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**Prince William Sound Area Commercial Salmon  
Fisheries: A Report to the Alaska Board of Fisheries,  
2021**

by

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and

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October 2021

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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<b>Weights and measures (metric)</b>		<b>General</b>		<b>Mathematics, statistics</b>	
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, $\chi^2$ , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient	
		corporate suffixes:		(simple)	r
<b>Weights and measures (English)</b>		Company	Co.	covariance	cov
cubic feet per second	ft <sup>3</sup> /s	Corporation	Corp.	degree (angular)	°
foot	ft	Incorporated	Inc.	degrees of freedom	df
gallon	gal	Limited	Ltd.	expected value	$E$
inch	in	District of Columbia	D.C.	greater than	>
mile	mi	et alii (and others)	et al.	greater than or equal to	≥
nautical mile	nmi	et cetera (and so forth)	etc.	harvest per unit effort	HPUE
ounce	oz	exempli gratia	e.g.	less than	<
pound	lb	(for example)		less than or equal to	≤
quart	qt	Federal Information Code	FIC	logarithm (natural)	ln
yard	yd	id est (that is)	i.e.	logarithm (base 10)	log
		latitude or longitude	lat or long	logarithm (specify base)	log <sub>2</sub> , etc.
<b>Time and temperature</b>		monetary symbols		minute (angular)	'
day	d	(U.S.)	\$, ¢	not significant	NS
degrees Celsius	°C	months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	$H_0$
degrees Fahrenheit	°F	registered trademark	®	percent	%
degrees kelvin	K	trademark	™	probability	P
hour	h	United States (adjective)	U.S.	probability of a type I error	
minute	min	United States of America (noun)	USA	(rejection of the null hypothesis when true)	$\alpha$
second	s	U.S.C.	United States Code	probability of a type II error	
		U.S. state	use two-letter abbreviations (e.g., AK, WA)	(acceptance of the null hypothesis when false)	$\beta$
<b>Physics and chemistry</b>				second (angular)	"
all atomic symbols				standard deviation	SD
alternating current	AC			standard error	SE
ampere	A			variance	
calorie	cal			population	Var
direct current	DC			sample	var
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

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by

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## ABSTRACT

Commercial salmon harvests in the Prince William Sound Area were relatively weak from 2018 through 2020, and harvests were 32% less than the 2008–2017 average. The Copper River salmon fishery performed poorly over this 3-year span because sockeye *Oncorhynchus nerka* and Chinook salmon *O. tshawytscha* harvests were at historic lows in 2018 and 2020. Harvest in the Prince William Sound Area was dominated by pink salmon *O. gorbuscha*, which made up an average of 85% of the harvest from 2018 to 2020. Harvest was primarily from commercial gillnet and purse seine fisheries (86%); the remainder (14%) were from hatchery harvests for broodstock and cost recovery.

Keywords: pink salmon *Oncorhynchus gorbuscha*, sockeye salmon *O. nerka*, chum salmon *O. keta*, coho salmon *O. kisutch*, Chinook salmon *O. tshawytscha*, harvest, drift gillnet, set gillnet, purse seine, commercial fishery, hatchery, cost recovery, Prince William Sound.

## INTRODUCTION

### PRINCE WILLIAM SOUND SALMON FISHERIES

This report summarizes Prince William Sound (PWS) commercial fishery performance, including the Copper and Bering River Districts, during 2018–2020 and highlights notable events since the 2017 PWS Alaska Board of Fisheries (BOF) meeting. Detailed annual summaries are published under the series title *Prince William Sound area finfish management report* (e.g., Botz et al. 2021; Morella et al. 2021; Russell et al. 2021) and provide historical data for comparisons and examination of trends.

Pacific salmon *Oncorhynchus* spp. returns and harvests in PWS were highly variable over the past 3 years. Wild pink *O. gorbuscha* and chum *O. keta* salmon stocks met most district-specific escapement goals, and there are no stocks of concern. Wild pink salmon escapements were within or above escapement goals. Wild chum salmon escapement goals were not achieved in some districts. Coghill Lake sockeye *O. nerka* salmon escapement was within the escapement goal range. Coghill and Eshamy Districts gillnet fishery management was often conservative to ensure that hatchery broodstock and cost-recovery goals were achieved. Adequate wild stock escapements allowed for liberal time and area management of purse seine fisheries. Broad area purse seine fisheries allowed a wide distribution of fishing effort, which alleviated congestion and, to some extent, gear conflict issues.

The most notable events since the 2017 BOF meeting were as follows: (1) decreased salmon prices and below-average exvessel values occurred for all gear groups; (2) PWS allocation was near parity between drift gillnet and purse seine gear groups in 2018 and 2020, but because the drift gillnet allocation value fell below 45% in 2019, the Port Chalmers remote release chum salmon fishery was assigned to the drift gillnet gear group; (3) participation in purse seine fisheries was at the highest point since 1991, and both drift and set gillnet saw reduced participation; (4) 2018 and 2020 were the lowest Copper River sockeye salmon harvests since 1980; and (5) the 2019 salmon season was affected by a record-setting drought throughout PWS.

### MANAGEMENT AREA

The PWS management area encompasses all coastal waters and inland drainages entering the north central Gulf of Alaska between Cape Suckling and Cape Fairfield. This area includes the Bering River, Copper River, and all PWS with a total adjacent land area of approximately 38,000 square miles (Figure 1).

The salmon management area is divided into 11 districts that correspond to the local geography and distribution of the 5 species of salmon harvested in the commercial fisheries. The management objective for all districts is to achieve escapement goals where established, while allowing for the orderly harvest of all fish surplus to spawning requirements and inriver goals. In addition, the Alaska Department of Fish and Game (ADF&G) follows regulatory plans to manage fisheries and assist private nonprofit (PNP) hatcheries in achieving cost-recovery and broodstock objectives.

There are 6 hatcheries contributing to PWS area fisheries (Figure 1), and 5 are operated by the regional aquaculture association, Prince William Sound Aquaculture Corporation (PWSAC). Gulkana Hatchery (GH; located between Paxson and Summit Lakes) augments the production of sockeye salmon to the Copper River. Cannery Creek Hatchery (CCH; located on the north shore of PWS in Unakwik Inlet) and Armin F. Koernig Hatchery (AFK; located in southwestern PWS on the east shore of Evans Island) produce pink salmon. Wally H. Noerenberg Hatchery (WNH; located in northwestern PWS on the south shore of Esther Island) produces pink, chum, and coho *O. kisutch* salmon. Main Bay Hatchery (MBH; located in western PWS at the head of Main Bay) produces sockeye salmon. The sixth hatchery is the Solomon Gulch Hatchery (SGH), operated by the Valdez Fisheries Development Association (VFDA); it is located on the south shore of Port Valdez and produces pink and coho salmon.

Legal gear for commercial salmon fishing is purse seine, drift gillnet, and set gillnet. Drift gillnet permits are the most numerous (536) and are permitted in the Bering River, Copper River, Unakwik, Coghill, and Eshamy Districts, and Port Chalmers Subdistrict when allowed through the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370). Set gillnet gear (28 permits) is allowed only in the Eshamy District. Purse seine gear (267 permits) is allowed in the Eastern, Northern, Unakwik, Coghill, Northwestern, Southwestern, Montague, and Southeastern Districts.

## **PRINCE WILLIAM SOUND MANAGEMENT AND SALMON ENHANCEMENT ALLOCATION PLAN**

In December 2005, the BOF modified the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370). The modifications only allocated salmon from PWSAC hatcheries and no VFDA or wild stocks. Additionally, a 5-year rolling average exvessel value (Table 1) is now used rather than annual value percentages. The set gillnet gear group is allocated 4% of the 5-year rolling average value of PWSAC hatchery stocks. Drift gillnet and purse seine gear groups each receive 50.0% of the remaining value of PWSAC hatchery stocks. If the set gillnet gear group catches 5% or more of the 5-year rolling average value of PWSAC hatchery stocks, they will be limited to no more than 36 hours of fishing time per week beginning July 10 in the following year. If the drift gillnet gear group harvest value is calculated to be 45.0% or less, then in the year following the calculation, the drift gillnet gear group shall have exclusive access to the Port Chalmers Subdistrict from June 1 through July 30. If the purse seine gear group harvest value is calculated to be 45% or less, then in the year following the calculation, the purse seine gear group shall have exclusive access to the Esther Subdistrict from June 1 through July 20.

In addition, the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370) limits the time and area open to specific gear groups to achieve allocation and management objectives. For example, the Southwestern District, except within the Armin F. Koernig Hatchery Special Harvest Area and Terminal Harvest Area, is closed to purse seine fishing prior to July 18 to ensure early season chum and sockeye salmon bound for other districts reach



their intended destinations (5 AAC 24.370(e)(2)(A)). Moreover, the purse seine gear group is allowed to fish in the Coghill District after July 21, when the harvest is predominantly pink salmon (5 AAC 24.370(e)(5)(B)). There are also regulatory provisions that allow for enhanced chum salmon to be harvested prior to July 21 within the Esther Subdistrict of the Coghill District when the available surplus is not being adequately harvested by the drift gillnet fleet.

There are 7 proposals currently before the BOF that concern allocation in the general PWS area.

- Proposal 42 – Amend the *Prince William Sound Management and Salmon Enhancement Allocation Plan* set gillnet trigger point.
- Proposal 43 – Change the *Prince William Sound Management and Salmon Enhancement Allocation Plan* to include Valdez Fisheries Development Association in the calculation.
- Proposal 44 – Establish criteria for when set gillnet gear may be fished in Prince William Sound.
- Proposal 47 and 48 – Amend the Coghill and Eshamy Districts’ management section of *Prince William Sound Management and Salmon Enhancement Allocation Plan* to include language to reduce the harvest of stocks bound for other districts.
- Proposal 55 – Amend the *Prince William Sound Management and Salmon Enhancement Allocation Plan* to reduce hatchery chum salmon production.
- Proposal 58 – Amend the Southwestern District section of *Prince William Sound Management and Salmon Enhancement Allocation Plan* to allow for the harvest of stocks bound for other districts.

For 2017 through 2019, ADF&G calculated the allocation value percentages using three inputs: harvest estimates of PWSAC-enhanced fish by species and by gear type (Tables 1 and 2), and area-specific prices per pound (COAR 2020). The allocation value percentages were applied to the management year following the year of the calculation.

### **2018–2020 Allocation**

The allocation values for drift gillnet and purse seine gear groups in 2018 and 2020 were close to parity (+/- 5%). In 2019, the allocation value for the drift gillnet gear group was 43.1% (Table 1), triggering exclusive access to the Port Chalmers Subdistrict chum salmon remote release fishery from June 1 to July 30. The set gillnet fleet was above its 5% allocation trigger in 2018 and 2020 (Table 1) and was therefore limited to 36 hours per week beginning July 10 of these years.

### **SALMON HARVEST OVERVIEW 2018–2020**

The Prince William Sound Area (including the Copper and Bering River Districts) commercial salmon harvest relative to the 10-year averages oscillated from well below average in 2018 to above average in 2019 to well below average again in 2020. The 2018–2020 average commercial salmon harvest of 37.6 million fish was 32% lower than the 2008–2017 average (55.3 million fish; 2008–2017) for this area (Table 3). This decline was primarily due to poor returns to hatcheries within the PWS Area (including the Copper and Bering River Districts). The MBH sockeye salmon run was above forecast by 33% in 2018 and below forecast by 37% in 2019 and by 39% in 2020. Hatchery chum salmon returns at WNH, AFK, and Port Chalmers were below forecast in 2018 and 2020 but were at or above forecast in 2019, including a record harvest at Port Chalmers of 1.57 million fish. Pink salmon returns to VFDA were an average of 42% and PWSAC hatcheries

were an average of 27% below the forecasted returns between 2018 and 2020 (PWSAC 2018–2020; VFDA 2018–2020). Meanwhile, wild pink salmon returns resulted in 3 above-average commercial harvests between 2018 and 2020 (Russell et al. 2021; Morella et al. 2021; Botz et al. 2021).

The below-average 2018 harvest of 29.4 million salmon was made up of approximately 8,600 Chinook, 1.3 million sockeye, 526,700 coho, 24.0 million pink, and 3.5 million chum salmon (Table 3). The majority of the harvest (85%, or 25.0 million fish) was in the commercial fishery. The remaining 15% (4.3 million fish) of the harvest was composed of hatchery cost recovery and broodstock fish (Table 4). The estimated value of all 2018 salmon harvest combined was \$94.43 million, including hatchery sales (Table 5).

The above-average 2019 harvest of 57.2 million salmon was made up of approximately 20,100 Chinook, 2.6 million sockeye, 528,300 coho, 48.7 million pink, and 5.4 million chum salmon (Table 3). Approximately 11.2% (6.4 million fish) of the harvest was composed of hatchery cost recovery and broodstock fish. The majority of the harvest (89%, or 50.9 million fish) was in the commercial fishery. The remaining 11% (6.4 million fish) of the harvest was composed of hatchery cost recovery and broodstock fish (Table 6). The estimated value of all 2019 salmon harvest combined was \$118.37 million, including hatchery sales (Table 7).

The below-average 2020 harvest of 26.3 million salmon was made up of approximately 6,900 Chinook, 941,800 sockeye, 288,600 coho, 23.0 million pink, and 2.0 million chum salmon (Table 3). The Chinook salmon harvest was the lowest since 1948, and the sockeye salmon harvest was the lowest since 1990 (Table 3). The majority of the harvest (80%, or 20.1 million fish) was in the commercial fishery. The remaining 20% (5.3 million fish) of the harvest was composed of hatchery cost recovery and broodstock fish (Table 8). The preliminary estimated value of all 2020 salmon harvests combined was \$50.6 million, including hatchery sales. This was the lowest value since 2004 (Table 9).

## **GILLNET FISHERIES**

There are 2 proposals currently before the BOF that are specific to gillnet fisheries within PWS.

- Proposal 45 – This would limit commercial drift gillnet operations to within 30 fathoms of a commercial set gillnet in the Main Bay Hatchery Subdistrict, excluding in the zone outside the offshore end of the set gillnet.
- Proposal 46 – This proposal would allow the use of gillnets deeper than 60 meshes prior to the first Monday of July in Coghill, Unakwik, and Eshamy Districts and the Port Chalmers Subdistrict.

### **Coghill District**

The Coghill District is in northwestern PWS and is approximately 45 miles in length. Most commercial fishing in the Coghill District targets hatchery salmon from WNH and wild sockeye salmon headed to Coghill Lake. The hatchery is located in Lake Bay at the southern end of Esther Island (Figure 1) and has annual production goals of approximately 250,000 coho, 9.5 million pink, and 3 million chum salmon. Early-season management of the Coghill District is largely based on Coghill Lake sockeye salmon escapement and WNH chum salmon run strength.

The Coghill District is open for the harvest of chum, sockeye, pink, and coho salmon to drift gillnet permit holders and to purse seine permit holders beginning July 21 and ending when the harvest is no longer predominantly pink salmon.

PWSAC, in consultation with ADF&G, generally completes a high percentage (80–90%) of pink and chum salmon cost-recovery harvest before recommending commercial openings in the SHA, THA, and hatchery subdistricts. Commercial openings may be announced within hatchery subdistricts during cost recovery.

### **Eshamy District**

The Eshamy District, in western PWS, is 15 miles in length and open to all drift and set gillnet permits in Area E. It is the only district in PWS where set gillnet gear is allowed. The Main Bay Subdistrict was established to allow permit holders to harvest enhanced sockeye salmon while minimizing the harvest of salmon bound for other areas in PWS and minimize the harvest of wild sockeye salmon returning to Eshamy Lake. Preseason forecasts of the sockeye salmon run to Eshamy Lake have not been developed since 2015. The Eshamy River weir has not operated since 2015.

During years in which the set gillnet gear group allocation value is 5.0% or more, the set gillnet gear group is limited to no more than 36 hours per week, beginning on July 10. In 2018 and 2020, the set gillnet group was above the 5.0% allocation and was limited to 36 hours per week. However, in 2019, the set gillnet gear group remained within the 5.0% allocation, and no restrictions were triggered.

There is 1 proposal currently before the BOF that is specific to the Eshamy District.

- Proposal 28 – Amend the minimum distance a drift gillnet can be operated from a set gillnet in the Main Bay Subdistrict.

### **Port Chalmers Subdistrict (Montague District)**

The Port Chalmers Subdistrict is in the northern end of the Montague District and has been a remote release location for PWSAC chum salmon since 1994. In 2017 and 2018, the allocation was close to parity, and the area was fished by the purse seine gear group. However, the area was allocated to the drift gillnet gear group in 2019 because of the high purse seine pink salmon harvests, which resulted in dropping below the 45% trigger in the allocation plan. For 2020, allocation returned to parity, and the area again returned to the purse seine gear group. PWSAC chum salmon runs to the Port Chalmers remote release location have been below forecast since 2010 (except for 2019) and have not contributed allocation value to the extent intended.

### **Gillnet Season Summary 2018**

The gillnet fishery harvest and exvessel value were below average in 2018. The Copper River District sockeye salmon fishery was particularly weak. This weak fishery was somewhat mitigated by the strong performance of the Copper River District coho, Eshamy District sockeye, and Coghill District chum salmon fisheries, which elevated the combined drift and set gillnet exvessel value to \$39.6 million compared to the 2008–2017 average of \$43.9 million (Table 5 and Russell et al. 2021).

The 2018 PWS drift gillnet harvest of 4.0 million salmon was composed of 8,200 Chinook, 1.1 million sockeye, 436,300 coho, 601,900 pink, and 1.9 million chum salmon. The overall

harvest was 29% below the 2008–2017 average (Table 10). The 2018 PWS set gillnet harvest of 214,300 salmon was composed of 10 Chinook, 181,200 sockeye, 121 coho, 22,800 pink, and 10,100 chum salmon. The overall harvest was 26% below the 2008–2017 average (Table 10).

The forecasted run of hatchery chum salmon to WNH and Port Chalmers remote release in 2018 was an above-average forecast of 3.3 million fish (Table 11). PWSAC's projection for cost-recovery and broodstock requirements was approximately 656,000 fish, leaving 2.5 million chum salmon for the CPF (PWSAC 2018). The actual commercial harvest of chum salmon in the Coghill District was then 1.8 million fish, 27% less than forecast but representing 37% of the overall drift gillnet exvessel value for all salmon (Table 4). This harvest provided an alternate revenue stream while the poor-performing Copper River sockeye and Chinook salmon fishery was experiencing historically long closures. PWSAC harvested 467,400 chum salmon for cost recovery and broodstock (Table 4). Approximately 2% of chum salmon harvested in the Coghill District commercial fishery were wild fish (Russell et al. 2021). This apportionment of wild and enhanced salmon is made possible through a systematic sampling of commercial harvest from fishing periods in each management district. Otoliths recovered from sampled fish are analyzed for hatchery-induced thermal marks at the ADF&G lab in Cordova to differentiate wild and hatchery origin fish.

The 2018 Coghill Lake sockeye salmon total run forecast was 183,000 fish, with 153,000 available for the commercial fishery (Table 11). The escapement index through the Coghill River weir was 30,984 sockeye salmon and was within the sustainable escapement goal (SEG) range of 20,000–60,000 fish (Russell et al. 2021). The weir washed out and was inoperable twice, accounting for approximately half of the normal operation window. Fortunately, the weir was in operation during the historical peak passage period. However, during high-water events, fish passage was assumed to be low, and total season passage was either within or higher than the upper bound of the SEG (Russell et al. 2021). Of the 189,300 sockeye salmon harvested in the Coghill District, 44% ( $n = 83,900$ ) were from Main Bay hatchery and 56% ( $n = 105,400$ ) were wild stocks assumed to be from Coghill Lake (Russell et al. 2021). Wild sockeye salmon from Coghill Lake thus accounted for 10% (105,400 out of 1,060,384) of total drift gillnet harvest of sockeye salmon in Prince William Sound in 2018 (Table 5).

PWSAC forecasted a total run of 87,000 coho salmon to WNH (Table 11). The total commercial harvest of coho salmon in the Coghill District was 4,300 fish, the majority of which were assumed to be enhanced salmon from WNH. The enhanced coho salmon run to WNH was 95% less than the preseason forecast and one of the smallest runs on record (Russell et al. 2021). Adequate numbers of coho salmon for broodstock were not available onsite at WNH, and the remaining balance came from SGH.

PWSAC forecasted a total run of 763,000 MBH enhanced sockeye salmon (Table 11). Overall, 823,300 sockeye, 131,200 chum, and 303,600 pink salmon were harvested in the Eshamy District by 341 drift gillnet permit holders (Table 4). A total of 26 set gillnet permit holders harvested 180,900 sockeye, 22,800 pink, and 9,900 chum salmon (Table 4). The total MBH sockeye salmon run of 1.0 million fish was 33% over the forecast. Wild sockeye salmon (assumed to be Coghill Lake origin during the MBH sockeye salmon run overlap) composed 89,000 fish (9%) of the 1.0 million harvested, wild chum salmon composed 9% of the 141,200 fish harvested, and wild pink salmon composed 60.4% of the 326,400 fish harvested (Russell et al. 2021). The total exvessel value of the Eshamy District commercial fishery was \$14.20 million or 36% of the total set and drift gillnet exvessel value (Table 5).

## Gillnet Season Summary 2019

The gillnet fishery harvest and exvessel value were near the 2009–2018 average in 2019. The Port Chalmers remote release chum salmon fishery set a new peak harvest record of 1.6 million chum salmon (Table 6). This bolstered weak gillnet coho salmon fisheries across PWS and a weak sockeye salmon fishery in the Eshamy District and augmented average to above average fisheries for Chinook and sockeye salmon in the Copper River District and chum salmon in the Coghill District. The combined drift and set gillnet exvessel value was \$46.8 million (Table 7), comparable to the 2009–2018 average of \$44.8 million (Morella et al. 2021).

The 2019 PWS drift gillnet harvest was 6.0 million salmon, composed of 19,800 Chinook, 2.2 million sockeye, 208,200 coho, 802,800 pink, and 2.8 million chum salmon. The overall harvest was 4% above the 2009–2018 average (Table 10). The set gillnet harvest was 320,100 salmon and composed of 25 Chinook, 226,400 sockeye, 182 coho, 54,900 pink, and 38,500 chum salmon. The overall harvest was 11% above the 2009–2018 average (Table 10).

The hatchery chum salmon run to WNH was forecast to be 2 million fish (Table 12). PWSAC's projection for cost-recovery and broodstock requirements was approximately 843,000 fish, leaving approximately 1.2 million chum salmon for the commercial fishery (PWSAC 2019). The Coghill District drift gillnet fishery was open widely throughout the district due to strong runs of Coghill Lake sockeye and WNH chum salmon. The commercial harvest of chum salmon in the Coghill District was 1.1 million fish. This is 65% of the 2009–2018 average harvest of 1.6 million chum salmon. The proportion of wild chum salmon in the Coghill District commercial fishery was 23% (Morella et al. 2021). PWSAC harvested 1.4 million chum salmon for cost-recovery and broodstock, which equates to 57% of the total harvest (Table 7). The substantial increase in cost recovery and brood collection relative to preseason assumptions was largely due to lower-than-anticipated fish size and price per pound. This is the highest proportion of hatchery harvest relative to total hatchery run since total hatchery runs by the facility have been quantified with otolith markings (beginning in 2012; Table 13).

The 2019 forecast of the sockeye salmon run to Coghill Lake was 473,000 fish, with 443,000 fish expected to be available for commercial harvest (Table 12). The picket weir was replaced with a resistance board weir in 2019 due to frequent high-water events washing out the weir in prior years. Sockeye salmon escapement past the Coghill River weir was 32,247 fish, which was within the SEG range of 20,000–60,000 fish. The total commercial harvest of sockeye salmon in the Coghill District was 390,700 fish (Table 6), composed of approximately 223,600 (57%) wild and 166,900 enhanced sockeye salmon. This total harvest is 166% above the 2009–2018 average harvest of 146,170 sockeye salmon (Morella et al. 2021).

PWSAC forecasted a total run of 233,000 coho salmon to WNH (Table 12). The total commercial harvest of coho salmon in the Coghill District was 120,400 fish, well above the 2009–2018 average (Morella et al. 2021), of which all are assumed to be from WNH (Table 6). The hatchery's broodstock goal was achieved.

PWSAC forecasted a run of 250,000 chum salmon to the Port Chalmers remote release site in 2019 (PWSAC 2019). Drift gillnet harvest of 1.6 million chum salmon in the Montague District (Table 6) was 528% above forecast and the highest in the history of the Port Chalmers remote release. The proportion of wild chum salmon in the Montague District commercial fishery harvest was 1% (Morella et al. 2021), and the total hatchery run (determined by otolith markings) was estimated to be 1.5 million (Table 14). This was the lowest proportion of wild chum salmon in the

history of the fishery, although the wild stock contribution in terms of numbers of fish was at a similar level to past gillnet fisheries in the Port Chalmers Subdistrict. PWSAC attempted cost recovery on 2 occasions through emergency orders, creating a temporary special harvest area (SHA). The cost-recovery harvest was minimal (6,330 chum salmon; Table 6), of mixed quality fish, and did not meet intended harvest objectives.

PWSAC projected 1.4 million sockeye salmon as the total run to MBH, of which 8,000 fish were required for broodstock and the remainder available for commercial harvest (Table 12). A total of 336 drift gillnet permit holders and 27 set gillnet permit holders participated in the Eshamy District fishery in 2019 (Table 6). For the 3 most valuable species, drift gillnets accounted for 68% of the sockeye salmon, 76% of the chum salmon, and 83% of the pink salmon harvests. Harvests were well below average for sockeye salmon (down 33% for drift gillnets, 4% for set gillnets) and drift gillnet chum salmon (31%), but well above average for set gillnet chum salmon (up 32%) and for pink salmon (up 80% for drift gillnets, up 164% for set gillnets; Morella et al. 2021). Eshamy District contribution estimates show that wild sockeye salmon (assumed to be Coghill Lake origin) were 110,300 fish (16%) of the 695,600 sockeye salmon harvested. Wild stocks accounted for 288,500 (90%) of the 320,000 pink salmon harvested and 7,000 (4%) of the 163,700 chum salmon harvested (Morella et al. 2021). Due to uncertainty in escapement at Eshamy River, openings in Eshamy District after July 22 were restricted to short duration fishing periods and occasional area restrictions.

### **Gillnet Season Summary 2020**

The gillnet fishery harvest and exvessel value in 2020 were at historically low levels. Drift gillnet exvessel harvest value of \$10.3 million (Table 9) was less than one-quarter of the 2009–2018 average and was the lowest since 1980 (average permit earnings of \$21,100 [Table 9] compared to the 2010–2019 average of \$84,400; Botz et al. 2021); set gillnet exvessel harvest value was an estimated \$888,700 (average permit earnings of \$34,200 [Table 9] compared to the 2010–2019 average of \$89,500; Botz et al. 2021). The Copper River had one of the weakest sockeye and Chinook salmon runs on record with very little fishing opportunity and the third-smallest commercial harvest in the past 50 years. This weak fishery was followed by hatchery chum and sockeye salmon fisheries in western PWS where 73% and 34% of these runs, respectively, were harvested for hatchery cost recovery and broodstock. In addition, both hatchery runs were close to 60% below forecast. The season ended with coho salmon fisheries in the Copper River and Bering River Districts that were significantly closer to average and, with strong grounds prices, provided more than a quarter of the season total exvessel value for the drift gillnet fleet.

In 2020 a total of 489 drift gillnet permit holders harvested 2.1 million salmon composed of 6,400 Chinook, 572,500 sockeye, 236,600 coho, 968,800 pink, and 301,400 chum salmon. A total of 26 set gillnet permit holders harvested 131,000 fish composed of 91,800 sockeye, 23 coho, 35,100 pink, and 4,100 chum salmon (Table 8).

The hatchery chum salmon run to WNH was forecast to be 2.6 million fish. PWSAC's projection for cost-recovery and broodstock requirements was approximately 1.3 million fish, leaving 1.3 million fish available for commercial fishery (PWSAC 2020). The drift gillnet harvest of chum salmon in the Coghill District was 229,400 fish, which was 82% below the forecast harvest projection and the lowest commercial harvest since 2014. PWSAC harvested 816,600 chum salmon for cost recovery and broodstock (Table 8). Wild chum salmon accounted for 5% of the Coghill District commercial fishery (Botz et al. 2021).

The 2020 forecast of the sockeye salmon run to Coghill Lake was 175,000 fish, and 145,000 fish were available for commercial harvest (Table 15). Due to WNH hatchery chum salmon cost recovery and broodstock needs, conservative management was implemented in hatchery subdistricts within the Coghill District. This management approach allowed for liberal fishing time in College Fjord to increase Coghill Lake sockeye salmon harvest potential but resulted in low fleet participation due to minimal fishing opportunity on enhanced chum salmon. Total sockeye salmon escapement past the Coghill River weir was 53,891 fish and was within the SEG range of 20,000–60,000 fish (Botz et al. 2021). The Coghill River sockeye escapement goal has been achieved since 2017, following poor returns from 2013 through 2016, in which the goal was not met. The 2016 escapement was the second lowest since 1972 and was the parent year of 50% of the 2020 run (age-1.2 fish). The total drift gillnet harvest of sockeye salmon in the Coghill District was 111,400 fish (Table 8) and was 26% less than the 2010–2019 average (Botz et al. 2021). Otolith contribution estimates indicated that approximately 54,400 wild and 60,000 MBH sockeye salmon were harvested in the Coghill District.

PWSAC forecasted a total run of 115,000 coho salmon to WNH (Table 15). The total gillnet commercial harvest of coho salmon in the Coghill District was 2,500 fish; all are assumed to be of WNH origin. The commercial harvest was 98% below forecast, and the sixth year out of the last 10 with fewer than 15,000 coho salmon harvested (Botz et al. 2021). Adequate numbers of coho salmon for broodstock were not available onsite at WNH, and the remaining balance came from SGH.

PWSAC projected the total run of hatchery sockeye salmon to MBH to be 1.1 million fish (Table 15), of which 71,900 fish were required for broodstock and cost recovery and the remaining 989,000 fish available for commercial harvest (PWSAC 2020). Overall, 385 drift gillnet permit holders harvested 358,100 sockeye, 317,000 pink, and 70,700 chum salmon (Table 8). This record-high level of participants was during a year with reduced fleet participation throughout PWS and was largely due to extensive closures in the Copper River fishery and reduced fishing area in the Coghill District. A total of 26 set gillnet permit holders harvested 91,800 sockeye, 35,100 pink, and 4,100 chum salmon (Table 8). Preliminary contribution estimates show that wild stocks accounted for 20,100 fish (5%) of the 449,900 harvested sockeye salmon and are assumed to be of Coghill Lake origin. This wild sockeye salmon contribution was consistent with past years of average to below-average Coghill Lake sockeye salmon runs. Wild stocks also made up 70% of the 352,100 harvested pink salmon (relatively low for a fishery that can exceed 80% wild) and 8% of the 74,700 harvested chum salmon harvest in the Eshamy District. The estimated enhanced sockeye salmon run to MBH of 671,500 fish was 39% lower than the preseason harvest forecast of 1.1 million fish and 39% below the 2010–2019 average run of 1.1 million fish. Due to uncertainty in escapement at Eshamy River, openings in Eshamy District after July 22 were restricted to short duration fishing periods and occasional area restrictions.

## **PURSE SEINE FISHERIES**

Purse seine districts include the Eastern, Coghill, Montague, Northern, Northwestern, Southeastern, Southwestern, and Unakwik Districts. These districts are managed to achieve wild pink and chum salmon escapement goals by district and allow for the orderly harvest of surplus wild and enhanced salmon stocks. Escapement of wild 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.

Hatchery subdistricts are managed cooperatively with PWS hatchery operators to achieve hatchery cost-recovery and broodstock goals. Two hatchery operators within PWS produce chum, pink, and coho salmon for the purse seine fleet: the Valdez Fisheries Development Association (VFDA) and the Prince William Sound Aquaculture Corporation (PWSAC). VFDA operates Solomon Gulch Hatchery (SGH), and PWSAC operates Armin F. Koernig Hatchery (AFK), Wally Noernberg Hatchery (WNH), and Cannery Creek Hatchery (CCH).

There are 2 proposals currently before the BOF that deal with an issue specific to purse seine fisheries within PWS.

- Proposals 56 and 57 – Allow permit stacking and increase the length and depth of purse seine gear that may be operated when 2 limited entry purse seine permit holders are registered to the same vessel in the Prince William Sound Area commercial salmon fishery.

## **Purse Seine Season Summary 2018**

### ***Fishery Overview***

The 2018 PWS purse seine harvest was 20.8 million fish, which was 39% below the even-year average (2008–2016) of 33.8 million fish. Harvest was composed of 300 Chinook, 71,000 sockeye, 81,000 coho, 19.6 million pink, and 1.1 million chum salmon. The seine harvest of 19.6 million pink salmon ranked sixth overall for even-year commercial seine harvests from 2000 to 2018 (Table 10). Below are some highlights from the 2018 fishing season:

- The number of active permits fished in the PWS purse seine fishery was the highest since 1991, at 234 permits (Table 4).
- Purse seine exvessel harvest value was an estimated \$38.5 million and the average permit earnings were \$164,500 (Table 5), well below the 2008–2017 average of \$280,900 (Russell et al. 2021).
- Wild pink salmon escapement indices in 2018 supported openings outside of hatchery subdistricts starting in late July and running through the remainder of the season (Russell et al. 2021).
- The PWS pink salmon escapement aerial index was 1.1 million, with all districts above the lower end of their escapement goals (Table 16).
- Chum salmon escapements were below average across PWS, with the Northern and Southeastern Districts failing to achieve the lower end of their escapement goals (Table 17).
- At the 2017 BOF meeting, language was added by the BOF to the Southwestern District section of the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370) to include specific BOF guidance that during the AFK enhanced chum salmon fishery, to the extent practical, ADF&G shall manage to reduce the harvest of stocks bound for other districts.

### ***Pink Salmon***

The 2018 PWS pink salmon season was marked by poor hatchery returns but an unexpectedly strong even-year wild-stock run. The pink salmon forecast was for a total run of 34.3 million fish, apportioned among 3 returns: 49% VFDA, 45% PWSAC, and 6% wild. The projected commercial harvest was for 28.3 million pink salmon, after accounting for wild escapement, cost recovery, and broodstock (Table 18).



Subsequently, the total observed run in 2018 was 25.2 million pink salmon (Table 18), 28% lower than forecast. The hatchery runs were below forecast, whereas wild runs were above forecast, resulting in an observed run composition, based on otolith contributions, of 39% VDFA, 37% PSWAC, and 24% wild pink salmon (Tables 18 and 19). The total harvest (includes all commercial harvest, hatchery cost recovery, broodstock, and raceway sales) in 2018 was 24.0 million pink salmon, which was 39% below the even-year average (2008–2016) of 39.6 million fish (Table 3). Of these 24.1 million pink salmon, 19.6 million were harvested in the purse seine fishery (Tables 5 and 10). For comparison, the even-year average (2008–2016) pink salmon commercial purse seine harvest was 33.0 million fish (Table 10).

The commercial harvest of 4.8 million wild fish (Table 19) was above the even-year average (2008–2016) of 2.2 million fish (Russell et al. 2021). It was the third-largest even-year harvest since 1998, combined with an aerial escapement index of 1.1 million, resulting in an estimated wild pink salmon return of 5.9 million fish (Table 19). The total run of 6.0 million wild pink salmon was above the even-year average (2008–2016) of 3.4 million (Tables 18 and 19). The total run of 9.3 million PSWAC pink salmon was 40% below the forecast and 58% below the even-year average of 21.8 million fish (Table 19). In total, 24% (2.3 million) of the PSWAC run was collected for cost recovery and broodstock (Table 19). The total run of 10.0 million VDFA pink salmon was 41% below forecast (Table 18) and 37% below the even-year average of 15.8 million fish (Table 18). In total, 16% (1.6 million) of the VDFA run was collected for cost recovery and broodstock (Table 19).

### ***Chum Salmon***

The purse seine gear group had access to the Port Chalmers Subdistrict remote release chum salmon fishery, within the Montague District, in 2018 under the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370). In the Montague District commercial fishery, 453,000 chum salmon were harvested in 2018 (Table 4). This chum salmon harvest was composed of 361,500 PC, 48,350 WNH, 27,500 AFK, and 15,500 wild fish (Russell et al. 2021).

Approximately 351,000 AFK chum salmon were harvested in PWS commercial fisheries (Table 14), which was 100,000 (22%) fish less than the preseason harvest forecast of 450,000 fish and continues a pattern of poor performance for this program. The AFK chum salmon program has produced returns lower than the preseason forecast in 8 of the past 10 years (2009–2018; Russell et al. 2021).

Additionally, a total of 32,800 sockeye salmon were harvested during the AFK chum salmon commercial fishery (June 1–July 18; Table 20). Of these, 29,200 (89%) originated from MBH, and 3,600 (11%) were wild and assumed to be of Coghill Lake origin (Table 20). This incidental harvest of salmon destined for other areas of PWS occurs because the AFK hatchery is situated in one of the primary salmon migration corridors in PWS. Returning enhanced chum salmon share run timing with Coghill Lake wild sockeye salmon; with wild chum and pink salmon returning to the Northern, Eastern, Coghill, and Northwestern Districts; and with enhanced sockeye salmon returning to Main Bay Hatchery (MBH). At the 2017 PWS BOF meeting, the regulations were updated to include specific BOF guidance that during the AFK enhanced chum salmon fishery, to the extent practical, ADF&G shall manage to reduce the harvest of stocks bound for other districts. Time restrictions to limit the harvest of salmon destined for other areas have occurred during the AFK chum salmon fishery during both 2017 and 2018. These management actions have led to an

average harvest during 2017 and 2018 of 30,300 sockeye salmon, which is a reduction from the 2012–2016 average harvest of 59,000 sockeye salmon that occurred before the adoption of this language (Table 20).

### ***Coho Salmon***

The 2018 SGH enhanced coho salmon forecast was 105,000 fish, yielding a projected commercial fishery harvest of 41,000 fish. Subsequently, the observed 2018 SGH coho salmon run was 42,000 fish (40% of forecast), 6,000 of which were harvested in the commercial fishery. Another 75,000 coho salmon were harvested in the 2018 purse seine fishery (total harvest of 81,000) and were assumed to be wild fish (Russell et al. 2021).

## **Purse Seine Season Summary 2019**

### ***Fishery Overview***

The 2019 season was one of the warmest summers on record in Alaska. PWS experienced a prolonged drought and heatwave throughout the 2019 season, which led to warm water and low streamflows across PWS for much 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 started 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 began to decline across PWS by mid-July. The decline in escapements in PWS was due to the warm water and low flow conditions that complicated wild stock management because it delayed commercial fishing periods from July 21 through August 5. Once salmon started to arrive at streams in sufficient numbers in early August, commercial fishing periods were expanded in time and area to target surplus wild pink salmon. However, aerial surveys indicated that spawning 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, it is unknown if escapement goals were achieved (Morella et al. 2021).

The 2019 PWS purse seine harvest was 44.6 million fish, which was 14% below the odd-year average (2009–2017) of 51.8 million fish. Harvest was composed of 283 Chinook, 181,000 sockeye, 297,000 coho, 42.9 million pink, and 1.2 million chum salmon. The seine harvest of 42.9 million pink salmon ranked fifth overall for odd-year commercial seine harvests from 2001 to 2019. The pink salmon harvest was below the odd-year average (2009–2017) purse seine harvest of 50.9 million fish (Table 10). Below are some highlights from the 2019 fishing season:

- The number of active permits fished in the PWS purse seine fishery increased to 238 permits (Table 10), the highest number since 1991.
- Purse seine exvessel harvest value was an estimated \$51.9 million, and the average permit earnings were \$218,300 (Table 7), lower than the 2009–2018 average of \$262,400 (Morella et al. 2021).
- The PWS pink salmon escapement aerial index was 1.2 million, with the Eshamy, Southwestern, and Montague Districts not achieving the lower end of their escapement goals (Table 16).
- Chum salmon escapements were below average across PWS, with only the Southeastern District achieving its escapement goal (Table 17).

### ***Pink Salmon***

Hatchery returns continued a recent pattern of below-average returns at most hatcheries during the 2019 pink salmon season. The pink salmon forecast was for a total run of 66.0 million fish, apportioned among 3 returns: 36% wild, 34% PWSAC, and 30% VFDA. The projected harvest was for 57.9 million pink salmon, after accounting for wild escapement, cost recovery, and broodstock (Table 18).

Subsequently, the total observed run in 2019 was 50.0 million pink salmon, 24% lower than forecast (Table 18). The hatchery and wild runs were below forecast, resulting in an observed run composition, based on otolith contributions, of 41% PWSAC, 37% wild, and 22% VFDA pink salmon (Tables 18 and 19). The total harvest (includes all commercial harvest, hatchery cost recovery, broodstock, and raceway sales) in 2019 was 48.7 million pink salmon, which was 16% below the odd-year average (2009–2017) of 58.1 million (Table 3). Of the total harvest of 48.7 million pink salmon, 42.9 million were harvested in the purse seine fishery. For comparison, the odd-year average (2009–2017) pink salmon commercial purse seine harvest was 50.9 million fish (Table 10).

The commercial harvest of 17.2 million wild fish (Table 18) was above the odd-year average (2009–2017) of 13.94 million fish (Morella et al. 2021). It was the fourth-largest odd-year harvest since 1999, combined with an aerial escapement index of 1.2 million, resulting in an estimated wild pink salmon return of 18.4 million fish (Table 18). The total run of 18.4 million wild pink salmon was above the odd-year average (2009–2017) of 17.7 million (Table 19). The total run of 20.4 million PSWAC pink salmon was 9% below the forecast (Table 18) and 26% below the odd-year average (2009–2017) of 27.6 million fish (Table 19). In total, 15% (3.0 million) of the PSWAC run was collected for cost recovery and broodstock (Table 18). The total run of 11.3 million VDFA pink salmon was 44% below forecast (Table 18) and 37% below the odd-year average of 17.3 million fish (Table 19). In total, 17% (1.9 million) of the VDFA run was collected for cost recovery and broodstock (Table 18).

### ***Chum Salmon***

Approximately 542,100 AFK chum salmon were harvested in PWS commercial fisheries, 64.3% above the preseason forecast of 330,000 fish (Tables 12 and 14). Additionally, 36,400 sockeye salmon were harvested in the AFK chum salmon commercial fishery (June 1–July 18), of which 30,400 (83.5%) originated from MBH and 6,000 (16.5%) were wild stock and assumed to be of Coghill Lake origin (Table 20). This incidental harvest of salmon destined for other areas of PWS occurs because the AFK hatchery is situated in one of the primary salmon migration corridors in PWS. Time restrictions to limit the harvest of salmon destined for other areas have occurred during the AFK chum salmon fishery from 2017 to 2019 and led to an average harvest of 32,400 sockeye salmon, which is a reduction from the 2012–2016 average harvest of 59,000 sockeye salmon that occurred prior to 2017 (Table 20).

### ***Coho Salmon***

The 2019 SGH hatchery coho salmon forecast was 87,400 fish (Table 12). The VFDA coho salmon run was below forecast with an estimated total return of 38,600 fish (44% of forecast), of which 5,700 were estimated harvested in the commercial fishery. The purse seine harvest of coho salmon in PWS was 297,000 fish (Table 10). Enhanced SGH coho salmon runs are experiencing declining

survival rates and have been lower than the SGH preseason forecast 7 out of the past 10 years (Morella et al. 2021).

## **Purse Seine Season Summary 2020**

### ***Fishery Overview***

The 2020 PWS purse seine harvest was 18.8 million fish, which was 39% below the even-year average (2010–2018) of 30.8 million fish. Harvest was composed of 452 Chinook, 40,500 sockeye, 29,500 coho, 17.8 million pink, and 894,700 chum salmon. The purse seine harvest of 17.8 million pink salmon ranked sixth overall for even-year commercial seine harvests from 2002 to 2020 (Table 10). Below are some highlights from the 2020 fishing season:

- The number of active permits fished in the PWS purse seine fishery dropped from 238 in 2019 to 219 permits in 2020 (Table 10).
- Purse seine exvessel harvest value was an estimated \$22.9 million, and the average permit earnings were \$104,800 (Table 9), less than half of the 2010–2019 average of \$232,500 (Botz et al. 2021).
- The below-average pink salmon harvest was due to poor returns to most PWSAC and VFDA hatcheries.
- The 2020 wild pink and chum salmon runs were on time and consistent. Wild pink salmon escapement indices in 2020 supported openings outside of hatchery subdistricts starting in mid-July and running through the remainder of the season (Botz et al. 2021).
- The PWS pink salmon escapement aerial index was 772,000, with all districts above the lower end of their escapement goals (Table 16).
- Wild chum salmon escapements and harvests were below average across PWS, with the Northern District not achieving the lower end of its escapement goal (Table 17).

### ***Pink Salmon***

The 2020 PWS pink salmon season saw a continuation of strong even-year wild stock returns and below-average hatchery runs. The pink salmon forecast was for a total run of 33.6 million fish, apportioned among 3 runs: 43.5% VDFA, 43.5% PWSAC, and 13% wild. The projected commercial harvest was for 26 million pink salmon, after accounting for wild escapement, cost recovery, and broodstock (Table 18).

The total observed run in 2020 was 23.7 million pink salmon (Table 19), 30% lower than forecast. The hatchery runs were below forecast, whereas wild runs were above forecast, resulting in an observed run composition, based on otolith contributions, of 36% VDFA, 36% PSWAC, and 28% wild pink salmon (Table 18). The total harvest (includes all commercial harvest, hatchery cost recovery, broodstock, and raceway sales) in 2020 was 23.0 million pink salmon, which was 36% below the even-year average (2010–2018) of 35.9 million (Table 3). Of these 23.0 million pink salmon, 17.8 million were harvested in the purse seine fishery. For comparison, the even-year average (2010–2018) pink salmon commercial purse seine harvest was 30.2 million fish (Table 10).

The commercial harvest of 5.8 million wild fish (Table 18) was above the even-year average (2010–2018) of 2.8 million fish. It was the largest even-year harvest since 1998, combined with an aerial escapement index of 771,000 fish, which resulted in an estimated wild pink salmon return of 6.5 million fish (Botz et al. 2021). The total run of 6.5 million wild pink salmon was above the even-year average (2010–2018) of 4.1 million and was the largest wild even-year return since 2000

(Table 19). The total run of 8.5 million PSWAC pink salmon was 40% below the forecast (Table 18) and 54% below the even-year average (2010–2018) of 18.5 million fish (Table 19). In total, 30% (2.6 million) of the PSWAC run was collected for cost recovery and broodstock (Table 18). The total run of 8.6 million VDFA pink salmon was 41% below forecast (Table 18) and 41% below the even-year average of 14.7 million fish (Table 19). In total, 17% (1.4 million) of the VDFA run was collected for cost recovery and broodstock (Table 18).

### ***Chum Salmon***

The purse seine gear group had access to the Port Chalmers Subdistrict remote release chum salmon fishery, within the Montague District, in 2020 under the *Prince William Sound Management and Salmon Enhancement Allocation Plan* (5 AAC 24.370). The Montague District chum salmon commercial harvest was 607,250 fish, composed of 568,600 Port Chalmers, 12,600 WNH, 9,700 AFK, and 16,400 wild fish (Botz et al. 2021).

Approximately 193,700 AFK chum salmon were harvested in the PWS commercial fishery (Table 14), 61.0% below the preseason forecast of 500,000 fish (Table 15), continuing a pattern of poor performance for this program. The AFK chum salmon program has produced returns less than the preseason forecast in 8 of the past 10 years (2011–2020) (Botz et al. 2021). Additionally, a total of 14,500 sockeye salmon were harvested in the AFK commercial chum salmon fishery (June 1–July 18). Due to the Covid-19 pandemic, sockeye salmon otolith contributions samples from this fishery were not collected to determine origin (Table 20). This incidental harvest of salmon destined for other areas of PWS occurs because the AFK hatchery is situated in one of the primary salmon migration corridors in PWS. Time restrictions to limit the harvest of salmon destined for other areas have occurred during the AFK chum salmon fishery from 2017 to 2020 and have led to an average harvest of 32,400 sockeye salmon, which is a reduction from the 2012–2016 average harvest of 59,000 sockeye salmon that occurred prior to 2017 (Table 20).

### ***Coho Salmon***

The 2020 VFDA hatchery coho salmon forecast was 87,000 fish (Table 15). Data for the estimated total VFDA coho run is not yet available. The purse seine harvest of coho salmon in PWS was 30,000 fish (Table 10), with a harvest of 19,000 in the Eastern District (Botz et al. 2021).

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## **TABLES AND FIGURES**

Table 1.—Harvest values (in millions of dollars) and percentages by gear type in Prince William Sound Area E, 2000–2019.

Year	Drift gillnet <sup>a</sup>	% Drift gillnet	Purse seine <sup>a</sup>	% Purse seine	Set gillnet <sup>a</sup>	% Set gillnet	Annual total <sup>a</sup>
2000	\$17.8	50.1%	\$17.1	48.2%	\$0.6	1.7%	\$35.5
2001	\$18.2	57.7%	\$12.4	39.2%	\$1.0	3.1%	\$31.6
2002	\$17.9	73.7%	\$5.1	21.2%	\$1.2	5.2%	\$24.2
2003	\$16.8	51.4%	\$14.7	45.2%	\$1.1	3.3%	\$32.6
2004	\$18.3	73.8%	\$6.0	24.3%	\$0.5	1.9%	\$24.8
2005	\$20.5	51.4%	\$18.8	47.2%	\$0.5	1.4%	\$39.8
2006	\$24.4	66.6%	\$11.4	31.1%	\$0.8	2.3%	\$36.6
2007	\$31.2	46.0%	\$35.3	52.0%	\$1.4	2.0%	\$67.9
2008	\$28.3	34.6%	\$52.1	63.6%	\$1.5	1.8%	\$81.9
2009	\$31.8	72.2%	\$10.5	23.8%	\$1.7	3.9%	\$44.1
2010	\$47.9	33.9%	\$89.7	63.5%	\$3.6	2.5%	\$141.2
2011	\$48.3	54.3%	\$37.5	42.1%	\$3.2	3.6%	\$88.9
2012	\$58.9	53.5%	\$47.7	43.3%	\$3.5	3.2%	\$110.1
2013	\$51.0	32.9%	\$101.4	65.4%	\$2.6	1.7%	\$155.1
2014	\$53.5	55.6%	\$39.8	41.3%	\$2.9	3.0%	\$96.3
2015	\$37.9	35.9%	\$65.7	62.2%	\$2.0	1.9%	\$105.7
2016	\$35.3	66.4%	\$16.0	30.1%	\$1.9	3.6%	\$53.2
2017	\$39.0	32.8%	\$77.8	65.6%	\$1.9	1.6%	\$118.6
2018	\$34.1	43.4%	\$42.5	54.1%	\$2.0	2.5%	\$78.6
2019	\$17.6	42.0%	\$22.1	52.7%	\$2.2	5.3%	\$41.9

<sup>a</sup> Fish ticket harvest and Commercial Operator’s Annual Reports (COAR 2020) values were used to calculate annual gear-specific harvest values.



Table 2.—The 5-year rolling average harvest allocation percentages by gear type in Prince William Sound Area E, 2010–2020.

Year	Purse seine	Gillnet	
		Drift	Set
2010	62.1%	37.9% <sup>a</sup>	3.7%
2011	59.0%	41.0% <sup>a</sup>	4.0%
2012	60.9%	39.1% <sup>a</sup>	3.7%
2013	57.6%	42.4% <sup>a</sup>	4.1%
2014	53.7%	46.3% <sup>a</sup>	4.3%
2015	55.4%	44.6% <sup>a</sup>	4.3%
2016	53.0%	47.0%	5.1% <sup>a</sup>
2017	53.3%	46.7%	5.2% <sup>a</sup>
2018	56.9%	43.1% <sup>a</sup>	4.7%
2019	47.7%	52.3%	5.4% <sup>a</sup>
2020	52.7%	42.0% <sup>a</sup>	5.3% <sup>a</sup>

*Note:* Fish ticket harvest and Commercial Operator’s Annual Report (COAR) values used to calculate average gear specific harvest values.

<sup>a</sup> Allocation triggers were in effect.

Table 3.—Commercial salmon harvest by species for all gear types, Prince William Sound, Copper, and Bering Districts, 1988–2020.

Year <sup>a</sup>	Harvest					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1988	31,797	767,674	477,816	11,820,121	1,843,317	14,940,725
1989	32,006	1,175,238	424,980	21,886,466	1,001,809	24,520,499
1990	22,163	911,607	524,274	44,165,077	967,384	46,590,505
1991	35,355	1,734,544	641,854	37,135,561	352,321	39,899,635
1992	41,306	1,771,612	619,460	8,637,116	334,376	11,403,870
1993	32,005	1,851,133	445,612	5,761,097	1,186,365	9,276,212
1994	48,558	1,514,329	1,058,154	36,886,301	1,058,213	40,565,555
1995	67,083	1,523,464	992,798	16,221,493	864,245	19,669,083
1996	56,457	3,000,602	459,253	26,042,942	2,103,559	31,662,813
1997	52,482	4,163,074	83,113	25,836,563	2,227,190	32,362,422
1998	70,910	1,715,778	194,621	28,685,115	1,271,911	31,938,335
1999	63,434	2,035,293	244,754	45,003,656	2,989,255	50,336,392
2000	32,411	1,430,838	714,286	38,885,528	5,163,760	46,226,823
2001	40,461	2,261,097	494,135	35,246,524	3,099,794	41,142,011
2002	39,706	2,262,134	650,331	18,950,931	6,373,491	28,276,593
2003	49,227	2,838,679	502,135	51,136,305	3,779,657	58,306,003
2004	39,142	1,892,525	619,884	23,531,483	2,001,918	28,084,952
2005	36,118	1,988,771	536,675	59,896,419	1,996,956	64,446,609
2006	31,634	2,524,496	761,044	21,673,378	2,181,482	27,172,034
2007	41,149	3,231,202	328,980	63,464,830	3,579,068	70,645,229
2008	12,454	1,301,067	550,629	42,353,653	5,075,195	49,292,998
2009	10,802	1,919,240	300,615	18,581,891	3,220,841	24,033,389
2010	10,996	2,045,135	334,789	71,309,596	4,323,156	78,023,672
2011	20,462	3,542,007	371,482	33,404,190	1,914,525	39,252,666
2012	13,159	3,700,792	210,466	27,591,840	3,834,761	35,351,018
2013	10,807	2,334,491	619,494	92,640,123	4,070,104	99,675,019
2014	10,117	3,307,398	600,303	43,902,238	1,529,730	49,336,286
2015	24,546	3,400,847	224,972	97,325,519	2,512,451	103,488,335
2016	13,466	1,989,266	483,944	13,070,491	3,171,765	18,729,318
2017	13,643	1,426,523	554,119	48,701,038	5,422,622	56,117,945
2018	8,573	1,318,783	526,760	24,028,434	3,468,531	29,351,247
2019	20,074	2,602,446	528,347	48,720,914	5,381,504	57,248,764
2020	6,878	941,791	288,617	23,003,258	2,016,777	26,257,321
3-yr Avg (2018–2020)	11,842	1,621,007	447,908	31,917,535	3,622,271	37,619,111
10-yr Avg (2008–2017)	14,045	2,496,677	425,081	48,888,058	3,507,515	55,330,065
10-yr Avg (2009–2018)	13,657	2,498,448	422,694	47,055,536	3,346,849	53,335,890
10-yr Avg (2010–2019)	14,584	2,566,769	445,468	50,069,438	3,562,915	56,657,427
5-yr Even Avg (2008–2016)	12,038	2,468,732	436,026	39,645,564	3,586,921	46,146,658
5-yr Odd Avg (2009–2017)	16,052	2,524,622	414,136	58,130,552	3,428,109	64,513,471
5-yr Even Avg (2010–2018)	11,262	2,472,275	431,252	35,980,520	3,265,589	42,158,308

<sup>a</sup> Includes commercial fishery, hatchery sales, and test fisheries harvest, as well as personal use, educational, special use permit harvest, and donated fish, 1988–2013. Includes commercial fishery and hatchery sales harvest, 2014–2020.

Table 4.—Prince William Sound management area commercial salmon harvest by gear type and district, 2018.

District	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	230	53	5,657	23,820	10,296,388	197,452	10,523,370
Northern	146	4	2,774	3,488	2,626,622	8,603	2,641,491
Coghill	67	0	2,315	6,347	687,095	4,148	699,905
Northwestern	29	5	4,331	1,048	184,091	7,576	197,051
Southwestern	201	87	48,848	43,566	4,912,287	355,623	5,360,411
Montague	139	137	6,165	1,640	395,459	452,946	856,347
Southeastern	44	7	214	701	443,118	27,717	471,757
Unakwik	0	0	0	0	0	0	0
Purse seine total	234	293	70,296	80,610	19,545,060	1,053,907	20,750,166
Bering River	159	5	33	120,774	11	121	120,944
Copper River	484	7,618	46,524	303,957	10,569	3,171	371,839
Coghill	447	310	186,978	4,306	286,356	1,802,402	2,280,352
Eshamy	341	131	823,344	3,407	303,572	131,246	1,261,700
Unakwik	7	0	3,505	1	36	16	3,558
Drift gillnet total	509	8,090	1,060,384	432,445	600,544	1,936,956	4,038,419
Eshamy	26	7	180,945	103	22,784	9,948	213,787
Set gillnet total	26	7	180,945	103	22,784	9,948	213,787
Solomon Gulch	1	0	0	9,632	1,595,590	0	1,605,222
Cannery Creek	1	0	0	0	395,238	0	395,238
Wally Noerenberg	1	0	0	0	1,063,332	467,385	1,530,717
Main Bay	1	0	0	0	0	0	0
Armin F. Koernig	1	0	0	0	804,475	0	804,475
Hatchery total <sup>a</sup>	5	0	0	9,632	3,858,635	467,385	4,335,652
Test fishery	1	0	865	0	0	0	865
Home pack	413	183	6,293	3,970	1,411	335	12,192
Confiscated fish	0	0	0	0	0	0	0
Donated fish	0	0	0	0	0	0	0
Misc. total	414	183	7,158	3,970	1,411	335	13,061
Prince William Sound total harvest		8,573	1,318,783	526,760	24,028,434	3,468,531	29,351,247

<sup>a</sup> Includes hatchery and raceway sales for hatchery operating costs, and fish used for broodstock.

Table 5.—Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 2018.

Purse seine <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	293	3,297	11.25	\$1.37	\$4,517
Sockeye	70,304	316,407	4.50	\$1.97	\$623,322
Coho	80,610	619,300	7.68	\$0.99	\$613,107
Pink	19,545,060	74,614,511	3.82	\$0.40	\$29,845,804
Chum	1,053,907	8,138,452	7.72	\$0.91	\$7,405,991
	20,750,332	83,691,967			\$38,492,741
Drift gillnet <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	8,090	130,609	16.21	\$11.96	\$1,562,084
Sockeye	1,060,384	4,810,554	4.54	\$2.85	\$13,710,079
Coho	432,445	3,786,695	8.76	\$1.61	\$6,096,579
Pink	600,544	2,240,729	3.73	\$0.40	\$896,292
Chum	1,936,956	16,443,689	8.49	\$0.91	\$14,963,757
	4,038,419	27,412,276			\$37,228,790
Set gillnet <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	7	109	15.57	\$10.22	\$1,114
Sockeye	180,945	833,866	4.61	\$2.74	\$2,284,793
Coho	103	794	7.72	\$0.72	\$572
Pink	22,784	89,795	3.94	\$0.40	\$35,918
Chum	9,948	84,131	8.46	\$0.89	\$74,877
	213,787	1,008,695			\$2,397,273
Hatchery sales <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	0	0	0	\$0.00	\$0
Sockeye	0	0	0	\$0.00	\$0
Coho	9,632	107,427	11.15	\$1.15	\$123,541
Pink	3,858,635	14,033,260	3.64	\$0.85	\$11,928,271
Chum	467,385	4,096,585	8.76	\$1.04	\$4,260,448
	4,335,652	18,237,272			\$16,312,260
Combined					
Species	Number	Pounds	Average weight	Species	Number
Chinook	8,062	134,015	16.04	\$11.70	\$1,567,715
Sockeye	1,311,625	5,960,827	4.54	\$2.79	\$16,618,194
Coho	522,790	4,514,216	8.63	\$1.51	\$6,833,799
Pink	24,027,023	90,978,295	3.79	\$0.47	\$42,706,285
Chum	3,468,196	28,762,857	8.29	\$0.93	\$26,705,073
	29,337,897	130,350,210			\$94,431,065
2018 Summary					
Gear type	Value of catch			No. of permits	Average earnings
Purse seine	\$38,492,741			234	\$164,499
Drift gillnet	\$37,228,790			509	\$73,141
Set gillnet	\$2,397,273			26	\$92,203
Subtotal					
Value of commercial fishery catch	\$78,118,805				
Hatchery	\$16,312,260				
Total	\$94,431,065				

<sup>a</sup> Mean prices are based on weighted average prices given voluntarily by processors and hatchery operators. Pounds of fish are based on fish ticket reporting and do not represent pounds reported in Commercial Operator's Annual Reports (COAR 2020).

Table 6.–Prince William Sound management 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	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	2,114	1015	10,788
Drift gillnet total	509	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	27	14	225,676	182	54,899	38,534	319,305
Solomon Gulch	1	0	0	5068	1,982,585	0	1,987,653
Cannery Creek	1	0	0	0	902,599	0	902,599
Wally Noerenberg	1	0	0	17,886	1,091,998	1,407,994	2,517,878
Main Bay	1	0	8,987	0	0	0	8,987
Armin F. Koernig	1	0	0	0	959,018	0	959,018
Port Chalmers	0	0	0	0	0	6,330	6,330
Hatchery total <sup>a</sup>	5	0	8,987	22,954	4,936,200	1,414,324	6,382,465
Test fishery	0	0	0	0	0	0	0
Home pack	417	839	11,544	2,015	1,437	424	16,259
Confiscated fish	0	0	0	0	0	0	0
Donated fish	0	0	0	0	0	0	0
Misc. total	417	839	11,544	2,015	1,437	424	16,259
Prince William Sound total harvest		20,074	2,602,446	528,347	48,720,914	5,381,504	57,248,764

<sup>a</sup> Includes hatchery and raceway sales for hatchery operating costs, and fish used for broodstock.

Table 7.—Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 2019.

Purse seine <sup>a</sup>					
Species	Number	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 <sup>a</sup>					
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 <sup>a</sup>					
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 <sup>a</sup>					
Species	Number	Pounds	Average weight	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
Combined					
Species	Number	Pounds	Average weight	Species	Value
Chinook	18,997	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	6.17	\$0.55	\$18,230,347
	57,236,788	219,071,463			\$118,369,173
2019 Summary					
Gear type	Value of catch			No. of permits	Average earnings
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 commercial fishery catch	\$98,729,116				
Hatchery	\$19,640,057				
Grand total	\$118,369,173				

<sup>a</sup> Mean prices are based on weighted average prices given voluntarily by processors and hatchery operators. Pounds of fish are based on fish ticket reporting and do not represent pounds reported in Commercial Operator's Annual Reports (COAR 2020).

Table 8.—Prince William Sound management area commercial salmon harvest by gear type and district, 2020.

District	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
Eastern	217	71	3,242	17,800	8,963,990	54,680	9,039,783
Northern	176	11	2,377	3,032	3,425,004	5,758	3,436,182
Coghill	128	12	1,445	407	1,108,848	6,721	1,117,433
Northwestern	67	4	12,350	390	921,426	12,051	946,221
Southwestern	170	65	18,079	6,951	2,739,176	222,231	2,986,502
Montague	139	288	2,447	810	268,006	592,049	863,600
Southeastern	25	1	516	151	373,859	1,161	375,688
Unakwik	217	0	0	0	0	0	0
Purse seine total	219	452	40,456	29,541	17,800,309	894,651	18,765,409
Bering River	105	8	9	64,712	10	0	64,739
Copper River	461	5,880	102,269	168,524	685	1,335	278,693
Coghill	365	334	111,403	2,475	651,099	229,406	994,717
Eshamy	385	188	358,068	930	316,963	70,666	746,815
Unakwik	12	9	764	0	2	22	797
Drift gillnet total	489	6,419	572,513	236,641	968,759	301,429	2,085,761
Eshamy	26	7	91,810	23	35,135	4,070	131,045
Set gillnet total	26	7	91,810	23	35,135	4,070	131,045
Solomon Gulch	1	0	0	22412	1,584,557	0	1,606,969
Cannery Creek	1	0	0	0	570,371	0	570,371
Wally Noerenberg	1	0	30	0	1,510,625	816,627	2,327,282
Main Bay	1	0	236,982	0	0	0	236,982
Armin F. Koernig	1	0	0	0	533,502	0	533,502
Hatchery total <sup>a</sup>	5	0	237,012	22,412	4,199,055	816,627	5,275,106
Test fishery	0	0	0	0	0	0	0
Home pack	369	444	4252	2183	1155	189	8,223
Confiscated fish	0	0	0	0	0	0	0
Donated fish	0	0	0	0	0	0	0
Misc. total	369	444	4,252	2,183	1,155	189	8,223
Prince William Sound total harvest		7,322	946,043	290,800	23,004,413	2,016,966	26,265,544

<sup>a</sup> Includes hatchery and raceway sales for hatchery operating costs, and fish used for broodstock.

Table 9.—Mean price and estimated exvessel value of the total commercial salmon harvest by gear type, Prince William Sound, 2020.

Purse seine <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	452	5,508	12.19	\$2.00	\$11,016
Sockeye	40,456	192,846	4.77	\$1.43	\$275,770
Coho	29,541	22,675	0.77	\$0.89	\$20,181
Pink	17,800,309	65,015,435	3.65	\$0.30	\$19,504,631
Chum	894,651	6,952,975	7.77	\$0.45	\$3,128,839
	18,765,409	72,189,439			\$22,940,436
Drift gillnet <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	6,419	85,455	13.31	\$5.69	\$486,239
Sockeye	572,513	2,721,568	4.75	\$1.95	\$5,307,058
Coho	236,641	1,995,365	8.43	\$1.39	\$2,773,557
Pink	968,759	3,544,705	3.66	\$0.29	\$1,027,964
Chum	301,429	2,333,523	7.74	\$0.31	\$723,392
	2,085,761	10,680,616			\$10,318,210
Set gillnet <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	7	116	16.57	\$1.56	\$181
Sockeye	91,826	455,035	4.96	\$1.84	\$837,264
Coho	23	152	6.61	\$0.30	\$46
Pink	35,136	128,633	3.66	\$0.29	\$37,304
Chum	4,069	29,608	7.28	\$0.47	\$13,916
	237,381	1,209,501			\$888,710
Hatchery sales <sup>a</sup>					
Species	Number	Pounds	Average weight	Price	Value
Chinook	0	0	0.00	\$0.00	\$0
Sockeye	237,012	942,061	3.97	\$1.39	\$1,309,465
Coho	22,412	152,417	6.80	\$0.30	\$45,557
Pink	4,199,055	14,070,899	3.35	\$0.84	\$11,819,555
Chum	816,627	5,607,205	6.87	\$0.58	\$3,252,179
	5,275,106	20,772,582			\$16,426,756
Combined					
Species	Number	Pounds	Average weight	Species	Value
Chinook	6,878	91,079	13.24	\$5.46	\$497,436
Sockeye	941,807	4,311,510	4.58	\$1.79	\$7,729,557
Coho	288,617	2,170,609	7.52	\$1.29	\$2,793,784
Pink	23,003,259	82,759,672	3.60	\$0.39	\$32,389,454
Chum	2,016,776	14,923,311	7.40	\$0.48	\$7,118,326
	26,257,337	104,256,181			\$50,574,113
2020 Summary					
Gear type		Value of catch		No. of permits	Average earnings
Purse seine		\$22,940,436		219	\$104,751
Drift gillnet		\$10,318,210		489	\$21,101
Set gillnet		\$888,710		26	\$34,181
Subtotal					
Value of commercial fishery catch		\$34,147,357			
Hatchery		\$16,426,756			
Grand total		\$50,574,113			

<sup>a</sup> Hatchery sales for hatchery operating costs.



Table 10.—Commercial salmon harvest by species and gear types, Prince William Sound, 2000–2020.

Drift gillnet	Permits fished	Chinook salmon		Sockeye salmon		Coho salmon		Pink salmon		Chum salmon		Total	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2000	531	32,914	685,103	1,295,401	8,443,688	449,540	4,358,710	473,282	1,617,101	1,676,702	13,370,225	3,927,839	28,474,827
2001	535	40,810	864,539	1,920,995	11,811,767	267,842	2,470,804	685,686	2,414,940	1,166,600	8,871,635	4,081,933	26,433,685
2002	534	40,163	824,769	1,908,709	12,283,710	617,262	5,819,178	132,499	454,504	1,797,141	14,790,010	4,495,774	34,172,171
2003	515	49,155	1,117,247	1,950,205	11,916,423	434,634	3,672,092	118,951	465,062	753,884	4,842,604	3,306,829	22,013,428
2004	522	38,972	876,115	1,500,877	8,844,512	575,332	5,239,629	81,090	303,349	581,763	4,245,889	2,778,034	19,509,494
2005	508	35,791	775,806	1,608,027	9,384,752	360,800	2,896,851	228,484	879,443	888,874	7,003,812	3,121,976	20,940,664
2006	494	31,382	641,359	2,014,263	11,476,793	477,596	4,318,951	145,358	540,754	314,492	2,562,765	2,983,091	19,540,622
2007	506	40,328	885,153	2,647,088	16,432,693	190,378	1,648,575	188,993	718,590	1,100,769	7,903,187	4,167,556	27,588,197
2008	507	12,254	261,978	1,063,573	6,537,422	325,698	3,189,972	960,166	3,559,791	2,561,127	19,620,411	4,922,818	33,169,574
2009	511	10,668	184,369	1,561,895	9,702,249	276,401	2,474,852	400,585	1,374,494	2,291,901	17,588,834	4,541,450	31,324,797
2010	519	10,957	196,585	1,699,798	10,316,221	299,384	2,728,181	3,488,037	13,036,181	3,301,436	22,826,586	8,799,612	49,103,753
2011	513	20,273	385,295	3,164,834	19,301,719	234,465	1,710,603	829,586	2,595,389	1,305,304	9,663,856	5,554,462	33,656,862
2012	522	12,936	255,255	3,249,616	21,674,805	185,593	1,502,298	1,237,938	4,368,863	2,865,401	20,202,421	7,551,484	48,003,642
2013	526	9,947	175,444	2,054,458	12,520,424	357,179	2,893,325	2,606,200	7,179,168	2,778,655	20,609,655	7,806,439	43,378,017
2014	525	11,124	188,767	2,984,301	17,759,504	567,206	4,555,254	1,298,266	4,526,238	764,367	5,757,161	5,625,264	32,786,924
2015	520	23,974	401,295	2,533,027	13,957,602	162,006	1,182,924	977,090	3,572,337	1,047,915	6,677,696	4,744,012	25,791,854
2016	517	13,360	228,252	1,705,610	8,938,904	449,743	4,057,925	115,354	425,455	1,812,170	12,325,263	4,096,237	25,975,798
2017	507	14,793	293,184	1,135,310	6,447,027	445,758	3,666,556	1,033,385	3,905,080	2,326,878	17,790,662	4,956,124	32,102,509
2018	510	8,211	131,191	1,065,817	4,824,299	436,274	3,803,295	601,864	2,241,134	1,937,090	16,444,263	4,049,256	27,444,182
2019	509	19,766	363,697	2,186,164	11,833,575	208,225	1,807,736	802,756	2,976,278	2,771,284	17,456,585	5,988,195	34,437,871
2020	489	6,419	85,455	572,513	2,721,568	236,641	1,995,365	968,759	3,544,705	301,429	2,333,523	2,085,761	10,680,615
3-yr Avg (2018–2020)	503	11,465	193,448	1,274,831	6,459,814	293,713	2,535,465	791,126	2,920,706	1,669,934	12,078,124	4,041,071	24,187,556
10-yr Avg (2008–2017)	517	14,029	257,042	2,115,242	12,715,588	330,343	2,796,189	1,294,661	4,454,300	2,105,515	15,306,255	5,859,790	35,529,373
10-yr Avg (2009–2018)	517	13,624	243,964	2,115,467	12,544,275	341,401	2,857,521	1,258,831	4,322,434	2,043,112	14,988,640	5,772,434	34,956,834
10-yr Avg (2010–2019)	517	14,534	261,897	2,177,894	12,757,408	334,583	2,790,810	1,299,048	4,482,612	2,091,050	14,975,415	5,917,109	35,268,141

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Table 10.—Page 2 of 3.

Set gillnet Year	Permits fished	Chinook salmon		Sockeye salmon		Coho salmon		Pink salmon		Chum salmon		Total	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2000	28	41	719	101,105	659,269	662	5,970	139,008	468,577	12,319	97,238	253,135	1,231,773
2001	30	26	406	176,078	1,096,373	1,006	8,429	127,737	440,951	7,057	52,751	311,904	1,598,910
2002	28	35	605	241,665	1,492,210	525	4,309	64,421	216,969	22,987	184,254	329,633	1,898,347
2003	28	0	0	215,733	1,337,573	663	3,357	28,537	105,393	6,265	39,658	251,198	1,485,981
2004	27	11	137	91,412	534,952	825	5,838	51,655	185,964	10,381	75,046	154,284	801,937
2005	27	0	0	109,532	660,746	882	6,879	126,135	485,449	3,452	24,863	240,001	1,177,937
2006	26	9	119	124,087	714,984	352	2,789	20,863	75,678	9,883	80,879	155,194	874,449
2007	26	18	469	196,538	1,262,474	365	2,901	13,796	50,980	24,651	162,996	235,368	1,479,820
2008	25	19	385	162,475	1,006,214	151	1,232	20,455	75,112	53,627	420,780	236,727	1,503,723
2009	27	47	863	152,649	1,002,774	49	401	4,251	16,743	50,748	377,465	207,744	1,398,246
2010	29	17	256	282,489	1,804,647	69	550	16,766	63,743	80,531	558,576	379,872	2,427,772
2011	29	39	653	312,927	1,950,062	612	3,979	17,629	60,987	25,350	186,996	356,557	2,202,677
2012	29	14	151	294,950	2,095,809	97	660	17,311	69,832	24,368	175,423	336,740	2,341,875
2013	29	83	1,005	203,247	1,201,244	360	2,501	19,114	52,786	42,630	318,383	265,434	1,575,919
2014	29	32	328	260,041	1,462,134	65	511	35,681	119,268	20,929	159,305	316,748	1,741,546
2015	29	70	1,018	266,540	1,353,606	839	5,641	29,070	114,052	21,716	138,170	318,235	1,612,487
2016	29	43	765	218,709	1,115,755	13	90	8,011	32,364	20,831	154,881	247,607	1,303,855
2017	29	9	106	183,255	936,023	216	1,333	37,652	146,770	17,585	131,011	238,717	1,215,243
2018	26	10	147	181,249	834,672	121	859	22,784	89,795	10,139	84,894	214,303	1,010,367
2019	27	25	444	226,439	1,186,387	182	1,195	54,904	215,733	38,534	235,674	320,084	1,639,433
2020	26	7	116	91,810	454,959	23	152	35,135	128,625	4,070	29,616	131,045	613,468
3-yr Avg (2018-2020)	26	14	236	166,499	825,339	109	735	37,608	144,718	17,581	116,728	221,811	1,087,756
10-yr Avg (2008-2017)	28	37	553	233,728	1,392,827	247	1,690	20,594	75,166	35,832	262,099	290,438	1,732,334
10-yr Avg (2009-2018)	29	36	529	235,606	1,375,673	244	1,653	20,827	76,634	31,483	228,510	288,196	1,682,999
10-yr Avg (2010-2019)	29	34	487	242,985	1,394,034	257	1,732	25,892	96,533	30,261	214,331	299,430	1,707,117

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Table 10.—Page 3 of 3.

Purse seine Year	Permits fished	Chinook salmon		Sockeye salmon		Coho salmon		Pink salmon		Chum salmon		Total	
		Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2000	131	190	2,837	34,696	216,823	264,085	2,322,060	27,147,419	91,083,639	1,744,575	14,298,622	29,190,965	107,923,981
2001	148	555	8,382	123,004	728,903	198,334	1,532,817	21,517,861	73,726,656	988,409	7,739,098	22,828,163	83,735,856
2002	120	260	4,002	18,837	101,890	32,730	272,740	7,966,259	27,721,568	1,972,459	16,156,833	9,990,545	44,257,033
2003	107	120	1,925	197,407	1,194,319	66,838	539,569	38,661,721	142,885,067	1,481,727	10,098,351	40,407,813	154,719,231
2004	105	156	2,822	17,530	84,679	33,990	290,025	11,573,514	42,935,506	881,129	6,827,836	12,506,319	50,140,868
2005	103	224	3,439	63,482	386,306	142,672	1,045,854	47,017,421	164,400,377	568,847	4,331,861	47,792,646	170,167,837
2006	111	229	3,930	37,745	209,554	268,574	2,363,009	11,828,266	41,816,238	1,032,627	9,116,072	13,167,441	53,508,803
2007	120	714	9,610	66,004	411,699	108,593	932,489	51,270,207	173,441,948	1,353,892	9,480,697	52,799,410	184,276,443
2008	141	130	2,443	74,912	459,725	202,003	1,838,787	33,727,052	114,828,548	1,820,049	14,157,467	35,824,146	131,286,970
2009	154	28	577	70,473	442,495	6,739	53,121	10,765,944	32,873,517	270,805	2,121,386	11,113,989	35,491,096
2010	174	22	405	62,761	393,402	8,389	69,570	62,257,799	223,054,644	186,537	1,309,539	62,515,508	224,827,560
2011	183	150	2,188	64,244	390,684	92,608	609,889	26,110,579	79,386,801	107,839	799,592	26,375,420	81,189,154
2012	224	161	1,846	155,055	1,022,139	22,404	170,191	22,814,762	90,713,549	504,142	3,582,930	23,496,524	95,490,655
2013	211	775	8,201	76,777	470,891	222,009	1,697,940	85,925,135	238,018,132	487,464	3,683,581	86,712,160	243,878,745
2014	222	503	6,599	60,931	341,653	34,985	237,899	37,873,270	127,295,081	376,159	2,915,417	38,345,848	130,796,649
2015	216	502	6,198	241,610	1,277,715	45,005	287,554	89,112,315	301,591,419	463,472	2,912,144	89,862,904	306,075,029
2016	210	56	742	64,885	359,117	29,303	246,187	8,524,852	32,879,683	379,094	2,672,573	8,998,190	36,158,302
2017	230	392	4,244	118,979	692,832	81,802	564,462	42,466,730	165,002,187	2,322,819	16,980,473	44,990,722	183,244,198
2018	234	317	3,695	70,860	319,042	80,733	620,284	19,545,151	74,614,851	1,054,075	8,139,880	20,751,136	83,697,753
2019	238	283	3,350	180,752	888,278	296,986	2,328,234	42,926,916	147,043,241	1,157,281	7,256,906	44,562,218	157,520,009
2020	219	452	5,508	40,456	192,846	29,541	222,675	17,800,309	65,015,435	894,651	6,952,975	18,765,409	72,389,439
3-yr Avg (2018-2020)	230	351	4,184	97,356	466,722	135,753	1,057,064	26,757,459	95,557,842	1,035,336	7,449,920	28,026,254	104,535,734
10-yr Avg (2008-2017)	197	272	3,344	99,063	585,065	74,525	577,560	41,957,844	140,564,356	691,838	5,113,510	42,823,541	146,843,836
5-yr Even yr Avg (2008-2016)	194	174	2,407	83,709	515,207	59,417	512,527	33,039,547	117,754,301	653,196	4,927,585	33,836,043	123,712,027
5-yr Odd yr Avg (2009-2017)	199	369	4,282	114,417	654,923	89,633	642,593	50,876,141	163,374,411	730,480	5,299,435	51,811,039	169,975,644
5-yr Even yr Avg (2010-2018)	213	212	2,657	82,898	487,071	35,163	268,826	30,203,167	109,711,562	500,001	3,724,068	30,821,441	114,194,184

Table 11.—Preseason harvest forecast projections for the commercial salmon fishery by district and species, Prince William Sound Area, 2018.

District/facility <sup>a</sup>	Forecast type <sup>b</sup>	Chinook		Sockeye		Coho <sup>c</sup>		Pink		Chum	
		Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range
Copper River <sup>d</sup>	Commercial harvest	19	0 – 42	1,220	815 – 1,626	207	170 – 244				
Bering River <sup>e</sup>	Commercial harvest			4	2 – 7	48	35 – 61				
Coghill <sup>f</sup>	Commercial harvest			153	65 – 377						
Unakwik <sup>g</sup>	Commercial harvest			3	1 – 5						
General districts	Commercial harvest							2,020		391	
Total wild stock		19	0 – 42	1,380	883 – 2,015	255	205 – 305	2,020		191	
SGH	Total run					85		16,932	8,466 – 25,398		
AFK	Total run							5,300	1,400 – 9,300	450	350 – 550
WNH <sup>h</sup>	Total run					87	46 – 131	4,600	3,100 – 15,300	3,270	2,830 – 3,690
CCH	Total run							5,500	1,800 – 9,200		
MBH <sup>i</sup>	Total run			763	687 – 839						
GH	Total run			96	75 – 101						
Total hatchery				859	762 – 940	172	46 – 131	32,332	14,766 – 59,198	3,720	3,180 – 4,240
Total hatchery and wild		19		2,239		427		34,352		3,741	

Note: All values are in thousands. Blank cells mean preseason harvest point projections (or ranges) were not generated. 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).

- <sup>a</sup> 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.
- <sup>b</sup> Alaska Department of Fish and Game (ADF&G) provides commercial harvest forecasts for all wild stocks and Gulkana Hatchery sockeye salmon. Hatchery operators provide total run forecasts for PWS hatchery runs and Gulkana Hatchery sockeye salmon.
- <sup>c</sup> ADF&G provides commercial harvest forecasts for Copper River and Bering River Districts coho salmon runs.
- <sup>d</sup> 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).
- <sup>e</sup> Bering River coho and sockeye salmon harvest estimates are based on 10-year mean annual harvest.
- <sup>f</sup> Formalized sibling model forecast procedures are used for Coghill and Eshamy District's sockeye salmon runs. Coghill District's wild pink and chum salmon harvests are included in the projection for "General (PWS) districts".
- <sup>g</sup> Unakwik District sockeye salmon harvest estimate is based on the 10-year mean annual harvest.
- <sup>h</sup> Wally Noerenberg Hatchery chum and coho salmon harvest estimates include all on-site and remote release runs.
- <sup>i</sup> Main Bay Hatchery sockeye salmon harvest estimate includes all on-site and remote release runs.

Table 12.—Preseason harvest forecast projections for the commercial salmon fishery by district and species, Prince William Sound Area, 2019.

District/facility <sup>a</sup>	Forecast type <sup>b</sup>	Chinook		Sockeye		Coho <sup>c</sup>		Pink		Chum	
		Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range
Copper River <sup>d</sup>	Commercial harvest	31	9 – 53	955	550 – 1,360	235					
Bering River <sup>e</sup>	Commercial harvest			2		67					
Coghill <sup>f</sup>	Commercial harvest			443	250 – 636						
Unakwik <sup>g</sup>	Commercial harvest			3	1 – 5						
General Districts	Commercial 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 <sup>h</sup>	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 <sup>i</sup>	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	2,897

Note: All values are in thousands. Blank cells mean preseason harvest point projections (or ranges) were not generated. 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).

- <sup>a</sup> 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.
- <sup>b</sup> Alaska Department of Fish and Game (ADF&G) provides commercial harvest forecasts for all wild stocks and Gulkana Hatchery sockeye salmon. Hatchery operators provide total run forecasts for PWS hatchery runs and Gulkana Hatchery sockeye salmon.
- <sup>c</sup> ADF&G provides commercial harvest forecasts for Copper River and Bering River Districts coho salmon runs.
- <sup>d</sup> 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).
- <sup>e</sup> Bering River coho and sockeye salmon harvest estimates are based on 10-year mean annual harvest.
- <sup>f</sup> Formalized sibling model forecast procedures are used for Coghill and Eshamy District's sockeye salmon runs. Coghill District's wild pink and chum salmon harvests are included in the projection for "General (PWS) districts".
- <sup>g</sup> Unakwik District sockeye salmon harvest estimate is based on the 10-year mean annual harvest.
- <sup>h</sup> Wally Noerenberg Hatchery chum and coho salmon harvest estimates include all on-site and remote release runs.
- <sup>i</sup> Main Bay Hatchery sockeye salmon harvest estimate includes all on-site and remote release runs.

Table 13.—Wally Noerenberg hatchery chum salmon contributions to Prince William Sound, 2012–2020.

Wally Noerenberg				
Year	Commercial harvest <sup>a</sup>	Cost recovery <sup>b</sup>	Broodstock and raceway sales <sup>c</sup>	Hatchery total
2012	1,886,397	269,982	171,847	2,328,226
2013	1,593,010	761,280	187,281	2,541,571
2014	614,610	173,205	181,917	969,732
2015	966,604	673,209	487,224	2,127,037
2016	1,702,954	679,209	307,474	2,689,637
2017	3,230,575	454,014	284,007	3,968,596
2018	1,941,016	300,681	163,502	2,405,199
2019	1,226,048	1,174,004	248,792	2,648,844
2020	304,582	383,044	433,583	1,121,209

<sup>a</sup> Commercial harvest and purse seine cost-recovery information from fish ticket reporting. Cost recovery does not include raceway or carcass sales.

<sup>b</sup> If contribution estimates are not available, all fish are assumed to originate from the facility where they were counted.

<sup>c</sup> Broodstock and raceway sales from PWSAC annual hatchery reports.

Table 14.—Armin F. Koernig and Port Chalmers hatchery chum salmon contributions to Prince William Sound, 2012–2020.

Year	Armin F Koernig		Port Chalmers	
	Commercial harvest <sup>a</sup>	Hatchery total	Commercial harvest <sup>a</sup>	Hatchery total
2012	886,693	886,693	373,628	373,628
2013	881,581	881,581	482,188	482,188
2014	94,171	94,171	195,988	195,988
2015	183,763	183,763	143,582	143,582
2016	249,225	249,225	158,912	158,912
2017	492,198	492,198	358,632	358,632
2018	350,547	350,547	389,458	389,458
2019	542,094	542,094	1,573,158	1,579,488 <sup>b</sup>
2020	193,657	193,657	578,984	578,984

<sup>a</sup> Commercial harvest from fish ticket reporting.

<sup>b</sup> 6,330 chum salmon were harvested for cost recovery.

Table 15.—Preseason harvest forecast projections for the commercial salmon fishery by district and species (in thousands of fish), Prince William Sound Area, 2020.

District/facility <sup>a</sup>	Forecast type <sup>b</sup>	Chinook		Sockeye		Coho <sup>c</sup>		Pink		Chum	
		Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range	Point estimate	Range
Copper River <sup>d</sup>	Commercial harvest	36	15 – 58	771	355 – 1,187	233					
Bering River <sup>e</sup>	Commercial harvest			4		63					
Coghill <sup>f</sup>	Commercial harvest			145	51 – 238						
Unakwik <sup>g</sup>	Commercial harvest			3							
General Districts	Commercial harvest							3,630		404	
Total wild stock		36	15 – 58	1,122	605 – 1,624	296		3,630		404	
SGH	Total run					87		14,622	7,311 – 21,933		
AFK	Total run							5,800	1,200 – 10,400	500	410 – 590
WNH <sup>h</sup>	Total run					115	68 – 163	4,600	2,100 – 7,100	3,360	2,920 – 3,810
CCH	Total run							4,200	2,200 – 6,300		
MBH <sup>i</sup>	Total run			1,061	935 – 1,186						
GH	Total run			151	135 – 167						
Total hatchery				1,212	1,070 – 1,353	155	115 – 163	29,222	12,811 – 45,733	3,860	3,330 – 4,400
Total hatchery and wild		36		2,334		451		32,852		4,264	

Note: All values are in thousands. Blank cells mean preseason harvest point projections (or ranges) were not generated. 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).

<sup>a</sup> 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.

<sup>b</sup> ADF&G provides commercial harvest forecasts for all wild stock sockeye salmon. Hatchery operators provide total run forecasts for PWS hatchery runs and Gulkana Hatchery sockeye salmon.

<sup>c</sup> ADF&G provides commercial harvest forecasts for Copper River and Bering River coho salmon.

<sup>d</sup> 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).

<sup>e</sup> Bering River coho and sockeye salmon harvest estimates are based on 10-year mean annual harvest.

<sup>f</sup> Formalized sibling model forecast procedures are used for Coghill and Eshamy District's sockeye salmon runs. The Coghill District's wild pink and chum salmon harvest is included in the projections for "General (PWS) districts".

<sup>g</sup> The Unakwik District sockeye salmon harvest estimate is based on the 10-year mean annual harvest.

<sup>h</sup> Wally Noerenberg Hatchery chum and coho salmon harvest estimates include only on-site release runs of chum and coho salmon. No remote release runs included.

<sup>i</sup> Main Bay Hatchery sockeye salmon harvest estimate includes all on-site and remote release runs.



Table 16.—Prince William Sound pink salmon escapement indices by district, 1995–2020.

Year	Eastern	Northern <sup>a</sup>	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 <sup>b</sup>	270,244	105,843	63,290	67,030	12,400	83,581	24,917	185,072	812,376
2015 <sup>c</sup>	1,605,058	779,600	801,201	454,427	70,068	789,725	649,144	2,032,492	7,181,714
2016 <sup>d</sup>	663,113	152,509	171,362	171,633	NA	NA	NA	169,660	1,326,535
2017 <sup>d</sup>	624,502	445,858	187,159	259,842	2,880	212,009	237,927	528,948	2,499,125
2018	309,325	113,383	70,881	111,194	16,594	81,100	135,208	293,275	1,130,960
2019	445,075	195,169	153,129	91,267	1,402	33,340	25,385	290,452	1,235,219
2020	206,152	105,226	88,401	77,828	7,250	64,470	84,238	138,330	771,895
Even-year average, 2002–2020	363,466	151,805	132,623	112,910	6,934	86,449	103,232	269,795	1,207,378
Odd-year average, 2001–2019	819,161	318,199	341,431	195,990	15,068	255,031	353,011	947,236	3,245,126

*Note:* This does not represent the total spawning escapement but rather a comparable annual index. Current even-year goals by district are as follows: Eastern 203,000–328,000; Northern/Unakwik 96,000–127,000; Coghill 37,000–110,000; Northwestern 52,000–93,000; Eshamy 1,000–4,000; Southwestern 62,000–105,000; Montague 36,000–72,000; Southeastern 88,000–153,000. Current odd-year goals by district are as follows: Eastern 346,000–863,000; Northern/Unakwik 111,000–208,000; Coghill 54,000–233,000; Northwestern 64,000–144,000; Eshamy 5,000–31,000; Southwestern 112,000–231,000; Montague 143,000–330,000; Southeastern 286,000–515,000.

<sup>a</sup> Northern District totals include both Northern and Unakwik Districts' counts combined.

<sup>b</sup> Only 17 of 33 index streams in the Montague District were surveyed often enough ( $\geq 3$ ) in 2014 to use with the area under the curve (AUC) methodology.

<sup>c</sup> 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.

<sup>d</sup> 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.

Table 17.—Prince William Sound chum salmon escapement indices by district, 1995–2020.

Year	Eastern	Northern <sup>b</sup>	Coghill	Northwestern	Southeastern	Total
1995	75,655	28,899	11,596	4,883	23,200	144,233
1996	137,908	55,568	19,669	24,405	47,334	284,884
1997	93,146	19,429	3,101	8,387	43,274	167,337
1998	86,227	28,867	22,764	7,553	52,103	197,514
1999	242,713	36,691	5,057	4,544	36,181	325,186
2000	196,253	23,655	20,488	10,150	34,969	285,515
2001	198,683	75,473	13,388	6,373	37,526	331,443
2002	94,046	30,531	7,430	16,194	104,906	253,107
2003	198,921	44,272	19,729	12,736	116,131	391,789
2004	108,833	42,456	9,685	10,371	42,344	213,689
2005	113,135	30,657	11,979	12,696	25,547	194,014
2006	109,403	52,069	15,900	25,860	26,739	229,970
2007	123,814	49,669	14,052	10,778	60,464	258,778
2008	74,740	38,791	39,660	28,051	21,614	202,857
2009	100,309	22,063	6,150	12,293	106,284	247,099
2010	91,514	38,207	51,589	30,074	85,138	296,522
2011	196,933	52,474	16,368	11,447	91,218	368,440
2012	61,969	14,680	10,281	7,072	20,467	114,468
2013	119,110	34,240	11,369	4,746	35,942	205,407
2014	93,491	27,680	9,491	5,041	30,177	165,880
2015 <sup>c</sup>	112,142	43,179	15,444	7,321	52,031	230,117
2016 <sup>c</sup>	131,168	10,746	1,010	4,100	26,127	173,151
2017 <sup>c</sup>	85,618	34,516	13,666	7,381	49,421	190,602
2018	109,598	18,407	13,617	15,563	10,164	167,349
2019	56,846	11,690	3,437	3,258	19,451	94,682
2020	103,849	23,542	8,998	7,405	26,909	170,703
Average, 2011–2020	107,072	27,115	10,368	7,333	36,191	188,080

*Note:* Current goals are district-specific lower-bound sustainable escapement goals: Coghill >10,000; Eastern >79,000; Northern/Unakwik >28,000; Northwestern >7,000; Southeastern >11,000. This does not represent the total spawning escapement but rather a comparable annual index.

<sup>a</sup> This does not represent the total spawning escapement but rather a comparable annual index.

<sup>b</sup> Northern District totals include both Northern and Unakwik Districts' counts combined.

<sup>c</sup> Area under the curve (AUC) counts adjusted for the average proportion of the 214 index streams represented by the 129 index streams.

Table 18.—Comparison of forecasted and total pink salmon runs by origin, 2018–2020.

Forecast			Total run		
Wild	Total run	Projected harvest	Commercial harvest	Escapement	Total run
2018	2,020,000 <sup>a</sup>	2,020,000 <sup>a</sup>	4,850,000	1,130,000	5,980,000
2019	23,560,000	21,730,000	17,150,000	1,230,000	18,380,000
2020	4,421,000	3,630,000	5,763,128	771,000	6,534,128
PWSAC			Broodstock & cost recovery		
Wild	Total run	Projected commercial harvest	Commercial harvest	Escapement	Total run
2018	15,400,000	12,390,000	7,005,464	2,255,557	9,261,021
2019	22,300,000	19,430,000	17,395,741	2,975,213	20,370,954
2020	14,600,000	11,200,000	5,905,605	2,630,742	8,536,347
VFDA			Broodstock & cost recovery		
Wild	Total run	Projected commercial harvest	Commercial harvest	Escapement	Total run
2018	16,930,000	13,900,000	8,381,642	1,620,000	10,002,010
2019	20,160,000	16,720,000	9,339,222	1,943,264	11,282,485
2020	14,620,000	11,150,000	7,179,058	1,445,153	8,624,211
Totals			Broodstock, cost recovery, & escapement		
Wild	Total run	Projected commercial harvest	Commercial harvest	Escapement	Total run
2018	34,350,000	28,310,000	20,237,106	5,005,557	25,243,031
2019	66,020,000	57,880,000	43,884,963	6,148,477	50,033,439
2020	33,641,000	25,980,000	18,847,791	4,846,895	23,694,686

Note: PWSAC (Prince William Sound Aquaculture Association); VFDA (Valdez Fisheries Development Association)

<sup>a</sup> Harvest forecast.

Table 19.—Prince William Sound pink salmon runs by origin, 2000–2020.

Year	Estimated total run					
	Hatcheries				Wild	Total
	SGH	AFK	WNH	CCH		
2000	12,113,551	6,904,559	8,856,119	6,573,795	7,360,000	41,808,024
2001	15,932,656	4,865,879	7,126,101	2,108,028	8,800,000	38,832,664
2002	5,149,430	7,929,788	5,616,803	1,588,501	1,230,000	21,514,522
2003	17,784,817	7,065,581	17,843,002	8,349,320	7,389,184	58,431,904
2004	11,296,792	5,230,138	2,704,549	2,761,140	4,900,000	26,892,619
2005	17,833,484	10,121,228	9,221,716	13,595,157	12,540,000	63,311,585
2006	9,021,053	5,216,231	3,977,073	2,969,543	1,794,000	22,977,900
2007	23,967,744	15,760,177	7,519,098	7,430,043	10,333,079	65,010,141
2008	15,617,999	6,112,588	8,701,656	11,013,594	2,232,000	43,677,837
2009	1,222,473	10,703,437	3,223,164	3,258,244	2,825,000	21,232,318
2010	18,399,595	13,768,753	17,309,257	19,768,346	4,320,000	73,565,951
2011	13,830,644	3,199,541	6,647,472	4,743,895	9,230,000	37,651,552
2012	11,330,663	3,763,888	5,687,710	3,478,658	4,320,000	28,580,919
2013	22,183,858	20,222,117	17,479,441	15,959,517	22,250,000	98,094,933
2014	25,445,746	4,476,859	7,609,619	4,537,866	2,500,000	44,570,090
2015	34,751,413	10,854,375	17,537,606	10,183,238	31,680,000	105,006,632
2016	8,057,516	1,471,867	744,035	707,850	3,520,000	14,501,268
2017	14,543,144	4,968,436	2,508,749	6,736,574	22,430,000	51,186,903
2018	10,002,010	3,307,954	2,296,808	3,656,259	5,980,000	25,243,031
2019	11,282,485	6,071,637	4,025,313	10,274,004	18,380,000	50,033,439
2020	8,624,211	1,293,916	4,185,154	3,057,366	6,534,128	23,694,775
5-yr Even yr avg (2008–2016)	15,770,304	5,918,791	8,010,455	7,901,263	3,378,400	40,979,213
5-yr Odd yr avg (2009–2017)	17,306,306	9,989,581	9,479,286	8,176,294	17,683,000	62,634,468
5-yr Even yr avg (2010–2018)	14,647,106	5,357,864	6,729,486	6,429,796	4,128,000	37,292,252

Note: SGH (Solomon Gulch Hatchery), AFK (Armin F. Koernig Hatchery), WNH (Wally Noerenberg Hatchery), CCH (Cannery Creek Hatchery).

Table 20.—Sockeye salmon contribution estimates during the enhanced chum salmon fishery at Armin F. Koernig Hatchery, approximately June 1–July 18 annually.

Year	Wild	MBH	Total	Percentage wild
2006	0	15,376	15,376	0.0%
2007	141	361	502	28.1%
2008	3,959	33,044	37,003	10.7%
2009	4,034	54,389	58,423	6.9%
2010	3,106	56,108	59,214	5.2%
2011	2,751	18,679	21,430	12.8%
2012	11,952	57,097	69,049	17.3%
2013	4,396	37,134	41,530	10.6%
2014	2,027	26,151	28,178	7.2%
2015	5,185	99,175	104,360	5.0%
2016	2,323	49,208	51,531	4.5%
2017 <sup>a</sup>	3,157	24,818	27,975	11.3%
2018	3,567	29,182	32,749	10.9%
2019	6,035	30,355	36,390	16.6%
2020 <sup>b</sup>	NA	NA	14,527	NA
Average, 2012–2016	5,177	53,753	58,930	8.8%
Average, 2017–2020	4,253	28,118	32,371	13.1%

*Note:* MBH is Main Bay Hatchery.

<sup>a</sup> Adoption of language to reduce the harvest of salmon destined for other areas of Prince William Sound.

<sup>b</sup> No otolith sampling due to Covid-19 pandemic.

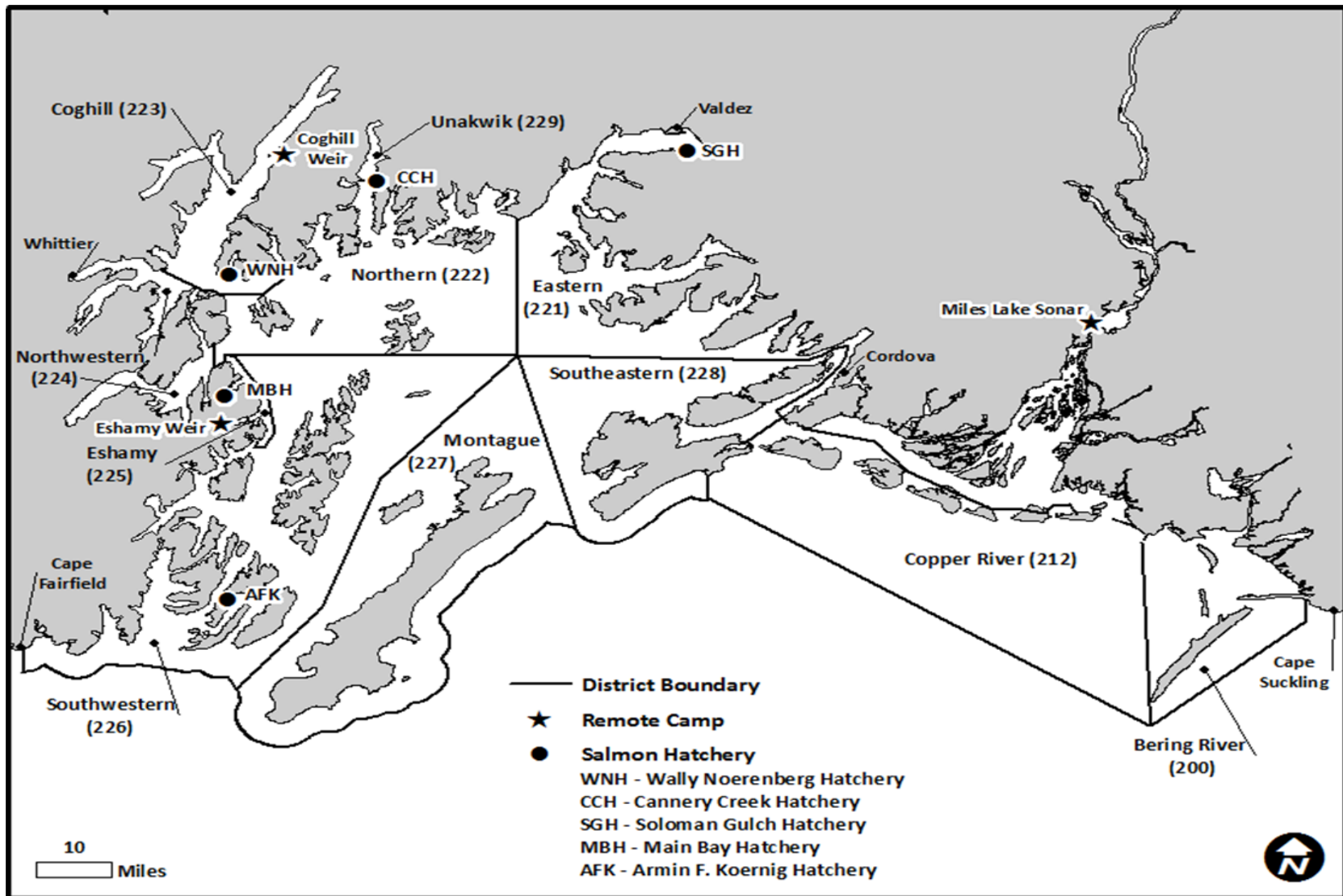


Figure 1.—Prince William Sound Management Area showing towns, commercial fishing districts, weir locations, Miles Lake sonar camp, and 5 of the 6 salmon hatcheries.

*Note:* The Gulkana Hatchery is located too far up the Copper River to display on this map.