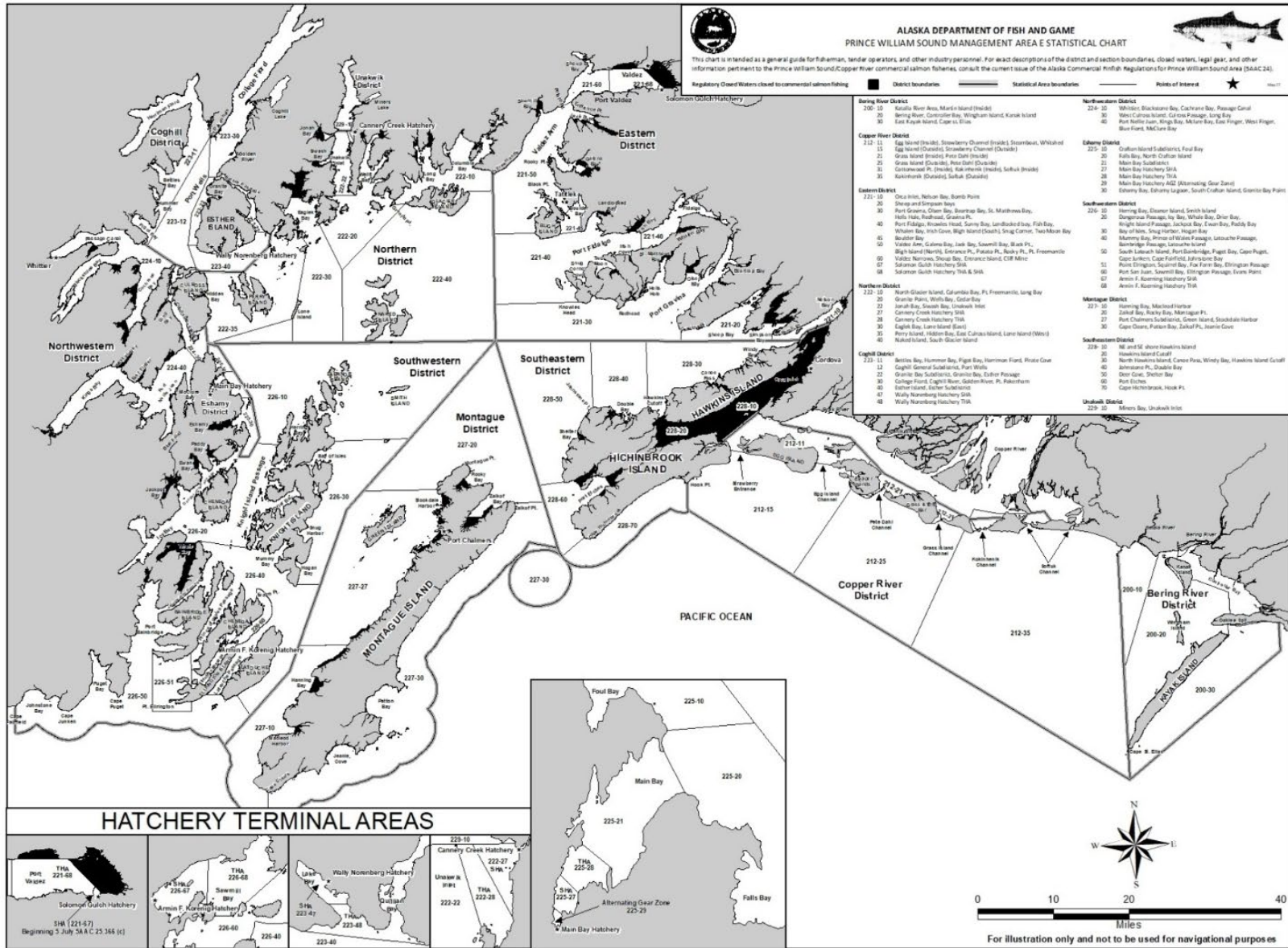


Figure 2.—Prince William Sound Area showing commercial fishing Districts and statistical reporting areas.

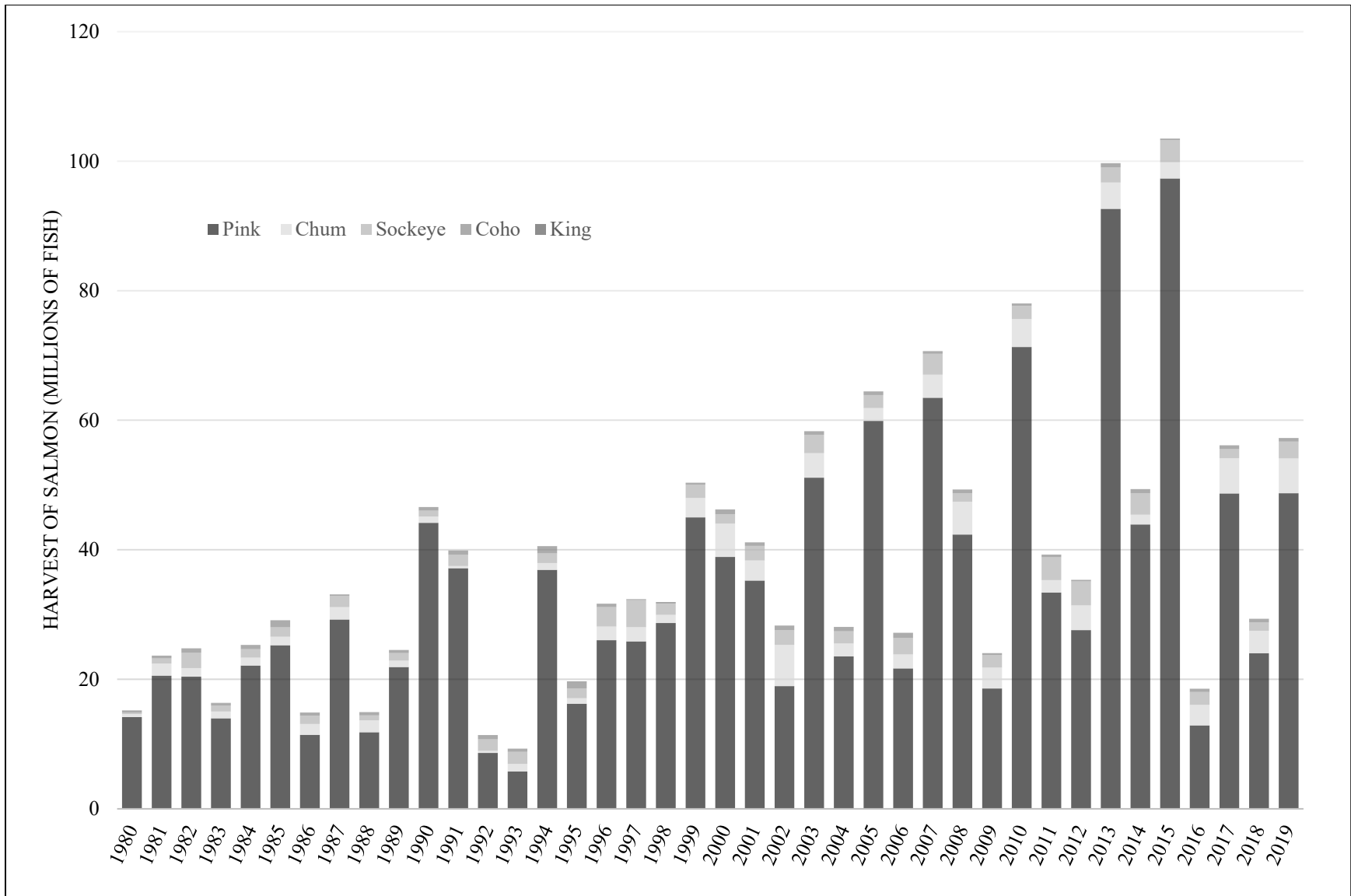


Figure 3.—Commercial salmon harvests in Prince William Sound Area, 1980–2019.

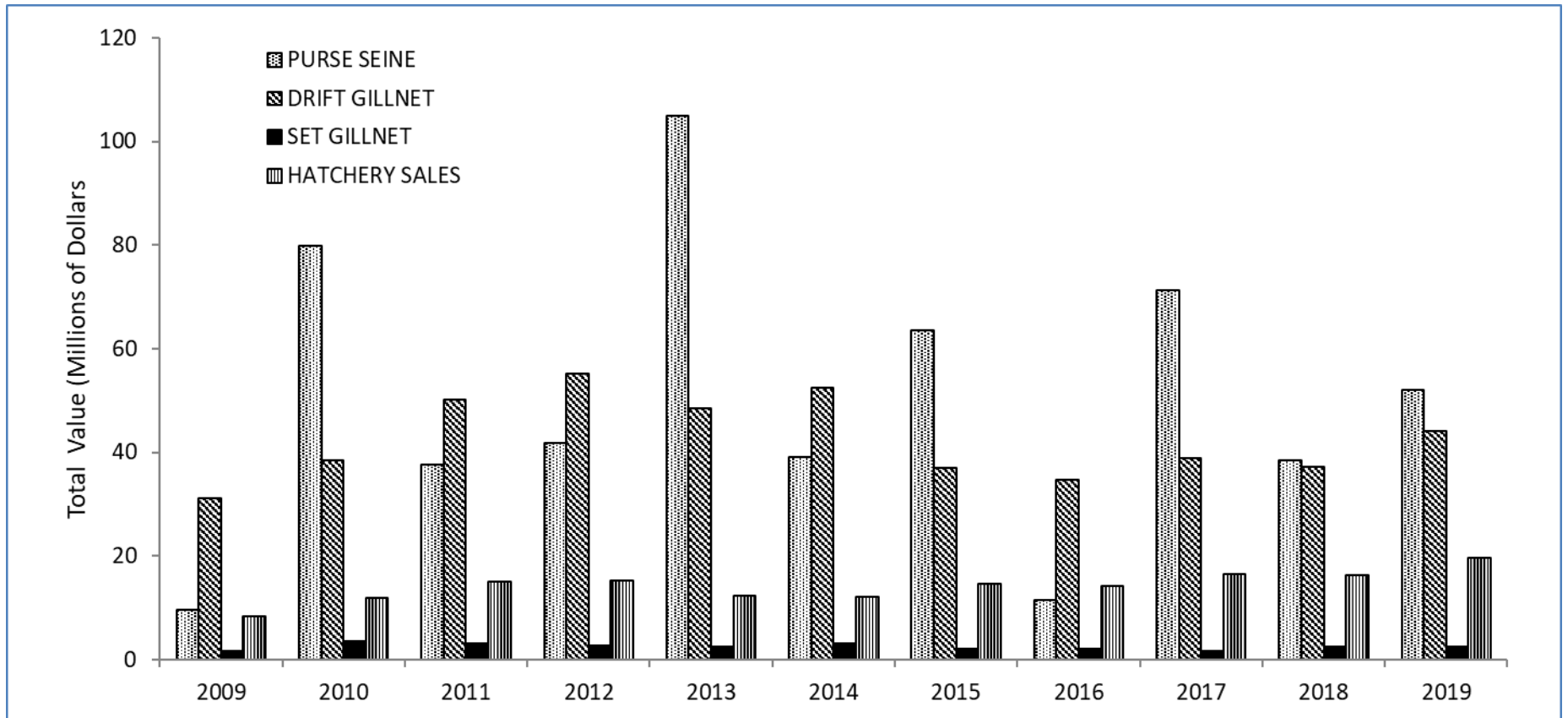


Figure 4.—Exvessel value of the commercial salmon harvest in the Prince William Sound Area by gear type, 2008–2019.

APPENDIX A: COPPER RIVER

Appendix A1.—Total estimated sockeye salmon runs to the Copper River by end user or destination and the 10-year average, 2009–2019.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Commercial harvest ^a	896,621	636,214	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	1,266,840
Commercial, homepack ^a	6,528	7,064	9,070	7,985	9,448	12,072	10,590	9,598	8,289	1,545	8,016	8,219
Commercial, donated ^a	47	0	0	0	0	0	0	0	0	0	0	5
Educational drift gillnet permit ^a	8	61	23	200	152	186	91	203	217	6	18	115
Subsistence (Cordova, drift gillnet) ^b	1,764	1,980	1,783	4,270	5,639	1,675	1,403	1,075	2,448	5,189	6,163	2,723
Federal subsistence (PWS/Chugach Nat'l Forest, dip net, spear, rod and reel) ^b	46	36	35	64	102	76	152	234	127	96	70	97
Subsistence (Batzulnetas, dip net, fish wheel, spear) ^b	0	106	9	101	862	146	0	0	254	468	209	195
Subsistence (Glennallen Subdistrict, dip net, fish wheel, spear) ^c	46,849	70,719	59,622	76,305	73,728	75,501	81,800	62,474	41,570	39,359	60,257	62,793
Federal subsistence (Glennallen Subdistrict, dip net, fish wheel or spear) ^d	11,836	12,849	14,163	14,461	17,789	23,889	26,753	19,181	18,415	16,736	17,718	17,607
Personal use reported (Chitina Subdistrict, dip net) ^c	90,035	138,487	128,052	127,143	180,663	157,215	223,080	148,982	132,694	77,051	171,203	140,340
Federal subsistence (Chitina Subdistrict, dip net) ^d	817	2,061	1,766	1,332	2,199	1,636	2,404	1,925	1,828	3,430	4,479	1,940
Upriver sport harvest ^e	13,415	14,743	7,727	23,404	26,611	18,005	9,489	7,555	9,589	2,943	6,696	13,348
Delta sport harvest ^e	959	1,342	838	764	386	87	130	246	200	58	168	501
Upriver spawning escapement ^f	468,818	502,403	607,142	953,502	860,258	864,131	930,145	513,126	461,268	478,760	719,526	663,955
Delta spawning escapement ^g	138,584	167,810	153,014	133,700	151,410	128,410	132,390	103,100	113,900	116,940	122,930	133,926

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Appendix A1.–Page 2 of 2.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Hatchery broodstock/excess ^h	43,409	157,980	59,589	65,348	72,369	53,737	40,123	32,341	17,083	30,306	15,552	57,229
Total sockeye salmon run size	1,719,736	1,713,855	3,095,265	3,275,120	3,009,733	3,386,773	3,209,312	2,075,140	1,393,961	819,411	2,416,741	2,369,831

^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 Data are reported harvest (2002–2004) and expanded harvest (2005–2014) from returned state and federal subsistence permits.

^e Upriver and Copper River Delta sport harvest data are from statewide sport fish harvest surveys.

^f 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.

^g Delta spawning escapement estimated by doubling the peak aerial survey index.

^h Hatchery broodstock and on-site excess are from the PWSAC annual reports (PWSAC, 2019b).

Appendix A2.—Total estimated sockeye salmon runs to the Copper River by origin and the previous 10-year average, 2009–2019.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Upriver wild contribution ^a	1,260,717	991,791	2,004,078	2,503,278	2,224,817	2,633,272	2,679,815	1,608,098	1,115,220	629,071	2,067,901	1,765,016
Delta wild contribution ^b	324,744	289,313	512,515	333,445	351,004	350,493	310,313	259,227	213,834	126,691	283,422	307,158
Gulkana contribution ^c	136,443	434,891	580,944	439,749	433,912	403,008	219,184	207,815	64,906	63,649	65,419	298,450
Total estimated sockeye salmon run size	1,721,904	1,715,995	3,097,537	3,276,472	3,009,733	3,386,773	3,209,312	2,075,140	1,393,961	819,411	2,416,741	2,370,624

^a Beginning in 1999, the upriver wild sockeye 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 (CR) commercial and subsistence fisheries, CR Delta wild stock, and CR Delta sport harvests.

^b Delta wild sockeye salmon contribution was estimated as the total CR district harvest multiplied by proportion CR Delta sockeye salmon (delta escapement divided by the total number of sockeye salmon passed the Miles Lake sonar plus CR Delta escapement) then adding CR Delta escapement and CR Delta sport harvest.

^c Gulkana Hatchery sockeye salmon contributions from 1995 to 2003 are based on coded wire tag recovery; contributions from 2004 to 2011 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 reported harvest.

Appendix A3.—Total estimated Chinook salmon run to the Copper River by end user or destination and the previous 10-year average, 2009–2019.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Commercial harvest ^a	9,457	9,645	18,500	11,764	8,826	10,207	22,506	12,348	13,834	7,618	19,148	12,471
Commercial, homepack ^a	876	906	1,282	853	564	768	1,145	727	744	85	742	795
Commercial, donated ^a	0	0	0	0	0	0	0	0	0	0	0	0
Educational drift gillnet permit ^a	50	31	6	6	55	36	50	86	50	40	31	41
Subsistence (Cordova, drift gillnet) ^b	212	276	212	237	854	153	167	73	778	1,356	808	432
Subsistence (Batzulnetas, dip net, fish wheel or spear) ^b	0	0	0	0	5	0	0	0	2	0	0	1
Subsistence (Glennallen Subdistrict, dip net, fish wheel or spear) ^c	2,493	2,099	2,319	2,095	2,148	1,365	2,212	2,075	2,906	4,531	3,429	2,424
Federal subsistence (Glennallen Subdistrict, dip net, fish wheel or spear) ^d	581	342	799	403	372	439	416	446	468	2,662	946	693
Personal use harvests (Chitina Subdistrict, dip net) ^c	214	700	1,067	567	744	719	1,570	711	1,961	1,273	2,611	953
Federal subsistence (Chitina Subdistrict, dip net) ^d	9	20	15	6	19	15	14	20	15	100	83	23
Sport harvest ^e	1,355	2,409	1,753	459	285	931	1,343	327	1,731	1,320	1,126	1,191
Upriver spawning escapement ^f	27,749	16,753	27,936	27,922	29,013	20,689	26,751	12,430	33,644	42,678	35,559	26,556
Total estimated Chinook salmon run size	42,996	33,181	53,889	44,312	42,885	35,322	56,174	29,243	56,133	61,663	64,483	45,580

^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 reported harvest (2002–2004) and expanded harvest (2005–2011) from returned state and federal subsistence permits.

^e 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.

^f 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 commercial common property salmon harvest by species in the Copper River District, 1974–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1974	18,980	607,766	46,625	9,839	664	683,874
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	47,061	1,152,220	677,633	12,079	19,055	1,908,048
1995	65,675	1,271,822	542,658	19,809	56,100	1,956,064
1996	55,646	2,356,365	193,042	6,372	25,533	2,636,958
1997	51,273	2,955,431	18,656	8,483	2,465	3,036,308
1998	68,827	1,341,692	108,232	20,829	5,022	1,544,602
1999	62,337	1,682,559	153,061	10,205	25,321	1,933,483
2000	31,259	880,334	304,944	9,804	5,363	1,231,704
2001	39,524	1,323,577	251,473	9,387	2,789	1,626,750
2002	38,734	1,248,503	504,223	3,677	31,627	1,826,764
2003	47,721	1,188,052	363,489	12,934	10,110	1,622,306
2004	38,191	1,048,004	467,859	5,175	3,386	1,562,615
2005	34,624	1,331,664	263,465	34,987	3,515	1,668,255
2006	30,278	1,496,754	318,285	30,844	17,203	1,893,364
2007	39,095	1,901,773	117,182	80,715	9,657	2,148,422
2008	11,437	320,815	202,621	1,437	1,279	537,589
2009	9,457	896,621	207,776	16,759	8,629	1,139,242
2010	9,645	636,214	210,621	21,149	15,694	893,323
2011	18,500	2,052,432	127,511	24,050	13,231	2,235,724
2012	11,764	1,866,541	130,261	6,011	2,733	2,017,310
2013	8,826	1,608,117	244,985	65,366	10,169	1,937,463
2014	10,207	2,050,007	315,776	43,534	11,703	2,431,227
2015	22,506	1,750,762	136,981	84,692	15,650	2,010,591
2016	12,348	1,175,100	367,630	34,430	5,476	1,594,984
2017	13,834	586,079	306,287	69,213	12,871	988,284
2018	7,618	46,524	303,957	10,569	3,171	371,839
2019	19,148	1,283,736	78,292	214,411	23,010	1,618,597
Averages						
2009–2018	12,471	1,266,840	235,179	37,577	9,933	1,561,999
1994–2018	31,455	1,366,718	273,544	25,700	12,710	1,710,129

Appendix A5.–Copper River District commercial common property drift gillnet salmon harvest by period, 2019.

Period ^a	Date	NR dates ^b	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
01 ^c	05/16	05/03	12	424	533	2,550	44,630	21,784	120,206	0	0	0	0	129	843
02 ^c	05/20	05/17	12	430	517	1,831	32,139	55,046	311,963	0	0	0	0	1,581	10,386
03 ^c	05/23–05/24	05/22	24	441	587	2,534	45,026	63,410	350,403	0	0	0	0	2,454	15,364
04 ^c	05/27–05/28	05/25	24	437	707	2,175	39,971	96,249	532,029	0	0	0	0	2,796	18,122
05 ^c	05/30–05/31	05/29	24	432	606	1,685	29,108	94,184	523,462	0	0	1	4	2,034	13,444
06 ^d	06/3–06/4	06/01	36	435	939	2,415	45,536	135,284	769,143	1	8	0	0	1,619	10,733
07 ^d	06/6–06/8	06/05	48	418	977	2,446	43,778	126,296	708,715	20	126	26	88	3,200	22,196
08	06/10–06/11	06/08	36	378	760	1,404	28,371	128,945	721,474	14	88	1	5	1,607	10,654
09	06/13–06/14	06/12	24	340	568	762	17,425	62,359	351,902	16	98	190	793	3,308	20,620
10	06/17–06/18	06/15	24	223	311	442	10,079	40,382	225,506	3	19	9	35	59	373
11	06/20–06/21	06/19	36	170	289	308	7,116	41,110	233,061	3	12	179	796	96	563
12	06/24–06/25	06/22	24	127	183	185	4,229	38,216	213,059	4	27	351	1,501	57	367
13	06/27–06/28	06/26–06/27	36	188	390	141	3,027	77,919	432,316	80	654	29,665	111,352	1,546	9,625
14	07/01–07/2	06/29	24	245	370	104	2,199	62,024	343,078	160	1,187	30,886	116,292	334	1,956
15	07/04–07/05	07/03	24	180	286	79	1,224	58,033	309,028	81	589	15,382	56,985	708	4,486
16	07/08–07/09	07/06	24	147	190	22	478	33,602	186,320	65	460	10,380	37,717	553	3,344
17	07/11–07/12	07/10	24	127	190	25	462	30,179	158,106	1	4	4,846	17,311	67	413
18	07/15–07/16	07/13	24	116	147	10	156	23,672	124,881	7	52	525	2,025	10	59
19	07/18–07/19	07/17	24	109	126	7	131	16,464	84,913	15	122	1,303	4,938	114	683
20	07/22–07/23	07/20	24	72	86	4	55	10,787	59,435	18	130	1,407	5,067	26	171
21	07/25–07/26	07/24	24	86	99	1	16	12,608	69,815	45	301	7,533	28,154	14	78
22	07/29–07/30	07/27	24	87	118	7	73	16,113	86,440	301	1,581	18,334	69,630	440	1,670
23	08/01–08/02	07/31	24	97	102	2	28	12,769	71,041	310	2,176	11,081	40,943	21	108
24	08/05–08/06	08/03	24	92	108	3	25	10,708	59,771	738	5,065	27,717	106,761	61	347
25	08/08–08/09	08/07	24	71	89	1	20	7,821	43,029	640	4,776	24,500	98,440	46	262
26	08/12–08/13	08/10	24	89	112	2	23	5,871	32,824	3,274	25,768	20,776	85,942	25	146
27	08/19–08/20	08/17	24	135	181	0	0	1,310	7,298	11,787	94,432	5,416	23,414	46	265
28	08/26–08/27	08/24	24	212	297	2	22	626	3,248	30,326	262,434	3,787	15,323	49	256
29	09/02–09/03	08/31	24	211	283	1	15	51	286	30,383	280,456	116	392	10	47
Total			744	490	10,151	19,148	355,362	1,283,822	7,132,752	78,292	680,565	214,411	823,908	23,010	147,581
Average weights							18.56		5.56		8.69		3.84		6.41

^a Unless otherwise noted, all waters available to commercial salmon fishing were open in the Copper River District.

^b Queries made through the ADF&G Commercial Fishing News Release System (<http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>) will provide results sorted by publication date.

^c Waters of the inside closure area described in 5 AAC 24.350(1)(B) were closed for all or a portion of the fishing period; see corresponding news release for more detail.

^d Waters of the inside closure area described in 5 AAC 24.350(1)(B) were expanded and in effect for the fishing period; see corresponding news release for more detail.

Appendix A6.—Daily salmon counts at Miles Lake sonar, 2019.

Date	Water level (m)	Daily sonar counts						Minimum inriver passage objective		Maximum inriver passage objective	
		North bank	South bank	Daily	Cumulative	0600 count	Projected daily	Daily	Cumulative	Daily	Cumulative
05/08	NA	0	NA	0	0	NA	NA	0	0	0	0
05/09	NA	0	NA	0	0	NA	NA	0	0	0	0
05/10	NA	NA	NA	NA	0	NA	NA	0	0	0	0
05/11	NA	6	6	12	12	NA	NA	0	0	0	0
05/12	NA	42	18	60	72	NA	NA	0	0	0	0
05/13	NA	42	24	66	138	NA	NA	0	0	0	0
05/14	39.35	192	54	246	384	42	168	0	0	0	0
05/15	39.29	528	186	714	1,098	54	216	77	77	126	126
05/16	39.30	1,001	1,177	2,178	3,276	288	1,152	498	576	813	939
05/17	39.37	1,786	2,484	4,270	7,546	828	3,312	741	1,316	1,208	2,147
05/18	39.44	2,503	2,682	5,185	12,731	930	3,720	1,765	3,082	2,879	5,027
05/19	39.49	2,112	3,060	5,172	17,903	1,482	5,928	3,200	6,282	5,219	10,246
05/20	39.54	3,329	4,825	8,154	26,057	1,182	4,728	4,589	10,871	7,486	17,731
05/21	39.66	4,494	10,639	15,133	41,190	3,061	12,244	5,301	16,172	8,647	26,378
05/22	39.78	6,354	11,886	18,240	59,430	3,534	14,136	7,903	24,076	12,891	39,269
05/23	39.95	3,852	9,024	12,876	72,306	2,988	11,952	9,133	33,209	14,897	54,166
05/24	40.16	4,273	10,408	14,681	86,987	2,538	10,152	9,645	42,854	15,732	69,898
05/25	40.26	6,606	11,154	17,760	104,747	2,676	10,704	11,157	54,011	18,198	88,096
05/26	40.30	4,530	6,750	11,280	116,027	2,754	11,016	13,215	67,226	21,555	109,651
05/27	40.75	3,744	6,055	9,799	125,826	1,638	6,552	13,272	80,498	21,647	131,298
05/28	41.35	6,665	8,316	14,981	140,807	3,174	12,696	13,940	94,438	22,738	154,036
05/29	41.72	9,828	12,744	22,572	163,379	4,650	18,600	15,100	109,539	24,629	178,665
05/30	41.80	9,925	12,978	22,903	186,282	4,878	19,512	16,850	126,389	27,484	206,149
05/31	41.66	5,172	10,968	16,140	202,422	3,810	15,240	15,541	141,930	25,349	231,497
06/01	41.61	8,040	10,932	18,972	221,394	3,486	13,944	16,593	158,523	27,064	258,562
06/02	41.62	7,350	11,436	18,786	240,180	3,990	15,960	15,902	174,425	25,938	284,499
06/03	41.60	9,102	11,010	20,112	260,292	3,210	12,840	16,207	190,632	26,435	310,934
06/04	41.55	14,016	17,304	31,320	291,612	5,250	21,000	14,074	204,707	22,956	333,891
06/05	41.58	13,218	26,196	39,414	331,026	7,986	31,944	15,529	220,236	25,329	359,220
06/06	41.67	10,770	16,296	27,066	358,092	7,194	28,776	14,578	234,814	23,779	382,998
06/07	41.77	5,940	8,970	14,910	373,002	3,174	12,696	14,315	249,130	23,349	406,347
06/08	41.86	9,294	11,688	20,982	393,984	4,272	17,088	13,372	262,502	21,811	428,159

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Date	Water level (m)	Daily sonar counts						Minimum inriver passage objective		Maximum inriver passage objective	
		North bank	South bank	Daily	Cumulative	0600 count	Projected daily	Daily	Cumulative	Daily	Cumulative
06/09	41.88	5,514	9,840	15,354	409,338	4,602	18,408	12,456	274,958	20,316	448,475
06/10	41.62	3,780	5,310	9,090	418,428	2,142	8,568	10,926	285,884	17,822	466,297
06/11	42.02	4,947	9,690	14,637	433,065	2,640	10,560	9,063	294,947	14,782	481,079
06/12	42.12	8,033	15,534	23,567	456,632	4,870	19,480	9,410	304,357	15,348	496,426
06/13	42.14	5,892	11,658	17,550	474,182	4,764	19,056	9,351	313,708	15,252	511,678
06/14	42.23	2,817	7,804	10,621	484,803	3,036	12,144	8,761	322,468	14,289	525,967
06/15	42.42	5,124	12,195	17,319	502,122	3,468	13,872	9,364	331,833	15,274	541,242
06/16	42.53	4,986	14,421	19,407	521,529	4,761	19,044	9,521	341,354	15,529	556,771
06/17	42.52	3,814	7,306	11,120	532,649	2,978	11,912	8,969	350,323	14,629	571,400
06/18	42.51	5,322	8,256	13,578	546,227	2,832	11,328	8,324	358,647	13,577	584,978
06/19	42.45	6,630	10,008	16,638	562,865	3,828	15,312	8,925	367,572	14,557	599,535
06/20	42.40	7,009	10,128	17,137	580,002	4,690	18,760	8,528	376,100	13,910	613,445
06/21	42.57	4,584	8,850	13,434	593,436	3,186	12,744	8,213	384,313	13,395	626,840
06/22	42.77	4,220	10,248	14,468	607,904	3,192	12,768	7,891	392,204	12,871	639,712
06/23	42.98	2,901	10,428	13,329	621,233	3,570	14,280	7,505	399,710	12,242	651,954
06/24	43.17	1,812	7,277	9,089	630,322	2,214	8,856	7,347	407,057	11,984	663,938
06/25	43.40	2,071	9,355	11,426	641,748	2,304	9,216	6,588	413,645	10,746	674,683
06/26	43.60	3,529	12,052	15,581	657,329	3,647	14,588	7,077	420,722	11,544	686,227
06/27	43.78	2,173	12,559	14,732	672,061	3,228	12,912	7,427	428,150	12,114	698,341
06/28	43.94	1,763	9,762	11,525	683,586	2,668	10,672	6,820	434,969	11,123	709,464
06/29	44.02	1,878	11,328	13,206	696,792	2,454	9,816	6,129	441,098	9,996	719,461
06/30	44.16	1,200	11,628	12,828	709,620	2,076	8,304	5,731	446,829	9,348	728,808
07/01	44.51	1,278	10,063	11,341	720,961	2,166	8,664	5,748	452,577	9,375	738,183
07/02	44.96	1,346	5,423	6,769	727,730	1,566	6,264	4,667	457,244	7,613	745,796
07/03	g 45.34	NA	3,630	3,630	731,360	1,020	4,080	4,822	462,066	7,865	753,661
07/04	g 45.31	NA	4,836	4,836	736,196	840	3,360	5,323	467,389	8,682	762,344
07/05	g 44.64	NA	10,104	10,104	746,300	1,020	4,080	5,390	472,780	8,792	771,136
07/06	g 44.77	NA	13,868	13,868	760,168	2,994	11,976	4,781	477,561	7,798	778,934
07/07	g 45.04	NA	9,159	9,159	769,327	2,844	11,376	4,855	482,415	7,919	786,852
07/08	g 45.19	NA	8,136	8,136	777,463	1,518	6,072	5,104	487,519	8,325	795,177
07/09	g 45.27	NA	7,068	7,068	784,531	2,334	9,336	4,570	492,089	7,454	802,631
07/10	g 45.03	NA	5,352	5,352	789,883	930	3,720	4,840	496,929	7,894	810,525
07/11	g 44.61	NA	9,552	9,552	799,435	1,380	5,520	5,188	502,117	8,461	818,987

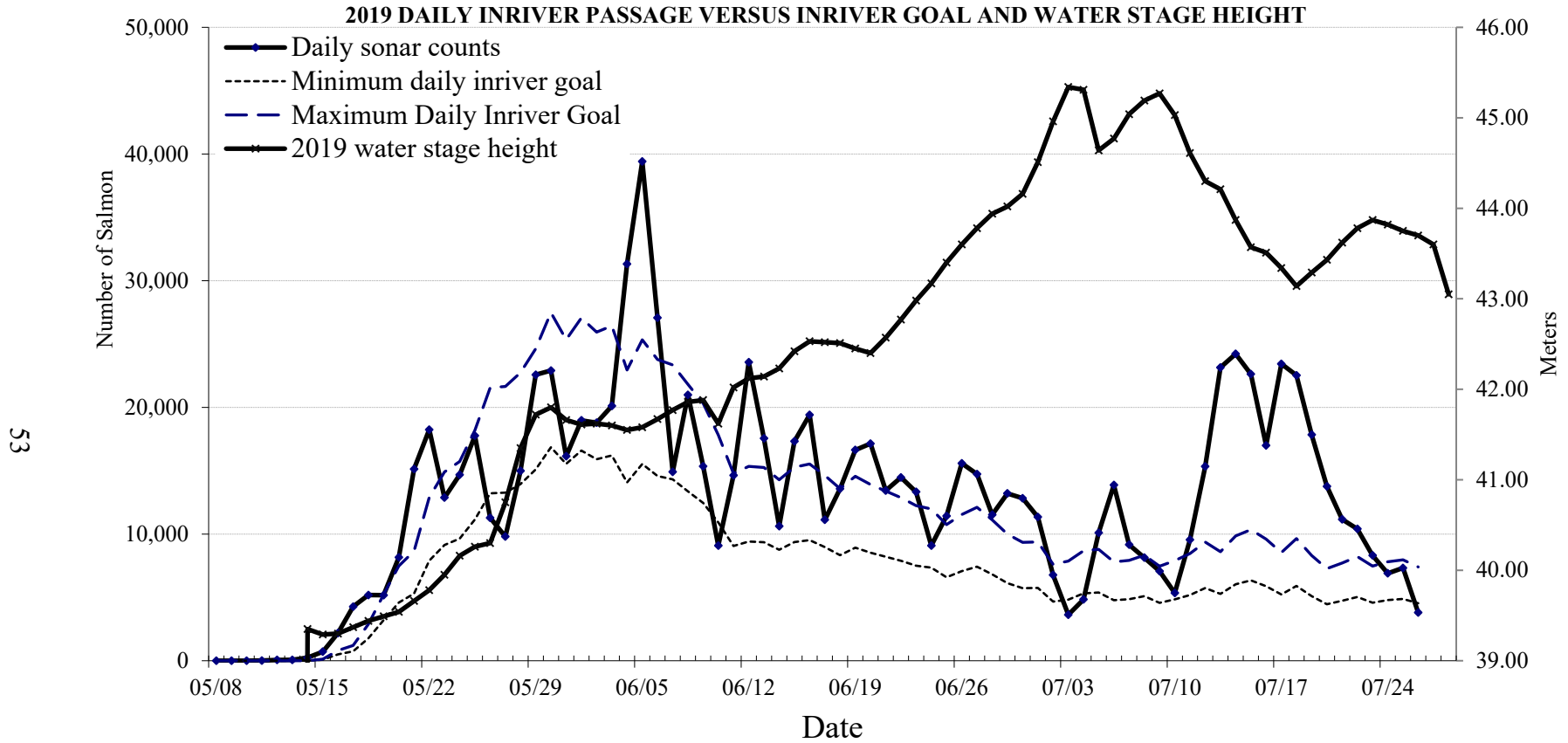
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Date	Water Level (m)	Daily sonar counts				0600 count	Projected daily	Minimum inriver passage objective		Maximum inriver passage objective	
		North bank	South bank	Daily	Cumulative			Daily	Cumulative	Daily	Cumulative
07/12	44.30	4,741	10,596	15,337	814,772	1,638	6,552	5,743	507,860	9,368	828,355
07/13	44.21	11,406	11,741	23,147	837,919	5,274	21,096	5,279	513,139	8,610	836,965
07/14	43.87	7,506	16,716	24,222	862,141	4,554	18,216	6,039	519,178	9,849	846,814
07/15	43.57	5,868	16,758	22,626	884,767	5,040	20,160	6,343	525,521	10,346	857,160
07/16	43.51	4,986	12,006	16,992	901,759	4,086	16,344	5,883	531,404	9,596	866,756
07/17	43.34	5,814	17,620	23,434	925,193	6,168	24,672	5,232	536,636	8,534	875,290
07/18	43.14	5,916	16,614	22,530	947,723	5,076	20,304	5,908	542,544	9,636	884,927
07/19	43.29	4,075	13,764	17,839	965,562	5,550	22,200	5,096	547,640	8,312	893,239
07/20	43.43	3,096	10,668	13,764	979,326	3,636	14,544	4,456	552,096	7,267	900,506
07/21	43.62	4,392	6,768	11,160	990,486	3,660	14,640	4,730	556,826	7,715	908,222
07/22	43.78	4,098	6,306	10,404	1,000,890	2,988	11,952	5,036	561,863	8,215	916,436
07/23	43.87	3,822	4,488	8,310	1,009,200	3,210	12,840	4,581	566,444	7,472	923,909
07/24	43.82	2,760	4,141	6,901	1,016,101	1,536	6,144	4,789	571,233	7,811	931,719
07/25	43.75	2,802	4,524	7,326	1,023,427	2,400	9,600	4,881	576,114	7,961	939,681
07/26	43.70	1,224	2,574	3,798	1,027,225	942	3,768	4,537	580,651	7,400	947,081
07/27	43.60	2,115	1,920	4,035	1,031,260	1,386	5,544	4,016	584,666	6,550	953,631
07/28	43.05	3,456	4,554	8,010	1,039,270	1,236	4,944	3,525	588,191	5,749	959,380

Note: Anticipated counts are not available prior to May 15 because the sonar was deployed prior to this date only during 2003, 2004, 2005.

- ^a North bank was deployed for 7 hours.
- ^b North bank was deployed for 3 hours.
- ^c North bank was deployed for 4 hours and south bank was deployed for 3 hours.
- ^d North bank was deployed for 11 hours and south bank was deployed for 7 hours.
- ^e North bank was deployed for 24 hours and south bank was deployed for 7 hours.
- ^f North bank was deployed for 24 hours and south bank was deployed for 12 hours.
- ^g North bank was not deployed due to high water.

Appendix A7.—Minimum and maximum inriver sonar goal and water stage height compared to actual daily salmon passage, Miles Lake sonar, 2019.



Appendix A8.—Inriver salmon passage at the Miles Lake sonar, 1978–2019.

Year	Total	Rank
1978	107,011	42
1979	328,090	41
1980	374,091	40
1981	576,681	34
1982	517,885	37
1983	592,563	33
1984	618,732	30
1985	466,190	39
1986	481,628	38
1987	523,022	36
1988	528,940	35
1989	643,367	26
1990	624,922	29
1991	593,185	32
1992	604,898	31
1993	819,700	17
1994	738,011	20
1995	637,293	27
1996	907,267	11
1997	1,164,791	5
1998	865,896	13
1999	850,597	15
2000	636,837	28
2001	878,205	12
2002	830,263	16
2003	747,091	19
2004	684,103	25
2005	855,125	14
2006	959,706	7
2007	919,601	9
2008	718,344	22
2009	709,748	23
2010	923,811	8
2011	914,231	10
2012	1,294,400	2
2013	1,267,060	3
2014	1,218,418	4
2015	1,346,100	1
2016	801,593	18
2017	723,426	21
2018	701,577	24
2019	1,039,354	6
2009–2018 Average	990,036	

Appendix A9.—Forecasted and actual semi-weekly sockeye and Chinook salmon harvest and weekly coho salmon harvest in the Copper River District drift gillnet fishery, 2019.

Semi-weekly 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
05/11	Sat	0	0	0	0	0	0
05/15	Wed	0	2,454	0	1,153	0	0
05/18	Sat	12	23,404	21,784	2,312	2,550	1
05/22	Wed	12	58,600	55,046	3,713	1,831	0
05/25	Sat	24	50,222	63,410	2,434	2,534	10
05/29	Wed	24	75,558	96,249	3,884	2,175	0
06/01	Sat	24	39,856	94,184	2,375	1,685	28
06/05	Wed	36	46,784	135,284	2,761	2,415	0
06/08	Sat	48	36,483	126,296	1,382	2,446	46
06/12	Wed	36	43,285	128,945	1,626	1,404	21
06/15	Sat	24	33,156	62,273	1,008	762	54
06/19	Wed	24	42,532	40,382	943	442	30
06/22	Sat	36	33,475	41,110	413	308	6
06/26	Wed	24	38,941	38,216	316	185	205
06/29	Sat	36	35,865	77,919	238	141	300
07/03	Wed	24	37,938	62,024	127	104	84
07/06	Sat	24	33,561	58,033	78	79	467
07/10	Wed	24	31,728	33,602	61	22	241
07/13	Sat	24	20,664	30,179	29	25	1,027
07/17	Wed	24	24,634	23,672	34	10	66
07/20	Sat	24	14,979	16,464	14	7	1,531
07/24	Wed	24	11,581	10,787	13	4	22
07/27	Sat	24	4,658	12,608	5	1	2,050
07/31	Wed	24	6,395	16,113	17	7	63
08/03	Sat	24	2,632	12,769	6	2	4,793
08/07	Wed	24	2,419	10,708	26	3	611

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Appendix A9.–Page 2 of 2.

Semi-weekly		Fishing	Forecasted	Actual	Forecasted	Actual	Forecasted	Actual
Date		time	sockeye salmon	sockeye salmon	Chinook salmon	Chinook salmon	coho salmon	coho salmon
		(hours)	harvest ^a	harvest	harvest ^b	harvest	harvest ^c	harvest
08/10	Sat	24	1,564	7,821	5	1	12,423	1,378
08/14	Wed	24	1,405	5,871	13	2		
08/17	Sat	0	347	0	3	0	28,324	3,274
08/21	Wed	24	292	1,310	5	0		
08/24	Sat	0	138	0	3	0	45,228	11,787
08/28	Wed	24	237	626	1	2		
08/31	Sat	0	43	0	0	0	52,755	30,326
09/04	Wed	24	75	51	2	1		
09/07	Sat	0	32	0	1	0	42,608	30,383
09/11	Wed	0	35	0	0	0		
09/14	Sat	0	4	0	1	0	29,639	0
09/18	Wed	0	20	0	0	0		
09/21	Sat	0	3	0	0	0	10,372	0
09/25	Wed	0	0	0	0	0		
09/28	Sat	0	0	0	0	0	2,611	0
10/02	Wed	0	0	0	0	0		
10/05	Sat	0	0	0	0	0	496	0
10/09	Wed	0	0	0	0	0		
10/12	Sat	0	0	0	0	0	32	0
Total		744	756,000	1,283,736	25,000	19,148	235,000	78,292

^a Sockeye salmon forecasted harvest was based on the midpoint preseason forecast (756,000) and the 1998–2007 harvest timing.

^b Chinook salmon forecasted harvest was based on the preseason harvest forecast (25,000) 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 (235,000) and the 1973–2009 harvest timing.

Appendix A10.—Aerial escapement indices by statistical week and location for sockeye salmon returning to the Copper River Delta, 2019.

System ^a	Weekly escapement indices (statistical week ending date listed) ^b									Site ^c	System ^d	Anticipated (by drainage)			
	06/15	06/29	07/06	07/13	07/20	08/03	08/17	08/31	09/07						
Eyak River															
Eyak River	600	800	50	50	255	500	10	0	0	500	16,455	9,972	to	23,571	
West Shore Beaches	0	0	200	300	350	455	210	305	100	455					
East Shore Beaches	275	1,200	700	200	250	1,400	100	600	600	1,400					
Middle Arm Beaches ^e	500	1,000	850	550	500	900	200	1,400	1,600	1,900					
North Shore Beaches	0	3,000	0	100	300	12,200	0	5,100	100	12,200					
Hatchery Creek Delta	0	40	0	175	0	500	60	100	0	500	700				
Hatchery Creek	0	0	50	200	0	200	6	1,100	200	200					
Power Creek Delta	0	50	0	50	0	0	1	200	0	0	1,000				
Power Creek	NS	0	150	200	220	1,000	0	1,000	400	1,000					
Ibeck Creek															
Ibeck Creek	NS	NS	NS	NS	NS	NS	450	5	10		10				
Alaganik Slough															
Alaganik Slough	NS	0	0	0	0	0	0	0	0	0	2,250	8,359	to	19,758	
McKinley Lake	NS	0	0	0	80	150	200	500	500	500					
Salmon Creek West Fork	NS	NS	0	100	50	400	60	400	0	400					
Salmon Creek East Fork	NS	NS	0	0	260	1,350	0	210	0	1,350					
26/27 Mile Creek															
26/27 Mile Creek	NS	750	2,820	1,320	1,800	1,400	575	700	450	2,820	2,820	2,182	to	5,157	
39 Mile Creek															
39 Mile Creek	NS	300	1,750	3,900	6,000	6,500	1,900	4,100	2,600	6,500	6,500	5,772	to	13,642	
Goat Mountain															
Goat Mountain Creek	NS	200	400	300	260	300	50	0	20	400	400	549	to	1,298	
Pleasant Creek															
Pleasant Creek	1,900	7,000	7,600	7,150	5,100	3,300	127	0	0	7,600	7,600	1,075	to	2,542	
Martin River															
Martin River - Lower	NS	NS	NS	NS	NS	NS	NS	NS	NS	0	0				
Ragged Point River	NS	0	350	300	360	600	80	250	200	600	3,300				
Ragged Point Lake Outlet	NS	NS	50	200	340	100	0	300	100	100					
Ragged Point Lake	NS	NS	700	900	900	2,600	200	700	1,000	2,600					
Martin River - Upper ^e	150	1,850	1,800	1,500	500	415	180	100	0	1,800	1,800				
Martin Lake Outlet	0	0	500	0	300	50	40	50	0	500	14,720	17,598	to	41,596	
Martin Lake	0	13,000	6,900	3,900	300	400	72	100	0	6,900					

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System ^a	Weekly escapement indices (statistical week ending date listed) ^b									Site ^c	System ^d	Anticipated, (by drainage)		
	06/15	06/29	07/06	07/13	07/20	08/03	08/17	08/31	09/07					
Martin Lake feeders	0	2,000	7,300	8,500	5,000	4,700	200	200	100	7,300				
Pothole River	NS	NS	20	50	130	350	371	0	50	20				
Pothole Lake	NS	NS	0	0	50	50	0	0	300	0				
Little Martin River	NS	NS	50	0	6	150	20	NS	120	50	50			
Little Martin Lake	NS	NS	0	0	140	700	200	300	0	0				
Tokun														
Tokun Springs	NS	400	1,300	500	0	900	200	0	20	1,300	2,600	5,352	to	12,649
Tokun River	200	200	1,200	1,200	160	2,000	1,175	1,200	800	1,200				
Tokun Lake Outlet	50	50	0	50	0	50	0	0	0	0				
Tokun Lake	0	250	100	200	200	300	350	800	2,300	100				
Martin River Slough														
Martin River Slough	0	50	1,120	1,050	1,620	300	90	30	40	1,620	1,620	4,141	to	9,787
Total	3,675	32,140	35,960	32,945	25,431	44,220	7,127	19,750	11,610	61,825	61,825			
Lower SEG	7,270	17,627	28,229	30,055	31,424	32,568	26,465	19,762	17,446					55,000
Average SEG (avg. antic. esc.)	11,157	27,050	43,318	46,121	48,222	49,977	40,611	30,326	26,772					84,400
Upper SEG	17,184	41,665	66,722	71,040	74,276	76,979	62,553	46,711	41,236					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 which 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 A11.—Copper River and Bering River area sockeye salmon escapement indices, 2009–2019.

Stream/Lake ^a	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Eyak Lake	11,980	25,000	22,775	23,350	19,205	20,400	14,400	12,700	10,800	7,550	16,455	16,816
Hatchery Creek	680	870	100	1,000	300	300	1,400	500	1,800	500	700	745
Power Creek	260	1,853	2,600	3,300	1,000	750	1,450	3,200	800	1,000	1,000	1,621
Ibeck Creek	100	10	475	870	200	400	800	50	0	0	10	291
McKinley Lake	3,520	2,980	3,950	7,750	5,700	5,575	1,800	700	2,200	3,020	500	3,720
Salmon Creek	500	1,370	1,910	75	2,200	75	5,500	3,800	5,100	250	1,750	2,078
26/27 Mile Creek	0	0	870	350	950	750	920	900	700	1,300	2,820	674
39 Mile Creek	160	620	1,500	3,000	2,000	1,075	2,400	2,500	2,200	3,600	6,500	1,906
Goat Mountain	30	140	50	1,925	300	900	950	200	300	475	400	527
Pleasant Creek	2,610	3,460	7,600	2,300	5,900	4,700	8,300	2,020	8,050	3,800	7,600	4,874
Martin River	2,610	2,992	2,300	0	150	500	0	1,000	300	3,500	1,800	1,335
Ragged Pt. River/Lake	610	1,010	2,700	2,500	3,500	1,700	3,000	3,200	2,100	2,800	3,300	2,312
Martin Lake	19,071	19,660	10,200	3,850	22,000	16,085	100	10,100	6,050	10,400	14,700	11,752
Pothole Lake	2,540	4,440	0	6,900	900	250	15,420	0	900	25	20	3,138
Little Martin Lake	421	680	3,700	3,510	5,800	2,050	6,000	1,530	1,900	2,850	50	2,844
Tokun Lake/River	22,680	15,480	9,637	5,500	4,000	5,825	2,650	5,550	8,800	15,100	2,600	9,522
Martin River Slough	1,520	2,270	2,000	670	1,600	2,870	1,575	3,600	4,500	2,300	1,620	2,291
Copper River Delta Total	69,292	82,835	72,367	66,850	75,705	64,205	66,665	51,550	56,500	58,470	61,825	66,444
Upper Copper River ^b	477,327	524,692	621,545	970,622	889,939	885,024	930,095	513,546	463,914	478,701	741,932	675,540
Copper River District total	546,619	607,527	693,912	1,037,472	965,644	949,229	996,760	565,096	520,414	537,171	803,757	741,984
Bering River/Lake	11,250	3,280	15,060	15,950	19,100	13,600	20,400	15,300	15,750	11,400	15,850	14,109
Shepherd Creek	91	46	4,800	1,400	750	750	625	700	2,075	100	500	1,134
Stillwater Creek	190	81	175	170	1,200	100	500	100	900	650	300	407
Kushtaka Lake	90	140	530	370	850	35	180	190	90	700	40	318
Katalla River	1,850	820	7,965	400	2,000	400	1,000	100	300	450	940	1,529
Bering River Area total	13,471	4,367	28,530	18,290	23,900	14,885	22,705	16,390	19,115	13,300	17,630	17,495
Copper/Bering River total	560,090	611,894	722,442	1,055,762	989,544	963,714	1,018,465	581,486	539,529	550,471	821,387	759,340

^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 A12.–Aerial survey indices of sockeye salmon escapement to the upper Copper River drainage, 2004–2019.

Location	Yearly survey indices ^a																Projected indices ^b
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Mentasta Lake	6,000	7,090	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	3,277
Fish Creek–Mentasta	–	3,330	3,700	323	1,440	680	400	91	300	900	350	800	175	600	125	300	963
Bad Crossing 1 & 2	30	5,120	620	1,683	520	1,691	1,390	742	261	4,100	470	4,650	5	2,625	12	3,450	2,604
Suslota Lake	1,975	1,230	1,300	30	86	320	6	350	55	500	2,500	5,500	2,300	200	0	50	1,416
Tanada Lake	3,950	683	30	563	986	1,290	NS	800	1,715	2,600	1,000	1,100	1,300	1,150	51	60	3,849
Dickey Lake	10	55	185	71	37	20	3	59	26	30	251	300	80	5	30	200	115
Keg Creek	0	7	190	0	1	423	0	0	15	15	10	5	0	20	25	45	725
Swede Lake	225	7	2,570	731	343	109	320	137	400	60	175	160	85	30	12	200	531
Mahlo Creek	500	1,950	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	2,648
Mendeltna Creek	50	318	700	473	727	1,945	1,550	760	1,085	850	300	1,050	335	166	200	20	2,470
St. Anne Creek	970	1,692	6,560	11,970	14,000	8,123	2,420	1,751	5,800	3,200	1,650	2,600	515	770	450	985	4,888
Tonsina Lake	0	–	20	20	3	0	–	0	15	0	0	0	0	10	0	10	1,080
Long Lake	–	–	1,400	505	382	14	10	290	375	5	10	20	0	1	0	0	1,577
Tana River	–	–	1,392	312	434	19	100	40	410	65	145	83	97	50	0	30	1,345
Salmon Creek (Bremner)	–	217	790	750	3,500	530	340	276	1,000	1,500	610	400	400	300	300	400	825
Fish Lake	0	281	7,250	1,066	158	0	89	1,008	35	20	4	6	60	0	0	0	6,418
Mud Creek. – Summit Lake	40	–	1,800	2,705	11,410	0	2,759	211	870	600	320	225	100	90	150	20	7,445
Paxson Inlet–Mud Creek	2,200	363	2,470	9,317	4,665	2,720	2,301	1,520	7,900	9,900	3,100	850	500	3,500	300	700	6,560
Mud Creek and Lake	5	145	310	2	10	0	20	2	10	11	100	30	6	0	20	5	172
Paxson Lake Outlet	5	155	270	324	596	0	560	1,700	350	2,000	350	125	100	50	400	20	2,661
Totals	15,960	22,643	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	51,569

^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 A13.—Estimated age and sex composition of sockeye salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2019.

		Brood year and age class									Total
		2016		2015		2014			2013		
		0.2	1.1	0.3	1.2	0.4	1.3	2.2	1.4	2.3	
Strata combined:	5/12 – 9/3										
Sampling dates:	5/19 – 7/26										
Sample size:	3,145										
Female	Sample size	6	0	135	118	0	1,204	27	1	96	1,587
	Percentage of sample	0.2	0.0	4.6	2.6	0.0	37.8	1.0	0.0	3.3	49.6
	Number in harvest	1,220	0	25,747	14,534	0	209,453	5,677	45	18,324	274,999
Male	Sample size	7	1	104	164	0	1166	26	5	85	1,558
	Percentage of sample	0.3	0.1	3.6	3.9	0.0	37.8	1.0	0.2	3.5	50.4
	Number in harvest	1,776	349	19,861	21,891	0	209,952	5,551	922	19,400	279,702
Total	Sample size	13	1	239	282	0	2,370	53	6	181	3,145
	Percentage of sample	0.5	0.1	8.2	6.6	0.0	75.6	2.0	0.2	6.8	100.0
	Number in harvest	2,996	349	45,608	36,424	0	419,406	11,227	966	37,724	554,701
	Standard error	928	349	3,158	2,562	0	4,870	1,670	456	2,957	

Appendix A14.—Estimated age and sex composition of Chinook salmon harvested in the Copper River District commercial fishery, 2019.

		Brood year and age class										Total	
		2016		2015		2014			2013		2012		
		1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	1.5	2.4	
Strata combined:	5/16 – 8/27												
Sampling dates:	5/16 – 6/14												
	Sample size	42	13	800	26	6	6,334	89	1,163	364	43	55	8,935
Total	Percentage of sample	0.5	0.1	8.9	0.5	0.0	72.5	1.2	11.7	3.7	0.5	0.5	100.0
	Number in harvest	88	17	1,696	97	9	13,884	227	2,243	707	89	90	19,148
	Standard error	42	16	180	48	11	284	72	204	118	44	39	

Appendix A15.—Total estimated coho salmon run to the Copper River by end user or destination and the previous 10-year average, 2009–2019.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Commercial harvest ^a	207,776	210,621	127,511	130,261	244,985	315,776	136,981	367,630	306,287	303,957	78,292	235,179
Commercial, homepack ^a	767	1,026	543	1,037	249	1,146	1,423	1,353	1,945	2,581	855	1,207
Commercial, donated ^a	0	0	0	0	0	0	0	0	0	0	0	0
Educational drift gillnet permit ^a	0	0	0	0	0	0	0	0	0	0	0	0
Subsistence (Cordova, drift gillnet) ^b	22	27	34	0	1	0	10	2	43	195	330	33
Federal subsistence (PWS/Chugach Nat'l Forest, dip net, spear, rod & reel) ^b	185	68	581	392	310	630	878	555	514	255	480	437
Subsistence (Batzulnetas, fish wheel, dip net or spear) ^b	NA	NA	0	0	0	0	0	0	0	0	0	0
Subsistence (Glennallen Subdistrict, dip net or fish wheel) ^c	228	293	372	335	144	233	77	45	68	151	204	195
Federal subsistence (Glennallen Subdistrict, dip net or fish wheel) ^d	34	64	176	173	21	29	78	11	1	0	0	58
Personal use (Chitina Subdistrict, dip net) ^c	1,712	2,013	1,702	1,385	797	1,129	841	1,182	715	1,436	1,064	1,291
Federal subsistence (Chitina Subdistrict, dip net) ^d	11	31	8	8	8	72	15	41	9	34	0	24
Delta sport harvest ^e	14,384	15,752	14,283	15,230	17,053	16,137	24,515	13,094	9,559	11,730	11,461	15,174
Upriver sport harvest ^e	36	114	21	0	0	89	0	0	23	387	137	67
Upriver spawning escapement ^f	–	–	–	–	–	–	–	–	–	–	–	–
Delta spawning escapement ^g	82,588	82,154	76,290	74,020	69,360	86,020	83,330	152,400	87,520	107,600	74,040	90,128
Total estimated coho salmon run size	307,743	312,163	221,521	222,841	332,928	421,261	248,148	536,313	406,684	428,326	166,885	343,786

^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 (2009–2019) 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 unavailable.

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

Appendix A16.—Aerial escapement indices by statistical week and location for the coho salmon run to Copper River Delta, 2019.

Drainage	System ^a	Weekly escapement indices (statistical week ending date) ^b							Site ^c	System ^d	Projected (by drainage)
		8/31	9/7	9/14	9/21	9/28	10/26				
Eyak River	Eyak River	1,200	1,700	175	150	NC	100	100	11,120	6,916	
	East Shore Beaches	2,000	50	NS	0	0	200	200			
	West Shore Beaches	0	50	50	25	360	420	420			
	Middle Arm Beaches	0	100	NS	200	300	200	200			
	North Shore Beaches	0	0	NS	25	0	100	100			
	Hatchery Creek Delta	0	0	NS	NS	300	400	400			
	Hatchery Creek	0	0	NS	NS	700	3,100	3,100			
	Power Creek Delta	0	10	NS	NS	800	200	200			
	Power Creek	0	50	NS	NS	500	6,400	6,400			
Ibeck Creek	Ibeck Creek	900	1,700	1,000	850	3,500	NS	3,500	3,500	6,227	
Scott River	Scott Lake	100	200	50	150	0	NS	200	600	1,429	
	Scott River	0	0	0	0	0	NS	0			
Alaganik Slough	Elsner Lake ^e	50	400	30	20	0	NS	400			
	Alaganik Slough	1,300	400	1,000	300	100	50	400	5,150	2,591	
	18/20 Mile Creek	150	750	100	100	370	NS	750			
	McKinley Lake	0	600	0	150	50	NS	600			
	Salmon Creek West Fork	0	300	200	100	20	0	300			
	Salmon Creek East Fork	0	250	400	175	560	3,100	3,100			
26/27 Mile Creek	26/27 Mile Creek	20	100	60	270	175	2,500	2,500	2,500	829	
39 Mile Creek	39 Mile Creek	900	2,300	450	600	850	700	850	850	3,831	
Goat Mountain Cr.	Goat Mountain Creek	50	300	50	55	250	140	300	300	1,181	
Pleasant Creek	Pleasant Creek	1,100	1,700	800	325	825	NS	1,700	1,700		
Martin River	Martin River - Lower	NS	2,350	2,400	1,000	150	NS	150	350	6,522	
	Ragged Point River	50	30	50	75	500	NS	500	510	849	
	Ragged Point Lake Outlet	0	0	0	5	10	NS	10			
	Ragged Point Lake	0	0	0	0	0	NS	0			
	Martin River - Upper		250	2,100	750	850	500	200	200		

-continued-

Drainage	System ^a	Weekly escapement indices (statistical week ending date) ^b						Site ^c	System ^d	Projected (by drainage)
		8/31	9/7	9/2	9/16	9/23	10/7			
Martin River (continued)	Martin Lake Outlet	0	0	0	0	350	0	0	600	1,936
	Martin Lake	0	20	NS	200	1,250	0	0		
	Martin Lake Feeders	0	100	NS	0	350	600	600		
	Pothole River	20	10	NS	150	350	2,200	2,200	2,220	1,370
	Pothole Lake	0	0	NS	10	0	20	20		
	Little Martin River	0	120	100	800	1,600	1,500	1,600	1,900	5,413
	Little Martin Lake	0	0	0	200	300	0	300		
Tokun	Tokun Springs	20	50	100	50	150	50	150	320	1,376
	Tokun River	100	50	50	40	50	150	150		
	Tokun Lake Outlet	50	30	0	0	0	50	0		
	Tokun Lake	0	20	0	0	0	NS	20		
Martin River Slough	Martin River Slough	555	75	750	850	5,400	3,600	5,400	5,400	9,531
Copper River aerial survey daily total		8,815	15,915	8,565	7,725	20,620	25,980	37,020	37,020	
Lower SEG		16,147	21,447	18,286	16,908	15,542	9,841			32,000
Average SEG, (average anticipated escapement)		25,229	33,510	28,571	26,418	24,284	15,377			50,000
Upper SEG		33,807	44,904	38,285	35,401	32,540	20,605			67,000

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

^a The system represents the majority of known coho salmon spawning locations in 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 further sites upstream, the count which 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 delta-wide escapement; it is a non-index stream.

Appendix A17.–Copper River Delta and Bering River coho salmon escapement indices, 2009–2019.

Stream/Lake ^{a,b}	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average, 2009–2018
Eyak Lake	950	13,360	640	3,950	3,880	4,450	5,075	3,200	900	6,850	1,020	4,326
Hatchery Creek	2,320	640	2,000	100	40	1,300	950	500	550	1,600	3,500	1,000
Power Creek	990	350	2,520	150	50	760	225	4,500	1,050	1,750	6,600	1,235
Ibeck Creek	9,963	3,381	14,200	7,600	9,150	12,500	8,100	31,500	8,100	6,500	3,500	11,099
Scott & Elsner River ^c	1,170	700	380	575	50	360	100	200	200	400	600	414
18/20 Mile	150	144	310	450	120	400	600	250	700	600	1,150	372
McKinley Lake	450	630	75	100	400	450	300	650	200	150	600	341
Salmon Creek	1,540	730	1,620	1,300	850	1,950	1,900	2,500	2,350	1,450	3,400	1,619
26/27 Mile	100	0	1,150	475	1,800	1,600	290	4,000	2,700	200	2,500	1,232
39 Mile	1,570	1,340	2,800	2,400	2,300	2,600	1,700	7,500	1,700	3,100	850	2,701
Goat Mountain	1,220	331	210	400	900	1,200	350	250	700	550	300	611
Pleasant Creek	680	1,700	245	440	1,500	1,110	400	1,850	1,650	6,050	1,700	1,563
Martin River	1,651	5,560	2,100	1,420	350	3,820	4,475	6,000	1,200	8,050	350	3,463
Ragged Point River/Lake	590	690	1,100	4,000	2,500	1,050	3,600	1,050	1,160	1,450	510	1,719
Martin Lake	1,360	3,511	450	2,350	2,750	2,150	3,250	1,100	1,750	1,400	600	2,007
Pothole Lake	2,750	2,000	1,400	2,300	120	550	750	800	2,500	750	2,220	1,392
Little Martin Lake	2,810	460	4,500	4,700	3,800	2,900	4,750	2,300	9,300	5,100	1,900	4,062
Tokun River/Lake	850	1,370	1,350	3,200	620	1,175	1,050	900	1,400	2,350	320	1,427
Martin River Slough	10,180	4,180	1,475	1,400	3,500	4,075	4,300	7,350	5,850	5,900	5,400	4,821
Copper River Delta total	41,294	41,077	38,525	37,310	34,680	44,400	42,165	76,400	43,960	54,200	37,020	45,401
Katalla River	1,590	4,190	1,430	950	800	1,550	1,000	750	3,300	4,700	800	1,941
Bering River/Lake	6,320	9,820	5,520	5,700	7,750	10,675	4,300	2,300	3,150	11,750	1,740	6,596
Dick Creek	1,210	1,070	2,050	2,000	2,800	1,300	1,750	0	700	500	500	1,372
Shepherd Creek	10	1,090	20	150	0	0	0	8,000	NS	0	600	950
Nichawak River	4,690	901	6,800	3,750	3,800	6,500	5,100	8,500	10,500	2,700	1,000	6,246
Gandil River	1,610	1,200	820	500	1,100	1,500	700	300	1,000	250	550	862
Controller Bay	6,330	3,040	2,250	2,555	2,570	4,950	2,700	6,300	12,000	6,625	4,825	5,053
Bering River Area total	21,760	21,311	18,890	15,605	18,820	26,475	15,550	26,150	30,650	26,525	10,015	22,925
Copper/Bering total	63,054	62,388	57,415	52,915	53,500	70,875	57,715	102,550	74,610	80,725	47,035	68,326

^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 A18.—Estimated age and sex composition of coho salmon harvested in the Copper River District commercial common property drift gillnet fishery, 2019.

		Brood year and age class			
		2016	2015	2014	Total
		1.1	2.1	3.1	
Strata combined:	06/03 – 09/03				
Sampling dates:	08/20 – 09/20				
Harvest sampled:	72,496				
Female	Sample size	15,847	14,503	1,173	31,524
	Percentage of sample	21.6	19.5	1.5	40.3
	Number in harvest	16,939	15,273	1,205	31,525
Male	Sample size	18,079	21,404	1,489	40,971
	Percentage of sample	25.6	29.6	2.1	57.3
	Number in harvest	20,037	23,170	1,665	44,873
Total	Sample size	33,927	35,907	2,662	72,496
	Percentage of sample	47.2	49.1	3.7	100.0
	Number in harvest	36,976	38,443	2,871	78,292
	Standard error	1,603	1,608	606	

Appendix A19.—Total commercial common property salmon harvest by species in the Bering River District, 1974–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	127	14,445	47,218	192	221	62,203
1978	331	33,554	91,097	266	2,391	127,639
1979	385	139,015	114,046	6,895	23,094	283,435
1980 ^a	0	0	108,872	0	0	108,872
1981	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 ^b	330	91,784	214,632	309	20,408	327,463
1985 ^b	215	26,561	419,276	214	9,642	455,908
1986 ^c	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	121	27,926	259,003	34	63	287,147
1995 ^c	44	21,585	282,045	26	229	303,929
1996 ^c	111	37,712	93,763	0	30	131,616
1997 ^c	23	9,651	97	2	0	9,773
1998 ^c	70	8,439	12,284	5	2	20,800
1999 ^c	42	13,697	9,852	204	96	23,891
2000 ^c	5	1,279	56,329	0	0	57,613
2001 ^c	76	5,450	2,715	0	0	8,241
2002 ^c	14	235	108,522	0	0	108,771
2003 ^c	151	18,266	59,481	33	0	77,931
2004 ^c	87	13,165	95,595	2	21	108,870
2005 ^c	277	77,464	43,030	9,327	14	130,112
2006 ^c	238	36,867	56,713	54	39	93,911
2007 ^c	88	16,470	9,305	6	1	25,870
2008 ^c	42	1,175	40,380	8	1	41,606
2009 ^c	15	4,157	45,522	1	5	67,682
2010 ^c	0	51	80,560	2	0	80,613
2011 ^c	1	6	19,956	8	0	19,971
2012 ^c	1	0	46,169	1	0	46,171
2013 ^c	16	3,286	46,959	2	16	50,279
2014 ^c	0	50	97,637	4	0	97,691
2015 ^c	13	2,137	12,106	10	1	14,267
2016 ^c	52	9,809	80,094	22	122	90,099
2017 ^c	36	2,578	119,090	105	15	121,824
2018 ^c	5	33	120,774	11	121	120,944
2019 ^c	83	21,006	7,418	262	202	28,971
Average, 2009–2018	14	1,994	69,261	18	31	71,318

^a In 1980, fishing was prohibited before August 11.

^b A new Kayak Island Subdistrict management plan that allowed 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 non-local stocks.

Appendix A20.—Bering River District commercial common property drift gillnet salmon harvest by period, 2019.

Period	Date	News release		Chinook		Sockeye		Coho		Pink		Chum			
		dates	Hrs.	Permits	Landings	No.	Lb	No.	Lb	No.	Lb	No.	Lb		
01	5/16	05/03	12	0	0	0	0	0	0	0	0	0	0		
02	5/20	05/17	12	0	0	0	0	0	0	0	0	0	0		
03	05/23–05/24	05/22	24	0	0	0	0	0	0	0	0	0	0		
04	05/27–05/28	05/25	24	4	4	8	109	899	4,963	0	0	0	6	33	
05	05/30–05/31	05/29	24	1	1	0	0	82	453	0	0	0	0	0	
06	06/3–06/4	06/01	36	46	61	63	871	11,550	62,870	0	0	0	72	504	
07	06/6–06/8	06/05	48	14	14	12	254	3,113	17,207	0	0	0	16	142	
08	06/10–06/11	06/08	36	9	9	0	0	4,331	25,450	0	0	0	70	426	
9 ^b	07/01–07/2	06/29	24	1	3	0	0	713	4,166	58	352	227	848	38	229
10	07/04–07/05	07/03	24	1	1	0	0	74	296	0	0	0	0	0	0
11	07/08–07/09	07/06	24	0	0	0	0	0	0	0	0	0	0	0	0
12	07/11–07/12	07/10	24	0	0	0	0	0	0	0	0	0	0	0	0
13	07/15–07/16	07/13	24	0	0	0	0	0	0	0	0	0	0	0	0
14	07/18–07/19	07/17	24	1	1	0	0	228	1,250	0	0	0	0	0	0
15	07/22–07/23	07/20	24	0	0	0	0	0	0	0	0	0	0	0	0
16	07/25–07/26	07/24	24	0	0	0	0	0	0	0	0	0	0	0	0
17	07/29–07/30	07/27	24	0	0	0	0	0	0	0	0	0	0	0	0
18	08/01–08/02	07/31	24	0	0	0	0	0	0	0	0	0	0	0	0
19	08/05–08/06	08/03	24	0	0	0	0	0	0	0	0	0	0	0	0
20	08/08–08/09	08/07	24	0	0	0	0	0	0	0	0	0	0	0	0
21	08/12–08/13	08/10	24	0	0	0	0	0	0	0	0	0	0	0	0
22	08/19–08/20	08/17	24	7	8	0	0	15	88	817	6,229	23	78	0	0
23	08/26–08/27	08/24	24	15	23	0	0	1	6	4,566	39,991	12	45	0	0
24	09/02–09/03	08/31	24	5	9	0	0	0	0	1,977	15,919	0	0	0	0
Total			600	76	134	83	1,234	21,006	116,749	7,418	62,491	262	971	202	1,334
Average weights								14.87		5.56		8.42		3.71	

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release available through ADF&G's Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>. Required parameters for searching the ADF&G Commercial Fishing News Release System include the following: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound. Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by publication date.

Appendix A21.—Aerial escapement indices by statistical week and location for sockeye salmon returning to the Bering River District, 2019.

Drainage	System ^a	Weekly escapement indices (statistical week ending date listed) ^b									Site ^c	System ^d	Anticipated (by drainage)
		6/15	6/29	7/6	7/13	7/20	8/3	8/17	8/31	9/7			
Bering River	Bering River	100	100	0	350	0	30	NS	0	0	350	15,850	21,903
	Bering Lake	210	950	200	1,300	3,200	700	NS	0	0	1,300		
	Dick Creek	0	12,000	15,000	14,200	12,000	2,800	1,300	900	600	14,200		
	Shepherd Creek Lagoon	NS	NS	NS	0	NS	0	NS	0	0	0	500	4,375
	Shepherd Creek	NS	NS	NS	0	NS	200	NS	NS	NS	200		
	Carbon Creek	NS	NS	NS	NS	NS	300	100	NS	NS	300		
	Clear Creek	NS	NS	NS	0	NS	300	120	NS	NS	300	300	1,197
	Kushtaka Lake	NS	NS	NS	0	NS	0	40	NS	NS	40	40	1,226
	Shockum Creek	NS	NS	NS	0	NS	0	0	NS	NS	0		
Katalla River	Katalla River ^e	0	300	200	300	940	200	NS	0	50	940	940	
Bering River District weekly index		310	13,350	15,400	16,150	16,140	4,530	1,560	900	650	17,630	17,630	
Lower objective		3,251	6,092	11,015	11,051	11,004	8,409	2,416	1,044	571			15,000
Average objective		5,202	9,747	17,623	17,682	17,606	13,454	3,866	1,670	914			24,000
Upper objective		7,153	13,402	24,232	24,313	24,208	18,499	5,316	2,297	1,256			33,000

Note: NS signifies that no survey was flown.

^a Survey systems represent the majority of known sockeye salmon spawning locations in the Bering River drainage.

^b 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 estimating method.

^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 A22.—Aerial escapement indices by statistical week and location for coho salmon returning to the Bering River District, 2019.

Drainage	System ^a	Weekly escapement indices (statistical week ending date listed) ^b						Site ^c	System ^d	Projected (by drainage)
		8/31	9/7	9/14	9/21	9/28	10/26			
Bering River	Bering River ^e	20	0	150	25	810	0	810	1,740	7,720
	Bering Lake	50	200	0	625	930	100	930		
	Dick Creek	100	400	0	500	170	0	500	500	
	Shepherd Creek - Lagoon	0	0	0	NS	NS	0	0	200	
	Shepherd Creek	NS	NS	NS	NS	NS	200	200		
	Carbon Creek ^f	NS	NS	NS	NS	NS	400	400		
Katalla River	Katalla River	500	800	300	250	700	NS	800	800	4,993
Lower Bering River	Gandil River	0	30	50	50	550	250	550	550	2,910
	Nichawak River	100	50	200	100	1,000	400	1,000	1,000	
Controller Bay	Campbell River	0	300	700	700	1,600	700	1,600	4,800	7,378
	Edwardes River	10	650	2,200	100	420	200	2,200		
	Okalee River	300	675	600	150	1,000	NS	1,000		
	Other Clear Streams ^f	0	0	0	25	0	NS	25		
Bering River District weekly index		1,080	3,105	4,200	2,525	7,180	2,250	9,590	9,590	
Lower objective		8,732	8,803	6,969	5,041	4,199	1,692			13,000
Average objective		15,448	15,574	12,330	8,919	7,429	2,993			23,000
Upper objective		22,165	22,345	17,691	12,797	10,659	4,294			33,000

Note: NS signifies that no survey was flown.

^a Survey systems represent the majority of known coho salmon spawning locations in the Bering River drainage.

^b 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 estimating method.

^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.

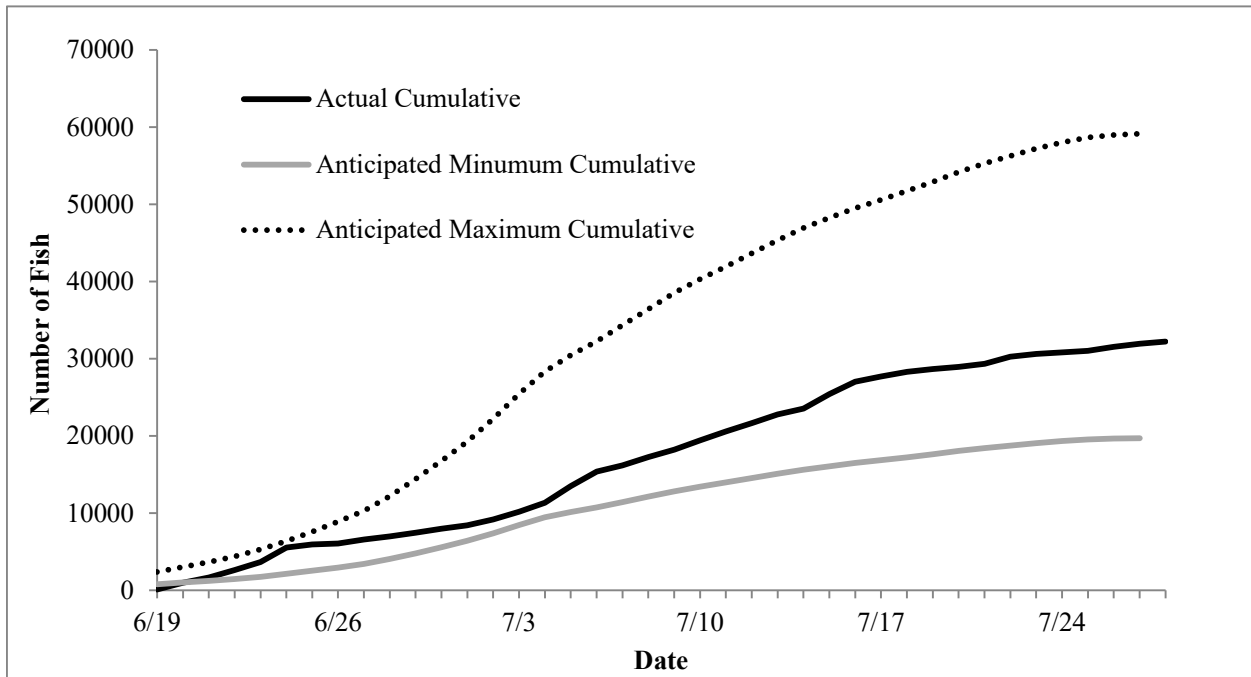
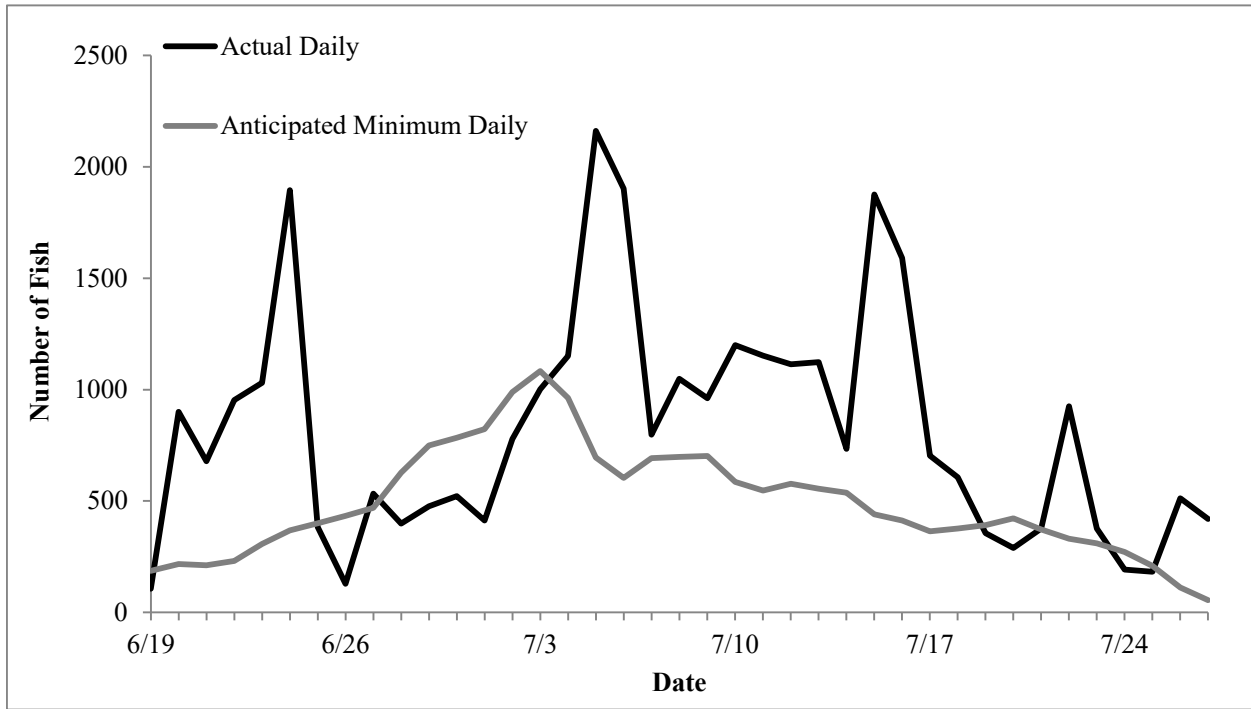
^f This stream is not included in the indexed escapement delta-wide; it is a non-index stream.

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

Appendix B1.–Daily and cumulative salmon escapement through the Coghill River weir, 2019.

Date	Sockeye salmon		Pink salmon	
	Daily	Cumulative	Daily	Cumulative
6/19	106	106	0	0
6/20	900	1,006	0	0
6/21	679	1,685	0	0
6/22	953	2,638	0	0
6/23	1,031	3,669	2	2
6/24	1,896	5,565	15	17
6/25	384	5,949	4	21
6/26	128	6,077	3	24
6/27	533	6,610	30	54
6/28	399	7,009	11	65
6/29	476	7,485	6	71
6/30	522	8,007	22	93
7/1	413	8,420	38	131
7/2	778	9,198	178	309
7/3	1,001	10,199	248	557
7/4	1,151	11,350	963	1,520
7/5	2,162	13,512	1,078	2,598
7/6	1,902	15,414	786	3,384
7/7	798	16,212	1,298	4,682
7/8	1,049	17,261	1,677	6,359
7/9	962	18,223	960	7,319
7/10	1,200	19,423	2,749	10,068
7/11	1,152	20,575	2,123	12,191
7/12	1,114	21,689	2,996	15,187
7/13	1,124	22,813	5,205	20,392
7/14	734	23,547	737	21,129
7/15	1,876	25,423	3,260	24,389
7/16	1,591	27,014	2,899	27,288
7/17	703	27,717	1,013	28,301
7/18	607	28,324	1,770	30,071
7/19	356	28,680	366	30,437
7/20	289	28,969	466	30,903
7/21	377	29,346	295	31,198
7/22	925	30,271	577	31,775
7/23	377	30,648	113	31,888
7/24	192	30,840	106	31,994
7/25	183	31,023	23	32,017
7/26	512	31,535	1,332	33,349
7/27	419	31,954	291	33,640
7/28	293	32,247	283	33,923

Appendix B2.—Anticipated cumulative and daily sockeye salmon escapement based on 3-year running averages compared to actual escapement through Coghill River weir, 2019.



Appendix B3.—Salmon escapement by species in the Coghill District, 1972–2019.

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
2019	32,247	153,129	3,437
Average, 2009–2018	36,516	284,495	16,248

^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 two weir washouts and extended periods of non-operation.

Appendix B4.-Coghill District commercial common property drift gillnet salmon harvest by period, 2019.

Period	Date	NR date ^a	Hours	Permits		Chinook		Sockeye		Coho		Pink		Chum	
				fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/3-6/4	6/1	36	22	77	2	46	51	283	0	0	0	0	13,932	88,636
2	6/6-6/7	6/5	36	24	92	6	102	228	1,235	0	0	0	0	27,801	178,556
3	6/10-6/11	6/8	24	53	139	3	35	1,135	6,072	0	0	0	0	28,767	188,224
4	6/13-6/14	6/12	24	17	51	8	108	1,831	11,117	0	0	0	0	7,849	55,005
5	6/17-6/19	6/15	60	86	318	8	114	10,517	55,947	0	0	40	163	79,354	512,530
6	6/20-6/23	6/19	84	121	489	6	108	26,161	143,614	0	0	132	586	81,877	526,042
7	6/24-6/26	6/22	60	163	466	10	133	23,231	130,358	1	7	3,271	11,877	59,314	376,582
8	6/27-6/30	6/26	84	151	725	4	57	52,684	289,573	18	155	14,883	55,283	112,164	692,877
9	7/1-7/3	7/1	60	193	830	6	102	58,700	323,818	79	424	28,818	110,691	223,504	1,395,041
10	7/6-7/7	7/5	36	116	319	2	58	34,979	179,756	2	15	21,836	82,787	49,960	306,608
11	7/8-7/10	7/6	60	169	594	13	150	53,109	278,167	52	371	44,334	161,574	87,687	527,862
12	7/11-7/14	7/10	84	122	352	3	35	27,193	143,020	53	315	17,721	66,113	94,023	597,029
13	7/15-7/17	7/13	60	150	457	10	119	35,667	199,115	140	1,098	21,336	79,296	117,310	737,160
14	7/18-7/21	7/17	84	135	437	8	87	43,250	242,522	478	2,940	23,798	88,100	53,783	346,611
15	7/22-7/24	7/20	60	101	217	6	63	15,241	84,095	42	282	34,317	123,661	9,488	58,862
16	7/25-7/26	7/24	36	30	56	6	59	3,483	19,577	95	746	6,282	23,379	1,213	7,916
17	7/28	7/27	14	4	4	0	0	238	1,255	4	31	478	1,843	23	144
18	8/8	8/7	6	3	3	0	0	89	454	8	90	2,373	7,663	69	416
19	8/12	8/11	12							Confidential ^b					
20	8/13	8/12	12	20	27	2	40	336	1,778	149	1115	22,120	76,165	362	2,215
21	8/15	8/14	12	2	4	0	0	18	96	34	259	1,092	4,368	57	460
22	8/17	8/16	12	7	13	0	0	200	1,065	79	603	8,524	27,378	189	1,156
23	8/19	8/18	12	6	10	0	0	105	580	93	723	7,812	26,344	78	568
24	8/21	8/20	12	16	20	0	0	183	937	311	2,467	11,998	42,351	140	1,035
25	8/22	8/20	12	7	11	0	0	147	820	397	3,160	10,404	33,820	137	947
26	8/24	8/22	12	9	9	0	0	101	559	754	6,462	4,320	13,712	62	443
27	8/25	8/24	12	6	6	0	0	26	140	393	3,353	860	2,984	34	292
28	8/26	8/24	12	8	10	0	0	19	110	381	3,123	1,084	4,246	15	103
29	8/27	8/24	12	12	13	0	0	28	137	659	5,944	1,294	4,993	40	306
30	8/28	8/24	12	11	11	0	0	19	116	725	5,626	1,431	4,767	53	356

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Appendix B4.–Page 2 of 2.

Period	Date	NR date ^a	Permits			Chinook		Sockeye		Coho		Pink		Chum	
			Hours	fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
31	8/29	8/28	12	15	16	0	0	13	73	1693	13,168	1,366	4,863	36	230
32	8/30	8/28	12	15	15	0	0	23	138	2462	19,110	832	3,010	31	194
33	8/31	8/28	12	14	14	0	0	20	118	1392	10,384	543	1,859	18	123
34	9/1	8/31	12	4	4	0	0	0	0	745	6,331	46	184	8	65
35	9/2–9/4	8/31	60	27	65	0	0	11	57	15442	123,730	2,455	7,463	22	140
36	9/5–9/8	9/4	84	114	432	0	0	12	65	56685	512,182	5,512	19,222	25	93
37	9/9–9/11	9/6	60	106	253	1	4	1	3	15191	140,338	21	73	16	54
38	9/12–9/15	9/11	84	70	212	0	0	2	11	17064	148,319	0	0	0	0
39	9/16–9/18	9/13	60	33	75	0	0	0	0	4112	36,845	0	0	0	0
40	9/19–9/22	9/18	84	9	9	0	0	0	0	419	3,528	0	0	0	0
41–43	9/19–10/2									No harvest reported					
Total				326	6,855	104	1,420	389,051	2,116,781	120,152	1,053,244	301,333	1,090,818	1,049,441	6,604,881
Average weights							13.7		5.4		8.8		3.6	6.3	

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G’s Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>

Note: Required parameters for searching the ADF&G Commercial Fishing News Release System include the following: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by Publication Date.

^b Less than three permits were fished. Period results are confidential.

Appendix B5.–Coghill District commercial common property purse seine salmon harvest by period, 2019.

Period	Date	NR date ^a	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
15	7/22–7/24	7/21	60	9	9	0	0	95	538	0	0	323	1117	10172	61321
17	7/28	7/27	14	9	9	0	0	1320	5753	0	0	10815	36383	100	625
18–20	8/8–8/13									Confidential ^b					
21–30	8/15	8/14	12							No Harvest Reported					
31	8/29	8/28	12							Confidential ^b					
32	8/30	8/28	12							No Harvest Reported					
33	8/31	8/28	12							Confidential ^b					
34	9/1	8/31	12							No Harvest Reported					
Total				20	24	0	0	1,608	7,391	280	2,112	43,154	148,260	10,523	63,620
Average weight									4.6		7.5		3.4		6.0

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G’s Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>

Note: Periods 1-14 were open to drift gillnet only. Required parameters for searching the ADF&G Commercial Fishing News Release System include the following: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by publication date.

^b Less than three permits were fished. Period results are confidential.

Appendix B6.—Commercial common property salmon harvest by species in the Coghill District, 2009–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
Drift gillnet						
2009	174	103,415	19,168	276,925	1,323,728	1,723,410
2010	206	87,465	5,498	3,333,106	2,512,005	5,938,280
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
Average, 2009–2018	167	146,168	35,107	1,059,086	1,625,062	2,895,870
Purse seine						
2009	3	1,337	1,758	1,028,789	12,926	1,044,813
2010	0	779	434	10,919,455	3,207	10,923,875
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
Average, 2009–2018	6	3,081	5,284	3,191,362	145,435	3,345,168
Combined purse seine and drift gillnet						
2009	177	104,752	20,926	1,305,714	1,336,654	2,768,223
2010	206	88,244	5,932	14,252,561	2,515,212	16,862,155
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
Average, 2009–2018	172	152,933	36,698	4,082,159	1,761,905	6,036,867

Appendix B7.—Estimated age composition of sockeye escaped through Coghill Weir, 2019.

		Brood year and age class					
		2016	2015	2014		2013	
		1.1	1.2	1.3	2.2	2.3	Total
Strata combined:	6/19 – 7/28						
Sampling dates:	6/23 – 7/27						
Sample size:	1,129						
Total	Percentage of sample	3.1	4.2	91.9	0.3	0.5	100
	Number in escapement	1,011	1,362	29,628	89	155	32,247
	Standard error	158	207	269	49	72	

Appendix B8.—Commercial common property salmon harvest by period in the Unakwik District drift gillnet and purse seine fisheries, 2019.

Period	Date	NR date ^a	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum		
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	
Drift Gillnet																
1	6/13-6/14	6/12	24													
2	6/17-6/18	6/15	36													
3	6/20-6/21	6/19	36													
4	6/24-6/25	6/22	36													
5	6/27-6/28	6/26	36													
6	7/1-7/2	6/29	36													
7	7/5-7/6	7/3	24	6	13	1	20	3,510	19,167	0	0	773	2,817	408	2,522	
8	7/8-7/9	7/6	36	6	6	1	10	3,034	15,654	0	0	578	2,076	193	1,089	
9	7/11-7/12	7/10	24	3	3	0	0	327	1,647	0	0	0	0	0	0	0
Total				11	26	0	0	7,657	40,709	0	0	2,114	7,271	1,015	6,140	
Purse Seine																
1	6/13-6/14	6/12	24													
2	6/17-6/18	6/15	36													
3	6/20-6/21	6/19	36													
4	6/24-6/25	6/22	36													
5	6/27-6/28	6/26	36													
6	7/1-7/2	6/29	36													
7	7/5-7/6	7/3	24													
8	7/8-7/9	7/6	36	3	3	0	0	838	4,187	0	0	1,095	4,298	210	1,044	
9	7/11-7/12	7/10	24													
Total				5	8	0	0	1,810	9,834	0	0	1,938	8,373	773	5,050	

Source: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G's Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>

Note: Required parameters for searching the ADF&G Commercial Fishing News Release System include the following: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by publication date.

^b Less than three permits were fished. Period results are confidential.

Appendix B9.–Commercial common property salmon harvest by species in the Unakwik District, 2009–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
Drift gillnet						
2009	1	1,975	0	0	374	2,350
2010	0	15	0	0	0	15
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
Average, 2009–2018	0	1,809	1	74	149	2,015
Purse seine						
2009	0	1,153	0	0	10	1,163
2010	1	31	0	34	26	92
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
Average, 2009–2018	1	881	0	1,075	104	1,046
Combined purse seine and drift gillnet						
2009	1	3,128	0	0	384	3,513
2010	1	46	0	34	26	107
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
Average, 2009–2018	1	2,733	1	114	231	3,079

^a Less than three permits fished. Results are confidential.

Appendix B10.—Port Chalmers Subdistrict commercial common property drift gillnet harvest of salmon by period, 2019.

Period	Date	NR date ^a	Hours	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
						Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/3–6/5	5/22	60	8	35	3	52	5	26	0	0	45	150	7,114	53,631
2	6/6–6/9	5/22	84	12	54	5	63	3	10	3	14	61	317	15,883	113,337
3	6/10–6/12	6/5	60	49	159	6	91	69	371	0	0	199	653	49,030	356,537
4	6/13–6/16	6/12	84	113	498	15	164	199	1,032	1	7	295	1,060	175,430	1,160,350
5	6/17–6/19	6/15	60	133	559	4	65	414	2,063	0	0	262	1,112	255,654	1,654,768
6	6/20–6/23	6/19	84	130	782	6	96	445	2,359	1	8	4,383	16,569	283,612	1,745,636
7	6/24–6/26	6/22	60	90	373	1	22	1,223	6,041	0	0	8,520	31,258	110,437	681,076
8	6/27–6/30	6/26	84	45	237	1	18	907	4,938	0	0	1,452	5,156	54,245	333,990
9	7/1–7/3	6/29	60	23	147	1	11	65	330	0	0	89	338	81,623	514,979
10	7/4–7/7	7/3	84	44	259	0	0	510	2,602	0	0	804	2,978	179,183	1,103,892
11	7/8–7/10	7/6	60	36	177	0	0	277	1,354	1	7	1,109	4,022	140,407	876,765
12	7/11–7/14	7/6	84	25	166	1	9	711	3,278	2	14	311	1,133	130,912	822,271
13	7/15–7/17	7/10	60	28	108	0	0	51	303	11	77	441	1,701	74,750	443,635
14	7/18–7/21	7/13	84	7	34	0	0	34	172	1	7	299	1,050	13,379	74,302
15–17	7/22–7/30									No harvest reported					
Total				218	3,588	43	591	4,913	24,878	20	134	18,270	67,497	1,571,659	9,935,169
Average weight							13.74		5.06		6.70		3.69		

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G's Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>. Required parameters for searching the ADF&G Commercial Fishing News Release System include: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by publication date.

^b Less than three permits were fished. Period results are confidential.

Appendix B11.—Total commercial common property harvest by species in the Port Chalmers Subdistrict, June 1–July 30, 2014–2019.

Year	Permits	Gear type	Numbers of fish					Total
			Chinook	Sockeye	Coho	Pink	Chum	
2014	113	Purse seine	247	9,743	7,077	3,025,399	186,600	3,229,066
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
Average, 2014–2018	126125.8		130	7,113	1,780	888,156	306,178	1,202,356

APPENDIX C: ESHAMY DISTRICT

Appendix C1.—Total drift gillnet commercial common property salmon harvest by period in the Eshamy District, 2019.

Period	Date	NR		Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
		date ^a	Hours			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1		5/22	36	6	12	2	32	435	2,256	0	0	0	0	174	1,120
2	6/6–6/7	6/5	36	7	16	2	34	733	3,674	0	0	0	0	531	3,252
3	6/10–6/11	6/8	36	46	87	11	152	7,060	37,316	0	0	0	0	3,703	23,246
4	6/13–6/14	6/12	36	60	162	66	500	18,071	95,458	29	159	2	6	7,147	44,978
5	6/17–6/18	6/15	36	148	384	4	40	62,796	311,072	1	7	153	586	21,729	135,535
6	6/20–6/21	6/19	36	153	399	3	43	55,265	277,854	0	0	445	1639	18,007	114,108
7	6/24–6/25	6/22	36	224	510	6	68	62,940	321,805	21	119	5,196	20,599	16,053	96,746
8	6/27–6/28	6/26	36	113	216	1	21	19,474	95,963	18	135	2,751	10,629	7,245	42,747
9	7/1–7/2	6/29	36	76	211	0	0	34,772	183,660	22	149	15,128	57,995	11,273	67,365
10	7/5–7/6	7/3	24	172	320	3	39	45,945	234,293	10	72	16,598	61,569	13,602	78,951
11	7/8–7/9	7/6	36	87	195	1	19	41,928	207,969	10	60	9,168	34,005	6,785	39,679
12	7/11–7/12	7/10	36	86	175	1	20	34,076	171,230	7	45	10,599	39,083	7,261	42,029
13	7/15–7/16	7/13	36	95	198	0	0	42,712	219,734	31	238	14,607	54,665	7,767	45,982
14	7/18–7/19	7/17	36	77	126	5	51	15,737	77,640	12	84	6,379	23,927	2,028	11,577
15	7/22–7/23	7/20	36	50	85	0	0	14,402	71,754	27	180	7,609	29,158	580	3,424
16	7/25–7/26	7/24	36	19	32	0	0	2,172	10,817	21	158	8,979	28,360	375	2,162
17	7/29–7/30	7/27	24	24	40	0	0	6,767	31,508	14	105	3,635	12,583	105	608
18	8/1–8/2	7/31	24	8	15	0	0	922	4,652	25	234	2,058	7,374	120	814
19	8/5–8/6	8/3	24	3	8	0	0	1,069	5,132	2	12	1,641	6,481	74	469
20	8/8–8/9	8/7	24	7	12	0	0	245	1,012	31	186	5,763	20,163	27	160
21	8/12–8/13	8/11	24	22	67	0	0	958	5,112	82	594	54,558	198,717	139	915
22	8/15–8/16	8/14	24	32	90	0	0	911	5,224	234	1,652	58,377	211,476	259	1,834
23	8/19–8/20	8/17	24	7	21	0	0	180	988	55	409	18,814	72,196	87	664
24	8/22–8/23	8/21	24	24	14	0	0	232	1,311	165	1,269	3,594	13,745	69	557
25	8/26–8/27	8/24	24	24	4	0	0	48	279	162	1,131	1,889	7,554	26	195
26–28	8/29–9/6	8/28	72					No harvest reported							
Total				336	3,423	105	1,019	469,905	2,377,956	1,083	7,744	265,080	986,072	125,207	759,308
Average weight						9.7		5.1		7.2		3.7		6.1	

Note: Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G's Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>. Required parameters for searching the ADF&G Commercial Fishing News Release System include: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by Publication Date.

Appendix C2.—Total set gillnet commercial common property salmon harvest by period in the Eshamy District, 2019.

Period	NR					Chinook		Sockeye		Coho		Pink		Chum	
	Date	date ^a	Hours	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	6/3–6/4	5/22	36	13	43	2	29	1,109	5,939					949	5,944
2	6/6–6/7	6/5	36	19	76	3	34	2,832	15,217					2,757	17,658
3	6/10–6/11	6/8	36	22	97	2	25	5,518	29,107			1	4	2,392	15,631
4	6/13–6/14	6/12	36	23	122	4	112	13,761	72,246			1	3	2,502	16,363
5	6/17–6/18	6/15	36	22	140	1	19	18,669	97,751	2	12	19	90	5,521	34,516
6	6/20–6/21	6/19	36	23	134			21,771	114,009			208	774	3,607	23,195
7	6/24–6/25	6/22	36	24	122			18,575	102,333			1259	5156.5	2,855	17,302
8	6/27–6/28	6/26	36	24	135	1	34	15,314	79,785	9	51	1,734	7,123	3,500	20,459
9	7/1–7/2	6/29	36	23	125			17,026	90,247	59	389	6,433	27,240	3,287	19,449
10	7/5–7/6	7/3	24	22	96	1	7	19,894	102,603	3	19	2,267	8,821	1,614	9,449
11	7/8–7/9	7/6	36	21	93		36	12,490	63,820	22	139	3,451	13,737	1,934	11,278
12	7/11–7/12	7/10	36	22	128		0	29,646	152,778	3	19	3,796	15,185	2,755	15,108
13	7/15–7/16	7/13	36	20	91		0	13,717	71,759	6	37	4,396	18,011	2,776	16,690
14	7/18–7/19	7/17	36	22	96		0	17,582	90,689	22	150	2,799	10,589	1,154	6,559
15	7/22–7/23	7/20	36	11	49		0	5,919	31,390	35	241	2,677	10,782	364	2,352
16	7/25–7/26	7/24	36	7	35		0	5,862	29,620	4	28	3,990	13,209	162	926
17	7/29–7/30	7/27	24	6	23		0	1,691	9,080			2,674	9,644	151	897
18	8/1–8/2	7/31	24	5	16		0	2,953	16,165	5	24	2,032	7,388	61	408
19	8/5–8/6	8/3	24	3	14	2	0	748	4,461			4,688	18,739	117	918
20–24	8/8–8/21	8/7	120					Confidential ^b							
25–28	8/26–9/6	8/24	96					No Harvest Reported							
Total				27	1,635	14	260	225,676	1,182,251	182	1,195	54,899	215,713	38,354	235,674
Average weight							18.6	5.2	6.6	3.9	6.1				

Note: Blank cells indicate no data. Additional information relevant to each fishing period, including area opened to fishing, may be found on the applicable news release (NR) available through ADF&G's Commercial Fishing News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>. Required parameters for searching the ADF&G Commercial Fishing News Release System include the following: Effective Year = 2019; Species Group = Salmon; Management Area = Prince William Sound.

^a Queries made through the ADF&G Commercial Fishing News Release System will provide results sorted by publication date.

^b Less than three permits were fished. Period results are confidential.

Appendix C3.—Total commercial common property salmon harvest by species in the Eshamy District, 2009–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
Drift gillnet						
2009	67	539,293	1,695	77,539	286,361	904,955
2010	91	940,640	1,367	117,249	521,032	1,580,379
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
Average, 2009–2018	77	701,802	2,386	147,033	181,918	1,033,224
Set gillnet						
2009	47	152,642	49	4,251	50,748	207,737
2010	17	282,329	69	16,764	80,469	379,648
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
Average, 2009–2018	30	235,133	242	20,825	29,287	278,318
Combined set gillnet and drift gillnet						
2009	114	691,935	1,744	81,790	337,109	1,112,692
2010	108	1,222,969	1,436	134,013	601,501	1,960,027
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
Average, 2009–2018	108	936,935	2,628	167,858	213,372	1,311,541

Appendix C4.–Estimated age composition of sockeye salmon harvested in the Eshamy District commercial common property gillnet fishery, 2019.

Strata combined:	06/03 – 09/04	Brood year and age class					Total
		2016	2015	2014	2013	2012	
Sampling dates:	06/24 – 07/15						
Sample size:	1,447	1.1	1.2	1.3	2.2	2.3	
Total	Percentage of sample	9.4	51.3	38.6	0.3	0.4	100
	Number in harvest	65,376	357,164	268,234	1,923	2,884	695,581
	Standard error	5,338	9,143	8,904	960	1,175	

**APPENDIX D: PURSE SEINE FISHERIES PINK AND CHUM
SALMON ESCAPEMENT**

Appendix D1.–Aerial escapement indices for pink and chum salmon by district, Prince William Sound, 2019.

Pink salmon							
District ^a	Escapement midpoint	Odd-year escapement goal range		1999–2017 mean index	Observed escapement index ^b	Deviation from midpoint	
Eastern	604,500	346,000	–	863,000	819,161	445,075	-26.4%
Northern	159,500	111,000	–	208,000	318,199	195,169	22.4%
Coghill	143,500	54,000	–	233,000	341,431	153,129	6.7%
Northwestern	104,000	64,000	–	144,000	195,990	91,267	-12.2%
Eshamy	18,000	5,000	–	31,000	15,068	1,402	-92.2%
Southwestern	171,500	112,000	–	231,000	255,031	33,340	-80.6%
Montague	236,500	143,000	–	330,000	353,011	25,385	-89.3%
Southeastern	400,500	286,000	–	515,000	947,236	290,452	-27.5%
Total	1,838,000	1,121,000	–	2,555,000	3,245,126	1,235,219	-32.8%

Chum salmon					
District	Escapement range ^c		2009–2018 mean index	Observed escapement index ^b	Deviation from lower range
Eastern	79,000	and up	110,185	56,846	-28.0%
Northern	28,000	and up	29,619	11,690	-58.3%
Coghill	10,000	and up	14,899	3,437	-65.6%
Northwestern	7,000	and up	10,504	3,258	-53.5%
Eshamy ^d	None		194	NA	NA
Southwestern ^d	None		3,100	NA	NA
Montague ^d	None		5,742	NA	NA
Southeastern	11,000	and up	10,504	19,451	76.8%
Total ^e	135,000	and up	175,710	94,682	-29.9%

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

^b 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.

^c Escapement goal changed to a lower range value with no upper end after the 2005 escapement goal review.

^d Escapement goal removed in 2003 after review.

^e Totals exclude Districts without escapement goals (Eshamy, Southwestern, and Montague Districts). Index total includes indices from Eastern, Northern, Coghill, Northwestern, and Southeastern Districts.

Appendix D2.–Prince William Sound commercial common property purse seine salmon harvest by day, 2019.

Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
06/03	7	7	0	0	88	459	0	0	3	12	5,058	28,126
06/04	12	12	0	0	70	318	0	0	3	13	8,018	58,477
06/05	0	0	0	0	0	0	0	0	0	0	0	0
06/06	13	13	3	52	76	413	0	0	4	14	17,379	103,423
06/07	8	8	0	0	14	61	0	0	0	0	10,546	67,474
06/08	2	2					Confidential ^a					
06/09	0	0	0	0	0	0	0	0	0	0	0	0
06/10	34	36	11	140	347	1,745	0	0	28	110	58,298	328,503
06/11	1	1					Confidential ^a					
06/12	6	6	0	0	69	346	0	0	10	30	6,751	40,510
06/13	30	30	1	15	576	2,677	4	13	107	313	26,252	150,424
06/14	18	18	5	133	421	1,972	0	0	43	148	16,548	97,997
06/15	0	0	0	0	0	0	0	0	0	0	0	0
06/16	52	53	25	302	1,356	6,251	0	0	1	4	47,744	366,375
06/17	40	41	8	170	4,874	23,839	8	41	2,080	7,319	55,354	324,272
06/18	10	10	3	79	449	2,154	0	0	63	234	19,274	107,145
06/19	1	1					Confidential ^a					
06/20	54	54	8	157	2,753	13,921	7	25	2,002	6,956	45,716	271,397
06/21	7	7	2	30	440	2,152	0	0	113	341	5,724	35,087
06/22	8	8	0	0	467	2,100	0	0	431	1,293	6,840	42,402
06/23	0	0	0	0	0	0	0	0	0	0	0	0
06/24	71	72	1	7	1,644	7,473	1	4	504	1,710	43,314	251,813
06/25	1	1					Confidential ^a					
06/26	0	0	0	0	0	0	0	0	0	0	0	0
06/27	136	139	52	677	8,801	43,913	192	1,112	284,186	999,670	75,458	450,263
06/28	0	0	0	0	0	0	0	0	0	0	0	0
06/29	53	54	1	30	687	2,835	4	20	992	3,540	27,313	164,256
06/30	0	0	0	0	0	0	0	0	0	0	0	0
07/01	47	47	0	0	1,351	6,733	7	43	2,730	10,359	17,551	113,181
07/02	1	1					Confidential ^a					
07/03	0	0	0	0	0	0	0	0	0	0	0	0
07/04	15	15	0	0	231	1,077	1	5	209	688	17,421	110,371
07/05	218	272	5	122	6,076	30,591	98	579	2,382,036	8,157,092	14,363	91,353
07/06	0	0	0	0	0	0	0	0	0	0	0	0
07/07	210	214	6	50	5,294	27,676	161	951	770,467	2,570,612	20,196	125,887
07/08	19	19	0	0	1,289	6,444	4	18	9,534	30,409	24,766	153,362
07/09	213	221	4	31	19,080	99,845	175	1,188	1,100,527	3,785,367	34,011	210,391
07/10	0	0	0	0	0	0	0	0	0	0	0	0
07/11	217	218	4	61	13,635	65,213	89	646	573,871	2,026,639	23,647	152,169
07/12	11	11	0	0	4,052	18,631	2	18	7,589	29,805	8,190	50,770

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Appendix D2.–Page 2 of 3.

Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
07/13	0	0	0	0	0	0	0	0	0	0	0	0
07/14	0	0	0	0	0	0	0	0	0	0	0	0
07/15	218	221	45	414	39,444	186,850	488	2,995	732,814	2,509,031	63,458	371,572
07/16	0	0	0	0	0	0	0	0	0	0	0	0
07/17	0	0	0	0	0	0	0	0	0	0	0	0
07/18	0	0	0	0	0	0	0	0	0	0	0	0
07/19	0	0	0	0	0	0	0	0	0	0	0	0
07/20	223	237	3	18	19,540	95,578	259	1,650	952,800	3,323,230	26,058	163,659
07/21	0	0	0	0	0	0	0	0	0	0	0	0
07/22	22	22	0	0	1,065	5,178	5	25	11,037	38,747	12,766	77,233
07/23	0	0	0	0	0	0	0	0	0	0	0	0
07/24	197	197	1	8	3,884	19,226	229	1,485	727,247	2,517,083	17,495	116,537
07/25	0	0	0	0	0	0	0	0	0	0	0	0
07/26	159	166	0	0	600	3,056	187	1,437	447,694	1,544,524	5,676	36,272
07/27	143	145	1	2	649	3,358	130	843	405,418	1,431,126	5,162	32,489
07/28	143	144	0	0	2,013	9,381	90	503	369,479	1,273,333	4,497	30,019
07/29	125	128	0	0	659	3,411	119	689	365,290	1,223,370	3,369	21,110
07/30	130	131	1	13	978	4,997	173	1,027	424,036	1,461,176	5,598	37,696
07/31	127	127	0	0	947	4,986	131	898	344,692	1,160,001	4,021	25,210
08/01	104	104	0	0	878	4,051	90	559	199,267	697,549	3,626	24,738
08/02	118	119	0	0	1,267	6,477	262	1,947	360,175	1,236,710	8,832	60,424
08/03	0	0	0	0	0	0	0	0	0	0	0	0
08/04	117	117	0	0	1,045	5,310	194	1,511	277,697	966,195	7,918	53,183
08/05	0	0	0	0	0	0	0	0	0	0	0	0
08/06	110	111	0	0	1,147	5,460	359	2,551	279,008	957,593	6,494	42,604
08/07	0	0	0	0	0	0	0	0	0	0	0	0
08/08	225	239	16	127	4,948	25,540	1,942	13,698	2,053,283	7,181,441	33,125	227,319
08/09	0	0	0	0	0	0	0	0	0	0	0	0
08/10	0	0	0	0	0	0	0	0	0	0	0	0
08/11	0	0	0	0	0	0	0	0	0	0	0	0
08/12	226	368	5	84	2,760	14,190	1,737	12,744	4,300,307	14,805,209	29,221	201,274
08/13	226	315	1	23	2,212	11,376	2,525	17,347	3,567,752	12,138,761	11,654	76,786
08/14	0	0	0	0	0	0	0	0	0	0	0	0
08/15	229	300	4	58	2,582	13,316	4,207	29,233	2,998,108	10,305,155	26,950	184,707
08/16	0	0	0	0	0	0	0	0	0	0	0	0
08/17	216	275	4	47	2,450	11,855	6,168	48,049	2,635,566	9,006,784	32,297	214,246
08/18	0	0	0	0	0	0	0	0	0	0	0	0
08/19	218	270	0	0	2,169	10,431	19,942	154,792	2,451,864	8,288,143	47,344	319,036
07/13	0	0	0	0	0	0	0	0	0	0	0	0
07/14	0	0	0	0	0	0	0	0	0	0	0	0

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Appendix D2.–Page 3 of 3.

Date	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum	
			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
08/20	0	0	0	0	0	0	0	0	0	0	0	0
08/21	221	301	3	34	1,479	7,163	20,217	161,958	3,191,327	11,142,436	29,894	199,916
08/22	213	253	5	31	1,451	7,201	21,586	178,912	2,205,024	7,665,584	23,850	172,491
08/23	0	0	0	0	0	0	0	0	0	0	0	0
08/24	208	237	2	17	1,418	6,859	40,278	297,733	1,759,567	5,943,823	35,914	238,285
08/25	190	199	21	74	727	3,818	27,197	216,050	1,349,871	4,657,136	22,195	150,460
08/26	184	204	5	66	880	4,351	34,519	278,601	1,623,955	5,425,367	16,581	112,942
08/27	171	175	0	0	507	2,268	29,605	217,841	833,328	2,841,730	14,800	95,485
08/28	158	158	0	0	336	1,673	20,263	177,834	623,149	2,092,358	9,084	65,488
08/29	95	97	1	2	268	1,388	15,730	125,896	337,143	1,097,087	6,074	39,774
08/30	101	101	0	0	210	910	18,843	140,033	377,897	1,224,490	8,379	50,912
08/31	81	81	0	0	131	692	15,092	124,771	289,859	943,439	6,848	42,970
09/01	64	69	0	0	105	530	5,755	48,467	378,284	1,263,755	3,209	20,070
09/02	36	36	0	0	23	108	3,351	27,127	124,345	402,765	2,098	13,708
09/03	40	40	1	2	37	153	2,907	26,661	131,405	407,175	1,664	10,150
09/04	13	13	0	0	18	80	277	1,968	35,801	111,050	247	1,812
09/05	6	6	0	0	14	60	83	672	18,031	43,262	43	232
09/06	2	2	Confidential ^a									
Total	238	7,456	238	2,808	179,885	883,853	296,231	2,326,504	42,926,908	147,043,209	1,157,239	7,256,616
Average weight				11.80		4.91		7.85		3.43		6.27

^a Three permits or fewer were fished. Period results are confidential.

Appendix D3.—Area E commercial salmon harvest by species, excluding Copper River and Bering River Districts, 1995–2019.

Year ^a	Chinook	Sockeye	Coho	Pink	Chum	Total
1995	1,365	230,057	140,314	16,045,396	702,216	17,119,348
1996	693	605,910	172,254	26,042,440	2,077,995	28,899,292
1997	1,186	1,167,473	64,363	25,828,078	2,224,728	29,285,828
1998	1,843	328,715	74,150	28,673,859	1,266,924	30,345,491
1999	1,047	309,337	27,325	45,020,990	2,935,337	48,294,036
2000	1,135	548,841	353,015	38,875,724	5,158,403	44,937,118
2001	853	932,120	234,826	35,237,137	3,097,007	39,501,943
2002	938	1,013,057	37,586	18,947,254	6,341,860	26,340,695
2003	278	1,519,582	98,947	51,962,716	3,794,772	57,376,295
2004	319	830,757	56,457	23,526,306	1,998,542	26,412,381
2005	349	577,681	225,157	59,900,319	2,095,957	62,799,463
2006	325	989,210	388,575	21,691,135	2,164,335	25,233,580
2007	873	1,310,694	202,153	63,389,073	3,569,303	68,472,096
2008	365	976,792	307,260	42,352,155	5,074,790	48,711,362
2009	416	1,011,990	46,580	18,984,542	3,213,483	23,257,011
2010	452	1,401,815	42,502	71,288,429	4,307,533	77,040,731
2011	679	1,480,499	223,462	33,379,352	1,901,131	36,985,123
2012	540	1,826,283	32,844	27,231,297	3,791,670	32,882,634
2013	1,426	713,862	327,345	92,416,738	4,060,287	97,519,658
2014	685	1,243,267	201,083	44,647,451	1,473,370	47,565,856
2015	882	1,637,519	74,470	97,258,288	2,496,756	101,467,915
2016	333	794,707	34,598	13,025,307	3,166,099	17,021,044
2017	588	839,989	131,378	48,511,792	3,166,099	52,649,846
2018	863	1,269,815	98,881	24,017,666	3,465,225	28,852,450
2019	605	1,289,509	442,111	48,505,053	5,358,232	55,595,510
Average, 2009–2018	686	1,222,036	121,317	47,076,948	3,325,471	51,746,458

^a Includes purse seine, drift gillnet, and set gillnet harvests. Also includes hatchery sales harvests, personal use, confiscated fish, donated and discarded fish, and special use educational permit harvests.

Appendix D4.–Prince William Sound commercial common property pink salmon harvest for all gear types, by district, 1995–2019.

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
Average, 2009–2018	16,375,659	7,255,228	4,082,525	239,028	167,955	12,005,398	981,537	676,942	41,784,272

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 common property chum salmon harvest for all gear types, by district, 1995–2019.

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	1,060,189	9,602	163,838	545,263	1,572,646	38,173	3,943,908
Average, 2009–2018	103,689	14,660	1,762,021	6,400	214,297	215,862	337,495	19,732	2,674,157

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 D6.—Prince William Sound pink salmon escapement indices by district, 1995–2019.

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
Even-year average, 1998–2016									
	398,349	158,107	146,148	111,735	6,604	93,913	119,192	284,188	1,296,092
Odd-year average, 1999–2017									
	836,903	320,155	343,000	192,097	15,618	268,031	388,577	1,003,509	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 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 D7.–Prince William Sound chum salmon escapement indices by district, 1995–2019.

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
Average, 2009–2018	110,185	29,619	14,899	10,504	50,697

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.

^c AUC counts adjusted for the average proportion of the 214 index streams represented by the 129 index streams.

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 1990–2016.

Solomon Gulch Hatchery										
Brood year	Return year	Fry release	Hatchery contribution to the CCPF ^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	
1990	1993	1,226,044	102	305	12,979	1,658	2,343	17,387	1.4%	
1991	1994	461,388	0	143	19,012	11,376	22,091	52,622	11.4%	
1992	1995	915,087	78,006	0	37,474	16,045	21,592	153,117	16.7%	
1993	1996	1,325,316	87,360	38	43,467	21,772	13,713	166,350	12.6%	
1994	1997	1,875,823	47,500	45	36,520	13,605	9,818	107,488	5.7%	
1995	1998	1,315,183	23,717	321	37,126	3,880	19,068	84,112	6.4%	
1996	1999	1,748,486	67,232	541	36,310	2,541	12,679	119,303	6.8%	
1997	2000	1,863,528	342,490	468	68,014	1,625	24,887	437,484	23.5%	
1998	2001	1,625,599	147,000	230	60,975	1,778	25,595	235,578	14.5%	
1999	2002	1,519,328	25,017	136	31,017	21,323	8,000	85,493	5.6%	
2000	2003	1,821,889	63,132	185	78,162	17,379	4,087	162,945	8.9%	
2001	2004	1,275,145	26,711	315	59,331	2,585	9,897	98,839	7.8%	
2002	2005	1,442,274	129,966	286	67,000	2,102	30,686	230,040	16.0%	
2003	2006	1,968,366	210,382	18	61,298	2,455	16,172	290,325	14.8%	
2004	2007	1,511,592	58,299	0	74,616	3,564	17,748	154,227	10.2%	
2005	2008	1,973,604	154,383	0	59,313	3,101	22,356	239,153	12.1%	
2006	2009	1,828,100	914	131	43,651	3,955	17,424	66,075	3.6%	
2007	2010	1,525,927	2,918	189	70,531	2,847	43,722	120,207	7.9%	
2008	2011	1,915,058	28,412	883	50,801	7,145	38,285	125,526	6.6%	
2009	2012	2,111,389	914	75	12,873	2,458	454	16,774	0.8%	
2010	2013	1,879,768	153,819	277	55,844	7,071	39,946	256,957	13.7%	
2011	2014	1,657,016	1,327	103	6,044	1,804	1,139	10,416	0.6%	
2012	2015	1,810,315	32,108	40	24,920	2,722	14,571	74,361	4.1%	
2013	2016	1,869,354	7,034	0	31,390	2,722	14,571	55,717	3.0%	
2014	2017	1,913,395	6,440	0	10,284	4,623	1,620	22,967	1.2%	
2015	2018	1,929,471	5,751	0	26,454	9,790	1,620	43,615	0.4%	
2016	2019	1,929,471	67,296	0	38,108	1,018	3,190	109,612	5.68%	

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Appendix E1.—Page 2 of 2.

Wally Noerenberg Hatchery										
Brood year	Return year	Fry release	Hatchery contribution to the CCPF ^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	
1990	1993	1,831,198	39,658	51	1,608	4,857	1,532	47,706	2.6%	
1991	1994	1,303,077	81,396	65	3,061	5,439	13,258	103,220	7.9%	
1992	1995	1,483,936	34,680	57	1,690	4,964	5,152	46,543	3.1%	
1993	1996	2,063,934	26,245	8	3,851	4,081	39,506	73,690	3.6%	
1994	1997	275,406	5,626	26	2,084	5,674	0	13,410	4.9%	
1995	1998	203,651	2,800	35	3,327	1,541	0	7,703	3.8%	
1996	1999	407,715	338	66	2,658	2,533	0	5,595	1.4%	
1997	2000	1,068,338	111,256	197	7,963	2,551	0	121,966	11.4%	
1998	2001	375,670	2,488	98	15,490	3,277	0	21,353	5.7%	
1999	2002	219,967	3,215	105	21,283	2,389	0	26,991	12.3%	
2000	2003	485,834	9,624	133	21,444	1,314	0	32,515	6.7%	
2001	2004	920,858	9,333	37	19,852	150	637	30,009	3.3%	
2002	2005	989,383	53,257	178	34,587	11,450	19	99,492	10.1%	
2003	2006	1,057,922	113,997	20	19,973	17,079	0	151,069	14.3%	
2004	2007	1,052,897	84,867	36	31,745	2,129	11,975	130,752	12.4%	
2005	2008	1,850,000	116,641	90	19,738	2,609	267	139,345	7.5%	
2006	2009	1,930,000	20,209	52	16,751	2,064	0	39,076	2.0%	
2007	2010	226,000	5,215	9	20,569	1,399	0	27,192	12.0%	
2008	2011	3,490,000	95,267	274	26,062	7,374	678	129,655	3.7%	
2009	2012	3,480,000	10,276	123	7,625	558	0	18,582	0.5%	
2010	2013	1,018,000	69,824	64	21,185	2,293	0	93,366	9.2%	
2011	2014	3,210,000	165,600	292	11,314	6,584	10,877	194,667	6.1%	
2012	2015	907,000	6,592	115	17,351	3,084	0	27,142	3.0%	
2013	2016	370,000	347	292	100	245	0	984	0.3%	
2014	2017	3,090,000	14,406	0	100	3,814	0	18,320	0.6%	
2016	2019	2,091,000	194,717	0	100	2,226	0	197,043	9.42%	

NA = No estimate available.

^a Commercial common property fishery (CCPF).

^b Subsistence and commercial personal use harvest (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, 2019.

Dates	Period	Hours	Origin							
			Gulkana		Main Bay		Hatchery	Wild		Total
			Number	Percent	Number	Percent	Total	Number	Percent	Total
05/16 – 05/16	1 ^a	12	0	0.0%	0	0.0%	0	21,784	100.0%	21,784
05/20 – 05/20	2 ^a	12	0	0.0%	0	0.0%	0	55,046	100.0%	55,046
05/23 – 05/24	3 ^a	24	0	0.0%	0	0.0%	0	63,410	100.0%	63,410
05/27 – 05/28	4 ^a	24	0	0.0%	0	0.0%	0	96,249	100.0%	96,249
05/30 – 05/31	5 ^a	24	0	0.0%	0	0.0%	0	94,184	100.0%	94,184
06/03 – 06/04	6 ^a	36	0	0.0%	0	0.0%	0	135,284	100.0%	135,284
06/06 – 06/08	7 ^a	48	0	0.0%	0	0.0%	0	126,296	100.0%	126,296
06/10 – 06/11	8	36	0	0.0%	1,343	1.0%	1,343	127,602	99.0%	128,945
06/13 – 06/14	9 ^b	24	0	0.0%	1,308	2.1%	1,308	60,965	97.9%	62,273
06/17 – 06/18	10	24	0	0.0%	1,275	3.2%	1,275	39,107	96.8%	40,382
06/20 – 06/21	11	36	856	2.1%	3,426	8.3%	4,282	36,828	89.6%	41,110
06/24 – 06/25	12	24	0	0.0%	1,990	5.2%	1,990	36,226	94.8%	38,216
06/27 – 06/28	13	36	2,435	3.1%	10,552	13.5%	12,987	64,933	83.3%	77,919
07/01 – 07/02	14	24	2,584	4.2%	9,045	14.6%	11,630	50,395	81.3%	62,024
07/04 – 07/05	15	24	2,496	4.3%	3,120	5.4%	5,616	52,417	90.3%	58,033
07/08 – 07/09	16	24	5,950	17.7%	350	1.0%	6,300	27,302	81.3%	33,602
07/11 – 07/12	17	24	5,344	17.7%	314	1.0%	5,659	24,520	81.3%	30,179
07/15 – 07/16	18	24	5,523	23.3%	263	1.1%	5,786	17,886	75.6%	23,672
07/18 – 07/19	19	24	1,906	11.6%	173	1.1%	2,080	14,384	87.4%	16,464
07/22 – 07/23	20	24	1,926	17.9%	128	1.2%	2,055	8,732	81.0%	10,787
07/25 – 07/26	21	24	1,970	15.6%	0	0.0%	1,970	10,638	84.4%	12,608
07/29 – 07/30	22	24	3,021	18.8%	0	0.0%	3,021	13,092	81.3%	16,113
08/01 – 08/02	23 ^c	24	2,394	18.8%	0	0.0%	2,394	10,375	81.3%	12,769
08/05 – 08/06	24 ^c	24	2,008	18.8%	0	0.0%	2,008	8,700	81.3%	10,708
08/08 – 08/09	25 ^c	24	1,466	18.8%	0	0.0%	1,466	6,355	81.3%	7,821
08/12 – 08/13	26 ^a	24	0	0.0%	0	0.0%	0	5,871	100.0%	5,871
08/19 – 08/20	27 ^a	24	0	0.0%	0	0.0%	0	1,310	100.0%	1,310
08/26 – 08/27	28 ^a	24	0	0.0%	0	0.0%	0	626	100.0%	626
09/02 – 09/03	29 ^a	24	0	0.0%	0	0.0%	0	51	100.0%	51
Total		744	39,882	3.1%	33,288	2.6%	73,170	1,210,566	94.3%	1,283,736

Note: Total harvest data from fish tickets as of December 11, 2019. TF – Test Fishery, NA – Not Available.

^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, 1979–2019.

Year	Hatchery contributions			Broodstock/escapement ^d	Total hatchery run
	Commercial ^a	Subsistence/personal use ^b	Sport ^c		
1979	900	393	9	3,425	4,724
1980	350	589	34	4,250	5,211
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	66,962
Average, 2009–2018	186,993	35,202	422	56,070	278,650

^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, 1974–2019.

Release year	Chinook salmon			Sockeye salmon					Total sockeye salmon released
	Monsoon Lake	Gulkana River (E. Fork)	Total Chinook salmon released	Gulkana I & II (Paxson Lake)	Summit Lake	Crosswind Lake	Harding Lake	Ten Mile Lake	
1975				785,110				101,446	886,556
1976				626,007				101,600	727,607
1977				516,326				112,248	628,574
1978				479,864				104,058	583,922
1979				940,666				99,589	1,040,255
1980				1,105,397	1,340,660				2,446,057
1981				3,388,682	1,860,491				5,249,173
1982				5,985,270	2,047,947				8,033,217
1983				5,470,056	4,312,628				9,782,684
1984				6,079,838	4,739,293				10,819,131
1985				10,130,942	9,296,882	1,419,095			20,846,919
1986				8,586,509	14,999,085				23,585,594
1987				9,905,907	12,491,826				22,397,733
1988		1,388	1,388	6,389,963	12,026,642	2,487,396	503,375		21,407,376
1989	15,977		15,977	10,870,655	12,004,491	3,130,373	515,046		26,520,565
1990				14,127,313	6,445,011	4,906,005	505,305		25,983,634
1991	26,209		26,209	11,288,721	6,109,833	5,469,759			22,868,313
1992	30,488	34,842	65,330	11,640,000	7,049,000	8,420,000			27,109,000
1993				5,866,230	2,661,549	5,627,346			14,155,125
1994				11,008,964	7,637,009	9,144,382			27,790,355
1995				12,345,894	7,418,311	9,973,600			29,737,805
1996				12,241,896	8,400,148	9,732,911			30,374,955
1997				12,286,366	8,987,213	10,516,107			31,789,686
1998				11,589,845	10,162,655	10,512,299			32,264,799
1999				11,551,836	9,191,217	9,984,392			30,727,445
2000				10,705,795	3,300,504	8,331,080			22,337,379
2001				7,870,334	493,516	5,585,665			13,949,515
2002				11,922,685	5,805,231	8,174,754			25,902,670
2003				11,284,330	6,599,519	8,360,966			26,244,815
2004				12,408,512	6,574,962	8,359,115			27,342,589
2005				3,308,065	0	3,703,295			7,011,360
2006				5,523,920	4,681,325	10,017,211			20,222,456
2007				6,000,000	6,000,000	10,000,000			22,000,000
2008				6,000,000	6,000,000	9,980,000			21,980,000
2009				6,000,000	6,000,000	10,000,000			22,000,000
2010				6,010,000	6,000,000	10,000,000			22,010,000
2011				6,000,000	5,980,000	10,000,000			21,980,000
2012				7,340,000	5,950,000	9,570,000			22,860,000
2013				6,000,000	6,000,000	6,560,000			18,560,000
2014				6,000,000	6,000,000	10,000,000			22,000,000
2015				5,997,000	5,990,000	10,000,000			21,987,000
2016				6,004,000	0	10,000,000			16,004,000
2017				4,660,000	0	9,690,000			14,350,000
2018				5,962,463	0	4,252,400			10,214,863
2019				6,000,000	5,006,000	10,000,000			21,006,000
Average, 2009–2018				5,997,588	4,356,364	8,186,582			19,450,806

Note: Blank cells indicate no data.

Appendix E5.–Daily chum and coho salmon sales and sex ratios, sales summary, and broodstock summary at the Wally Noerenberg Hatchery, 2019.

Date	Chum salmon			Coho salmon		
	Sales harvest ^a	Sales harvest cumulative	Brood stock ^b	Brood stock cumulative	Sales harvest	Sales harvest cumulative
06/02	30,299	30,299	0	0	ND	ND
06/03	6,552	36,851	0	0	ND	ND
06/04	1,431	38,282	0	0	ND	ND
06/05	20,665	58,947	0	0	ND	ND
06/06	30,211	89,158	0	0	ND	ND
06/07	17,719	106,877	0	0	ND	ND
06/08	25,324	132,201	0	0	ND	ND
06/09	0	132,201	0	0	ND	ND
06/10	39,090	171,291	0	0	ND	ND
06/11	47,988	219,279	0	0	ND	ND
06/12	57,219	276,498	0	0	ND	ND
06/13	35,255	311,753	0	0	ND	ND
06/14	10,145	321,898	0	0	ND	ND
06/15	41,181	363,079	0	0	ND	ND
06/16	78,055	441,134	0	0	ND	ND
06/17	125,843	566,977	0	0	ND	ND
06/18	93,597	660,574	0	0	ND	ND
06/19	29,321	689,895	0	0	ND	ND
06/20	94,544	784,439	0	0	ND	ND
06/21	58,862	843,301	0	0	ND	ND
06/22	45,293	888,594	0	0	ND	ND
06/23	34,866	923,460	0	0	ND	ND
06/24	0	923,460	0	0	ND	ND
06/25	35,206	958,666	0	0	ND	ND
06/26	34,518	993,184	0	0	ND	ND
06/27	0	993,184	0	0	ND	ND
06/28	113,789	1,106,973	0	0	ND	ND
06/29	0	1,106,973	0	0	ND	ND
06/30	0	1,106,973	0	0	ND	ND
07/01	0	1,106,973	0	0	ND	ND
07/02	24,518	1,131,491	0	0	ND	ND
07/03	0	1,131,491	0	0	ND	ND
07/04	0	1,131,491	7,962	7,962	ND	ND
07/05	0	1,131,491	12,429	20,391	ND	ND
07/06	0	1,131,491	10,402	30,793	ND	ND
07/07	0	1,131,491	10,923	41,716	ND	ND
07/08	0	1,131,491	11,193	52,909	ND	ND
07/09	0	1,131,491	0	52,909	ND	ND
07/10	0	1,131,491	19,308	72,217	ND	ND
07/11	0	1,131,491	11,988	84,205	ND	ND
07/12	44,435	1,175,926	12,125	96,330	ND	ND
07/13	0	1,175,926	12,374	108,704	ND	ND
07/14	0	1,175,926	11,359	120,063	ND	ND
07/15	0	1,175,926	12,582	132,645	ND	ND
07/16	0	1,175,926	11,782	144,427	ND	ND

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Appendix E5.–Page 2 of 2.

Date	Chum salmon				Coho salmon	
	Sales harvest ^a	Sales harvest cumulative	Brood stock ^b	Brood stock cumulative	Sales harvest	Sales harvest cumulative
07/17	0	1,175,926	0	144,427	ND	ND
07/18	0	1,175,926	0	144,427	ND	ND
07/19	0	1,175,926	11,816	156,243	ND	ND
07/20	0	1,175,926	19,359	175,602	ND	ND
07/21	0	1,175,926	19,434	195,036	ND	ND
07/22	0	1,175,926	14,957	209,993	ND	ND
07/23	0	1,175,926	0	209,993	ND	ND
07/24	0	1,175,926	11,467	221,460	ND	ND
07/25	0	1,175,926	0	221,460	ND	ND
07/26	0	1,175,926	0	221,460	ND	ND
07/27	0	1,175,926	0	221,460	ND	ND
07/28	0	1,175,926	7,792	229,252	ND	ND
07/29	0	1,175,926	4,738	233,990	ND	ND
07/30	0	1,175,926	0	233,990	ND	ND
07/31	1,282	1,177,208	0	233,990	ND	ND
08/01	0	1,177,208	0	233,990	ND	ND
08/02	0	1,177,208	0	233,990	ND	ND
08/03	0	1,177,208	0	233,990	ND	ND
08/04	4,449	1,181,657	0	233,990	ND	ND
08/05	1,267	1,182,924	0	233,990	ND	ND
08/06	2,531	1,185,455	0	233,990	ND	ND
08/07	1,191	1,186,646	0	233,990	ND	ND
08/08	0	1,186,646	0	233,990	ND	ND
08/09	0	1,186,646	0	233,990	ND	ND
08/10	1,040	1,187,686	0	233,990	ND	ND
08/11	4,037	1,191,723	0	233,990	ND	ND
Hatchery escapement summary ^c				Chum salmon	Coho salmon	
Purse seine whole fish harvest				1,191,723	0	
Raceway harvest ^d				55,898	0	
Viable broodstock (spawned, eggs in incubators)				141,287	1,358	
Unviable broodstock (green/over-ripe/bad)				6,478	18	
Unspawned fish (e.g., excess males/females)				45,129	458	
Holding mortalities (raceway, pen mortalities)				7,066	392	
Estimated unharvested return ^e				2,000	0	
Estimated total run to hatchery site				1,449,581	2,226	
Sales summary				Chum salmon	Coho salmon	
Purse seine whole fish sales				1,191,723	0	
Raceway sales ^f				107,505	476	
Carcass sales ^g				141,287	1,358	
Total sales				1,440,515	1,834	

^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 (PWSAC 2019b).

^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, 2019.

Dates	Period	Hours	Origin						Total
			Main Bay		Hatchery total	Wild			
			Number	Percent		Number	Percent		
06/03 – 06/03	1	36 ^a	0	0.0%	0	51	100.0%	51	
06/06 – 06/06	2	36 ^a	0	0.0%	0	228	100.0%	228	
06/10 – 06/10	3	24 ^b	956	84.2%	956	179	15.8%	1,135	
06/13 – 06/13	4	24	1,542	84.2%	1,542	289	15.8%	1,831	
06/17 – 06/19	5	60	6,025	57.3%	6,025	4,492	42.7%	10,517	
06/20 – 06/23	6	84	15,355	58.7%	15,355	10,806	41.3%	26,161	
06/24 – 06/26	7	60	13,067	56.3%	13,067	10,164	43.8%	23,231	
06/27 – 06/30	8	84	28,283	53.7%	28,283	24,401	46.3%	52,684	
07/01 – 07/03	9	60	19,127	32.6%	19,127	39,573	67.4%	58,700	
07/06 – 07/07	10	36 ^c	15,560	44.5%	15,560	19,419	55.5%	34,979	
07/08 – 07/10	11	60	29,944	56.4%	29,944	23,165	43.6%	53,109	
07/11 – 07/14	12	84	8,452	31.1%	8,452	18,741	68.9%	27,193	
07/15 – 07/17	13	60	10,403	29.2%	10,403	25,264	70.8%	35,667	
07/18 – 07/21	14	84	15,184	35.1%	15,184	28,066	64.9%	43,250	
07/22 – 07/24	15	60	3,021	19.7%	3,021	12,315	80.3%	15,336	
07/25 – 07/26	16	36	0	0.0%	0	3,483	100.0%	3,483	
07/28 – 07/28	17	14 ^d	0	0.0%	0	1,558	100.0%	1,558	
08/08 – 08/08	18	6 ^d	0	0.0%	0	146	100.0%	146	
08/12 – 08/12	19	12 ^{d,e}	0	0.0%	0	0	0.0%	0	
08/13 – 08/13	20	12 ^a	0	0.0%	0	364	100.0%	364	
08/15 – 08/15	21	12 ^{a,e}	0	0.0%	0	0	0.0%	0	
08/17 – 08/17	22	12 ^a	0	0.0%	0	200	100.0%	200	
08/19 – 08/19	23	12 ^a	0	0.0%	0	105	100.0%	105	
08/21 – 08/21	24	12 ^a	0	0.0%	0	183	100.0%	183	
08/22 – 08/22	25	12 ^a	0	0.0%	0	147	100.0%	147	
08/24 – 08/24	26	12 ^a	0	0.0%	0	101	100.0%	101	
08/25 – 08/25	27	12 ^a	0	0.0%	0	26	100.0%	26	
08/26 – 08/26	28	12 ^a	0	0.0%	0	19	0.0%	19	
08/27 – 08/27	29	12 ^a	0	0.0%	0	28	0.0%	28	
08/28 – 08/28	30	12 ^a	0	0.0%	0	19	100.0%	19	

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Dates	Period	Hours	Origin						Total
			Main Bay		Hatchery total	Wild			
			Number	Percent		Number	Percent		
08/29 – 08/29	31	12 ^a	0	0.0%	0	15	100.0%	15	
08/30 – 08/30	32	12 ^a	0	0.0%	0	23	100.0%	23	
08/31 – 08/31	33	12 ^a	0	0.0%	0	34	100.0%	34	
09/01 – 09/01	34	12 ^f	0	0.0%	0	0	0.0%	0	
09/02 – 09/04	35	60 ^a	0	0.0%	0	11	100.0%	11	
09/05 – 09/08	36	84 ^a	0	0.0%	0	12	100.0%	12	
09/09 – 09/11	37	60 ^a	0	0.0%	0	1	100.0%	1	
09/12 – 09/15	38	84 ^a	0	0.0%	0	2	100.0%	2	
09/16 – 09/18	39	60 ^f	0	0.0%	0	0	0.0%	0	
09/19 – 09/30	40–43	60–84 ^f	0	0.0%	0	0	0.0%	0	
Total			166,919	42.7%	166,919	223,630	57.3%	390,549	

Note: Total harvest data from Fish Tickets as of 11 December 2019. 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. MBH13A, MBH13B, MBH13C, MBH13D, MBH13E, MBH16B and MBH16E marks not seen in 2019.

- ^a No samples collected; wild origin assumed.
- ^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 Three or fewer deliveries; results are confidential.
- ^f No harvest reported.

Appendix E7.—Pink salmon hatchery and wild stock contributions to the Coghill District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin											total	Wild		Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery	Number	Percent				
			Number	Percent	Number	Percent	Number	Percent	Number	Percent							
06/03 – 06/04	1	36 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
06/06 – 06/07	2	36 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
06/10 – 06/11	3	24 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
06/13 – 06/14	4	24 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
06/17 – 06/19	5	60 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	40	0.0%	40	
06/20 – 06/23	6	84 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	132	100.0%	132	
06/24 – 06/26	7	60 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3,271	0.0%	3,271	
06/27 – 06/30	8	84	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	14,883	100.0%	14,883	
07/01 – 07/03	9	60	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	28,818	100.0%	28,818	
07/06 – 07/07	10	36 ^c	5,060	23.2%	0	0.0%	266	1.2%	0	0.0%	5,326	16,510	75.6%	21,836			
07/08 – 07/10	11	60	20,545	46.3%	0	0.0%	1,081	2.4%	0	0.0%	21,626	22,708	51.2%	44,334			
07/11 – 07/14	12	84	0	0.0%	0	0.0%	214	1.2%	0	0.0%	214	17,507	98.8%	17,721			
07/15 – 07/17	13	60	403	1.9%	0	0.0%	403	1.9%	0	0.0%	805	20,531	96.2%	21,336			
07/18 – 07/21	14	84	2,088	8.8%	0	0.0%	0	0.0%	0	0.0%	2,088	21,710	91.2%	23,798			
07/22 – 07/24	15	60	7,167	20.7%	0	0.0%	1,991	5.7%	398	0.0%	9,556	25,084	72.4%	34,640			
07/25 – 07/26	16	36	277	4.4%	92	0.0%	92	1.5%	0	0.0%	462	5,820	92.6%	6,282			
07/28 – 07/28	17	14	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	11,293	100.0%	11,293			
08/08 – 08/08	18	6 ^d	0	0.0%	119	1.6%	954	12.5%	1,133	0.0%	2,206	5,427	71.1%	7,633			
08/12 – 08/12	19	12 ^{d,e}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0			
08/13 – 08/13	20	12 ^d	0	0.0%	410	1.6%	3,277	12.5%	3,891	0.0%	7,577	18,635	71.1%	26,212			
08/15 – 08/15	21	12 ^{d,e}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0			
08/17 – 08/17	22	12 ^d	0	0.0%	133	1.6%	1,066	12.5%	1,265	14.8%	2,464	6,060	71.1%	8,524			
08/19 – 08/19	23	12	0	0.0%	244	3.1%	1,953	25.0%	2,319	29.7%	4,516	3,296	42.2%	7,812			
08/21 – 08/21	24	12 ^f	0	0.0%	375	3.1%	3,000	25.0%	3,562	29.7%	6,936	5,062	42.2%	11,998			
08/22 – 08/22	25	12 ^f	0	0.0%	325	3.1%	2,601	25.0%	3,089	29.7%	6,015	4,389	42.2%	10,404			
08/24 – 08/24	26	12 ^f	0	0.0%	135	3.1%	1,080	25.0%	1,283	29.7%	2,498	1,823	42.2%	4,320			
08/25 – 08/25	27	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	860	100.0%	860			
08/26 – 08/26	28	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1,084	100.0%	1,084			
08/27 – 08/27	29	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1,294	100.0%	1,294			
08/28 – 08/28	30	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1,431	100.0%	1,431			

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Dates	Period	Hours	Origin												Total	
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery total	Wild				
			Number	Percent	Number	Percent	Number	Percent	Number	Percent		Number	Percent			
08/29 – 08/29	31	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	6,234	0.0%	6,234
08/30 – 08/30	32	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	832	0.0%	832
08/31 – 08/31	33	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3,684	0.0%	3,684
09/01 – 09/01	34	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	46	0.0%	46
09/02 – 09/04	35	60 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	2,455	0.0%	2,455
09/05 – 09/08	36	84 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	5,512	0.0%	5,512
09/09 – 09/11	37	60 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	21	0.0%	21
09/12 – 10/02	38-43	60-84 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Totals			35,539	10.3%	2,080	0.6%	19,945	5.8%	19,277	5.6%	76,840		267,647	77.7%	344,487	

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Fish ticket data as of 27 November 2019.

- ^a No harvest reported.
- ^b No samples collected; wild origin assumed.
- ^c No samples collected; proportions are an average of previous and following periods sampled.
- ^d No samples collected; proportions are an average of samples from periods 17 and 23.
- ^e Three or fewer deliveries; results are confidential.
- ^f No samples collected; proportions from previous period sampled.

Appendix E8.—Chum salmon hatchery and wild stock contributions to the Coghill District commercial common property harvest, 2019.

Dates	Period	Hours	Origin										Total
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery total	Wild			
			Number	Percent	Number	Percent	Number	Percent		Number	Percent		
06/03 – 06/04	1	36 ^a	13,932	100.0%	0	0.0%	0	0.0%	13,932	0	0.0%	13,932	
06/06 – 06/07	2	36	27,801	100.0%	0	0.0%	0	0.0%	27,801	0	0.0%	27,801	
06/10 – 06/11	3	24	27,397	95.2%	0	0.0%	0	0.0%	27,397	1,370	4.8%	28,767	
06/13 – 06/14	4	24	7,662	97.6%	0	0.0%	187	2.4%	7,849	0	0.0%	7,849	
06/17 – 06/19	5	60	79,354	100.0%	0	0.0%	0	0.0%	79,354	0	0.0%	79,354	
06/20 – 06/23	6	84	80,135	97.9%	0	0.0%	871	1.1%	81,006	871	1.1%	81,877	
06/24 – 06/26	7	60	57,233	96.5%	2,081	3.5%	0	0.0%	59,314	0	0.0%	59,314	
06/27 – 06/30	8	84	105,080	93.7%	1,181	1.1%	1,181	1.1%	107,441	4,723	4.2%	112,164	
07/01 – 07/03	9	60	221,151	98.9%	2,353	1.1%	0	0.0%	223,504	0	0.0%	223,504	
07/06 – 07/07	10	36	49,068	98.2%	0	0.0%	892	1.8%	49,960	0	0.0%	49,960	
07/08 – 07/10	11	60	71,534	81.6%	2,308	2.6%	4,615	5.3%	78,457	9,230	10.5%	87,687	
07/11 – 07/14	12	84	91,085	96.9%	0	0.0%	1,469	1.6%	92,554	1,469	1.6%	94,023	
07/15 – 07/17	13	60	115,355	98.3%	0	0.0%	0	0.0%	115,355	1,955	1.7%	117,310	
07/18 – 07/21	14	84	46,768	87.0%	0	0.0%	0	0.0%	46,768	7,015	13.0%	53,783	
07/22 – 07/24	15	60	16,383	83.3%	1,311	6.7%	0	0.0%	17,694	1,966	10.0%	19,660	
07/25 – 07/26	16	36 ^b	1,011	83.3%	81	6.7%	0	0.0%	1,092	121	10.0%	1,213	
07/28 – 07/28	17	14 ^b	103	83.3%	8	6.7%	0	0.0%	111	12	10.0%	123	
08/08 – 08/08	18	6 ^b	121	83.3%	10	6.7%	0	0.0%	131	15	10.0%	145	
08/12 – 08/12	19	12 ^{c,d}	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
08/13 – 08/13	20	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	411	100.0%	411	
08/15 – 08/15	21	12 ^{c,d}	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
08/17 – 08/17	22	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	189	100.0%	189	
08/19 – 08/19	23	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	78	100.0%	78	
08/21 – 08/21	24	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	140	100.0%	140	
08/22 – 08/22	25	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	137	100.0%	137	
08/24 – 08/24	26	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	62	100.0%	62	
08/25 – 08/25	27	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	34	100.0%	34	
08/26 – 08/26	28	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	15	0.0%	15	
08/27 – 08/27	29	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	40	0.0%	40	
08/28 – 08/28	30	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	53	0.0%	53	

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Dates	Period	Hours	Origin										Total	
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery total	Wild				
			Number	Percent	Number	Percent	Number	Percent		Number	Percent			
08/29 – 08/29	31	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	36	31.0%	36
08/30 – 08/30	32	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	31	100.0%	31
08/31 – 08/31	33	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	33	100.0%	33
09/01 – 09/01	34	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	8	100.0%	8
09/02 – 09/04	35	60 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	22	100.0%	22
09/05 – 09/08	36	84 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	25	100.0%	25
09/09 – 09/11	37	60 ^c	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	16	100.0%	16
09/12 – 09/15	38	84 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
09/16 – 09/18	39	60 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
09/19 – 09/22	40	84 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
09/23 – 09/25	41	60 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
09/26 – 09/29	42	84 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
09/30 – 10/02	43	60 ^e	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	100.0%	0
Total			1,011,172	95.4%	9,331	0.9%	9,215	0.9%	1,029,719		30,245	2.9%	1,059,964	

Note: WNH = Wally Noerenberg Hatchery, AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 November 2019.

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

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

^c No samples collected; wild origin assumed.

^d Three or fewer deliveries; results are confidential.

^e No harvest reported.

Appendix E9.–Sockeye salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.

Dates	Period	Hours	Main Bay		Hatchery Total	Wild		Total
			Number	Percent		Number	Percent	
06/03 – 06/04	1	36	^a 1,293	83.7%	1,293	251	16.3%	1,544
06/06 – 06/07	2	36	^a 2,985	83.7%	2,985	580	16.3%	3,565
06/10 – 06/11	3	36	10,530	83.7%	10,530	2,048	16.3%	12,578
06/13 – 06/14	4	36	28,905	90.8%	28,905	2,927	9.2%	31,832
06/17 – 06/18	5	36	78,837	96.8%	78,837	2,628	3.2%	81,465
06/20 – 06/21	6	36	71,360	92.6%	71,360	5,676	7.4%	77,036
06/24 – 06/25	7	36	73,024	89.6%	73,024	8,491	10.4%	81,515
06/27 – 06/28	8	36	31,625	90.9%	31,625	3,163	9.1%	34,788
07/01 – 07/02	9	36	47,390	91.5%	47,390	4,408	8.5%	51,798
07/05 – 07/06	10	36	56,536	85.9%	56,536	9,303	14.1%	65,839
07/08 – 07/09	11	36	^b 45,039	82.8%	45,039	9,379	17.2%	54,418
07/11 – 07/12	12	36	50,762	79.7%	50,762	12,960	20.3%	63,722
07/15 – 07/16	13	36	36,406	64.5%	36,406	20,023	35.5%	56,429
07/18 – 07/19	14	36	18,713	56.2%	18,713	14,606	43.8%	33,319
07/22 – 07/23	15	36	^b 14,115	69.5%	14,115	6,206	30.5%	20,321
07/25 – 07/26	16	36	^b 5,581	69.5%	5,581	2,453	30.5%	8,034
07/29 – 07/30	17	24	7,000	82.8%	7,000	1,458	17.2%	8,458
08/01 – 08/02	18	24	^c 3,207	87.0%	3,207	668	13.0%	3,875
08/05 – 08/06	19	24	^c 1,504	87.8%	1,504	313	12.2%	1,817
08/08 – 08/09	20	24	^c 468	0.0%	468	97	100.0%	565
08/12 – 08/13	21	24	^d 0	0.0%	0	1,093	100.0%	1,093
08/15 – 08/16	22	36	^d 0	0.0%	0	957	100.0%	957
08/19 – 08/20	23	24	^d 0	0.0%	0	248	100.0%	248
08/22 – 08/23	24	24	^d 0	0.0%	0	317	100.0%	317
08/26 – 08/27	25	24	^d 0	0.0%	0	48	100.0%	48
08/29 – 08/30	26	24	^e 0	0.0%	0	0	0.0%	0
09/02 – 09/03	27	24	^e 0	0.0%	0	0	0.0%	0
09/05 – 09/06	28	24	^e 0	0.0%	0	0	0.0%	0
Total			585,278	84.1%	585,278	110,303	15.9%	695,581

Note: Fish ticket data as of 11 December 2019. Samples were not processed for SrCl mark identification, so the Gulkana Hatchery contribution is unknown.

- ^a No samples collected; proportions from following period samples.
- ^b No samples collected; proportions are the average of the previous and following periods sampled.
- ^c No samples collected; proportions are from the previous period sampled.
- ^d No samples collected; wild origin assumed.
- ^e No harvest reported.

Appendix E10.—Pink salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin										Total	Wild		Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery	Number		Percent		
			Number	Percent	Number	Percent	Number	Percent	Number	Percent	Total					
06/03 – 06/04	1	36 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	0.0%	0	
06/06 – 06/07	2	36 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0	0.0%	0	
06/10 – 06/11	3	36 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1	100.0%	1		
06/13 – 06/14	4	36 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	3	100.0%	3		
06/17 – 06/18	5	36	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	172	100.0%	172		
06/20 – 06/21	6	36 ^c	31	4.8%	0	0.0%	0	0.0%	0	0.0%	31	622	95.2%	653		
06/24 – 06/25	7	36	615	9.5%	0	0.0%	0	0.0%	0	0.0%	615	5,840	90.5%	6,455		
06/27 – 06/28	8	36 ^c	288	6.4%	0	0.0%	0	0.0%	0	0.0%	288	4,198	93.6%	4,485		
07/01 – 07/02	9	36	711	3.3%	0	0.0%	0	0.0%	0	0.0%	711	20,850	96.7%	21,561		
07/05 – 07/06	10	36	370	2.0%	0	0.0%	0	0.0%	0	0.0%	370	18,495	98.0%	18,865		
07/08 – 07/09	11	36 ^d	247	2.0%	0	0.0%	0	0.0%	0	0.0%	247	12,372	98.0%	12,619		
07/11 – 07/12	12	36 ^d	282	2.0%	0	0.0%	0	0.0%	0	0.0%	282	14,113	98.0%	14,395		
07/15 – 07/16	13	36 ^e	5,701	30.0%	0	0.0%	475	2.5%	0	0.0%	6,176	12,827	67.5%	19,003		
07/18 – 07/19	14	36 ^e	2,753	30.0%	0	0.0%	229	2.5%	0	0.0%	2,983	6,195	67.5%	9,178		
07/22 – 07/23	15	36	3,086	30.0%	0	0.0%	257	2.5%	0	0.0%	3,343	6,943	67.5%	10,286		
07/25 – 07/26	16	36	540	4.2%	270	2.1%	270	2.1%	540	4.2%	1,621	11,348	87.5%	12,969		
07/29 – 07/30	17	24	121	1.9%	0	0.0%	0	0.0%	607	9.6%	728	5,581	88.5%	6,309		
08/01 – 08/02	18	24 ^c	39	1.0%	0	0.0%	157	3.8%	249	6.1%	446	3,644	89.1%	4,090		
08/05 – 08/06	19	24	0	0.0%	0	0.0%	487	7.7%	162	2.6%	649	5,680	89.7%	6,329		
08/08 – 08/09	20	24 ^d	0	0.0%	0	0.0%	538	7.7%	179	2.6%	718	6,280	89.7%	6,998		
08/12 – 08/13	21	24 ^d	0	0.0%	0	0.0%	4,526	7.7%	1,509	2.6%	6,034	52,802	89.7%	58,836		
08/15 – 08/16	22	36 ^d	0	0.0%	0	0.0%	4,655	7.7%	1,552	2.6%	6,207	54,310	89.7%	60,517		
08/19 – 08/20	23	24 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	21,835	100.0%	21,835		
08/22 – 08/23	24	24 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	22,531	100.0%	22,531		
08/26 – 08/27	25	24 ^b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	1,889	100.0%	1,889		
08/29 – 09/06	26-28	24 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0		
Total			14,785	4.6%	270	0.1%	11,595	3.6%	4,798	1.5%	31,449	288,530	90.2%	319,979		

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Fish ticket data as of December 11, 2019.

- ^a No harvest reported.
- ^b No samples collected; wild origin assumed.
- ^c No samples collected; proportions are an average of the previous and following periods sampled.
- ^d No samples collected; proportions from the previous sampled period.
- ^e No samples collected; proportions from the following sampled period.

Appendix E11.—Chum salmon hatchery and wild stock contributions to the Eshamy District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin								Total	
			Wally Noerenberg		Port Chalmers		Armin F Koernig		Hatchery total	Wild		
			Number	Percent	Number	Percent	Number	Percent		Number		Percent
06/03 – 06/04	1	36 ^a	719	64.1%	0	0.0%	228	20.3%	948	175	15.6%	1,123
06/06 – 06/07	2	36 ^a	2,106	64.1%	0	0.0%	668	20.3%	2,774	514	15.6%	3,288
06/10 – 06/11	3	36 ^a	3,905	64.1%	0	0.0%	1,238	20.3%	5,143	952	15.6%	6,095
06/13 – 06/14	4	36	6,181	64.1%	0	0.0%	1,960	20.3%	8,141	1,508	15.6%	9,649
06/17 – 06/18	5	36	19,378	71.1%	908	3.3%	5,753	21.1%	26,039	1,211	4.4%	27,250
06/20 – 06/21	6	36 ^b	13,960	64.6%	1,406	6.5%	5,245	24.3%	20,611	1,003	4.6%	21,614
06/24 – 06/25	7	36	10,979	58.1%	1,830	9.7%	5,184	27.4%	17,993	915	4.8%	18,908
06/27 – 06/28	8	36	6,140	57.1%	1,023	9.5%	3,326	31.0%	10,489	256	2.4%	10,745
07/01 – 07/02	9	36	9,568	65.7%	1,248	8.6%	3,744	25.7%	14,560	0	0.0%	14,560
07/05 – 07/06	10	36 ^c	9,999	65.7%	1,304	8.6%	3,913	25.7%	15,216	0	0.0%	15,216
07/08 – 07/09	11	36 ^c	5,730	65.7%	747	8.6%	2,242	25.7%	8,719	0	0.0%	8,719
07/11 – 07/12	12	36 ^c	6,582	65.7%	859	8.6%	2,576	25.7%	10,016	0	0.0%	10,016
07/15 – 07/16	13	36 ^c	6,928	65.7%	904	8.6%	2,711	25.7%	10,543	0	0.0%	10,543
07/18 – 07/19	14	36 ^c	2,091	65.7%	273	8.6%	818	25.7%	3,182	0	0.0%	3,182
07/22 – 07/23	15	36 ^c	620	65.7%	81	8.6%	243	25.7%	944	0	0.0%	944
07/25 – 07/26	16	36 ^c	353	65.7%	46	8.6%	138	25.7%	537	0	0.0%	537
07/29 – 07/30	17	24 ^c	168	65.7%	22	8.6%	66	25.7%	256	0	0.0%	256
08/01 – 08/02	18	24 ^c	119	65.7%	16	8.6%	47	25.7%	181	0	0.0%	181
08/05 – 08/06	19	24 ^c	126	65.7%	16	8.6%	49	25.7%	191	0	0.0%	191
08/08 – 08/09	20	24 ^c	32	65.7%	4	8.6%	12	25.7%	48	0	0.0%	48
08/12 – 08/13	21	24 ^c	102	65.7%	13	8.6%	40	25.7%	155	0	0.0%	155
08/15 – 08/16	22	36 ^d	0	0.0%	0	0.0%	0	0.0%	0	272	100.0%	272
08/19 – 08/20	23	24 ^d	0	0.0%	0	0.0%	0	0.0%	0	102	100.0%	102
08/22 – 08/23	24	24 ^d	0	0.0%	0	0.0%	0	0.0%	0	121	100.0%	121
08/26 – 08/27	25	24 ^d	0	0.0%	0	0.0%	0	0.0%	0	26	100.0%	26

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Appendix E11.–Page 2 of 2.

Dates	Period	Hours	Hatchery marks						Hatchery total	Wild		Total
			Wally Noerenberg		Port Chalmers		Armin F Koernig			Number	Percent	
08/29 – 09/06	26–28	24 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			105,786	64.6%	10,700	6.5%	40,200	24.6%	156,686	7,055	4.3%	163,741

Note: WNH = Wally Noerenberg Hatchery, AFK = Armin F. Koernig Hatchery. Total harvest data from Fish Ticket reporting as of 11 December 2019.

- ^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 period sampled.
- ^d No samples collected; wild origin assumed.
- ^e No harvest reported.

Appendix E12.—Daily salmon sales and sex ratios, sales summary, and broodstock summary at the Main Bay Hatchery, 2019.

Sockeye salmon				
Date	Sales harvest ^a	Sales harvest cumulative	Brood stock ^b	Brood stock cumulative
07/01	8,987	8,987	NA	NA
Hatchery escapement summary ^c			Sockeye salmon	
Purse seine whole fish harvest				0
Raceway harvest ^d				0
Viable broodstock (spawned, eggs in incubators)				6,474
Unviable broodstock (green/over-ripe/bad)				200
Unspawned fish (e.g., excess males/females)				2,134
Holding mortalities (raceway, pen mortalities)				448
Estimated unharvested return ^e				1,750
Estimated total run to hatchery site				11,019
Sales summary				
Purse seine whole fish sales				8,987
Raceway sales ^f				0
Carcass sales ^g				0
Total sales				8,987

Note: NA = not available

^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 and PWSAC egg-take log, and annual report (PWSAC 2019b).

^d Raceway harvest includes whole fish as well as roe extraction not conducted as eggtake.

^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, 1990–2019.

Year	Hatchery contributions ^a					Total hatchery contribution
	Commercial	Subsistence/ homepack	Sport	Broodstock/ escapement	Cost recovery	
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	5,467	9,269	8,987	880,567
Average, 2009–2018	981,325	1,522	4,956	41,814	57,585	1,086,379

^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/personal use estimates are derived from commercial harvest proportions. Broodstock/escapement and hatchery cost recovery are assumed to be 100% MBH origin.

Appendix E14.–Main Bay Hatchery salmon fry releases, 1983–2019.

Release year	Sockeye salmon				Pink salmon	Chum salmon
	Primary return years	Coghill Lake stock	Eshamy Lake stock	Eyak Lake stock	Total released ^a	Total released
1983						25,751,531
1984						41,945,403
1985						29,286,498
1986	1987, 1988					32,728,663
1987	1988, 1989					2,660,000
1988	1989, 1990	330,025			330,025	
1989	1991, 1990	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	
Average 2009–2018		10,105,182			10,105,182	

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

Appendix E15.—Pink salmon hatchery and wild stock contributions to the Eastern District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin												Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A. F. Koernig		Hatchery total	Wild			
			Number	Percent	Number	Percent	Number	Percent	Number	Percent		Number	Percent		
06/27 - 06/27	1	12	112,222	39.6%	0	0.0%	0	0.0%	0	0.0%	112,222	171,285	60.4%	283,507	
07/05 - 07/05	2	14	2,156,365	90.5%	0	0.0%	0	0.0%	0	0.0%	2,156,365	225,666	9.5%	2,382,031	
07/07 - 07/07	3	14	617,979	80.2%	0	0.0%	0	0.0%	0	0.0%	617,979	152,488	19.8%	770,467	
07/09 - 07/09	4	14	843,535	81.8%	0	0.0%	0	0.0%	0	0.0%	843,535	188,049	18.2%	1,031,584	
07/11 - 07/11	5	14	465,021	83.3%	0	0.0%	0	0.0%	0	0.0%	465,021	93,004	16.7%	558,025	
07/15 - 07/15	6	14	231,250	42.7%	5,640	1.0%	0	0.0%	0	0.0%	236,890	304,573	56.3%	541,463	
07/18 - 07/18	7	14	297,602	50.0%	0	0.0%	0	0.0%	0	0.0%	297,602	297,602	50.0%	595,204	
07/20 - 07/20	8	14	444,326	62.0%	0	0.0%	0	0.0%	0	0.0%	444,326	272,569	38.0%	716,895	
07/24 - 07/24	9	14	522,478	74.0%	0	0.0%	0	0.0%	0	0.0%	522,478	183,971	26.0%	706,449	
07/26 - 07/26	10	14	405,723	90.6%	0	0.0%	0	0.0%	0	0.0%	405,723	41,971	9.4%	447,694	
07/27 - 07/27	11	14	363,187	89.6%	0	0.0%	4,223	1.0%	0	0.0%	367,410	38,008	9.4%	405,418	
07/28 - 07/28	12	14	286,931	80.0%	3,775	1.1%	0	0.0%	0	0.0%	290,707	67,957	18.9%	358,664	
07/29 - 07/29	13	14	338,654	92.7%	0	0.0%	0	0.0%	3,805	1.0%	342,459	22,831	6.3%	365,290	
07/30 - 07/30	14	14	331,278	78.1%	0	0.0%	4,417	1.0%	0	0.0%	335,695	88,341	20.8%	424,036	
07/31 - 07/31	15	14	264,869	76.8%	0	0.0%	0	0.0%	0	0.0%	264,869	79,823	23.2%	344,692	
08/01 - 08/01	16	14	136,341	68.4%	6,293	3.2%	0	0.0%	0	0.0%	142,633	56,634	28.4%	199,267	
08/02 - 08/02	17	14	243,868	67.7%	3,752	1.0%	0	0.0%	0	0.0%	247,620	112,555	31.3%	360,175	
08/04 - 08/04	18	14	141,803	51.1%	2,954	1.1%	0	0.0%	0	0.0%	144,757	132,940	47.9%	277,697	
08/06 - 08/06	19	12	109,822	39.4%	2,968	1.1%	2,968	1.1%	0	0.0%	115,759	163,249	58.5%	279,008	
08/08 - 08/08	20	6	94,107	12.5%	62,738	8.3%	31,369	4.2%	7,842	1.0%	196,057	556,800	74.0%	752,857	
08/12 - 08/12	21	12	68,769	7.4%	108,065	11.6%	19,648	2.1%	9,824	1.1%	206,306	726,982	77.9%	933,288	
08/13 - 08/13	22	12	32,739	9.2%	53,201	14.9%	12,277	3.4%	0	0.0%	98,217	257,821	72.4%	356,038	
08/15 - 08/15	23	12	63,068	5.3%	302,729	25.3%	25,227	2.1%	63,068	5.3%	454,093	744,208	62.1%	1,198,301	
08/17 - 08/17	24	12	30,146	3.1%	211,023	21.9%	120,585	12.5%	80,390	8.3%	442,144	522,534	54.2%	964,678	
08/19 - 08/19	25	12	45,351	11.5%	119,562	30.2%	8,246	2.1%	20,614	5.2%	193,772	202,018	51.0%	395,790	
08/21 - 08/21	26	12	26,264	3.1%	192,600	22.9%	78,791	9.4%	61,282	7.3%	358,936	481,499	57.3%	840,435	
08/22 - 08/22	27	12	18,403	3.2%	92,016	16.1%	30,672	5.4%	36,806	6.5%	177,897	392,600	68.8%	570,497	
08/24 - 08/24	28	12	28,483	4.2%	299,074	43.8%	64,087	9.4%	42,725	6.3%	434,369	249,228	36.5%	683,597	
08/25 - 08/25	29	12	0	0.0%	111,688	22.9%	40,614	8.3%	91,381	18.8%	243,682	243,682	50.0%	487,364	

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Dates	Period	Hours	Origin												Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery total	Wild			
			Number	Percent	Number	Percent	Number	Percent	Number	Percent		Number	Percent		
08/27	- 08/27	31	12	18,775	4.2%	211,215	46.9%	37,549	8.3%	14,081	3.1%	281,621	168,972	37.5%	450,593
08/28	- 08/28	32	12 ^a	7,565	2.6%	136,168	46.9%	37,824	13.0%	18,156	6.3%	199,713	90,778	31.3%	290,491
08/29	- 08/29	33	12	2,045	1.0%	92,022	46.9%	34,764	17.7%	18,404	9.4%	147,235	49,078	25.0%	196,313
08/30	- 08/30	34	12	0	0.0%	108,895	53.7%	19,217	9.5%	8,541	4.2%	136,653	66,191	32.6%	202,844
08/31	- 08/31	35	12	1,426	1.0%	69,859	51.0%	21,385	15.6%	11,406	8.3%	104,076	32,791	24.0%	136,867
09/01	- 09/01	36	12	0	0.0%	22,299	38.0%	3,521	6.0%	1,174	2.0%	26,993	31,688	54.0%	58,681
09/02	- 09/02	37	12	2,429	9.7%	10,524	41.9%	2,429	9.7%	810	3.2%	16,190	8,905	35.5%	25,095
09/03	- 09/03	38	12	0	0.0%	12,637	45.8%	2,298	8.3%	3,447	12.5%	18,381	9,191	33.3%	27,572
09/04	- 09/04	39	12 ^{b,c}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
09/05	- 09/11	40-46	12 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total				8,761,078	43.8%	2,380,949	11.9%	635,311	3.2%	537,363	2.7%	12,314,701	7,702,573	38.5%	20,017,274

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 December 2019.

- ^a No samples collected; proportions are an average of the previous and following periods sampled
- ^b No samples collected; proportions are from the previous period sampled.
- ^c Three or fewer permits fished; results are confidential.
- ^d No harvest reported.

Appendix E16.–Pink salmon hatchery and wild stock contributions to the Northern District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin										Hatchery total	Wild		Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Number	Percent				
			Number	Percent	Number	Percent	Number	Percent	Number	Percent						
07/15 – 07/15	1	14	30,759	61.7%	530	1.1%	0	0.0%	0	0.0%	0	0.0%	31,289	18,561	37.2%	49,850
07/20 – 07/20	2	14	121,839	61.7%	2,101	1.1%	0	0.0%	0	0.0%	0	0.0%	123,940	73,523	37.2%	197,463
08/08 – 08/08	3	6	16,978	4.2%	161,293	39.6%	72,157	17.7%	12,734	0.0%	263,162	144,314	35.4%	407,476		
08/12 – 08/12	4	12	42,170	2.1%	1,412,711	70.5%	253,023	12.6%	21,085	0.0%	1,728,990	274,108	13.7%	2,003,098		
08/13 – 08/13	5	12	12,825	1.0%	641,231	52.1%	192,369	15.6%	64,123	0.0%	910,548	320,615	26.0%	1,231,163		
08/15 – 08/15	6	12	0	0.0%	306,313	49.5%	78,208	12.6%	19,552	3.2%	404,073	215,071	34.7%	619,144		
08/17 – 08/17	7	12	47,094	9.5%	324,423	65.3%	47,094	9.5%	5,233	1.1%	423,842	73,257	14.7%	497,099		
08/19 – 08/19	8	12	0	0.0%	505,551	45.8%	103,408	9.4%	80,429	7.3%	689,388	413,633	37.5%	1,103,020		
08/21 – 08/21	9	12	26,015	2.1%	715,423	57.9%	143,085	11.6%	104,062	8.4%	988,585	247,146	20.0%	1,235,731		
08/22 – 08/22	10	12	7,816	1.0%	289,180	38.5%	85,972	11.5%	70,341	9.4%	453,309	296,996	39.6%	750,305		
08/24 – 08/24	11	12	a	0.0%	258,304	52.6%	111,932	22.8%	25,830	5.3%	396,066	94,711	19.3%	490,777		
08/25 – 08/25	12	12	0	0.0%	35,174	36.0%	27,358	28.0%	3,908	4.0%	66,440	31,266	32.0%	97,706		
08/26 – 08/26	13	12	0	0.0%	23,732	35.1%	15,691	23.2%	4,020	5.9%	43,443	24,158	35.7%	67,601		
08/27 – 08/27	14	12	b	0.0%	11,887	34.2%	6,401	18.4%	2,743	7.9%	21,032	13,716	39.5%	34,748		
08/28 – 08/28	15	12	b	0.0%	20,871	34.2%	11,238	18.4%	4,816	7.9%	36,926	24,082	39.5%	61,008		
08/29 – 08/29	16	12	c	0.0%	30,227	34.2%	16,276	18.4%	6,975	7.9%	53,479	34,877	39.5%	88,356		
08/30 – 09/11	17–29	12	c,d,e	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0		
Totals				305,495	3.4%	4,740,624	53.0%	1,165,112	13.0%	426,238	4.8%	6,637,470	2,303,134	25.8%	8,940,604	

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 December 2019.

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

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

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

^d No harvest reported.

^e Three or fewer deliveries; results are confidential.

Appendix E17.—Pink salmon hatchery and wild stock contributions to Prince William Sound, Bering, and Copper River commercial common property fishery, 2019.

Districts		Origin											Total
		Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery total	Wild		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent		Number	Percent	
Bering River	200 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	262	100.0%	262
Copper River	212 ^a	36,104	16.8%	0	0.0%	0	0.0%	0	0.0%	36,104	178,307	83.2%	214,411
Eastern	221	8,761,078	43.8%	2,380,949	11.9%	635,311	3.2%	537,363	2.7%	12,314,701	7,702,573	38.5%	20,017,274
Northern	222	305,495	3.4%	4,740,624	53.0%	1,165,112	13.0%	426,238	4.8%	6,637,470	2,303,134	25.8%	8,940,604
Coghill	223	35,539	10.3%	2,080	0.6%	19,945	5.8%	19,277	5.6%	76,840	267,647	77.7%	344,487
Northwestern	224	750	0.1%	24,104	3.3%	79,813	10.9%	64,859	8.9%	169,526	560,053	76.8%	729,579
Eshamy	225	14,785	4.6%	270	0.1%	11,595	3.6%	4,798	1.5%	31,449	288,530	90.2%	319,979
Southwestern	226	139,444	1.4%	2,138,524	21.2%	1,011,648	10.0%	3,954,292	39.2%	7,243,908	2,837,453	28.1%	10,081,361
Montague	227	4,847	1.5%	12,824	4.1%	3,628	1.2%	35,095	11.1%	56,394	259,002	82.1%	315,396
Southeastern	228	41,180	1.5%	65,552	2.3%	7,348	0.3%	54,490	1.9%	168,570	2,647,302	94.0%	2,815,872
Unakwik	229 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	4,052	100.0%	4,052
Total		9,339,222	21.3%	9,364,928	21.4%	2,934,401	6.7%	5,096,412	11.6%	26,734,963	17,048,314	38.9%	43,783,277

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Total harvest data from Fish Ticket reporting as of 11 December 2019. Personal use (home pack) harvests are excluded.

^a No samples collected; wild origin assumed.

Appendix E18.—Sockeye salmon hatchery and wild stock contributions to the Southwestern District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin						Total
			Main Bay		Hatchery Total	Wild			
			Number	Percent		Number	Percent		
06/03 – 06/05	1	48 ^a	142	90.0%	142	16	10.0%	158	
06/06 – 06/08	2	48 ^a	81	90.0%	81	9	10.0%	90	
06/10 – 06/12	3	48	379	90.0%	379	42	10.0%	421	
06/13 – 06/15	4	48	924	92.7%	924	73	7.3%	997	
06/17 – 06/19	5	48 ^b	5,194	96.3%	5194	197	3.7%	5,391	
06/20 – 06/22	6	48 ^b	3,420	96.3%	3420	130	3.7%	3,550	
06/24 – 06/24	7	12	1,644	100.0%	1644	0	0.0%	1,644	
06/27 – 06/27	8	12 ^b	952	95.2%	952	48	4.8%	1,000	
06/29 – 06/29	9	12	621	90.3%	621	66	9.7%	687	
07/01 – 07/01	10	12	857	96.3%	857	33	3.7%	890	
07/04 – 07/05	11	36	329	94.3%	329	20	5.7%	349	
07/08 – 07/09	12	36 ^b	1,096	84.1%	1096	207	15.9%	1,303	
07/11 – 07/12	13	36	10,170	73.9%	10170	3589	26.1%	13,759	
07/15 – 07/15	14	14 ^b	3,705	73.6%	3705	1328	26.4%	5,033	
07/18 – 07/18	15	14 ^b	822	73.6%	822	294	26.4%	1,116	
07/20 – 07/20	16	14 ^{b,c}	0	0.0%	0	0	0.0%	0	
07/22 – 07/22	17	14	711	73.3%	711	259	26.7%	970	
07/24 – 07/24	18	14 ^d	840	73.3%	840	306	26.7%	1146	
08/08 – 08/08	19	6 ^d	279	73.3%	279	101	26.7%	380	
08/12 – 08/12	20	12 ^d	191	73.3%	191	69	26.7%	260	
08/13 – 08/13	21	12 ^e	0	0.0%	0	497	100.0%	497	
08/15 – 08/15	22	12 ^e	0	0.0%	0	399	100.0%	399	
08/17 – 08/17	23	12 ^e	0	0.0%	0	240	100.0%	240	
08/19 – 08/19	24	12 ^e	0	0.0%	0	32	100.0%	32	
08/21 – 08/21	25	12 ^e	0	0.0%	0	240	100.0%	240	
08/22 – 08/22	26	12 ^e	0	0.0%	0	198	100.0%	198	
08/24 – 08/24	27	12 ^e	0	0.0%	0	199	100.0%	199	
08/25 – 08/25	28	12 ^e	0	0.0%	0	230	100.0%	230	
08/26 – 08/26	29	12 ^e	0	0.0%	0	379	100.0%	379	
08/27 – 08/27	30	12 ^e	0	0.0%	0	137	100.0%	137	

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Dates	Period	Hours	Origin						Total
			Main Bay		Hatchery total	Wild			
			Number	Percent		Number	Percent		
08/28 – 08/28	31	12 ^e	0	0.0%	0	60	100.0%	60	
08/30 – 08/30	32	12 ^e	0	0.0%	0	29	100.0%	29	
08/31 – 08/31	33	12 ^e	0	0.0%	0	27	100.0%	27	
09/01 – 09/01	34	12 ^e	0	0.0%	0	74	100.0%	74	
09/02 – 09/02	35	12 ^e	0	0.0%	0	16	100.0%	16	
09/03 – 09/03	36	12 ^e	0	0.0%	0	28	100.0%	28	
09/04 – 09/04	37	12 ^e	0	0.0%	0	11	100.0%	11	
09/05 – 09/05	38	12 ^e	0	0.0%	0	14	100.0%	14	
09/06 – 09/11	39–44	12 ^{c,e,f}	0	0.0%	0	0	0.0%	0	
Total			32,957	77.1%	32,957	9,816	22.9%	42,773	

Note: Total harvest data from fish tickets as of 11 December 2019. Samples were not processed for SrCl mark identification, so the Gulkana Hatchery contribution is unknown.

- ^a No samples collected; proportions are from following sampled period.
- ^b No samples collected; proportions are the average from the previous and following sampled periods.
- ^c Three or fewer permits fished; results are confidential.
- ^d No samples collected; proportions are from the previous period sampled.
- ^e No samples collected; wild origin assumed.
- ^f No harvest reported.

Appendix E19.—Pink salmon hatchery and wild stock contributions to the Southwestern District commercial common property fishery by period, 2019.

Dates	Period	Hours	Origin										Hatchery total	Wild		Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Number	Percent				
			Number	Percent	Number	Percent	Number	Percent	Number	Percent						
06/03 – 06/05	1	48 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	6	100.0%	6
06/06 – 06/08	2	48 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	4	100.0%	4
06/10 – 06/12	3	48	4	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	4	34	88.9%	38
06/13 – 06/15	4	48	7	4.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	7	143	95.1%	150
06/17 – 06/19	5	48	357	16.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	357	1,786	83.3%	2,143
06/20 – 06/22	6	48	611	24.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	611	1,935	76.0%	2,546
06/24 – 06/24	7	12	117	23.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	117	387	76.8%	504
06/27 – 06/27	8	12	102	15.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	102	577	85.0%	679
06/29 – 06/29	9	12	399	40.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	399	593	59.7%	992
07/01 – 07/01	10	12	595	28.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	595	1,486	71.4%	2,081
07/04 – 07/05	11	36	27	12.5%	0	0.0%	0	0.0%	13	6.3%	40	174	81.3%	214		
07/08 – 07/09	12	36	958	20.0%	0	0.0%	0	0.0%	1,277	26.7%	2,235	2,554	53.3%	4,789		
07/11 – 07/12	13	36	4,226	18.0%	0	0.0%	0	0.0%	768	3.3%	4,994	18,441	78.7%	23,435		
07/15 – 07/15	14	14 ^b	706	26.9%	0	0.0%	0	0.0%	137	5.2%	843	1,785	67.9%	2,628		
07/18 – 07/18	15	14	664	35.7%	0	0.0%	0	0.0%	133	7.1%	797	1,062	57.1%	1,859		
07/20 – 07/20	16	14 ^{b,c}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0		
07/22 – 07/22	17	14	1,897	17.7%	0	0.0%	223	2.1%	2,567	24.0%	4,687	6,027	56.3%	10,714		
07/24 – 07/24	18	14	4,160	20.0%	0	0.0%	0	0.0%	2,080	10.0%	6,239	14,559	70.0%	20,798		
08/08 – 08/08	19	6	7,290	2.1%	54,677	15.8%	36,452	10.5%	105,710	30.5%	204,129	142,161	41.1%	346,290		
08/12 – 08/12	20	12	31,591	4.2%	165,851	21.9%	63,181	8.3%	229,032	30.2%	489,655	268,521	35.4%	758,176		
08/13 – 08/13	21	12	0	0.0%	112,580	7.3%	128,663	8.3%	900,640	58.3%	1,141,883	402,071	26.0%	1,543,954		
08/15 – 08/15	22	12	23,317	3.2%	194,312	26.3%	108,815	14.7%	108,815	14.7%	435,259	303,126	41.1%	738,385		
08/17 – 08/17	23	12	9,783	1.0%	88,049	9.4%	107,615	11.5%	538,076	57.3%	743,524	195,664	20.8%	939,188		
08/19 – 08/19	24	12	4,959	2.1%	57,033	24.0%	32,236	13.5%	42,155	17.7%	136,383	101,667	42.7%	238,050		
08/21 – 08/21	25	12	0	0.0%	0	0.0%	37,103	4.3%	754,431	87.1%	791,535	74,206	8.6%	865,741		
08/22 – 08/22	26	12	0	0.0%	145,668	20.0%	61,334	8.4%	260,669	35.8%	467,672	260,669	35.8%	728,341		
08/24 – 08/24	27	12	0	0.0%	152,566	27.1%	82,151	14.6%	164,302	29.2%	399,019	164,302	29.2%	563,321		
08/25 – 08/25	28	12	7,451	1.0%	230,985	32.3%	81,962	11.5%	208,632	29.2%	529,031	186,278	26.0%	715,309		
08/26 – 08/26	29	12 ^b	17,569	1.6%	404,077	35.9%	122,980	10.9%	269,385	24.0%	814,010	310,378	27.6%	1,124,388		

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Dates	Period	Hours	Origin												Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Hatchery total	Wild			
			Number	Percent	Number	Percent	Number	Percent	Number	Percent		Number	Percent		
08/27 – 08/27	30	12	6,369	2.1%	121,017	39.6%	31,846	10.4%	57,324	18.8%	216,556	89,170	29.2%	305,726	
08/28 – 08/28	31	12 ^b	5,177	2.1%	95,777	38.5%	24,591	9.9%	46,594	18.8%	172,139	76,363	30.7%	248,502	
08/30 – 08/30	32	12	3,361	2.1%	60,506	37.5%	15,127	9.4%	30,253	18.8%	109,247	52,103	32.3%	161,350	
08/31 – 08/31	33	12	0	0.0%	82,131	56.8%	10,647	7.4%	22,814	15.8%	115,591	28,898	20.0%	144,489	
09/01 – 09/01	34	12	6,658	2.1%	53,267	16.7%	39,950	12.5%	129,839	40.6%	229,715	89,888	28.1%	319,603	
09/02 – 09/02	35	12	0	0.0%	33,083	33.3%	1,838	1.9%	49,625	50.0%	84,546	14,704	14.8%	99,250	
09/03 – 09/03	36	12	0	0.0%	55,910	53.8%	14,833	14.3%	14,833	14.3%	85,577	18,256	17.6%	103,833	
09/04 – 09/04	37	12	0	0.0%	18,273	54.2%	7,028	20.8%	7,028	20.8%	32,328	1,406	4.2%	33,734	
09/05 – 09/05	38	12	0	0.0%	8,372	46.4%	1,932	10.7%	5,796	32.1%	16,099	1,932	10.7%	18,031	
09/06 – 09/11	39–44	12 ^{c,d}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0	
Totals			139,444	1.4%	2,138,524	21.2%	1,011,648	10.0%	3,954,292	39.2%	7,243,908	2,837,453	28.1%	10,081,361	

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 December 2019.

- ^a No samples collected; wild origin assumed.
- ^b No samples collected; proportions are an average of the previous and following periods sampled.
- ^c Three or fewer permits fished; results are confidential.
- ^d No harvest reported.

Appendix E20.—Chum salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Southwestern District, 2019.

Dates	Period	Hours	Hatchery marks ^a						Hatchery Total	Wild		
			Wally Noerenberg		Port Chalmers		Armin F Koernig			Number	Percent	Total
			Number	Percent	Number	Percent	Number	Percent				
06/03 – 06/05	1	48	0	0.0%	2,092	16.0%	10,984	84.0%	13,076	0	0.0%	13,076
06/06 – 06/08	2	48	0	0.0%	4,812	16.0%	25,265	84.0%	30,077	0	0.0%	30,077
06/10 – 06/12	3	48	2,100	3.2%	7,701	11.7%	56,010	85.1%	65,812	0	0.0%	65,812
06/13 – 06/15	4	48	930	2.2%	1,861	4.3%	40,009	93.5%	42,800	0	0.0%	42,800
06/17 – 06/19	5	36	4,949	6.5%	5,773	7.5%	65,982	86.0%	76,704	0	0.0%	76,704
06/20 – 06/22	6	36	0	0.0%	3,426	5.9%	54,815	94.1%	58,241	0	0.0%	58,241
06/24 – 06/24	7	24	0	0.0%	747	1.7%	42,567	98.3%	43,314	0	0.0%	43,314
06/27 – 06/27	8	12	0	0.0%	2,847	5.4%	47,822	91.3%	50,668	1,708	3.3%	52,376
06/29 – 06/29	9	12	0	0.0%	0	0.0%	25,492	93.3%	25,492	1,821	6.7%	27,313
07/01 – 07/01	10	12	264	1.5%	264	1.5%	16,368	95.4%	16,896	264	1.5%	17,160
07/04 – 07/05	11	12	519	2.2%	0	0.0%	22,839	97.8%	23,358	0	0.0%	23,358
07/08 – 07/09	12	36	451	1.4%	903	2.8%	30,686	94.4%	32,040	451	1.4%	32,491
07/11 – 07/12	13	36 ^a	1,067	5.1%	905	4.3%	18,165	86.9%	20,137	760	3.6%	20,897
07/15 – 07/15	14	36	1,824	8.8%	1,216	5.9%	16,417	79.4%	19,457	1,216	5.9%	20,673
07/18 – 07/18	15	36 ^a	731	8.8%	487	5.9%	6,580	79.4%	7,799	487	5.9%	8,286
07/20 – 07/20	16	36 ^a	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
07/22 – 07/22	17	36	229	8.8%	153	5.9%	2,060	79.4%	2,441	153	5.9%	2,594
07/24 – 07/24	18	8	37	8.8%	25	5.9%	334	79.4%	395	25	5.9%	420
08/08 – 08/08	19	14	0	0.0%	0	0.0%	0	0.0%	0	2,259	100.0%	2,259
08/12 – 08/12	20	14 ^b	0	0.0%	0	0.0%	0	0.0%	0	637	100.0%	637
08/13 – 08/13	21	14 ^b	0	0.0%	0	0.0%	0	0.0%	0	776	100.0%	776
08/15 – 08/15	22	12 ^b	0	0.0%	0	0.0%	0	0.0%	0	696	100.0%	696
08/17 – 08/17	23	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	184	100.0%	184
08/19 – 08/19	24	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	89	100.0%	89
08/21 – 08/21	25	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	160	100.0%	160
08/22 – 08/22	26	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	289	100.0%	289
08/24 – 08/24	27	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	423	100.0%	423
08/25 – 08/25	28	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	459	100.0%	459
08/26 – 08/26	29	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	885	100.0%	885

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Dates	Period	Hours	Hatchery marks ^a						Hatchery Total	Wild		Total	
			Wally Noerenberg		Port Chalmers		Armin F Koernig			Number	Percent		
			Number	Percent	Number	Percent	Number	Percent					
08/27 - 08/27	30	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	279	100.0%	279
08/28 - 08/28	31	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	227	100.0%	227
08/30 - 08/30	32	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	205	100.0%	205
08/31 - 08/31	33	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	107	100.0%	107
09/01 - 09/01	34	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	111	100.0%	111
09/02 - 09/02	35	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	145	100.0%	145
09/03 - 09/03	36	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	78	100.0%	78
09/04 - 09/04	37	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	100	100.0%	100
09/05 - 09/05	38	12 ^e	0	0.0%	0	0.0%	0	0.0%	0	0	43	100.0%	43
09/06 - 09/11	39-44	12 ^{d,e,f}	0	0.0%	0	0.0%	0	0.0%	0	0	0	0.0%	0
Total			13,234	2.4%	33,299	6.1%	483,578	88.7%	530,111		15,152	2.8%	545,263

Note: WNH = Wally Noerenberg Hatchery, AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 December 2019.

- ^a No samples collected; proportions are from following period sampled.
^b No samples collected; proportions are the average of previous and following periods sampled.
^c No samples collected; proportions are from previous period sampled.
^d Three or fewer deliveries; results are confidential.
^e No sample collected; wild origin assumed.
^f No harvest reported.

Appendix E21.—Chum salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Montague District, 2019.

Dates	Period	Hours	Origin ^a						Hatchery Total	Wild		Total
			Port Chalmers		Wally Noerenberg		Armin F Koernig			Number	Percent	
			Number	Percent	Number	Percent	Number	Percent				
06/03 – 06/05	1	60 ^a	7,114	100.0%	0	0.0%	0	0.0%	7,114	0	0.0%	7,114
06/06 – 06/09	2	84	15,883	100.0%	0	0.0%	0	0.0%	15,883	0	0.0%	15,883
06/10 – 06/12	3	60	48,009	97.9%	1,021	2.1%	0	0.0%	49,030	0	0.0%	49,030
06/13 – 06/16	4	84	175,430	100.0%	0	0.0%	0	0.0%	175,430	0	0.0%	175,430
06/17 – 06/19	5	60	247,495	96.8%	2,720	1.1%	2,720	1.1%	252,934	2,720	1.1%	255,654
06/20 – 06/23	6	84	265,929	93.6%	15,110	5.3%	3,022	1.1%	284,061	0	0.0%	284,061
06/24 – 06/26	7	60	106,912	96.8%	1,175	1.1%	1,175	1.1%	109,262	1,175	1.1%	110,437
06/27 – 06/30	8	84	54,245	100.0%	0	0.0%	0	0.0%	54,245	0	0.0%	54,245
07/01 – 07/03	9	60	81,623	100.0%	0	0.0%	0	0.0%	81,623	0	0.0%	81,623
07/04 – 07/07	10	84	175,330	97.8%	0	0.0%	0	0.0%	175,330	3,853	2.2%	179,183
07/08 – 07/10	11	60	137,287	97.8%	0	0.0%	1,560	1.1%	138,847	1,560	1.1%	140,407
07/11 – 07/14	12	84	128,156	97.9%	1,378	1.1%	0	0.0%	129,534	1,378	1.1%	130,912
07/15 – 07/17	13	60	73,849	98.8%	0	0.0%	0	0.0%	73,849	901	1.2%	74,750
07/18 – 07/21	14	84 ^b	13,218	98.8%	0	0.0%	0	0.0%	13,218	161	1.2%	13,379
07/22 – 07/24	15	60 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
07/25 – 07/28	16	84 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
07/29 – 07/31	17	40 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
08/08 – 08/08	18	6 ^{b,d}	74	98.8%	0	0.0%	0	0.0%	74	1	1.2%	75
08/12 – 08/12	19	12 ^b	156	98.8%	0	0.0%	0	0.0%	156	2	1.2%	158
08/19 – 08/19	20	12 ^b	301	98.8%	0	0.0%	0	0.0%	301	4	1.2%	305
08/26 – 08/26	21	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
08/29 – 08/29	22	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
09/01 – 09/11	23–33	12 ^c	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
Total			1,531,011	97.4%	21,404	1.4%	8,477	0.5%	1,560,892	11,754	0.7%	1,572,646

Note: WNH = Wally Noerenberg Hatchery, AFK = Armin F. Koernig Hatchery. Fish ticket data as of 11 December 2019.

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

^b No samples collected; proportions are from previous period sampled.

^c No harvest reported.

^d Three or fewer deliveries; results are confidential.

Appendix E22.—Pink salmon hatchery and wild stock contributions to commercial common property fisheries by period and mark identification, Montague District, 2019.

Dates	Period	Hours	Origin										Hatchery total	Wild		Total
			Solomon Gulch		Cannery Creek		Wally Noerenberg		A.F. Koernig		Number	Percent				
			Number	Percent	Number	Percent	Number	Percent	Number	Percent						
06/03 – 06/05	1	48 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	45	100.0%	45
06/06 – 06/09	2	48 ^a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	61	100.0%	61
06/10 – 06/12	3	48	9	4.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9	190	95.7%	199
06/13 – 06/16	4	48	20	6.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	20	275	93.2%	295
06/17 – 06/19	5	36	20	7.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	20	242	92.3%	262
06/20 – 06/23	6	36	406	9.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	406	3,977	90.7%	4,383
06/24 – 06/26	7	36	3,651	42.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3,651	4,869	57.1%	8,520
06/27 – 06/30	8	36 ^b	436	30.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	436	1,016	70.0%	1,452
07/01 – 07/03	9	36 ^b	27	30.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	27	62	70.0%	89
07/04 – 07/07	10	36	138	17.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	138	666	82.9%	804
07/08 – 07/10	11	36 ^b	102	9.2%	0	0.0%	15	1.3%	0	0.0%	0	0.0%	117	992	89.5%	1,109
07/11 – 07/14	12	36 ^b	29	9.2%	0	0.0%	4	1.3%	0	0.0%	0	0.0%	33	278	89.5%	311
07/15 – 07/17	13	36	6	1.3%	0	0.0%	12	2.6%	0	0.0%	0	0.0%	17	424	96.1%	441
07/18 – 07/21	14	36 ^c	4	1.3%	0	0.0%	8	2.6%	0	0.0%	0	0.0%	12	287	96.1%	299
07/22 – 07/24	15	12 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
07/25 – 07/28	16	12 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
07/29 – 07/31	17	14 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
08/08 – 08/08	18	12 ^{e,f}	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0
08/12 – 08/12	19	12 ^f	0	0.0%	1,384	4.8%	0	0.0%	3,690	12.7%	5,073	23,982	82.5%	29,055		
08/19 – 08/19	20	12	0	0.0%	7,899	4.8%	0	0.0%	21,064	12.7%	28,963	136,914	82.5%	165,877		
08/26 – 08/26	21	12 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0		
08/29 – 08/29	22	12	0	0.0%	0	0.0%	3,589	12.9%	897	3.2%	4,487	23,331	83.9%	27,818		
09/01 – 09/11	23–33	12 ^d	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0	0.0%	0		
Total			4,847	1.5%	12,824	4.1%	3,628	1.2%	35,095	11.1%	56,394	259,002	82.1%	315,396		

Note: SGH = Solomon Gulch Hatchery, CCH = Cannery Creek Hatchery, WNH = Wally Noerenberg Hatchery, and AFK = Armin F. Koernig Hatchery. Total harvest data from Fish Ticket reporting as of 11 December 2019.

^a No samples collected; wild origin assumed.

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

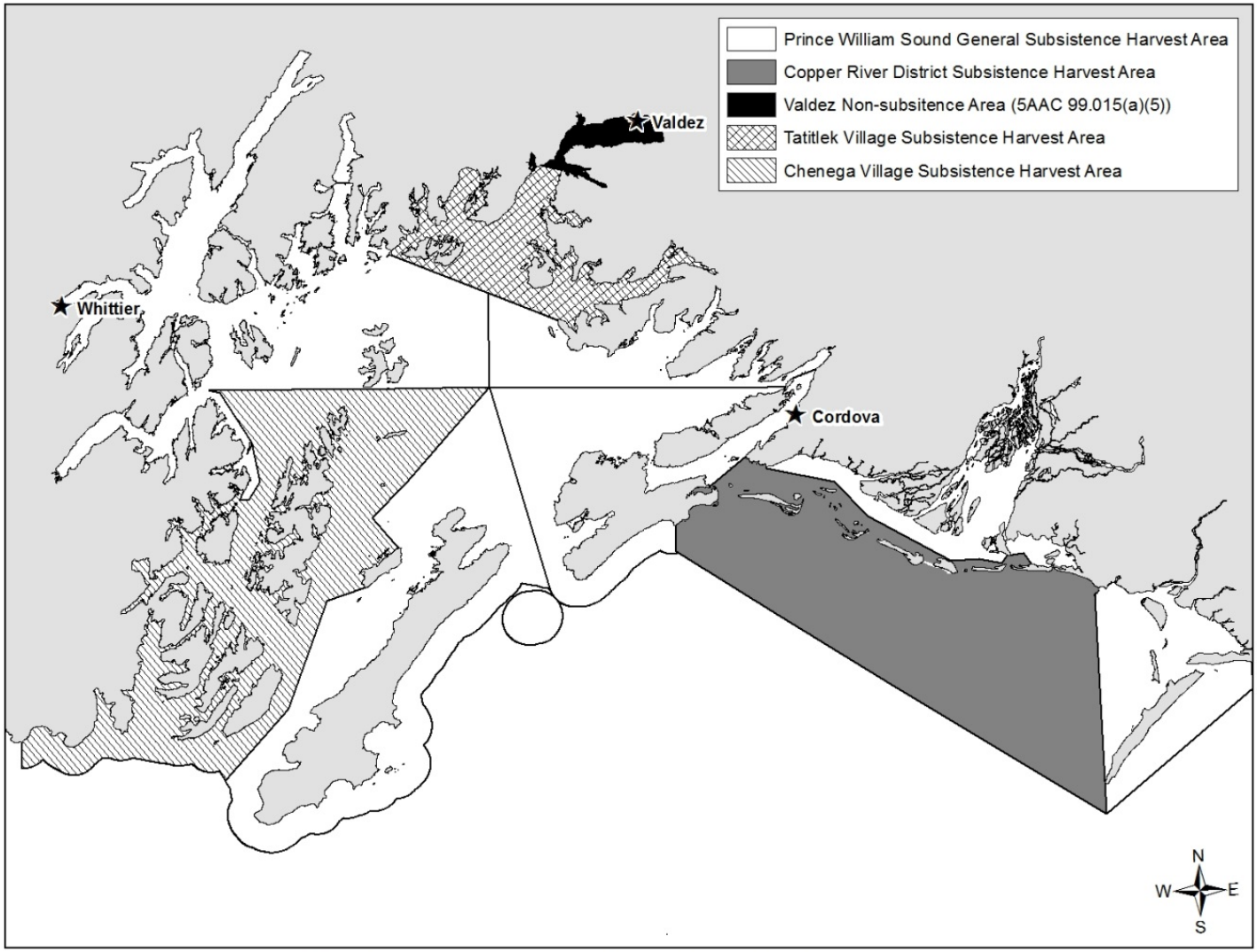
^c No samples collected; proportions are from the previous period sampled.

^d No harvest reported.

^e Three or fewer deliveries; results are confidential.

^f No samples collected; proportions are from the following period sampled.

**APPENDIX F: SUBSISTENCE AND COMMERCIAL
HOMEPACK SALMON HARVEST**



For illustration only and not to be used for navigational purposes

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

Appendix F2.–Salmon harvest and effort in the Copper River District subsistence drift gillnet fishery, 1961–2019.

Year	Permits				Reported harvest			
	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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Appendix F2.–Page 2 of 2.

Year	Permits				Reported harvest			
	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
Average, 2009–2018	374	352	187	165	401	2,875	34	3,310

^a As reported on returned permits.

Appendix F3.—Salmon harvest and effort in the Prince William Sound general area subsistence fishery, 1966–2019.

Year	Permits				Reported harvest ^a						
	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

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Appendix F3.–Page 2 of 2.

Year	Permits				Reported harvest ^a						
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Pink	Chum	Unknown	Total
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
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
Average, 2009–2018	11	11	4	6	3	33	2	1	8	1	48

^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 commercial homepack and subsistence harvests by permit holder community of residence, 2019.

Community	Commercial homepack ^a						Total
	Permits	Chinook	Sockeye	Coho	Pink	Chum	
Anchor Point	2	2	12	1	0	0	15
Anchorage	19	41	479	2	20	2	544
Chignik Lagoon	1	0	0	537	0	0	537
Chugiak	2	0	13	78	3	0	94
Copper Center	1	0	1	0	0	0	1
Cordova	198	506	5,269	551	188	65	6,579
Delta Junction	6	1	106	66	0	20	193
Eagle River	1	0	2	8	0	0	10
Fairbanks	1	0	145	0	0	1	146
Girdwood	10	4	247	35	0	0	286
Glennallen	1	3	14	2	8	0	27
Haines	1	1	0	4	0	0	5
Homer	31	28	609	186	125	291	1,239
Hope	1	0	1	5	0	0	6
Juneau	2	2	0	0	945	0	947
Kasilof	2	4	9	0	0	0	13
Kenai	2	2	31	0	0	0	33
Moose Pass	2	3	0	0	0	0	3
Palmer	2	0	2	0	0	0	2
Seward	8	14	67	35	0	0	116
Soldotna	4	27	39	12	8	42	128
Sterling	2	4	7	9	0	0	20
Valdez	5	6	172	0	0	0	178
Wasilla	26	38	648	142	15	1	844
Willow	3	1	37	44	0	0	82
USA Balance	83	142	3,530	275	125	2	4,074
Unknown	1	16	104	23	0	0	143
Total	417	845	11,544	2,015	1,437	424	16,265

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Community	Area E subsistence ^b						Total
	Permits	Chinook	Sockeye	Coho	Pink	Chum	
Anchorage	91	78	816	27	3	25	949
Chenega Bay	4	0	60	0	0	0	60
Chugiak	2	0	2	0	0	6	8
Coffman Cove	1	0	0	0	0	0	0
Cordova	491	468	3307	132	0	1	3,908
Delta Junction	4	11	82	0	0	0	93
Dutch Harbor	1	1	21	0	0	0	22
Eagle River	7	0	0	0	0	0	0
Ester	1	5	10	0	0	0	15
Fairbanks	7	4	33	0	0	0	37
Girdwood	6	0	42	0	0	0	42
Homer	32	59	576	171	0	0	806
Juneau	4	12	36	0	0	0	48
Kasilof	1	0	0	0	0	0	0
Moose Pass	3	5	66	0	0	0	71
North Pole	4	0	0	37	0	0	37
Palmer	6	0	5	0	0	0	5
Seward	7	7	137	0	0	0	144
Soldotna	4	5	25	0	0	0	30
Sterling	3	14	185	0	0	0	199
Sutton	2	0	19	0	0	0	19
Talkeetna	1	0	0	0	0	0	0
Tatitlek	10	8	90	0	0	0	98
Valdez	9	9	178	0	0	3	190
Wasilla	37	115	841	0	0	0	956
Willow	4	15	174	0	0	0	189
Total	742	816	6,705	367	3	35	7,926

^a Homepack fish are defined in 5 AAC 39.010 as finfish retained from lawfully taken commercial catch for that permit holder's own use.

^b Combined harvests from the Copper River District, Tatitlek, Chenega, and PWS subsistence areas. Includes permit holders who reported not fishing or unsuccessful fishing.

Appendix F5.—Area E salmon retained from the commercial harvest for personal use (homepack) by species and gear type, 2004–2019.

Year	Number of permits			Number of Chinook			Number of sockeye			Number of coho			Number of pink			Number of chum		
	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
2004	0	169	0	0	540	0	0	654	0	0	2	0	0	0	0	0	1	0
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
Average 2009–2018	12	374	7	9	843	6	193	9,618	445	90	1,507	7	47	696	2	12	237	21

Appendix F6.—Salmon harvest and effort in the PWS and upper Copper River federal subsistence fisheries, 2009–2019.

Year	Permits				Reported harvest ^a			
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Total
Chitina Subdistrict								
2009	68	62	39	23	8	817	11	836
2010	92	79	38	41	17	2,061	33	2,111
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	NA	NA	74	3,984	20	4,078
Average, 2014–2018	123	104	50	54	29	1,985	30	2,045
Glennallen Subdistrict								
2009	277	227	170	57	494	11,836	34	12,364
2010	270	236	175	61	300	12,849	64	13,213
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
Average, 2014–2018	332	284	159	65	884	17,452	5	18,341
PWS/Chugach Subdistrict								
2009	39	38	22	16	0	46	185	231
2010	52	52	35	17	0	36	68	104
2011	69	55	50	5	0	35	581	616
2012	66	53	30	23	0	64	392	456
2013	65	46	29	17	0	102	310	412
2014	89	76	0	0	0	76	630	706
2015	102	68	50	15	0	152	878	1,030
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	255	354
2019	101	89	47	42	0	70	480	550
Average, 2014–2018	99	82	38	28	1	137	566	704

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Appendix F6.–Page 2 of 2.

Year	Permits				Reported harvest ^a			
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Total
Total federal subsistence harvests								
2009	384	327	231	96	502	12,699	230	13,431
2010	414	367	248	119	317	14,946	165	15,428
2011	433	363	265	98	714	15,964	642	17,320
2012	432	377	232	145	377	15,857	478	16,712
2013	438	367	228	139	348	17,935	342	18,625
2014	516	458	255	127	411	23,239	721	24,371
2015	538	454	312	139	397	27,078	905	28,380
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	283	21,337
2019	625	465	47	0	912	19,757	500	21,169
Average, 2014–2018	549	465	288	162	826	20,757	606	22,188

^a Reported harvest only.

^b As reported on returned permits.

Appendix F7.—Salmon harvest and effort in the Tatitlek and Chenega subsistence fisheries, 1999–2019.

Year	Permits				Reported harvest ^a						
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Pink	Chum	Unk.	Total
Tatitlek											
1999	17	10	8	2	0	344	541	31	31	0	947
2000	12	3	3	0	0	140	468	40	40	0	688
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
Average, 2009–2018	15	6	4	2	3	308	148	6	19	1	485

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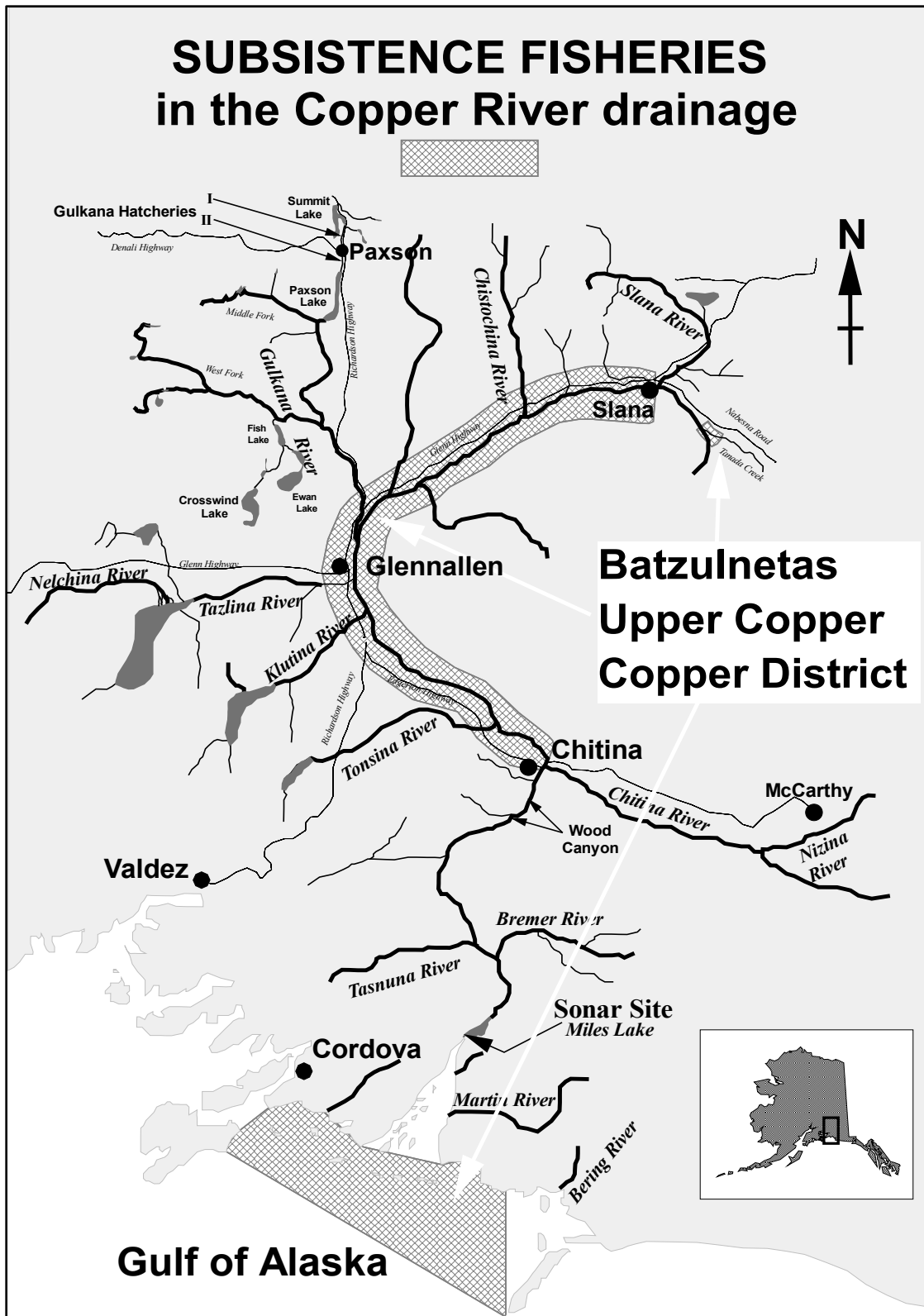
Appendix F7.–Page 2 of 2.

Year	Permits				Reported harvest ^a							
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Pink	Chum	Unk.	Total	
	Chenega											
1999	14	10	7	3	57	499	62	168	101	0	887	
2000	12	8	6	2	24	39	229	211	143	0	646	
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	
Average, 2009–2018	14	6	3	3	6	107	9	7	44	0	174	

Note: NR = no harvest reported.

^a Reported harvest only.

^b As reported on returned subsistence permits.



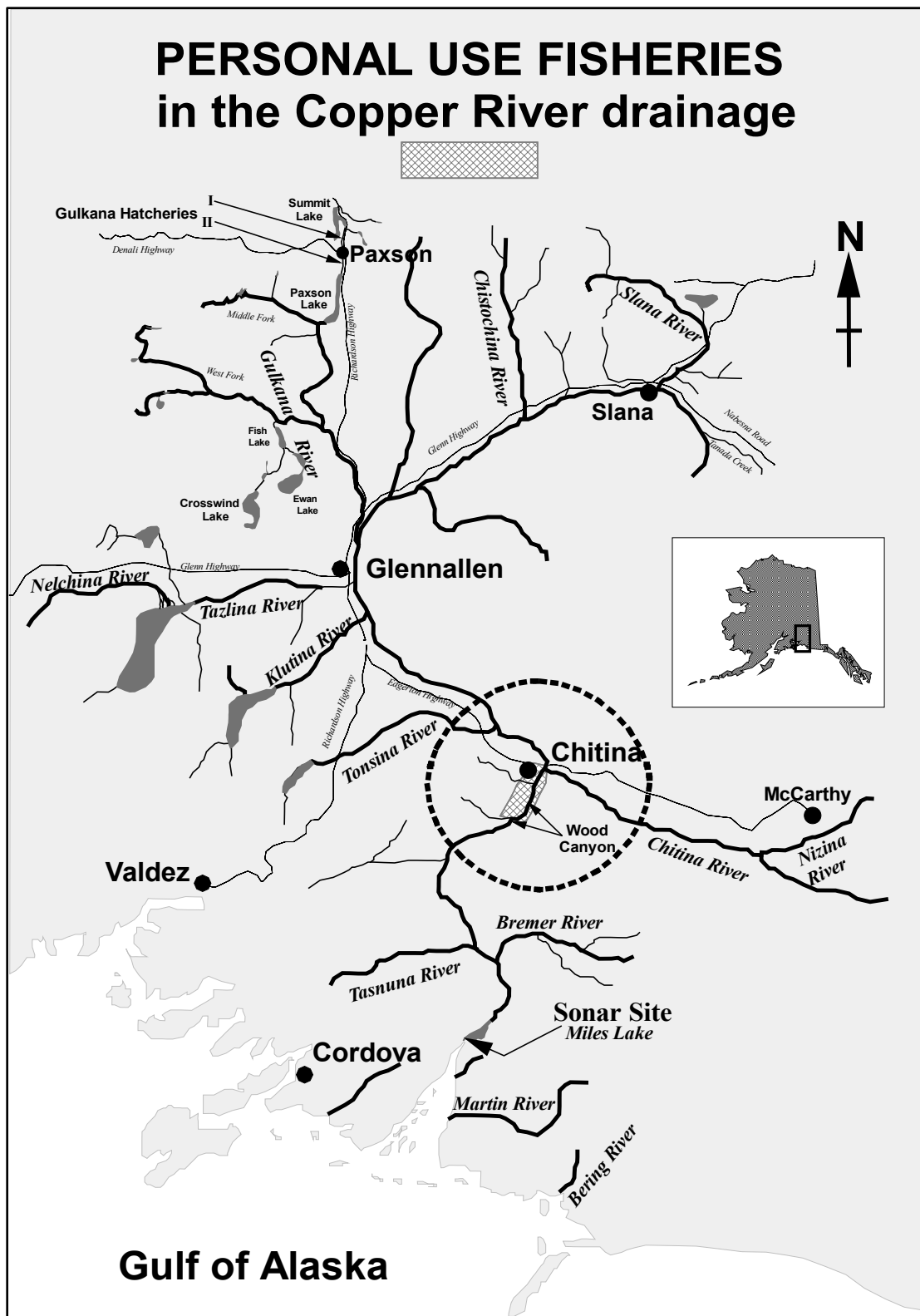
Appendix F8.—Map of the subsistence salmon fisheries on the Copper River.

Appendix F9.—Salmon harvest and effort in the Batzulnetas subsistence harvests, 1987–2019.

Year	Permits				Reported harvest ^a			
	Issued	Returned	Fished	Not fished ^b	Chinook	Sockeye	Coho	Total
1987	0	0	0	0	0	22	0	22
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	1	0	0	0	0	160	0	160
1994	5	0	0	0	0	997	0	997
1995	4	0	0	0	0	16	0	16
1996	0	0	0	0	0	0	0	0
1997	3	0	0	0	0	427	0	427
1998	1	0	0	0	0	582	0	582
1999	1	0	0	0	0	55	0	55
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	62	0	62
2002	1	1	1	0	0	208	0	208
2003	1	1	1	0	0	164	0	164
2004	1	1	1	0	0	182	0	182
2005	1	1	0	1	0	0	0	0
2006	0	0	0	0	0	0	0	0
2007	1	1	1	0	0	1	0	1
2008	1	1	1	0	0	1	0	1
2009	0	0	0	0	0	0	0	0
2010	3	3	3	0	0	106	0	106
2011	3	2	2	0	0	9	0	9
2012	3	2	1	1	1	101	1	103
2013	3	3	3	0	2	862	2	866
2014	2	1	1	1	3	146	3	152
2015	4	4	0	4	4	0	4	8
2016	0	0	0	0	5	0	5	10
2017	1	0	0	0	6	254	6	266
2018	1	1	1	0	0	468	0	468
2019	1	1	1	0	0	209	0	209
Average, 2009–2018	2	2	1	1	2	195	2	199

^a Harvest reported on subsistence permits.

^b As reported on returned permits.



Appendix F10.—Map of the personal use salmon fishery on the Copper River.

Appendix F11.—Personal use and subsistence salmon harvests by year, district and gear types for the Upper Copper River subsistence and personal use fisheries, 2004–2019.

Year	District	Gear	Permits		Reported harvest				Expanded harvest				Other species	
			Issued	Returned	Salmon				Salmon				Steelhead	Other
					Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total		
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

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Appendix F11.–Page 2 of 3.

Year	District	Gear	Reported harvest						Expanded harvest					
			Permits		Salmon				Salmon				Other species	
			Issued	Returned	Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total	Steelhead	other
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
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	217
	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	1,558

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Appendix F11.–Page 3 of 3.

Year	District	Gear	Permits		Reported harvest				Expanded harvest				Other species	
			Issued	Returned	Salmon				Salmon				Steelhead	other
					Chinook	Sockeye	Coho	Total	Chinook	Sockeye	Coho	Total		
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	391
	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	996
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	541
	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	1,219
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
2009–2018 10-year Average	Glennallen	Dip net	953	770	787	16,772	53	16,664	1,904	20,450	63	21,327	1	34
	Glennallen	Fish wheel	540	491	1,339	38,257	116	41,091	1,450	41,819	125	44,683	4	171
	Chitina	Dip net	9,770	7,958	812	120,242	1,085	122,852	953	140,340	1,291	143,215	0	537
	Total		11,263	9,219	2,938	175,271	1,254	180,607	4,307	202,608	1,479	209,224	5	742

APPENDIX G: HERRING

Appendix G1.—Annual Pacific herring biomass indices for Prince William Sound Area harvest management years 1974–2019.

Harvest management year	Use and harvest mortality (tons) ^a	Aerial survey estimates			Peak spring acoustic biomass estimate (tons)
		Peak biomass (tons) ^b	Maximum observed biomass (tons) ^c	Mile-days of spawn ^d	
1973–1974	6,375	41,080	102,150	96.0	ND
1974–1975	5,854	ND	ND	54.0	ND
1975–1976	2,584	7,330	25,270	41.2	ND
1976–1977	2,267	16,830	15,150	78.2	ND
1977–1978	1,391	13,410	37,850	50.8	ND
1978–1979	4,138	42,100	101,920	89.0	ND
1979–1980	6,323	62,110	148,270	95.5	ND
1980–1981	14,124	77,810	162,970	144.0	ND
1981–1982	7,861	68,790	85,910	85.5	ND
1982–1983	3,181	41,850	104,145	93.5	ND
1983–1984	6,604	58,870	178,650	104.8	ND
1984–1985	7,679	20,830	65,690	156.7	ND
1985–1986	11,180	15,180	65,030	146.8	ND
1986–1987	6,281	26,530	56,745	186.8	ND
1987–1988	9,871	34,270	81,545	269.8	ND
1988–1989	^e	56,915	188,928	228.1	ND
1989–1990	10,103	57,900	114,733	164.4	ND
1990–1991	15,196	42,765	143,495	71.5	ND
1991–1992	20,752	53,835	139,729	119.8	ND
1992–1993	2,360	20,725	121,015	50.3	ND
1993–1994	151	19,640	155,199	23.1	ND
1994–1995	0	7,113	21,110	28.2	14,639
1995–1996	0	10,691	40,874	37.3	25,346
1996–1997	5,170	10,858	97,289	64.3	44,083
1997–1998	3,849	13,817	76,966	62.0	19,456
1998–1999	49	6,366	13,430	40.7	22,397
1999–2000	0	1,610	4,446	31.7	8,024

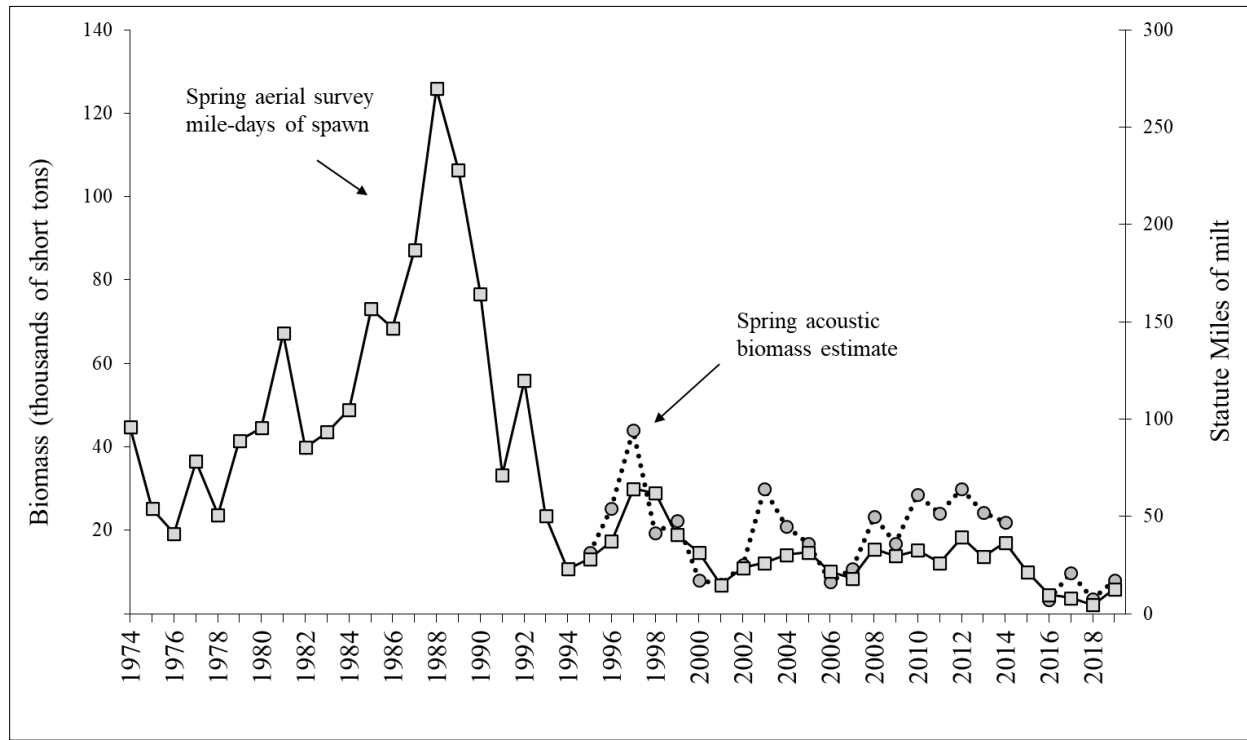
-continued-

Harvest management year	Use and harvest mortality (tons) ^a	Aerial survey estimates			Peak spring acoustic biomass estimate (tons)
		Peak biomass (tons) ^b	Maximum observed biomass (tons) ^c	Mile-days of spawn ^d	
2000–2001	0	587	1,075	14.8	7,035
2001–2002	0	646	1,433	23.6	11,791
2002–2003	0	5,600	8,951	26.1	29,864
2003–2004	0	12,305	17,650	30.4	21,046
2004–2005	0	4,773	5,230	31.7	16,800 ^f
2005–2006	0	540	609	21.7	7,600 ^f
2006–2007	0	770	1,615	18.3	10,700 ^f
2007–2008	0	10,700	13,740	33.2	23,300 ^f
2008–2009	0	1,933	2,913	29.8	16,900 ^f
2009–2010	0	4,180	15,160	32.7	28,500 ^f
2010–2011	0	7,570	14,380	26.2	24,000 ^f
2011–2012	0	1,960	7,360	39.3	30,000 ^f
2012–2013	0	1,720	5,837	29.3	24,200 ^f
2013–2014	0	2,722	9,441	36.6	22,000 ^f
2014–2015	0	3,540	11,032	21.6	NA ^g
2015–2016	0	746	2,175	9.89	3,453
2016–2017	0	580	1,883	8.12	9,896
2017–2018	0	200	659	4.52	3,646
2018–2019	0	915	4,740	12.68	8,448

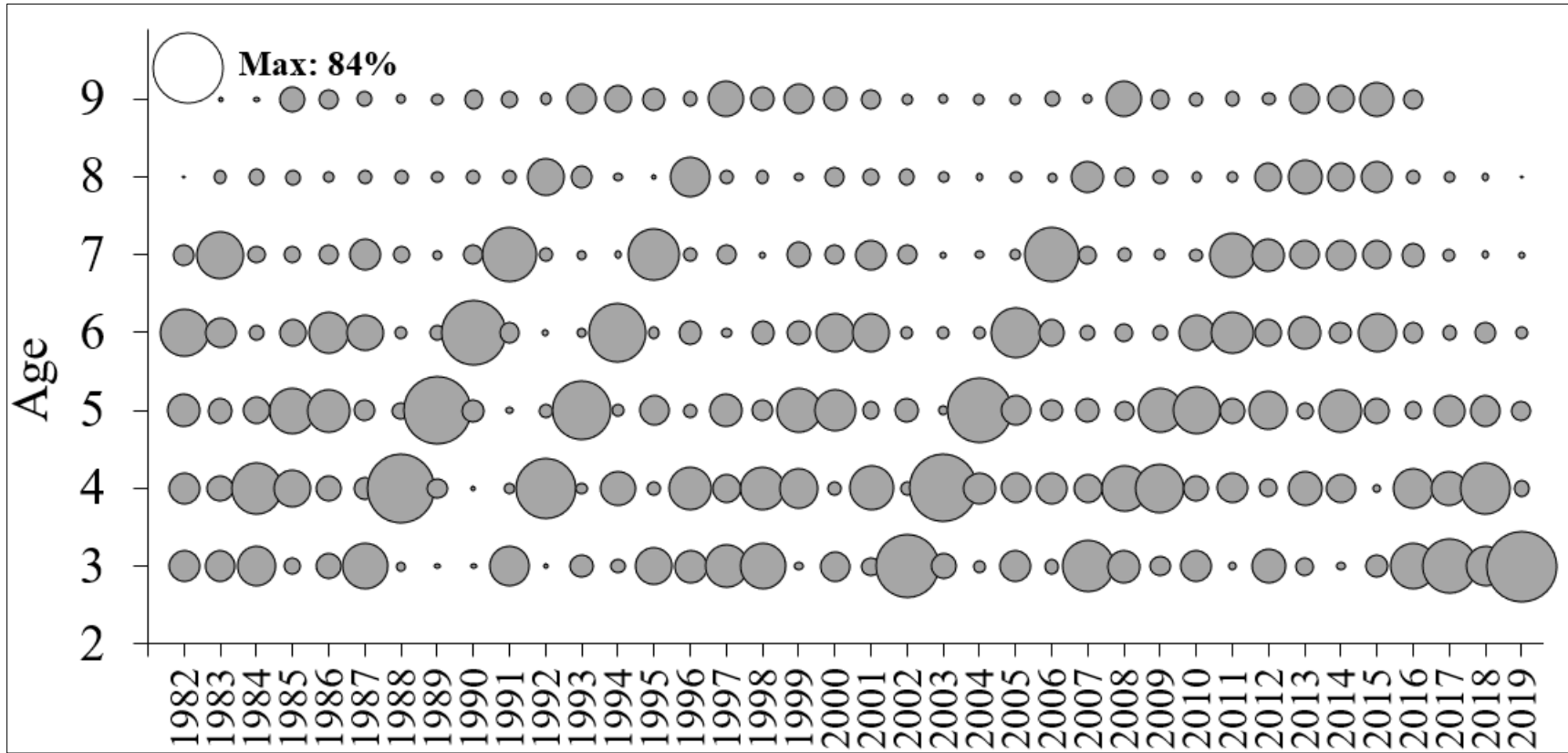
Note: All biomass estimates are in short tons (2,000 lb) and all linear extent of milt estimates are in statute miles.

- ^a Represents the common property seine and gillnet sac roe harvest, and equivalent use of herring in closed pound spawn-on-kelp fisheries.
- ^b Largest single day aerial estimate of herring biomass. Does not include Kayak Island estimates.
- ^c The sum of all daily aerial biomass estimates for a given year. Does not include Kayak Island estimates.
- ^d Sum of the daily observed linear miles of herring milt calculated in ArcMap from digitized hand-annotated paper maps and data collected electronically.
- ^e 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.
- ^f Acoustics estimates for 2005–2014 are from ADF&G surveys only and are not adjusted for maturity or subsequent harvest. Therefore, they represent the total biomass and not the spawning biomass.
- ^g Estimates are not available.

Appendix G2.–Prince William Sound Area annual Pacific herring biomass indices by management year, 1974–2019.



Appendix G3.—Spring PWS Pacific herring age composition by year, 1982–2019.



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

Appendix G4.—Location of spawning herring and miles of spawn observed during aerial surveys in the Prince William Sound Area, 2019.

