Regional Information Report No. 5J19-01

Alaska Salmon Fisheries Enhancement Annual Report 2018

by

Mark Stopha

March 2019

Alaska Department of Fish and Game **Division of Commercial Fisheries**

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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by
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ABSTRACT

This annual report reviews the Alaska salmon fisheries enhancement program. The success of this program is attributable to the development of statutes, regulations, and policies that require hatcheries to be located away from important natural salmon stocks and to use local broodstock sources. To maintain genetic diversity, Alaska hatcheries do not selectively breed for size or other trait and use large numbers of broodstock for production. Most hatchery releases are marked so that fisheries managers can estimate the strength of wild stocks in the catch inseason and manage wild stocks conservatively.

Currently, 29 salmon hatcheries are operating in the state. Twenty-five facilities are operated by private nonprofit corporations, which are funded primarily from the sale of a portion of hatchery returns. Two sport fish hatcheries are operated by the state, one research hatchery by the National Marine Fisheries Service, and one production hatchery by the Metlakatla Indian Community.

In 2018, the commercial fleet caught about 39 million hatchery-produced salmon worth an estimated $453 million dollars in first wholesale value. Hatchery fish contributed 34% of the statewide commercial salmon harvest and 30% of the statewide commercial harvest exvessel value. An additional 258,000 Alaska hatchery fish were caught in the sport, personal use, and subsistence fisheries.

Hatchery production in Alaska is designed to supplement—not replace—wild stock production. Alaska's salmon harvests in 2013, 2015, and 2017 were 3 of the 4 highest wild stock returns in history dating back to the late 1800s. Abundance-based wild stock management priority, habitat protection, and record wild-stock harvests reflect the state's commitment to conservation of wild stocks, and provide the foundation of its salmon fisheries enhancement program.

Key words: Alaska salmon hatchery, hatchery, pink salmon, chum salmon, Chinook salmon, coho salmon, sockeye salmon

PREFACE

This report is a review of Alaska's hatchery production based on information provided by hatchery operators and other harvest information. The report is intended to update the Alaska State Legislature on the status of Alaska's hatchery program in fulfillment of Alaska Statute 16.05.092. Numbers in tables may be rounded for clarity. Hatchery industry acronyms used in this publication are listed in Table 1. Hatchery locations are depicted in Figure 1. Alaska hatchery egg take, release, return and value data by species and region for 2017 are provided in Tables 2–16.

Multiple types of propagative fish resource permits (also called aquatic resource permits) are issued each year for research to accredited institutions of higher learning, cooperative governmental projects, as well as for educational, vocational, and scientific purposes. A summary of permits issued in 2018 is provided in Table 16.

Historical annual summaries of hatchery production, including number of eggs collected, juveniles released, adult returns, and harvest are listed in Tables 19–28 and Figures 2–14.

Alaska hatchery operators contact information, active hatchery permits, permitted capacities by region and hatchery, and the Alaska fisheries enhancement program timeline of events, are found in Tables 29–32.

In this document, *wild* fish refer to fish that are offspring of parents that naturally spawned in watersheds and intertidal areas. *Hatchery* fish are fish reared in a hatchery to a juvenile stage and released. *Farmed* fish are fish reared in captivity to market size for sale. Farming of finfish, including salmon, is not legal in Alaska. Also note that a small number (less than 200,000) in the overall statewide catch—primarily in the Southeast Alaska Chinook salmon harvest—are hatchery fish from hatcheries outside Alaska; these fish are included with the wild catch.

Broodstock are fish used for egg and milt collection at the hatchery.

The *commercial harvest* is composed of the *common property* and *cost-recovery* harvests. The *common property* commercial harvest is fish available for harvest by commercial fishing permit holders. Sport, personal use, and subsistence users also harvest *common property* fish. The *cost-recovery* harvest is fish harvested in designated special harvest areas to pay for hatchery operations.[1]

Exvessel value is the value paid to fishermen by a processor for their harvest. *First wholesale value* is the value of processed product sold by a processor. Exvessel values by region were estimated as the percentage of the hatchery harvest in the region for each species multiplied by the total exvessel value for that species in the region, by year. First wholesale values were estimated as the percentage of the hatchery harvest in the state for each species multiplied by the total wholesale value in the state for each species by year.

First wholesale values are not yet available for 2018. As a proxy, the 2018 first wholesale value was estimated as the 2018 exvessel value of the hatchery harvest by species, multiplied by the previous 5-year (2013–2017) weighted average quotient of the first wholesale value of the statewide catch divided by the exvessel value of the statewide catch, by species.

Exvessel and first wholesale values of hatchery fish were estimated based on average prices paid for all salmon on fish tickets or annual processor reports by region by calendar year. Cost-recovery fish may be priced under contract to a processor, but cost-recovery value in this report is estimated based on the average price for all salmon sold in each region by species.

A *tender* vessel is a boat that transports the catch from a fishing boat to a processing facility. Tenders are usually larger vessels that can transport the catch from numerous fishing boats to a shore-based processor so that the fishing vessels can stay on the fishing grounds and continue fishing.

Monetary values are not adjusted for inflation unless otherwise noted.

Contributions of hatchery fish are in numbers of fish, and not weight of fish.

Values and numbers of hatchery fish are for Alaska hatcheries only, and do not include harvest in Alaska from non-Alaska hatcheries, such as hatcheries in Canada or the Pacific Northwest states.

References in this document to the ADF&G commissioner refer to the commissioner or their delegates.

An Executive Summary intended to provide an overview of the hatchery program begins this report, followed by a more detailed review of Alaska hatchery history, regulatory and policy guidelines, and production.

[1] At Hidden Falls Hatchery, fish are harvested in the special harvest area in a commercial common property fishery that is subject to a special cost-recovery assessment tax to pay for operations.

EXECUTIVE SUMMARY 2018

Alaska's modern hatchery program was developed in response to historically low salmon abundance in the early 1970s (Figure 2). In 1971, the Alaska Legislature established the Division of Fisheries Rehabilitation Enhancement and Development (FRED) within the Alaska Department of Fish and Game (ADF&G) for hatchery development. In 1972, Alaska voters approved an amendment to the state Constitution (Article 8, section 15), providing for an exemption to the "no exclusive right of fishery" clause, enabling limited entry to Alaska's state fisheries and allowing harvest of salmon for broodstock and cost recovery for hatcheries. In 1974, the Alaska Legislature expanded the hatchery program, authorizing private nonprofit (PNP) corporations to operate salmon hatcheries (Table 32). Alaska's salmon hatchery program developed under this authority and was designed to supplement—not replace—sustainable natural production.

Alaska's salmon fishery harvests were just 22 million fish in 1973 and 1974 (Figure 2). Since then, Alaska's post statehood hatchery program has produced significant contributions to the fisheries alongside sustainable, healthy, well-managed wild production. The 5 largest wild stock harvests in Alaska history occurred, in order of descending rank, in 1995, 2013, 2017, 2015 and 1993. The top 5 hatchery harvests have occurred since 2005, with the largest hatchery harvests in 2013 and 2015.

The success of the hatchery program is attributable to Alaska standards requiring hatcheries to be located away from important natural salmon stocks, to use local broodstock sources, and to mark hatchery fish as necessary so that fisheries managers can determine the strength of wild stocks in the catch and manage wild stocks conservatively. In addition, Alaska hatcheries do not selectively breed for size or any other trait and use large numbers of broodstock to maintain genetic diversity per the state's *Genetic Policy*.

Hatcheries function to improve egg-to-juvenile survival. Depending on species, egg-to-fry survival averages about 10% or less in nature due to flooding, freezing, drought, predation, etc. In hatcheries, egg-to-fry survival is usually 90% or higher. Once hatchery-raised juveniles are released to the ocean, they are subject to the same elements for survival as their naturally spawned counterparts.

Currently, there are 29 hatcheries operating in Southeast Alaska, Prince William Sound, Cook Inlet, and Kodiak regions (Figure 1; Tables 29–31). Most facilities (25 hatcheries) are operated by PNPs. ADF&G operates 2 sport fish hatcheries in Anchorage and Fairbanks. The National Marine Fisheries Service operates a research hatchery at Little Port Walter. The Metlakatla Indian Community operates Tamgas Creek Hatchery. PNP hatcheries are funded through landing taxes and sale of a portion of the returns.

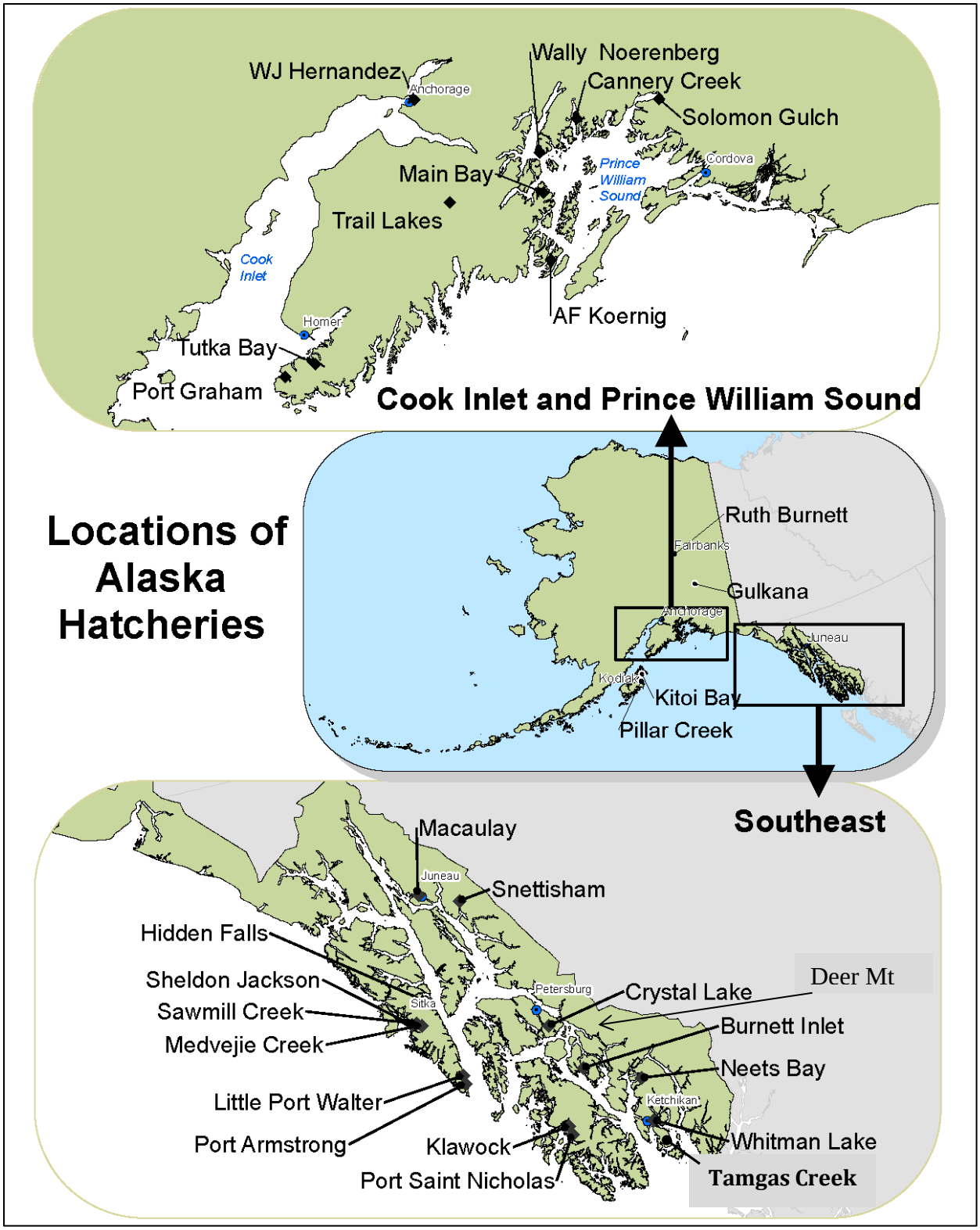

Figure 1.–Salmon hatcheries currently operating in Alaska.

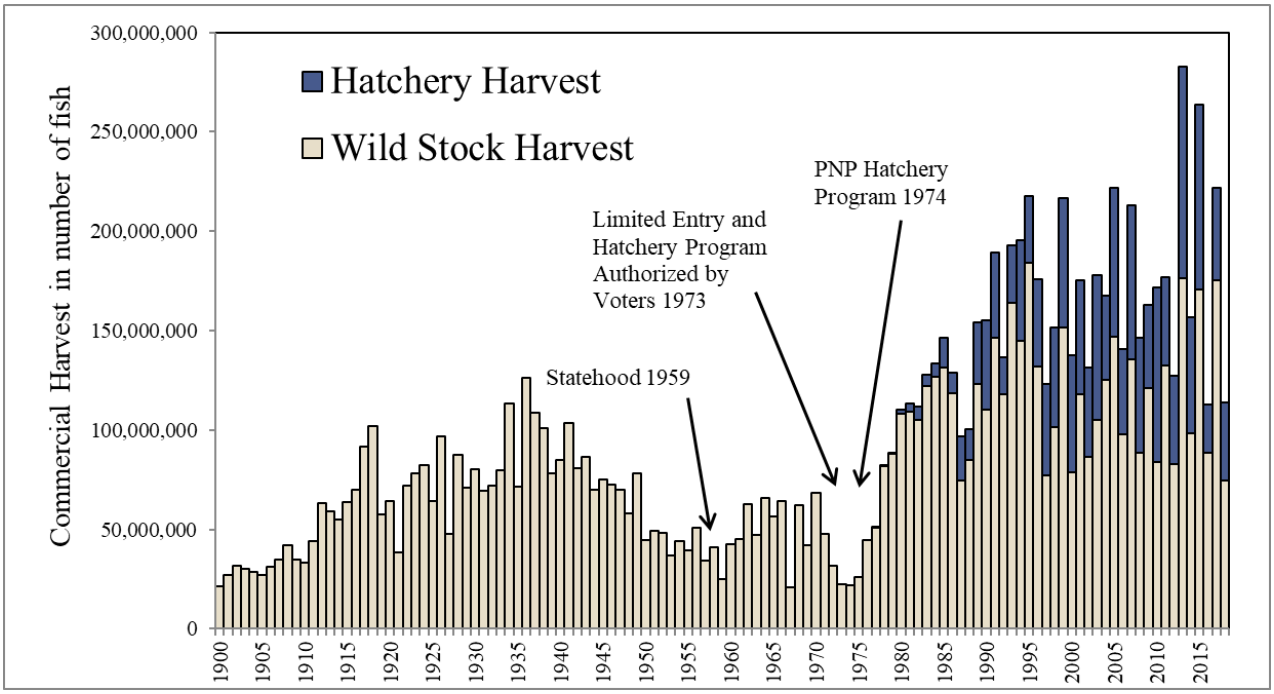

Figure 2.–Commercial salmon harvest in Alaska, 1900–2018.

Alaska's hatcheries produce primarily pink and chum salmon because hatchery production is limited by freshwater capacity, freshwater rearing space, and costs of production (Figure 3). Pink and chum salmon fry can be released to salt water soon after hatching. Chinook, sockeye, and coho salmon fry must typically spend a year or more in fresh water before development to the smolt stage, when they can tolerate salt water and be released. This makes these 3 species much more expensive to rear, as they require a higher volume of fresh water, holding areas for freshwater rearing, and feeding.

Although a majority of the harvest of a species in a region may be made up of hatchery production—pink salmon in Prince William Sound or chum salmon in Southeast Alaska, for example—this does not mean that hatchery production is intended to replace wild stock production. Hatchery production grew at a pace that managers could assess the returns and understand how to manage for wild stock returns in the presence of hatchery returns and provide for adequate escapement of wild stocks. The development of otolith marking[2] allows all pink and chum salmon produced in Cook Inlet, Southeast Alaska, and Prince William Sound to be marked so that ADF&G staff can determine the harvest composition inseason and manage for wild stocks.

As fisheries management has adapted to hatchery production, so have the fishing fleet and processing sector adapted to harvest the hatchery returns. When fishing is open elsewhere to target wild stocks, the fleet may instead focus effort on hatchery returns at terminal sites where hatchery fish were released—particularly if tender service is also concentrated there. Fishermen

[2] Otolith marking is usually done by alternating the temperature of the water during egg incubation, which lays down regular marks on the fish ear bone (the otolith). Wild fish usually do not have the otolith markings. Otoliths can be removed from fish harvested and hatchery and wild stock contributions to the catch estimated.

can harvest hatchery fish and offload to nearby tenders, saving time and fuel in their operations. This may also decrease fishing pressure on some wild stocks.

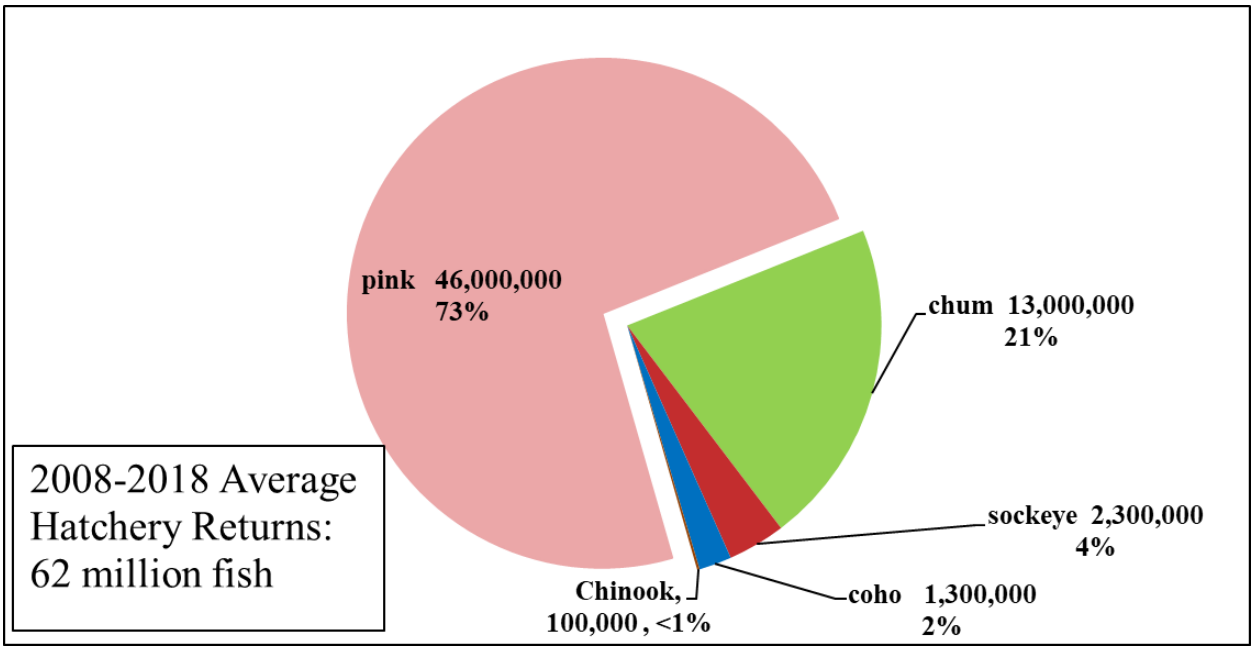

Figure 3.–Alaska hatchery production and percent of hatchery production by species in numbers of fish harvested, 2008–2018 annual average.

2018 SEASON SUMMARY

In 2018, Gulf of Alaska[3] salmon fisheries saw below average harvests of Chinook, sockeye, and pink salmon, and average to above average harvests for coho and chum salmon.

Chinook salmon returns were low throughout the Gulf, and escapement goals were not met in nearly all monitored systems in the Gulf of Alaska, despite fishery restrictions to limit Chinook salmon harvest.

Sockeye salmon escapement goals were not met in the Chignik River, despite closures of fisheries targeting Chignik River sockeye salmon in the Chignik, Kodiak, and Alaska Peninsula fishing areas. The Copper River commercial sockeye salmon fishery was closed for 6 consecutive weeks for conservation, but escapement targets were achieved for the Copper River systems. Elsewhere in the Gulf, sockeye salmon escapement targets were met or exceeded in the major systems in Prince William Sound (Coghill Lake), in Cook Inlet (e.g., Kasilof and Kenai rivers and English Bay and Delight lakes), Kodiak (e.g., Karluk, Ayakulik and Fraser rivers), and for most Southeast Alaska systems (e.g., Chilkat, Chilkoot, and Taku rivers). Escapement targets were not met in South Alaska Peninsula systems or the Situk River near Yakutat.

Pink salmon escapement targets were met for the most part in Prince William Sound, Cook Inlet, Kodiak, and were below target in some of Southeast, and all of Chignik and the South Alaska Peninsula systems.

Both coho and chum salmon escapement targets appear to have been met or exceeded in most Gulf of Alaska systems where stocks are monitored.

Fisheries in the Bering Sea[4] saw record returns in many areas in 2018. The sockeye salmon return to Bristol Bay was the largest on record. Pink and chum salmon returns to Norton and Kotzebue Sound were also among the highest on record.

Chinook salmon escapements were also better for Bering Sea drainages as compared to the Gulf of Alaska, with escapement goals met or exceeded on the Nushagak, Kuskokwim and Yukon rivers.

Season summaries of the 2018 commercial salmon fisheries can be found for each commercial fishing area by searching by management area and salmon species.[5]

In 2018, Alaska hatcheries contributed nearly 39 million fish to the commercial fishery.[6] Hatchery fish made up 34% of the statewide commercial salmon harvest of 114 million fish. About 20% (7.8 million fish) of the total commercial hatchery harvest were harvested for cost recovery to pay for hatchery operations (Table 5).

[3] Gulf of Alaska fisheries include Southeast Alaska, Yakutat, Prince William Sound, Cook Inlet, Kodiak, Chignik, and the Alaska Peninsula areas.

[4] Bering Sea fisheries include the North Alaska Peninsula, Bristol Bay, Kuskokwim River, Yukon River, Norton Sound and Kotzebue areas.

[5] http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.search (Accessed 2/26/2019).

[6] The commercial fishery comprises 2 components: (1) the common property fisheries, which are open to fishermen holding salmon permits, and (2) cost recovery fisheries, which are fish harvested to pay for PNP hatchery operations.

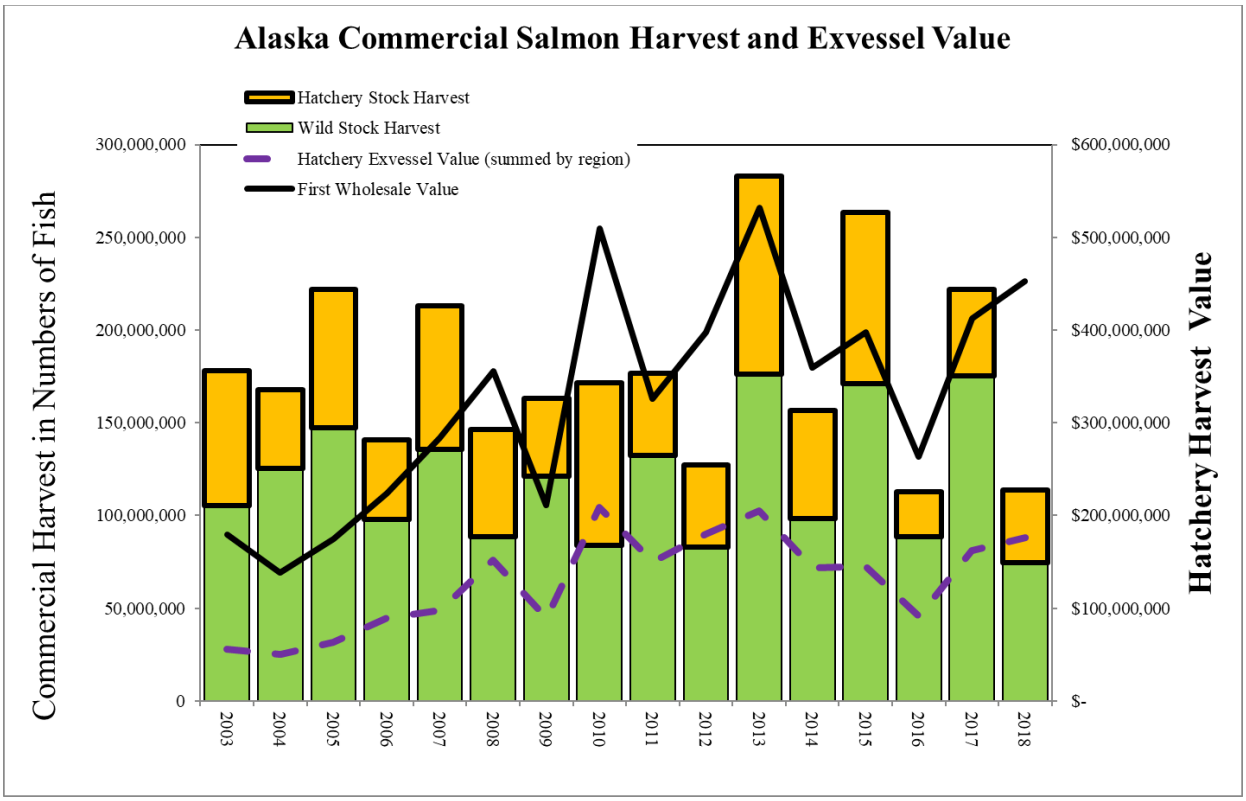

Figure 4.–Hatchery and wild stock harvest in numbers of fish and the estimated exvessel value of the hatchery fish harvest, 2003–2018.

The estimated statewide first wholesale value of the commercial hatchery harvest was $452 million, and the statewide exvessel value of the commercial hatchery harvest was $176 million (Figures 4 and 5; Table 6). The hatchery harvest comprised 30% of the statewide harvest exvessel value. Chum salmon accounted for 57% of the value of the hatchery harvest, followed by pink (24%), sockeye (11%), coho (5%), and Chinook salmon (3%).[7]

[7] Note that hatchery contribution to the statewide harvest can differ from the contribution to the statewide exvessel value because of differences in exvessel values paid for salmon in different regions of the state. For example, Chinook salmon and chum salmon hatchery production is largely in Southeast Alaska, where exvessel price per pound is usually among the highest in the state for these 2 species.

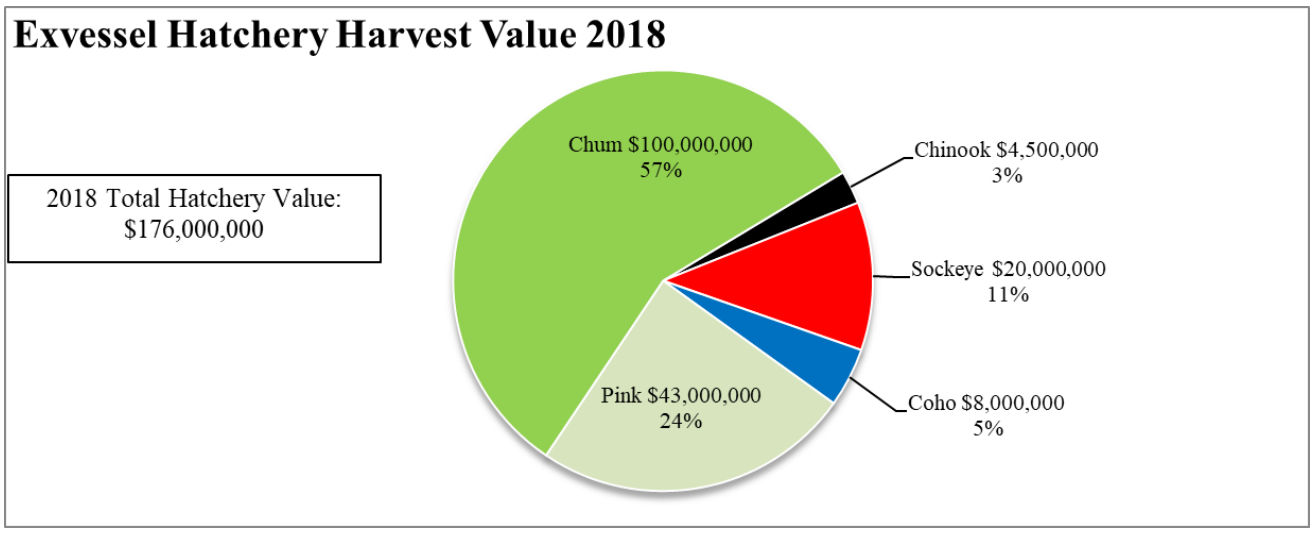

Figure 5.–Species composition of 2018 Alaska hatchery commercial harvest, with the exvessel value by species, and the percent of the total hatchery value for each species. Commercial exvessel value is the estimated value paid to fishermen for the common property harvest and to aquaculture associations for cost recovery harvest.

Note: Exvessel value for hatchery harvest is the total harvest value paid by fish buyers to fishermen for all salmon from http://www.adfg.alaska.gov/static/fishing/pdfs/commercial/2018_preliminary_salmon_summary_table.pdf (accessed 2/08/2019), multiplied by the hatchery percent of the commercial harvest.

An estimated 258,000 hatchery-produced salmon, rainbow trout, arctic char, and grayling were harvested by sport, personal use, and subsistence users in 2018 (Table 7). Hatchery-produced coho salmon were the greatest part of this harvest (113,000 fish), followed by sockeye salmon (67,000 fish), rainbow trout (36,000 fish), pink salmon (15,000 fish), Chinook salmon (10,000 fish), landlocked salmon (9,000 fish), chum salmon (6,000 fish), arctic char (2,000 fish), and grayling (1,000 fish).

REGIONAL HATCHERY CONTRIBUTION

Most of Alaska's hatchery production is in Prince William Sound (Figure 6, Table 26), where pink, chum, and sockeye salmon are the primary hatchery species. Next is Southeast Alaska, where chum and coho salmon are the primary hatchery species (Table 25). Kodiak hatcheries produce primarily pink and sockeye salmon (Table 28) and Cook Inlet hatcheries produce primarily sockeye and pink salmon (Table 27). Two ADF&G Division of Sport Fish hatcheries produce landlocked salmon, trout, char, and grayling for stocking Interior and Southcentral freshwater systems, as well as Chinook and coho salmon for saltwater release in Cook Inlet and Prince William Sound.

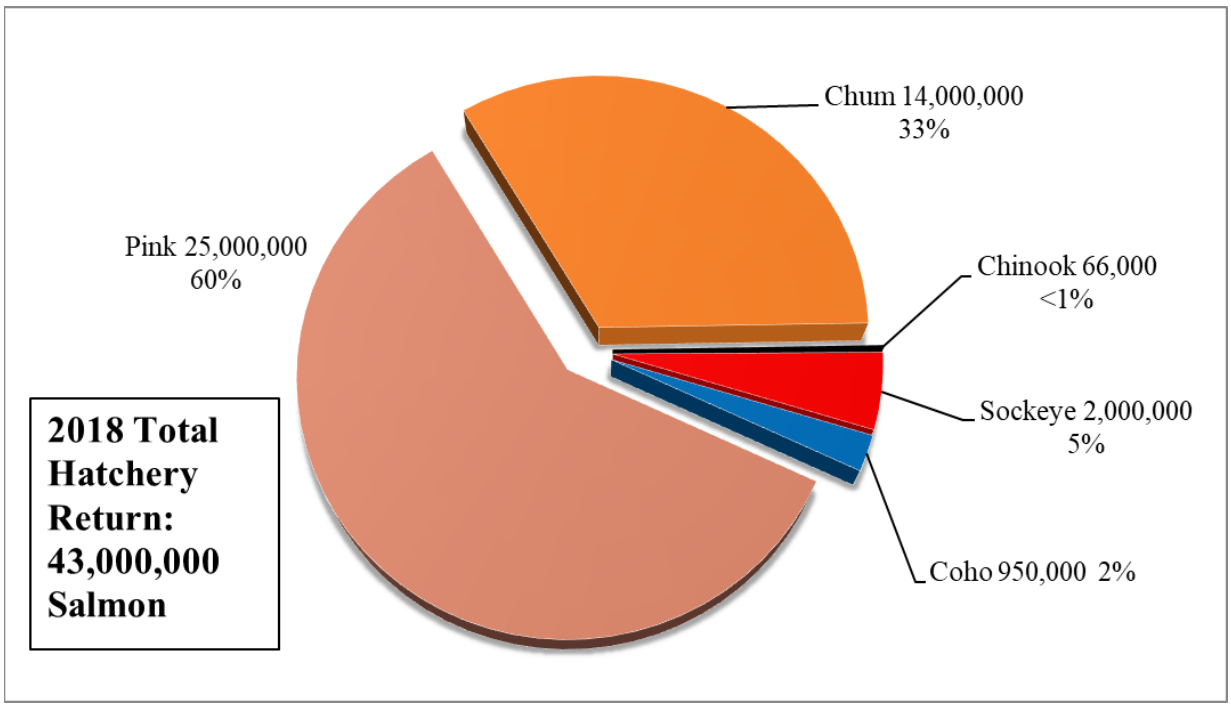

Figure 6.–Alaska hatchery total return in numbers of fish by region, 2018. The total return includes both the catch and fish used for broodstock. Hatchery return is in number of fish to each region and the percent is the regional hatchery harvest contribution to the total state hatchery return.

Note: rainbow trout, grayling and arctic char from the sport fish hatcheries are not included.

COMMON PROPERTY FISHERIES

The common property fisheries numbers are from Tables 5–7 and illustrated in Figures 7 and 8.

Southeast Alaska

About 8 million Alaska hatchery fish were caught in the Southeast Alaska common property commercial fisheries in 2018, worth an estimated exvessel value of $63 million, or 59% of the total exvessel value for common property commercial salmon fisheries in the region. Chum salmon contributed most to the value of the hatchery returns ($53 million), followed by coho salmon ($5.9 million) and Chinook salmon ($2.9 million).

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (63,000 fish), followed by Chinook (7,000 fish), chum (5,000 fish), and sockeye salmon (4,700 fish).

Prince William Sound

About 19 million hatchery-produced salmon were harvested in the Prince William Sound common property commercial fisheries in 2018, worth an estimated exvessel value $65 million, or 75% of the total exvessel value for common property commercial salmon fisheries in the region. Pink salmon contributed most to the value of the hatchery returns ($31 million), followed by chum ($21 million) and sockeye salmon ($13 million).

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most hatchery-produced fish (43,000,000 fish), followed by coho (27,000 fish), pink (9,000 fish), and chum salmon (1,000 fish).

Cook Inlet

About 539,000 hatchery-produced salmon were harvested in the Cook Inlet common property commercial fisheries in 2018, worth an estimated exvessel value $1.2 million or 9% of the total exvessel value for common property commercial salmon fisheries in the region. Pink salmon contributed most to the value of the hatchery returns ($708,000), followed by sockeye salmon ($518,000).

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most anadromous salmon (17,000 fish), followed by coho (13,000 fish), pink (6,000 fish), and Chinook salmon (1,900 fish). An additional 27,000 Arctic char, grayling, landlocked salmon, and rainbow trout were caught in Cook Inlet area lakes.

Kodiak

About 3.6 million hatchery-produced salmon were harvested in the Kodiak common property commercial fisheries in 2018, worth an estimated exvessel value of $7 million, or 25% of the total exvessel value for common property commercial salmon fisheries in the region. Pink salmon contributed most to the value of the hatchery returns ($4.9 million), followed by sockeye salmon ($1 million).

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (9,500 fish), followed by sockeye (1,500 fish) and Chinook salmon (1,100 fish).

Interior

About 21,000 Arctic char, grayling, landlocked salmon and rainbow trout were caught in Interior Alaska lakes.

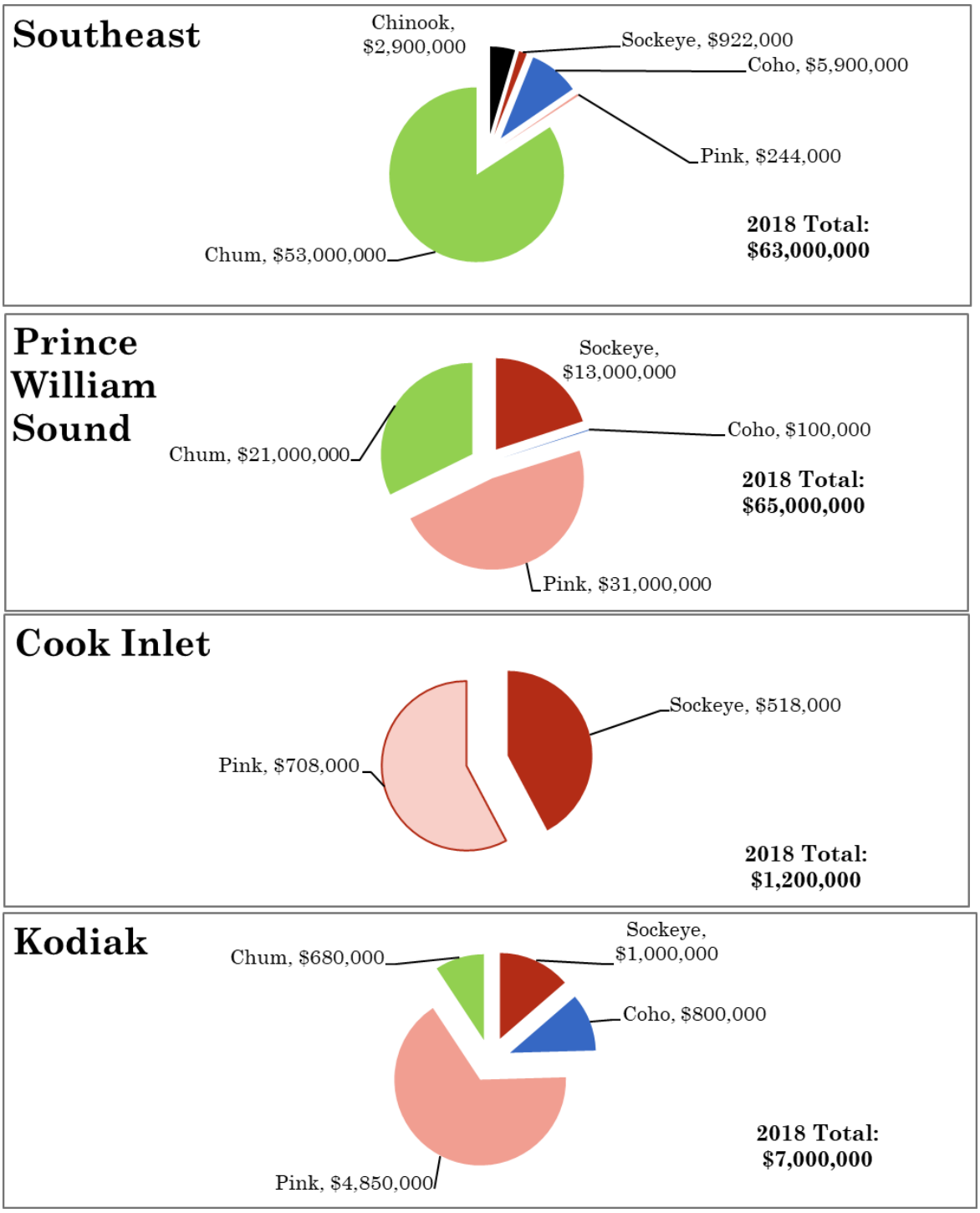

Figure 7.–Exvessel value of commercial common property hatchery harvest by region, 2018.

INTRODUCTION

Alaska's modern hatchery program began in 1971, when the Alaska Legislature established the Division of Fisheries Rehabilitation, Enhancement and Development (FRED) within the Alaska Department of Fish and Game (ADF&G). In 1972, Alaska voters amended Article 8, section 15 of Alaska's Constitution to provide tools for restoring and maintaining the state's fishing economy. The amendment provided an exemption to the "no exclusive right of fishery" clause in the state constitution, enabling limited entry to Alaska's state fisheries and allowing broodstock and cost recovery harvest for hatcheries. Alaska's salmon hatchery program developed under this authority and was designed to supplement—not replace—sustainable natural production.

In 1974, the Alaska Legislature expanded the hatchery program, authorizing private nonprofit (PNP) corporations to operate salmon hatcheries:

> It is the intent of this Act to authorize the private ownership of salmon hatcheries by qualified nonprofit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fishery. The program shall be operated without adversely affecting natural stocks of fish in the state and under a policy of management which allows reasonable segregation of returning hatchery-reared salmon from naturally occurring stocks.[8]

Salmon fishery restoration efforts came in response to statewide annual salmon harvests of just 22 million fish in 1973 and 1974, among the lowest catches since 1900 (Figure 2). The FRED Division, PNP hatcheries, and other agencies such as the US Forest Service, engaged in a variety of activities to increase salmon production. New hatcheries were built to raise salmon. Fish ladders were constructed around barriers to provide adult salmon access to new spawning and rearing areas. Lakes with waterfall outlets too high for adult salmon to ascend were stocked with salmon fry. Log jams were removed in streams to enable returning adults to reach spawning areas. Nursery lakes were fertilized to increase the available feed for juvenile salmon. A combination of favorable environmental conditions, limited fishing effort, abundance-based harvest management, habitat improvement and protection, and hatchery production gradually boosted salmon catches, with recent commercial salmon harvests (2009–2018) annually averaging 177 million fish[9]—an increase of 800% from the 1973 and 1974 harvests.

ALASKA'S HATCHERIES

The State of Alaska funded the construction of 18 hatcheries between 1969 and 1983 with general obligation bonds. The hatcheries were initially operated by ADF&G FRED Division. PNP corporations began building hatcheries in the mid-1970s. In 1988, the legislature passed an act that allowed state hatcheries to be operated by PNP hatchery corporations (AS 16.10.480). Since then, all state-owned commercial production hatcheries still in operation have been contracted to PNP hatchery operators. The PNP corporations hold their own hatchery permits[10] to operate the facilities and are responsible for funding hatchery operations. Two sport fish hatcheries continue under state operation.

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[8] Alaska Legislature 1974. An act authorizing the operation of private nonprofit salmon hatcheries. Section 1, Chapter 111, SLA 1974, in the Temporary and Special Acts.

[9] http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery (Accessed 2/26/2019).

[10] An exception to this is the Crystal Lake Hatchery in Petersburg, which is owned by the state, operated by the Southern Southeast Regional Aquaculture Association, and has no hatchery permit.

Altogether, a total of 28 production hatcheries and 1 research hatchery are currently operating in Alaska (Figure 1; Tables 29–31). Of these, PNPs operate 25 of the hatcheries: 11 facilities owned by the state and 14 owned by PNPs. ADF&G Division of Sport Fish operates 2 additional state-owned hatcheries in Anchorage and Fairbanks. The Metlakatla Indian Community on the federal Annette Islands Reserve south of Ketchikan operates Tamgas Creek Hatchery. The National Marine Fisheries Service operates a federal research hatchery at Little Port Walter in lower Chatham Strait in Southeast Alaska.

An additional 5 PNP hatchery facilities are permitted but currently inactive: Gunnuk Creek Hatchery (Kake), Perry Island Hatchery (Prince William Sound), Bell Island Hatchery (Southern Southeast Alaska), Eklutna Hatchery (Eklutna) and Haines Projects Sites (Haines).

ALASKA'S HATCHERY PROGRAMS

In Alaska, salmon may be propagated under only 2 types of permits: a PNP salmon hatchery permit and a fish resource permit. Fish resource permits have a scientific or educational objective. Fish resource permits are issued for small-scale production, including salmon research, feasibility studies for potential PNP hatchery production, vocational programs, and the extensive salmon in the classroom program conducted in schools across the state (Table 16). PNP hatchery permits have a fishery enhancement objective and are issued for production-scale hatcheries.

The purpose of PNP salmon hatcheries is to supplement the harvest of natural stocks for public benefit. Hatcheries are efficient at improving survival from the egg to juvenile stage compared to survival in the wild. For example, estimates for pink salmon *Oncorhynchus gorbuscha* egg-to-fry survival in 2 Southeast Alaska creeks ranged from less than 1% to 22%, with average survivals from 4% to 9% (Groot and Margolis 1991). Under hatchery conditions, egg-to-fry survival is usually 90% or higher.

Alaska hatcheries do not grow fish to adulthood, but instead incubate fertilized eggs and release resulting progeny as juveniles (i.e., fry or smolt). Juvenile salmon imprint on the release site and return to the release location as mature adults. By state policy, hatcheries generally use stocks taken from close proximity to the hatchery so that any straying of hatchery returns will have similar genetic makeup as the stocks from nearby streams. In addition, Alaska hatcheries do not selectively breed. Large numbers of broodstock are used for gamete collection to maintain genetic diversity, without selection for size or any other characteristic.

The production level at a hatchery is limited by the hatchery's available freshwater capacity and freshwater rearing space. Soon after emergence from the egg, pink and chum salmon *O. keta* fry can be transferred from fresh water to salt water and released.

Most Chinook *O. tshawytscha*, sockeye *O. nerka*, and coho *O. kisutch* salmon stocks must spend a year or more in fresh water while fry develop to the smolt stage and can tolerate salt water, which makes them much more expensive to rear. They require a higher volume of fresh water, a holding area for freshwater rearing, and feeding.

There are economic tradeoffs between the costs of production versus the value of fish at harvest. Although Chinook, sockeye, and coho salmon usually garner higher prices per pound at harvest, chum and pink salmon are more economical to rear and generally provide a higher economic return on production costs.

Pink salmon have the shortest life cycle of Pacific salmon (2 years), provide a quick return on investment, and provide the bulk of Alaska hatchery production. From 2009 to 2018, pink salmon accounted for an annual average 73% of Alaska hatchery salmon returns by number, followed by chum (21%), sockeye (4%), coho (2%) and Chinook salmon (<1%; Figure 3).

ALASKA HATCHERY POLICIES

Numerous Alaska mandates and policies for hatchery operations were specifically developed to minimize potential adverse effects to wild stocks. Through a comprehensive permitting and planning process, PNP hatchery operations are subject to continual review by ADF&G staff.

The ADF&G *Genetic Policy* (Davis et al. 1985) sets out restrictions and guidelines for stock transport, protection of wild stocks, and maintenance of genetic variance. Policy guidelines include banning importation of salmonids from outside the state (except US/Canada transboundary rivers); restricting transportation of stocks between the major geographic areas in the state (Southeast, Kodiak Island, Prince William Sound, Cook Inlet, Bristol Bay, Arctic-Yukon-Kuskokwim, and Interior); requiring the use of local broodstock; maintaining genetic diversity by use of large populations of broodstock collected across the entire run and without regard to any physical trait such as size; and limiting the number of hatchery stocks derived from a single donor stock.

The Alaska Fish Health and Disease Control Policy (5 AAC 41.080) is designed to protect fish health and prevent spread of infectious disease in fish and shellfish. The policy is used by ADF&G fish pathologists to review hatchery plans and permits.

The Alaska Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222), the Policy for the Management of Mixed-Stock Salmon Fisheries (5 AAC 39.220), the Salmon Escapement Goal Policy (5 AAC 39.223), and local fishery management plans (5 AAC 39.200) guide fisheries management for the protection of wild salmon stocks. These regulations require fishery managers to consider the interactions of wild and hatchery salmon stocks when reviewing hatchery management plans and permits.

ALASKA HATCHERY PERMITTING AND PLANNING

Regional aquaculture associations (RAAs) exist for many of Alaska's salmon planning regions. Where RAAs operate hatcheries, they also form PNP corporations, and have a board of directors whose membership is composed of commercial salmon fishing permit holders and representatives of other stakeholder groups such as sport and subsistence harvesters, processors, and city officials. PNP boards establish hatchery production goals and oversee business operations.

Salmon fishery enhancement efforts are guided by comprehensive salmon plans for each region. These plans are developed by Regional Planning Teams (RPT). RPTs are composed of 6 voting members: 3 from ADF&G and 3 appointed by the RAA's board of directors. Plans are developed in a public process based on the needs of fishery user groups and communities of the region. The plans can be periodically reviewed and updated to meet changing needs.

Commercial salmon fishing permit holders may vote to impose a salmon enhancement tax on sale of salmon in their region. These funds are collected by the state and distributed to the RAA to finance hatchery operations or other enhancement and rehabilitation activities. Independent

PNP corporations,[11] not affiliated with an RAA, also operate hatcheries in several areas of the state. The RAAs and independent PNP hatchery organizations may contract processors to harvest hatchery salmon in designated areas[12] to pay for operations. Such harvests are called *cost-recovery* fisheries, in contrast to *common property* fisheries, which are fisheries open to all qualified commercial, subsistence, personal use, and sport harvesters.

Each hatchery is permitted separately. Acquisition of a hatchery permit is an extensive process (5 AAC 40.110–40.230). A hatchery application consists of production goals, hatchery site information, water flow, water chemistry data, land ownership, water rights, hatchery design, initial proposed broodstock for the hatchery, and a financial plan. ADF&G staff draft a fishery management feasibility analysis for the proposed hatchery. ADF&G staff review the application with the applicant, who addresses any deficiencies. The application is then provided for public review.

The RPT reviews hatchery permit applications within their region to determine if the hatchery operation is compatible with the regional comprehensive salmon plan. The RPT also makes a recommendation on the permit to the ADF&G commissioner.

Following review by the RPT, a public hearing for the hatchery permit is held. The hatchery applicant describes the proposed hatchery plan, and ADF&G staff present the basic management plan (described below) for the hatchery. Public testimony and questions follow the presentations. ADF&G must respond in writing to any specific objections to the proposed permit.

The application is then sent to the ADF&G commissioner for final review. By regulation (5AAC 40.220) the commissioner's decision is based on consideration of (1) the suitability of the site for making a reasonable contribution to the common property fishery, not adversely affecting management of wild stocks, and not requiring significant alterations of traditional fisheries; (2) the operation of the hatchery makes the best use of the site's potential to benefit the common property fishery; (3) the harvest area size at the hatchery is sufficient in size to provide a segregated harvest of hatchery fish of acceptable quality for sale; (4) proposed donor sources can meet broodstock needs for the hatchery for the first cycle; (5) water sources for the hatchery are secured by permit and are of appropriate quality and quantity; and (6) the hatchery has a reasonable level of operational feasibility and an acceptable degree of potential success.

Hatchery permits cannot be transferred. When hatcheries change operators, a new permit must be issued by the process described above.

Alaska PNP hatcheries operate under 4 documents: PNP hatchery permit with basic management plan (BMP), annual management plan (AMP), fish transport permit (FTP), and annual report. The hatchery permit and BMP, AMP, and FTP must be approved by the ADF&G commissioner.

The hatchery permit authorizes operation of the hatchery and specifies the species permitted to be produced. The BMP, an addendum to the hatchery permit, specifies the maximum number of eggs of each species that a facility can incubate, the authorized release locations, and may identify stocks for broodstock. Hatchery permits remain in effect unless relinquished by the permit holder or revoked by the ADF&G commissioner. Hatchery permits and BMPs may be amended by the permit holder through a permit alteration request. Requested changes are

[11] Independent PNP operators do not receive salmon enhancement tax funds; only RAAs receive the tax funds.
[12] Designated areas are called special harvest areas.

reviewed by the RPT and ADF&G staff and recommendations are sent to the ADF&G commissioner for consideration.

The AMP outlines operations for the current year and is written cooperatively among ADF&G and PNP hatchery staff. Typically, AMPs include the current year's egg-take goals, juvenile releases and remaining inventory, expected adult returns, harvest management plans, FTPs (described below) required or in place, production strategies, and evaluation plans. The AMP must be consistent with the hatchery permit and BMP. Final consideration of the plan is made by the ADF&G commissioner.

An FTP is required for egg collections, transports, and releases. The FTP authorizes specific activities described in the hatchery permit and management plans including broodstock sources, gamete collections, and release sites, and must be consistent with the PNP Permit and BMP. FTP applications are reviewed by the ADF&G fish pathologist, fish geneticist, regional resource development biologist, and other ADF&G staff as delegated by the ADF&G commissioner. Reviewers may suggest conditions for the FTP. Final consideration of the application is made by the ADF&G commissioner. An FTP is issued for a fixed time period. When an FTP is renewed or amended, the FTP application goes through the same process as the original FTP, providing an ongoing review of all PNP hatchery projects over time.

Each hatchery is required to submit an annual report documenting broodstock collection, egg take numbers, releases, returns, and projected run sizes for the following year. Information from all hatchery annual reports is compiled into this annual report to the Alaska Legislature.

ADF&G Sport Fish hatcheries in Anchorage and Fairbanks produce fish specifically for sport fisheries in Cook Inlet, Resurrection Bay, Prince William Sound, and the Interior. The hatcheries are primarily funded from the federal excise tax on fishing-related equipment under the Dingell-Johnson Sport Fish Restoration Act. The funding, policy, and planning for these hatcheries is described in the current Statewide Stocking Plan.[13]

FISHERIES MANAGEMENT

The Alaska state constitution, statutes, and regulations mandate that ADF&G manage salmon returns for wild stock conservation. This means that escapement goals are established for important salmon systems, and the fisheries are managed to meet these goals.

Wild and hatchery returns are managed to meet wild stock escapement goals. In some cases, 1 species of hatchery fish returns at the same time as other, more predominant wild stock species, and the hatchery fish are harvested as incidental catch. For example, in Southeast Alaska, hatchery-produced chum salmon return across the timing of both sockeye and pink salmon and are caught during fisheries that are managed for sockeye or pink salmon. Chum salmon that are not harvested in the sockeye and pink salmon fisheries return to isolated release sites in bays where they can be harvested with minimal impact to wild stocks.

For some fisheries, both hatchery and wild stocks of the same species return simultaneously. In Prince William Sound, hatchery stocks of pink salmon return at the same time as the wild pink salmon stocks they are derived from. All hatchery-produced pink salmon are otolith marked. Otoliths are read from samples of fish collected from the commercial fishery to apportion the

[13] http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportStockingHatcheries.stockingPlan (Accessed 2/26/2019).

catch between hatchery and wild stocks during the season so that managers can manage for the wild stock return.

In the Kenai River, releases of hatchery sockeye salmon are limited to a small fraction of the wild populations so that they do not unduly influence management.[14]

In Southeast Alaska, a percentage of both hatchery and wild stocks of coho and Chinook salmon are coded-wire-tagged. Tags are collected and read during the season so that managers can assess the wild and hatchery components of the return to assess wild stock abundance. Hatchery stocks of pink and chum salmon are otolith marked as well.

In Kodiak, hatchery chum and sockeye salmon stocks are otolith marked. Only a portion of hatchery-produced pink salmon are marked, but return to the release site on Afognak Island where there are no substantial wild pink salmon stocks in the area. All pink salmon fishery openings in this area target hatchery-produced salmon.

HATCHERY CONTRIBUTION TO ALASKA FISHERIES

The hatchery return is composed primarily of the harvest in the fisheries and the broodstock from which eggs are collected for hatchery production. Most (95%) of the hatchery harvest occurs in the commercial common property fisheries (78%) and the cost recovery fisheries (16%), which collectively make up the commercial harvest. Sport, personal use, and subsistence fisheries harvest about 1% of the return. The remainder (5%) is broodstock, escapement, and estimated unharvested returns (Figure 8).

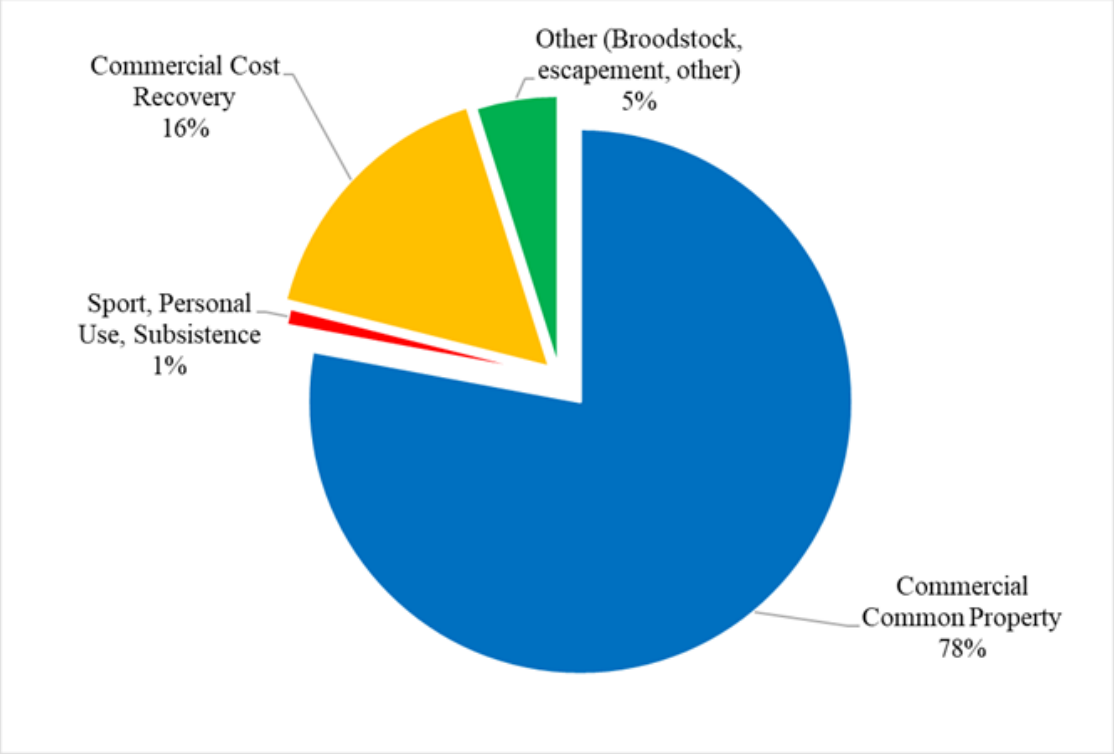

Figure 8.–Alaska salmon hatchery returns in numbers of fish by return category, 2009–2018 average.

[14] Pat Shields, ADF&G Division of Commercial Fisheries, Fishery Biologist III, Soldotna, personal communication.

Over the past decade (2009–2018), hatcheries contributed an annual average of about one-third of the total Alaska commercial salmon harvest. By species, Alaska hatchery fish contributed an annual average 65% of the chum, 41% of the pink, 22% of the coho, 19% of the Chinook, and 5% of the sockeye salmon in the total commercial harvest over the decade (Figure 9).

Although hatchery production may make up a majority of the harvest of a species in a region—chum salmon in Southeast Alaska or pink salmon in Prince William Sound, for example—this does not mean that hatchery production comes at the expense of wild stock production. Hatchery production grew at a pace that allowed fishery managers to assess the returns, understand how to manage for wild stocks in the presence of hatchery returns, and provide for adequate escapement of wild stocks. The development of otolith marking[15] allowed all the pink and chum salmon produced in Southeast Alaska and Prince William Sound to be marked so that hatchery and ADF&G staff can estimate the harvest composition inseason and manage for wild stocks.

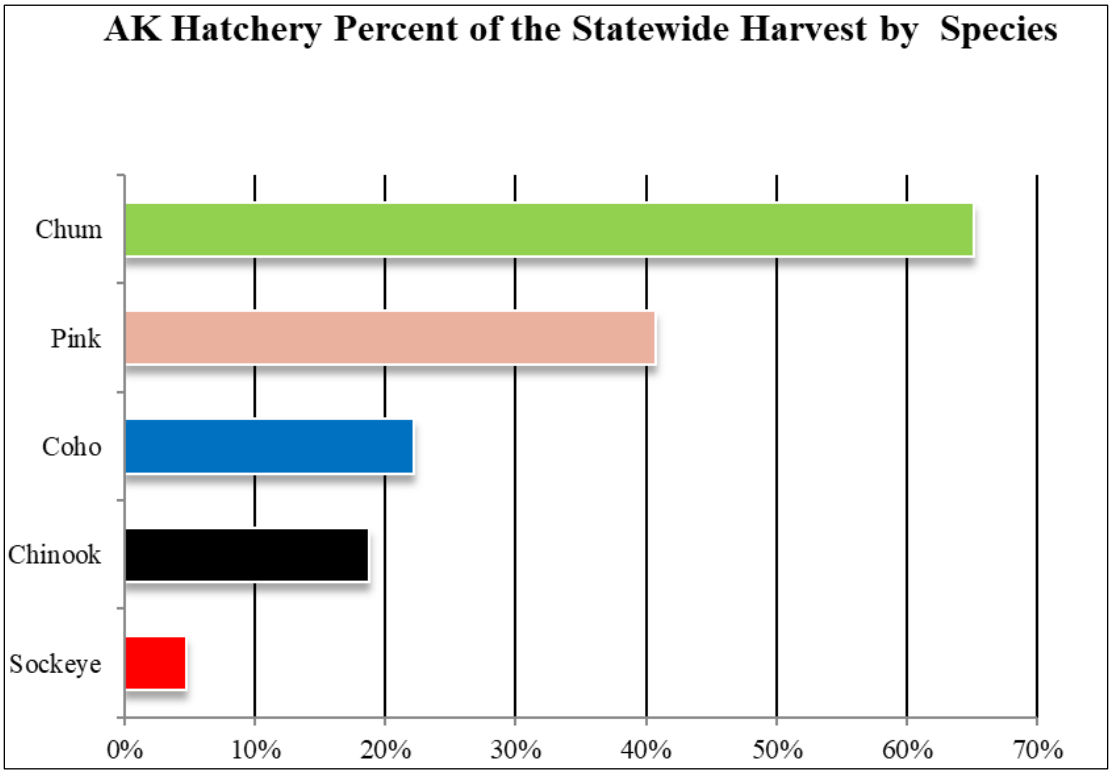

Figure 9.–Alaska hatchery contribution to the statewide commercial fishery harvest, by species, 2009–2018 average.

As fisheries management has adapted to hatchery production, so has the fishing fleet and processing sector. Most hatchery production provides the fishing fleet with more time and area to fish. When wild stock production provides surplus fish for harvest, fishermen may target those fish during open fishing periods in traditional fishing areas. When those fishing periods close, fishermen can move to the hatchery release sites that remain open and continue fishing there

[15] Otolith marking is done by alternating the temperature of the water during egg incubation, which lays down regular marks on the fish ear bone (the otolith). Wild fish usually do not have the otolith markings. Otoliths can be removed from fish harvested and hatchery and wild stock contributions to the catch estimated.

until the wild stock areas reopen. In some seasons, fishermen may exclusively target hatchery fish in the terminal harvest areas, even when wild stock areas are open, which may reduce harvest rates on wild stocks.

A measure of hatchery program success is achieving wild stock escapement goals in regions of the state where fisheries management is most impacted by hatchery production—Southeast Alaska and Prince William Sound. ADF&G manages salmon stocks to meet spawning escapement goals. Where escapements chronically fall short of meeting goals (i.e., over 4 to 5 years), ADF&G may recommend a *stock of concern* designation for those underperforming salmon stocks. In 2017, there were 18 stocks of concern in the state (Munro 2018). Four of these stocks are located Southeast Alaska—3 Chinook salmon stocks (Chilkat, King Salmon and Unuk rivers) and 1 sockeye stock (McDonald Lake). In addition, Taku River and Stikine River Chinook have fallen short of escapement goals in recent years as well.

Some of the Chinook salmon wild stocks are harvested during fisheries managed for Alaska hatchery Chinook salmon. Chinook salmon fisheries were closed in several areas in the region in 2017 and 2018 to conserve these wild stocks, and more closures are likely in 2019. In addition, net fisheries were closed in the Neets Bay Terminal Harvest Area, where returning hatchery fish are targeted, during the period when Unuk River Chinook salmon were likely to be caught (Lum and Fair 2018). Management measures to conserve McDonald Lake sockeye salmon were implemented in 2018 and will continue until escapement objectives are met (Walker et al. 2018).

An additional stock in Prince William Sound, Coghill Lake sockeye salmon, has been a concern for Prince William Sound fisheries managers in recent years. Although the total run to Coghill Lake (catch plus escapement) was estimated to be well above escapement needs each year between 2013 and 2016, escapements to the lake were below the lower bound of the escapement goal in 2013, 2015, and 2016. Although no fishery openings occurred to target Coghill Lake sockeye salmon in any of these years, Coghill Lake sockeye salmon were harvested along their migration routes in fisheries targeting primarily hatchery returns. Managers were more restrictive in the amount of fishing area opened along the Coghill Lake sockeye salmon migration corridors in 2017 and 2018 and were successful in achieving the escapement goal. A permit alteration submitted by Prince William Sound Aquaculture Corporation in 2017 to increase chum salmon releases from Wally Noerenberg Hatchery was suspended by them because of the management concerns for Coghill Lake sockeye salmon.

Overall though, Alaska's salmon fisheries are among the healthiest in the world. The largest returns of wild stocks have occurred since the 1980s alongside the PNP hatchery program returns (Figure 2), with three of the highest wild stock harvests in the past five seasons. The 2013 season was a record harvest overall, with the 283 million fish commercial harvest composed of the second highest catch for wild stocks (176 million fish) and the highest catch for hatchery stocks (107 million fish) in Alaska's history. The 2015 season was the second highest harvest overall, with a 263 million fish commercial harvest composed of the fourth highest catch for wild stocks (170 million fish) and the second highest catch for hatchery stocks (93 million fish). The 2017 season was the fourth highest harvest on record (225 million fish), with the third highest wild stock harvest (175 million fish) on record. To put the magnitude of wild stock production in historical perspective, the hatchery harvests *alone* in both 2013 and 2015 were greater than the entire statewide commercial salmon harvests in every year prior to statehood except for 7 years (1918, 1926, 1934, 1936, 1937, 1938 and 1941; Figure 2).

2018 HATCHERY PRODUCTION

During the early years of modern hatchery production, egg collections grew steadily from the late 1970s until about 1995, when production leveled off (Figure 10). From 1995 to 2017, annual egg collections have ranged from about 1.6 to 2.2 billion eggs (Table 17). In 2018, 2.1 billion eggs were collected (Table 2 and Table 8).

Since 1995, annual releases have ranged from about 1.4 to 1.7 billion juveniles (Figure 10; Table 17). About 1.8 billion juvenile salmon were released in 2018 (Table 3). Most of the 2018 releases were from pink and chum salmon eggs collected in 2017, and the remainder from Chinook, sockeye, and coho salmon eggs collected in 2016.

About 42 million adult salmon returned to Alaska hatcheries in 2018 (Table 4), which was below the recent 10 year (2008–2017) average return of 61 million fish (Figure 3).

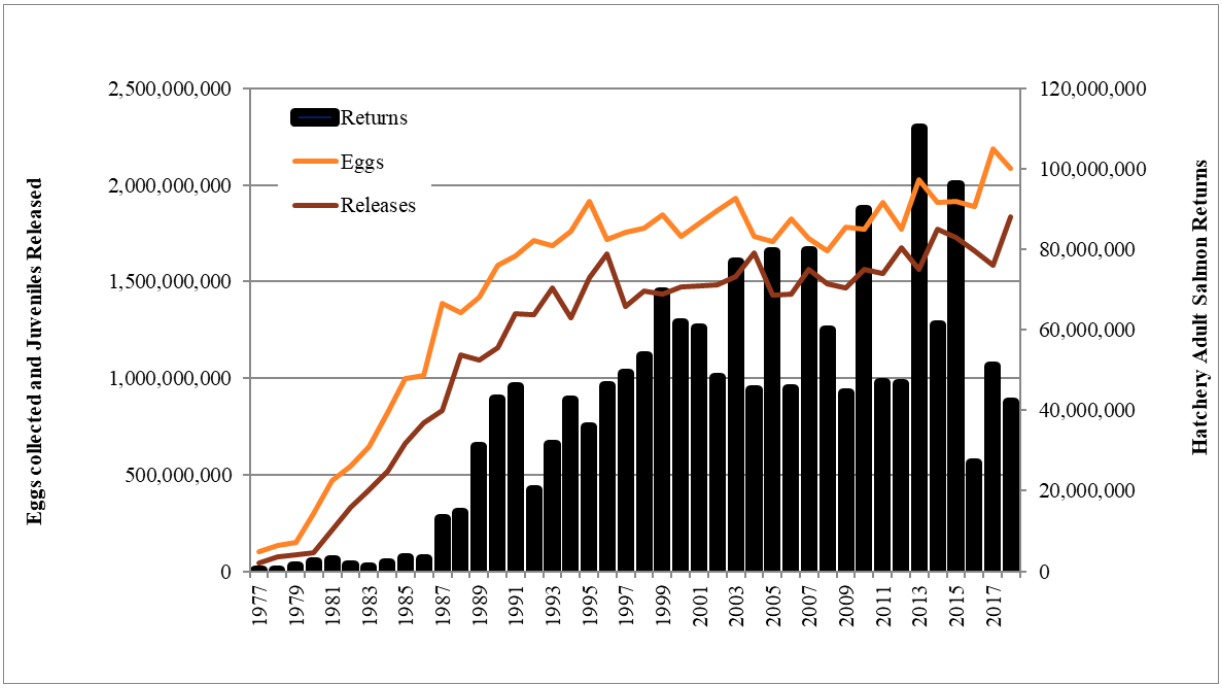

Figure 10.–Total salmon eggs collected, juveniles released and adult returns for Alaska salmon hatchery programs, 1977–2018.

Note: The returns are from previous year's releases, and not the return by brood year. For example, the 2018 returns are from fish released in 2017 and earlier, depending on species.

Pink and chum salmon are the predominant species produced by Alaska hatcheries, followed by sockeye, coho, and Chinook salmon (Figure 9; Tables 18–22). As stated earlier, pink and chum salmon are the most economical to raise because fry can migrate to saltwater soon after hatching, whereas sockeye, coho and Chinook salmon typically require a year or more of freshwater rearing and feeding.

2018 HATCHERY HARVEST

Alaska hatchery fish comprised 34% of the total commercial harvest in 2018 (Figure 11; Table 23).

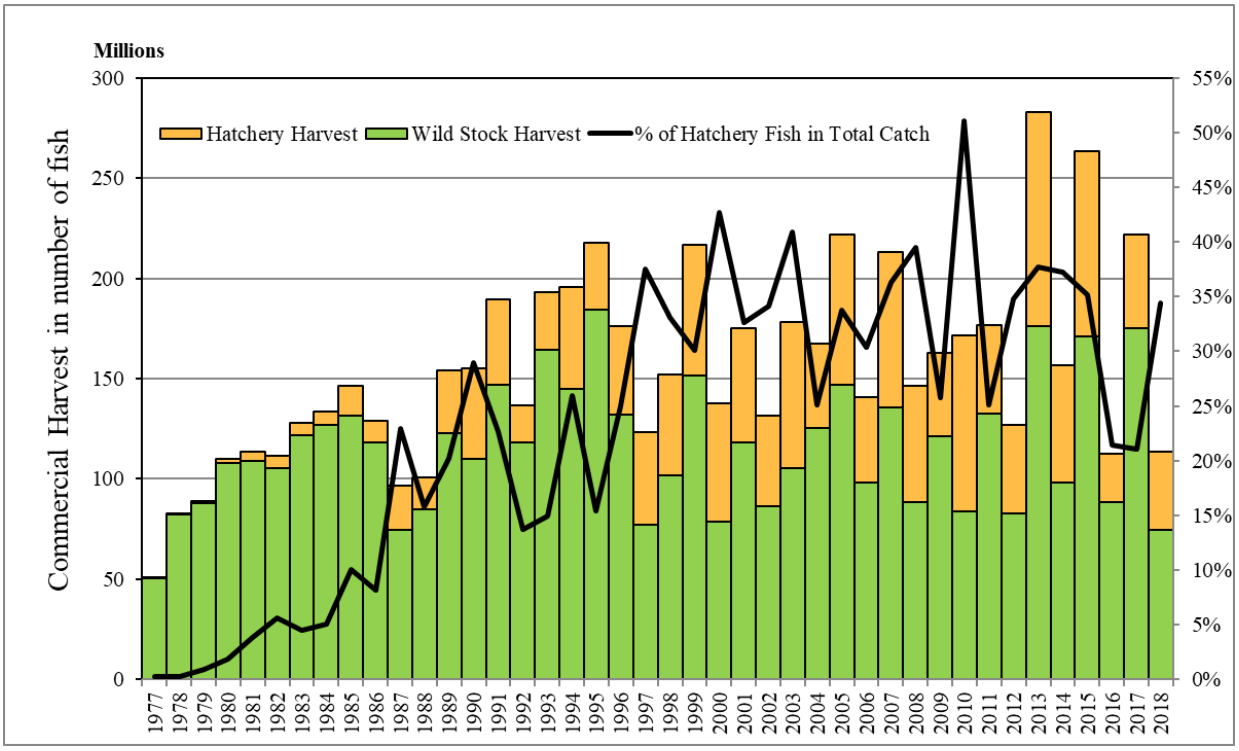

Figure 11.–Alaska commercial harvest of hatchery stocks, wild stocks and the hatchery contribution to the harvest, during the modern hatchery era in Alaska, 1977 to 2018.

In 2018, Alaska hatchery production was harvested primarily in the common property commercial fisheries, followed by the cost-recovery commercial harvest, which funds hatchery operations (Figure 12). Sport, personal use, and subsistence harvests are particularly important to harvesters in accessible locales such as Ketchikan, Juneau, Petersburg, Sitka, Valdez, Kodiak, Resurrection Bay, and Cook Inlet.

About 39 million hatchery-produced salmon were harvested in the commercial fisheries in 2018, with an estimated exvessel value of $176 million (Tables 5 and 6). Chum made up 57% of the exvessel value of the commercial hatchery harvest, followed by pink (24%), Chinook (3%), coho (5%), and sockeye salmon (11%; Figure 5).

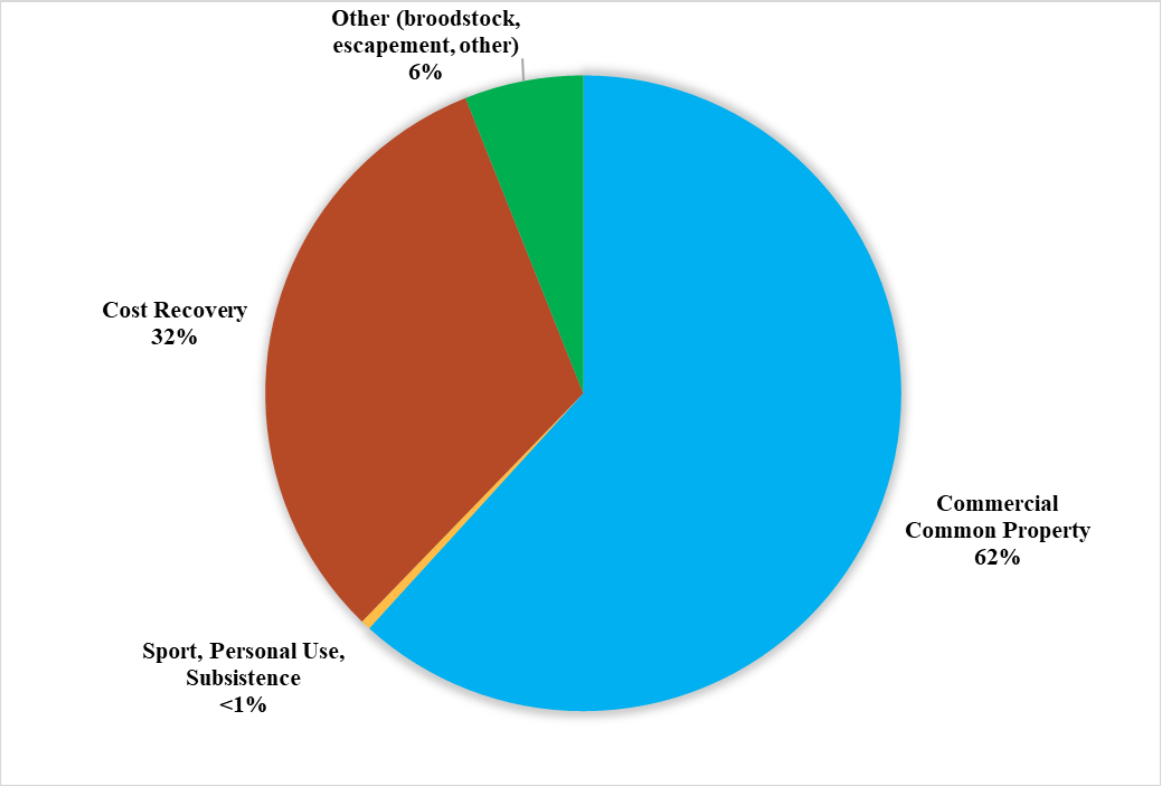

Figure 12.–Alaska salmon hatchery returns in numbers of fish by return category, 2018.

REGIONAL HATCHERY HARVEST

By region, Prince William Sound produced most (56%) of the hatchery fish in 2018, followed by Southeast Alaska (29%), Kodiak (10%), and Cook Inlet (5%; Figure 6; Tables 11–15). The Fairbanks and Anchorage ADF&G hatcheries provided arctic char, rainbow trout, coho salmon, and Chinook salmon for stocking numerous Interior and Cook Inlet region waters for sport fishing (Table 4).

HATCHERY PRODUCTION BY SPECIES

Hatchery production by species numbers are illustrated in Figure 13.

Pink Salmon

Prince William Sound facilities produce the majority of hatchery pink salmon in the state. The Prince William Sound purse seine fishery, which harvests primarily pink salmon, was closed in 1972 and 1974, with minimal fishing in 1973. Fishermen and processors were anxious to get hatchery production on line quickly to aid in the recovery of the fishery,[16] and pink salmon were both a targeted species and provided the quickest turnaround from egg take to harvest. Pink salmon were, and continue to be, the most abundant species in Prince William Sound, with historic infrastructure in place for processing pink salmon.

[16] Prince William Sound Regional Fisheries Planning Team. 1983. Prince William Sound comprehensive salmon plan, Phase I: 20 year plan (1983-2002). Unpublished report. Available from PNP hatchery program coordinator, Juneau.

Chum Salmon

Southeast Alaska facilities produce the majority of chum salmon. Wild chum salmon runs return during the same period as sockeye and pink salmon runs, and chum salmon are the least abundant of these 3 species. During the development of the hatchery program in Southeast Alaska in the early 1980s, fishermen, processors, and ADF&G considered that chum salmon could be produced in hatcheries and that returns would be caught incidentally in the fisheries managed for pink or sockeye salmon. Hatchery release sites were selected so that chum salmon not caught in the sockeye and pink salmon fisheries could be caught at the release sites with minimal impact to wild stocks.

Sockeye Salmon

Prince William Sound facilities produce the majority of hatchery sockeye salmon. The largest returns are to Main Bay Hatchery, where a sockeye salmon smolt program was developed to enhance the sockeye salmon drift and set gillnet fisheries on the west side of Prince William Sound to balance the pink salmon fishery enhancement that primarily benefits the seine fleet. Sockeye salmon are also produced from streamside incubators along the Gulkana River (a tributary of the Copper River); these fish are caught primarily during the Copper River commercial drift gillnet, personal use dipnet, and subsistence fish wheel harvests. The streamside incubators were established by ADF&G in 1973 as mitigation for spawning habitat impacts from road construction (Stopha 2013).

Coho Salmon

Southeast Alaska facilities produce the majority of hatchery coho salmon. Southeast Alaska has the largest coho salmon commercial fishery in the state, accounting for about 37% of the statewide coho salmon harvest in 2018. Returning coho salmon are available to commercial hook and line salmon trollers in Southeast Alaska—the only region where commercial trolling occurs—from July through September. This is unlike other regions of the state, where coho salmon are commercially fished with net gear and targeted only during a few weeks during the fall return.

Chinook Salmon

Most Chinook salmon hatchery production also occurs in Southeast Alaska. Chinook salmon hatchery production was largely developed after the Pacific Salmon Treaty was signed in 1985. The treaty included funding for Chinook salmon hatchery production in Southeast Alaska to mitigate harvest concessions made in the treaty. Chinook salmon are targeted year-round by the commercial troll and sport fleets and are harvested in the summer months by the net fleets.

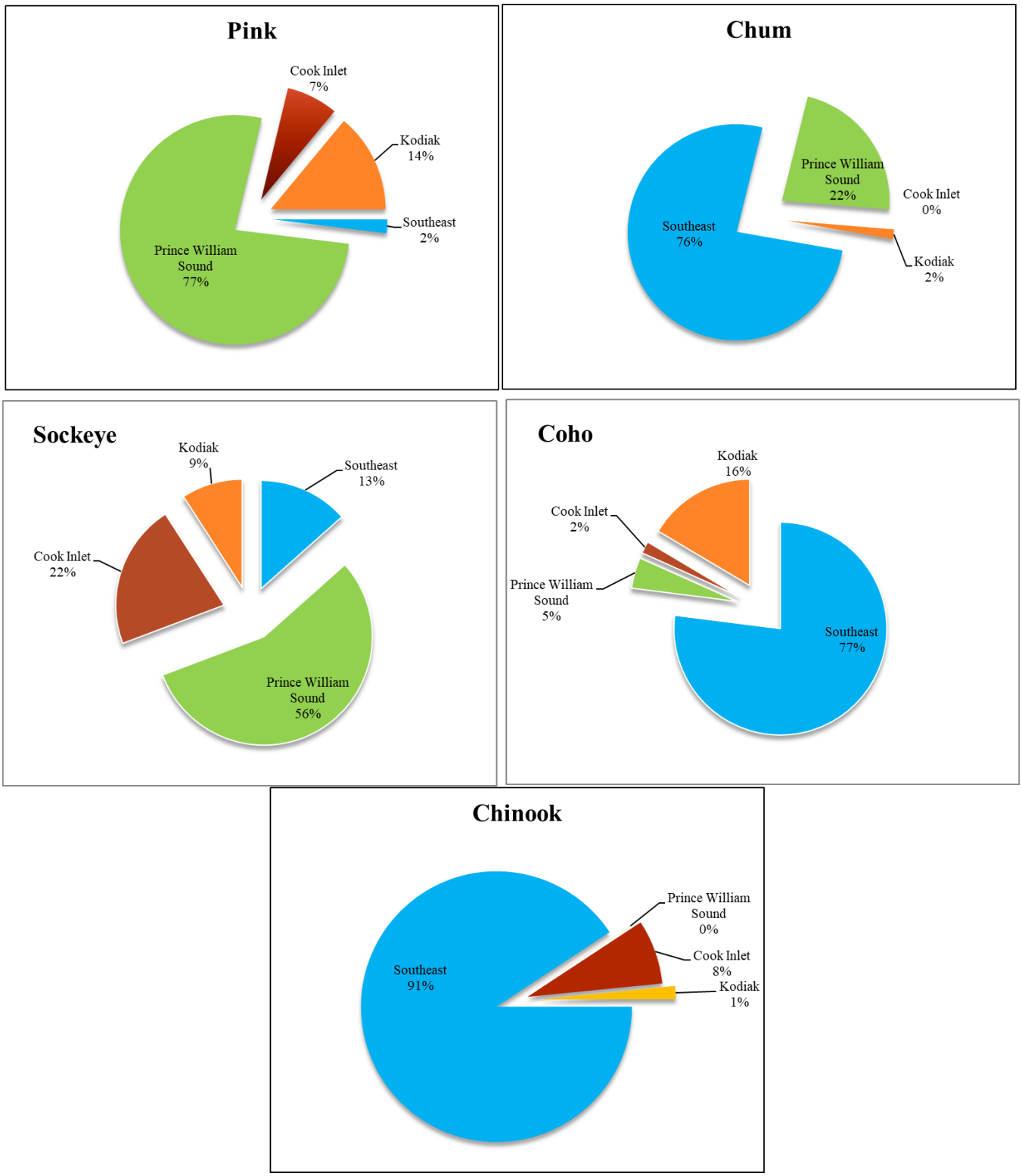

Figure 13.–Percent by region of total statewide harvest of hatchery-produced fish by species, 2018.

HATCHERY CONTRIBUTION BY REGION

Hatchery contribution by region numbers are from Tables 5–7 and illustrated in Figure 14.

Southeast Alaska

The 8 million hatchery-produced salmon harvested in the commercial common property fishery in Southeast Alaska accounted for 46% of the total common property commercial catch in the region in 2018. By species, hatcheries contributed an estimated 93% of the chum, 23% of the Chinook, 37% of the coho, 20% of the sockeye, and 2% of the pink salmon in the common property commercial fisheries. An additional 3.7 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $91 million, or 68% of the total exvessel value for commercial salmon fisheries in the region.

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (63,000 fish; Table 13), followed by Chinook (7,000 fish; Table 11), chum (5,000 fish; Table 15), and sockeye salmon (4,700 fish; Table 12).

Prince William Sound

The 19 million hatchery-produced salmon harvested in the Prince William Sound commercial common property fishery accounted for 76% of the total common property commercial catch in the region in 2018. By species, hatcheries contributed an estimated 89% of the chum, 76% of the pink, 79% of the sockeye, and 1% of the coho salmon in the common property commercial fisheries. An additional 2.8 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $72 million, or 76% of the total exvessel value for commercial salmon fisheries in the region.

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most hatchery-produced fish (43,000,000 fish), followed by coho (27,000 fish), pink (9,000 fish), and chum salmon (1,000 fish).

Cook Inlet

The 539,000 hatchery-produced salmon harvested in the Cook Inlet commercial common property fishery accounted for 26% of the total catch in the region in 2018. By species, hatchery contribution was an estimated 71% of the pink and 5% of the sockeye salmon in the common property commercial fisheries in 2018. An additional 1.2 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $5.3 million, or 30% of the total exvessel value for commercial salmon fisheries in the region.

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most anadromous salmon (17,000 fish), followed by coho (13,000 fish), pink (6,000 fish), and Chinook salmon (1,900 fish). An additional 27,000 Arctic char, grayling, landlocked salmon, and rainbow trout were caught in Cook Inlet area lakes.

Kodiak

The 3.6 million hatchery-produced salmon harvested in the Kodiak commercial common property fishery accounted for 42% of the total catch in 2018. By species, hatchery contribution was an estimated 36% of the chum, 54% of the pink, 7% of the sockeye, and 31% of the coho

salmon harvest in the common property commercial salmon fisheries. An additional 55,000 salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $7.8 million, or 28% of the total exvessel value for commercial salmon fisheries in the region.

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (9,500 fish), followed by sockeye (1,500 fish) and Chinook salmon (1,100 fish).

Interior

About 21,000 Arctic char, grayling, landlocked salmon and rainbow trout were caught in Interior Alaska lakes.

VALUE OF THE HATCHERY HARVEST

The salmon marketplace has changed substantially since the hatchery program began. As the first adult salmon were returning to newly built hatcheries in 1980, Alaska accounted for nearly half of the world salmon supply, and larger harvests in Alaska generally meant lower prices to fishermen. Some believed the increasing hatchery production in some parts of the state was depressing salmon prices in others (Knapp et al. 2007). By 1996, rapidly expanding farmed salmon production surpassed the wild salmon harvest for the first time (Knapp at al. 2007) and wild salmon prices declined precipitously as year-round supplies of fresh, high quality farmed salmon flooded the marketplace in the U.S., Europe, and Japan. The Alaska fishing industry responded to the competition by improving fish quality, implementing intensive marketing efforts to differentiate Alaska salmon from farmed salmon, and moving part of the processing sector to China. By 2004, these efforts paid off through increasing demand and prices.

Today, Alaska typically accounts for just 12–15% of the global supply of salmon (ASMI 2011). Alaska's diminished influence on world salmon production means that Alaska's harvest volume has less effect on world salmon prices. The value of the hatchery harvest generally increased from 2004 to 2013, despite large fluctuations in harvest volume (Figure 4), then declined from 2014 to 2016 years due to factors including a strong dollar and political action in Russia (ASMI 2015).

VALUE OF HATCHERY OPERATIONS

PNP hatchery operations are primarily funded by cost-recovery harvest and assessment taxes on the commercial salmon harvest and are a significant sector of the commercial fishing industry in parts of coastal Alaska. In fiscal year 2018, the operation budgets for all PNP hatcheries in the state totaled about $46 million.[17] By comparison, the statewide fiscal year 2018 operating budget for ADF&G Division of Commercial Fisheries for all state fisheries was about $72 million.[18]

[17] Informal survey of hatchery associations conducted by the author.

[18] https://www.omb.alaska.gov/ombfiles/18_budget/Fish/Enacted/18compsummary_fish.pdf (Accessed February 16, 2017).

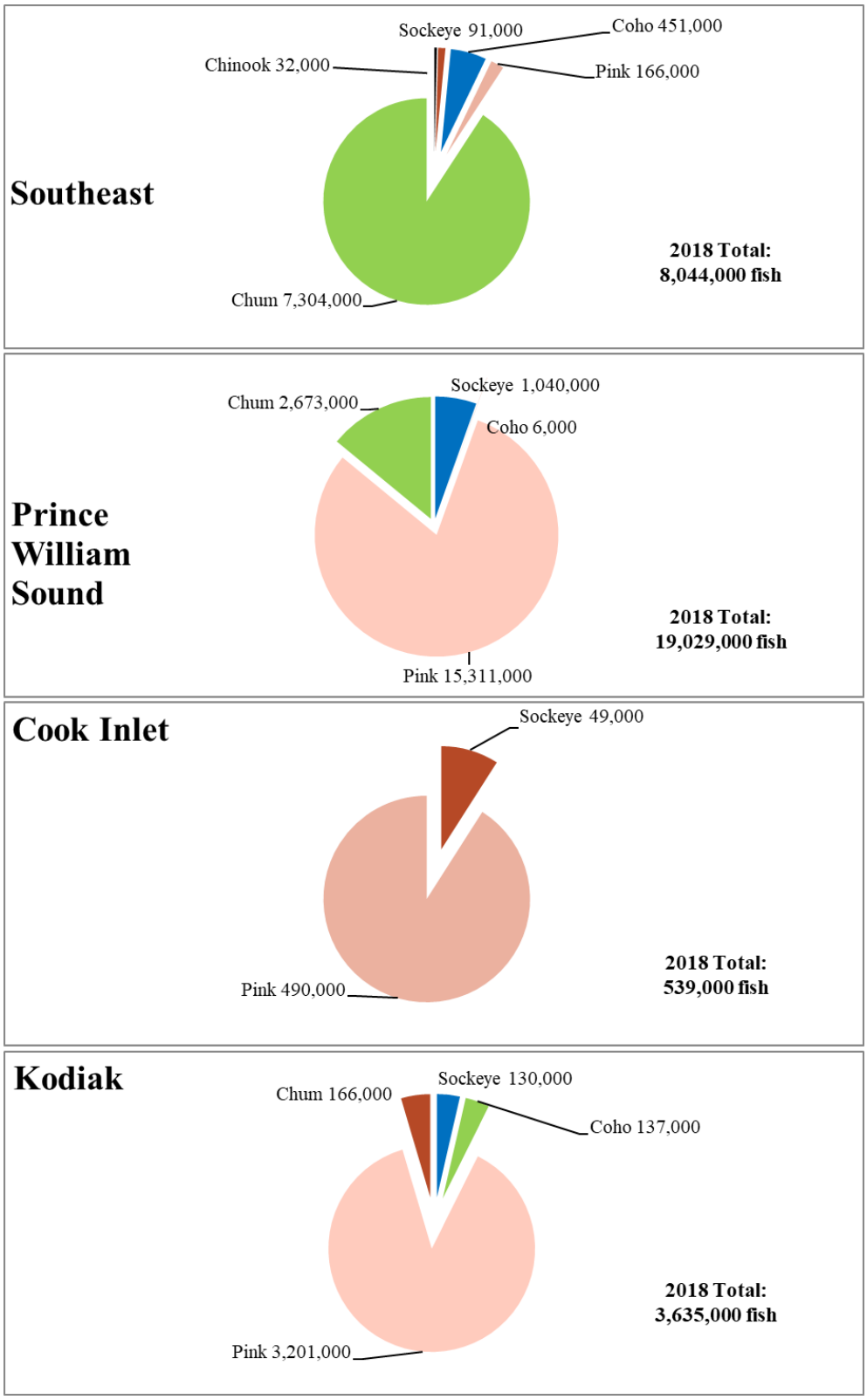

Figure 14.–Commercial common property hatchery harvest in numbers of fish by region, 2018.

HATCHERY PRODUCTION IN ALASKA'S SCHOOLS

In addition to production hatcheries that provide salmon for Alaska's fisheries, an extensive program occurs for education and research across the state that is permitted through fish resource permits issued by the ADF&G Aquaculture Section. About 150 schools across the state participated in propagation of salmon programs in 2018 (Table 16). Eggs and milt are either received from a hatchery or collected from wild stocks. Fertilized eggs are incubated in aquariums for students to observe the development of the salmon until the fish hatch. Some of the fish are released at pre-approved locations.

2019 PROJECTED HATCHERY HARVEST

Hatchery operators forecast a return of about 79 million fish in 2019 (Table 10). This includes total returns of 54 million pink, 21 million chum, 2.5 million sockeye, 1.5 million coho, and 109,000 Chinook salmon to PNP Hatchery projects. The 2018 hatchery return was 41 million fish compared to the 2018 forecast of 54 million fish (Stopha 2018).

EVALUATION AND PROTECTION OF WILD STOCKS

Alaska's PNP hatchery program has a track record of active assessment and innovation. Hatcheries use either coded wire tag or thermal marking (or both) to differentially mark releases. During the fishing season, the catch can be sampled to measure the magnitude of wild and hatchery stock returns, allowing fisheries managers to manage for wild stock harvest and escapement goals. The 2013, 2015, and 2017 wild stock harvests were the highest in the history of Alaska's salmon fisheries.

Thermal marking is a technique first used on a production scale at Snettisham Hatchery near Juneau. Thermal marking is most commonly done by alternating warmer and colder incubation water over about a 3- to 6-day period, usually during the egg stage. This action will lay down alternating dark and light rings on the fish's ear bone (called the otolith), similar to rings on a tree. Naturally spawned salmon will have less distinct marks that lack regularly spaced intervals. Fish can be marked with different patterns of thermal marks, allowing for stock separation among hatcheries and release sites.

The development of otolith marking is a powerful tool because 100% of a release can be marked. During the adult harvest, a sample of otoliths can be read to estimate how many hatchery-origin fish are in the catch, and which hatcheries the fish were released from. Because all fish in a hatchery can be marked this way—not just a fraction of the releases as occurs with coded wire tags—a much more accurate assessment can be made. In addition, otoliths from immature salmon caught on the high seas can be used to determine origins and migration patterns, and otoliths from spawning carcasses can be collected during stream surveys to assess straying.

As part of sustainability certification (Knapman et al. 2009), ADF&G began evaluations of PNP hatcheries for compliance with state policies and regulations. These evaluations have been completed for nearly all hatcheries.[19] The evaluations are an important systematic assessment of Alaska salmon fishery enhancement and its relation to wild stock production at a time of heightened interest for increased hatchery production and potential impacts on wild salmon production.

[19] See Stopha (2017) for a bibliography of Alaska hatchery evaluations completed to date.

Straying of hatchery-produced fish to wild stock systems has been monitored for many years. Hatchery chum salmon straying has been assessed in Southeast Alaska (Piston and Heinl 2012) and Prince William Sound systems (Brenner et al. 2012). Hatchery Chinook salmon straying has been monitored on several Southeast Alaska systems for decades (Ed Jones, ADF&G fishery biologist, Juneau, personal communication). Hatchery sockeye salmon straying studies have been conducted on Kodiak Island (Baer and Honnold 2002), in the Copper River basin (Bidlack and Valentine 2009) and the Kenai River (Habicht et al. 2013; Stopha 2012). Pink salmon straying has been monitored in Prince William Sound (Brenner et al. 2012) and is currently monitored in Cook Inlet (Hollowell et al. 2017).

A long-term study is underway to investigate interactions between hatchery and wild salmon in Alaska.[20] A panel composed of scientists with broad experience in salmon fishery enhancement, research, and management from ADF&G, University of Alaska, aquaculture associations, and National Marine Fisheries Service, was assembled by ADF&G in 2011. The panel designed and guides a research program entitled *Interactions of Wild and Hatchery Pink and Chum Salmon in Prince William Sound and Southeast Alaska*. Study funding is shared between the PNP operators, salmon processors, and the State of Alaska, and is administered by ADF&G. Field work is conducted by the Prince William Sound Science Center and the Sitka Sound Science Center. The study will improve understanding of hatchery and wild stock interactions and provide Alaska-specific scientific guidance for assessing Alaska's hatchery program.

In 2018, ADF&G staff discussed Alaska hatchery production with the Board of Fisheries at a public meeting over public concern of hatchery impacts to wild stocks. ADF&G staff submitted reports to the Board of Fisheries, including observations of pink salmon hatchery fish in lower Cook Inlet escapements (Otis et al. 2018), a review of Alaska hatchery practices (Evenson et al. 2018), and interactions between hatchery and wild pink salmon in Prince William Sound and Southeast Alaska (Gorman et al. 2018; Gorman et al. 2017; Knudsen et al. 2016). Oral reports included the topics of salmon fishery enhancement in Alaska for commercial[21] and sport fisheries[22] and Alaska's precautionary approach.[23] A hatchery committee within the Board of Fisheries was formed, and a public meeting is scheduled for the committee on March 8, 2019.[24]

[20] Study findings can be found at http://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheriesResearch.findings_updates (Accessed 2/26/2019).

[21] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2018-2019/ws//rcs/rc023_ADF&G_Oral_Report_Salmon_Fishery_Enhancement_in_Alaska.pdf (Accessed 2/26/2019).

[22] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2018-2019/ws//rcs/rc040_ADF&G_SF_Hatchery_Program.pdf (Accessed 2/26/2019).

[23] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2018-2019/ws//rcs/rc039_ADF&G_Hatchery_Reports_Alaskas_Precautionary_Approach.pdf (Accessed 2/26/2019).

[24] http://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.meetinginfo&date=03-08-2019&meeting=anchorage (Accessed March 26, 2019).

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TABLES

Table 1.–List of hatchery acronyms used in this report.

Acronym	Organization
ADF&G	Alaska Department of Fish and Game
AKI	Armstrong-Keta, Inc.
BIH	Burnett Inlet Hatchery
CIAA	Cook Inlet Aquaculture Association
DIPAC	Douglas Island Pink and Chum, Inc.
KNFC	Kake Nonprofit Fisheries Corporation
KRAA	Kodiak Regional Aquaculture Association
MIC	Metlakatla Indian Community
NMFS	National Marine Fisheries Service
NSRAA	Northern Southeast Regional Aquaculture Association
PWSAC	Prince William Sound Aquaculture Corporation
SMCH	Sawmill Creek Hatchery
SSSC	Sitka Sound Science Center
SSRAA	Southern Southeast Regional Aquaculture Association
VFDA	Valdez Fisheries Development Association Incorporated

Table 2.–Estimated egg takes for Alaska hatcheries, by region, 2018.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Total
Southeast	11,954,000	15,910,000	31,925,000	43,471,000	648,086,000	0	0	750,557,000
Prince William Sound	0	40,405,000	5,998,000	778,015,000	140,280,000	0	0	964,698,000
Cook Inlet	2,161,000	7,941,000	2,331,000	132,769,000	0	242,000	2,584,000	148,114,000
Arctic/Yukon/Kuskokwim	65,000	0	91,000	0	0	110,000	0	360,000
Kodiak	92,000	4,744,000	1,799,000	184,864,000	35,605,000	0	0	227,104,000
Totals[a]	14,273,000	68,999,000	42,143,000	1,139,119,000	823,972,000	352,000	2,584,000	2,091,442,000

[a] Some figures may not total exactly due to rounding.

Table 3.–Estimated juvenile releases from Alaska hatcheries, by region, 2018.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic char	Rainbow Trout	Grayling	Total
Southeast	6,741,000	13,752,000	23,878,000	80,533,000	541,674,000	0	7,000	0	666,584,915
Prince William Sound	49,000	20,455,000	4,170,000	708,119,000	132,480,000	0	0	0	865,273,441
Cook Inlet	3,780,000	8,883,000	1,177,000	71,195,000	0	21,856	536,290	10,970	85,604,517
Arctic/Yukon/Kuskokwim	39,000	0	84,000	0	0	6,567	334,568	35,743	499,913
Kodiak	128,000	4,673,000	858,000	191,952,000	22,936,000	0	55,298	0	220,601,448
Totals[a]	10,736,000	47,763,000	30,169,000	1,051,799,000	697,089,000	28,000	933,000	47,000	1,838,564,234

[a] Some figures may not total exactly due to rounding.

Table 4.–Estimated total returns attributed to Alaska hatcheries (including common property harvest, cost recovery harvest, broodstock, and other), by region, 2018.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	66,000	271,000	735,000	489,000	10,705,000	12,265,000
Prince William Sound	15	1,126,000	45,000	19,320,000	3,156,000	23,647,000
Cook Inlet	6,000	436,000	17,000	1,825,000	0	2,284,000
Kodiak	1,000	184,000	157,000	3,517,000	208,000	4,068,000
Totals[a]	73,000	2,000,000	950,000	25,000,000	14,000,000	42,000,000

[a] Some figures may not total exactly due to rounding.

Table 5.–Alaska (preliminary) commercial harvest of hatchery-produced fish, by region, 2018.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Total commercial harvest[a]	159,000	623,000	1,570,00	7,768,000	11,169,00	21,289,000
	Hatchery cost-recovery harvest	18,000	159,000	126,000	294,000	3,129,000	3,725,000
	Common Property Commercial Harvest	141,000	465,000	1,444,00	7,474,000	8,040,000	17,564,000
	Hatchery-produced fish in commercial common property harvest	32,000	91,000	451,000	166,000	7,304,000	8,044,000
	% of hatchery-produced fish in commercial common property harvest	23%	20%	31%	2%	91%	46%
	Hatchery-produced fish in total commercial harvest	51,000	250,000	577,000	459,000	10,432,00	11,769,000
	% of hatchery-produced fish in total commercial harvest	32%	40%	37%	6%	93%	55%
Prince William	Total commercial harvest	8,000	1,312,000	515,000	22,705,0000	3,305,000	27,845,000
	Hatchery cost-recovery harvest	0	0	0	2,537,000	304,000	2,841,000
	Common Property Commercial Harvest	8,000	1,312,000	515,000	20,168,000	3,001,000	25,005,000
	Hatchery-produced fish in commercial common property harvest	0	1,040,000	6,000	15,311,000	2,673,000	19,029,000
	% of hatchery-produced fish in commercial common property harvest	0%	79%	1%	76%	89%	76%
	Hatchery-produced fish in total commercial harvest	0	1,040,000	6,000	17,848,000	2,976,000	21,870,000
	% of hatchery-produced fish in total commercial harvest	0%	79%	1%	79%	90%	79%
Cook Inlet	Total commercial harvest	4,000	1,181,000	243,000	1,690,000	164,000	3,281,000
	Hatchery cost-recovery harvest	2	240,000	79	998,000	82	1,238,000
	Common Property Commercial Harvest	4,000	941,000	243,000	693,000	164,000	2,044,000
	Hatchery-produced fish in commercial common property harvest	0	49,000	0	490,000	0	539,000
	% of hatchery-produced fish in commercial common property harvest	0%	5%	0%	71%	0%	26%
	Hatchery-produced fish in total commercial harvest	2	288,000	79	1,488,000	82	1,777,000
	% of hatchery-produced fish in total commercial harvest	0%	24%	0%	88%	0%	54%
Kodiak	Total commercial harvest	3,000	1,820,000	438,000	5,947,000	464,000	8,672,000
	Hatchery cost-recovery harvest	0	52,000	0	3,000	299	55,000
	Common Property Commercial Harvest	3,000	1,768,000	438,000	5,944,000	464,000	8,617,000
	Hatchery-produced fish in commercial common property harvest	0	130,000	137,000	3,201,000	166,000	3,635,000
	% of hatchery-produced fish in commercial common property harvest	0%	7%	31%	54%	36%	42%
	Hatchery-produced fish in total commercial harvest	0	182,000	137,000	3,203,000	167,000	3,689,000
	% of hatchery-produced fish in total commercial harvest	0%	10%	31%	54%	36%	43%
Chignik/Aleutian Islands/Alaska Peninsula	Common Property Commercial Harvest	19,000	3,702,000	380,000	806,000	1,156,000	6,063,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%
Bristol Bay	Common Property Commercial Harvest	45,000	41,937,00	162,000	244,000	1,637,000	44,024,398
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%
Arctic-Yukon-Kuskokwim	Common Property Commercial Harvest	13,000	3,000	371,000	78,000	1,975,000	2,441,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%

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Table 5.–Page 2 of 2.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Statewide Total[c]	Total commercial harvest[d]	251,000	50,578,00	3,679,000	39,238,000	19,869,00	113,615,000
	Hatchery cost-recovery harvest	18,000	450,000	126,000	3,831,000	3,400,000	7,825,000
	Common Property Commercial Harvest	233,000	50,128,00	3,552,000	35,407,000	16,469,00	105,790,000
	Hatchery-produced fish in commercial common property	32,000	1,311,000	594,000	19,168,000	10,142,00	31,247,000
	% of hatchery-produced fish in commercial common property	14%	3%	17%	54%	62%	30%
	Hatchery-produced fish in total commercial harvest	51,000	1,761,000	720,000	22,998,000	13,542,00	39,073,000
	% of hatchery-produced fish in total commercial harvest	20%	3%	20%	59%	68%	34%

[a] Total commercial harvest by all commercial gear types, including fish harvested by hatcheries for cost recovery. ADF&G Oceans AK database (Accessed 12/2018). URL not publicly available.

[b] Figures may not total exactly due to rounding.

Table 6.–Estimated exvessel value of the total Alaska commercial common property harvest (preliminary), by region, 2018.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Value of the commercial harvest	$14,321,500	$6,320,432	$20,483,158	$11,385,363	$81,110,489	$134,000,000
	Value of hatchery-produced fish in cost recovery harvest	$1,600,000	$1,600,000	$1,600,000	$400,000	$22,700,000	$28,000,000
	Value of the common property commercial harvest	$12,700,000	$4,700,000	$18,900,000	$11,000,000	$58,400,000	$106,000,000
	Value of hatchery-produced fish in common property commercial harvest	$2,900,000	$922,000	$5,900,000	$244,000	$53,000,000	$63,000,000
	% value of hatchery-produced fish in common property commercial harvest	23%	20%	31%	2%	91%	59%
	Value of hatchery-produced fish in total commercial harvest	$4,500,000	$2,522,000	$7,500,000	$644,000	$75,700,000	$91,000,000
	% of hatchery-produced fish in total commercial harvest value	31%	40%	37%	6%	93%	68%
Prince William Sound	Value of the commercial harvest	$1,264,509	$16,143,568	$6,312,709	$45,397,226	$25,631,083	$95,000,000
	Value of hatchery-produced fish in cost recovery harvest	$0	$0	$0	$5,070,000	$2,360,000	$7,000,000
	Value of the common property commercial harvest	$1,300,000	$16,100,000	$6,310,000	$40,300,000	$23,300,000	$87,000,000
	Value of hatchery-produced fish in common property commercial harvest	$0	$13,000,000	$70,000	$30,600,000	$21,000,000	$65,000,000
	% value of hatchery-produced fish in common property commercial harvest	0%	81%	1%	76%	90%	75%
	Value of hatchery-produced fish in total commercial harvest	$0	$13,000,000	$70,000	$35,670,000	$23,360,000	$72,000,000
	% of hatchery-produced fish in total commercial harvest value	0%	81%	1%	79%	91%	76%
Cook Inlet	Value of the commercial harvest	$154,565	$13,003,570	$1,427,372	$2,484,963	$1,052,612	$18,000,000
	Value of hatchery-produced fish in cost recovery harvest	$100	$2,640,000	$500	$1,467,000	$500	$4,110,000
	Value of the common property commercial harvest	$150,000	$10,000,000	$1,430,000	$1,000,000	$1,052,112	$14,000,000
	Value of hatchery-produced fish in common property commercial harvest	$0	$518,000	$0	$708,000	$0	$1,226,000
	% value of hatchery-produced fish in common property commercial harvest	0.0%	5.2%	0.0%	70.8%	0.0%	8.8%
	Value of hatchery-produced fish in total commercial harvest	$100	$3,160,000	$500	$2,175,000	$500	$5,336,000
	% of hatchery-produced fish in total commercial harvest value	0%	24%	0%	88%	0%	30%
Kodiak	Value of the commercial harvest	$20,417	$14,376,507	$2,678,550	$8,887,684	$1,897,071	$28,000,000
	Value of hatchery-produced fish in cost recovery harvest	$0	$409,000	$0	$0	$1,200	$400,000
	Value of the common property commercial harvest	$20,417	$14,000,000	$2,678,550	$9,000,000	$1,900,000	$28,000,000
	Value of hatchery-produced fish in common property commercial harvest	$0	$1,000,000	$840,000	$4,850,000	$680,000	$7,000,000
	% value of hatchery-produced fish in common property commercial harvest	0.0%	7.1%	31.4%	53.9%	35.8%	25.0%
	Value of hatchery-produced fish in total commercial harvest	$0	$1,409,000	$840,000	$4,850,000	$681,000	$7,800,000
	% of hatchery-produced fish in total commercial harvest value	0%	10%	31%	55%	36%	28%
Chignik/Aleutian Islands/ Alaska Peninsula	Value of the common property commercial harvest	$134,892	$23,856,864	$982,756	$863,465	$3,379,489	$29,000,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%
Bristol Bay	Value of the common property commercial harvest	$346,911	$275,488,409	$731,100	$157,679	$4,304,582	$281,000,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%

-continued-

Table 6.–Page 2 of 2.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Arctic-Yukon-Kuskokwim	Value of the common property commercial harvest[b]	$8,309	$26,569	$3,257,916	$45,044	$7,616,363	$11,000,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%
Total[c]	Value of the commercial harvest[a]	$16,251,103	$349,215,919	$35,873,561	$69,221,424	$124,991,689	$596,000,000
	Value of hatchery-produced fish in cost recovery harvest	$1,600,000	$5,000,000	$1,000,000	$7,000,000	$25,000,000	$40,000,000
	Value of the common property commercial harvest	$14,651,103	$344,215,919	$34,873,561	$62,221,424	$99,991,689	$556,000,000
	Value of hatchery-produced fish in common property commercial harvest	$2,900,000	$15,000,000	$7,000,000	$36,000,000	$75,000,000	$136,000,000
	% value of hatchery-produced fish in common property commercial harvest	18%	4%	20%	52%	60%	23%
	Value of hatchery-produced fish in total commercial harvest	$4,500,000	$20,000,000	$8,000,000	$43,000,000	$100,000,000	$176,000,000
	% of hatchery-produced fish in total commercial harvest value	28%	6%	22%	62%	80%	30%

[a] Some figures may not total exactly due to rounding.

[b] Source: Value data from http://www.adfg.alaska.gov/static/fishing/pdfs/commercial/2018_preliminary_salmon_summary_table.pdf

Table 7.–Estimated sport, personal use and subsistence harvest of hatchery-produced fish, 2018. Figures may not total exactly due to rounding.

Region	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Landlocked Salmon	Total
Southeast	7,063	4,677	62,747	0	5,000	–	–	–	–	79,000
Prince William Sound	–	43,458	26,959	8,572	1,000	–	–	–	–	80,000
Cook Inlet	1,947	17,100	13,392	6,000	0	–	–	–	–	38,000
Southcentral Lakes	–	–	–	–	–	1,173	21,109	413	4,385	27,000
Interior Lakes	–	–	–	–	–	1,057	15,270	614	4,391	21,000
Kodiak	1,100	1,489	9,450	0	0	–	–	–	–	12,000
Total	10,000	67,000	113,000	15,000	6,000	2,000	36,000	1,000	9,000	258,000

Table 8.–Eggs collected at Alaska hatcheries, 2018 (transferred eggs are listed with the receiving hatchery).

Region/Area/Operator/Egg-Take Hatchery		Location/Receiving	Species								
			Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow	Grayling	Total
Southeast											
Southern Southeast											
SSRAA	Burnett Inlet	Burnett Inlet	–	–	–	–	57,400,000	–	–	–	57,400,000
		Neets Bay	–	–	–	–	11,600,000	–	–	–	11,600,000
		Whitman Lake	–	–	240,000	–	–	–	–	–	–
	Crystal Lake	Crystal Lake	1,669,000	–	–	–	–	–	–	–	1,919,000
	Neets Bay	Neets Bay	–	–	–	–	79,450,000	–	–	–	83,962,000
		Burnett Inlet	–	–	–	–	23,700,000	–	–	–	23,700,000
		Whitman Lake	–	–	–	–	40,600,000	–	–	–	40,600,000
	Whitman Lake	Whitman Lake	1,660,000	–	3,167,000	–	–	–	–	–	4,827,000
		Burnett Inlet	–	–	550,000	–	–	–	–	–	–
		Crystal Lake	535,000	–	–	–	–	–	–	–	535,000
		Port Saint Nicholas	130,000	–	–	–	–	–	–	–	130,000
	Klawock River	Klawock River		–	5,000,000			–			5,000,000
Southern Southeast Total			3,994,000	0	13,719,000	0	212,750,000	0	0	0	229,673,000
Northern Southeast											
NSRAA	Hidden Falls	Hidden Falls	693,947	–	7,532,401	–	119,713,490	–	–	–	127,939,838
	Medvejie Creek	Medvejie Creek	4,433,691	–		302,800	52,638,908	–	–	–	57,375,399
		Hidden Falls	127,320	–	–	–	–	–	–	–	127,320
		Sawmill Creek	–	–	4,325,396	–	36,494,665	–	–	–	40,820,061
AKI	Port Armstrong	Port Armstrong	–	–	4,828,800	40,206,672	57,029,970	–	–	–	102,065,442
DIPAC	Macaulay	Macaulay	1,090,000	–	1,291,900		138,112,900	–	–	–	140,494,800
		Hidden Falls	–	–	–	–	18,553,100	–	–	–	18,553,100
		Medvejie Creek	1,000,000	–	–	–	–	–	–	–	1,000,000
	Snettisham	Snettisham	–	11,353,900	–	–	–	–	–	–	11,353,900
	Tahltan R	Snettisham	–	2,251,100	–	–	–	–	–	–	2,251,100
	Tatsamenie R	Snettisham	–	2,304,600	–	–	–	–	–	–	2,304,600
NMFS	Little Port Walter	Little Port Walter	615,486	–	–	–	–	–	–	–	615,486
SSSC	Sheldon Jackson	Sheldon Jackson	–	–	227,500	2,961,562	2,987,634	–	–	–	6,176,696
		Medvejie Creek	–	–	–	–	805,768	–	–	–	805,768
		Sawmill Creek	–	–	–	–	9,000,000	–	–	–	9,000,000
Northern Southeast Total			7,960,444	15,909,600	18,205,997	43,471,034	435,336,435	0	0	0	520,883,510
Southeast Total			11,954,444	15,909,600	31,924,997	43,471,034	648,086,435	0	0	0	750,556,510

-continued-

Table 8.–Page 2 of 2.

Region/Area/Operator/Egg-Take Hatchery		Location/Receiving	Species								
			Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow	Grayling	Total
Southcentral											
Prince William Sound											
PWSAC	AF Koernig	AF Koernig	–	–	–	190,000,000	–	–	–	–	190,000,000
	Cannery Creek	Cannery Creek	–	–	–	169,720,000	–	–	–	–	169,720,000
	Gulkana	Gulkana	–	28,004,700	–	–	–	–	–	–	28,004,700
	Main Bay	Main Bay	–	12,400,000	–	–	–	–	–	–	12,400,000
	W Noerenberg	W Noerenberg	–	–	3,994,000	147,800,000	120,050,000	–	–	–	271,844,000
		AF Koernig	–	–	–	–	20,230,000	–	–	–	20,230,000
VFDA	Solomon Gulch	Solomon Gulch	–	–	2,003,775	270,495,147	–	–	–	–	272,498,922
Prince William Sound Total			0	40,404,700	5,997,775	778,015,147	140,280,000	0	0	0	964,697,622
Cook Inlet											
CIAA	Port Graham	Port Graham	–	–	–	18,385,026	–	–	–	–	18,385,026
	Trail Lakes	Trail Lakes	–	7,941,000	640,000	–	–	–	–	–	8,581,000
	Tutka Bay Lagoon	Tutka Bay Lagoon	–	–	–	114,383,665	–	–	–	–	114,383,665
ADFG	WJ Hernandez	WJ Hernandez	2,161,203	–	1,691,226	–	–	241,910	2,560,290	86,063	6,740,692
		Macaulay	–	–	–	–	–	–	24,000	–	24,000
Cook Inlet Total			2,161,203	7,941,000	2,331,226	132,768,691	0	241,910	2,584,290	86,063	148,114,383
Southcentral Total			2,161,203	48,345,700	8,329,001	910,783,838	140,280,000	241,910	2,584,290	86,063	1,112,812,005
Arctic-Yukon-Kuskokwim											
ADFG	Ruth Burnett		65,253	–	90,606	–	–	110,000	–	94,630	360,489
Arctic-Yukon-Kuskokwim Total			65,253	0	90,606	0	0	110,000	0	94,630	360,489
Kodiak											
KRAA	Kitoi Bay	Kitoi Bay	–	–	1,574,568	184,864,288	35,605,320	–	–	–	222,044,176
	Saltery Lake	Kitoi Bay	–	739,373	–	–	–	–	–	–	739,373
		Pillar Creek	–	4,004,310	–	–	–	–	–	–	4,004,310
	Karluk River	Pillar Creek	92,324	–	–	–	–	–	–	–	92,324
	Pillar Creek	Pillar Creek	–	–	224,000	–	–	–	–	–	224,000
Kodiak Total			92,324	4,743,683	1,798,568	184,864,288	35,605,320	0	0	0	227,104,183
Statewide Total			14,000,000	69,000,000	42,000,000	1,139,000,000	824,000,000	0	3,000,000	0	2,091,000,000

Note: Figures may not total exactly due to rounding.

Table 9.–Alaska hatcheries releases as reported by operators, 2018.

Region/Operator/Hatchery/Site			Chinook	Sockeye	Coho	Pink	Chum	Other[a]	Total
Southeast									
Southern Southeast									
SSRAA	Burnett Inlet	Burnett Inlet	–	–	–	–	28,020,000	–	28,020,000
		Anita Bay	–	–	274,995	–	24,410,000	–	24,684,995
		Neck L	–	–	1,869,887	–	–	–	1,869,887
		Neets Bay	–	–	822,952	–	–	–	822,952
		Port Asumcion	–	–	–	–	7,440,000	–	7,440,000
	Crystal Lake	Crystal Cr	629,965	–	98,850	–	–	–	728,815
		Anita Bay	553,502	–	–	–	–	–	553,502
		City Cr	137,200	–	–	–	–	–	137,200
		Neets Bay	272,480	–	–	–	–	–	272,480
	Neets Bay	Neets Bay		–	2,570,180	–	66,630,000	–	69,200,180
	Whitman Lake	Whitman L H	557,913	–	542,269	–	–	–	1,100,182
		Anita Bay	–	–	306,769	–	–	–	306,769
		Kendrick Bay	–	–		–	29,720,000	–	29,720,000
		Nakat Inlet	–	–	591,228	–	8,738,000	–	9,329,228
		Neets Bay	–	–	226,954	–	–	–	226,954
		Carroll Inlet	637,400	–		–	–	–	637,400
		Ketchikan Creek	100,500			–	–	–	100,500
	Klawock River	Klawock River	–	–	4,320,554	–	–	–	4,320,554
		Port Asumcion	–	–	387,412	–	–	–	387,412
	Port Saint Nicholas	Port St Nicholas	372,119	–		–	–	–	372,119
	Tamgas Cr	Tamgas Cr	–	–	–	–	–	–	–
Southern Southeast Total			3,261,079	0	12,012,050	0	164,958,000	0	180,231,129
Northern Southeast									
NSRAA	Hidden Falls	Kasnyku Bay	442,435	–	2,790,687	–	43,725,791	–	46,958,913
		Gunnuk Creek	160,234	–		–	8,866,586	–	9,026,820
		Mist Cove	–	–	2,379,970	–	–	–	2,379,970
		Southeast Cove	–	–	–	–	43,109,082	–	43,109,082
		Thomas Bay	–	–	–	–	22,255,897	–	22,255,897
	Medvejie Creek	Bear Cove	1,542,778	–	–	101,542	29,687,187	–	31,331,507
		Crawfish Inlet	303,422	–	–	–	–	–	303,422
		Deep Inlet		–	–	–	39,040,379	–	39,040,379
		Halibut Point M	294,819	–	–	–	–	–	294,819
	Sawmill Creek	Bear Cove	–	–	205,346	–	–	–	205,346
		Crawfish Inlet	–	–		–	27,347,500	–	27,347,500
		Deep Inlet	–	–	1,096,961	–	9,446,110	–	10,543,071
AKI	Port Armstrong	Port Armstrong	–	–	4,006,231	65,842,295	34,876,032	–	104,724,558
		Port Herbert	–	–	–	12,062,158		–	12,062,158
DIPAC	Macaulay	Macaulay	249,400	–	322,500	–	11,819,700	–	12,391,600
		Amalga Harbor		–	–	–	44,429,200	–	44,429,200
		Auke Bay	89,300	–	–	–	–	–	89,300
		Boat Harbor		–	–	–	19,789,600	–	19,789,600
		Fish Creek	233,900	–	–	–	–	–	233,900

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Table 9.–Page 2 of 3.

Region/Operator/Hatchery/Site			Chinook	Sockeye	Coho	Pink	Chum	Other[a]	Total
Southeast									
Northern Southeast									
DIPAC	Macaulay (cont.)	Limestone Inlet	–	–	–	–	11,715,700	–	11,715,700
		Thane Net Pens	–	–	907,100	–	20,083,800	–	20,990,900
		Twin Lakes	2,599	–	–	–	–	7,000[b]	9,599
	Snettisham	Snettisham	–	8,964,700	–	–	–	–	8,964,700
		Sweetheart L	–	487,900	–	–	–	–	487,900
		Tahltan Lake	–	2,634,200	–	–	–	–	2,634,200
		Tatsamenie L	–	1,477,800	–	–	–	–	1,477,800
		Trapper L	–	187,700	–	–	–	–	187,700
NMFS	Little Port Walter	L Port Walter	160,691	–	–	–	–	–	160,691
SSSC	Sheldon Jackson	Crescent Bay	–	–	157,554	2,526,914	2,743,086	–	5,427,554
		Deep Inlet	–	–	–	–	7,780,000	–	7,780,000
Northern Southeast Total			3,479,578	13,752,300	11,866,349	80,532,909	376,715,650	7,000	486,353,786
Southeast Total			6,740,657	13,752,300	23,878,399	80,532,909	541,673,650	7,000	666,584,915
Southcentral									
Prince William Sound									
PWSAC	AFK H	Sawmill Bay	–	–	–	173,000,000	19,000,000	–	192,000,000
	Cannery Creek	Unakwik Inlet	–	–	–	163,000,000	–	–	163,000,000
	Gulkana I and II	Gulkana R	–	10,214,863	–	–	–	–	10,214,863
	Main Bay	Main Bay	–	10,240,000	–	–	–	–	10,240,000
	W Noerenberg	Lake Bay	–	–	2,091,000	130,100,000	73,060,000	–	205,251,000
		Port Chalmers	–	–	–	–	40,420,000	–	40,420,000
		Chenega Bay	49,400	–	50,000	–	–	–	99,400
		Whittier	–	–	100,000	–	–	–	100,000
VFDA	Solomon Gulch	Solomon Gulch	–	–	1,929,471	242,018,707	–	–	243,948,178
Prince William Sound Total			49,400	20,454,863	4,170,471	708,118,707	132,480,000	0	865,273,441
Cook Inlet									
CIAA	Trail Lakes	Bear L	–	2,555,000	438,000	–	–	–	2,993,000
		Bear Creek	–	–	70,000	–	–	–	70,000
		Hazel L	–	813,000	–	–	–	–	813,000
		Hidden L	–	1,271,000	–	–	–	–	1,271,000
		Kirschner L	–	244,000	–	–	–	–	244,000
		Leisure L	–	1,948,000	–	–	–	–	1,948,000
		Resurrection B	–	1,488,000	28,000	–	–	–	1,516,000
		Shell Lake	–	46,000	–	–	–	–	46,000
		Tutka Lagoon	–	518,000	–	–	–	–	518,000
	Tutka Bay Lagoon	Tutka Lagoon	–	–	–	50,040,000	–	–	50,040,000
	Port Graham	Port Graham	–	–	–	20,850,000	–	–	20,850,000
		Paint River	–	–	–	305,000	–	–	305,000
ADF&G	WJ Hernandez	Bird Cr	–	–	126,879	–	–	–	126,879
		Campbell Cr	–	–	51,966	–	–	–	51,966
		Cordova, Fleming	107,306	–	–	–	–	–	107,306

-continued-

Table 9.–Page 3 of 3.

Region/Operator/Hatchery/Site			Chinook	Sockeye	Coho	Pink	Chum	Other[a]	Total
Southcentral									
Cook Inlet									
ADF&G	WJ Hernandez (cont.)	Cove Creek	106,158	–	–	–	–	–	106,158
		Crooked Cr	149,622	–	–	–	–	–	149,622
		Deception Cr	211,168	–	–	–	–	–	211,168
		Eklutna Tailrace	432,369	–	122,272	–	–	–	554,641
		Homer Spit	327,914	–	236,604	–	–	–	564,518
		Ninilchik R	150,053	–	–	–	–	–	150,053
		Seldovia Harbor	104,890	–	–	–	–	–	104,890
		Seward Lagoon	1,604,092	–	–	–	–	–	1,604,092
		Ship Cr	389,797	–	400,478	–	–	–	790,275
		Whittier	106,158	–	–	–	–	–	106,158
		Southcentral Lakes	90,765	–	140,910	–	–	569,116[c]	800,791
Cook Inlet Total			3,780,292	8,883,000	1,177,109	71,195,000	0	569,116	85,604,517
Southcentral Total			3,829,692	29,337,863	5,347,580	779,313,707	132,480,000	569,116	950,877,958
Arctic-Yukon-Kuskokwim									
ADF&G	Ruth Burnett	Region III Lakes	38,589		84,446			376,878[d]	499,913
Arctic-Yukon-Kuskokwim Total			38,589	0	84,446	0	0	376,878	499,913
Kodiak									
KRAA	Kitoi Bay	Kitoi Bay	–	476,301	373,133	191,952,116	22,935,542	–	215,737,092
		Crescent L	–	–	165,000	–	–	–	165,000
		Jennifer L	–	–	170,000	–	–	–	170,000
		Katmai L	–	–	30,788	–	–	–	30,788
		Ouzinkie	–	55,326	–	–	–	–	55,326
		Ruth L	–	–	30,000	–	–	–	30,000
	Pillar Creek	Pillar Cr	–	–	43,295	–	–	–	43,295
		American R	36,561	–	–	–	–	–	36,561
		Crescent L	–	101,466	–	–	–	–	101,466
		Hidden L	–	204,256	–	–	–	–	204,256
		Jennifer L	–	152,095	–	–	–	–	152,095
		Monashka R	–	–	46,132				46,132
		Olds	45,015	–	–	–	–	–	45,015
		Ruth L	–	74,548	–	–	–	–	74,548
		Salonie Cr	45,972	–	–	–	–	–	45,972
		Spiridon L	–	3,252,850	–	–	–	–	3,252,850
		Telrod Cove	–	230,544	–	–	–	–	230,544
		L. Waterfall L	–	75,000	–	–	–	–	75,000
		B Waterfall L	–	50,210	–	–	–	–	50,210
		Kodiak Lakes	–	–	–	–	–	55,298[e]	55,298
Kodiak/WestwardTotal			127,548	4,672,596	858,348	191,952,116	22,935,542	55,298	220,601,448
Statewide Total			10,700,000	47,800,000	30,200,000	1,051,800,000	697,100,000	1,000,000	1,838,600,000

[a] Other includes Arctic char, rainbow trout, and grayling lake stockings.
[b] 7,000 rainbow trout
[c] 21,856 Arctic char, 536,290 rainbow trout, and 10,970 grayling.
[d] 6,567 Arctic char, 334,568 rainbow trout, and 35,743 grayling.
[e] 55,298 rainbow trout.

Table 10.–Projected adult returns, by species, to Alaska fisheries enhancement projects in 2019.

Region/Operator/Hatchery/Location			Chinook	Sockeye	Coho	Pink	Chum	Total
Southern Southeast								
SSRAA	Burnett Inlet		–	–	–	–	265,200	265,200
		Neck Lake	–	–	29,200	–	–	29,200
		Neets Bay	–	–	28,500	–	–	28,500
		Anita Bay	–	–	–	–	535,800	535,800
	Crystal Lake		3,100	–	3,900	–	–	7,000
		City Creek	–	–	–	–	–	1,300
		Anita Bay	–	–	–	–	–	15,700
	Neets Bay		–	–	126,900	–	2,256,700	2,383,600
		Nakat Inlet	–	–	–	–	197,300	197,300
	Whitman Lake		9,200	–	21,700		–	30,900
		Kendrick Bay	–	–	–	–	1,031,700	1,031,700
		Carroll Inlet	–	–	–	–	–	8,000
		Ketchikan Creek	–	–	–	–	–	1,100
		Nakat Inlet	–	–	19,600	–	254,300	273,900
		Anita Bay	–	–	4,500	–		4,500
	Klawock River			–	195,600		–	195,600
		Port Asumcion	–	–	11,425	–		11,425
	Port Saint Nicholas		2,707	–	–		–	2,707
		Coffman Cove	–	–	–	–	–	188
Southern Southeast Total			41,000	0	441,000	0	4,541,000	5,023,620
Northern Southeast								
NSRAA	Haines Projects		–	–	–	–	13,500	13,500
	Hidden Falls		1,903	–	167,000	–	1,603,000	1,771,903
		Mist Cove	–	–	143,000	–	–	143,000
		Southeast Cove	–	–	–	–	1,776,000	1,776,000
		Thomas Bay	–	–	–	–	10,000	10,000
	Medvejie Creek		–	–	–	–	–	–
		Bear Cove	28,628	–	–	–	584,000	612,628
		Halibut Point	5,734	–	–	–	–	5,734
		Crawfish Inlet	890	–	–	–	–	890
		Deep Inlet	–	–	–	–	1,341,000	1,341,000
	Sawmill Creek			–	–	–	–	–
		Bear Cove	–	–	12,000	–	–	12,000
		Deep Inlet	–	–	66,000	–	–	66,000
		Crawfish Inlet	–	–	–	–	3,448,000	3,448,000
AKI	Port Armstrong			–	200,312	987,634	454,381	1,642,327
		Port Herbert	–	–		180,932	–	180,932

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Table 10.–Page 2 of 3.

Region/Operator/Hatchery/Location			Chinook	Sockeye	Coho	Pink	Chum	Total
Northern Southeast (cont.)								
DIPAC	Macaulay							
		Amalga Harbor	–	–	–	–	2,094,000	2,094,000
		Boat Harbor	–	–	–	–	737,200	737,200
		Limestone Inlet	–	–	–	–	228,300	228,300
		Fish Creek	1,360	–	–	–	–	1,360
		Lena Cove	1,930	–	–	–	–	1,930
		Gastineau Channel	2,140	–	62,100	–	1,192,700	1,256,940
		Auke Bay	810	–	–	–	–	810
		Thane	304	–	–	–	–	304
		Skagway	70	–	–	–	–	70
	Snettisham	Snettisham	–	230,100	–	–	–	230,100
		Stikine River	–	[a]	–	–	–	–
		Sweetheart Lake	–	7,800	–	–	–	7,800
		Taku River	–	[a]	–	–	–	–
SSSC	Sheldon Jackson		–	–	6,302	75,807	52,846	134,955
NMFS	Little Port Walter		644	–	–	–	–	644
Northern Southeast Total			44,000	238,000	657,000	1,244,000	13,535,000	15,718,000
Southeast Total			85,000	238,000	1,098,000	1,244,000	18,076,000	20,742,000
Prince William Sound								
PWSAC	Armin F. Koernig		–	–	–	10,400,000	330,000	10,730,000
	Cannery Creek		–	–	–	8,400,000	–	8,400,000
	Gulkana H	Crosswind L	–	85,200	–	–	–	85,200
		Paxson L	–	22,400	–	–	–	22,400
		Summit L	–	4,400	–	–	–	4,400
	Main Bay		–	1,378,000	–	–	–	1,378,000
	Wally Noerenberg		–	–	233,000	5,000,000	1,990,000	7,223,000
		Chenega	670	–	5,600			6,270
		Port Chalmers	–	–	–	–	250,000	250,000
		Whittier	–	–	11,100	–	–	11,100
VFDA	Solomon Gulch			–	–	20,160,160		20,247,565
WJ Hernandez		Seward Lagoon	3,207	–	–	–	–	3,207
		Whittier Cove Creek	930	–	–	–	–	930
		Cordova Fleming Spit	1,042	–	–	–	–	1,042
CIAA	Trail Lakes		–	–	–	–	–	–
		Bear Lake	–	124,044	5,500	–	–	129,544
		Resurrection Bay	–	181,600	–	–	–	181,600
Prince William Sound Totals			6,000	1,796,000	343,000	43,960,000	2,570,000	48,674,000

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Table 10.–Page 3 of 3.

Region/Operator/Hatchery/Location			Chinook	Sockeye	Coho	Pink	Chum	Total
Cook Inlet								
CIAA	Trail Lakes							
		Hazel Lake	–	25,020	–	–	–	25,020
		Leisure Lake	–	44,384	–	–	–	44,384
		Hidden Lake	–	26,557	–	–	–	26,557
		Kirschner Lake	–	39,000	–	–	–	39,000
		Tutka Bay	–	53,400	–	–	–	53,400
	Tutka Bay Lagoon		–	–	–	–	–	1,501,200
	Port Graham		–	–	–	–	–	634,650
ADF&G	WJ Hernandez		–	–	–	–	–	–
		Eklutna Tailrace	4,251	–	8,253	–	–	12,504
		Deception Creek	699	–	–	–	–	699
		Ship Creek	3,635	–	27,053	–	–	30,688
		Campbell Creek	–	–	3,508	–	–	3,508
		Bird Creek	–	–	8,564	–	–	8,564
		Crooked Creek	1,433	–	–	–	–	1,433
		Ninilchik River	1,475	–	–	–	–	1,475
		Homer Spit	2,138	–	15,928	–	–	18,066
		Halibut Cove	1,105	–	–	–	–	1,105
		Seldovia	1,026	–	–	–	–	1,026
Cook Inlet Totals			16,000	188,000	63,000	2,136,000	0	2,403,000
Southcentral Total			22,000	1,984,000	406,000	46,096,000	2,570,000	51,077,000
Kodiak								
KRAA	Kitoi Bay			25,700	39,000	7,062,000	201,000	7,327,700
		Crescent Lake	–	–	400	–	–	400
		Ouzinkie Village	–	7,100	–	–	–	7,100
	Pillar Creek		–	–	1,900	–	–	1,900
		American River	579	–		–	–	579
		Monashka Creek	524	–	2,000	–	–	2,524
		Olds River	578	–	–	–	–	578
		Salonie Creek	654	–	–	–	–	654
		Crescent Lake	–	400	–	–	–	400
		Hidden Lake	–	7,300	–	–	–	7,300
		Spiridon L	–	90,000	–	–	–	90,000
		Telrod Cove	–	116,000	–	–	–	116,000
		Waterfall Lakes	–	3,294	–	–	–	3,294
Westward/Kodiak Total			2,000	250,000	43,000	7,062,000	201,000	7,558,000
Statewide Total			109,000	2,472,000	1,547,000	54,402,000	20,847,000	79,377,000

[a] Not available in time for publication.

Table 11.–Details of the estimated Chinook salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2018.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S[a]				
Southeast												
	Southern Southeast											
		SSRAA	Crystal Lake	Crystal Lake	0	156	410	2,000	–	1,570	312	4,448
				Anita Bay	5,016	7,031	627	44	–	–	–	12,718
				City Creek	3	236	0	0	–	–	–	239
			Whitman Lake	Whitman Lake	294	617	1,958	134	1,224	3,254	500	7,981
			Deer Mountain	Deer Mountain	19	58	123	–	35	–	–	235
			Port Saint Nicholas	Port Saint Nick Bay	13	102	354	68	–	1,884	–	2,421
				Coffman Cove	112	613	95	8	–	–	–	828
		MIC	Tamgas Creek	Tamgas Creek[b]	–	97	373	–	–	181	–	651
	Southern Southeast Total				5,457	8,910	3,940	2,254	1,259	6,889	812	29,521
	Northern Southeast											
		NSRAA	Hidden Falls	Hidden Falls	371	123	41	30	284	–	63	912
			Medvejie Creek	Medvejie Creek	4,444	3,123	3,051	935	5,959	3,568	2,198	23,278
				Halibut Point	179	161	588	39	797	219	158	2,141
				Crawfish Inlet	36	35	1	28	14	–	7	121
		AKI	Port Armstrong	Port Armstrong	16	29	67	–	–	704		816
		DIPAC	Macaulay	Macaulay	67	1,287	161	3,715	2,492	163	371	8,256
				Skagway Site	–	–	6	–	–	–	–	6
		FED	Little Port Walter	L Port Walter	24	32	170	44	471	–	271	1,012
	Northern Southeast Total				5,137	4,790	4,085	4,791	10,017	4,654	3,068	36,542
Southeast Total					10,594	16,700	8,025	7,045	11,276	11,543	3,880	66,063
Southcentral												
	Prince William Sound											
		PWSAC	W Noerenberg	Chenega	–	–	–	15	–	–	–	15
	Cook Inlet											
		ADF&G	WJ Hernandez	Crooked Creek	–	–	–	–	486	–	1,086	1,572
				Deception Creek	–	–	–	–	193	–	74	267
				Eklutna Tailrace	–	–	–	724	–	–	–	724
				Ninilchik R	–	–	–	–	743	–	271	1,014
				Ship Creek	–	–	–	1,208	276	–	521	2,005
	Cook Inlet Total				0	0	0	1,947	1,698	0	1,952	5,597
Southcentral Total					0	0	0	1,947	1,698	0	1,952	5,612

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Table 11.–Page 2 of 2.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S[a]				
Kodiak/Westward												
	Kodiak											
		KRAA	Pillar Creek	Kodiak Road Sys Lakes	–	–	–	1,100	47	–	–	1,147
	Kodiak Total				0	0	0	1,100	47	0	0	1,147
Kodiak/Westward Total					0	0	0	1,100	47	0	0	1,147
Statewide Total					11,000	14,000	8,000	10,000	13,000	12,000	5,800	73,000

[a] Sp/PU/S is the sum of the sport, personal use, and subsistence harvest.

[b] Estimated fisheries contributions using coded wire tag data; operator did not report, broodstock unknown.

Table 12.–Details of the estimated sockeye salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2018.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Set Net	Sp/PU/S				
	Southeast											
		DIPAC	Snettisham	Snettisham	1,864	82,853	–	198	6,442	150,777	1,000	243,134
				Sweetheart Lake	71	2,659	–	3,700	–	–	–	6,430
				Stikine River	–	2,317	–	700	4,809	–	9,053	16,879
				Taku River	–	1,431	–	79	1,716	–	924	4,150
Southeast Total					1,935	89,260	0	4,677	12,967	150,777	10,977	270,593
Southcentral												
	Prince William Sound											
		PWSAC	Gulkana H	Gulkana River		1,239	–	8,406	3,220	–	316	13,181
				Crosswind Lake		4,093	–	–	9,009	–	–	58,230
				Summit Lake		491	–	3,333	–	–	–	3,824
				Gulkana H		353	–	2,394	410	–	–	3,157
			Main Bay	Main Bay	35,599	833,840	164,720	1,548	10,280	–	1,360	1,047,347
	Prince William Sound Total				35,599	840,016	164,720	43,458	22,919	0	19,027	1,125,739
	Cook Inlet											
		CIAA	Trail Lakes	Bear Lake	22,310	–	–	12,000	2,211	158,427	13,686	208,634
				Hidden Lake	–	–	–	–	1,138	–	87,402	88,540
				Kirschner Lake	5,702	–	–	–	–	11,536	–	17,238
				Leisure/Hazel Lake		–	–	–	–	–	–	33,228
				Tutka Bay	14,354	6,397	–	1,500	3,412	62,653	–	88,316
	Cook Inlet Total				42,366	6,397	0	17,100	6,761	262,244	101,088	435,956
Southcentral Total					77,965	846,413	164,720	60,558	29,680	262,244	120,115	1,561,695
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	25,543	–	–	–	283	–	–	25,826
			Pillar Creek	Spiridon Lake	23,630	74,692	–	1,489		51,790	–	151,601
				Foul Bay	6,294	–	–	–	–	–	–	6,294
				Waterfall Bay	338	–	–	–	–	–	–	338
	Kodiak Total				55,805	74,692	0	1,489	283	51,790	0	184,059
Kodiak/Westward Total					55,805	74,692	0	1,489	283	51,790	0	184,059
Statewide Total					136,000	1,010,000	164,720	67,000	43,000	465,000	131,000	2,000,000

[a] Sp/PU/S is the sum of the sport, personal use, and subsistence harvest.
[b] Taku and Stikine River.

Table 13.–Details of the estimated coho salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2018.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S				
Southeast												
	Southern Southeast											
		SSRAA	Burnett Inlet	Neets Bay	111	2,208	6,531	359	–	1,304	–	10,513
				Neck Lake	685	3,741	682	11,816	–	8,964	2,173	28,061
				Anita Bay	56	1,515	538	–	–	–		2,109
			Crystal Lake	Crystal Lake	39	658	1,349	850	1,590	–	300	4,786
			Neets Bay	Neets Bay	4,204	30,692	67,597	5,243	3,182	9,934	–	120,852
			Whitman Lake	Whitman Lake	350	1,453	3,664	257	2,997	608	–	9,329
				Nakat Inlet	123	12,789	2,020	162	–	–	–	15,094
				Anita Bay	55	1,515	537	–	–	–	–	2,107
			Klawock River	Klawock Lake	8,222	69	124,902	10,782	4,343	56,068	25,233	229,619
		MIC	Tamgas Creek[a]	Tamgas Creek	375	3,019	7,062	1,082	–	–	–	11,538
	Southern Southeast Total				14,220	57,659	214,882	30,551	12,112	76,878	27,706	434,008
	Northern Southeast											
		NSRAA	Hidden Falls	Hidden Falls		926	9,299	1,519	11,063		8,219	31,026
				Deer Lake	126	–	12,333	4,426	–	17,036	9,325	43,246
				Cliff Lake		–	99	–	–	–	–	99
			Sawmill Creek	Deep Inlet	29,232	9,668	40,569	6,179	225	522	–	86,395
				Bear Cove	1,007	132	8,090	1,678	3,122	22	2,271	16,322
		AKI	Port Armstrong	Port Armstrong			21,175	1,195	7,372	12,544	14,594	56,880
		DIPAC	Macaulay	Macaulay	134	16,603	12,969	16,936	455	15,785	660	63,542
		SSSC	Sheldon Jackson	Sheldon Jackson		1,352	544	263	151	26	655	2,991
	Northern Southeast Total				30,499	28,681	105,078	32,196	22,388	45,935	35,724	300,501
Southeast Total					44,719	86,340	319,960	62,747	34,500	122,813	63,430	734,509
Southcentral												
	Prince William Sound											
		PWSAC	W Noerenberg	Lake Bay	–	–	–	100	2,380	–	–	2,480
				Chenega	–	–	–	110	–	–	–	110
				Cordova	–	–	–	175	–	–	–	175
				Whittier	–	–	–	120	–	–	–	120
		VFDA	Solomon Gulch	Solomon Gulch	5,751	–	–	26,454	1,319	8,460	11	41,995
	Prince William Sound Total				5,751	0	0	26,959	3,699	8,460	11	44,880

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Table 13.–Page 2 of 2.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S				
Southcentral												
	Cook Inlet											
		CIAA	Trail Lakes	Bear Lake	–	–	–	5,000	259	–	906	6,165
		ADF&G	WJ Hernandez	Bird Creek	–	–	–	2,196	–	–	297	2,493
				Eklutna Tailrace	–	–	–	1,963	–	–		1,963
				Ship Creek	–	–	–	4,233	1,038	–	1,433	6,704
				Resurrection Bay	–	–	–	–	173	–	–	173
	Cook Inlet Total				0	0	0	13,392	1,470	0	2,636	17,498
Southcentral Total					5,751	0	0	40,351	5,169	8,460	2,647	62,378
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	137,050	–	–	50	3,654	–	6,766	147,520
			Pillar Creek	Kodiak Road Sys Lakes	–	–	–	9,400	121	–	–	9,521
	Kodiak Total				137,050	0	0	9,450	3,775	0	6,766	157,041
Kodiak/Westward Total					137,050	0	0	9,450	3,775	0	6,766	157,041
Statewide Total					188,000	86,000	320,000	113,000	43,000	131,000	73,000	950,000

[a] Sp/PU/S is the sum of the sport, personal use, and subsistence harvest.
[b] Tamgas Creek Hatchery data from ADF&G Mark, Age and Tag lab database.

Table 14.–Details of the estimated pink salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2018.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Set Net	Sp/PU/S				
Southeast												
	Northern Southeast											
		NSRAA	Medvejie Creek	Medvejie Creek	–	–	–	–	412	–	138	550
		AKI	Port Armstrong	Port Armstrong	165,715	–	–	–	70,705	113,830	10,000	360,250
		SSSC	Sheldon Jackson	Sheldon Jackson	–	–	–	–	5,589	122,120	–	127,709
	Northern Southeast Total				165,715	0	0	0	76,706	235,950	10,138	488,509
Southeast Total					165,715	0	0	0	76,706	235,950	10,138	488,509
Southcentral												
	Prince William Sound											
		PWSAC	Armin F Koernig	Sawmill Bay	2,445,998	22,241	1,239	–	222,267	591,327	5,000	3,288,072
			Cannery Creek	Cannery Creek	3,232,477	71,497	1,395	–	244,027	193,654	15,000	3,758,050
			W Noerenberg	Lake Bay	1,065,842	173,649	3,852	–	191,154	872,944	1,500	2,308,941
		VFDA	Solomon Gulch	Solomon Gulch	8,292,672	–	–	8,572	376,240	1,221,581	66,156	9,965,221
	Prince William Sound Total				15,036,989	267,387	6,486	8,572	1,033,688	2,879,506	87,656	19,320,284
	Cook Inlet											
		CIAA	Tutka Bay Lagoon	Tutka Bay	152,599	31,721	–	3,500	176,422	939,967	60,691	1,364,900
			Port Graham	Port Graham	306,000	–	–	2,500	94,000	57,550	–	460,050
	Cook Inlet Total				458,599	31,721	0	6,000	270,422	997,517	60,691	1,824,950
Southcentral Total					15,495,588	299,108	6,486	14,572	1,304,110	3,877,023	148,347	21,145,234
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	3,200,710	–	–	–	270,786	–	46,000	3,517,496
	Kodiak Total				3,200,710	0	0	0	270,786	0	46,000	3,517,496
Kodiak/Westward Total					3,200,710	0	0	0	270,786	0	46,000	3,517,496
Statewide Total					19,000,000	300,000	6,486	15,000	1,700,000	4,100,000	204,000	25,000,000

[a] Sp/PU/S is the sum of the sport, personal use, and subsistence harvest.

Table 15.–Details of the estimated chum salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2018.

Region	Area	Agency	Hatchery	Project	Common Property Harvest					Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Setnet	Sp/PU/S				
Southeast													
	Southern Southeast												
		SSRAA	Burnett Inlet	Summer Chum	8,876	28,902	4	–	–	28,202	3,402	–	69,386
				Fall Chum	56,877	19,973	2,876	–	–	48,224	269	–	128,219
				Anita Bay	190,709	200,742	3,222	–	–	–	–	–	394,673
			Neets Bay	Summer Chum	228,369	63,011	120,450	–	–	119,219	405,936	48,781	985,766
				Fall Chum	3,146	3,526	1,513	–	–	13,552	11,118	–	32,855
				Nakat Inlet	1,144	42,406	146	–	–	–	–	–	43,696
			Whitman Lake	Kendrick Bay	436,862	46,790	639	–	–	–	–	–	484,291
				Nakat Inlet	5,367	132,965	–	–	–	–	–	–	138,332
	Southern Southeast Total				931,350	538,315	128,850	0	0	209,197	420,725	48,781	2,277,218
	Northern Southeast												
		NSRAA	Haines Projects	Haines Projects	–	13,362	–	–	–	–	–	17,043	30,405
			Hidden Falls	Hidden Falls	245,735	–	3	–	–	103,475	2,677	260	352,150
				Southeast Cove	1,865	–	–	–	–	277	184,539	–	186,681
			Medvejie Creek	Medvejie Creek	843,027	255,159	84,305	–	–	88,874	4,944	5,368	1,281,334
			Sawmill Creek	Crawfish Inlet	1,942,119	16,112	276,768	–	–	571	1,245,813	–	3,481,383
		AKI	Port Armstrong	Port Armstrong	13,330	–	4,443	–	–	50,601	106,358	3,000	177,732
		DIPAC	Macaulay	Gastineau Channel	4,420	411,777	240	–	5,000	188,968	300,374	35,000	945,779
				Amalga Harbor	333,184	377,344	269	–	–	–	346,917	–	1,057,714
				Boat Harbor	2,519	536,444	137	–	–	–	–	–	539,100
				Limestone Inlet	740	157,406	40	–	–	–	–	–	158,186
		SSSC	Sheldon Jackson	Sheldon Jackson	28,838	8,921	5,436	–	–	9,208	11,701	250	64,354
				Deep Inlet	100,596	30,447	10,060	–	–	10,605	590	640	152,938
	Northern Southeast Total				3,516,373	1,806,972	381,701	0	5,000	452,579	2,203,913	61,561	8,428,099
Southeast Total					4,447,723	2,345,287	510,551	0	5,000	661,776	2,624,638	110,342	10,705,317
Southcentral													
	Prince William Sound												
		PWSAC	W Noerenberg	Lake Bay	94,202	1,839,711	–	7,103	1,000	156,528	315,617	2,000	2,416,161
				Port Chalmers	371,808	17,574	–	77	–	–	–	–	389,459
			Armin F Koernig	Sawmill Bay	317,682	31,544	–	1,323	–	–	–	–	350,549
	Prince William Sound Total				783,692	1,888,829	0	8,503	1,000	156,528	315,617	2,000	3,156,169
Southcentral Total					783,692	1,888,829	0	8,503	1,000	156,528	315,617	2,000	3,156,169

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Table 15.–Page 2 of 2.

Region	Area	Agency	Hatchery	Project	Common Property Harvest					Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Setnet	Sp/PU/S				
Kodiak/Westward													
	Kodiak												
		KRAA	Kitoi Bay	Kitoi Bay	166,406	–	–	–	–	36,129	–	5,306	207,841
	Kodiak Total				166,406	0	0	0	0	36,129	0	5,306	207,841
Kodiak/Westward Total					166,406	0	0	0	0	36,129	0	5,306	207,841
Statewide Total					5,400,000	4,200,000	500,000	0	0	900,000	2,900,000	100,000	14,100,000

[a] Sp/PU/S is the sum of the sport, personal use, and subsistence harvest.
[b] State of Alaska repossessed Gunnuk Creek Hatchery and split the cost recovery harvest with NSRAA by agreement.

Table 16.–Summary of salmon production of eggs collected in 2018 from Aquatic Resource Permits issued by the Alaska Department of Fish and Game. The egg number represented is the maximal number allowed to be collected, not necessarily the number allowed to be released, by the issued permit for the project.

Bioenhancement Research Permits

Eggs collected under this type of propagation permit are for bioenhancement research by accredited institutions of higher learning and cooperative governmental projects.

Area	Permittee	Stock/Species	Maximum number allowed to be collected
Southeast			
	NOAA Little Port Walter	Keta River king at LPW	100 spawning pair
	NOAA Little Port Walter	Unuk River king at LPW	100 spawning pair
	NOAA Little Port Walter	Keta River king	40 spawning pair
	US Forest Service	Taku River coho	100,000 eggs
Arctic-Yukon-Kuskokwim			
	Native Village of White Mountain	Boston Creek king	20 spawning pair
	Native Village of White Mountain	Niukluk River coho	30 spawning pair
	Norton Sound Economic Development Corporation	Snake River chum	70 spawning pair
	Norton Sound Economic Development Corporation	Snake River coho	50 spawning pair
	Norton Sound Economic Development Corporation	Solomon River chum	70 spawning pair
	Norton Sound Economic Development Corporation	Unalakleet River king	20 spawning pair

Educational and Vocational Permits

Eggs collected under this type of propagation permit are for educational and vocational purposes.

Area	Permittee	Stock/Species	Maximum number allowed to be collected
Southeast			
	Juneau-Douglas High School	Macaulay Salmon Hatchery/Fish Cr coho	5,000 eggs
	Petersburg High School	5 Mile Creek pink	50,000 eggs
Westward			
	Unalaska City School	Iliuliuk River coho	3 spawning pair

Scientific and Educational Permits

Eggs collected under this type of propagation permit are for Classroom Incubation Projects and in most cases are provided by hatcheries. Resultant fry can be released at approved locations or are destroyed.

Area	Permittee	Species	Max number to be collected
Southeast			
	Fawn Mt Elementary	coho	150
	Haines School	chum	500
	Ketchikan Charter School	coho	150
	Point Higgins Elementary School	coho	150
	Takshanuk Watershed Council	chum/coho	500
	Takshanuk Watershed Council	coho	250
	Thunder Mountain High School	coho	500

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Table 16.–Page 2 of 5.

Area	Permittee	Species	Max number to be collected
Southcentral			
	ADF&G Anchorage Lobby	coho	500
	ADF&G Soldotna office	coho	500
	Airport Heights Elementary	coho	500
	Alpenglow Elementary	coho	500
	American Charter	coho	250
	Anchor Lutheran School PVT	coho	500
	Aquarian Elementary	coho	500
	Aurora Borealis	coho	500
	Bartlett HS	coho	500
	Baxter Elementary	coho	500
	Bear Valley Elementary	coho	500
	Benny Benson	coho	500
	Bethel Regional High School	coho	500
	Big Fireweed Academy	coho	500
	Big Lake Elementary	coho	250
	Bowman Elementary	coho	500
	Butte Elementary	coho	250
	Campbell Elementary	coho	500
	Chapman Elementary	coho	500
	Chester Valley Elementary	coho	500
	Chinook Elementary	coho	500
	Chugiak Elementary	coho	500
	Chugiak High School	coho	500
	Clark Middle School	coho	500
	College Gate Elementary	coho	500
	Colony High	coho	250
	Colony Middle	coho	250
	Connections School	coho	500
	Cook Inlet Academy	coho	500
	Cooper Landing	coho	500
	Copper River Watershed Project	coho	200
	Cottonwood Elementary	coho	250
	Creekside Park Elementary	coho	500
	Dena'ina	coho	250
	Denali Montessori Elementary	coho	500
	Dimond High School	coho	500
	Eagle Academy Charter School	coho	500
	Eagle River Elementary	coho	500
	Eagle River PVT	coho	500
	East Anchorage High School	coho	500

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Table 16.–Page 3 of 5.

Area	Permittee	Species	Max number to be collected
Southcentral (cont.)			
	Fairview Elementary	coho	500
	Finger Lake Elementary	coho	250
	Fronteras Charter	coho	250
	Girdwood K-8 School	coho	500
	Gladys Wood Elementary	coho	500
	Government Hill Elementary	coho	500
	Grace Christian Elementary School PVT	coho	500
	Gruening Middle School	coho	500
	Hanshew Middle School	coho	500
	Hermon Hutchens Elementary School	chum	500
	Homer High School	coho	500
	Homer Middle School	coho	500
	Homestead Elementary	coho	500
	Huffman elementary	coho	500
	IDEA Home School	coho	500
	Igiugig School	chum	250
	Inlet View Elementary	coho	500
	Kaleidoscope Elementary	coho	500
	Kalifornsky Beach Elementary	coho	500
	Kasuun Elementary	coho	500
	Kellogg FIELD	coho	250
	Kenai Middle School	coho	500
	Kincaid Elementary	coho	500
	Knik Elementary	coho	250
	Kokhanok School	coho	500
	Lake Hood Elementary	coho	500
	Lake Otis Elementary	coho	500
	Larson Elementary	coho	250
	Machetanz Elementary	coho	250
	McLaughlin School	coho	500
	McNeil Canyon Elementary	coho	500
	Meadow Lakes Elementary	coho	250
	Midnight Sun Charter	coho	250
	Mirror Lake Middle School	coho	500
	Mt. View Elementary	coho	500
	Mt. View Elementary	coho	500
	Muldoon Elementary	coho	500
	Newhalen School	coho	250
	Nikiski North Star Elementary	coho	500
	Nikolaevsk Elementary	coho	500

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Table 16.–Page 4 of 5.

Area	Permittee	Species	Max number to be collected
Southcentral (cont.)			
	Ninilchik School	coho	500
	Northern lights ABC	coho	500
	Nunaka Valley	coho	500
	Ocean View Elementary	coho	500
	O'Malley	coho	500
	Pioneer Peak	coho	250
	Polaris School	coho	500
	Port Graham School	pink	500
	Ptarmigan Elementary	coho	500
	Rabbit Creek Elementary	coho	500
	Ravenwood Elementary	coho	500
	Razdolna	coho	500
	Redoubt Elementary	coho	500
	Rilke Schule	coho	500
	Rogers Park Elementary	coho	500
	Scenic Park	coho	500
	Service High School	coho	500
	Seward Elementary	coho	500
	Shaw Elementary	coho	250
	Sherrod Elementary	coho	250
	Showshoe Elementary	coho	250
	Soldotna Prep Middle School	coho	500
	St John Orthodox Christian School	coho	500
	Steller Secondary School	coho	500
	Sterling Elementary	coho	500
	Susitna Elementary	coho	500
	Swanson Elementary	coho	250
	Talkeetna Elementary	coho	250
	Tanaina Elementary	coho	250
	Teeland Middle	coho	250
	The Study	coho	500
	Trailside Elementary	coho	500
	Turnagain Elementary	coho	500
	Tustumena Elementary	coho	500
	Upstream Learning	coho	500
	Ursa Major Elementary	coho	500
	Ursa Minor Elementary	coho	500
	Wasilla High	coho	250
	West Homer Elementary	coho	500
	West HS	coho	500

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Table 16.–Page 5 of 5.

Area	Permittee	Species	Max number to be collected
Southcentral (cont.)			
	Whaley School	coho	500
	William Tyson elementary	coho	500
	Willow Crest	coho	500
	Willow Elementary	coho	250
	Winterberry	coho	500
	Ya Ne Da Ah School	coho	250
Arctic-Yukon-Kuskokwim			
	Delta Elementary	coho	500
	Pearl Creek Elementary School	coho	500
	Russian Mission	coho	500
	Scammon Bay	coho	500
	Scammon Bay	coho	500
	Two Rivers Schools	coho	500
	University Park Elementary School	coho	500
	Watershed Charter School	coho	500
	Weller Elementary	coho	500
Westward			
	East Elementary School	coho	500
	Kodiak Christian School	coho	500
	Kodiak High School	coho	500
	Main Elementary School	coho	500
	North Star Elementary School	coho	500
	Peterson Elementary School	coho	500
	Port Lions School	coho	500
	Sand Point School	coho	500
	St. Mary School	coho	500

Table 17.–Summary of anadromous salmon production (all species) from Alaska hatcheries and fisheries enhancement projects, rounded.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1966	0	1	0
1967	0	1	0
1968	0	1	0
1969	0	1	0
1970	0	1	0
1971	0	1	0
1972	2	2	0
1973	4	2	0
1974	9	3	0
1975	36	11	6
1976	61	13	8
1977	100	41	187
1978	134	75	218
1979	153	87	1,621
1980	299	96	3,061
1981	475	217	4,911
1982	548	365	6,939
1983	647	419	6,560
1984	829	512	8,258
1985	997	659	16,651
1986	1,025	763	12,674
1987	1,388	814	25,363
1988	1,341	1,115	18,432
1989	1,419	1,087	35,441
1990	1,602	1,154	48,897
1991	1,635	1,319	48,567
1992	1,725	1,324	23,237
1993	1,685	1,465	33,478
1994	1,759	1,299	55,676
1995	1,913	1,503	37,291
1996	1,688	1,638	50,012
1997	1,730	1,477	51,260
1998	1,773	1,451	56,043
1999	1,847	1,434	72,290
2000	1,734	1,470	63,107
2001	1,804	1,478	61,729
2002	1,866	1,484	49,325
2003	1,933	1,521	79,888
2004	1,734	1,648	46,467
2005	1,705	1,427	80,978

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Table 17.–Page 2 of 2.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
2006	1,822	1,433	46,502
2007	1,724	1,560	80,263
2008	1,661	1,487	60,441
2009	1,783	1,463	45,005
2010	1,808	1,561	90,817
2011	1,912	1,539	47,836
2012	1,744	1,674	47,251
2013	2,005	1,551	111,385
2014	1,908	1,765	62,032
2015	1,983	1,748	97,000
2016	1,892	1,661	27,000
2017	2,188	1,587	51,000
2018	2,091	1,839	42,000
Total	62,126	50,239	1,807,107

Table 18.–Summary of Chinook salmon production from Alaska hatcheries and fisheries enhancement projects.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1966	0	0.0	0
1967	0	1.0	0
1968	0	0.0	0
1969	0	0.0	0
1970	0	0.0	0
1971	0	0.0	0
1972	0	0.0	0
1973	0	0.0	0
1974	0	1.0	0
1975	1	0.0	0
1976	1	0.0	0
1977	3	1.0	0
1978	2	1.0	0
1979	2	1.0	3
1980	3	1.0	7
1981	1	1.0	5
1982	3	1.0	12
1983	7	2.0	13
1984	10	4.0	21
1985	19	4.0	26
1986	16	6.0	40
1987	17	8.0	94
1988	18	9.0	75
1989	15	8.0	78
1990	17	10.0	118
1991	20	7.0	174
1992	13	10.0	132
1993	12	12.0	112
1994	13	10.0	127
1995	14	7.0	169
1996	12	7.0	166
1997	12	7.0	150
1998	13	7.0	104
1999	12	7.91	114
2000	12	8.32	174
2001	14	8.62	188
2002	19	8.12	157
2003	15	10.09	159
2004	16	9.74	207
2005	15	9.53	139

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Table 18.–Page 2 of 2.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
2006	17	10.37	108
2007	17	10.63	137
2008	18	11.16	140
2009	17	11.70	116
2010	13	11.18	106
2011	13	8.45	131
2012	11	9.62	93
2013	14	8.78	124
2014	14	9.00	92
2015	14	9.00	113
2016	12	11.11	72
2017	14	9.55	66
2018	14	10.70	73
Total	534	319	4,135

Table 19.–Summary of sockeye salmon production from Alaska hatcheries and fisheries enhancement projects, 1972–2018.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1972	0	0	0
1973	2	0	0
1974	2	1	0
1975	8	1	0
1976	24	2	0
1977	19	14	27
1978	35	16	13
1979	30	17	318
1980	38	15	700
1981	51	28	401
1982	59	45	56
1983	68	53	210
1984	86	52	382
1985	108	73	754
1986	102	77	1,296
1987	107	60	992
1988	107	69	1,651
1989	112	77	2,037
1990	99	74	4,165
1991	113	70	5,432
1992	104	74	4,185
1993	122	61	5,139
1994	114	78	4,177
1995	115	81	1,505
1996	127	75	2,911
1997	97	77	3,304
1998	95	71	2,488
1999	91	66	3,588
2000	73	60	2,076
2001	89	39	3,329
2002	92	67	3,645
2003	94	64	4,750
2004	60	71	3,554
2005	81	39	2,761
2006	92	53	2,618
2007	83	63	2,347
2008	79	61	1,781
2009	80	57	1,791
2010	81	56	2,548
2011	91	54	3,036
2012	86	61	2,642
2013	83	57	2,351
2014	75	60	2,718
2015	68	59	2,500
2016	73	49	1,800
2017	68	50	1,600
2018	69	48	2,000
Total	3,552	2,395	95,579

Table 20.–Summary of coho salmon production from Alaska hatcheries and fisheries enhancement projects, 1972–2018.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1972	2	2	0
1973	2	2	0
1974	1	2	0
1975	7	4	0
1976	5	3	0
1977	5	5	13
1978	6	3	0
1979	4	3	71
1980	4	2	21
1981	8	3	55
1982	17	3	108
1983	17	10	96
1984	21	11	180
1985	21	15	309
1986	22	13	659
1987	26	15	455
1988	28	19	287
1989	24	16	503
1990	22	18	946
1991	24	14	1,287
1992	21	15	1,397
1993	25	15	1,023
1994	28	18	1,327
1995	27	21	1,313
1996	30	21	1,369
1997	34	23	1,088
1998	29	21	1,393
1999	23	22	1,542
2000	33	15	1,655
2001	32	20	1,799
2002	35	21	2,120
2003	38	19	1,495
2004	33	23	1,203
2005	33	22	1,444
2006	36	22	1,361
2007	34	26	1,133
2008	40	25	1,453
2009	39	24	1,152
2010	35	29	1,359
2011	42	30	1,420
2012	41	25	973
2013	36	28	1,743
2014	41	28	2,058
2015	36	31	1,200
2016	41	28	790
2017	41	28	920
2018	42	30	950
Total	1,191	792	41,689

Table 21.–Summary of pink salmon production from Alaska hatcheries and fisheries enhancement projects, 1973–2018.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1973	1	0	0
1974	5	0	0
1975	15	5	6
1976	23	4	8
1977	66	18	147
1978	79	50	202
1979	91	60	1,224
1980	181	64	2,318
1981	328	140	4,396
1982	344	252	6,610
1983	406	261	5,939
1984	443	338	5,866
1985	604	366	14,158
1986	511	484	8,739
1987	859	432	21,860
1988	797	730	13,767
1989	975	675	31,476
1990	1,013	811	41,631
1991	998	862	39,493
1992	1,077	797	14,429
1993	1,031	919	20,497
1994	1,076	787	41,055
1995	1,162	921	24,770
1996	929	999	29,214
1997	1,064	892	33,957
1998	1,119	873	38,651
1999	1,085	878	51,973
2000	1,074	880	40,395
2001	1,101	942	47,247
2002	1,168	938	30,835
2003	1,108	962	59,773
2004	960	965	30,565
2005	949	808	69,076
2006	964	809	26,702
2007	952	851	64,308
2008	908	823	43,411
2009	943	818	29,276
2010	979	855	73,849
2011	1,023	883	31,623
2012	861	943	27,999
2013	1,133	798	91,790
2014	1,059	1,016	49,123
2015	1,082	948	81,000
2016	968	894	13,000
2017	1,242	841	34,000
2018	1,139	1,052	25,000
Total	35,894	29,646	1,321,359

Table 22.–Summary of chum salmon production from Alaska hatcheries and fisheries enhancement projects, 1974–2018.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1974	1	0	0
1975	5	1	0
1976	7	2	0
1977	8	3	0
1978	12	4	3
1979	26	7	6
1980	74	13	16
1981	87	46	53
1982	125	63	153
1983	149	94	301
1984	269	108	1,809
1985	245	201	1,404
1986	374	182	1,939
1987	380	298	1,963
1988	392	289	2,653
1989	294	310	1,347
1990	450	241	2,037
1991	480	365	2,181
1992	510	428	3,094
1993	496	459	6,707
1994	529	407	8,989
1995	596	473	9,533
1996	590	535	16,353
1997	524	478	12,761
1998	517	479	13,407
1999	636	461	15,073
2000	541	508	18,806
2001	568	467	9,166
2002	551	451	12,568
2003	679	466	13,710
2004	665	578	10,939
2005	627	549	7,558
2006	714	539	15,714
2007	639	609	12,338
2008	615	567	13,655
2009	705	552	12,670
2010	700	609	12,955
2011	743	563	11,627
2012	743	635	15,544
2013	739	659	15,377
2014	720	651	8,041
2015	786	701	13,000
2016	795	677	11,500
2017	820	648	14,300
2018	824	697	14,000
Total	20,949	17,084	345,249

Table 23.–Summary of commercial harvest of salmon from Alaska fisheries enhancement projects, 1977–2018.

Year	Total Commercial Harvest[a]	Total Cost Recovery Harvest	Commercial Common Property Harvest	Hatchery-Produced Fish in Commercial Common Property Harvest	% Hatchery-Produced Fish in Total Commercial Harvest	% Hatchery-Produced Fish in Commercial Common Property Harvest
1977	50,811,833	108,718	50,703,115	17,183	0%	0%
1978	82,288,581	114,188	82,174,393	2,976	0%	0%
1979	88,761,967	253,303	88,508,664	581,717	1%	1%
1980	110,012,352	346,834	109,665,518	1,710,649	2%	2%
1981	113,332,999	856,408	112,476,591	3,501,065	4%	3%
1982	111,579,999	1,363,885	110,216,114	4,893,392	6%	4%
1983	127,706,450	856,231	126,850,219	4,873,509	4%	4%
1984	133,643,554	1,043,376	132,600,178	5,730,203	5%	4%
1985	144,727,522	1,853,789	142,873,733	12,863,193	10%	9%
1986	126,855,975	1,211,675	125,644,300	9,152,099	8%	7%
1987	95,985,203	4,181,289	91,803,914	17,927,502	23%	20%
1988	99,440,378	2,498,927	96,941,451	12,815,060	15%	13%
1989	151,138,707	15,012,919	136,125,788	16,063,656	21%	12%
1990	153,223,849	10,387,952	142,835,897	34,372,132	29%	24%
1991	183,957,665	13,169,033	170,788,632	29,400,303	23%	17%
1992	135,386,575	7,255,121	128,131,454	11,357,589	14%	9%
1993	191,209,924	4,853,221	186,356,703	23,822,544	15%	13%
1994	194,505,686	15,916,251	178,589,435	34,688,288	26%	19%
1995	215,199,444	9,285,469	205,913,975	24,364,031	16%	12%
1996	173,033,261	14,657,121	158,376,140	29,199,550	25%	18%
1997	122,047,351	19,410,252	102,637,099	26,780,072	38%	26%
1998	150,090,563	15,649,068	134,441,495	34,553,704	33%	26%
1999	215,180,312	22,607,626	192,572,686	42,656,151	30%	22%
2000	135,897,068	18,981,236	116,915,832	39,780,299	43%	34%
2001	172,628,831	18,443,777	154,185,054	38,500,563	33%	25%
2002	128,681,747	19,067,521	109,614,226	25,743,907	35%	23%
2003	159,887,885	22,936,739	136,951,146	49,881,589	46%	36%
2004	164,996,265	22,015,463	142,980,802	20,106,465	26%	14%
2005	219,699,789	21,262,577	198,437,212	53,566,262	34%	27%
2006	139,935,798	18,942,107	120,993,691	23,723,769	30%	20%
2007	211,522,916	19,601,350	191,921,566	57,682,118	37%	30%
2008	144,910,315	12,898,100	132,012,215	44,920,941	40%	34%
2009	160,855,846	13,789,128	147,066,718	28,139,180	26%	19%
2010	169,171,088	10,463,516	158,707,572	77,324,429	52%	49%
2011	175,961,536	12,153,913	163,807,623	32,209,873	25%	20%
2012	125,911,498	7,326,714	118,584,784	36,903,254	35%	31%
2013	280,312,950	9,480,010	270,832,940	97,104,919	38%	36%
2014	154,272,301	7,466,365	146,805,936	50,811,844	38%	35%
2015	263,872,586	14,553,280	249,319,306	78,014,204	35%	31%
2016	109,078,586	8,165,000	100,913,586	16,146,000	22%	16%
2017	221,749,117	9,421,367	212,327,750	37,199,308	21%	18%
2018	113,615,415	7,825,483	105,789,932	31,247,204	34%	30%

Source: Total commercial harvest 1977–1984 from ADF&G HQ fish ticket staff. 1985–2017 from OceanAK statewide salmon fishticket database [URL not publicly available]. Cost recovery and common property hatchery harvest from PNP annual reports in the PNP hatchery database.

[a] Total commercial harvest by all commercial gear types, including fish harvested for cost recovery.

Table 24.–Summary of statewide commercial harvest (including cost recovery) of hatchery-produced salmon from Alaska's fisheries enhancement projects, 1977–2018.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977		183	0	125,718	–	125,901
1978	42	720	0	127,188	2,214	130,164
1979	445	300,758	0	532,303	1,514	835,020
1980	4,388	638,408	102	1,406,028	8,557	2,057,483
1981	1,504	362,326	48,857	3,904,308	39,972	4,356,967
1982	3,352	27,590	84,033	6,067,429	73,869	6,256,273
1983	1,175	158,000	80,820	5,256,149	209,771	5,705,915
1984	5,234	236,762	135,524	4,838,680	1,549,559	6,765,759
1985	10,039	447,448	196,502	12,891,224	1,118,379	14,663,592
1986	14,120	872,507	388,535	7,630,445	1,330,333	10,235,940
1987	22,691	613,433	171,542	19,819,167	1,378,464	22,005,297
1988	28,886	1,001,421	117,108	12,099,427	1,952,956	15,199,798
1989	35,150	1,342,578	278,886	28,403,238	955,802	31,015,654
1990	64,859	1,366,025	680,922	39,580,126	1,487,413	43,179,345
1991	71,754	2,289,246	922,466	36,247,398	1,848,535	41,379,399
1992	54,661	1,498,967	1,037,831	12,220,536	2,398,376	17,210,371
1993	56,404	2,062,422	620,872	18,023,439	5,918,512	26,681,649
1994	43,417	1,610,445	1,024,048	38,814,084	7,977,027	49,469,021
1995	79,366	1,075,191	839,924	22,714,552	8,641,336	33,350,369
1996	89,354	2,317,366	930,894	26,178,537	13,974,597	43,490,748
1997	66,039	2,499,554	720,746	30,982,804	11,758,168	46,027,311
1998	35,965	1,882,080	944,447	34,564,050	12,622,840	50,049,382
1999	46,792	2,568,488	1,180,020	47,193,297	14,144,492	65,133,089
2000	81,955	1,520,601	1,179,919	38,191,003	17,684,623	58,658,101
2001	91,462	2,498,569	1,244,963	44,616,086	8,358,543	56,809,623
2002	85,837	2,749,665	1,576,037	28,443,301	11,813,552	44,638,703
2003	88,938	3,694,840	1,102,260	55,071,886	12,764,879	72,721,118
2004	118,583	2,669,905	834,124	28,309,396	10,057,578	41,989,586
2005	72,998	1,972,236	1,021,934	64,949,983	6,655,453	74,672,604
2006	54,854	2,135,578	1,032,130	24,773,517	14,543,841	42,539,920
2007	83,889	2,033,337	809,108	62,677,909	11,473,819	77,078,062
2008	97,145	1,510,062	1,123,080	42,075,688	12,820,747	57,626,722
2009	82,786	1,534,343	813,392	27,483,685	11,765,847	41,680,053
2010	73,593	2,060,770	916,856	72,484,852	11,854,282	87,390,353
2011	101,092	2,673,023	1,073,289	29,876,986	10,255,648	43,980,038
2012	71,923	2,304,090	677,976	26,699,246	14,109,316	43,862,551
2013	95,570	1,801,171	1,517,608	88,942,840	14,227,394	106,584,583
2014	66,173	2,294,284	1,772,277	47,234,781	6,881,646	58,249,161
2015	77,495	2,319,615	936,259	77,896,371	11,327,248	92,556,988
2016	43,861	1,758,419	536,275	11,526,801	9,914,308	23,779,664
2017	42,045	1,447,642	625,758	30,234,269	14,270,961	46,620,675
2018	41,402	1,771,853	714,637	23,280,580	13,091,246	38,899,718
Grand Total	2,207,238	65,921,921	29,911,961	1,234,389,307	313,263,617	1,645,662,670

Source: ADF&G PNP hatchery database. Not available to public.

Table 25.–Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Southeast Alaska fisheries enhancement projects, 1977–2018.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	−	−	0	108,173	–	108,173
1978	−	−	–	0	2,214	2,214
1979	445	−	0	33,555	1,514	35,514
1980	4,388	−	0	500	5,627	10,515
1981	1,504	−	47,823	139,000	3,286	191,613
1982	3,352	−	82,458	16,568	64,874	167,252
1983	1,175	−	78,918	163,494	196,523	440,110
1984	5,234	−	134,482	235,694	1,465,670	1,841,080
1985	10,039	−	180,821	911,977	931,267	2,034,104
1986	14,045	18,600	378,044	116,114	1,035,304	1,562,107
1987	22,486	36,000	134,157	1,370,029	1,236,283	2,798,955
1988	28,585	20,400	38,414	124,571	1,251,471	1,463,441
1989	34,810	36,672	68,258	859,426	596,879	1,596,045
1990	64,464	113,400	445,739	1,319,810	785,933	2,729,346
1991	71,440	112,332	764,941	1,774,348	1,190,607	3,913,668
1992	52,375	188,126	840,323	3,515,448	2,114,365	6,710,637
1993	53,040	363,468	549,540	688,861	4,663,502	6,318,411
1994	42,222	171,702	850,474	5,787,031	6,938,082	13,789,511
1995	77,090	211,343	646,138	1,530,366	7,595,023	10,059,960
1996	87,724	482,314	705,874	2,009,727	11,861,241	15,146,880
1997	65,115	352,567	545,079	2,447,974	9,866,592	13,277,327
1998	34,987	237,127	730,391	2,235,834	11,553,028	14,791,367
1999	46,792	137,872	976,683	4,087,903	11,386,520	16,635,770
2000	81,955	259,611	562,678	438,750	12,689,973	14,032,967
2001	91,462	390,365	911,015	2,346,847	5,642,197	9,381,886
2002	85,780	120,106	1,321,514	1,924,064	5,613,259	9,064,723
2003	88,166	118,894	884,519	929,740	8,947,620	10,968,939
2004	116,575	555,871	641,779	1,464,011	8,072,702	10,850,938
2005	72,372	240,060	641,025	1,582,244	4,644,569	7,180,270
2006	54,215	377,440	522,774	528,023	12,332,015	13,814,467
2007	83,422	188,510	517,172	1,218,852	7,693,535	9,701,491
2008	97,145	114,047	704,464	173,914	7,984,314	9,073,884
2009	82,756	137,017	619,570	1,318,308	8,687,058	10,844,709
2010	73,593	91,202	765,192	1,198,717	7,593,846	9,722,550
2011	101,092	170,087	796,221	1,339,987	8,284,698	10,692,085
2012	71,923	218,926	618,549	340,783	10,493,980	11,744,161
2013	95,570	179,181	1,206,772	2,500,909	10,489,177	14,471,609
2014	66,173	216,118	1,360,945	511,684	5,733,451	7,888,371
2015	77,495	145,456	822,191	527,887	9,145,108	10,718,137
2016	43,861	277,819	515,812	358,762	6,919,733	8,115,987
2017	42,041	211,774	570,985	1,287,528	9,743,777	11,856,105
2018	41,402	238,224	563,376	401,665	9,928,199	11,172,866
Grand Total	2,188,310	6,732,631	22,745,110	49,869,078	235,385,016	316,920,145

Source: ADF&G PNP hatchery database. Not available to public.

Table 26.–Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Prince William Sound fisheries enhancement projects, 1977–2018.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	–	183	–	17,545	–	17,728
1978	–	720	–	114,188	–	114,908
1979	–	900	–	498,748	–	499,648
1980	–	350	–	1,405,528	2,930	1,408,808
1981	–	3,600	–	2,138,544	36,686	2,178,830
1982	–	3,600	–	5,679,161	1,569	5,684,330
1983	–	6,600	–	4,385,455	13,108	4,405,163
1984	–	5,318	–	4,037,386	82,991	4,125,695
1985	–	31,955	0	8,067,647	64,137	8,163,739
1986	–	30,404	3,263	6,792,641	199,077	7,025,385
1987	100	47,347	23,640	17,304,638	127,397	17,503,122
1988	231	92,552	66,452	10,533,495	524,894	11,217,624
1989	340	175,643	202,497	20,173,723	341,374	20,893,577
1990	235	73,917	218,455	37,553,433	643,123	38,489,163
1991	184	582,200	129,270	32,870,650	250,408	33,832,712
1992	1,311	644,020	192,062	7,479,216	237,546	8,554,155
1993	2,045	502,536	43,635	4,418,071	1,177,483	6,143,770
1994	1,195	300,248	116,745	29,409,289	939,605	30,767,082
1995	891	367,560	139,430	14,246,639	662,712	15,417,232
1996	588	899,555	166,824	22,751,594	2,076,445	25,895,006
1997	924	1,463,155	62,944	24,686,332	1,878,810	28,092,165
1998	978	768,074	45,585	24,760,828	1,031,706	26,607,171
1999	0	440,326	80,249	37,968,264	2,617,072	41,105,911
2000	0	490,077	478,633	33,040,270	4,690,867	38,699,847
2001	0	972,582	175,083	28,466,847	2,499,721	32,114,233
2002	0	1,163,539	36,232	18,771,143	6,111,569	26,082,483
2003	0	1,571,592	76,843	46,935,174	3,351,054	51,934,663
2004	0	694,501	46,578	20,422,252	1,745,266	22,908,597
2005	0	517,890	227,644	47,620,680	1,919,070	50,285,284
2006	0	1,183,213	340,551	19,835,604	2,034,278	23,393,646
2007	0	1,234,571	166,107	53,461,389	3,559,558	58,421,625
2008	0	856,523	297,900	39,783,382	4,743,408	45,681,213
2009	0	949,481	39,260	17,225,812	2,977,790	21,192,343
2010	0	1,510,501	37,989	68,047,457	4,069,152	73,665,099
2011	0	1,757,043	206,733	26,362,128	1,650,418	29,976,322
2012	0	1,622,566	11,074	23,390,393	3,396,596	28,420,629
2013	0	1,041,824	258,104	74,616,332	3,640,837	79,557,097
2014	0	1,494,284	180,742	40,921,607	1,102,613	43,699,246
2015	0	1,660,967	74,728	70,375,473	2,138,730	74,249,898
2016	0	1,030,867	8,653	9,930,534	2,924,763	13,894,817
2017	0	723,773	25,888	26,714,899	4,420,141	31,884,701
2018	0	1,040,335	14,211	18,190,368	2,996,641	22,241,555
Grand Total	9,022	27,956,892	4,194,004	1,001,404,759	72,881,545	1,106,446,222

Table 27.–Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Cook Inlet fisheries enhancement projects, in thousands of fish, 1978–2018.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1978	42	0	0	0	–	42
1979	0	299,858	0	0	–	299,858
1980	0	638,058	102	0	–	638,160
1981	–	358,726	1,034	963,350	–	1,323,110
1982	0	23,990	1,575	181,400	7,426	214,391
1983	0	151,400	1,902	577,200	140	730,642
1984	0	231,444	1,042	230,000	898	463,384
1985	0	415,493	3,681	463,600	1,875	884,649
1986	0	808,503	6,628	380,190	23,152	1,218,473
1987	0	521,349	13,745	84,500	5,313	624,907
1988	0	676,669	8,642	836,000	8,423	1,529,734
1989	0	330,263	8,131	877,600	4,560	1,220,554
1990	160	378,708	11,728	167,400	49,257	607,253
1991	130	483,514	18,546	204,800	25,801	732,791
1992	975	388,021	4,706	373,577	2,933	770,212
1993	1,319	497,376	11,681	637,807	38,002	1,186,185
1994		256,977	10,045	1,563,101	74,725	1,904,848
1995	1,385	324,248	4,121	2,423,894	110,962	2,864,610
1996	1,042	425,118	1,346	442,816	22,711	893,033
1997	0	274,873	3,783	2,637,370	1,745	2,917,771
1998	0	192,548	18,638	1,295,388	106	1,506,680
1999	0	1,150,784	7,188	1,080,130	–	2,238,102
2000	0	310,815	5,370	1,052,285	–	1,368,470
2001	0	724,095	7,133	530,265	–	1,261,493
2002	57	840,439	9,032	1,051,320	–	1,900,848
2003	772	1,204,972	5,849	619,079	–	1,830,672
2004	2,008	1,142,202	7,631	2,460,712	–	3,612,553
2005	626	999,050	1,536	2,143,317	–	3,144,529
2006	639	460,023	600	251,781	–	713,043
2007	467	402,332	48	112,801	–	515,648
2008	0	223,062	350	0	–	223,412
2009	30	201,778	0	–	–	201,808
2010	0	148,478	0	–	–	148,478
2011	0	254,223	0	–	–	254,223
2012	0	138,961	0	–	–	138,961
2013	0	118,069	0	66,581	–	184,650
2014	0	209,311	0	25,430	–	234,741
2015	0	209,789	0	2,166,733	–	2,376,522
2016	0	218,624	0	84,002	–	302,626
2017	4	135,709	201	211,822	246	347,982
2018	0	0	0	1,487,837	311,007	1,798,844
Grand Total	7,030	16,769,852	176,014	27,684,088	689,282	45,328,892

Table 28.–Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Kodiak fisheries enhancement projects, in thousands of fish, 1981–2018.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	0	0	0	0	0	0
1978	0	0	0	13,000	0	13,000
1979	0	0	0	0	0	0
1980	0	0	0	0	0	0
1981	–	–	–	663,414	–	663,414
1982	–	–	–	190,300	–	190,300
1983	–	–	–	130,000	–	130,000
1984	–	–	–	335,600	–	335,600
1985	–	–	12,000	3,448,000	121,100	3,581,100
1986	75	15,000	600	341,500	70,300	427,475
1987	105	8,737	0	1,060,000	3,860	1,072,702
1988	70	211,800	3,600	605,361	150,967	971,798
1989	–	800,000	0	6,492,489	0	7,292,489
1990	–	800,000	5,000	539,483	4,100	1,348,583
1991	–	1,111,200	9,709	1,397,600	361,719	2,880,228
1992	–	278,800	740	852,295	3,532	1,135,367
1993	–	699,042	16,016	12,278,700	34,525	13,028,283
1994	–	881,518	46,784	2,054,663	5,007	2,987,972
1995	–	172,040	50,235	4,513,653	215,311	4,951,239
1996	–	510,379	56,850	974,400	14,200	1,555,829
1997	–	408,959	108,940	1,211,128	11,021	1,740,048
1998	–	684,331	149,833	6,272,000	38,000	7,144,164
1999	–	839,506	115,900	4,057,000	140,900	5,153,306
2000	–	460,098	133,238	3,659,698	303,783	4,556,817
2001	–	411,527	151,732	13,272,127	216,625	14,052,011
2002	–	625,581	209,259	6,696,774	88,724	7,620,338
2003	–	799,382	135,049	6,587,893	466,205	7,988,529
2004	0	277,331	138,136	3,962,421	239,610	4,617,498
2005	0	215,236	151,729	13,603,742	91,814	14,062,521
2006	0	114,902	168,205	4,158,109	177,548	4,618,764
2007	0	207,924	125,781	7,884,867	220,726	8,439,298
2008	0	316,430	120,366	2,118,392	93,025	2,648,213
2009	0	246,067	154,562	8,939,565	100,999	9,441,193
2010	0	310,589	113,675	3,238,678	191,284	3,854,226
2011	0	491,670	70,335	2,174,871	320,532	3,057,408
2012	0	323,637	48,353	2,968,070	218,740	3,558,800
2013	0	462,097	52,732	11,759,018	97,380	12,371,227
2014	0	374,571	230,590	5,776,060	45,582	6,426,803
2015	0	303,403	39,340	4,826,278	43,410	5,212,431

Table 29.–Actively operated Alaska hatcheries contact information, 2018.

[a]	Agency	Address	City, State, Zip	Office phone	Hatchery	Hatchery Manager	Director	Email
Southern Southeast								
R	SSRAA	14 Borch Street	Ketchikan, AK 99901	(907) 225-9605			Dave Landis	davidl@ssraa.org
				(907) 254-1242	Burnett Inlet	Charlie Curritt		burnettinlet@ssraa.org
				(907) 650-7077	Crystal Lake[b]	Loren Thompson		crystallake@ssraa.org
				(907) 225-8790	Neets Bay	Craig Parry		neetsbay@ssraa.org
				(907) 225-2635	Whitman Lake	Jay Creasy		whitman@ssraa.org
				(907) 225-9606	Deer Mountain	Matt Allen		deermountain@ssraa.org
				(907)-247-8790	Neck Lake Project	Ron Parsley, Jr.		necklake@ssraa.org
				(907) 755-2231	Klawock River[b]	Jeff Lundberg		jlundberg@ssraa.org
					Port Saint Nicholas	Jeff Lundberg		jlundberg@ssraa.org
F	MIC	PO Box 8	Metlakatla, AK 99929	(907) 886-3150	Tamgas Creek[c]	Steve Leask		tchsteve@hughes.net
Northern Southeast								
R	NSRAA	1308 Sawmill Cr. Rd	Sitka, AK 99835	(907) 747-6850			Steve Reifenstuhl	steve_reifenstuhl@nsraa.org
				(907) 725-0995	Hidden Falls[b]	Jon Pearce		jon_pearce@nsraa.org
				(907) 738-1438	Medvejie Creek	Adam Olson		adam_olson@nsraa.org
				(907) 747-5863	Sawmill Creek	Rebecca Olson		rebecca_olson@nsraa.org
N	AKI	PO Box 21990	Juneau, AK 99802	(907) 586-3443			Bart Watson	aki@ak.net
				(907) 568-2228	Port Armstrong	Ben Contag		portarmstronghatchery@gmail.com
N	DIPAC	2697 Channel Dr.	Juneau, AK 99801	(907) 463-5114			Eric Prestegard	eric_prestegard@dipac.net
				(907) 463-5114	Macaulay Salmon	Chris Kelley		chris_kelley@dipac.net
				(907) 586-3830	Snettisham[b]	Kevin Steck		kevin_steck@dipac.net
N	SSSC	834 Lincoln St	Sitka, AK 99835	(907) 747-8878	Sheldon Jackson		Lisa Busch	lbusch@sitkascience.org
						Bill Coltharp		wcoltharp@sitkascience.org
F	NMFS	17109 Lena Point Loop Rd	Juneau, AK 99801	(907) 789-6047	Little Port Walter[d]	John Eiler	Andrew Gray	john.eiler@noaa.gov andrew.gray@noaa.gov

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Table 29.–Page 2 of 2.

[a]	Agency	Address	City, State, Zip	Office phone	Hatchery	Hatchery Manager	Director	Email
Prince William Sound								
R	PWSAC	PO Box 1110	Cordova, AK 99574	(907) 424-7511			Casey Campbell	pwsac@ak.net
					AF Koernig	Tiffany Razo		afk.pwsac@ak.net
					Cannery Creek[b]	Dan Orlando		cch.pwsac@ak.net
					Gulkana[b]	Steve Hilton		gkh.cvinternet@ak.net
					Main Bay[b]	Jason Myhrer		mbh.pwsac@ak.net
					W Noerenberg	Eric French (asst.)		wnh.pwsac@ak.net
N	VFDA	PO Box 125	Valdez, AK 99686	(907) 835-4874			Mike Wells	mike.wells@valdezfisheries.com
				(907) 835-1329	Solomon Gulch	Rob Unger		rob.unger@valdezfisheries.com
Cook Inlet								
R	CIAA	40610 Kalifornsky Beach Rd	Kenai, AK 99611	(907) 283-5761			Dean Day	dday@ciaanet.org
				(907) 288-3688	Trail Lakes[b]	Kristin Bates		kbates_tlh@ciaanet.org
				(866) 309-0640	Tutka Bay Lagoon[b]	Jess Eller		jeller@ciaanet.org
				(907) 283-5761	Port Graham	Mike McWaters		mmcwaters_pgh@ciaanet.org
Kodiak								
R	KRAA	104 Center Street Suite 205	Kodiak, AK 99615	(907) 486-6555			Tina Fairbanks	kraa.fairbanks@gci.net kraa@gci.net
				(907) 743-0617	Kitoi Bay[b]	Mike Wachter		kitoi@gci.net
				(907) 486-4730	Pillar Creek[b]	Alan Seale		pch@gci.net
S	ADF&G, Division of Sport Fish						Jeff Milton	jeffery.milton@alaska.gov
	941 N. Reeve Blvd.		Anchorage, AK 99501	(907) 269-0296	WJ Hernandez	Gary George		gary.george@alaska.gov
	1150 Wilbur Street		Fairbanks, AK 99701	(907) 451-2661	Ruth Burnett	Travis Hyer		travis.hyer@alaska.gov

[a] R=Regional Aquaculture Association PNP hatchery, N=Nonregional Association PNP hatchery, F=Federal/Bureau of Indian Affairs hatchery, S=State hatchery.

[b] State owned facility contracted to the private sector to operate.

[c] Federally recognized tribal reservation hatchery.

[d] Hatchery research facility.

Table 30.–Active Alaska hatcheries, 2018.

[a]	Agency	Corporate name	Hatchery	PNP Permit #	PNP permit issued	Species permitted	Website
Southern Southeast							
R	SSRAA	Southern Southeast Regional Aquaculture Assoc.	Burnett Inlet	40	9/30/1997	sockeye, coho, chum	www.ssraa.org
			Crystal Lake[b]	NA		Chinook, coho	
			Neets Bay	19	6/17/1983	chum, coho, Chinook	
			Whitman Lake	8	3/9/1978	chum, coho, Chinook	
			Klawock River[b]	47	7/1/2016	coho, sockeye	
			Port Saint Nicholas	43	6/25/2004	Chinook, chum	
			Deer Mountain	49	08/17/2017	Chinook	
F	MIC	Tamgas Creek Hatchery	Tamgas Creek[c]	NA		chum, coho, Chinook, sockeye	
Northern Southeast							
R	NSRAA	Northern Southeast Regional Aquaculture Assoc.	Hidden Falls[b]	28	6/22/1988	chum, Chinook, coho	www.nsraa.org
			Medvejie Creek	16	8/17/1981	chum, coho, Chinook, pink	
			Sawmill Creek	44	3/11/2007	Coho, chum	
N	AKI	Armstrong-Keta, Inc.	Port Armstrong	13	2/23/1981	pink, chum, Chinook, coho	www.armstrongketa.org
N	DIPAC	Douglas Island Pink and Chum, Inc.	Macaulay	25	6/3/1987	chum, coho, Chinook	www.dipac.net
			Snettisham[b]	39	7/15/1996	sockeye	
N	SSSC	Sitka Sound Science Center	Sheldon Jackson	45	4/13/2011	pink, chum, coho	www.sitkasoundsciencecenter.org
F	NMFS	National Marine Fisheries Service	Little Port Walter[d]	NA		Chinook	www.afsc.noaa.gov/ABL/MSI/msi_lpw.htm
Prince William Sound							
R	PWSAC	Prince William Sound Aquaculture Association	AF Koernig	2	9/29/1975	pink, chum	www.pwsac.com
			Cannery Creek[b]	26	6/22/1988	pink	
			Gulkana[b]	42	7/5/2000	sockeye	
			Main Bay[b]	31	4/17/2001	sockeye	
			W Noerenberg	20	6/17/1983	pink, chum, Chinook, coho	
N	VFDA	Valdez Fisheries Development Association, Incorporated	Solomon Gulch	15	6/26/1981	pink, coho, Chinook	https://www.valdezfisheries.org

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Table 30.–Page 2 of 2.

[a] Agency	Corporate name	Hatchery	PNP Permit #	PNP permit issued	Species permitted	Website
Cook Inlet						
R CIAA	Cook Inlet Aquaculture Association	Trail Lakes[b]	27	6/22/1988	sockeye, coho, Chinook	www.ciaanet.org
		Tutka Bay Lagoon[b]	32	1/3/1994	pink, sockeye	
		Port Graham	46	1/14/2014	pink	
S ADF&G	Alaska Department of Fish and Game	WJ Hernandez[c]	NA		char, grayling, rainbow trout, Chinook, coho	www.adfg.alaska.gov
Kodiak						
R KRAA	Kodiak Regional Aquaculture Association	Kitoi Bay[b]	29	7/5/1988	pink, chum, coho, sockeye	
		Pillar Creek[b]	41	5/1/1998	sockeye, coho, Chinook, rainbow trout	www.kraa.org
Arctic-Yukon-Kuskokwim						
S ADF&G	Alaska Department of Fish and Game	Ruth Burnett	NA		char, grayling, rainbow trout, Chinook, coho	www.adfg.alaska.gov

[a] R=Regional Aquaculture Association PNP hatchery, N=Nonregional Association PNP hatchery, F=Federal/Bureau of Indian Affairs hatchery, S=State hatchery.

[b] State owned facility contracted to the private sector to operate.

[c] Federally recognized tribal reservation hatchery.

[d] Hatchery research facility.

Table 31.–Permitted capacity of Alaska private nonprofit hatcheries, in millions of eggs, 2018.

Region/Area	Corp.	Hatchery	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
Southeast									
Southern Southeast	SSRAA	Burnett Inlet	0	2.70	4.50	0	84.00	0	91.20
		Crystal Lake[a]	4.00	0	0.25	0	–	0	4.25
		Neets Bay	2.00	0	5.00	0	102.70	0	109.70
		Whitman Lake	2.10	0	7.00	0	44.30	0	53.40
		Deer Mountain	0.60	0	–	0	0	0	0.60
		Klawock River	0	1.00	5.00	0	0	0	6.0
		Port Saint Nicholas	0.77	–	–	0	8.0	0	8.77
	Southern Southeast Total		9.47	3.70	21.75	0	239.00	0	273.92
Northern Southeast	NSRAA	Gunnuk Creek[b]	0	0	0.50	20.00	65.00	0	85.50
		Haines projects[b]	0	2.00		0	4.80	0	6.80
		Hidden Falls	3.80	0	7.70	0	101.00[c]	0	112.50
		Medvejie Creek	5.20	0	3.30	0.30	77.00	0	85.80
		Sawmill Creek	0	0	4.33		30.00	0	34.33
	AKI	Port Armstrong[c]	2.00	0	5.00	105.00	60.00	0	172.00
		Little Port Walter	0.60	–	–	–	–	–	0.60
	DIPAC	Macaulay	1.25	0	1.50	0	135.00	0.050	137.80
		Snettisham	0	33.50	0	0	0	0	33.50
	SSSC	Sheldon Jackson	0	0	0.25	3.00	12.00	0	15.25
	Northern Southeast Total		12.85	35.50	22.58	128.30	484.80	0.050	684.08
Southeast Totals			22.32	39.20	44.33	128.30	723.80	0.050	958.00
Southcentral	Prince William Sound								
	PWSAC	Armin F. Koernig	0	0	0	190.00	34.00	0	224.00
		Cannery Creek	0	0	0	187.00	0	0	187.00
		Gulkana	0	36.75	0	0	0	0	36.75
		Main Bay	0	12.40	0	0	0	0	12.40
		Wally Noerenberg	4.00	0	4.00	148.00	131.00	0	287.00
	VFDA	Solomon Gulch	0.30	0	2.00	270.00	0	0	272.30
	Prince William Sound Totals		4.30	49.15	6.00	795.00	165.00		1,019.45
	Cook Inlet								
	CIAA	Eklutna[b]	0	18.00	0.16	0	0	0	18.16
		Trail Lakes	4.00	30.00	6.00	0	0	0	40.00
		Tutka Bay	0	0.66	0	125.00	0	0	125.66
		Port Graham	0	0	0	125.00	0	0	125.00
	Cook Inlet Totals		4.00	48.66	6.16	250.00	0	0	308.82
Southcentral Totals			8.30	97.81	12.16	1,045.00	165.00	0	1,328.27
Kodiak/Westward	Kodiak								
	KRAA	Kitoi Bay	0	0.85	2.30	215.00	36.00	0	254.15
		Pillar Creek	0.45	20.00	0.50	0	0	0.200	21.15
Kodiak/Westward Totals			0.45	20.85	2.80	215.00	36.00	0.200	275.30
Statewide Total			31.07	157.86	59.29	1,388.30	924.80	0.25	2,561.57

[a] Crystal Lake Hatchery is a state-owned facility under contract to SSRAA; it does not have a PNP permit or permitted capacity but operates under the Statewide Sport Fish Stocking Plan.

[b] Inactive

[c] Port Armstrong can take up to 5.0 million Chinook and coho salmon eggs in combination, not to exceed 2.0 million Chinook salmon eggs.

Table 32.–Alaska salmon fisheries enhancement program timeline of events.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
1934	Federal research station Little Port Walter constructed	–	–	1
1950	Federal hatchery at Auke Creek constructed	–	–	2
1953	1 territorial hatchery constructed at Kitoi Bay	1	–	–
1954	1 territorial hatchery constructed at Deer Mountain	2	–	–
1958	1 territorial hatchery constructed at Fort Richardson	3	–	–
1959	Statehood. Alaska becomes the 49th US state.		–	–
1965	1 state hatchery constructed at Fire Lake	4	–	–
1969	1 state hatchery constructed at Crystal Lake	5	–	–
1971	Fisheries Rehabilitation, Enhancement and Development Division created by Legislature	–	–	–
1973	2 state hatcheries constructed (Crooked Creek and Gulkana)	7	–	–
	State enhancement projects at Starrigavan and Halibut Cove started	–	–	–
	Limited Entry law enacted, creating fishery limitations for the purpose of conservation.	–	–	–
1974	2 state hatcheries constructed (Beaver Falls and East Creek)	9	–	–
	Legislature authorizes permitting for PNP corporations to operate hatcheries.	–	–	–
1975	4 PNP permits issued [Perry Island (#1), Port San Juan [renamed Armin F. Koernig Hatchery in 1985] (#2), Sheldon Jackson (#3), and Sandy Bay (#4)]	–	4	–
	2 state hatcheries constructed (Big Lake and Tutka Bay Lagoon)	11	–	–
1976	AS 16.10.375 passed, designating regions for regional planning teams and enhancing salmon		–	–
	1 state hatchery constructed at Elmendorf	12	–	–
	2 PNP permits issued [Burnett Inlet (#5) and Kowee Creek (#6)]		6	–
1977	1 PNP permit issued to Gunnuk Creek (#7)		7	–
	2 state hatcheries constructed (Klawock River and Russell Creek)	14	–	–
	State enhancement project at Karluk Lake started		–	–
1978	1 PNP permit issued to Whitman Lake (#8)		8	–
	2 state hatcheries constructed (Cannery Creek and Hidden Falls)	16	–	–
1979	3 PNP permits issued [Salmon Creek (#9), Meyers Chuck (#10), Sheep Creek (#11)]		11	–
	1 state hatchery constructed (Snettisham)	17	–	–
	1 state hatchery closed (Fire Lake)	16	–	–
1980	1 PNP permit issued to Burro Creek (#12)		12	–
	2 state hatcheries constructed (Clear and Main Bay)	18	–	–
	1 hatchery at Tamgas Creek constructed (Metlakatla Indian Community/Bureau of Indian Affairs)	–	–	3

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Table 32.–Page 2 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
1981	1 state hatchery closed (East Creek)	17	12	3
	2 state hatcheries constructed (Sikusuilaq and Trail Lakes)	19		–
	1 PNP hatchery permit rescinded & new permit issued to new operator at Salmon Creek [#9, new #14]	–	12	–
	3 PNP permits issued [Port Armstrong (#13), Solomon Gulch (#15), Medvejie Creek (#16)]	–	15	–
1982	2 PNP permits issued [Eklutna (#17) and Favorite Bay (#18)]	–	17	–
1983	3 PNP permits issued [Neets Bay (#19), Esther Island [renamed Wally Noerenberg Hatchery in 1990] (#20), Crittenden Creek (#22)]	–	20	–
	1 state hatchery completed (Broodstock Development Center)	20		–
1984	1 PNP permit issued to Santa Anna (#21)		21	–
1985	1 PNP permit issued to Port Camden (#23)		22	–
1986	1 PNP permit issued to [Beaver Falls (#24) jointly operated ADF&G/SSRAA]	19	23	–
1987	1 PNP permit issued to Gastineau [renamed Macaulay Salmon Hatchery in 2000 (#25)]		24	–
1988	4 state hatcheries contracted to private sector (Cannery Creek, Trail Lakes, Hidden Falls, Kitoi Bay)	15		–
	4 PNP permits issued [Cannery Creek (#26), Trail Lakes (#27), Hidden Falls (#28), Kitoi Bay (#29)]	–	28	–
	1 state hatchery constructed (Pillar Creek)	16		–
	1 PNP permit rescinded [Sandy Bay PNP (#4)]	–	27	–
	1 PNP permit rescinded [Salmon Creek (#14)]	–	26	–
1990	CSHB432 becomes law (AS 16.40.210) prohibiting finfish farming in Alaska	–		–
	1 PNP permit issued to Bell Island (#30)	–	27	–
1991	5 state hatcheries contracted to private sector [Beaver Falls (#24)-already operated by PNP , Main Bay, Tutka, Pillar Creek, Gulkana]	12	31	–
	2 PNP permits issued [Main Bay (#31), Tutka (#32)]	–	–	–
	Portions of 6 state hatcheries paid for by private or federal funds	–	–	–
1992	1 state hatchery closed (Russell Creek)	11	–	–
	2 PNP permits issued [Port Graham (#33), Haines projects (#34)]	–	33	–
	1 PNP permit revoked [Meyers Chuck (#10)]	–	32	–
1992	3 state hatcheries transferred from Commercial Fisheries Management and Development to Sport Fish Division (Broodstock Development Center, Elmendorf, and Ft. Richardson)	11	32	3
1993	Fisheries Rehabilitation, Enhancement and Development Division merged with the Commercial Fisheries Division to form the Commercial Fisheries Management and Development Division	–	–	–
	2 state hatcheries contracted to private sector (Crooked Creek and Klawock River)	9	34	–
	1 state hatchery closed (Big Lake)	8	–	–

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Table 32.–Page 3 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
1994	1 state hatchery conveyed (Deer Mountain)	7	–	–
	3 PNP permits issued [Crooked Creek (#35), Klawock River (#36), Deer Mountain (#37)]	–	35	–
	Ft. Richardson Hatchery merged with Broodstock Development Center	6	–	–
1995	1 PNP hatchery permit rescinded and new permit issued to new operator at Klawock River (#36, new #38)	–	35	–
	1 state hatchery transferred from Division of Commercial Fisheries Management & Development to Division of Sport Fish (Crystal Lake)	–	–	–
	1 state hatchery closed (Sikusuilaq)	5	–	–
1996	1 state hatchery contracted to private sector [Snettisham (#39)]	4	36	
	1 state hatchery transferred from Commercial Fisheries Management and Development Division to Sport Fish Division (Clear)	–	–	–
	3 PNP permits revoked [Crittenden Creek (#22), Santa Anna (#21), and Favorite Bay (#18)]	–	33	–
1997	1 state hatchery closed (Clear)	3		–
	2 state contracted (PNP) hatcheries closed [Beaver Falls (#24), Crooked Creek (#35)]	–	31	–
	1 PNP hatchery rescinded & new permit issued to new operator at Burnett Inlet (#5, new #40)	–	31	–
1998	1 PNP hatchery permit issued [Pillar Creek (#41), already operating under contract]	–		–
2000	1 state hatchery contracted to private sector [Crystal Lake Hatchery (PNP permit not issued)]	2	32	–
	1 PNP hatchery permit rescinded [Port Camden (# 23)]	–	31	–
	1 PNP hatchery permit issued [Gulkana (#42), already operating under contract]	–	–	–
2001	1 PNP hatchery permit rescinded [Kowee Creek (#6)]	–	30	–
2004	1 PNP hatchery permit issued [Port Saint Nicholas (#43)]	–	31	–
2007	1 PNP hatchery permit issued [Sawmill Creek (#44)]	–	32	–
2008	1 PNP hatchery permit rescinded [Burro Creek (#12)]	–	31	–
2011	1 PNP hatchery permit rescinded & new permit issued to new operator at Sheldon Jackson (#3, new #45)	–	31	–
	1 state hatchery closed (Elmendorf), 1 state hatchery opened (William Jack Hernandez)	2	–	–
2012	1 state hatchery opened (Ruth Burnett)	3	–	–
	1 PNP hatchery permit rescinded (#33) and a new permit issued to new operator at Port Graham (#46)	–	31	–
2014	1 state hatchery closed (Fort Richardson)	2	31	–
2015	1 PNP Hatchery, Sheep Creek in Juneau, permit was voluntarily rescinded.	–	30	–

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Table 32.–Page 4 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
2016	1 PNP hatchery permit rescinded (#38) and a new permit issued to new operator at Klawock River (#47)	–	30	–
2016	1 PNP hatchery permit rescinded (#43) and a new permit issued to new operator at Port St. Nicholas (#48)	–	–	–
2017	1 PNP hatchery permit rescinded (#37) and a new permit issued to new operator at Deer Mountain (#49)	2	30	3
2018	1 PNP hatchery permit rescinded (#7) and a new permit issued to new operator at Gunnuk Creek Hatchery (#50)	2	30	3
2018	1 PNP hatchery permit issued to Little Port Walter Hatchery (#51)	2	31	3

Note: Six PNP hatchery facilities are permitted but currently inactive: Gunnuk Creek Hatchery (Kake), Perry Island Hatchery (Prince William Sound), Bell Island Hatchery (southern Southeast Alaska), Eklutna Hatchery (Eklutna), and Haines Projects (Haines).

Note: There are 11 state-owned hatcheries that are contracted to PNP operators.

Note: Of the 3 federal facilities, 2 are hatchery research: Little Port Walter (active), and Auke Creek Hatchery (inactive), and 1 hatchery facility at Metlakatla is a tribal hatchery.