

Regional Information Report 5J20-04

**Alaska Salmon Fisheries Enhancement Annual Report
2019**

by

Lorna Wilson

March 2020

Alaska Department of Fish and Game

Division of Commercial Fisheries



Symbols and Abbreviations

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

REGIONAL INFORMATION REPORT 5J20-04

**ALASKA SALMON FISHERIES ENHANCEMENT ANNUAL REPORT
2019**

by

Lorna Wilson

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Division of Commercial Fisheries
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March 2020

The Regional Information Report Series was established in 1987 and was redefined in 2006 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as project operational plans, area management plans, budgetary information, staff comments and opinions to Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at <http://www.adfg.alaska.gov/sf/publications/>

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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 traits 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 harvest inseason and manage wild stocks conservatively.

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.

Currently, 30 salmon hatcheries are operating in the state. Twenty-six 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 2019, the commercial fleet caught about 50 million hatchery-produced salmon worth an estimated \$118 million dollars in exvessel value. Hatchery fish contributed 25% of the statewide commercial salmon harvest and 18% of the statewide commercial harvest exvessel value. An additional 233,500 Alaska hatchery fish were caught in the sport, personal use, and subsistence fisheries. In preparation for future production, Alaska hatcheries released 1.7 billion juvenile salmon and took 2.15 billion salmon eggs.

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, preliminary fish ticket data, and reports from area managers. 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.

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 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.

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

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.

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. Numbers in tables may be rounded for clarity. Monetary values are not adjusted for inflation unless otherwise noted. Contributions of hatchery fish are in numbers of fish, and not weight of fish.

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

INTRODUCTION

ALASKA HATCHERY HISTORY

Alaska’s modern hatchery program was developed in response to historically low salmon abundance in the early 1970s (Figure 1). 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). See Appendix A1 for a fisheries enhancement timeline of events.

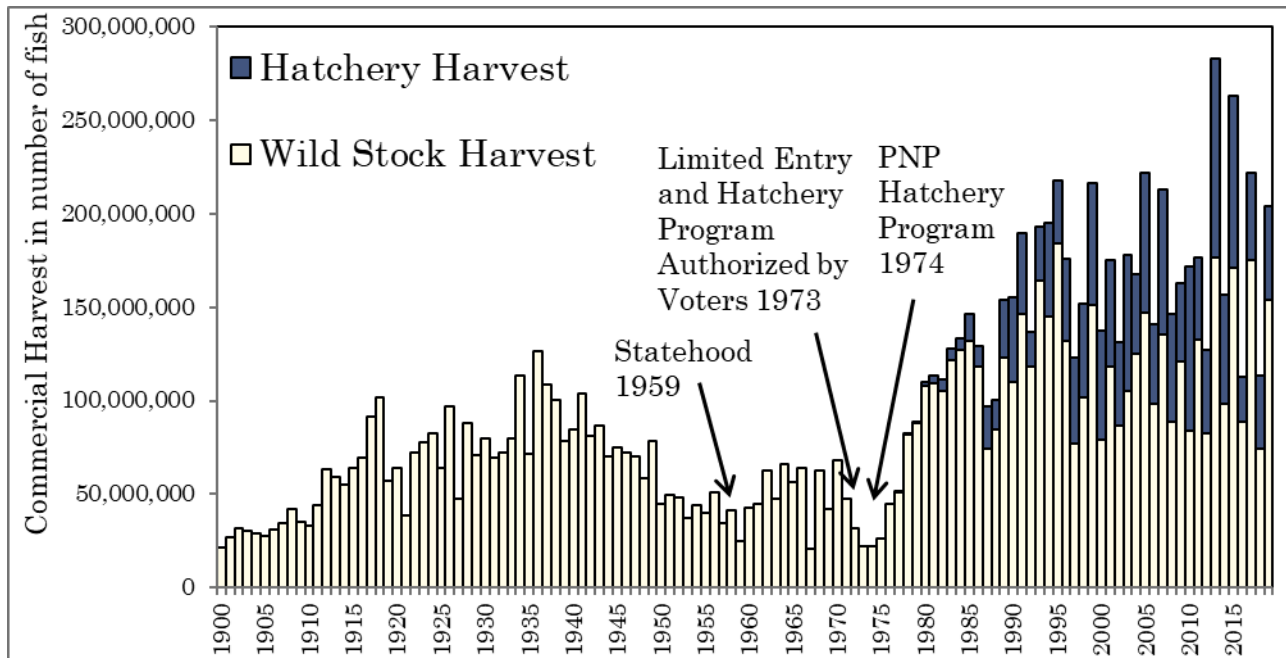


Figure 1.—Commercial salmon harvest in Alaska, 1900–2019.

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. Alaska’s salmon fishery harvests were just 22 million fish in 1973 and 1974 (Figure 1).

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.²

This means that PNP hatcheries have a fishery enhancement objective and hatchery permits are issued for production-scale hatcheries.

The State of Alaska funded the construction of 18 hatcheries between 1969 and 1983 with general obligation bonds. These state-built 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 the 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 permits³ to operate the facilities and are responsible for funding hatchery operations. In 1993, the FRED Division was merged with the Division of Commercial Fisheries. Two Division of Sport Fish hatcheries continue under state operation.

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 (2008–2018) annually averaging 177 million fish⁴—an increase of 800% from the 1973 and 1974 harvests. Alaska’s 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.

ALASKA HATCHERY POLICIES

The success of Alaska’s hatchery program can be attributed to the various policies, statutes, and regulations that were instituted by ADF&G, the legislature, and the Alaska Board of Fisheries to control hatchery development and concurrently to protect wild stocks (Evenson et al. 2018).

² 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.

³ 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.

⁴ <http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery> (Accessed 2/26/2019).

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.

Genetic Policy

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.

Fish Health and Disease Policy

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 policy and associated guidelines are discussed in *Policies and Guidelines for Alaska Fish and Shellfish Health and Disease Control* (Meyers 2010), which includes policy guidelines for fish transport permits, broodstock screening, disease histories, and transfers between hatcheries. Previously suggested regulation changes published in an earlier description of the Alaska hatchery program were codified into state regulations in Title 5 of the Alaska Administrative Code in February 2011. These regulations and guidelines are used by ADF&G fish pathologists to review hatchery plans and permits.

Fisheries Management Policies

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.

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 PNP HATCHERY PERMITTING

Regional Aquaculture Associations

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,⁵ 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 areas⁶ 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.

Permits and Plans for Hatchery Activities

Alaska PNP hatcheries operate under four documents: *PNP hatchery permit*, *basic management plan* (BMP), *fish transport permits* (FTP), and *annual management plans* (AMP). Each of these documents are approved by the commissioner.

The *PNP hatchery permit* authorizes operation of the hatchery and specifies the species permitted to be produced.

The *basic management plan* (BMP) is an addendum to the hatchery permit and 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* (PAR). Requested changes are reviewed by the RPT and ADF&G staff. Recommendations to approve permit alteration requests are sent to the ADF&G commissioner for consideration.

A *fish transport permit* (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 hatchery 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 ensure activities described in the FTP are consistent with ADF&G policies and may suggest conditions for the FTP. Reviewers recommend approval, and 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. Continual review of hatchery activities provides an ongoing assessment of all PNP hatchery projects over time.

The *annual management plan* (AMP) outlines operations for the current year and is written cooperatively among ADF&G regional and PNP hatchery staff in a process that is coordinated by the PNP Coordinator. Typically, AMPs include the current year's egg-take goals, juvenile releases and remaining fish inventory, expected adult returns, harvest management plans, FTPs required or

⁵ Independent PNP operators do not receive salmon enhancement tax funds; only RAAs receive the tax funds.

⁶ Designated areas are called special harvest areas.

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.

PNP Hatchery Permit Process

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. The PNP Hatchery Program Coordinator reviews the application with the applicant, who addresses any deficiencies. Department management and regional staff review the application. The application is then provided for public review.

The RPT reviews hatchery permit applications within their region. The RPT determines if the hatchery operation is compatible with the regional comprehensive salmon plan. Following review by the RPT, a public hearing is held regarding the hatchery permit. At the public hearing, the hatchery applicant describes the proposed hatchery plan, and ADF&G staff present the basic management plan (BMP, described above) 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 (5 AAC 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.

ABOUT HATCHERIES

Economy of Scale

There are tradeoffs between the costs of production and the value of fish at harvest that make some salmon more economical to produce than others. Hatchery production is limited by the available freshwater capacity, freshwater rearing space, rearing time, and costs of production. Costs of production include feed, the rearing facility, and facility operations. The value of the fish at harvest is limited by the value of fish at return and the number of fish that return. Pink salmon are the most economical to rear because they have a short rearing time, 1 winter in the hatchery, and have the shortest life cycle of Pacific salmon, 2 years. This means pink salmon provide a quick return on investment and provide the highest economic return for the production costs. Chum salmon have the same rearing time in the hatchery but have a longer life cycle (3–4 years); therefore, they have a longer return on investment. Pink and chum salmon are the bulk of Alaska hatchery production because they have the highest return on investment for the cost of production. Chinook, sockeye,

and coho salmon are the least economical to produce. They have long rearing times at the hatchery, typically a year or more, and have longer life cycles, so they have a long return on investment. Chinook, sockeye, and coho salmon have a lower number of fish that return per egg. Although Chinook, sockeye, and coho salmon garner higher prices per pound at harvest, the longer rearing time required at the hatchery and lower production numbers mean that they are expensive to rear and less economical to produce.

Hatcheries and Fishery Managers Work Together

Hatchery egg takes, rearing strategies, and releases are planned with the goal of eventual harvest; accordingly, hatchery activities are integrated with harvest management. Hatchery salmon harvests occur at specific locations because juvenile salmon imprint on the water at release and then, when salmon return as adults, they recognize the water and home to that location (Dittman and Quinn 1996). Release site selection allows hatcheries to anticipate the number of salmon that will return to an area and for fisheries managers to plan for hatchery salmon contribution to various fisheries.

Segregation of hatchery-origin and naturally spawned returns allows fishery managers to work towards fishery objectives for wild stocks, such as salmon escapement goals, and increases diversity in fishing opportunities. When wild stock production provides surplus fish for harvest, fishers may target those fish during open fishing periods in traditional fishing areas. When those fishing periods close, fishers can move to the hatchery release sites that remain open and continue fishing there until the wild stock areas reopen. In some seasons, fishers 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. Hatchery salmon return areas provide the fishing fleet with more time and area to fish.

Although most 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 allowed managers to assess all salmon returns and understand how to manage for wild stock returns in the presence of hatchery returns and provide for adequate escapement of wild stocks.

Salmon Return Evaluation

Alaska's PNP hatchery salmon return evaluation 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. Differentially marked salmon allows for apportioning the commercial fishery catch between hatchery and wild salmon where both hatchery and wild stocks return simultaneously. Marked salmon caught on the high seas can be used to determine origins and migration patterns, and salmon carcasses can be collected during stream surveys to assess straying. The majority of Alaska hatchery salmon receive a thermal mark, or the release is represented with coded wire tags (CWTs).

Thermal marking is a technique first used on a production scale in 1988 at Snettisham Hatchery near Juneau. Thermal marking is commonly performed by alternating warmer and colder incubation water over a 12-hour to 6-day period, usually during the egg stage. This action will lay down alternating dense and less dense patterns of growth on the fish's ear bone (called the otolith), similar to rings on a tree (Figure 2; Volk et al. 1999). Naturally spawned salmon will have less distinct marks that lack regularly spaced intervals. Regulation of temperature means fish can be

marked with different patterns of thermal marks, allowing for distinct stock separation among hatcheries, release sites, and release years. As regulation of the temperature of the rearing water is used to thermal mark fish, 100% of the fish are marked. This allows for an accurate assessment of the number of hatchery fish in a sample and is an improvement over marking fish with coded wire tags, which can only be applied to a fraction of the release.

All PNPs and nearly all Alaska hatcheries report their releases, including mark type, each year. All release data and otolith and coded wire tag recovery data collected by ADF&G are publicly available in online reports maintained by the ADF&G Mark, Tag and Age Lab. The release report shows species, number of fish released, the type of mark applied to the fish, and other release data (ADF&G 2020c). The thermal mark voucher report characterizes each thermal mark applied at a hatchery so that upon recovery, a thermal mark can be matched to its release group (ADF&G 2020b). There are reports that refer to returns: the Agency Report lists recovered coded wire tags by release agency, location, or tag code (ADF&G 2020a); and the Mark Summary Report provides information regarding the number of otolith-marked salmon recovered in Alaska and Canada in commercial, test, and other samples (ADF&G 2020d). The Mark, Tag and Age Lab maintains several additional online reports that summarize hatchery-related and other fishery data in different ways (ADF&G 2020e).

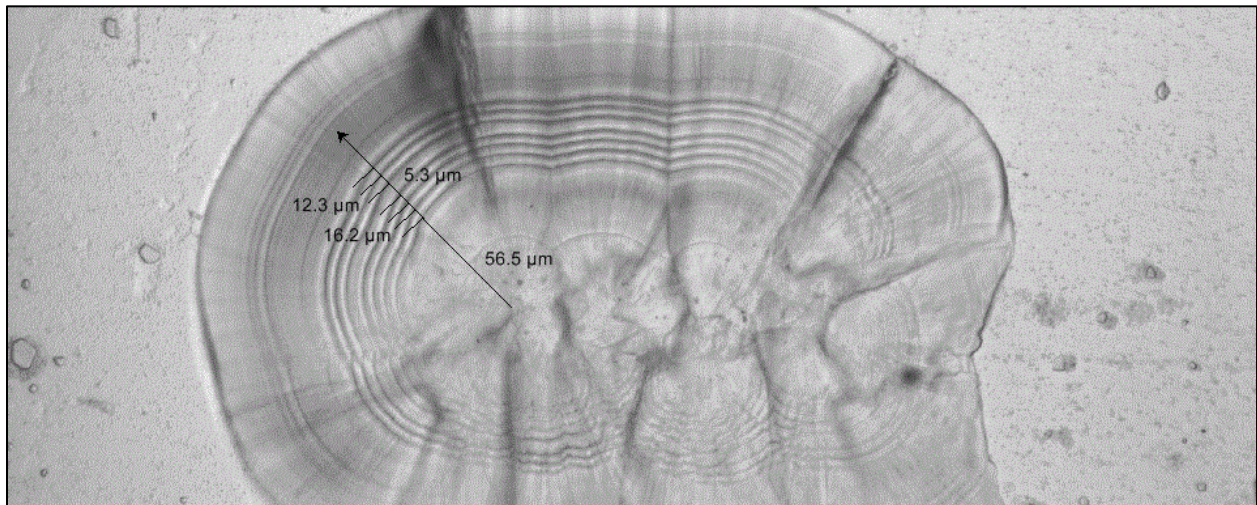


Figure 2.—Salmon otolith (ear stone) with a thermal mark. This otolith was taken from a juvenile sockeye salmon at Snettisham Hatchery in Juneau, AK.

Source: Mark Summary Report. <https://mtalab.adfg.alaska.gov/OTO/reports/VoucherSummary.aspx?mi=TAHLTAN16> (accessed 2/18/2020).

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 Heintz 2012a, 2012b) 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 Cook Inlet (Hollowell et al. 2017).

A long-term study is underway to investigate interactions between hatchery and wild salmon in Alaska.⁷ 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.

NON-PNP SALMON PROPAGATION

ADF&G Division of Sport Fish hatcheries in Anchorage and Fairbanks are not PNP hatcheries and 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.⁸ These planned activities require FTPs and are reviewed to ensure consistency with ADF&G policies.

In Alaska, a non-ADF&G agency may propagate salmon under only 2 types of permits: a PNP salmon hatchery permit, or an aquatic resource permit (ARP). ARPs have a scientific or educational objective and are governed by regulation 5 AAC 41.600. ARPs 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.

2019 SUMMARY

CURRENT HATCHERIES

Currently, there are 30 production hatcheries and 1 research hatchery operating in Alaska (Figure 3; Appendices C1 and C2). Most (26) hatcheries are operated by PNPs. Of these, 11 facilities are owned by the state and 15 are owned by PNPs. There are several non-PNP hatcheries in Alaska: The National Marine Fisheries Service operates a federal research hatchery at Little Port Walter; ADF&G operates 2 sport fish hatcheries, 1 in Anchorage, the William Jack Hernandez Hatchery, and 1 in Fairbanks, the Ruth Burnett Hatchery; and the Metlakatla Indian Community operates Tamgas Creek Hatchery. Activities at these non-PNP hatcheries are included in this report, as available. These hatcheries are operating in Southeast Alaska, Prince William Sound, Cook Inlet, and Kodiak.

There are 3 PNP hatchery facilities that are permitted but currently inactive: Perry Island Hatchery (Prince William Sound), Bell Island Hatchery (Southern Southeast Alaska), and Eklutna Hatchery (Eklutna).

⁷ Study findings can be found at http://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheriesResearch.findings_updates (Accessed 2/10/2020).

⁸ <https://www.adfg.alaska.gov/index.cfm?adfg=fishingSportStockingHatcheries.stockingPlan> (Accessed 2/18/2020).

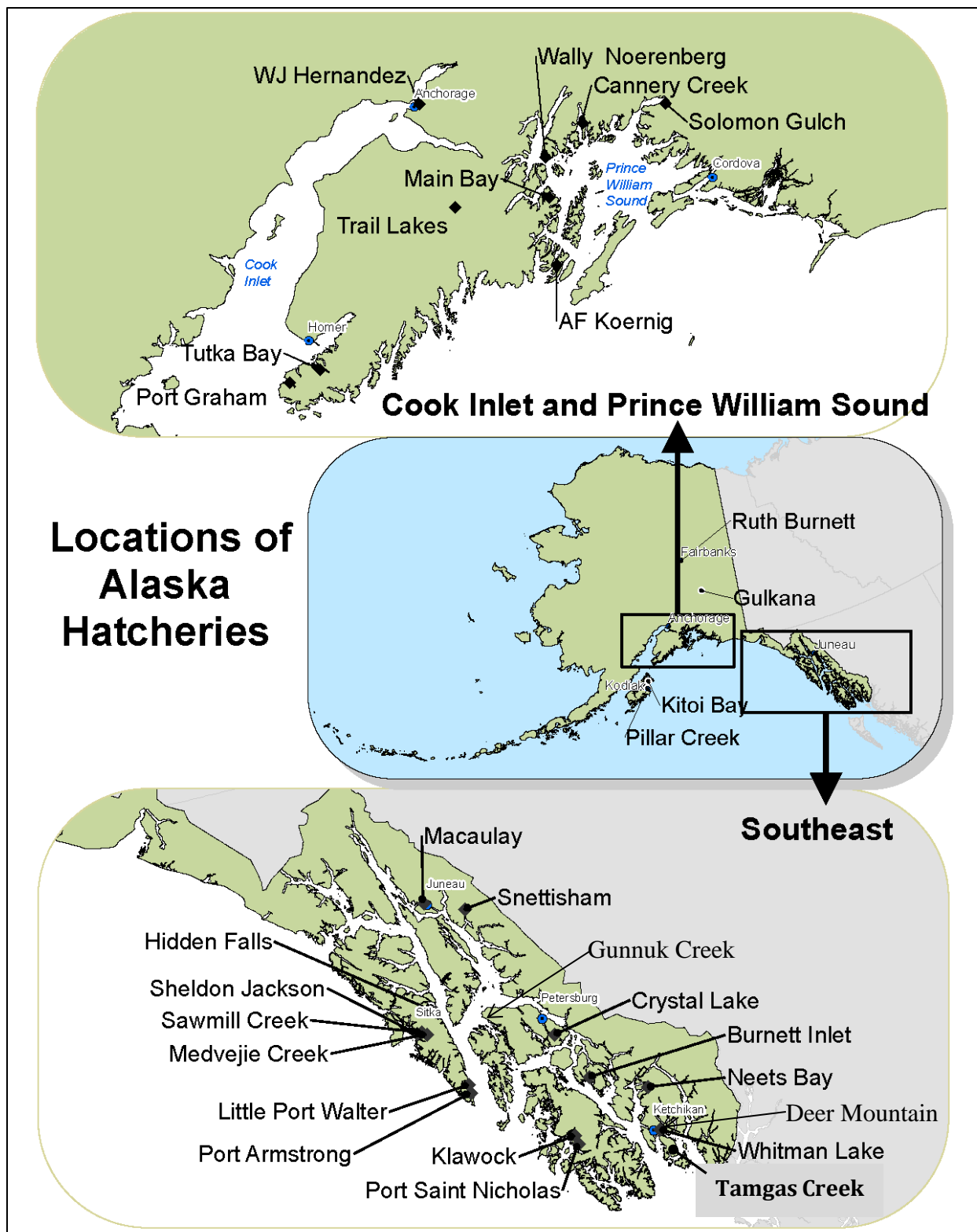


Figure 3.—Salmon hatcheries currently operating in Alaska.

Hatcheries in Alaska are currently permitted to take a total of 2.6 billion eggs (Appendix B1). Prince William Sound hatcheries are permitted to take the highest number of eggs (1.019 billion), followed by Southeast (975.1 million), Cook Inlet (309 million), and Kodiak (275 million). Although hatcheries are permitted to take a certain number of eggs of a species and stock each year, hatcheries do not always take their permitted capacity. Failure to take their permitted capacity can be due to low numbers of returning salmon, shifting program priorities, the hatchery is building their rearing capacity, or other reasons.

HATCHERY PRODUCTION

Hatchery Return

About 54 million adult hatchery salmon returned to Alaska waters in 2019 (Table 1; Figure 4). Pink and chum salmon were the dominant species produced by Alaska hatcheries, followed by sockeye, coho, and Chinook salmon.

Table 1.—Estimated total returns attributed to Alaska hatcheries (including common property harvest, cost-recovery harvest, broodstock, and other) as reported by operators, by area and species, 2019.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	66,209	182,791	744,421	496,190	8,235,431	9,725,042
Prince William Sound	400	914,125	320,783	31,755,948	4,813,751	37,805,007
Cook Inlet	12,444	240,455	14,328	269,504	0	536,731
Kodiak	522	108,059	45,032	5,577,383	72,951	5,803,947
Total	79,575	1,445,430	1,124,564	38,099,025	13,122,133	53,870,727

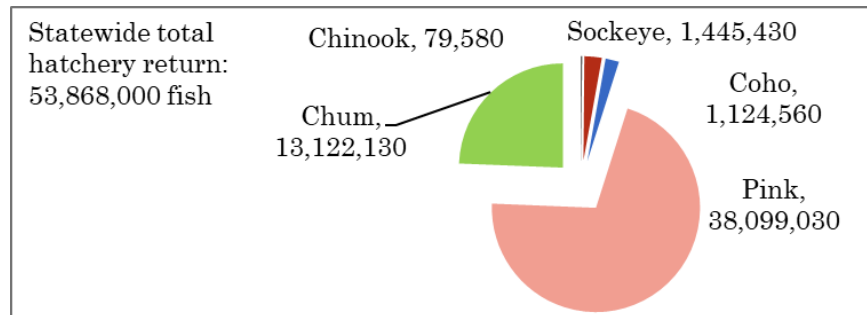


Figure 4.—Alaska hatchery total salmon return as reported by operators, 2019, by species. The total return includes commercial cost recovery, sport, personal use, and subsistence harvest; broodstock taken at the hatchery; and other (e.g. escapement, sealion mortality, lagoon die-off) returns. Rainbow trout, grayling, and Arctic char returns are not shown.

Alaska hatcheries contributed approximately 41 million fish to the common property commercial fishery and approximately 9 million fish were harvested in cost-recovery fisheries for a total of 50 million hatchery salmon in the commercial fishery.⁹ The total commercial harvest of hatchery-produced salmon, including cost recovery, is the 13th highest since 1977 (Appendix K1).

⁹ The commercial fishery is composed of 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.

Hatchery fish contributed approximately 25% of the statewide commercial salmon harvest (Appendix D1). Cost-recovery harvest, which pays for hatchery operations, was 5% of the total commercial harvest (Figure 5; Appendix I1).

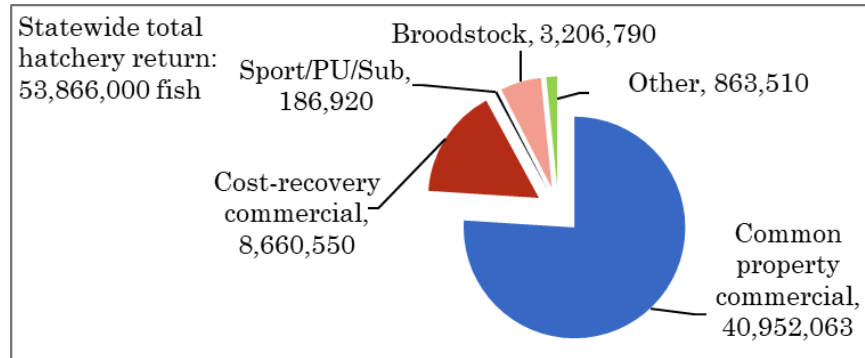


Figure 5.—Alaska salmon hatchery returns as reported by operators by return category, 2019. Other includes escapement, sealion mortality, lagoon die-off, etc.

In 2019, the approximately 50 million hatchery-produced salmon harvested in the commercial fisheries had an estimated exvessel value of \$118 million and comprised 18% of the statewide commercial harvest exvessel value (Figure 6; Appendix D1). The exvessel value of the commercial hatchery harvest was 40% chum salmon, followed by pink (36%), sockeye (13%), coho (8%), and Chinook salmon (3%; Figure 6).¹⁰

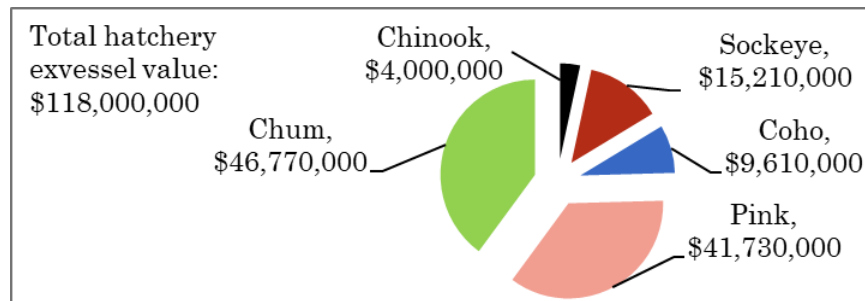


Figure 6.—Species composition of the 2019 Alaska hatchery contribution to the commercial harvest, with the exvessel value by species. Commercial exvessel value is the estimated value paid to fishers for the common property harvest and to aquaculture associations for cost-recovery harvest.

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/comm./2019_preliminary_salmon_summary_table.pdf (accessed 2/7/2020), multiplied by the hatchery percent of the commercial harvest.

¹⁰ 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.

The approximately 41 million hatchery-produced salmon harvested in the commercial common property fisheries had an estimated exvessel value of \$91 million and comprised 14% of the statewide commercial harvest exvessel value (Appendix D2).

An estimated 233,500 hatchery-produced salmon, rainbow trout, Arctic char, and grayling were harvested by sport, personal use, and subsistence users in 2019 (Table 2). Hatchery-produced coho salmon were the greatest part of this harvest (119,000), followed by sockeye salmon (39,000), rainbow trout (35,000), Chinook salmon (15,000), pink salmon (12,000), landlocked salmon (9,000), Arctic char (2,300), chum salmon (2,000), and grayling (1,000).

Table 2.—Estimated sport, personal use, and subsistence harvest of hatchery-produced fish, 2019.

Region	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Landlocked Salmon	Total
Southeast	7,913	4,546	51,975	420	1,250					66,104
Prince William Sound		7,515	52,336	11,049	1,000					71,900
Cook Inlet	6,473	23,100	11,578	100	0					41,251
Kodiak	500	3,693	3,075	0	0					7,268
Southcentral Lakes						1,145	19,600	414	4,543	25,702
Interior Lakes						1,153	15,568	638	3,920	21,279
Total	14,886	38,854	118,964	11,569	2,250	2,298	35,168	1,052	8,463	233,504

Hatchery Egg Takes

During the early years of modern hatchery production, egg collections grew steadily from the late 1970s until about 1995, when production leveled off (Figure 7). In 2019, 2.1 billion eggs were collected (Figure 8; Table 3). Most of these eggs were from pink salmon (1.06 billion), followed by chum (954 million), sockeye (63 million), coho (47 million), and Chinook salmon (17 million). The number of eggs by area, operator, location, and species are in Appendix G1.

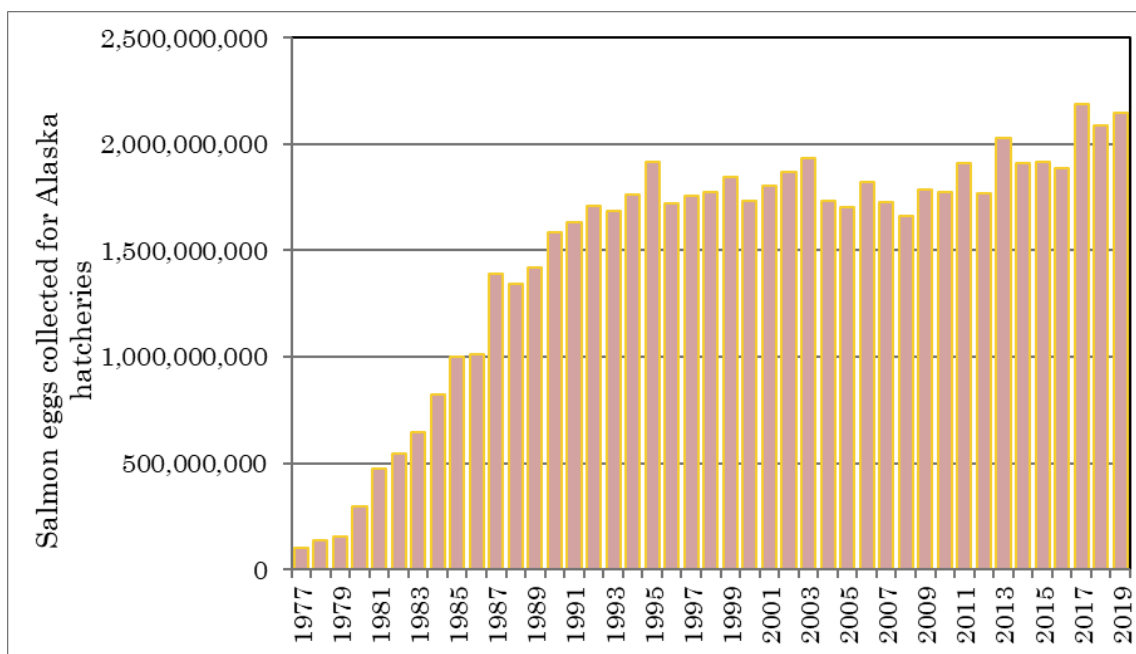


Figure 7.—Salmon eggs collected for Alaska salmon hatchery programs, 1977–2019.

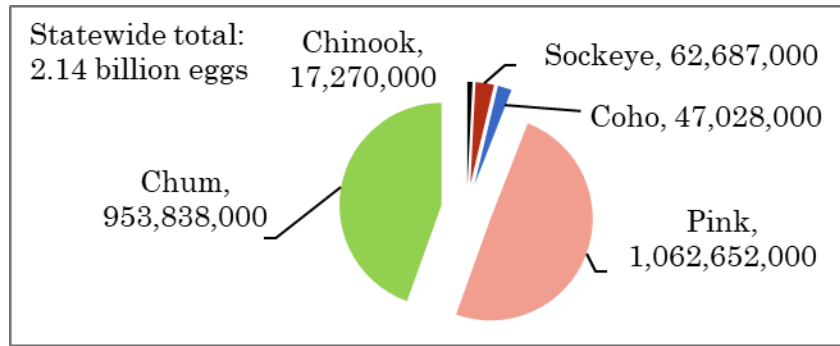


Figure 8.—Salmon eggs collected for Alaska salmon hatchery programs by species, 2019. Eggs taken from Rainbow Trout, Arctic Char, Arctic Grayling, and lake trout are not shown.

Table 3.—Estimated salmon egg takes for Alaska hatcheries as reported by operators, by region, 2019.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Total
Southeast	14,077,324	19,426,500	36,464,004	45,065,050	775,348,798	0	0	0	890,381,676
Prince William Sound	50,000	32,489,400	6,000,107	754,051,326	153,000,000	0	0	0	945,590,833
Cook Inlet	3,036,426	8,231,072	1,970,623	47,232,658	0	180,044	3,896,406	60,140	64,607,369
Arctic-Yukon-Kuskokwim	57,102	0	78,014	0	0	21,930	0	107,397	264,443
Kodiak	49,560	2,539,835	2,515,114	216,303,144	25,489,203	0	0	0	246,896,856
Total	17,270,412	62,686,807	47,027,862	1,062,652,178	953,838,001	201,974	3,896,406	167,537	2,147,741,177

Hatchery Releases

Since 1995, annual hatchery releases have ranged from about 1.4 to 1.8 billion juvenile salmon (Figure 9). About 1.7 billion juvenile salmon were released in 2019 (Figure 9; Table 4). Most of the 2019 releases were from eggs collected in 2018 and were from pink (934 million) and chum (705 million) salmon. The remainder of the releases were from eggs taken mainly in 2017 and were from sockeye (43 million), coho (33 million), and Chinook (10 million) salmon.

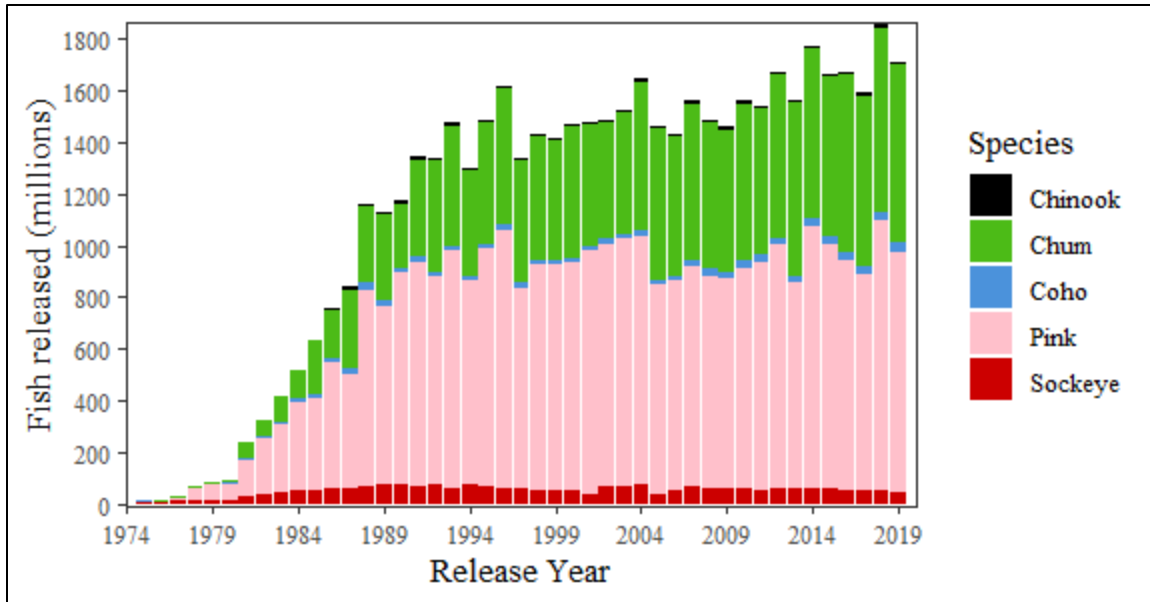


Figure 9.—Total salmon released for Alaska salmon hatchery programs, 1975–2019.

Table 4.—Estimated juvenile releases from Alaska hatcheries, by region, 2019.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Total
Southeast	7,889,104	4,732,300	25,232,767	39,781,492	538,199,305	0	10,278	0	615,845,246
Prince William Sound	49,134	25,379,129	3,695,075	652,477,826	121,400,000	0	0	0	803,001,164
Cook Inlet	1,859,830	8,109,230	1,920,169	95,725,388	0	28,167	630,689	35,044	108,308,517
Arctic-Yukon-Kuskokwim	44,712	0	78,968	0	0	55,888	293,351	28,274	501,193
Kodiak	0	4,419,107	1,923,875	146,726,124	29,800,000	0	40,182	0	182,909,288
Total	9,842,780	42,639,766	32,850,854	934,710,830	689,399,305	84,055	974,500	63,318	1,710,565,408

Projected Hatchery Return in 2020

Hatchery operators forecast a total return of about 52 million fish in 2020. This includes returns of 35 million pink, 13 million chum, 2.2 million sockeye, 1.2 million coho, and 100,000 Chinook salmon to hatchery projects. The 2019 hatchery return was 54 million fish compared to the 2019 forecast of 79 million fish (Stopha 2019). Details of forecasted returns by area and project for 2020 are in Appendix E1.

PROPAGATIVE RESEARCH

In 2019, there were ARPs issued for small-scale production, including salmon research, feasibility studies for potential hatchery production, vocational programs, and the extensive salmon in the classroom program conducted in schools across the state (Appendix F1).

HATCHERY ACTIVITY BY REGION

Southeast

Southeast Alaska has 2 planning regions, Northern Southeast and Southern Southeast, and hatchery production from both planning regions are presented together.

The Southern Southeast Alaska PNP hatcheries operated by Southern Southeast Regional Aquaculture Association (SSRAA) are Burnett Inlet, Neets Bay, Whitman Lake, Neck Lake, Deer Mountain, Klawock River, and Port Saint Nicholas (Figure 3). Since 2000, ADF&G has contracted SSRAA to operate the Crystal Lake Hatchery. The Metlakatla Indian Community operates Tamgas Creek Hatchery, which is not a PNP hatchery.

The Northern Southeast Alaska PNP hatcheries operated by Northern Southeast Regional Aquaculture Association (NSRAA) are Gunnuk Creek, Hidden Falls, Medvejie Creek, and Sawmill Creek. Other PNP hatcheries in Northern Southeast are Port Armstrong Hatchery operated by Armstrong Keta Incorporated, Macaulay and Snettisham hatcheries operated by Douglas Island Pink and Chum, Incorporated (DIPAC), and Sheldon Jackson Hatchery operated by the Sitka Sound Science Center. Little Port Walter, a federal research hatchery in lower Chatham Strait, is operated by the National Marine Fisheries Service and is not a PNP hatchery.

Southeast Alaska has the second highest hatchery production, and chum salmon are the primary hatchery-produced species (Table 1). Hatchery-produced chum salmon are caught in 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.

In 2019, there were 4 stocks of concern located Southeast Alaska: 3 Chinook salmon stocks (Chilkat, King Salmon, and Unuk rivers), and 1 sockeye salmon stock (McDonald Lake). Management actions to reduce harvest of these stocks were taken across all Southeast Alaska fisheries that harvest these stocks—including sport, commercial, personal use, and subsistence.

Hatchery returns in Southeast

In 2019, the total commercial harvest of hatchery-produced salmon, including cost recovery, ranked 23rd for Southeast Alaska since 1977 (Appendix K2). Warm temperatures and drought that caused lower water levels in rivers likely contributed to the lower-than-expected harvests in Southeast Alaska.

About 6.5 million hatchery fish were caught in the Southeast Alaska common property commercial fisheries in 2019, worth an estimated exvessel value of \$32 million, or 37% of the total exvessel value for common property commercial salmon fisheries in the region (Figure 10; Appendices D1 and D2). Chum salmon contributed most to the value of the common property commercial harvest (\$24 million), followed by coho (\$4.8 million) and Chinook salmon (\$2.1 million).

The 6.5 million hatchery-produced salmon harvested in the Southeast commercial common property fishery accounted for 22% of the total common property commercial catch in the region in 2019 (Appendix D1). By species, hatcheries contributed an estimated 85% of the chum, 23% of the Chinook, 28% of the coho, 5% of the sockeye, and 1% of the pink salmon harvest, by numbers of fish, in the common property commercial fisheries. An additional 2.9 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery

(including cost recovery) was about \$46 million, or 45% of the total exvessel value for commercial salmon fisheries in the region (Appendix D2).

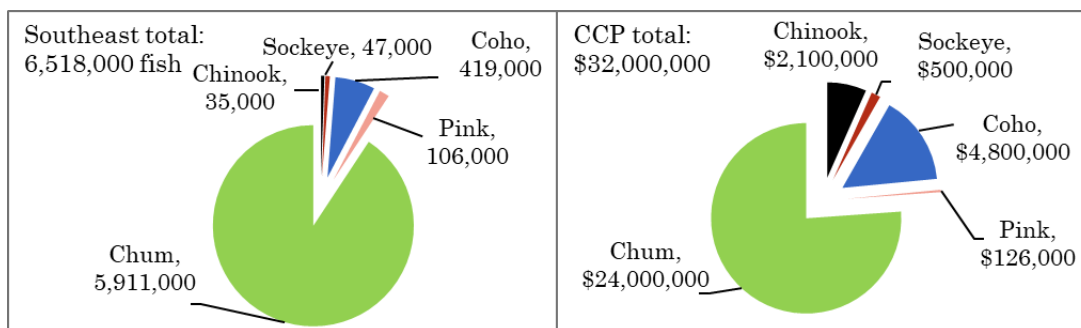


Figure 10.—Commercial common property (CCP) hatchery harvest in numbers of fish and exvessel value of commercial common property hatchery harvest in Southeast Alaska, 2019.

Details of the salmon returns to the southeast region, by return type and project for Chinook, sockeye, coho, pink, and chum salmon as reported by operators are in Appendices J1–J5.

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (52,000), followed by Chinook (8,000), sockeye (4,500), chum (1,000), and pink salmon (500; Table 2).

Egg takes and releases in Southeast

In 2019, there were 890 million eggs taken in Southeast Alaska: 775 million chum, 45 million pink, 36 million coho, 19 million sockeye, 14 million Chinook, and 45 million pink salmon (Figure 11; Table 3). The number of eggs by area, operator, location, and species are in Appendix G1.

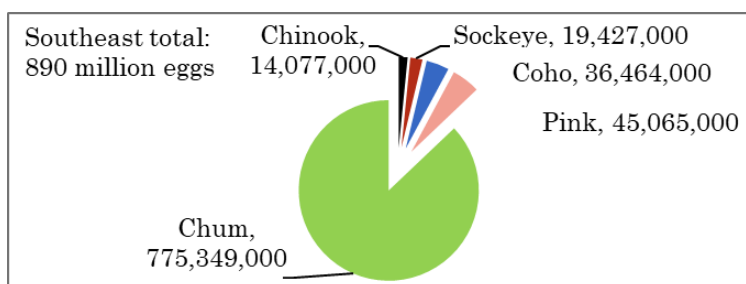


Figure 11.—Eggs collected, by species, for salmon hatchery programs in Southeast Alaska, 2019.

SSRAA collected eggs at the Deer Mountain Hatchery for the first time in 2019. Also, summer chum broodstock shortages at Neets Bay Hatchery and Burnett Inlet Hatchery necessitated an amendment to the SSRAA AMP to include Nakat Inlet, Kendrick Bay, and Anita Bay as summer chum salmon egg collection locations.

There were 616 million salmon released in Southeast Alaska in 2019: 538 million chum, 40 million pink, 25 million coho, 5 million sockeye, and 8 million Chinook (Figure 12; Table 4). The number of releases by area, operator, hatchery, release site and species are in Appendix H1.

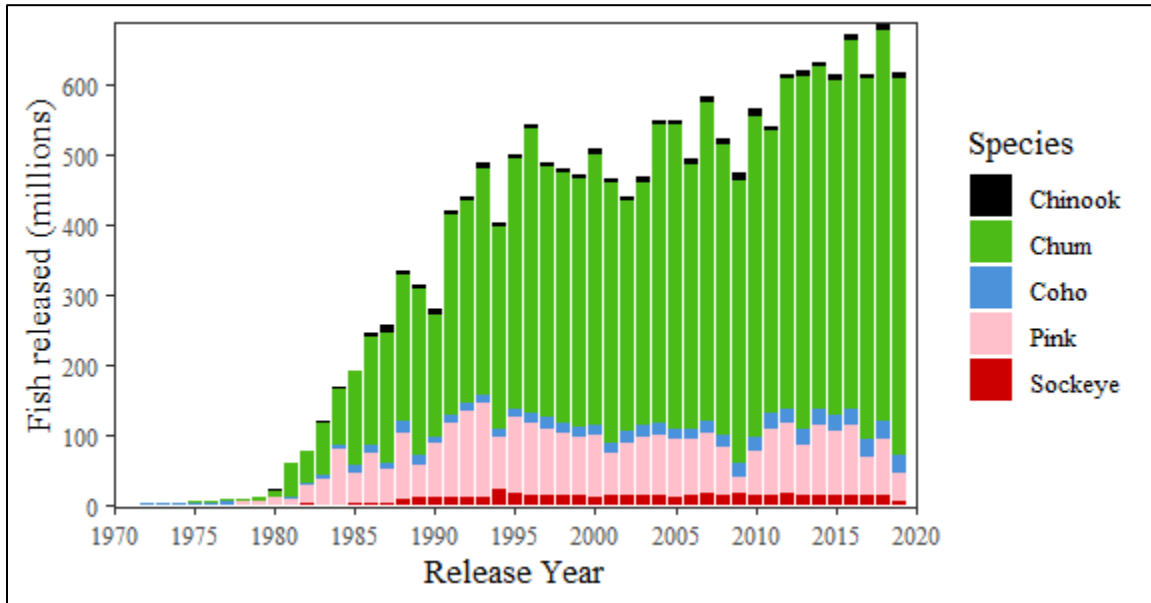


Figure 12.—Total salmon released for Southeast Alaska salmon hatchery programs, 1970–2019.

Permit alterations for Southeast hatcheries

Southern Southeast

In the Southern Southeast planning area, 5 Permit Alteration Requests (PARs) were submitted for review; 4 were approved and 1 was temporarily suspended.

Whitman Lake Hatchery PAR was applied for in 2018 and approved. This request was to increase the Whitman Lake Hatchery permitted capacity by 500,000 fall coho salmon green eggs for release at Nakat Inlet. The reason for this PAR was to increase the current Nakat Inlet release from 600,000 smolt to 1 million smolt.

A PAR to increase the permitted capacity of Burnett Inlet Hatchery (BIH) by 10 million summer chum salmon green eggs for release at Burnett Inlet was approved. The reason for the increase was to provide the necessary broodstock and cost recovery at BIH. There has been a higher-than-anticipated interception rate occurring in the fisheries and BIH has not been seeing adequate returns.

A PAR to increase the permitted capacity of BIH by 4 million fall chum salmon green eggs for release at Burnett Inlet was approved. The reason for the increase was to provide the necessary broodstock and cost recovery at BIH. There has been a higher-than-anticipated interception rate occurring in the fisheries and BIH has not been seeing adequate returns.

A PAR to add 100,000 certified all female rainbow trout eggs for release into Ketchikan area lakes (12,000 mixed-life stage fish at Carlanna Lake, 40,000 mixed-life stage fish Harriet Hunt Lake,

and 2,000 catchable at City Park Ponds) to the Deer Mountain Hatchery permit was approved. This is a new rainbow trout lake stocking program is under a cooperative agreement with the Division of Sport Fish.

A PAR to increase the permitted capacity of Klawock River Hatchery (KRH) to 500,000 coho salmon green eggs for release back in Klawock River was suspended. The reason for the request was that KRH was approved to release up to 400,000 coho salmon smolt at Port Asumcion in 2017 from the existing permitted capacity. These fish have historically been released at Klawock River but are now allocated to Port Asumcion. This permit alteration would allow KRH to continue to release up to 5 million coho salmon into Klawock River as was done in the past. KRH has unused incubation space in the hatchery that can be used for Port Asumcion production, freeing up available space for the Klawock Lake rearing and returning to the historical Klawock River release.

Northern Southeast

In Northern Southeast, 5 PARs were submitted for review; 2 were approved, 1 was approved as amended, and 2 were temporarily suspended.

A PAR to increase rainbow trout eggs from 25,000 to 50,000 Macaulay Salmon Hatchery (MSH) was applied for in 2018 and approved in 2019. The primary reason for the request was low egg-to-release survival. The additional eggs are intended to fill the current unattainable release goals. This is not a change in permitted release numbers.

A PAR to increase the MSH chum salmon from 20,000 to 40,000 and allow for release at Thomas Bay was applied for in 2018 and approved in 2019 for Hidden Falls Hatchery (HFH). This would not increase the release at Thomas Bay. This would allow HFH to use the alternate (backup) chum salmon stock to meet current release goals at this remote release site/terminal harvest area.

A PAR for HFH to add Southeast Cove as a release site for up to 700,000 Andrews Creek Chinook salmon smolt, no increase in permitted capacity, was suspended. The reason for this is that NSRAA would like to develop a new Chinook salmon stock from Keta River at HFH. In order to develop a new broodstock, the remaining inventory of the existing stock needs to be released offsite as soon as possible to minimize the overlap of 2 returning stocks at HFH.

A PAR for Sawmill Creek Hatchery to add 2 million Chinook salmon green eggs for release at Crawfish Inlet and an increase of 20 million chum salmon green eggs for release at Crawfish Inlet was approved as amended. The original PAR included an increase of 20 million chum salmon green eggs for release at Crawfish Inlet that was withdrawn. The reason for this permit alteration is the expansion of the existing Chinook salmon fishery to provide more opportunity due to loss of Chinook salmon as part of the renegotiated Pacific Salmon Treaty.

A PAR for HFH to add Port Malmsbury as a release site for up to 2 million coho salmon smolt was suspended. The reason for this is that coho salmon smolt would be relocated from the Mist Cove release site to a new release site at Port Malmsbury. The coho salmon have experienced very poor survival at Mist Cove.

Prince William Sound

Most of Alaska's hatchery production is in Prince William Sound, where pink, chum, and sockeye salmon are the primary hatchery species. The hatcheries operated by Prince William Sound Aquaculture Association (PWSAC) are Armin F. Koernig, Cannery Creek, Gulkana, Main Bay,

and Wally Noerenberg. Solomon Gulch is operated by Valdez Fisheries Development Association (VFDA; Figure 3).

Coghill Lake sockeye salmon stock in Prince William Sound 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. In 2019, the Coghill River weir passed 32,200 sockeye salmon, which is within the SEG range of 20,000–60,000 fish.¹¹ There are no longer any stocks of concern in Prince William Sound.

Hatchery returns in Prince William Sound

The total hatchery commercial harvest, including cost recovery, was the 12th largest for Prince William Sound since 1977 (Appendix K3). About 31 million hatchery-produced salmon were harvested in the Prince William Sound common property commercial fisheries in 2019, worth an estimated exvessel value \$56 million, or 52% of the total exvessel value for common property commercial salmon fisheries in the region (Figure 13; Appendices D1 and D2). Pink salmon contributed most to the value of the common property commercial harvest (\$33 million), followed by sockeye (\$11 million) and chum (\$10 million) salmon.

The 31 million hatchery-produced salmon harvested in the Prince William Sound commercial common property fishery accounted for 61% of the total common property commercial catch in the region in 2019 (Figure 13; Appendix D1). By species, hatcheries contributed an estimated 83% of the chum, 61% of the pink, 34% of the sockeye, and 52% of the coho salmon in the common property commercial fisheries. An additional 4.3 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about \$64 million, or 56% of the total exvessel value for commercial salmon fisheries in the region.

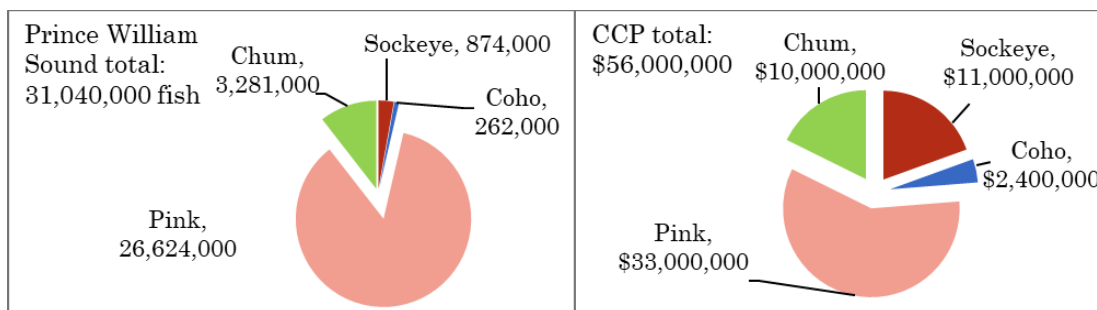


Figure 13.—Commercial common property (CCP) hatchery harvest in numbers of fish and exvessel value of commercial common property hatchery harvest in Prince William Sound, Alaska, 2019.

¹¹ Source: 2019 Prince William Sound salmon season summary news release (accessed 2/24/2020): <http://www.adfg.alaska.gov/static/applications/dcfnewsrelease/1121719972.pdf>.

Details of the salmon returns to the Prince William Sound region, by return type and project for Chinook, sockeye, coho, pink, and chum salmon as reported by operators are in Appendices J1–J5.

For the sport, personal use, and subsistence fisheries, coho salmon contributed the most hatchery-produced fish (52,000), followed by pink (11,000), sockeye (7,500), and chum salmon (1,000).

Egg takes and releases in Prince William Sound

In 2019, there were 946 million eggs taken in Prince William Sound: 754 million pink, 153 million chum, 32 million sockeye, 6 million coho, and 50,000 Chinook salmon (Figure 14; Table 3). The number of eggs by area, operator, location, and species are in Appendix G1.

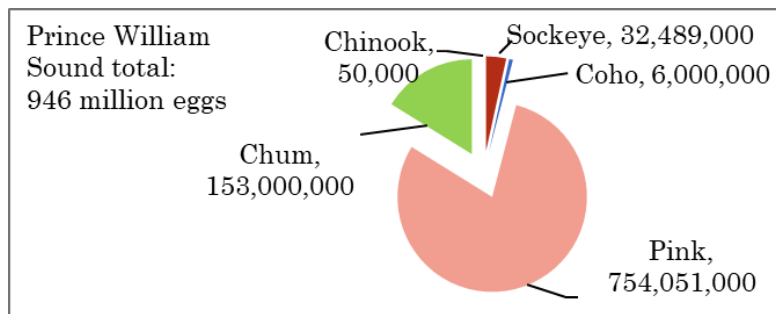


Figure 14.—Eggs collected, by species, for salmon hatchery programs in Prince William Sound, Alaska, 2019.

In 2019, there were 803 million fish released in the Prince William Sound region: 121 million chum, 652 million pink, 4 million coho, 25 million sockeye, and 50,000 Chinook salmon (Figure 15; Table 4). The number of releases by area, operator, hatchery, release site and species are in Appendix H1.

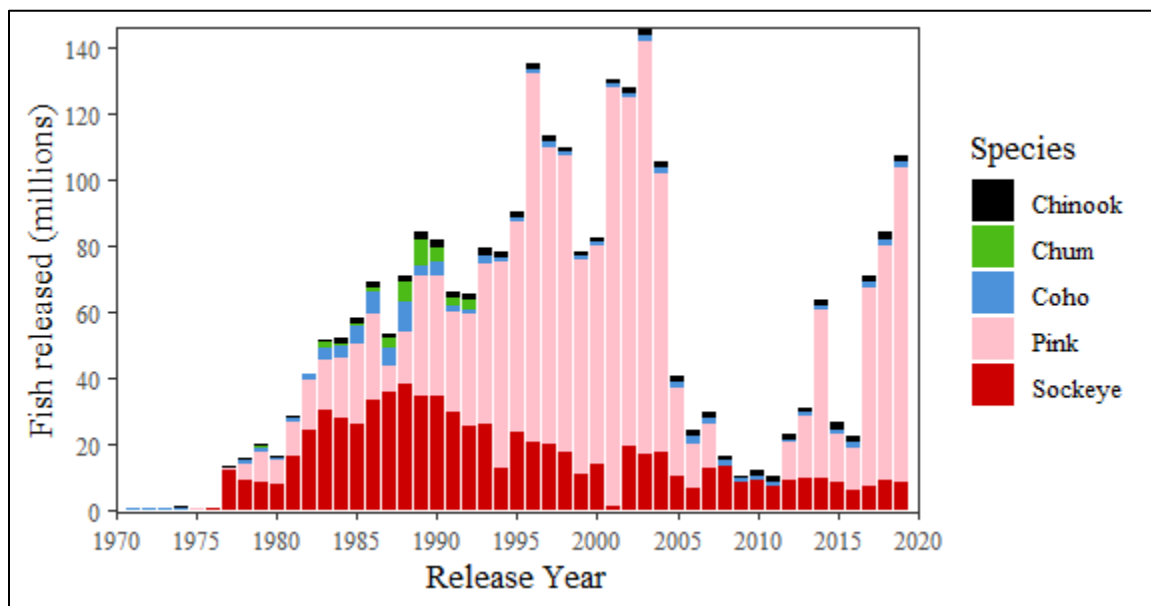


Figure 15.—Total salmon released for Prince William Sound, Alaska, salmon hatchery programs, 1970–2019.

Permit alterations for Prince William Sound hatcheries

A PAR to add Chenega Cove as a release site for 50,000 coho salmon smolt and 50,000 Chinook salmon smolt for Wally Noerenberg Hatchery was approved. The reason for this is that Wally Noerenberg Hatchery, in cooperation with the Village of Chenega, would like to relocate this program from its current location in Crab Bay (new Chenega) to Chenega Cove (old Chenega). The current location has experienced poor returns thought to be from high interception rates in the commercial fishery adjacent to the village.

Cook Inlet

The hatcheries in Cook Inlet operated by Cook Inlet Aquaculture Association (CIAA) are Trail Lakes, Tutka Bay Lagoon, and Port Graham (Figure 3). Cook Inlet has the fourth highest hatchery production, after Prince William Sound, Southeast, and Kodiak. Cook Inlet hatcheries produce primarily sockeye and pink salmon. Additionally, ADF&G operates the William Jack Hernandez Sport Fish Hatchery in Anchorage.

In 2019, Cook Inlet had the fourth and lowest ranked hatchery production out of the planning regions with PNP hatcheries in terms of returns (Table 1). In Cook Inlet, there are 7 Chinook salmon, 1 sockeye, and 1 chum salmon stock of concern. The Chinook salmon stocks of concern are the Chuitna River, Theodore River, Lewis River, Alexander Creek, and Willow Creek stocks; the sockeye stock of concern is the Susitna (Yetna) River stock; and the chum salmon stock of concern is the McNeil River stock.

Hatchery returns in Cook Inlet

The total hatchery commercial harvest, including cost recovery, is the 30th largest in Cook Inlet since 1978 (Appendix K4). About 42,000 hatchery-produced salmon were harvested in the Cook Inlet common property commercial fisheries in 2019, worth an estimated exvessel value of \$331,000 or 1.6% of the total exvessel value for common property commercial salmon fisheries in the region (Figure 16; Appendices D1 and D2). Sockeye salmon contributed most to the value of the hatchery returns (\$323,000), followed by pink salmon (\$8,000).

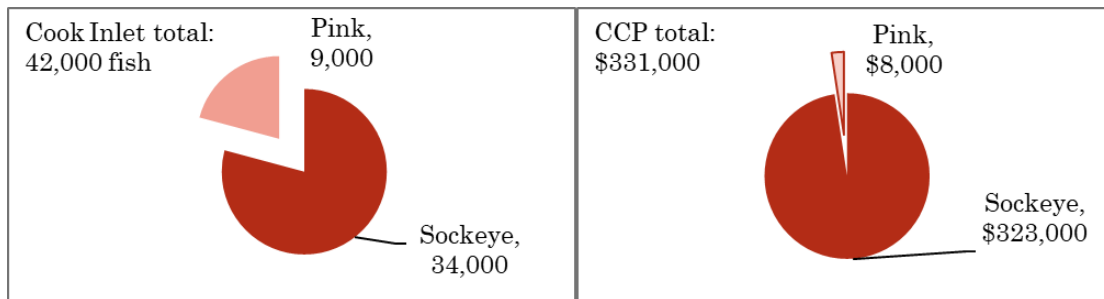


Figure 16.–Commercial common property (CCP) hatchery harvest in numbers of fish and exvessel value of commercial common property hatchery harvest in Cook Inlet, Alaska, 2019.

The 42,000 hatchery-produced salmon harvested in the Cook Inlet commercial common property fishery accounted for 1.6% of the commercial common property catch in the region in 2019 (Appendix D1). By species, hatchery contribution was an estimated 2% of the pink and 0.5% of the sockeye salmon in the common property commercial fisheries in 2019. An additional

337,000 salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about \$2 million, or 9% of the total exvessel value for commercial salmon fisheries in the region (Appendix D2).

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most hatchery-produced fish (23,000), followed by coho (12,000), Chinook (6,000), and pink salmon (100; Table 2). An additional 25,700 Arctic char, grayling, landlocked salmon, and rainbow trout were caught in Southcentral area lakes.

Egg takes and releases in Cook Inlet

In 2019, there were 60 million salmon eggs taken in Cook Inlet: 47 million pink, 8 million sockeye, 2 million coho, and 3 million Chinook salmon (Figure 17; Table 3). The number of eggs by area, operator, location, and species are in Appendix G1.

In 2019, there were 107 million salmon released from Cook Inlet hatcheries: 96 million pink, 8 million sockeye, 2 million coho, and 2 million Chinook salmon (Figure 18; Table 4). The number of releases by area, operator, hatchery, release site and species are in Appendix H1.

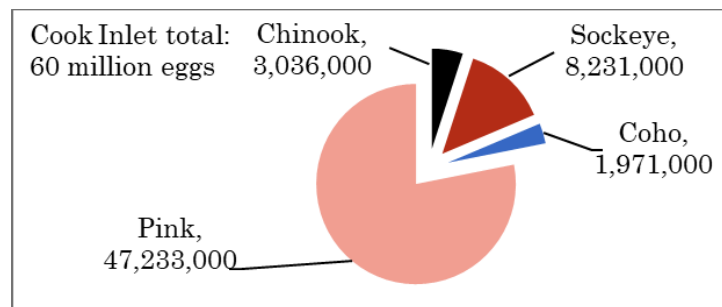


Figure 17.—Eggs collected, by species, for salmon hatchery programs in Cook Inlet, Alaska, 2019.

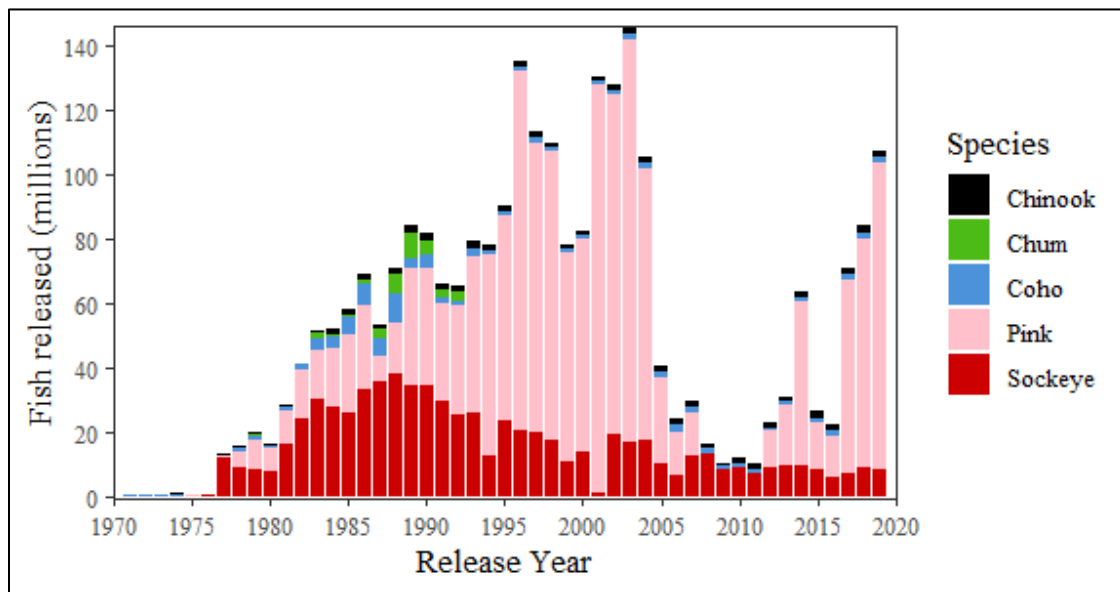


Figure 18.—Total salmon released for Cook Inlet, Alaska, salmon hatchery programs, 1970–2019.

Permit alterations for Cook Inlet hatcheries

There were no permit alterations submitted for consideration in 2019 for Cook Inlet area hatcheries.

Kodiak

The hatcheries in Kodiak include Kitoi Bay and Pillar Creek, operated by Kodiak Regional Aquaculture Association (KRAA). Kodiak hatcheries produce primarily pink and sockeye salmon (Appendix K5).

In Kodiak, hatchery chum and sockeye salmon stocks are otolith marked. For several years, pink salmon were not marked because they return to the release site on Afognak Island where there are no substantial wild pink salmon stocks. Starting in 2018 and continuing in 2019, a portion of pink salmon were otolith marked using a dry marking method. Dry marking is an innovative technique, useful for when traditional otolith marking method is logistically challenging. All pink salmon fishery openings in this area target hatchery-produced salmon.

Kodiak has the third highest ranked hatchery production (Table 1). There is one stock of concern, Karluk River Chinook salmon.

Hatchery returns in Kodiak

The total hatchery commercial harvest, including cost recovery, was the 14th largest in Kodiak since 1977 (Appendix K5). About 3.4 million hatchery-produced salmon were harvested in the Kodiak common property commercial fisheries in 2019, worth an estimated exvessel value of \$4 million, or 8.5% of the total exvessel value for common property commercial salmon fisheries in the region (Figure 19; Appendices D1 and D2). Pink salmon contributed most to the value of the hatchery returns (\$2.9 million), followed by sockeye salmon (\$500,000).

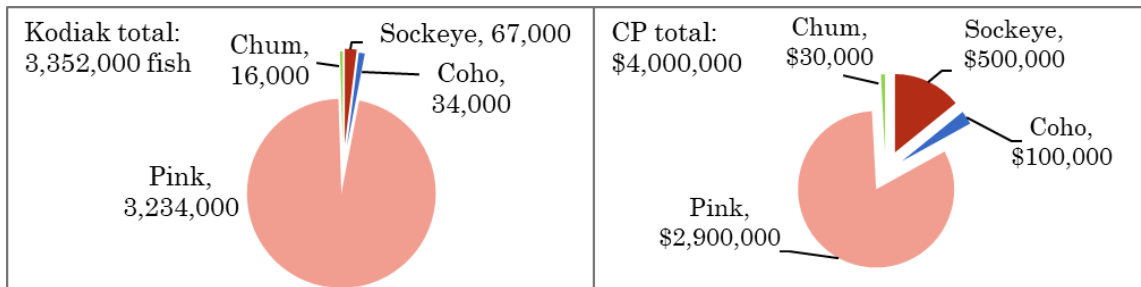


Figure 19.—Commercial common property (CP) hatchery harvest in numbers of fish and exvessel value of commercial common property hatchery harvest in Kodiak, Alaska, 2019.

The 3.4 million hatchery-produced salmon harvested in the Kodiak commercial common property fishery accounted for 10% of the total common property commercial salmon catch in 2019 (Appendix D1). By species, hatchery contribution to the common property commercial salmon fisheries was an estimated 10% of the pink, 9% of the coho, 3% of the chum, and 3% of the sockeye salmon harvests. An additional 1.7 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about \$5 million, or 11% of the total exvessel value for commercial salmon fisheries in the region (Appendix D2).

For the sport, personal use, and subsistence fisheries, sockeye salmon contributed the most hatchery-produced fish (4,000), followed by coho (3,000) and Chinook salmon (500; Table 2).

Egg takes and releases in Kodiak

In 2019, there were 247 million salmon eggs taken in Kodiak: 216 million pink, 25 million chum, 2.5 million sockeye, 2.5 million coho, and 50,000 Chinook salmon (Figure 20; Table 3). The number of eggs taken by area, operator, location, and species are in Appendix G1.

In 2019, there were 183 million salmon released in Kodiak: 147 million pink, 30 million chum, 4 million sockeye, and 2 million coho (Figure 21; Table 4). See Appendix H1 for releases by species and release site.

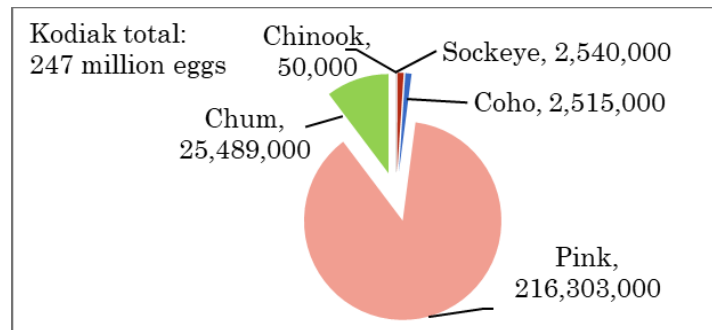


Figure 20.—Eggs collected, by species, for salmon hatchery programs in Kodiak, Alaska, 2019.

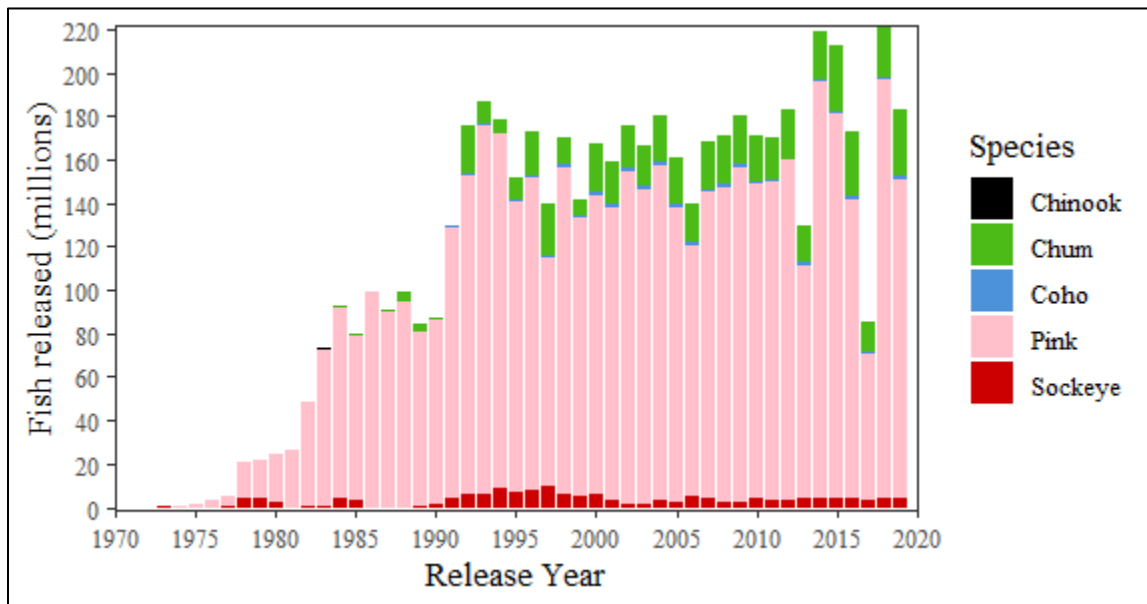


Figure 21.—Total salmon released for Kodiak, Alaska, salmon hatchery programs, 1970–2019.

Permit alterations for Kodiak hatcheries

There were no permit alterations submitted for consideration in 2019 for Kodiak hatcheries.

Interior

The Interior Alaska hatcheries include Ruth Burnett Sport Fish Hatchery operated by ADF&G in Fairbanks.

Hatchery returns in Interior

About 21,000 Arctic char, grayling, landlocked salmon and rainbow trout were caught in interior Alaska lakes (Table 3).

Egg takes and releases in Interior

In 2019, there were 22,000 Arctic char and 135,000 salmon eggs taken in interior Alaska: 78,000 coho and 57,000 Chinook salmon (Table 3). The number of eggs by area, operator, location, and species are in Appendix G1.

In 2019, there were 56,000 Arctic char, 290,000 rainbow trout, 79,000 coho salmon, 44,000 Chinook salmon, and 28,000 grayling released in interior Alaska (Table 4). The number of releases by area, operator, hatchery, release site and species are in Appendix H1.

Permit alterations for Interior hatcheries

There are no PNP permits issued in the interior area, so there were no permit alterations submitted for consideration in 2019.

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**APPENDIX A: ALASKA SALMON FISHERIES
ENHANCEMENT PROGRAM TIMELINE**

Appendix A1.–Alaska salmon fisheries enhancement program timeline.

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

-continued-

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 (Sikusuilak 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		

-continued-

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 (Sikusuilag)	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	
	1 PNP hatchery permit rescinded & new permit issued to new operator at Sheldon Jackson (#3, new #45)		31	
2011	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	
	1 PNP Hatchery, Sheep Creek in Juneau, permit was voluntarily rescinded.		30	
2015				

-continued-

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
	1 PNP hatchery permit issued to Little Port Walter Hatchery (#51)	2	31	3

Note: Three PNP hatchery facilities are permitted but currently inactive: Perry Island Hatchery (Prince William Sound), Bell Island Hatchery (southern Southeast Alaska), and Eklutna Hatchery (Eklutna).

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.

**APPENDIX B: PERMITTED CAPACITY OF ALASKA
PRIVATE NONPROFIT HATCHERIES, 2019**

Appendix B1.—Permitted capacity of Alaska private nonprofit hatcheries, in millions of eggs, 2019.

Region/Area	Corp.	Hatchery	Chinook	Sockeye	Coho	Pink	Chum	Other	Total	
Southeast										
Southern Southeast	SSRAA	Burnett Inlet	0	2.70	4.50	0	98.00	0	105.20	
		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	7.50	0	44.30	0	53.90	
		Deer Mountain	0.60	0	0	0	0	0.10	0.70	
		Klawock River	0	1.00	5.50	0	0	0	6.6	
		Port Saint Nicholas	0.77	0	0	0	8.00	0	8.77	
		Southern Southeast total			9.47	3.70	22.75	0	253.00	0.10
Northern Southeast	NSRAA	Gunnuk Creek	0	0	0.50	20.00	65.00	0	85.50	
		Haines projects	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	2	0	4.33	0	30.00	0	36.33	
	AKI	Port Armstrong ^b	2.00	0	5.00	105.00	60.00	0	172.00	
		Little Port Walter ^c	0.60	0	0	0	0	0	0.60	
	DIPAC	Macaulay	1.25	0	1.50	0	135.00	0.05	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			14.85	35.50	22.58	128.30	484.80	0.05	686.08	
Southeast total			22.32	39.20	45.33	128.30	737.80	0.15	975.10	
Southcentral										
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 total			4.30	49.15	6.00	795.00	165.00	0	1,019.45
	Cook Inlet									
	CIAA	Eklutna ^c	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 total			4.00	48.66	6.16	250.00	0	308.82		
Southcentral total			8.30	97.81	12.16	1,045.00	165.00	0	1,328.27	
Kodiak/Westward Kodiak										
Kodiak/Westward	KRAA	Kitoy Bay	0	0.85	2.30	215.00	36.00	0	254.15	
		Pillar Creek	0.45	20.00	0.50	0	0	0.20	21.15	
Kodiak/Westward total			0.45	20.85	2.80	215.00	36.00	0.20	275.30	
Statewide total			33.07	157.86	50.29	1,388.30	938.80	0.35	2,578.67	

Note: Perry Island (Prince William Sound) and Bell Island (Southern Southeast) hatcheries are permitted but are not shown here.

^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 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.

^c Inactive

**APPENDIX C: ACTIVE ALASKA HATCHERIES AND
CONTACT INFORMATION**

Appendix C1.–Active Alaska hatcheries, 2019.

Type ^a	Region	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	
				Gunnuk Creek	50	4/11/2018	coho, pink, 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 Assoc.	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, Inc.	Solomon Gulch	15	6/26/1981	pink, coho, Chinook	https://www.valdezfisheries.org

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Type ^a	Region	Agency	Corporate name	Hatchery	PNP Permit #	PNP permit issued	Species permitted	Website
R		CIAA	Cook Inlet Aquaculture Association	Cook Inlet				
				Trail Lakes ^b	27	6/22/1988	sockeye, coho, Chinook	www.ciaa.net.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
R		KRAA	Kodiak Regional Aquaculture Association	Kodiak				
				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
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.

Appendix C2.–Actively operated Alaska hatcheries contact information, 2019.

Type ^a	Region	Agency	Address	Office phone	Hatchery	Hatchery Manager	Director	Email
Southern Southeast								
R		SSRAA	14 Borch St, Ketchikan, AK 99901	(907) 225-9605			Dave Landis	davidl@ssraa.org
				(907) 254-1242	Burnett Inlet	Charlie Curritt		burnettinlet@ssraa.org
				(907) 650-7181	Crystal Lake ^b	Loren Thompson		crystallake@ssraa.org
				(907) 225-8790	Neets Bay	Craig Parry		neetsbay@ssraa.org
				(907) 225-2635	Whitman Lake	Cody Pederson		whitman@ssraa.org
				(907) 225-9606	Deer Mountain	Matt Allen		deermountain@ssraa.org
				(907) 846-5211	Neck Lake Project	Ron Parsley, Jr.		necklake@ssraa.org
				(907) 755-2231	Klawock River ^b	Jeff Lundberg		jlundberg@ssraa.org
				(907) 755-2231	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 Reifensstuhl	steve_reifensstuhl@nsraa.org
				(907) 747-6850	Gunnuk Creek	Ryan Schuman		ryan_schuman@nsraa.net
				(907) 725-0995	Hidden Falls ^b	Jon Pearce		jon_pearce@nsraa.org
				(907) 738-1438	Medvejie Creek	Cain Depriest		cain_depriest@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			Katie Harms	katie_harms@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			Lisa Busch	lbusch@sitkascience.org
					Sheldon Jackson	Bill Coltharp		wcoltharp@sitkascience.org
F		NMFS	17109 Lena Pt Loop Rd., Juneau, AK 99801	(907) 789-6033	Little Port Walter ^d	Charlie Waters		Charlie.waters@noaa.gov

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Type ^a	Region	Agency	Address	Office phone	Hatchery	Hatchery Manager	Director	Email
R	Prince William Sound			(907) 424-7511			Tommy Sheridan	tommy.sheridan@pwsac.net
	PWSA	Cordova, AK 99574			A F 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	
R	Cook Inlet			(907) 283-5761			Dean Day	dday@ciaanet.org
	CIAA	40610 Kalifornsky Beach Rd., Kenai, AK 99611			Trail Lakes ^b	Brett Jenkins		bjenkins@ciaanet.org
					Tutka Bay Lagoon ^b	Jess Eller		jeller@ciaanet.org
					Port Graham	Mike McWaters		mmcwaters_pgh@ciaanet.org
R	Kodiak			(907) 486-6555			Tina Fairbanks	kraa.fairbanks@gci.net
	KRAA	104 Center St., Suite 205, Kodiak, AK 99615			Kitoi Bay ^b	Mike Wachter		kitoi@gci.net
					Pillar Creek ^b	Alan Seale		pch@gci.net
S	ADF&G, Division of Sport Fish			(907) 269-0296			Jeff Milton	jeffery.milton@alaska.gov
		941 N. Reeve Blvd., Anchorage, AK 99501			WJ Hernandez	Gary George		gary.george@alaska.gov
		1150 Wilbur St., 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.

**APPENDIX D: COMMERCIAL SALMON HARVEST AND
VALUE, 2019, INCLUDING HATCHERY CONTRIBUTION
AND COST RECOVERY**

Appendix D1.—Alaska (preliminary) commercial harvest and Alaska hatchery-produced harvest by region, 2019.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Total commercial harvest ^a	183,000	993,000	1,694,000	19,875,000	9,222,000	31,967,000
	Hatchery cost-recovery harvest	32,000	97,000	181,000	313,000	2,246,000	2,870,000
	Common property commercial harvest	151,000	896,000	1,513,000	19,562,000	6,976,000	29,097,000
	Hatchery-produced fish in commercial common property harvest ^b	35,000	47,000	419,000	106,000	5,911,000	6,518,000
	% of hatchery-produced fish in comm. common property harvest	23%	5%	28%	1%	85%	22%
	Hatchery-produced fish in total commercial harvest	67,000	144,000	600,000	419,000	8,158,000	9,388,000
	% of hatchery-produced fish in total commercial harvest	37%	14%	35%	2%	88%	29%
Prince William Sound	Total commercial harvest	20,000	2,591,000	521,000	46,880,000	5,147,000	55,159,000
	Hatchery cost-recovery harvest	0	9,000	18,000	3,097,000	1,180,000	4,304,000
	Common property commercial harvest	20,000	2,582,000	503,000	43,783,000	3,967,000	50,855,000
	Hatchery-produced fish in commercial common property harvest ^b	0	874,000	262,000	26,624,000	3,281,000	31,040,000
	% of hatchery-produced fish in comm. common property harvest	0%	34%	52%	61%	83%	61%
	Hatchery-produced fish in total commercial harvest	0	883,000	280,000	29,720,000	4,461,000	35,344,000
	% of hatchery-produced fish in total commercial harvest	0%	34%	54%	63%	87%	64%
Cook Inlet	Total commercial harvest	4,000	2,025,000	173,000	2,050,000	184,000	4,435,000
	Hatchery cost-recovery harvest	0	155,000	3	182,000	163	337,000
	Common property commercial harvest	4,000	1,869,000	173,000	1,868,000	184,000	4,097,000
	Hatchery-produced fish in commercial common property harvest ^b	0	34,000	0	9,000	0	42,000
	% of hatchery-produced fish in comm. common property harvest	0%	2%	0%	0%	0%	1%
	Hatchery-produced fish in total commercial harvest	0	189,000	3	190,000	163	379,000
	% of hatchery-produced fish in total commercial harvest	0%	9%	0%	9%	0%	9%
Kodiak	Total commercial harvest	7,000	2,177,000	394,000	32,956,000	552,000	36,085,000
	Hatchery cost-recovery harvest	0	36,000	27	1,700,000	868	1,737,000
	Common property commercial harvest	7,000	2,140,000	394,000	31,256,000	551,000	34,349,000
	Hatchery-produced fish in commercial common property harvest ^b	0	67,000	34,000	3,234,000	16,000	3,352,000
	% of hatchery-produced fish in comm. common property harvest	0%	3%	9%	10%	3%	10%
	Hatchery-produced fish in total commercial harvest	0	103,000	34,000	4,934,000	17,000	5,089,000
	% of hatchery-produced fish in total commercial harvest	0%	5%	9%	15%	3%	14%
Chignik/Aleutian Islands/Alaska Peninsula	Common property commercial harvest	31,000	4,683,000	812,000	23,601,000	1,559,000	30,687,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in comm. common property harvest	0%	0%	0%	0%	0%	0%

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Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Bristol Bay	Common property commercial harvest	33,000	43,023,000	81,000	7,000	1,394,000	44,537,948
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in comm. common property harvest	0%	0%	0%	0%	0%	0%
Arctic-Yukon-Kuskokwim	Common Property commercial harvest	5,000	7,000	199,000	87,000	1,148,000	1,446,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in comm. common property harvest	0%	0%	0%	0%	0%	0%
Statewide total ^c	Total commercial harvest	281,000	55,498,000	3,873,000	125,457,000	19,207,000	204,317,000
	Hatchery cost-recovery harvest	32,000	298,000	199,000	5,291,000	3,400,000	9,220,000
	Common property commercial harvest	249,000	55,201,000	3,674,000	120,165,000	15,807,000	195,097,000
	Hatchery-produced fish in commercial common property harvest ^b	35,000	1,021,000	715,000	29,972,000	9,208,000	40,952,000
	% of hatchery-produced fish in comm. common property harvest	14%	2%	19%	25%	58%	21%
	Hatchery-produced fish in total commercial harvest	67,000	1,319,000	914,000	35,263,000	12,608,000	50,172,000
	% of hatchery-produced fish in total commercial harvest	24%	2%	24%	28%	66%	25%

^a Total commercial harvest by all commercial gear types, including fish harvested by hatcheries for cost recovery from ADF&G Oceans AK database accessed February 5, 2020.

^b Hatchery-produced fish in commercial common property harvest data is as reported by operators.

^c Some figures may not total exactly due to rounding.

Appendix D2.—Estimated exvessel value of the total Alaska commercial common property harvest (preliminary), by region, 2019.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Value of the commercial harvest ^{a,b}	\$10,687,304	\$10,623,867	\$19,257,575	\$23,694,520	\$37,582,818	\$102,000,000
	Value of hatchery-produced fish in cost-recovery harvest	\$1,900,000	\$1,000,000	\$2,100,000	\$400,000	\$9,200,000	\$15,000,000
	Value of the CPCH ^c	\$8,800,000	\$9,600,000	\$17,200,000	\$23,300,000	\$28,400,000	\$87,000,000
	Value of hatchery-produced fish in CPCH	\$2,100,000	\$500,000	\$4,800,000	\$126,000	\$24,000,000	\$32,000,000
	% Value of hatchery-produced fish in CPCH	24%	5%	28%	1%	85%	37%
	Value of hatchery-produced fish in total commercial harvest	\$4,000,000	\$1,500,000	\$6,900,000	\$526,000	\$33,200,000	\$46,000,000
	% of hatchery-produced fish in total commercial harvest value	37%	14%	36%	2%	88%	45%
Prince William Sound	Value of the commercial harvest	\$2,911,944	\$33,989,146	\$4,807,891	\$57,746,792	\$15,449,375	\$115,000,000
	Value of hatchery-produced fish in cost-recovery harvest	\$0	\$120,000	\$160,000	\$3,810,000	\$3,540,000	\$8,000,000
	Value of the CPCH	\$2,900,000	\$33,900,000	\$4,650,000	\$53,900,000	\$11,900,000	\$107,000,000
	Value of hatchery-produced fish in CPCH	\$0	\$11,000,000	\$2,420,000	\$32,800,000	\$10,000,000	\$56,000,000
	% Value of hatchery-produced fish in CPCH	0%	32%	52%	61%	84%	52%
	Value of hatchery-produced fish in total commercial harvest	\$0	\$11,120,000	\$2,580,000	\$36,610,000	\$13,540,000	\$64,000,000
	% of hatchery-produced fish in total commercial harvest value	0%	33%	54%	63%	88%	56%
Cook Inlet	Value of the commercial harvest	\$179,712	\$19,556,087	\$693,427	\$1,953,714	\$506,282	\$23,000,000
	Value of hatchery-produced fish in cost-recovery harvest	\$0	\$1,501,000	\$0	\$173,000	\$400	\$1,670,000
	Value of the CPCH	\$180,000	\$18,000,000	\$690,000	\$1,800,000	\$505,882	\$21,000,000
	Value of hatchery-produced fish in CPCH	\$0	\$323,000	\$0	\$8,000	\$0	\$331,000
	% Value of hatchery-produced fish in CPCH	0.0%	1.8%	0.0%	0.4%	0.0%	1.6%
	Value of hatchery-produced fish in total commercial harvest	\$0	\$1,820,000	\$0	\$181,000	\$400	\$2,001,000
	% of hatchery-produced fish in total commercial harvest value	0%	9%	0%	9%	0%	9%
Kodiak	Value of the commercial harvest	\$41,333	\$16,209,597	\$1,478,023	\$29,370,951	\$1,004,972	\$48,000,000
	Value of hatchery-produced fish in cost-recovery harvest	\$0	\$269,000	\$0	\$1,510,000	\$1,600	\$1,800,000
	Value of the CPCH	\$41,333	\$16,000,000	\$1,478,023	\$28,000,000	\$1,000,000	\$47,000,000
	Value of hatchery-produced fish in CPCH	\$0	\$500,000	\$130,000	\$2,900,000	\$30,000	\$4,000,000
	% Value of hatchery-produced fish in CPCH	0.0%	3.1%	8.8%	10.4%	3.0%	8.5%
	Value of hatchery-produced fish in total commercial harvest	\$0	\$769,000	\$130,000	\$4,410,000	\$32,000	\$5,300,000
	% of hatchery-produced fish in total commercial harvest value	0.0%	4.7%	8.8%	15.0%	3.2%	11.0%

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Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Chignik/Aleutian Islands/Alaska Peninsula	Value of the CPCH	\$126,655	\$36,811,913	\$1,354,190	\$15,825,089	\$2,993,101	\$57,000,000
	Value of hatchery-produced fish in total commercial harvest	\$0	\$0	\$0	\$0	\$0	\$0
	% Value of hatchery-produced fish in CPCH	0%	0%	0%	0%	0%	0%
Bristol Bay	Value of the CPCH	\$173,725	\$303,897,039	\$250,737	\$1,079	\$2,250,721	\$307,000,000
	Value of hatchery-produced fish in total commercial harvest	\$0	\$0	\$0	\$0	\$0	\$0
	% Value of hatchery-produced fish in CPCH	0%	0%	0%	0%	0%	0%
Arctic-Yukon-Kuskokwim	Value of the CPCH	\$44,534	\$58,514	\$1,751,769	\$36,509	\$3,990,316	\$6,000,000
	Value of hatchery-produced fish in total commercial harvest	\$0	\$0	\$0	\$0	\$0	\$0
	% Value of hatchery-produced fish in CPCH	0%	0%	0%	0%	0%	0%
Total ^d	Value of the commercial harvest ^a	\$14,165,207	\$421,146,163	\$29,593,612	\$128,628,654	\$63,777,585	\$657,000,000
	Value of hatchery-produced fish in cost-recovery harvest	\$1,900,000	\$3,000,000	\$3,000,000	\$6,000,000	\$13,000,000	\$27,000,000
	Value of the CPCH	\$12,265,207	\$418,146,163	\$26,593,612	\$122,628,654	\$50,777,585	\$630,000,000
	Value of hatchery-produced fish in CPCH	\$2,100,000	\$12,000,000	\$7,000,000	\$36,000,000	\$34,000,000	\$91,000,000
	% Value of hatchery-produced fish in CPCH	15%	3%	24%	28%	53%	14%
	Value of hatchery-produced fish in total commercial harvest	\$4,000,000	\$15,000,000	\$10,000,000	\$42,000,000	\$47,000,000	\$118,000,000
% of hatchery-produced fish in total commercial harvest value	28%	4%	34%	33%	74%	18%	

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

^b Value source: http://www.adfg.alaska.gov/Static/fishing/pdfs/comm./2019_preliminary_salmon_summary_table.pdf.

^c CPCH = common property commercial harvest.

^d Some figures may not total exactly due to rounding.

**APPENDIX E: PROJECTED HATCHERY RETURN BY
SPECIES, 2020**

Appendix E1.—Projected adult return, by species, to Alaska fisheries enhancement projects in 2020.

Region	Operator	Hatchery	Location	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Arctic Char	Landlocked Salmon	Total
Southern Southeast												
	SSRAA	Burnett Inlet	Burnett Inlet	0	0	0	0	347,100	0	0	0	347,100
			Neck Lake	0	0	13,800	0	0	0	0	0	13,800
			Anita Bay	0	0	0	0	366,300	0	0	0	366,300
			Port Asumcion	0	0	0	0	37,300	0	0	0	37,300
		Crystal Lake	Crystal Creek	0	0	6,300	0	0	0	0	0	6,300
			City Creek	1,000	0	0	0	0	0	0	0	1,000
			Anita Bay	16,700	0	0	0	0	0	0	0	16,700
			Blind Slough	2,900	0	0	0	0	0	0	0	2,900
		Neets Bay	Neets Bay	11,300	0	108,800	0	715,200	0	0	0	835,300
			Nakat Inlet					57,600	0	0	0	57,600
		Whitman Lake	Kendrick Bay	0	0	0	0	451,600	0	0	0	451,600
			Carroll Inlet	6,000	0	0	0	0	0	0	0	6,000
			Herring Cove	7,100	0	15,700	0	0	0	0	0	22,800
			Nakat Inlet	0	0	29,700	0	128,900	0	0	0	158,600
			Anita Bay	0	0	11,900	0	0	0	0	0	11,900
		Deer Mountain	Ketchikan Creek	400	0	0	0	0	0	0	0	400
		Klawock River	Klawock Estuary	0	0	158,800	0	0	0	0	0	158,800
			Port Asumcion	0	0	5,900	0	0	0	0	0	5,900
		Port Saint Nicholas	Port Saint Nicholas	3,200	0	0	0	0	0	0	0	3,200
	MIC	Tamgas Creek ^a		0	0	0	0	0	0	0	0	-
Southern Southeast Total				48,600	0	350,900	0	2,104,000	0	0	0	2,503,500
Northern Southeast												
	NSRAA	Haines Projects	Haines Projects	0	0	0	0	1,700	0	0	0	1,700
		Hidden Falls	Hidden Falls	778	0	27,000	0	364,000	0	0	0	391,778
			Mist Cove	0	0	71,000	0	0	0	0	0	71,000
			Southeast Cove	0	0	0	0	306,000	0	0	0	306,000
			Thomas Bay	0	0	0	0	222,000	0	0	0	222,000
			Gunnuk Cr + HFH	205	0	0	0	0	0	0	0	205
			Gunnuk Cr	0	0	0	0	3,000	0	0	0	3,000

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Region	Operator	Hatchery	Location	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Arctic Char	Landlocked Salmon	Total
Northern Southeast (cont.)												
		Medvejie	Bear Cove	10,697	0	0	0	426,000	0	0	0	436,697
			Halibut Point	2,328	0	0	0	0	0	0	0	2,328
			Crawfish Inlet	905	0	0	0	0	0	0	0	905
			Deep Inlet	0	0	0	0	909,000	0	0	0	909,000
		Sawmill Creek	Bear Cove	0	0	15,000	0	0	0	0	0	15,000
			Deep Inlet	0	0	95,000	0	0	0	0	0	95,000
			Crawfish Inlet	0	0	0	0	1,579,000	0	0	0	1,579,000
	AKI	Port Armstrong	Port Armstrong	250	0	113,589	367,871	557,775	0	0	0	1,039,485
	DIPAC	Macaulay	Amalga Harbor	0	0	0	0	730,900	0	0	0	730,900
			Boat Harbor	0	0	0	0	276,000	0	0	0	276,000
			Limestone Inlet	0	0	0	0	141,100	0	0	0	141,100
			Fish Creek	2,990	0	0	0	0	0	0	0	2,990
			Lena Cove	3,200	0	0	0	0	0	0	0	3,200
			Gastineau Channel	6,230	0	40,000	0	833,200	0	0	0	879,430
			Auke Bay	1,741	0	0	0	0	0	0	0	1,741
			Thane	1,520	0	0	0	0	0	0	0	1,520
		Snettisham	Speel Arm	0	225,900	0	0	0	0	0	0	225,900
			Stikine River	0	a	0	0	0	0	0	0	0
			Sweetheart Lake	0	4,100	0	0	0	0	0	0	4,100
			Taku River	0	a	0	0	0	0	0	0	0
	SSSC	Sheldon Jackson	Crescent Bay	0	0	12,766	163,480	37,986	0	0	0	214,232
			Deep Inlet	0	0	0	0	143,000	0	0	0	143,000
	NMFS	Little Port Walter	Little Port Walter	1,347	0	0	0	0	0	0	0	1,347
Northern Southeast Total				32,191	230,000	374,355	531,351	6,530,661	0	0	0	7,698,558
Southeast Total				80,791	230,000	725,255	531,351	8,634,661	0	0	0	10,202,058
Prince William Sound												
	PWSAC	A F Koernig	Sawmill Bay	0	0	0	5,800,000	657,000	0	0	0	6,457,000
			Cannery Creek	0	0	0	4,200,000	0	0	0	0	4,200,000
		Gulkana	Crosswind L	0	104,000	0	0	0	0	0	0	104,000
			Paxson L	0	47,100	0	0	0	0	0	0	47,100
		Main Bay	Main Bay	0	1,061,000	0	0	0	0	0	0	1,061,000

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Region	Operator	Hatchery	Location	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Arctic Char	Landlocked Salmon	Total
Prince William Sound (cont.)												
	PWSAC		Lake Bay	0	0	115,000	4,600,000	2,553,000	0	0	0	7,268,000
		Wally Noerenberg	Chenega	561	0	3,500	0	0	0	0	0	4,061
			Port Chalmers	0	0	0	0	971,000	0	0	0	971,000
			Whittier	0	0	7,000	0	0	0	0	0	7,000
	VFDA	Solomon Gulch	Solomon Gulch	0	0	104,267	14,339,908	0	0	0	0	14,444,175
			Boulder Bay	0	0	1,155	0	0	0	0	0	1,155
	ADFG	William Jack	Whittier	1,004	0	0	0	0	0	0	0	1,004
		Hernandez	Fleming Spit	1,026	0	0	0	0	0	0	0	1,026
Prince William Sound Total				2,591	1,706,308	248,042	28,939,908	4,181,000	0	0	0	34,566,521
Cook Inlet												
	CIAA	Trail Lakes	Hazel Lake	0	15,012	0	0	0	0	0	0	15,012
			Leisure Lake	0	24,966	0	0	0	0	0	0	24,966
			Hidden Lake	0	18,465	0	0	0	0	0	0	18,465
			Kirschner Lake	0	34,500	0	0	0	0	0	0	34,500
			Tutka Bay	0	52,440	0	0	0	0	0	0	52,440
			Bear Lake	0	332,944	17,120	0	0	0	0	0	350,064
			Resurrection Bay	0	161,264	0	0	0	0	0	0	161,264
		Tutka Bay	Tutka Bay	0	0	0	2,567,416	0	0	0	0	2,567,416
		Port Graham	Port Graham	0	0	0	304,346	0	0	0	0	304,346
	ADFG	William Jack	Bird Creek	0	0	8,584	0	0	0	0	0	8,584
		Hernandez	Campbell Creek	0	0	3,614	0	0	0	0	0	3,614
			Eklutna Tailrace	4,228	0	8,398	0	0	0	0	0	12,626
			Ship Creek	3,409	0	17,382	0	0	0	0	0	20,791
			Deception Creek	1,007	0	0	0	0	0	0	0	1,007
			Crooked Creek	1,054	0	0	0	0	0	0	0	1,054
			Ninilchik River	1,480	0	0	0	0	0	0	0	1,480
			Halibut Cove	942	0	0	0	0	0	0	0	942
			Homer Spit	2,024	0	8,155	0	0	0	0	0	10,179
			Seldovia	1,048	0	0	0	0	0	0	0	1,048
			Seward Lagoon	3,283	0	17,558	0	0	0	0	0	20,841
Cook Inlet Total				18,475	639,591	80,811	2,871,762	0	0	0	0	3,610,639
Southcentral Total				21,066	1,851,691	311,733	31,811,670	4,181,000	0	0	0	38,177,160

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Region	Operator	Hatchery	Location	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Arctic Char	Landlocked Salmon	Total
Arctic-Yukon-Kuskokwim												
	ADF&G	Ruth Burnett	Region III Stocked Lakes ^b						15,568	1,153	3,920	20,641
Arctic-Yukon-Kuskokwim Total				0	0	0	0	0	15,568	1,153	3,920	20,641
Kodiak												
	KRAA	Kitoi Bay	Kitoi Bay	0	0	125,930	2,752,334	132,616	0	0	0	3,010,880
			Little Kitoi Bay	0	15,213	0	0	0	0	0	0	15,213
			Crescent Lake	0	0	3,763	0	0	0	0	0	3,763
			Ouzinkie Village	0	5,389	0	0	0	0	0	0	5,389
			Jennifer Lake	0	0	4,422	0	0	0	0	0	4,422
			Katmai Lake	0	0	698	0	0	0	0	0	698
			Ruth Lake	0	0	600	0	0	0	0	0	600
		Pillar Creek	Pillar Creek	0	0	3,375	0	0	0	0	0	3,375
			Island Lake	0	0	1,350	0	0	0	0	0	1,350
			Monashka Creek	0	0	3,375	0	0	0	0	0	3,375
			Mission Lake	0	0	900	0	0	0	0	0	900
			Crescent Lake	0	6,950	0	0	0	0	0	0	6,950
			Hidden Lake	0	8,036	0	0	0	0	0	0	8,036
			Spiridon L	0	53,393	0	0	0	0	0	0	53,393
			Telrod Cove	0	62,026	0	0	0	0	0	0	62,026
			Waterfall Lakes	0	223	0	0	0	0	0	0	223
Westward/Kodiak Total				0	151,230	144,413	2,752,334	132,616	0	0	0	3,180,593
Statewide Total				101,857	2,232,921	1,181,401	35,095,355	12,948,277	15,568	1,153	3,920	51,580,452

^a Data for Tamgas Creek Hatchery is not available at the time of publication.

**APPENDIX F: EGG PRODUCTION FROM AQUATIC
RESOURCE PERMITS, 2019**

Appendix F1.—Summary of salmon production of eggs collected in 2019 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	Max. no. 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
Southcentral			
	Seldovia Tribe	Jakolof Creek coho	10 adults
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 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	Max. no. 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			
	Sand Point School	Humboldt Creek pink and coho	1 spawning pair each
	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 # to be collected
Southeast	Fawn Mountain Elementary	coho	150
	Haines Elementary	chum	500
	Houghtaling Elementary School	coho	500
	Ketchikan Charter School	coho	150
	North Point Higgins Elementary	coho	75
	Skagway Traditional Council	coho	500
	Thunder Mountain High School	king or coho	300
	Tongass School of Arts and Sciences	coho	150

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Area	Permittee	Species	Max # to be collected
Southcentral			
	ADF&G Anchorage Lobby	coho	500
	ADF&G Homer lobby	coho	500
	ADF&G Soldotna lobby	coho	500
	Airport Heights Elementary	coho	500
	Alpenglow Elementary	coho	500
	Anchor Lutheran School	coho	500
	Anchorage Montessori	coho	500
	Aquarian Elementary	coho	500
	Aurora Borealis	coho	500
	Bartlett HS	coho	500
	Baxter Elementary	coho	500
	Bear Valley Elementary	coho	500
	Bethel High School	coho	500
	Big Fireweed Academy	coho	500
	Birchtree Charter School	coho	250
	Birchwood ABC School	coho	500
	Bowman Elementary	coho	500
	Butte Elementary	coho	500
	Campbell Elementary	coho	500
	Chapman Elementary	coho	500
	Chester Valley Elementary	coho	500
	Chinook Elementary	coho	500
	Chugiak Elementary	coho	500
	Clark Middle School	coho	500
	College Gate Elementary	coho	500
	Colony High School	coho	500
	Connections (Homer)	coho	500
	Connections (Seward)	coho	500
	Cook Inlet Academy	coho	500
	Cooper Landing	coho	500
	Copper River Watershed Project	coho	500
	Denaina Elementary	coho	500
	Denali Montessori Elementary	coho	500
	Dimond High School	coho	500
	Eagle Academy Charter School	coho	500
	Eagle River High School	coho	500
	East Anchorage High School	coho	500
	Finger Lake Elementary	coho	500
	Girdwood K-8 School	coho	500
	Glacier View Elementary	coho	500

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Area	Permittee	Species	Max # to be collected
Southcentral (cont.)	Gladys Wood Elementary	coho	500
	Glennallen	coho	200
	Grace Christian Elementary School	coho	500
	Grace Lutheran	coho	500
	Gruening Middle School	coho	500
	Hanshaw Middle School	coho	500
	Hermon Hutchens School	chum	500
	Homer High School	coho	500
	Homer Middle	coho	500
	Homestead Elementary	coho	500
	Huffman elementary	coho	500
	IDEA Home School	coho	500
	Igiugig School	coho	500
	Inlet View Elementary	coho	500
	Kaleidoscope Elementary	coho	500
	Kalifornsky Beach Elementary	coho	500
	Kasuun Elementary	coho	500
	Kenai Middle School	coho	500
	Kenny Lake	coho	200
	Kincaid Elementary	coho	500
	Lake Hood Elementary	coho	500
	Lake Otis Elementary	coho	500
	Larson Elementary	coho	500
	Machetanz Elementary	coho	500
	McLaughlin School	coho	500
	McNeil Canyon Elementary	coho	500
	Mentasta Lake School	coho	200
	Midnight Sun Elementary	coho	500
	Mirror Lake Middle School	coho	500
	Mt. View Elementary	coho	500
	Mt. View Elementary	coho	500
	Nikiski North Star Elementary	coho	500
	Nikolaevsk Elementary	coho	500
	Northern lights ABC	coho	500
	Nunaka Valley	coho	500
	Ocean View Elementary	coho	500
	O'mallley Elementary	coho	500
	Polaris School	coho	500
	Ptarmigan Elementary	coho	500
	Rabbit Creek Elementary	coho	500

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Area	Permittee	Species	Max # to be collected
Southcentral (cont.)			
	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
	Seward Middle School	coho	500
	Shaw Elementary	coho	500
	Sherrod Elementary	coho	500
	Slana School	coho	200
	Snowshoe Elementary	coho	500
	Spring Hill	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	500
	Talkeenta Elementary	coho	500
	Teeland Middle School	coho	500
	The Study	coho	500
	Trailside Elementary	coho	500
	Tudor Elementary	coho	500
	Turnagain Elementary	coho	500
	Tustumena Elementary	coho	500
	Upstream Learning	coho	200
	Ursa Major Elementary	coho	500
	Ursa Minor Elementary	coho	500
	Voznesenka School	coho	500
	West Homer Elementary	coho	500
	William Tyson elementary	coho	500
	Winterberry	coho	500
Arctic-Yukon-Kuskokwim			
	Anguini School	coho	500
	Barnette Magnet School	coho	500
	Delta Elementary	coho	500
	Pearl Creek Elementary	coho	500
	Scammon Bay	pink	500
	Two Rivers School	coho	500

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Area	Permittee	Species	Max # to be collected
Arctic-Yukon-Kuskokwim (cont.)			
	University Park Elementary	coho	500
	Watershed Charter School	coho	500
	Weller Elementary	coho	500
Westward			
	East Elementary	coho	500
	Kodiak Christian School	coho	500
	Main Elementary	coho	500
	North Star Elementary	coho	500
	Peterson Elementary	coho	500
	Port Lions School	coho	500
	St. Mary's School	coho	500

APPENDIX G: HATCHERY EGG COLLECTION, 2019

Appendix G1.–Eggs collected at Alaska hatcheries as reported by operators, 2019 (transferred eggs are listed with the receiving hatchery).

Region	Area	Operator	Egg-take location	Receiving hatchery	Chinook	Sockeye	Coho	Pink	Chum	Rainbow	Total
Southeast											
Southern Southeast											
	SSRAA	Burnett Inlet	Burnett Inlet	Burnett Inlet	0	0	0	0	60,860,000	0	60,860,000
			Neets Bay	Neets Bay	0	0	0	0	26,105,000	0	26,105,000
			Port Saint Nicholas	Port Saint Nicholas	0	0	0	0	7,855,000	0	7,855,000
		Crystal Lake	Crystal Lake	Crystal Lake	1,462,000	0	150,000	0	0	0	1,612,000
		Neets Bay	Neets Bay	Neets Bay	0	0	3,888,000	0	73,224,000	0	77,112,000
			Burnett Inlet	Burnett Inlet	0	0	0	0	39,775,000	0	39,775,000
			Whitman Lake	Whitman Lake	0	0	0	0	42,100,000	0	42,100,000
		Whitman Lake	Whitman Lake	Whitman Lake	1,610,000	0	6,700,000	0	0	0	8,310,000
			Burnett Inlet	Burnett Inlet	0	0	2,250,000	0	0	0	2,250,000
			Crystal Lake	Crystal Lake	820,000	0	0	0	0	0	820,000
			Port Saint Nicholas	Port Saint Nicholas	120,000	0	0	0	0	0	120,000
		Deer Mountain	Deer Mountain	Deer Mountain	93,500	0	0	0	0	0	93,500
		Klawock River	Klawock River	Klawock River	0	0	5,491,950	0	0	0	5,491,950
	Southern Southeast Total				4,105,500	0	18,479,950	0	249,919,000	0	272,504,450
Northern Southeast											
	NSRAA	Hidden Falls	Hidden Falls	Hidden Falls	529,968	0	8,099,760	0	200,191,729	0	208,821,457
			Medvejie	Medvejie	0	0	0	0	44,573,580	0	44,573,580
			Gunnuk Creek	Gunnuk Creek	0	0	0	0	2,570,280	0	2,570,280
			Macaulay	Macaulay	0	0	0	0	9,894,000	0	9,894,000
		Medvejie	Medvejie	Medvejie	6,014,575	0	0	265,568	29,684,585	0	35,964,728
			Hidden Falls	Hidden Falls	376,000	0	0	0	0	0	376,000
			Sawmill Creek	Sawmill Creek	0	0	0	0	49,520,823	0	49,520,823
		Sawmill Creek	Sawmill Creek	Sawmill Creek	0	0	3,722,394	0	0	0	3,722,394
	AKI	Port Armstrong	Port Armstrong	Port Armstrong	0	0	4,838,400	41,737,626	57,293,201	0	103,869,227
	DIPAC	Macaulay	Macaulay	Macaulay	2,647,000	0	1,068,000	0	119,464,000	0	123,179,000
		Snettisham	Snettisham	Snettisham	0	12,294,000	0	0	0	0	12,294,000
		Tahltan L (BC)	Snettisham	Snettisham	0	4,401,000	0	0	0	0	4,401,000
		Tatsamenie L (BC)	Snettisham	Snettisham	0	2,325,000	0	0	0	0	2,325,000
		Trapper L (BC)	Snettisham	Snettisham	0	406,500	0	0	0	0	406,500
	NMFS	Little Port Walter	Little Port Walter	Little Port Walter	404,281	0	0	0	0	0	404,281
	SSSC	Sheldon Jackson	Sheldon Jackson	Sheldon Jackson	0	0	255,500	3,061,856	12,237,600	0	15,554,956
	Northern Southeast Total				9,971,824	19,426,500	17,984,054	45,065,050	525,429,798	0	617,877,226
Southeast Total					14,077,324	19,426,500	36,464,004	45,065,050	775,348,798	0	890,381,676

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Region	Area	Operator	Egg-take location	Receiving hatchery	Chinook	Sockeye	Coho	Pink	Chum	Rainbow	Total
Southcentral											
Prince William Sound											
	PWSAC	A F Koernig	A F Koernig	A F Koernig	0	0	0	171,000,000	0	0	171,000,000
		Cannery Creek	Cannery Creek	Cannery Creek	0	0	0	120,900,000	0	0	120,900,000
		Gulkana	Gulkana	Gulkana	0	20,089,400	0	0	0	0	20,089,400
		Main Bay	Main Bay	Main Bay	0	12,400,000	0	0	0	0	12,400,000
		Wally Noerenberg	Wally Noerenberg	Wally Noerenberg	50,000	0	4,000,000	167,750,000	153,000,000	0	324,800,000
			A F Koernig	A F Koernig	0	0	0	24,400,000	0	0	24,400,000
	VFDA	Solomon Gulch	Solomon Gulch	Solomon Gulch	0	0	2,000,107	270,001,326	0	0	272,001,433
Prince William Sound Total					50,000	32,489,400	6,000,107	754,051,326	153,000,000	0	945,590,833
Cook Inlet											
	CIAA	Port Graham	Port Graham	Port Graham	0	0	0	8,045,233	0	0	8,045,233
		Trail Lakes	Trail Lakes	Trail Lakes	0	8,231,072	604,869	0	0	0	8,835,941
		Tutka Bay	Tutka Bay	Tutka Bay	0	0	0	39,187,425	0	0	39,187,425
	ADF&G	William Jack Hernandez	William Jack Hernandez ^a	William Jack Hernandez ^a	3,036,426	0	1,365,754	0	0	3,116,406	7,758,770
			Pillar Creek	Pillar Creek	0	0	0	0	0	200,000	200,000
			Ruth Burnett	Ruth Burnett	0	0	0	0	0	580,000	580,000
Cook Inlet Total					3,036,426	8,231,072	1,970,623	47,232,658	0	3,896,406	64,607,369
Southcentral Total					3,086,426	40,720,472	7,970,730	801,283,984	153,000,000	3,896,406	1,010,198,202
Arctic-Yukon-Kuskokwim											
	ADFG	Ruth Burnett	Ruth Burnett ^b	Ruth Burnett ^b	57,102	0	78,014	0	0	0	318,238
Arctic-Yukon-Kuskokwim Total					57,102	0	78,014	0	0	0	264,443
Kodiak											
	KRAA	Kitoi Bay	Kitoi Bay	Kitoi Bay	0	0	2,305,114	216,303,144	25,489,203	0	244,097,461
		Saltery Lake	Pillar Creek	Pillar Creek	0	1,986,496	0	0	0	0	1,986,496
		Afognak Lake	Pillar Creek	Pillar Creek	0	553,339	0	0	0	0	553,339
		Karluk River	Pillar Creek	Pillar Creek	49,560	0	0	0	0	0	49,560
		Pillar Creek	Pillar Creek	Pillar Creek	0	0	210,000	0	0	0	210,000
Kodiak Total					49,560	2,539,835	2,515,114	216,303,144	25,489,203	0	246,896,856
Statewide Total					17,270,410	62,686,810	47,027,860	1,062,652,180	953,838,000	3,896,410	2,147,794,980

Note: Eggs collected by Tamgas Creek Hatchery in Southern Southeast, Alaska are not available at the time of this report.

^a Total eggs collected by William Jack Hernandez Sport Fish Hatchery includes 108,044 Arctic char and 60,140 grayling.

^b Total eggs collected by Ruth Burnett Sport Fish Hatchery includes 21,930 Arctic char, 107,397 grayling, and 53,795 lake trout.

APPENDIX H: HATCHERY RELEASES, 2019

Appendix H1.—Alaska hatchery releases as reported by operators, 2019.

Region	Area	Operator	Hatchery	Release site	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Total
Southeast											
Southern Southeast											
		SSRAA	Burnett Inlet	Burnett Inlet	0	0	0	0	25,760,700	0	25,760,700
				Anita Bay	0	0	300,515	0	23,187,000	0	23,487,515
				Nakat Inlet	0	0	0	0	4,665,796	0	4,665,796
				Neck Lake	0	0	923,112	0	0	0	923,112
				Neets Bay	0	0	485,491	0	0	0	485,491
				Port Asumcion	0	0	0	0	17,893,317	0	17,893,317
			Crystal Lake	Crystal Creek	0	0	128,620	0	0	0	128,620
				Anita Bay	425,605	0	0	0	0	0	425,605
				City Creek	90,300	0	0	0	0	0	90,300
				Blind Slough	676,950	0	0	0	0	0	676,950
				Neets Bay	290,318	0	0	0	0	0	290,318
			Neets Bay	Neets Bay	0	0	3,019,778	0	79,243,628	0	82,263,406
				Nakat Inlet	0	0	0	0	4,103,975	0	4,103,975
			Whitman Lake	Nakat Inlet	0	0	594,248	0	8,609,419	0	9,203,667
				Anita Bay	0	0	254,124	0	0	0	254,124
				Carroll Inlet	618,482	0	0	0	0	0	618,482
				Ketchikan Creek	110,500	0	0	0	0	0	110,500
				Neets Bay	0	0	490,205	0	0	0	490,205
				Herring Cove	638,233	0	526,036	0	0	0	1,164,269
				Kendrick Bay	0	0	0	0	30,123,124	0	30,123,124
			Klawock River	Klawock River	0	0	2,795,037	0	0	0	2,795,037
				Klawock Est	0	0	1,166,476	0	0	0	1,166,476
				Port Asumcion	0	0	318,756	0	0	0	318,756
			Port Saint Nicholas	Port St Nicholas	307,433	0	0	0	0	0	307,433
		MIC	Tamgas Creek	Tamgas Creek	198,175	0	981,034	0	4,441,398	0	5,620,607
				Tent Lake	0	0	1,556,579	0	0	0	1,556,579
Southern Southeast total					3,355,996	0	13,540,011	0	198,028,357	0	214,924,364

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Region	Area	Operator	Hatchery	Release site	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Total
Northern Southeast											
		NSRAA	Hidden Falls	Thomas Bay	0	0	0	0	15,350,544	0	15,350,544
				Kasnyku Bay	433,213	0	2,265,343	0	47,623,744	0	50,322,300
				Southeast Cove	0	0	0	0	36,644,291	0	36,644,291
					0	0	0	0	0	0	0
				Gunnuk Creek	108,625	0	0	0	15,857,078	0	15,965,703
				Banner Lake	0	0	278,920	0	0	0	278,920
				Deer Lake	0	0	2,102,566	0	0	0	2,102,566
		Medvejie		Bear Cove	1,842,409	0	0	269,741	18,557,642	0	20,669,792
				Deep Inlet	0	0	0	0	17,001,468	0	17,001,468
				Crescent Bay	395,447	0	0	0	0	0	395,447
				Crawfish Inlet	573,250	0	0	0	0	0	573,250
		Sawmill Creek		Bear Cove	0	0	204,243	0	0	0	204,243
				Deep Inlet	0	0	1,828,650	0	23,360,666	0	25,189,316
				Crawfish Inlet	0	0	0	0	15,205,614	0	15,205,614
		AKI	Port Armstrong	Port Armstrong	0	0	3,732,258	36,787,073	37,185,005	0	77,704,336
		DIPAC	Macaulay	Gastineau Ch	248,800	0	300,500	0	10,917,900	0	11,467,200
				Amalga Harbor	0	0	0	0	42,068,800	0	42,068,800
				Auke Bay	89,600	0	0	0	0	0	89,600
				Boat Harbor	0	0	0	0	19,795,100	0	19,795,100
				Twin Lakes	0	0	0	0	0	8,795	8,795
				Mendenhall Ponds	0	0	0	0	0	1,483	1,483
				Fish Creek	278,700	0	0	0	0	0	278,700
				Lena Cove	187,500	0	0	0	0	0	187,500
				Limestone Inlet	0	0	0	0	11,403,000	0	11,403,000
				Sheep Creek	182,800	0	767,500	0	18,951,300	0	19,901,600
		Snettisham		Speel Arm	0	644,200	0	0	0	0	644,200
				Sweetheart Lake	0	469,200	0	0	0	0	469,200
				Tahltan Lake (BC)	0	1,858,000	0	0	0	0	1,858,000
				Tatsamenie Lake	0	1,760,900	0	0	0	0	1,760,900
		NMFS	Little Port Walter	L Port Walter	192,764	0	0	0	0	0	192,764
		SSSC	Sheldon Jackson	Crescent Bay	0	0	212,776	2,724,678	2,726,796	0	5,664,250
				Deep Inlet	0	0	0	0	7,522,000	0	7,522,000
Northern Southeast total					4,533,108	4,732,300	11,692,756	39,781,492	340,170,948	10,278	400,920,882
Southeast total					7,889,104	4,732,300	25,232,767	39,781,492	538,199,305	10,278	615,845,246

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Region	Area	Operator	Hatchery	Release site	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Total
Southcentral											
Prince William Sound											
		PWSAC	A F Koernig	Sawmill Bay	0	0	0	157,000,000	18,500,000	0	175,500,000
			Cannery Creek	Cannery Creek	0	0	0	102,900,000	0	0	102,900,000
			Gulkana	Crosswind Lake	0	8,427,130	0	0	0	0	8,427,130
				Paxson Lake	0	6,057,999	0	0	0	0	6,057,999
			Main Bay	Main Bay	0	10,894,000	0	0	0	0	10,894,000
			Wally Noerenberg	Lake Bay	0	0	1,643,371	135,600,000	82,400,000	0	219,643,371
				Port Chalmers	0	0	0	0	20,500,000	0	20,500,000
				Chenega Bay	49,134	0	48,454	0	0	0	97,588
				Whittier	0	0	92,541	0	0	0	92,541
				Fleming Spit	0	0	102,456	0	0	0	102,456
		VFDA	Solomon Gulch	Solomon Gulch	0	0	1,788,449	256,977,826	0	0	258,766,275
				Boulder Bay	0	0	19,804	0	0	0	19,804
		Prince William Sound total			49,134	25,379,129	3,695,075	652,477,826	121,400,000	0	803,001,164
Cook Inlet											
		CIAA	Trail Lakes	Bear Lake	0	2,427,000	453,000	0	0	0	2,880,000
				Bear Creek	0	0	61,000	0	0	0	61,000
				Resurrection Bay	0	1,510,000	0	0	0	0	1,510,000
				Kirschner Lake	0	258,000	0	0	0	0	258,000
				Hazel Lake	0	1,293,000	0	0	0	0	1,293,000
				Leisure Lake	0	1,085,000	0	0	0	0	1,085,000
				Tutka Lagoon	0	427,000	0	0	0	0	427,000
				Shell Lake	0	15,230	0	0	0	0	15,230
				Hidden Lake	0	1,094,000	0	0	0	0	1,094,000
			Tutka Bay	Tutka Lagoon	0	0	0	85,580,538	0	0	85,580,538
			Port Graham	Port Graham	0	0	0	10,144,850	0	0	10,144,850

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Region	Area	Operator	Hatchery	Release site	Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Total
Southcentral (cont.)											
Cook Inlet (cont.)											
		ADF&G	William Jack Hernandez	Bird Creek	0	0	127,173	0	0	0	127,173
				Campbell Creek	0	0	53,534	0	0	3,699	57,233
				Ship Creek	361,380	0	257,516	0	0	0	618,896
				Southcentral Lakes ^a	12,083	0	217,395	0	0	626,005	918,694
				Eklutna Tailrace	229,704	0	248,818	0	0	0	478,522
				Crooked Creek	126,600	0	0	0	0	0	126,600
				Ninilchik River	164,728	0	0	0	0	0	164,728
				Homer Spit	304,818	0	241,616	0	0	0	546,434
				Seldovia Harbor	113,726	0	0	0	0	0	113,726
				Seward Lagoon	317,382	0	260,117	0	0	0	577,499
				Whittier	118,535	0	0	0	0	0	118,535
				Fleming Spit	110,874	0	0	0	0	0	110,874
				Ruth Lake (PWS)	0	0	0	0	0	985	985
				Cook Inlet total	1,859,830	8,109,230	1,920,169	95,725,388	0	630,689	108,308,517
Southcentral total					1,908,964	33,488,359	5,615,244	748,203,214	121,400,000	630,689	911,309,681
Arctic-Yukon-Kuskokwim											
		ADF&G	Ruth Burnett	Region III Lakes	44,712	0	78,968	0	0	265,499	473,341
				Southcentral Lakes	0	0	0	0	0	27,852	27,852
Arctic-Yukon-Kuskokwim Total					44,712	0	78,968	0	0	293,351	501,193
Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	0	0	1,242,070	146,726,124	29,800,000	0	177,768,194
				Crescent Lake	0	0	188,200	0	0	0	188,200
				Ouzinkie	0	74,872	0	0	0	0	74,872
				Jennifer Lake	0	0	221,100	0	0	0	221,100
				Little Kitoi Lake	0	592,757	0	0	0	0	592,757
				Katmai Lake	0	0	35,000	0	0	0	35,000
				Kodiak Lakes	0	0	30,000	0	0	0	30,000
			Pillar Creek	Pillar Creek	0	0	82,325	0	0	0	82,325
				Telrod Cove	0	546,032	0	0	0	0	546,032
				Monashka River	0	0	74,768	0	0	0	74,768
				Spiridon Lake	0	3,074,174	0	0	0	0	3,074,174
				Jennifer Lake	0	80,795	0	0	0	0	80,795
				Kodiak Lakes	0	50,477	50,412	0	0	40,182	141,071
Kodiak/Westward total					0	4,419,107	1,923,875	146,726,124	29,800,000	40,182	182,909,288
Statewide total					9,842,780	42,639,766	32,850,854	934,710,830	689,399,305	974,500	1,710,565,408

^a William Jack Hernandez Hatchery release total to southcentral lakes includes 28,167 Arctic Char and 25,044 grayling.

APPENDIX I: COMMERCIAL HARVEST SUMMARY, 2019

Appendix II.—Summary of commercial harvest of salmon from Alaska fisheries enhancement projects, 1977–2019.

Year	Total commercial harvest (includes cost recovery)	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%
2019	204,316,891	9,220,052	195,069,107	40,952,063	25%	21%

Source: Total commercial harvest 1977–1984 from ADF&G HQ fish ticket staff. 1985–2019 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.

APPENDIX J: HATCHERY RETURNS, 2019

Appendix J1.—Details of the estimated Chinook salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2019.

Region	Area	Agency	Hatchery	Project	Common property harvest				Cost		Total return	
					Seine	Gillnet	Troll	Sp/PU/S ^a	Broodstock	recovery		Other
Southeast												
Southern Southeast												
	SSRAA	Crystal Lake	Crystal Lake	Crystal Lake	0	1,085	324	2,000	1,173	0	0	4,582
			Anita Bay		2,904	9,645	617	44	0	0	0	13,210
			City Creek		0	1,396	88	5	0	0	0	1,489
		Whitman Lake	Whitman Lake		71	246	1,419	46	844	1,235	59	3,920
			Carroll Inlet		1,704	1,210	1,112	147	0	0	0	4,173
		Deer Mountain	Ketchikan Creek		6	74	190	35	50	0	20	375
		Port Saint Nicholas	Port Saint Nick Bay		51	9	309	26	0	1,131	0	1,526
			Coffman Cove		75	208	70	18	0	0	0	371
	MIC	Tamgas Creek ^b	Tamgas Creek				22	110				132
Southern Southeast total					4,811	13,873	4,151	2,431	2,067	2,366	79	29,778
Northern Southeast												
	NSRAA	Hidden Falls	Kasnyku Bay		172	89	5	0	257	1	73	597
		Medvejie	Medvejie Creek		2,718	3,603	3,039	659	5,584	1,925	1,192	18,720
			Halibut Point		180	307	346	75	599	88	43	1,638
			Crawfish Inlet		38	64	68	22	22	2	22	238
	AKI	Port Armstrong	Port Armstrong		0	10	40	0	0	985	14	1,049
	DIPAC	Macaulay	Macaulay Hatchery		30	1,300	330	4,720	2,400	2,010	1,310	12,100
	NMFS	Little Port Walter	L Port Walter - Keta		4	6	24	3	164	0	80	281
			L Port Walter - Unuk		7	8	7	3	1,264	0	519	1,808
Northern Southeast total					3,149	5,387	3,859	5,482	10,290	5,011	3,253	36,431
Southeast total					7,960	19,260	8,010	7,913	12,357	7,377	3,332	66,209
Southcentral												
Prince William Sound												
	PWSAC	Wally Noerenberg	Chenega		0	0	0	400	0	0	0	400
Prince William Sound total					0	0	0	400	0	0	0	400
Cook Inlet												
	ADF&G	WJ Hernandez	Crooked Creek		0	0	0	0	747	0	2,354	3,101
			Deception Creek		0	0	0	0	32	0	133	165
			Eklutna Tailrace		0	0	0	805	0	0	0	805
			Ninilchik River		0	0	0	0	163	0	849	1,012
			Ship Creek		0	0	0	1,125	1,137	0	556	2,818
			RII Lakes		0	0	0	4,543	0	0	0	4,543
Cook Inlet total					0	0	0	6,473	2,079	0	3,892	12,444
Southcentral total					0	0	0	6,873	2,079	0	3,892	12,844

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Region	Area	Agency	Hatchery	Project	Common property harvest				Cost		Total return	
					Seine	Gillnet	Troll	Sp/PU/S ^a	Broodstock	recovery		Other
Kodiak/Westward												
Kodiak												
		KRAA	Pillar Creek	Kodiak Road System	0	0	0	500	21	0	1	522
Kodiak total					0	0	0	500	21	0	1	522
Kodiak/Westward total					0	0	0	500	21	0	1	522
Statewide total					7,960	19,260	8,010	15,290	14,460	7,380	7,230	79,580

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

^b Tamgas Creek Hatchery data from ADF&G Mark, Tag, and Age Lab database and does not include estimates of fish taken for broodstock or cost recovery.

Appendix J2.—Details of the estimated sockeye salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2019.

Region	Area	Agency	Hatchery	Project	Common property harvest				Broodstock	Cost		Total return
					Seine	Gillnet	Set Net	Sp/PU/S		recovery	Other	
Southeast												
		DIPAC	Snettisham	Snettisham	390	40,500	0	20	6,091	94,400	740	142,141
				Sweetheart Lake	90	1,400	0	3,800	0	0	0	5,290
				Stikine River	0	3,028	0	695	1,283		26,792	31,798
				Taku River	0	1,237	0	31	0	0	2,294	3,562
Southeast total					480	46,165	0	4,546	7,374	94,400	29,826	182,791
Southcentral												
Prince William Sound												
		PWSAC	Gulkana	Gulkana River	0	8,324	0	121	5,005	0	0	13,450
				Crosswind Lake	0	27,506	0	5,644	4,219	0	0	37,369
				Summit Lake	0	1,681	0	0	0	0	0	1,681
				Gulkana Hatchery	0	2,371	0	0	563	0	0	2,934
			Main Bay	Main Bay	76,839	569,585	187,739	1,750	9,269	6,527	6,982	858,691
Prince William Sound total					76,839	609,467	187,739	7,515	19,056	6,527	6,982	914,125
Cook Inlet												
		CIAA	Trail Lakes	Bear Lake	4,307	0	0	20,000	3,575	123,948	13,373	165,203
				Hidden Lake	0	0	0	0	1,277	0	6,500	7,777
				Kirschner Lake	0	0	0	0	0	18,698	0	18,698
				Leisure/Hazel L	15,764	0	0	1,600	0	4,640	0	22,004
				Tutka Bay	2,628	10,823	0	1,500	1,226	10,596	0	26,773
Cook Inlet total					22,699	10,823	0	23,100	6,078	157,882	19,873	240,455
Southcentral total					99,538	620,290	187,739	30,615	25,134	164,409	26,855	1,154,580
Kodiak/Westward												
Kodiak												
		KRAA	Kitoi Bay	Kitoi Bay	12,318	0	0	0	0	0	335	12,653
			Pillar Creek	Spiridon Lake	29,994	24,885	0	3,693	0	35,901	0	94,473
				Foul Bay	933	0	0	0	0	0	0	933
				Waterfall Bay	0	0	0	0	0	0	0	-
Kodiak total					42,312	24,885	0	3,693	0	35,901	335	108,059
Kodiak/Westward total					42,312	24,885	0	3,693	0	35,901	335	108,059
Statewide total					142,330	691,340	187,739	38,850	32,510	294,710	57,020	1,445,430

Appendix J3.—Details of the estimated coho salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2019.

Region	Area	Agency	Hatchery	Project	Common property harvest				Cost		Total return
					Seine	Gillnet	Troll	Sp/PU/S ^a	Broodstock	recovery	
Southeast											
Southern Southeast											
	SSRAA	Burnett Inlet	Neck Lake	348	1,066	1,183	13,111	-	12,505	-	28,213
		Crystal Lake	Crystal Lake	115	263	1,434	500	1,401	-	-	3,713
		Neets Bay	Neets Bay	3,164	7,153	38,330	1,812	3,473	22,765	150	76,847
		Whitman Lake	Anita Bay	166	10,810	4,070	218	-	-	-	15,264
			Nakat Inlet	803	14,710	13,463	900	-	-	-	29,876
			Whitman Lake	655	902	4,366	434	2,276	797	-	9,430
			Whitman L-Sum	1,398	1,213	659	118	2,240	864	-	6,492
		Klawock River	Klawock Lake	20,329	-	99,613	10,867	3,731	25,962	10,813	171,315
			Port Asumcion	854	-	3,724	207	-	43	-	4,828
	MIC	Tamgas Cr ^b	Tamgas Creek	1,412	3,431	8,133					12,976
Southern Southeast total				29,244	39,548	174,975	28,167	13,121	62,936	10,963	358,954
Northern Southeast											
	NSRAA	Hidden Falls	Hidden Falls	195	104	8,711	3,411	14,348	1	16,086	42,856
			Deer Lake	-	-	17,014	4,352	-	18,598	13,850	53,814
			Banner Lake	-	-	239	-	-	-	-	239
			Blanchard Lake	-	-	130	-	-	-	-	130
		Sawmill Creek	Deep Inlet	13,024	9,745	15,432	1,159	76	-	428	39,864
			Bear Cove	864	369	6,098	692	3,004	31	1,392	12,450
	AKI	Port Armstrong	Port Armstrong	658	-	75,782	1,554	3,613	72,558	25,000	179,165
	DIPAC	Macaulay	Macaulay Hatchery	-	11,700	8,000	12,200	370	11,900	3,630	47,800
	SSSC	Sheldon Jackson	Sheldon Jackson	138	163	6,569	440	519	1,074	246	9,149
Northern Southeast total				14,879	22,081	137,975	23,808	21,930	104,162	60,632	385,467
Southeast total				44,123	61,629	312,950	51,975	35,051	167,098	71,595	744,421
Southcentral											
Prince William Sound											
	PWSAC	Wally Noerenberg	Lake Bay	194,717	-	-	100	2,226	-	-	197,043
			Chenega	-	-	-	4,709	-	-	-	4,709
			Whittier	-	-	-	9,419	-	-	-	9,419
	VFDA	Solomon Gulch	Solomon Gulch	67,296	-	-	38,108	818	3,190	200	109,612
Prince William Sound total				262,013	-	-	52,336	3,044	3,190	200	320,783

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Region	Area	Agency	Hatchery	Project	Common property harvest				Cost		Total return	
					Seine	Gillnet	Troll	Sp/PU/S ^a	Broodstock	recovery		Other
Cook Inlet												
		CIAA	Trail Lakes	Bear Lake	0	0	0	2,500	267	0	-	2,767
		ADF&G	WJ Hernandez	Bird Creek	0	0	0	2,580	0	0	10	2,590
				Eklutna Tailrace	0	0	0	2,147	0	0	-	2,147
				Ship Creek	0	0	0	4,351	1,201	0	1,272	6,824
Cook Inlet total					0	0	0	11,578	1,468	0	1,282	14,328
Southcentral total					262,013	0	0	63,914	4,512	3,190	1,482	335,111
Kodiak/Westward												
Kodiak												
		KRAA	Kitoi Bay	Kitoi Bay	0	34,374	0	75	2,196	0	5,301	41,946
			Pillar Creek	Kodiak Road System	0	0	0	3,000	80	0	6	3,086
Kodiak total					0	34,374	0	3,075	2,276	0	5,307	45,032
Kodiak/Westward total					0	34,374	0	3,075	2,276	0	5,307	45,032
Statewide total					306,140	96,000	312,950	118,960	41,840	170,290	78,380	1,124,560

^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.

Appendix J4.—Details of the estimated pink salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2019.

Region	Area	Agency	Hatchery	Project	Common property harvest				Broodstock	Cost		Total return
					Seine	Gillnet	Setnet	Sp/PU/S ^a		recovery	Other	
Southeast												
Northern Southeast												
		NSRAA	Medvejie	Medvejie Creek	0	0	0	0	490	63	40	593
		AKI	Port Armstrong	Port Armstrong	91,131	0	0	0	54,729	127,911	30,000	303,771
		SSSC	Sheldon Jackson	Sheldon Jackson	9,602	4,801	0	420	6,749	113,259	56,995	191,826
Northern Southeast total					100,733	4,801	0	420	61,968	241,233	87,035	496,190
Southeast total					100,733	4,801	0	420	61,968	241,233	87,035	496,190
Southcentral												
Prince William Sound												
		PWSAC	A F Koernig	Armin F Koernig	5,036,067	19,645	864	0	267,195	678,701	51,000	6,053,472
			Cannery Creek	Cannery Creek	9,318,271	1,892	83	0	469,889	469,522	50,000	10,309,657
			Wally Noerenberg	Lake Bay	2,892,024	27,150	1,357	0	497,192	632,428	1,500	4,051,651
		VFDA	Solomon Gulch	Solomon Gulch	9,326,440	0	0	11,049	478,725	1,503,496	21,458	11,341,168
Prince William Sound total					26,572,802	48,687	2,304	11,049	1,713,001	3,284,147	123,958	31,755,948
Cook Inlet												
		CIAA	Tutka Bay	Tutka Bay	5,510	3,310	0	100	0	189,383	53,732	252,035
			Port Graham	Port Graham	0	0	0	0	17,469	0	-	17,469
Cook Inlet total					5,510	3,310	0	100	17,469	189,383	53,732	269,504
Southcentral total					26,578,312	51,997	2,304	11,149	1,730,470	3,473,530	177,690	32,025,452
Kodiak/Westward												
Kodiak												
		KRAA	Kitoi Bay	Kitoi Bay	3,233,762	0	0	0	333,867	1,679,754	330,000	5,577,383
Kodiak total					3,233,762	0	0	0	333,867	1,679,754	330,000	5,577,383
Kodiak/Westward total					3,233,762	0	0	0	333,867	1,679,754	330,000	5,577,383
Statewide total					29,912,810	56,800	2,304	11,570	2,126,310	5,394,520	594,730	38,099,030

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

Appendix J5.—Details of the estimated chum salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2019.

Region	Area	Agency	Hatchery	Project	Common property harvest				Broodstock	Cost		Total return
					Seine	Gillnet	Troll	Sp/PU/S ^a		recovery	Other	
Southeast												
Southern Southeast												
		SSRAA	Burnett Inlet	Burnett Inlet	23,355	14,150	600	0	44,445	-	-	82,550
				Anita Bay	199,842	112,162	565	0	0	-	-	312,569
			Neets Bay	Neets Bay-Summ	135,560	23,797	5,706	0	174,656	1,909	4,391	346,019
				Neets Bay-Fall	12,284	3,217	3	0	9,052	-	1,941	26,497
				Nakat Inlet	9,463	86,452	0	0	0	-	-	95,915
			Whitman Lake	Kendrick Bay	303,462	25,659	137	0	0	-	-	329,258
				Nakat Inlet-Summ	6,254	91,699	13	0	0	-	-	97,966
		Southern Southeast total			690,220	357,136	7,024	0	228,153	1,909	6,332	1,290,774
Northern Southeast												
		NSRAA	Haines Projects	Haines Projects	0	5,403	0	0	0	-	8,102	13,505
				Hidden Falls	17,136	844	660	0	203,470	3,348	15,507	240,965
				Southeast Cove	73,182	2,531	1,426	0	1,365	851,349	23,517	953,370
				Thomas Bay	390	0	0	0	0	-	-	390
			Medvejie	Medvejie Creek	803,004	338,970	38,774	0	89,856	22,406	7,788	1,300,798
				Sawmill Creek	1,827,703	37,218	177,826	0	308	53,652	20,000	2,116,707
		AKI	Port Armstrong	Port Armstrong	0	0	18,723	0	51,975	116,528	-	187,226
		DIPAC	Macaulay	Gastineau	4,400	255,300	1,200	1,000	145,800	6,300	3,000	417,000
				Amalga Harbor	8,900	408,500	2,500	0	0	421,100	-	841,000
				Boat Harbor	6,500	603,200	1,800	0	0	-	-	611,500
				Limestone Inlet	860	80,500	240	0	0	-	-	81,600
		SSSC	Sheldon Jackson	Sheldon Jackson	3,325	1,662	554	250	6,484	20,825	154	33,254
				Deep Inlet	90,988	38,409	4,393	0	10,181	2,488	883	147,342
		Northern Southeast total			2,836,388	1,772,537	248,096	1,250	509,439	1,497,996	78,951	6,944,657
Southeast total					3,526,608	2,129,673	255,120	1,250	737,592	1,499,905	85,283	8,235,431
Southcentral												
Prince William Sound												
		PWSAC	Wally Noerenberg	Lake Bay	94,528	1,090,477	0	1,000	199,960	1,285,099	26,893	2,697,957
				Port Chalmers	22,542	1,540,234	0	0	0	8,645	2,264	1,573,685
			A F Koernig	Armin F Koernig	485,875	46,874	0	0	0	-	9,360	542,109
		Prince William Sound total			602,945	2,677,585	0	1,000	199,960	1,293,744	38,517	4,813,751
Southcentral total					602,945	2,677,585	0	1,000	199,960	1,293,744	38,517	4,813,751

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Region	Area	Agency	Hatchery	Project	Common property harvest				Broodstock	Cost		Total return
					Seine	Gillnet	Troll	Sp/PU/S ^a		recovery	Other	
Kodiak/Westward												
Kodiak												
		KRAA	Kitoi Bay	Kitoi Bay	16,483	0	0	0	54,118	0	2,350	72,951
Kodiak total					16,483	0	0	0	54,118	0	2,350	72,951
Kodiak/Westward total					16,483	0	0	0	54,118	0	2,350	72,951
Statewide total					4,146,040	4,807,260	255,120	2,250	991,670	2,793,650	126,150	13,122,130

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

**APPENDIX K: STATEWIDE COMMERCIAL HARVEST
SUMMARIES, 1977–2019**

Appendix K1.—Summary of statewide commercial harvest (including cost recovery) of hatchery-produced salmon from Alaska's fisheries enhancement projects, 1977–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	0	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
2019	42,607	1,316,119	885,377	35,366,426	12,002,063	49,612,592
Grand total	2,249,845	67,238,040	30,797,338	1,269,755,733	325,265,680	1,695,275,262

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

Appendix K2.—Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Southeast Alaska fisheries enhancement projects, 1977–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	0	0	0	108,173	0	108,173
1978	0	0	0	0	2,214	2,214
1979	445	0	0	33,555	1,514	35,514
1980	4,388	0	0	500	5,627	10,515
1981	1,504	0	47,823	139,000	3,286	191,613
1982	3,352	0	82,458	16,568	64,874	167,252
1983	1,175	0	78,918	163,494	196,523	440,110
1984	5,234	0	134,482	235,694	1,465,670	1,841,080
1985	10,039	0	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
2019	42,607	141,045	585,800	346,767	7,411,306	8,527,525
Grand total	2,2310,917	6,873,676	23,330,910	50,215,845	242,796,322	325,447,670

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

Appendix K3.—Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Prince William Sound fisheries enhancement projects, 1977–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	0	183	0	17,545	0	17,728
1978	0	720	0	114,188	0	114,908
1979	0	900	0	498,748	0	499,648
1980	0	350	0	1,405,528	2,930	1,408,808
1981	0	3,600	0	2,138,544	36,686	2,178,830
1982	0	3,600	0	5,679,161	1,569	5,684,330
1983	0	6,600	0	4,385,455	13,108	4,405,163
1984	0	5,318	0	4,037,386	82,991	4,125,695
1985	0	31,955	0	8,067,647	64,137	8,163,739
1986	0	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
2019	0	880,572	265,203	29,907,940	4,574,274	35,627,989
Grand total	9,022	28,837,464	4,459,207	1,031,312,699	77,455,819	1,142,074,211

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

Appendix K4.–Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Cook Inlet fisheries enhancement projects, 1978–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1978	42	0	0	0	0	42
1979	0	299,858	0	0	0	299,858
1980	0	638,058	102	0	0	638,160
1981	0	358,726	1,034	963,350	0	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	0	2,238,102
2000	0	310,815	5,370	1,052,285	0	1,368,470
2001	0	724,095	7,133	530,265	0	1,261,493
2002	57	840,439	9,032	1,051,320	0	1,900,848
2003	772	1,204,972	5,849	619,079	0	1,830,672
2004	2,008	1,142,202	7,631	2,460,712	0	3,612,553
2005	626	999,050	1,536	2,143,317	0	3,144,529
2006	639	460,023	600	251,781	0	713,043
2007	467	402,332	48	112,801	0	515,648
2008	0	223,062	350	0	0	223,412
2009	30	201,778	0	0	0	201,808
2010	0	148,478	0	0	0	148,478
2011	0	254,223	0	0	0	254,223
2012	0	138,961	0	0	0	138,961
2013	0	118,069	0	66,581	0	184,650
2014	0	209,311	0	25,430	0	234,741
2015	0	209,789	0	2,166,733	0	2,376,522
2016	0	218,624	0	84,002	0	302,626
2017	4	135,709	201	211,822	246	347,982
2018	0	0	0	1,487,837	311,007	1,798,844
2019	0	191,404	0	198,203	0	389,607
Grand total	9,656	16,961,256	176,014	27,882,291	689,282	45,718,499

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

Appendix K5.—Summary of commercial harvest (including cost recovery) of hatchery-produced salmon from Kodiak fisheries enhancement projects, 1981–2019.

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	0	0	0	663,414	0	663,414
1982	0	0	0	190,300	0	190,300
1983	0	0	0	130,000	0	130,000
1984	0	0	0	335,600	0	335,600
1985	0	0	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	0	800,000	0	6,492,489	0	7,292,489
1990	0	800,000	5,000	539,483	4,100	1,348,583
1991	0	1,111,200	9,709	1,397,600	361,719	2,880,228
1992	0	278,800	740	852,295	3,532	1,135,367
1993	0	699,042	16,016	12,278,700	34,525	13,028,283
1994	0	881,518	46,784	2,054,663	5,007	2,987,972
1995	0	172,040	50,235	4,513,653	215,311	4,951,239
1996	0	510,379	56,850	974,400	14,200	1,555,829
1997	0	408,959	108,940	1,211,128	11,021	1,740,048
1998	0	684,331	149,833	6,272,000	38,000	7,144,164
1999	0	839,506	115,900	4,057,000	140,900	5,153,306
2000	0	460,098	133,238	3,659,698	303,783	4,556,817
2001	0	411,527	151,732	13,272,127	216,625	14,052,011
2002	0	625,581	209,259	6,696,774	88,724	7,620,338
2003	0	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
2016	0	231,109	11,810	1,153,503	69,812	1,466,234
2017	0	376,386	28,684	2,020,020	154,222	2,579,312
2018	0	166,406	137,050	3,200,710	182,287	3,686,453
2019	0	103,098	34,374	4,913,516	16,483	5,067,471
Grand total	250	14,238,756	2,831,207	160,344,898	4,513,333	181,928,444

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