Regional Information Report No. 5J16-03

Alaska Fisheries Enhancement Annual Report 2015

by

Mark Stopha

On April 13, 2016, the following changes were made to this report: (1) Figure 6 Cook Inlet pie graph numbers were updated, (2) Figure 7 percentages were updated, (3) Figure 9 and 10 value labels were corrected, (4) additional text was added to pages 26, 27, and the References Cited section was updated to reflect these changes, and (5) Table 8 numbers were updated.

March 2016

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

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by
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Division of Commercial Fisheries
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March 2016

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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TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES (Continued)

Table **Page**

LIST OF FIGURES

Figure **Page**

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 use local broodstock sources. In addition, to maintain genetic diversity, Alaska hatcheries use large numbers of broodstock for production, and do not selectively breed for size (or other traits). Nearly all hatchery releases are marked so that fisheries managers can determine the strength of wild stocks in the catch and manage them conservatively.

Currently, 29 hatcheries are operating in the state. Most (25 facilities) are operated by private nonprofit corporations, which are funded primarily from the harvest and sale of a portion of hatchery returns. Two additional hatcheries are operated by the state, one research hatchery by the National Marine Fisheries Serivce, and one hatchery by the Metlakatla Indian Community.

The 2015 salmon season was the 2nd highest harvest in state history—a 264 million fish commercial harvest comprised of the 3rd highest catch ever for wild stocks (170 million) and the 2nd highest catch for hatchery stocks (93 million). The statewide exvessel value of the commercial hatchery harvest in 2015 was about $125 million, and the first wholesale value of the commercial hatchery harvest was about $350 million.

Hatchery production in Alaska is intended to supplement—not replace—wild stock production. There are no *stocks of concern* in Prince William Sound or Southeast Alaska, where most hatchery production occurs, indicating that adequate escapements to wild stock systems are being met over time in areas with the most hatchery production. Abundance-based wild stock management priority and habitat protection reflect the state's commitment to conservation of wild stocks, and provide the foundation for its salmon fisheries enhancement program.

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

PREFACE

The purpose of this report is to provide a review of Alaska's hatchery production and contributions to Alaska's fisheries based on the information provided by hatchery operators and public harvest information. The report is intended to update the Alaska State Legislature on the status of Alaska's fishery enhancement program, in fulfillment of Alaska Statute 16.05.092. Numbers in tables may be rounded for clarity. Hatchery industry acronyms used in the tables at the end of this report are listed in Table 1. Alaska hatchery production and fisheries enhancement data for 2015 are provided in Tables 2–17.

Multiple types of fish resource permits are issued each year for research and bioenhancement to accredited institutions of higher learning for cooperative governmental projects, as well as for educational, vocational, and scientific purposes. A summary of all fish resource permits issued in 2015 is provided in Table 18.

Each year, hatchery operators include updates to the previous years' estimated adult salmon return numbers (Vercessi 2015). These updated numbers are highlighted in tables 19–24. Annual summaries are provided in tables 25–35, including the number of eggs collected, juveniles released, adult returns, and commercial harvest.

Additional information, including Alaska hatchery operators contact information, active hatchery permits, permitted capacities by region and hatchery, and Alaska fisheries enhancement program timeline of events is found in Tables 36–39.

In this document, *wild* fish refers 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.

The *common property* harvest refers to fish available for harvest by commercial fishing permit holders, as well as sport, personal use, and subsistence users. The *cost-recovery* harvest refers to fish harvested by hatchery operators in designated special harvest areas to pay for operations.[a]

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

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

References in this document to the Alaska Department of Fish and Game (ADF&G) commissioner refer to the commissioner or their delegate(s).

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

EXECUTIVE SUMMARY 2015

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

Salmon fishery enhancement and restoration efforts came in response to low statewide annual salmon harvests of just 22 million fish in 1973 and 1974 (Figure 1). Since then, Alaska's robust hatchery program has produced sustainable, healthy, well-managed salmon returns for harvest alongside natural production. The purpose of Alaska's salmon hatcheries is to supplement—not replace—natural stock production for public benefit. The success of this program is attributable to the development of statutes, regulations, policies, and plans that require hatcheries to be located away from important natural salmon stocks, to use local broodstock sources, and to mark hatchery fish so that fisheries managers can determine the strength of wild stocks in the catch and manage wild stocks conservatively. In addition, to maintain genetic diversity, Alaska hatcheries do not selectively breed for size or other trait and use large numbers of broodstock for production per the state's *Genetic Policy* (Davis et al. 1985).

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

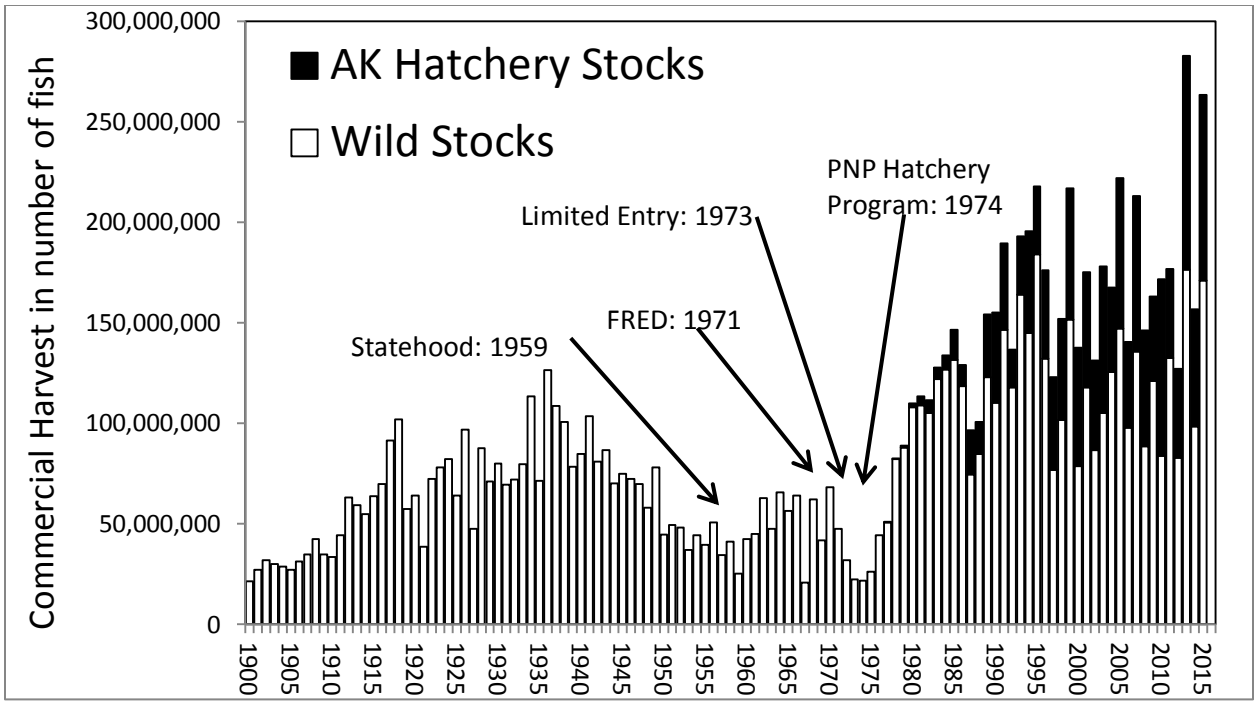

Figure 1.–Commercial salmon harvest in Alaska, 1900–2015.

Hatcheries function to improve egg-to-juvenile survival by providing a stable environment to protect eggs from environmental causes of mortality. Depending on species, egg-to-fry survival averages about 10% or less in nature due to flooding, freezing, drought, mudslides, predation, etc. but survival is usually 90% or higher in hatcheries. Once hatchery-raised juveniles are released into the ocean, they are subject to the same elements for survival as their naturally spawned counterparts. Constant vigilance on the part of ADF&G and hatchery operators to improve the program through ongoing analysis of hatchery performance assures that Alaska hatcheries continue to benefit the economy and wellbeing of the people of the state.

Nearly all Alaska hatcheries are operated by PNP hatchery associations, and are primarily self-funded through the harvest and sale of a portion of the returning fish. Currently, there are 29 hatcheries operating in Southeast Alaska, Prince William Sound, Cook Inlet, and Kodiak regions (Figure 2). Most facilities (25 hatcheries) are operated by PNPs. ADF&G operates 2 sport fish hatcheries in Anchorage and Fairbanks. An additional hatchery research facility is operated by the National Marine Fisheries Service at Little Port Walter. One hatchery, Tamgas Creek Hatchery, is operated by the Metlakatla Indian Community, a tribal entity. With the exception of Tamgas Creek Hatchery, the salmon stocks used in hatcheries, the locations of hatcheries and release sites, and the number of juvenile salmon released, are all regulated by ADF&G through an extensive permitting process that includes public participation.

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

more expensive to rear, as they require a higher volume of fresh water, holding areas for freshwater rearing, and daily feeding. These 3 species also have a higher risk of disease, in part due to the extended rearing phase. There are economic tradeoffs between the costs of production versus the value of fish at harvest. Although Chinook, sockeye, and coho salmon garner higher prices per pound at harvest, chum and pink salmon are more economical to rear in the hatchery setting and generally provide a higher economic return on production costs.

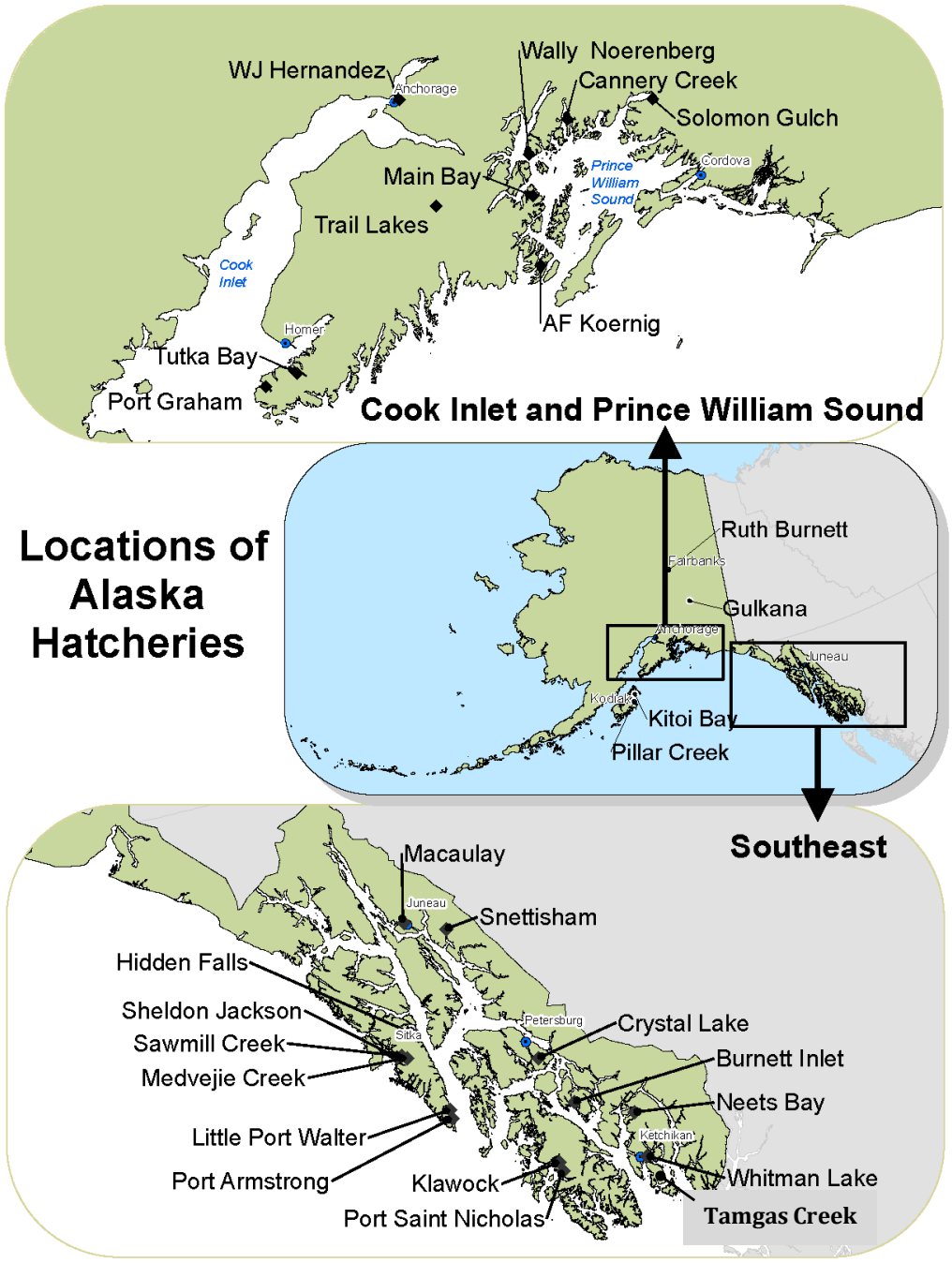

Figure 2. –Location of hatcheries currently operating in Alaska.

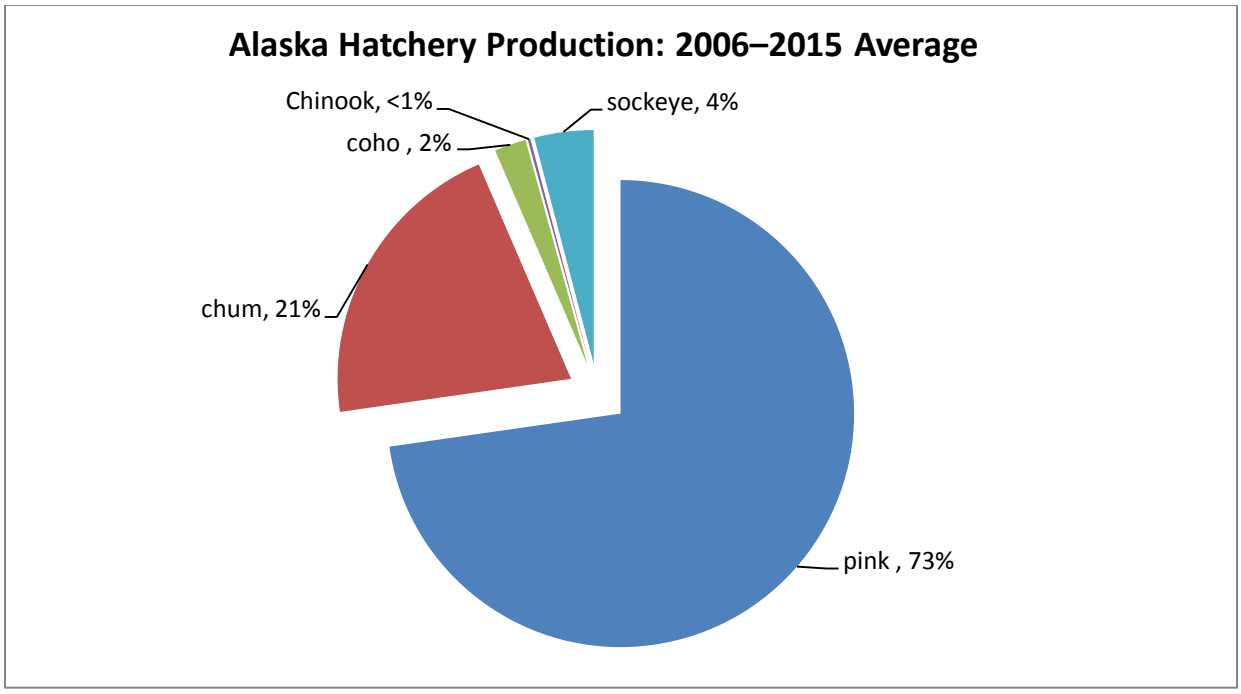

Figure 3.–Alaska hatchery production and percent of hatchery production by species in numbers of fish, 2006–2015 annual average.

The largest returns of both hatchery and wild salmon stocks have largely occurred since 1980, when the first hatchery-reared salmon were returning to newly built hatcheries. Alaska's salmon fisheries are among the healthiest in the world, with the 2 highest harvests in the past 3 seasons. The 2013 season was a record harvest overall; the 283 million fish commercial salmon harvest included the 2nd highest catch for wild stocks (176 million fish) and the highest catch for hatchery stocks (107 million fish) in Alaska's history (Figure 1). The 2015 season was the 2nd highest harvest, with a 263 million fish commercial harvest that included the 3rd highest catch for wild stocks (170 million fish) and the 2nd highest catch for hatchery stocks (93 million fish). The hatchery harvests *alone* in both 2013 and 2015 were greater than the entire statewide commercial salmon harvest in every year prior to statehood except for years 1918, 1926, 1934, 1936, 1937, 1938, and 1941 (Figure 1).

Although hatchery fish may be the majority of the harvest of a species in a region—chum salmon in Southeast Alaska or pink salmon in Prince William Sound, for example—this does not mean that hatchery production comes at the expense of wild stock production. Hatchery production grew at a pace that allowed managers to first assess the hatchery returns and understand how to manage them, while at the same time providing for adequate escapement of wild stocks. The development of otolith marking allows all the pink and chum salmon produced in Southeast Alaska and Prince William Sound to be marked so that hatchery and ADF&G staff can determine the harvest composition inseason and thereby manage for wild stocks.

As fisheries management has adapted to hatchery production, so has the fishing fleet and processing sector. When fishing is open elsewhere to target wild stocks, the fleet may instead focus effort on hatchery returns at terminal sites where hatchery fish were released and where usually few wild stocks are present——particularly when tender service to processors is also

concentrated at the hatchery harvest areas. Fishermen can harvest hatchery fish in the terminal fishing area and offload to nearby tenders, saving time and fuel in their operations. This may also have the effect of decreasing fishing pressure on many wild salmon stocks. There are no *stocks of concern* in Prince William Sound or Southeast Alaska (where most hatchery production occurs), indicating that adequate escapements to wild stock systems are being met in these areas over time. As intended, hatchery production is supplementing fisheries, and is a reflection of the state's priority of conservation of wild stocks as the foundation of its salmon fisheries enhancement program.

2015 SEASON SUMMARY

In 2015, Alaska hatcheries contributed an estimated 93 million fish to the commercial fishery,[b] which made up one-third of the statewide commercial salmon harvest of 264 million fish. The statewide exvessel value of the commercial hatchery harvest was $125 million, which was an estimated 30% of the exvessel value of the statewide harvest (Figure 4). Pink salmon accounted for 47% of the value of the hatchery harvest, followed by chum salmon (31%), sockeye salmon (17%), coho salmon (3%), and Chinook salmon (2%).[c]

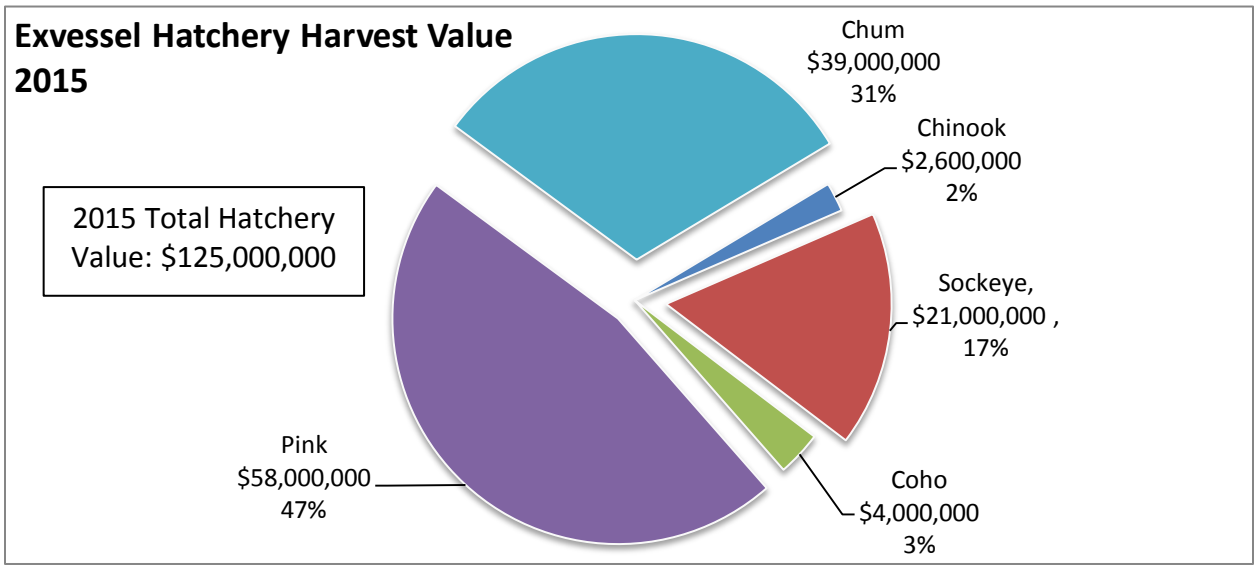

Figure 4.–Species composition of 2015 Alaska hatchery exvessel commercial harvest, with the value by species, and the percent of the total hatchery value for each species. Commercial exvessel value is the estimated value paid to fishermen for the common property harvest and to hatchery associations for the cost-recovery harvest.

About 275,000 hatchery-produced salmon, rainbow trout, arctic char, and grayling were harvested by sport, personal use, and subsistence users in 2015. Hatchery-produced coho salmon

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

[c] Note that hatchery's 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.

were the greatest part of this harvest (120,000 fish), followed by sockeye salmon (85,000 fish), rainbow trout (27,000 fish), pink salmon (12,000 fish), Chinook salmon (11,000 fish), landlocked salmon (8,000 fish), chum salmon (5,000 fish), arctic char (2,500 fish) and grayling (1,000 fish).

Hatchery operators forecast an estimated return of 60 million hatchery-produced fish in 2016.

REGIONAL HATCHERY CONTRIBUTION

Most of Alaska's hatchery production is in Prince William Sound (Figure 5), where pink and sockeye salmon are the primary hatchery species. Next is Southeast Alaska, where chum salmon and coho salmon are the primary species. Cook Inlet hatcheries produce primarily sockeye salmon, and Kodiak hatcheries primarily pink salmon. Two ADF&G Division of Sport Fish hatcheries produce landlocked salmon, trout, char, and grayling for stocking Interior and Southcentral freshwater systems; they also produce anadromous salmon for saltwater release in Cook Inlet and Prince William Sound.

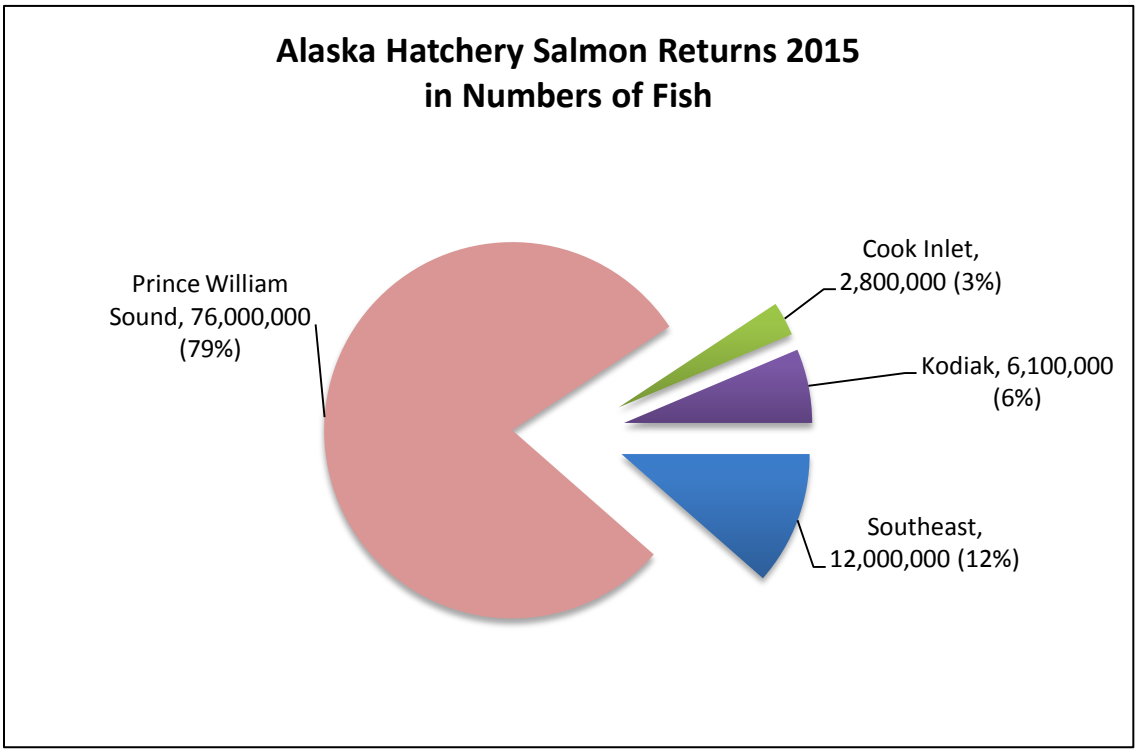

Figure 5.–Alaska hatchery total return by region, with the number of returns by species and the percent of the total hatchery return, for 2015. The total return includes both the catch and fish used for broodstock.

Southeast Alaska: About 11 million Alaska hatchery fish were caught in the Southeast Alaska common property commercial fisheries in 2015, worth an estimated exvessel value of $37 million, or 42% of the total exvessel value for commercial salmon fisheries in the region. By species, the exvessel value of hatchery fish comprised 84% of the chum, 40% of the coho, 22%

of the Chinook, 8% of the sockeye, and 2% of the pink salmon value of the commercial fisheries in the region (Figure 6).

Coho salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (64,000 fish), followed by Chinook salmon (9,000 fish).

Prince William Sound: About 74 million hatchery-produced salmon were harvested in the Prince William Sound common property commercial fisheries in 2015, worth an estimated exvessel value $79 million, or 67% of the total exvessel value for commercial salmon fisheries in the region (Figure 6). By species, the exvessel value of hatchery fish comprised 96% of the chum, 74% of the pink, 52% of the sockeye and 36% of the coho salmon value in the commercial fisheries in the region.

Sockeye salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (61,000 fish), followed by coho salmon (42,000 fish) and pink salmon (11,000 fish).

Cook Inlet: About 2.4 million hatchery-produced salmon were harvested in the Cook Inlet common property commercial fisheries in 2015, worth an estimated exvessel value $3.2 million, or 10% of the total exvessel value for commercial salmon fisheries in the region (Figure 6). By species, the exvessel value of hatchery fish comprised 34% of the pink, 7% of the sockeye, and 2% of the Chinook salmon value in the commercial fisheries in the region.

Sockeye salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (21,000 fish), followed by coho salmon (13,000 fish) and 2,000 each pink and Chinook salmon.

Kodiak: About 5.2 million hatchery-produced salmon were harvested in the Kodiak common property commercial fisheries in 2015, worth an estimated exvessel value $4.5 million, or 12% of the total exvessel value for commercial salmon fisheries in the region (Figure 6). By species, the exvessel value of hatchery fish comprised 15% of the pink, 10% of the sockeye, 10% of the coho, and 5% of the chum salmon harvest value in the commercial salmon fisheries.

Coho salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (1,700 fish), followed by Chinook salmon (1,400 fish).

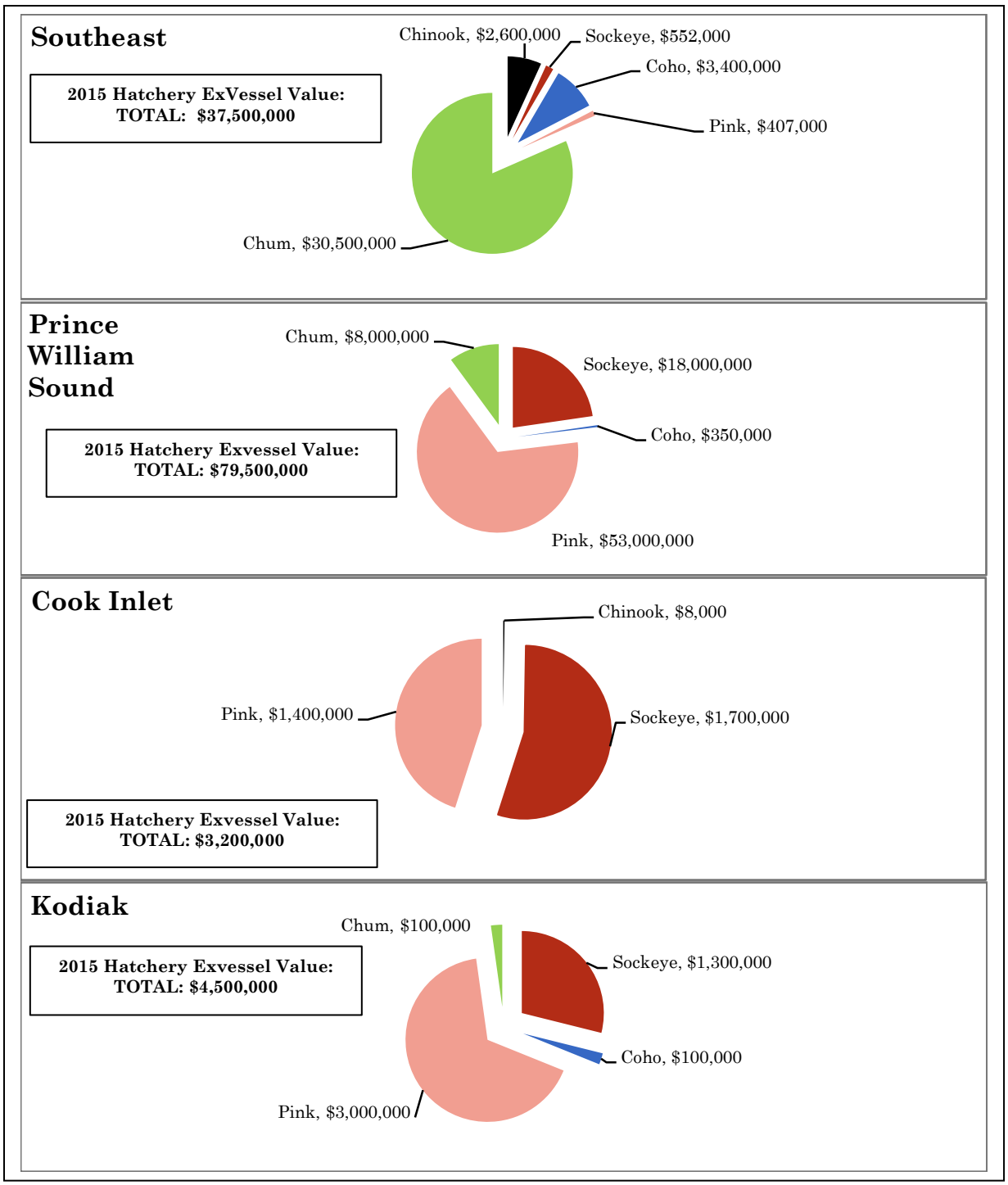

Figure 6. –Exvessel value of hatchery harvest by region, 2015.

HATCHERY EVALUATION AND PROTECTION OF WILD STOCKS

Alaska's PNP hatchery program has a history of active assessment and innovation. All PNP hatcheries use coded wire tags or thermal marks so that hatchery fish can be identified in the harvest, thereby allowing managers to estimate the proportions of wild stock returns inseason and ensure their conservation.

Part of the strength of Alaska's salmon industry is a message of the state's sustainable fisheries management to a growing audience of discriminating buyers. In 2000, the Marine Stewardship Council (MSC) certified Alaska salmon fisheries as sustainably managed, and the state's salmon fisheries remained the only MSC-certified salmon fishery in the world for nearly a decade. Achievement of statewide certification is a reflection of the state's commitment to abundance-based fisheries management and its constitutional mandate to sustain wild salmon populations. During the MSC review process, ADF&G began formal reviews of each hatchery program for consistency with statewide policies and prescribed management practices. Evaluations have been completed for hatcheries in Kodiak, Cook Inlet, Prince William Sound, and northern Southeast Alaska, and continue for southern Southeast Alaska hatcheries. These evaluations are an important systematic assessment of Alaska salmon fishery enhancement and its relation to wild stock production at a time of heightened interest in increased hatchery production and its potential impacts on wild salmon production.

ADF&G staff monitor salmon spawning streams for hatchery straying over time. In addition, ADF&G staff, hatchery PNP operators, and processors initiated a hatchery and wild stock interaction study to evaluate fitness of wild and stray hatchery-origin salmon that spawn in the wild. The study, entitled *Interactions of Wild and Hatchery Pink and Chum Salmon in Prince William Sound and Southeast Alaska*, is currently underway. The study will improve understanding of hatchery and wild stock interactions and provide Alaska-specific scientific guidance for assessing Alaska's fisheries enhancement program, including recommendations for escapement goals, fisheries management, hatchery production levels, and hatchery practices.

INTRODUCTION

Due in part to historically low salmon harvests, the Alaska Legislature established the Division of Fisheries Rehabilitation Enhancement and Development (FRED) within the Alaska Department of Fish and Game (ADF&G) in 1971. In 1972, Alaska voters amended by popular vote 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, enabling limited entry to Alaska's state fisheries and allowing broodstock and cost recovery for hatcheries. Alaska's salmon hatchery program developed under this authority and was designed to supplement—not replace—sustainable natural production.

In 1974, the Alaska Legislature expanded the hatchery program, authorizing private nonprofit (PNP) corporations to operate salmon hatcheries: "It is the intent of this Act to authorize the private ownership of salmon hatcheries by qualified nonprofit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state's depleted and depressed salmon fishery. The program shall be operated without adversely affecting natural stocks of fish in the state and under a policy of management which allows reasonable segregation of returning hatchery-reared salmon from naturally occurring stocks."

Salmon fishery restoration efforts came in response to statewide annual salmon harvests of just 22 million fish in 1973 and 1974, among the lowest catches since 1900 (Figure 1). The FRED Division, PNP hatcheries, and others engaged in a variety of activities to increase salmon production. New hatcheries were built to raise salmon. Fish ladders were constructed to provide adult salmon access to previously nonutilized 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 (2006–2015) averaging 177 million fish.[d]

ALASKA'S HATCHERIES

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

A total of 28 production hatcheries are currently operating in Alaska (Figure 2). Of these, PNPs operate 25 of the hatcheries—11 facilities are owned by the state and 14 are owned by PNPs. Two state-owned hatcheries (1 in Anchorage and 1 in Fairbanks) are operated by the ADF&G

[d] Alaska commercial salmon harvests and exvessel values. 1996– .Alaska Department of Fish and Game [cited March 18, 2016]. Available from http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery

[e] Except for Crystal Lake Hatchery in Petersburg. The hatchery is owned by the state and operated by the Southern Southeast Regional Aquaculture Association, but it has no hatchery permit for this hatchery.

[f] ADF&G operates sport fish hatcheries in Fairbanks and Anchorage.

Division of Sport Fish and 1 hatchery is operated by the Metlakatla Indian Community on the federal Annette Islands Reserve south of Ketchikan (Tamgas Creek Hatchery). In addition to the 28 production hatcheries, a federal research hatchery is operated by National Marine Fisheries Service in Southeast Alaska at Little Port Walter in lower Chatham Strait.

An additional 6 PNP hatchery facilities are permitted but currently inactive: Deer Mountain Hatchery (Ketchikan), Gunnuk Creek Hatchery (Kake), Perry Island Hatchery (Prince William Sound), Bell Island Hatchery (southern Southeast Alaska), Eklutna Hatchery (Eklutna) and Haines Projects Hatchery (Haines).

ALASKA'S HATCHERY PROGRAMS

In Alaska, the purpose of salmon hatcheries is to supplement natural stock production for public benefit. Hatcheries efficiently improve survival from the egg-to-fry or egg-to-smolt stage compared to survival in the wild. For example, estimates for pink salmon *Oncorhynchus gorbuscha* egg-to-fry survival in 2 Southeast Alaska creeks ranged from less than 1% to 22%, with average survivals from 4% to 9% (Groot and Margolis 1991). Under hatchery conditions, egg-to-fry survival is usually 90% or higher.

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

Hatchery production is limited by freshwater capacity and freshwater rearing space. Soon after emergence from the egg, pink and chum salmon *O. keta* fry can be transferred from fresh water to salt water. Most Chinook *O. tshawytscha*, sockeye *O. nerka*, and coho salmon *O. kisutch* typically must spend 1 year or more in fresh water before fry develop to the smolt stage and can tolerate salt water; therefore these species are much more expensive to rear. They require a higher volume of fresh water, a holding area for freshwater rearing, and daily feeding. They also have a higher risk of disease mortality, in part due to the extended rearing phase. There are economic tradeoffs between the costs of production versus the value of fish at harvest. Although Chinook, sockeye, and coho salmon garner higher prices per pound at harvest, chum and pink salmon are more economical to rear in the hatchery setting and generally provide a higher economic return on production costs.

Pink salmon have the shortest life cycle of Pacific salmon (2 years), provide a quick return on investment, and provide the bulk of Alaska hatchery production. From 2006 to 2015, pink salmon accounted for an annual average 73% of Alaska hatchery salmon returns by number, followed by chum (21%), sockeye (4%), coho (2%) and Chinook salmon (<1%; Figure 3).

Alaska's wild stock salmon populations are sustainably managed by ensuring that adequate numbers of adults spawn, and that the wild stock harvest is arguably at its maximum given fluctuations due to environmental variability and imperfect management precision. Unlike Pacific Northwest systems, such as the Columbia River, where habitat loss, dam construction and urbanization led to the decline of salmon stocks to the point of endangered species listings, Alaska's salmon habitat is largely intact. ADF&G, with the assistance and sacrifice of

commercial, sport, personal use, and subsistence users, has been successful in recovering several populations identified as *stocks of concern* through restricted fishing and intensive spawning assessment projects. Other than regulatory actions, such as reductions of salmon bycatch in other fisheries or changes in fishing methods that would allow more precise management of escapement, hatchery production is the primary opportunity to substantially increase the harvest.

ALASKA HATCHERY POLICIES

Numerous Alaska mandates and policies for hatchery operations were specifically developed to minimize potential adverse effects to wild stocks. Through a comprehensive permitting and planning process, PNP hatchery operations are subject to continual review by a number of ADF&G fishery biologists, geneticists, pathologists, and the ADF&G commissioner.

The State of Alaska 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 U.S./Canada transboundary rivers); restricting transportation of stocks between the major geographic areas in the state (Southeast, Kodiak Island, Prince William Sound, Cook Inlet, Bristol Bay, Arctic-Yukon-Kuskokwim, and Interior); requiring the use of local broodstock; maintaining genetic diversity by use of large populations of broodstock collected across the entire run and without regard to any physical trait such as size; and limiting the number of hatchery stocks derived from a single donor stock.

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

The Alaska Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222) mandates protection of wild salmon stocks in the management of salmon fisheries. Other applicable policies and regulations include 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). These regulations require fishery managers to consider the interactions of wild and hatchery salmon stocks when reviewing hatchery management plans and permits.

ALASKA HATCHERY PLANNING AND PERMITTING

Regional aquaculture associations (RAAs) exist for nearly all Alaska's salmon planning regions. Where RAAs operate hatcheries, they also form PNP corporations, and have a board of directors whose membership includes the commercial salmon fishing permit holders, and representatives of other stakeholder groups such as sport and subsistence harvesters, processors, and city officials interested in fisheries within the region. PNP boards establish hatchery production goals, oversee business operations of the hatcheries, and direct staff to work with ADF&G to comply with state permitting and planning regulations. Commercial salmon fishing permit holders may vote to impose a salmon enhancement tax on sale of salmon in their region. These funds are provided to the RAA to finance hatchery operations or other enhancement and rehabilitation activities. Independent PNP corporations not affiliated with an RAA also operate hatcheries in several areas of the state. The RAAs and independent PNP hatchery organizations may harvest salmon returning to their release sites to pay for operations. Such harvests are called

cost-recovery fisheries, while *common property* fisheries are fisheries open to all commercial fishing permit holders, as well as subsistence, personal use, and sport harvesters.

Each hatchery is permitted separately. Acquisition of a hatchery permit is an extensive process (see 5 AAC 40.110–230). A hatchery application consists of the goals of the hatchery, production goals and hatchery site information, water flow and chemistry data, land ownership and water rights, hatchery design, biocriteria, initial proposed broodstock for the hatchery, and a financial plan. ADF&G staff draft a fishery management feasibility analysis for the proposed hatchery, review the application with the applicant, address any deficiencies, and provide it for public review.

Salmon fishery enhancement efforts are guided by comprehensive salmon plans for each region. These plans are developed by the Regional Planning Teams within each region. Regional Planning Teams are composed of 6 voting members: 3 from ADF&G and 3 appointed by the regional aquaculture association's board of directors. Plans are developed in a public process based on the needs of fisheries user groups and communities in the region. The plans can be periodically reviewed and updated to meet changing needs. The Regional Planning Team reviews PNP hatchery permit applications within their region to determine if the hatchery operation is compatible with the regional comprehensive salmon plan. They may make a recommendation on the permit to the ADF&G commissioner.

Following review by the Regional Planning Team, a public hearing is held to allow the hatchery applicant to describe the proposed hatchery plan. ADF&G staff present the basic management plan for the hatchery, including fish culture aspects of the proposed hatchery and management of the hatchery return. 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.

Public participation is an integral part of the PNP hatchery system. Hearings are held before a hatchery is permitted for operation. Regional Planning Teams composed of ADF&G and RAA representatives hold public meetings to define desired production goals by species, area, and time; they then document these goals in comprehensive salmon plans (5 AAC 40.300). Regional Planning Teams hold public meetings to review applications for new hatcheries and may make recommendations to the ADF&G commissioner regarding changes to existing hatchery permits, such as new hatchery production. Municipal, commercial, sport, and subsistence fishing representatives commonly hold seats on RAAs and independent PNP hatchery organization boards, providing broad public oversight of operations.

Alaska PNP hatcheries operate under 4 ADF&G-required documents: (1) PNP hatchery permit with basic management plan, (2) annual management plan, (3) fish transport permit, and (4) annual report.

The hatchery permit authorizes operation of the hatchery, specifies the maximum number of eggs of each species that a facility can incubate, specifies the authorized release locations, and may identify stocks allowed for broodstock. The basic management plan is an addendum to the hatchery permit and outlines the general operations of the hatchery. Hatchery permits remain in effect unless relinquished by the permit holder or revoked by the ADF&G commissioner. Hatchery permits and basic management plans may be amended by the permit holder through a permit alteration request. Requested changes are reviewed by the Regional Planning Team and ADF&G staff and their recommendations are sent to the ADF&G commissioner for consideration.

The annual management plan outlines operations for the current year and is usually written cooperatively among ADF&G and PNP hatchery staff. Typically, annual management plans include the current year's egg-take goals, fry or smolt releases, expected adult returns, harvest management plans, fish transport permits required or in place (described below), and fish culture techniques. The annual management plan must be consistent with the hatchery permit and basic management plan.

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. FTP applications are reviewed by the ADF&G fish pathologist, fish geneticist, regional resource development biologist, and other ADF&G staff as delegated by the ADF&G commissioner. Reviewers may suggest conditions for the FTP. Final consideration of the application is made by the ADF&G commissioner. An FTP is issued for a fixed time period. When the FTP is renewed, the FTP application goes through the same process as the original FTP, providing an ongoing review of all PNP hatchery projects over time.

Each hatchery is required to submit an annual report documenting egg collections, juvenile releases, current year run sizes, contributions to fisheries, and projected run sizes for the following year. Information for all hatcheries is compiled into this annual ADF&G report to the Alaska Legislature.

HATCHERY CONTRIBUTION TO ALASKA FISHERIES

The hatchery return is composed of the harvest and the broodstock used for hatchery production. Most of the hatchery harvest occurs in the common property fisheries and the cost-recovery fisheries, which collectively comprise the commercial harvest (Figure 7).

Over the past decade (2006–2015), hatcheries contributed an annual average of about one-third of the total Alaska commercial salmon harvest. By species, Alaska hatchery fish contributed an annual average of 42% of the pink, 68% of the chum, 27% of the coho, 20% of the Chinook, and 5% of the sockeye salmon to the commercial harvest over the past decade (Figure 8). The 2015 hatchery species contribution to the commercial harvest was similar to the decadal average (Table 5).

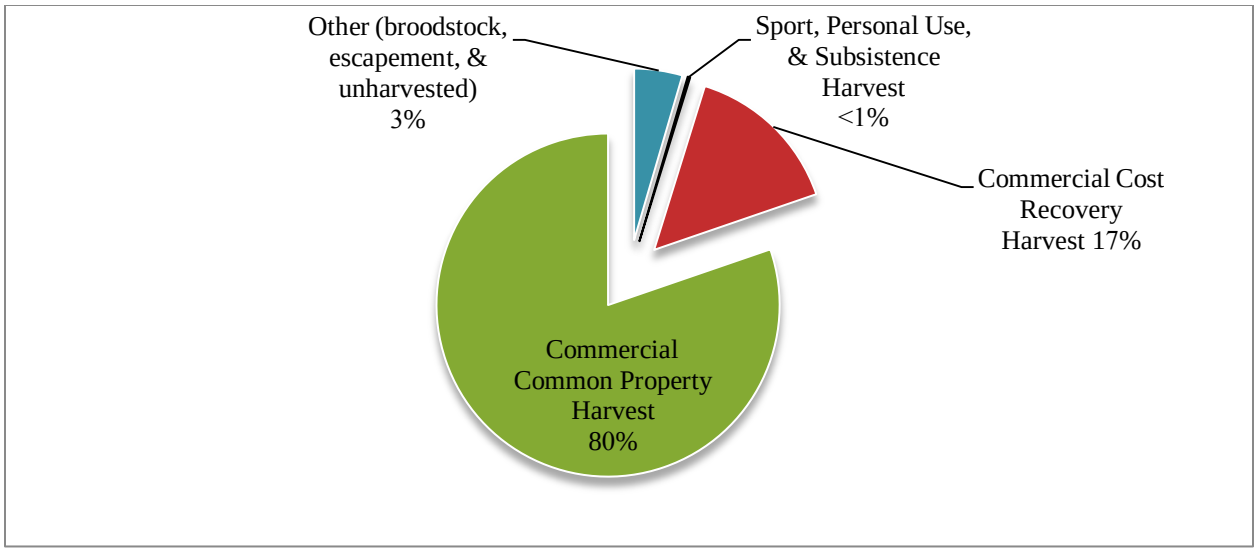

Figure 7.–Alaska salmon hatchery returns by return category, 2015.

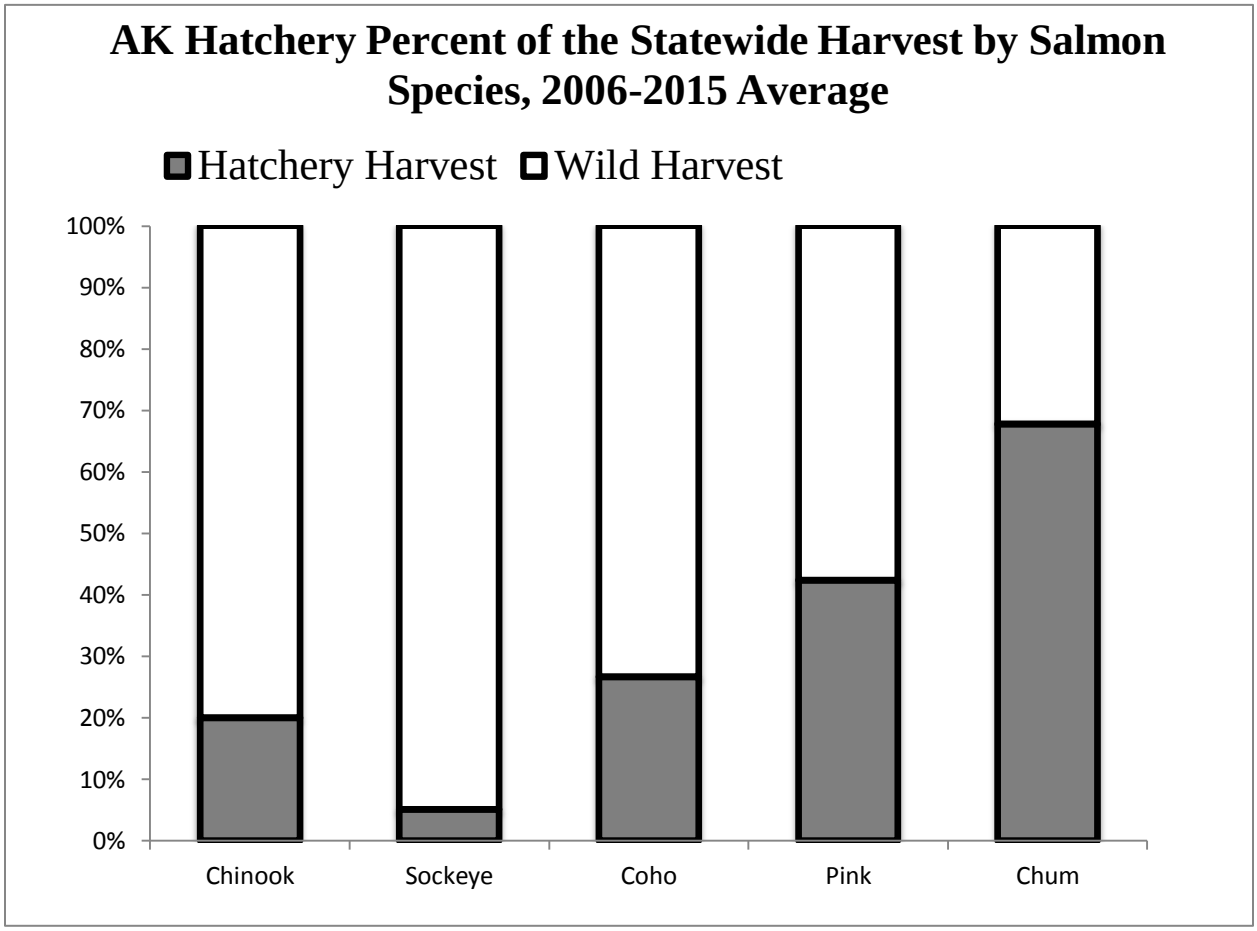

Figure 8.–Alaska hatchery contribution to the commercial fishery by species, 2006–2015.

Although hatchery production contributes the majority of the harvest of a species in a region—chum salmon in Southeast Alaska or pink salmon in Prince William Sound, for example—this does not mean that hatchery production comes at the expense of wild stock production. Hatchery production grew at a pace that allowed managers to first assess the hatchery returns and understand how to manage for them, and also provide for adequate escapement of wild stocks. The development of thermal marking allowed all the pink and chum salmon produced in Southeast Alaska and Prince William Sound hatcheries to be marked, which allows hatchery and ADF&G staff to determine inseason harvest composition, and thereby manage wild stocks conservatively.

As fisheries management has adapted to hatchery production, so has the fishing fleet and processing sector. When fishing is open elsewhere to target wild stocks, the fleet may instead focus effort on hatchery returns at terminal sites where hatchery fish were released and where usually few wild stocks are present—particularly when tender service to processors is also concentrated at the hatchery harvest areas. The fishing fleet can harvest hatchery fish in the terminal fishing area and offload to nearby tenders, saving time and fuel in their operations. This may also have the effect of decreasing fishing pressure on wild salmon stocks. As intended, hatchery production is supplementing fisheries, and is a reflection of the state's priority of conservation of wild stocks as the foundation for its salmon fisheries enhancement program.

A measure of the success of the hatchery program is achieving escapement goals of wild stocks in the 2 regions of the state where fisheries management is most impacted by hatchery production—Southeast Alaska and Prince William Sound. ADF&G manages salmon stocks across the state to meet spawning escapement needs for all 5 species. Where escapements chronically fall short of meeting goals (i.e., over 4 to 5 years), ADF&G may recommend a *stock of concern* designation for those underperforming salmon stocks. In 2014, there were 14 *stocks of concern* in the state (Munro and Volk 2015). None of these stocks are located in either Prince William Sound or Southeast Alaska, indicating that wild stock escapements are being met in these 2 regions over time.

The largest returns of wild stocks have usually occurred after the 1980s during the PNP hatchery program (Figure 1). Alaska's salmon fisheries are among the healthiest in the world, with the 2 highest harvests in the past 3 seasons. The 2013 season was a record harvest overall; the 283 million fish commercial salmon harvest included the 2nd highest catch for wild stocks (176 million fish) and the highest catch for hatchery stocks (107 million fish) in Alaska's history (Figure 1). The 2015 season was the 2nd highest harvest, with a 263 million fish commercial harvest that included the 3rd highest catch for wild stocks (170 million fish) and the 2nd highest catch for hatchery stocks (93 million fish). The hatchery harvests *alone* in both 2013 and 2015 were greater than the entire statewide commercial salmon harvest in every year prior to statehood except for years 1918, 1926, 1934, 1936, 1937, 1938, and 1941 (Figure 1).

VALUE OF THE HATCHERY HARVEST

The salmon marketplace has changed substantially since the hatchery program began. As the first adult salmon were returning to newly built hatcheries in 1980, Alaska accounted for nearly half of the world salmon supply, and larger harvests in Alaska generally meant lower prices to the fishing fleet. Some believed the increasing hatchery production in some parts of the state was depressing salmon prices in others (Knapp et al. 2007). By 1996, rapidly expanding farmed salmon production surpassed the wild salmon harvest for the first time (Knapp at al. 2007) and

wild salmon prices declined precipitously as year-round supplies of fresh, high quality, farmed salmon flooded the marketplace in the U.S., Europe, and Japan. The Alaska fishing industry responded to the competition by improving fish quality and implementing intensive marketing efforts to differentiate Alaska salmon from farmed salmon. By 2004, these efforts paid off through increasing demand and prices.

Today, Alaska typically accounts for just 12–15% of the global supply of salmon (ASMI 2011). Alaska's diminished influence on world salmon production means that Alaska's harvest volume has little effect on world salmon prices. The value of the hatchery harvest generally increased during the first 8 years of the past decade, despite large fluctuations in harvest volume, before declining in 2014 and 2015 (Figure 9).

Exvessel value[g] of the commercial hatchery harvest, which is the value of payments from a fish buyer (usually a processor) to fishermen or a hatchery operator for their harvest, averaged $134 million over the past decade, and ranged from $78 million in 2006 to $204 million in 2010 (Figure 9). The 2015 hatchery harvest value was an estimated $125 million, or 30% of the total statewide commercial salmon harvest value.

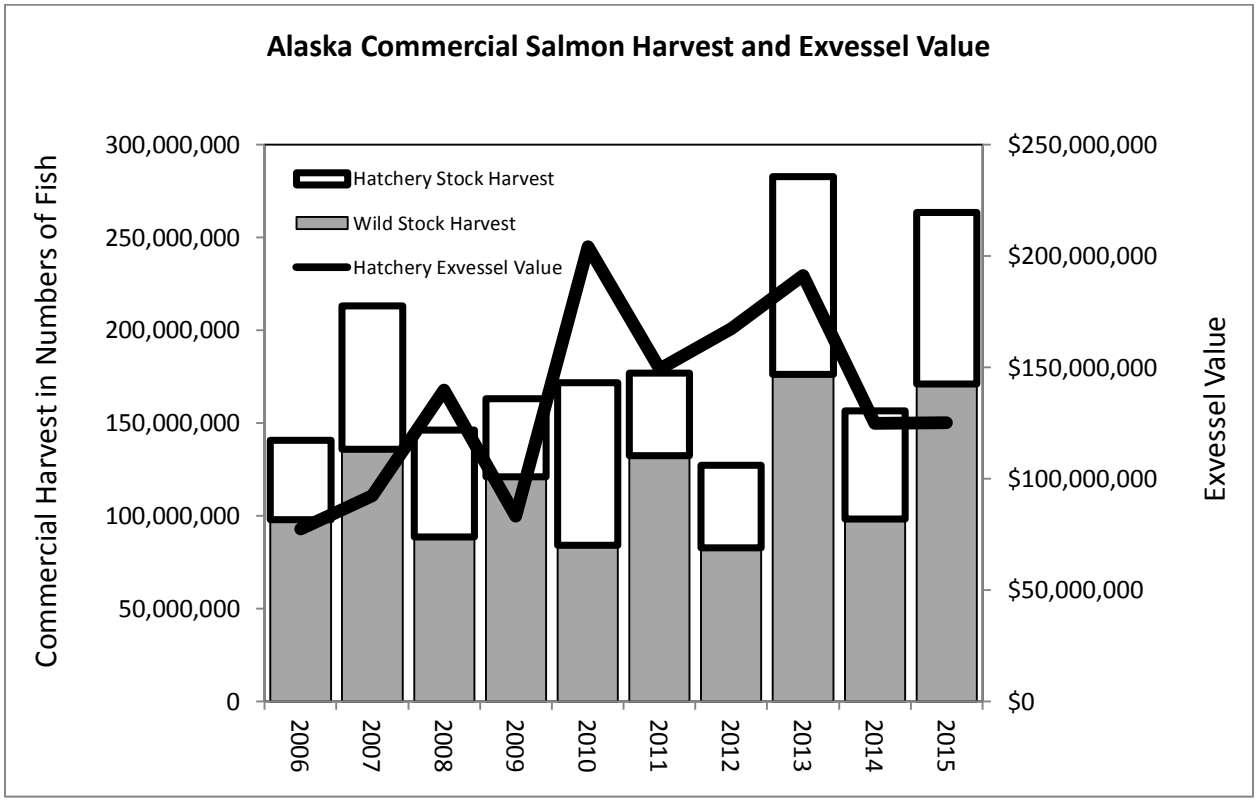

Figure 9.–Alaska hatchery harvest, wild harvest, and exvessel value of the commercial salmon harvest, 2006–2015.

[g] 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/index.cfm?adfg=commercialbyfisherysalmon.salmoncatch (accessed 02/04/2014), multiplied by the hatchery percent of the commercial harvest in Farrington 2003, 2004; White 2005–2011, and Vercessi 2013.

First wholesale value[h] is the value of the fish after processing when it's sold to the first buyer in the supply chain, and is a better measure of the value of fish to the state since it includes both the money paid to harvesters and the costs of processing before sale to the wholesale market. Like exvessel value, first wholesale value of the hatchery harvest also showed an increasing trend, with the value of hatchery fish averaging $350 million over the past decade, with a range of $211 million in 2009 to over half a *billion* dollars in 2010 and 2013 (Figure 10). Annually, pink and chum salmon combined accounted an average of about 80% of both the exvessel value and the first wholesale value during the period.[i] The 2015 first wholesale value of the hatchery harvest was estimated at about $357 million.

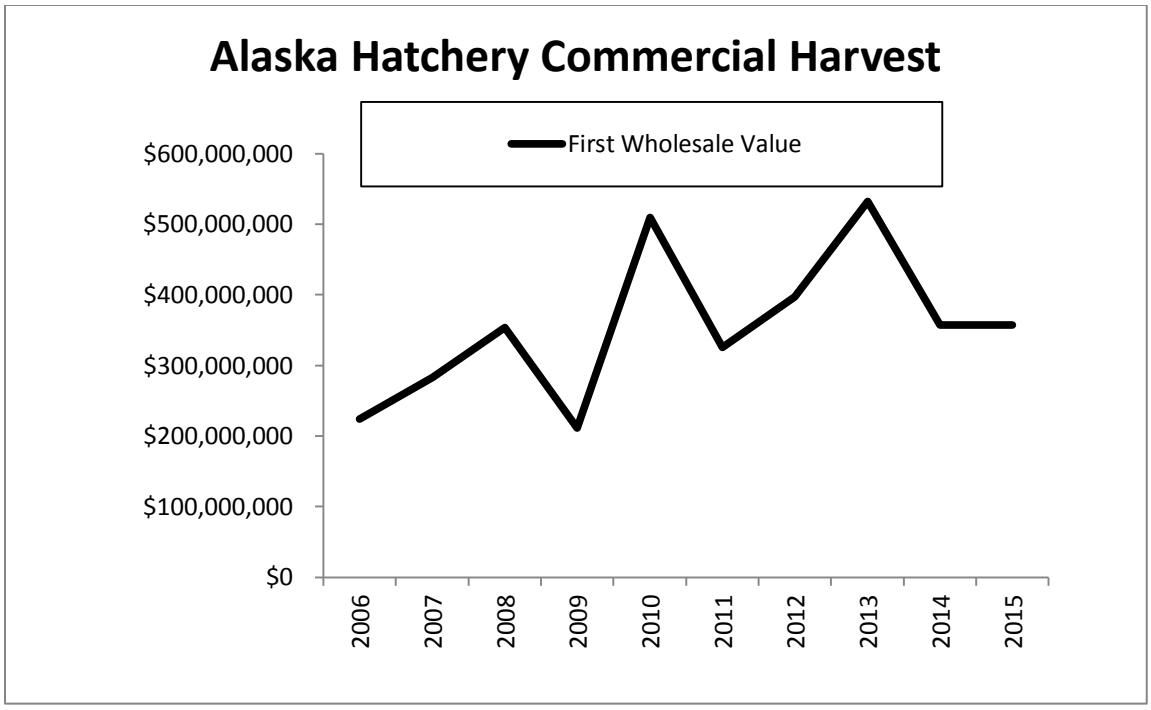

Figure 10.–First wholesale value of the commercial salmon harvest, 2006–2015.

In recent years, the strong dollar, political action in Russia, and the record pink salmon harvest in 2013 were key factors influencing price declines of pink and chum salmon, the 2 primary hatchery-produced species, according to the Spring 2015 Alaska Seafood Market Bulletin (Alaska Seafood 2015). Russia, Japan, and Ukraine are key markets for Alaska salmon roe, an important product that affects the overall value of pink and chum salmon. The Russian embargo on U.S. Seafood Products, and lower currency values in Russia, Ukraine, and Japan, all

[h] First wholesale value is the price paid to primary processors for processed fish from ADF&G Commercial Operators' Annual Reports (obtained from Shellene Hutter, ADF&G research analyst, Juneau) multiplied by the hatchery percent of the commercial harvest. The 2015 value was estimated by using the first wholesale to exvessel ratio value by species for 2014, multiplied by the 2015 exvessel value. First wholesale value captures the value paid to fishermen (exvessel value) and the costs for tendering, processing, etc. It is a more representative value of the commercial harvest to the state economy over the exvessel value, which represents only payments to harvesters.

influenced the pink salmon market, as did the large inventory of canned salmon from the 2013 harvest. Chum salmon value was similarly affected by the lower yen value in Japan. Japan is a major buyer of chum salmon roe, and roe typically accounts for about half of the wholesale revenue of chum salmon.

PNP hatchery operations are primarily funded by cost-recovery harvest and assessment taxes on the commercial salmon harvest, and are an industry unto themselves in parts of coastal Alaska. In 2014, the operation budgets for all PNP hatcheries in the state totaled about $50 million.[j] By comparison, the statewide operating budget for the ADF&G Division of Commercial Fisheries in 2014 for management of all state fisheries was about $70 million.

2015 HATCHERY PRODUCTION

During the early years of hatchery construction and production, egg collections grew steadily from the late 1970s until about 1995, when production leveled off (Figure 11; Table 8). Since 1995, annual egg collections have ranged from about 1.6 to 2 billion eggs. In 2015, about 1.9 billion eggs were collected, which was similar to the 2014 egg take and near the historic high.

Since 1995, annual releases have ranged from about 1.4 to 1.7 billion juveniles (Figure 11; Table 9). Most of the 2015 releases were from pink and chum salmon eggs collected in 2014, and the remainder from Chinook, sockeye, and coho salmon eggs collected in 2013. About 1.7 billion juvenile salmon were released in 2015, about the same as in 2014 and near the historic high.

About 96 million adult salmon returned to Alaska hatcheries in 2015, which was the 2nd highest hatchery return after 2013 (Figure 11; Table 10). Although egg takes and releases leveled off after 1995, returns have trended upward. This is due to accumulated knowledge for successful hatchery production in Alaska (e.g., best practices for feeding, release location, and release timing), as well as good ocean survival, particularly for odd-year pink salmon returns. In addition, the advent of thermal marking allowed more accurate accounting of hatchery contribution in the catch.

Pink and chum salmon are the predominant species produced by Alaska hatcheries, followed by sockeye, coho, and Chinook salmon (Figure 12; Table 4). As stated earlier, pink and chum salmon are the most economical to raise because fry can migrate to saltwater soon after hatching, whereas sockeye, coho, and Chinook salmon typically require a year or more of freshwater rearing.

[j] Informal survey conducted by the author.

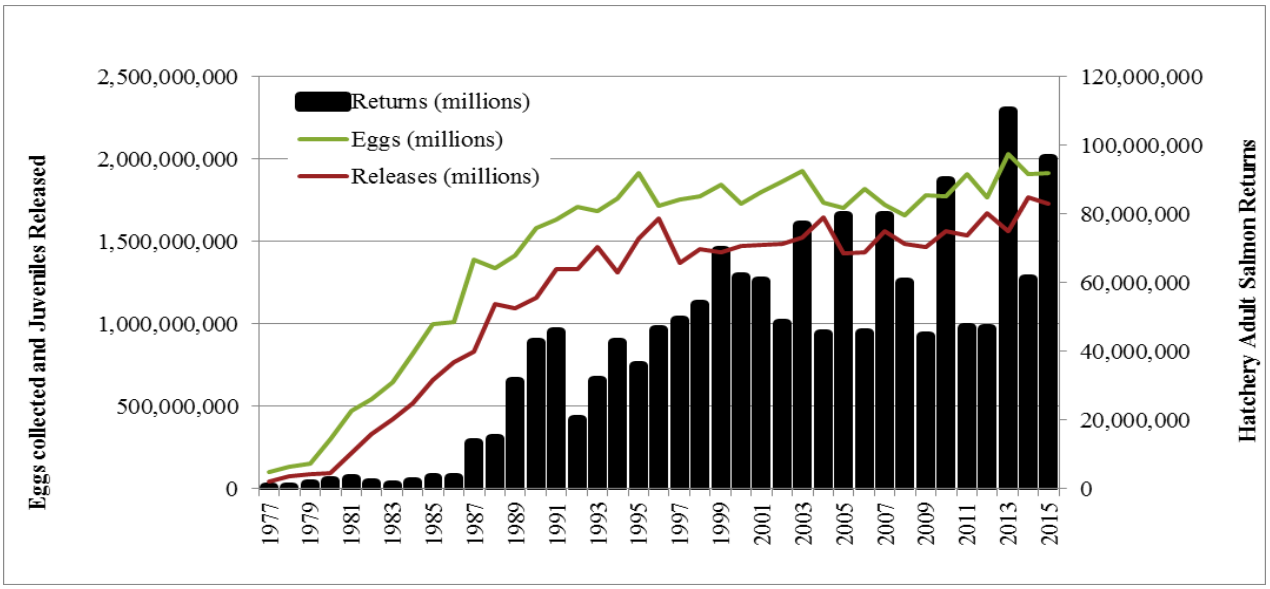

Figure 11.–Total salmon eggs collected, juveniles released and adult returns for Alaska salmon hatchery programs, 1977–2015.

Note: The returns are from previous year's releases, and not the return by brood year. For example, the 2015 returns are from fish released in 2014 and earlier, depending on species.

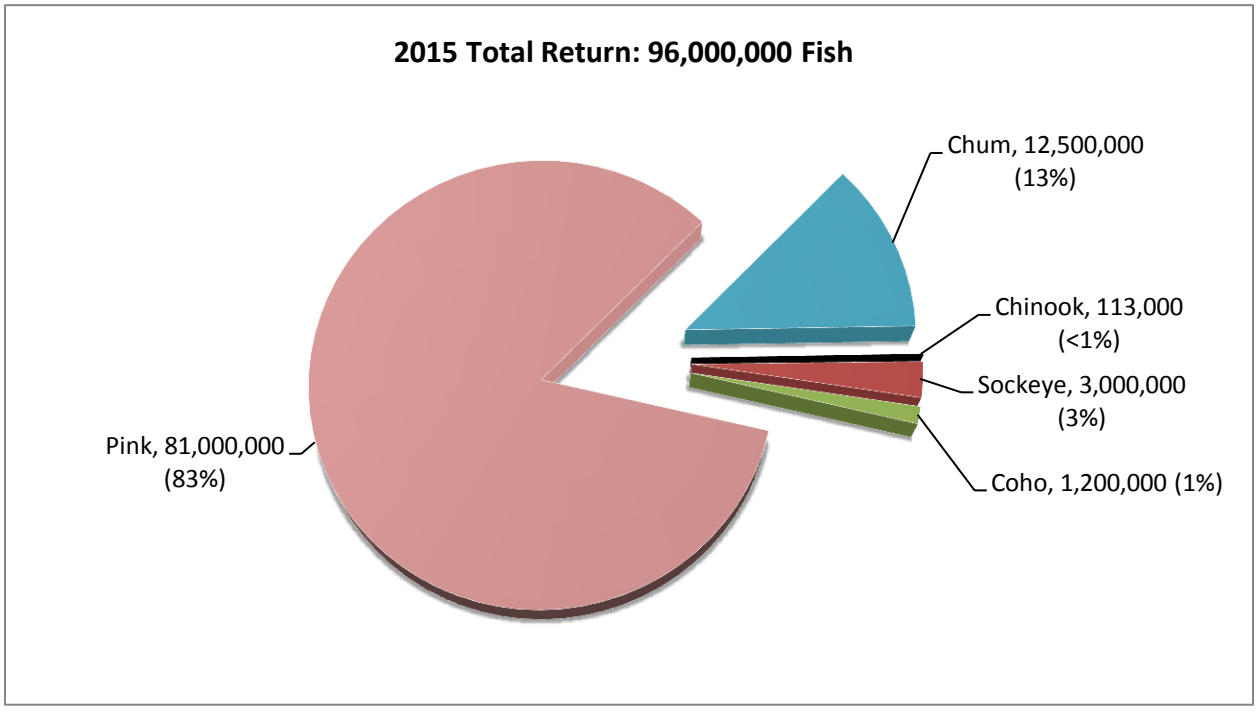

Figure 12.–Species composition of 2015 Alaska hatchery returns, with the number of fish returning by species, and the percent of the total hatchery return of each species in parentheses. The hatchery return includes harvest and broodstock.

2015 HATCHERY HARVEST

Alaska hatchery production is harvested primarily in the common property commercial fisheries, followed by the cost recovery-harvest, which pays for hatchery operations. The sport, personal use, and subsistence harvest are a small portion of the overall hatchery harvest, and particularly important to harvesters in accessible locales such as Ketchikan, Juneau, Sitka, Valdez, Kodiak, Resurrection Bay, and lower Cook Inlet.

About 93 million salmon were harvested in the commercial fisheries in 2015, with an estimated exvessel value of $125 million (Figure 9; Table 6). Pink salmon harvest was 43% of the total value, followed by chum salmon (31%), and sockeye salmon (17%).

REGIONAL HATCHERY HARVEST

By region, Prince William Sound and Southeast Alaska hatcheries produced most of the hatchery production in 2015, followed by Kodiak and Cook Inlet areas (Figure 5; Tables 11–15). The Fairbanks and Anchorage ADF&G hatcheries provided the Interior and Cook Inlet regions with sport fishery enhancement, stocking numerous lakes with arctic char, rainbow trout, coho salmon and Chinook salmon (Table 16).[k]

2015 HATCHERY PRODUCTION BY SPECIES

Prince William Sound hatcheries produced the majority of hatchery pink salmon in the state in 2015 (Figure 13). The Prince William Sound purse seine fishery, which harvests primarily pink salmon, was closed in 1972 and 1974, with minimal fishing in 1973. The fishing fleet and processors were anxious to get hatchery production on line quickly to aid in the recovery of the fishery,[l] and pink salmon were both a targeted species and provided the quickest turnaround from egg take to harvest. Pink salmon were, and continue to be, the most abundant species in Prince William Sound, with an historic infrastructure in place for processing them.

Southeast Alaska hatcheries produced the majority of hatchery chum salmon in the state in 2015. Wild chum salmon runs return during the same period as sockeye and pink salmon runs, and chum salmon are the least abundant of these 3 species. ADF&G manages the salmon fisheries to meet escapement goals for sockeye or pink salmon, with chum salmon caught incidentally. During the development of the hatchery program in Southeast Alaska in the early 1980s, fishermen, processors, and ADF&G assessed that chum salmon could be produced in hatcheries and that returns would be caught incidentally in the fisheries managed for pink or sockeye salmon. Hatchery release sites were selected so that chum salmon not caught in the sockeye and pink salmon fisheries could be caught at the release sites without a significant harvest of wild stocks.

Prince William Sound hatcheries produced the majority of hatchery sockeye salmon in 2015. The largest returns are to Main Bay Hatchery, where a sockeye salmon smolt program was developed to enhance the sockeye salmon drift and set gillnet fisheries on the west side of Prince William Sound to balance the pink salmon fishery enhancement that primarily benefits the seine fleet. Sockeye salmon are also produced from streamside incubators along the Gulkana River, a

[k] Rainbow trout and arctic char from the sport fish hatcheries are not included.

[l] Prince William Sound Regional Fisheries Planning Team. 1983. Prince William Sound comprehensive salmon plan, Phase I: 20 year plan (1983-2002). Unpublished report. Available from Mark Stopha, ADF&G fishery biologist, Juneau.

tributary of the Copper River; these fish are caught primarily during the Copper River commercial drift gillnet, personal use dipnet, and subsistence fish wheel harvests.

Southeast Alaska hatcheries produced the majority of hatchery coho salmon in 2015. Southeast Alaska has the largest coho salmon commercial fishery in the state, accounting for about half of the statewide coho salmon harvest in 2015. Returning coho salmon are available to commercial hook-and-line salmon trollers in Southeast Alaska (the only region where commercial trolling occurs) from July through September. This is unlike other regions of the state, where coho salmon are commercially fished with net gear and targeted only during a few weeks during the fall return.

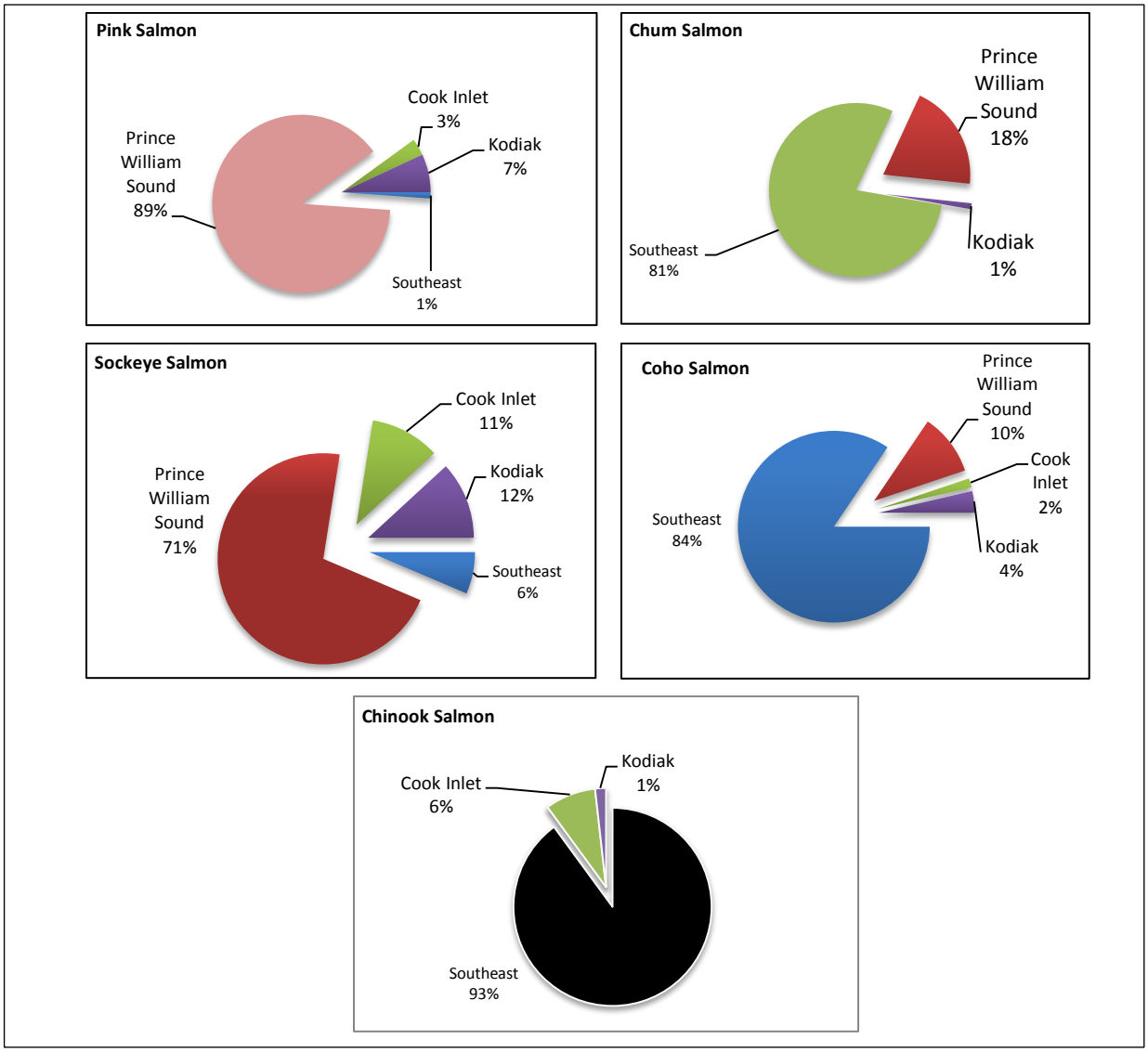

Figure 13.–Hatchery production by region denoting the percent of the statewide hatchery production for each species.

Most Chinook salmon hatchery production also occurred in Southeast Alaska in 2015. Chinook salmon hatchery production was largely developed after the Pacific Salmon Treaty was signed in 1985. The treaty included funding for Chinook salmon hatchery production in Southeast Alaska to mitigate harvest concessions made in the treaty. Chinook salmon are targeted year-round by the commercial troll fleet, and are important seasonally to the sport and net fleets.

HATCHERY CONTRIBUTION BY REGION

Southeast Alaska: The 8 million hatchery-produced salmon harvested in the commercial common property fishery in Southeast Alaska accounted for 18% of the total common property commercial catch in the region in 2015. By species, hatcheries contributed an estimated 81% of the chum, 30% of the coho, 20% of the Chinook, 4% of the sockeye, and 1% of the pink salmon in the common property commercial fisheries. An additional 2.5 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $37 million, or 42% of the total exvessel value for commercial salmon fisheries in the region (Figure 14; Table 5 and Table 6).

Coho salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (64,000 fish; Table 13), followed by Chinook salmon (9,000 fish; Table 11).

Prince William Sound: The 67 million hatchery-produced salmon harvested in the Prince William Sound commercial common property fishery accounted for 72% of the total common property commercial catch in the region in 2015. By species, hatcheries contributed an estimated 95% of the chum, 72% of the pink, 31% of the coho, and 49% of the sockeye salmon in the common property commercial fisheries. An additional 7 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $79 million, or 67% of the total exvessel value for commercial salmon fisheries in the region (Figure 14; Table 5 and Table 6).

Sockeye salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (61,000 fish; Table 12), followed by coho salmon (42,000 fish; Table 13) and pink salmon (11,000 fish; Table 14).

Cook Inlet: The 144,000 hatchery-produced salmon harvested in the Cook Inlet commercial common property fishery accounted for 2% of the total catch in 2015. By species and number, hatchery contribution was an estimated 2% of the pink and 2% of the sockeye salmon in the common property commercial fisheries in 2015. An additional 2.2 million salmon were harvested for cost recovery. The exvessel value of hatchery fish to the commercial fishery (including cost recovery) was about $3.2 million, or 10% of the total exvessel value for commercial salmon fisheries in the region (Figure 14; Table 5 and Table 6).

Sockeye salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (21,000 fish; Table 12), followed by coho salmon (13,000 fish; Table 13), pink salmon (2,000 fish; Table 14) and Chinook salmon (2,000 fish; Table 11).

It should be noted that the cost-recovery harvest of hatchery fish was larger than the common property harvest of hatchery fish in Cook Inlet because the Port Graham and Tutka Bay hatcheries both recently reopened. These facilities are rebuilding their broodstock capacity, and in 2015 only enough fish returned for broodstock and cost recovery. When these facilities reach their intended permitted production, the hatchery contribution to the common property fisheries should be more in line with the other regions of the state.

Kodiak: The 2.3 million hatchery-produced salmon harvested in the Kodiak commercial common property fishery accounted for 7% of the total catch in 2015. By species, hatchery contribution was an estimated 9% of the sockeye, 9% of the coho, 6% of the pink, and 5% of the chum salmon harvest in the common property commercial salmon 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 $4.5 million, or 12% of the total exvessel value for commercial salmon fisheries in the region (Figure 14; Table 5 and Table 6).

Hatchery coho salmon contributed the most hatchery fish to the sport, personal use, and subsistence fisheries (1,700 fish; Table 13), followed by Chinook salmon (1,400 fish; Table 11).

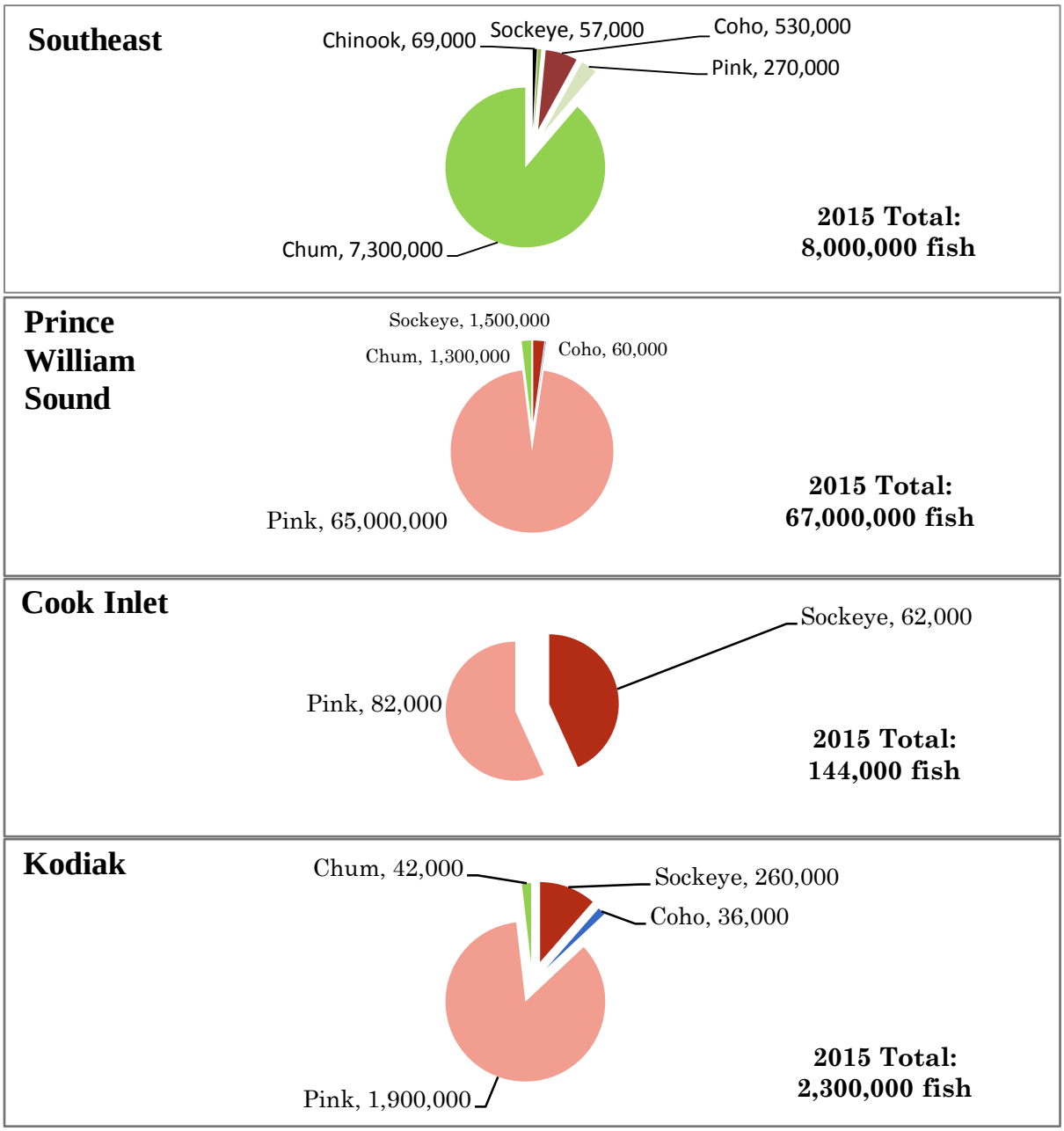

Figure 14. –Common propertycommercial hatchery harvest in numbers of fish by region, 2015.

HATCHERY EVALUATION AND PROTECTION OF WILD STOCKS

Alaska's PNP hatchery program has a history of active assessment and innovation. Hatcheries use either coded wire tags or thermal marking (or both) to differentially mark releases. During the fishing season, the catch can be sampled to measure the magnitude of wild and hatchery stock returns, allowing fishery managers to manage for wild stock escapement goals.

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

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

Part of the strength of Alaska's salmon industry is that the state's proven track record of sustainable fisheries management is available to a growing audience of discriminating buyers. In 2000, the MSC certified Alaska's salmon fisheries as sustainably managed, and the state's salmon fisheries remained the only MSC-certified salmon fishery in the world for nearly a decade. Salmon fisheries elsewhere (Annette Islands Indian Reserve salmon; British Columbia pink and sockeye salmon; and Iturup Island, Russia, pink and chum salmon) were later certified for much smaller geographic areas, and in some cases, only for specific salmon species (MSC 2012). Alaska's certification was MSC's broadest and most complex, covering all 5 salmon species harvested by all fishing gear types in all parts of the state. Achievement of statewide certification is a reflection of the state's commitment to abundance-based fisheries management and constitutional mandate to sustain wild salmon populations.

As part of sustainability certification (Knapman et al. 2009), ADF&G began evaluations of PNP hatcheries for compliance with state policies and regulations. Evaluations have been completed for hatcheries in Kodiak, Cook Inlet, Prince William Sound, and northern Southeast Alaska, and continue for southern Southeast Alaska hatcheries. These evaluations are an important systematic assessment of Alaska salmon fishery enhancement and its relation to wild stock production at a time of heightened interest in increased hatchery production and its potential impacts on wild salmon production.

Straying of hatchery fish has been monitored for many years. Hatchery chum salmon straying has been assessed in Southeast Alaska (Piston and Heinl 2012) and Prince William Sound systems (Brenner et al. 2012). Hatchery Chinook salmon straying has been monitored on several Southeast Alaska systems for decades (Ed Jones, ADF&G fishery biologist, Juneau, personal communication). Hatchery sockeye salmon straying studies have been conducted on Kodiak

Island (Baer and Honnold 2002), in the Copper River basin (Bidlack and Valentine 2009) and the Kenai River (Habicht et al. 2013, Stopha 2012). Pink salmon straying has been monitored in Prince William Sound (Brenner et al. 2012) and Cook Inlet (Hollowell et al. 2015).

Recently, a science panel composed of scientists with broad experience in salmon fishery enhancement, management, and wild and hatchery interactions from ADF&G, University of Alaska, aquaculture associations, and National Marine Fisheries Service was assembled. They designed a long-term research project to potentially answer some of the questions of hatchery and wild stock interactions in Alaska. The study, entitled "Interactions of Wild and Hatchery Pink and Chum Salmon in Prince William Sound and Southeast Alaska", is currently underway. The proposed study length is about eleven years, with four years initially funded (Steve Reifenstuhl, NSRAA Executive Director, personal communication). Study funding is shared between the PNP operators, salmon processors, and state of Alaska, and 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.

REFERENCES CITED

Alaska Seafood. 2015. Alaska salmon market analysis. http://www.alaskaseafood.org/industry/market/spring2015/alaska-salmon-analysis.html (Accessed March 2016).

ASMI (Alaska Seafood Marketing Institute). 2011. May 2011 Seafood market bulletin. http://www.alaskaseafood.org/fishingprocessing/seafoodweb_may11/index.html (Accessed March 18, 2016).

Baer, R. T. and S. G. Honnold. 2002. A straying assessment of an introduced sockeye salmon stock on northern Afognak Island as determined by two methods of stock identification. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K02-56, Kodiak.

Bidlack, A. and E. M. Valentine. 2009. Assessment of Gulkana Hatchery sockeye straying into Upper Copper River tributaries. Ecotrust. http://www.crks.org/wp/wp-content/uploads/Upriver-Sockeye-Straying-Report-10-13-09.pdf

Brenner, R. E., S. D. Moffitt and W. S. Grant. 2012. Straying of hatchery salmon in Prince William Sound. Environmental Biology of Fishes 94:179–195.

Groot, C., and L. Margolis, editors. 1991. Pacific Salmon Life Histories. UBC Press, Vancouver, BC Canada.

Habicht, C, T. Tobias, G. Fandrei, N. Webber, B. Lewis, and W. Grant. 2013. Homing of sockeye salmon within Hidden Lake, Alaska, can be used to achieve hatchery management goals. North American Journal of Fisheries Management 33(4):777–782.

Hollowell, G., E. O. Otis, and E. Ford. 2015. 2014 Lower Cook Inlet area finfish management report. Appendix A10. Alaska Department of Fish and Game, Fishery Management Report No 15-32, Anchorage.

Knapman, P. G. Ruggerone, J. Brady, and A. Hough. 2009. Alaska salmon fisheries: first annual surveillance report 2007/08. February 2009 (MML-F-017), Houston, TX. Prepared by Moody Marine Ltd., for the Alaska Department of Fish and Game.

Knapp, G., K. Roheim, and J. Anderson. 2007. The great salmon run: Competition between wild and farmed salmon. TRAFFIC North America, World Wildlife Fund, 1250 24th Street NW, Washington, D.C.

MSC (Marine Steward Ship Council). 2012. www.msc.org (Accessed February 6, 2012).

Munro, A. R., and E. C. Volk. 2015. Summary of Pacific salmon escapement goals in Alaska with a review of escapements from 2006 to 2014. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-04, Anchorage.

Piston, A. W., and S. C. Heinl. 2012. Hatchery chum salmon straying studies in Southeast Alaska, 2008–2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 12-01, Anchorage.

Stopha, M. 2012. An evaluation of the Trail Lakes salmon hatchery for consistency with statewide policies and prescribed management practice. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 5J12-21, Anchorage.

Vercessi, L. 2015. Alaska salmon fisheries enhancement program 2014 annual report. Alaska Department of Fish and Game, Fishery Management Report No. 15-15, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMR15-15.pdf

TABLES

Table 1.–List of hatchery acronyms used in these report tables.

Acronym	Organization
AKI	Armstrong-Keta, Inc.
CIAA	Cook Inlet Aquaculture Association
DIPAC	Douglas Island Pink and Chum, Inc.
KNFC	Kake Nonprofit Fisheries Corporation
KRAA	Kodiak Regional Aquaculture Association
MIC	Metlakatla Indian Community
NMFS	National Marine Fisheries Service
NSRAA	Northern Southeast Regional Aquaculture Association
POWHA	Prince of Wales Hatchery Association
PWSAC	Prince William Sound Aquaculture Corporation
SSSC	Sitka Sound Science Center
SSRAA	Southern Southeast Regional Aquaculture Association
VFDA	Valdez Fisheries Development Association

Table 2.–Estimated egg takes for Alaska hatcheries, by region, 2015.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Total
Southeast	16,692,000	16,353,000	28,435,000	106,811,000	580,284,000			748,243,000
Prince William Sound	53,000	39,050,000	3,931,000	726,001,000	165,000,000			934,035,000
Cook Inlet	3,080,000	7,736,000	2,039,000	31,374,000		251,000	3,753,000	48,232,000
Arctic/Yukon/Kuskokwim	68,000		85,000					153,000
Kodiak	115,000	5,359,000	1,537,000	217,812,000	34,914,000		200,000	259,737,000
Total[a]	20,007,000	68,498,000	36,026,000	1,081,999,000	780,198,000	251,000	3,953,000	1,986,646,000

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

Table 3.–Estimated juvenile releases from Alaska hatcheries, by region, 2015.

Area	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling
Southeast	6,301,000	13,267,000	26,454,000	90,787,000	555,864,000			
Prince William Sound	44,000	32,717,000	2,239,000	665,211,000	108,900,000			
Cook Inlet	2,281,000	8,303,000	1,654,000	14,474,000		22,000	1,622,000	22,170
Arctic/Yukon/Kuskokwim	48,000		109,000			463,000	133,000	34,320
Kodiak	294,000	4,337,000	839,000	177,204,000	29,767,000		102,000	
Total[a]	8,968,000	58,624,000	31,294,000	947,676,000	694,531,000	485,000	1,857,000	56,000

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

Table 4.–Estimated total returns attributed to Alaska hatcheries (including common property harvest, cost-recovery harvest, broodstock, and escapement), by region, 2015.

Area	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	105,000	162,000	1,040,000	853,000	9,156,000	11,286,000
Prince William Sound	0	1,794,000	123,000	71,879,000	2,334,000	76,130,000
Cook Inlet	7,000	270,000	18,000	2,472,000	0	2,767,000
Kodiak	1,000	310,000	43,000	5,596,000	127,000	6,077,000
Total[a]	113,000	2,535,000	1,223,000	80,801,000	12,538,000	97,210,000

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

Table 5.–Alaska (preliminary) commercial harvest of hatchery-produced fish, by region, 2015.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Total commercial harvest[a]	351,000	1,494,000	2,103,000	34,155,000	10,835,000	48,939,000
	Hatchery cost-recovery harvest	10,000	75,000	301,000	258,000	1,837,000	2,481,000
	Common Property Commercial Harvest	341,000	1,420,000	1,802,000	33,897,000	8,998,000	46,458,000
	Hatchery-produced fish in commercial common property harvest	69,000	57,000	534,000	270,000	7,308,000	8,237,000
	% of hatchery-produced fish in commercial common property harvest	20%	4%	30%	1%	81%	18%
	Hatchery-produced fish in total commercial harvest	79,000	132,000	835,000	528,000	9,145,000	10,719,000
	% of hatchery-produced fish in total commercial harvest	23%	9%	40%	2%	84%	22%
Prince William Sound	Total commercial harvest	23,000	3,209,000	206,000	95,098,000	2,206,000	100,742,000
	Hatchery cost-recovery harvest	0	181,000	15,000	5,846,000	845,000	6,886,000
	Common Property Commercial Harvest	23,000	3,028,000	192,000	89,252,000	1,361,000	93,856,000
	Hatchery-produced fish in commercial common property harvest	0	1,480,000	60,000	64,530,000	1,294,000	67,364,000
	% of hatchery-produced fish in commercial common property harvest	0%	49%	31%	72%	95%	72%
	Hatchery-produced fish in total commercial harvest	0	1,661,000	75,000	70,375,000	2,139,000	74,250,000
	% of hatchery-produced fish in total commercial harvest	0%	52%	36%	74%	97%	74%
Cook Inlet	Total commercial harvest	11,000	2,886,000	216,000	6,436,000	387,000	9,936,000
	Hatchery cost-recovery harvest	226	147,000	0	2,085,000	0	2,232,000
	Common Property Commercial Harvest	11,000	2,738,000	216,000	4,351,000	387,000	7,703,000
	Hatchery-produced fish in commercial common property harvest	0	62,000	0	82,000	0	144,000
	% of hatchery-produced fish in commercial common property harvest	0%	2%	0%	2%	0%	2%
	Hatchery-produced fish in total commercial harvest	226	210,000	0	2,167,000	0	2,376,000
	% of hatchery-produced fish in total commercial harvest	2%	7%	0%	34%	0%	24%
Kodiak	Total commercial harvest	7,000	3,097,000	395,000	32,980,000	770,000	37,251,000
	Hatchery cost-recovery harvest	0	43,000	4,000	2,886,000	1,000	2,934,000
	Common Property Commercial Harvest	7,000	3,055,000	392,000	30,094,000	769,000	34,317,000
	Hatchery-produced fish in commercial common property harvest	0	261,000	36,000	1,940,000	42,000	2,279,000
	% of hatchery-produced fish in commercial common property harvest	0%	9%	9%	6%	5%	7%
	Hatchery-produced fish in total commercial harvest	0	303,000	39,000	4,826,000	43,000	5,212,000
	% of hatchery-produced fish in total commercial harvest	0%	10%	10%	15%	6%	14%
Chignik/Aleutian Islands/Alaska Peninsula	Common Property Commercial Harvest	47,000	7,474,000	405,000	18,671,000	967,000	27,563,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%
Bristol Bay	Common Property Commercial Harvest	55,000	36,716,000	37,000	2,000	1,096,000	37,906,891
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%
Arctic-Yukon-Kuskokwim	Common Property Commercial Harvest	19,000	60,000	431,000	69,000	1,025,000	1,604,000
	Hatchery-produced fish in total commercial harvest	0	0	0	0	0	0
	% of hatchery-produced fish in commercial common property harvest	0%	0%	0%	0%	0%	0%

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Table 5.–Page 2 of 2.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Statewide Total[b]	Total commercial harvest[c]	514,000	54,936,00	3,794,000	187,411,00	17,286,00	263,942,00
	Hatchery cost-recovery harvest	11,000	445,000	319,000	11,075,000	2,684,000	14,534,000
	Common Property Commercial Harvest	504,000	54,491,00	3,475,000	176,336,00	14,603,00	249,408,00
	Hatchery-produced fish in commercial common property	69,000	1,860,000	630,000	66,821,000	8,644,000	78,024,000
	% of hatchery-produced fish in commercial common property	14%	3%	18%	38%	59%	31%
	Hatchery-produced fish in total commercial harvest	79,000	2,306,000	949,000	77,896,000	11,327,00	92,557,000
	% of hatchery-produced fish in total commercial harvest	15%	4%	25%	42%	66%	35%

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

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

[c] OceanAK. Alaska Department of Fish and Game. (accessed 1/27/2016[. URL not available to the public.

Table 6.–Estimated exvessel value of the total Alaska commercial common property harvest (preliminary), by region, 2015.

Area	Harvest	Chinook	Sockeye	Coho	Pink	Chum	Total
Southeast	Value of the commercial harvest	$11,751,000	$6,598,000	$8,604,000	$26,180,000	$36,204,000	$89,337,000
	Value of hatchery-produced fish in total commercial harvest	$2,600,000	$552,000	$3,400,000	$407,000	$30,500,000	$37,500,000
	% of hatchery-produced fish in total commercial harvest value	22%	8%	40%	2%	84%	42%
PWS	Value of the commercial harvest	$2,189,000	$34,593,000	$966,000	$71,913,000	$8,331,000	$117,992,000
	Value of hatchery-produced fish in total commercial harvest	$0	$17,900,000	$352,000	$53,223,000	$8,038,000	$79,500,000
	% of hatchery-produced fish in total commercial harvest value	0%	52%	36%	74%	96%	67%
Cook Inlet	Value of the commercial harvest	$361,000	$23,992,000	$770,000	$4,260,000	$1,048,000	$30,431,000
	Value of hatchery-produced fish in total commercial harvest	$7,500	$1,747,000	$0	$1,435,000	$0	$3,189,000
	% of hatchery-produced fish in total commercial harvest value	2%	7%	0%	34%	0%	10%
Kodiak	Value of the commercial harvest	$74,000	$13,402,000	$906,000	$20,796,000	$2,174,000	$37,352,000
	Value of hatchery-produced fish in total commercial harvest	$0	$1,284,000	$88,000	$3,019,000	$104,000	$4,497,000
	% of hatchery-produced fish in total commercial harvest value	0%	10%	10%	15%	5%	12%
Chignik/Aleutian Islands/ Alaska Peninsula	Value of the commercial harvest	$352,000	$26,617,000	$747,000	$8,818,000	$1,377,000	$37,911,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%
Bristol Bay	Value of the commercial harvest	$396,000	$92,396,000	$52,000	$2,000	$1,995,000	$94,841,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%
AYK	Value of the commercial harvest	$67,000	$189,000	$2,590,000	$33,000	$3,498,000	$6,377,000
	Value of hatchery-produced fish in total commercial harvest	$0	$0	$0	$0	$0	$0
	% value of hatchery-produced fish in common property commercial harvest	0%	0%	0%	0%	0%	0%
Total[a]	Value of the commercial harvest	$15,190,000	$197,787,000	$14,635,000	$132,002,000	$54,627,000	$414,241,000
	Value of hatchery-produced fish in total commercial harvest	$2,600,000	$21,000,000	$4,000,000	$58,000,000	$39,000,000	$125,000,000
	% of hatchery-produced fish in total commercial harvest value	17%	11%	27%	44%	71%	30%

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

Table 7.–Alaska commercial salmon fishery harvest average weights and prices (preliminary), 2014.

Area	Species	Harvest Average Weight (lb)	Harvest Average Price/lb
Southeast			
	Chinook	10.06	$3.81
	Sockeye	4.36	$1.09
	Coho	5.88	$0.78
	Pink	3.84	$0.20
	Chum	8.46	$0.50
Prince William Sound			
	Chinook	16.42	$5.64
	Sockeye	5.35	$2.01
	Coho	7.43	$0.66
	Pink	3.38	$0.22
	Chum	5.38	$0.61
Cook Inlet			
	Chinook	16.00	$2.05
	Sockeye	5.32	$1.59
	Coho	5.88	$0.60
	Pink	3.17	$0.21
	Chum	6.71	$0.41
Kodiak			
	Chinook	9.10	$0.96
	Sockeye	4.86	$0.89
	Coho	6.04	$0.36
	Pink	3.32	$0.19
	Chum	7.05	$0.40
Chignik/Aleutian Islands/Alaska Peninsula			
	Chinook	6.89	$0.80
	Sockeye	5.60	$0.64
	Coho	6.25	$0.29
	Pink	3.12	$0.15
	Chum	6.35	$0.22
Bristol Bay			
	Chinook	15.10	$0.50
	Sockeye	5.20	$0.50
	Coho	6.70	$0.25
	Pink	3.70	$0.25
	Chum	6.10	$0.35
Arctic-Yukon-Kuskokwim			
	Chinook	9.50	$0.71
	Sockeye	6.08	$0.51
	Coho	7.74	$0.77
	Pink	3.33	$0.14
	Chum	6.49	$0.57

Source: Alaska commercial salmon harvests and exvessel values. 1994–. Alaska Department of Fish and Game –. [cited December 30, 2015]. Available from http://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.exvesselquery

Table 8.–Eggs collected at Alaska hatcheries, 2015. Eggs transferred from one facility to another are listed with the receiving hatchery.

Region/Area/Operator/Hatchery		Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow	Total
Southeast									
Southern Southeast									
SSRAA	Burnett Inlet			2,432,000		29,885,000			32,317,000
	Crystal Lake	1,853,550		165,000					2,018,550
	Neets Bay			2,304,200		102,149,000			104,453,200
	Whitman Lake	1,950,000		4,959,500		39,400,000			46,309,500
POWHA	Klawock River			5,048,400					5,048,400
	Port Saint Nicholas	150,000							150,000
Southern Southeast Total		3,953,550	0	14,909,100	0	171,434,000			190,296,650
Northern Southeast									
NSRAA	Hidden Falls	1,127,000		7,703,000		156,011,000			164,840,000
	Medvejie Creek	4,267,000			300,000	53,080,000			57,647,000
	Sawmill Creek			1,393,000		30,048,000			31,442,000
AKI	Port Armstrong	406,000		2,886,000	103,884,000	40,602,000			147,778,000
DIPAC	Macaulay	1,000,000		1,507,000		123,151,000			125,658,000
	Snettisham		16,353,000						16,353,000
NMFS	Little Port Walter	333,000							333,000
SSSC	Sheldon Jackson			37,000	2,628,000	11,564,000			14,229,000
Northern Southeast Total		7,133,000	16,353,000	13,526,000	106,811,000	414,456,000			558,280,000
Southeast Total		11,086,000	16,353,000	28,435,000	106,811,000	585,890,000			748,576,000
Southcentral									
Prince William Sound									
PWSAC	AF Koernig				161,000,000	34,000,000			195,000,000
	Cannery Creek				187,000,000				187,000,000
	Gulkana		26,650,000						26,650,000
	Main Bay		12,400,000						12,400,000
	W Noerenberg	53,000		1,930,000	148,000,000	131,000,000			280,983,000
VFDA	Solomon Gulch			2,001,000	230,001,000				232,002,000
Prince William Sound Total		53,000	39,050,000	3,931,000	726,001,000	165,000,000	0	0	934,035,000
Cook Inlet									
CIAA	Port Graham				2,248,000				2,248,000
	Trail Lakes		7,736,000	575,000					8,311,000
	Tutka Bay Lagoon				29,126,000				29,126,000
ADFG	WJ Hernandez	3,080,000		1,463,000			251,000	3,753,000	8,547,000
Cook Inlet Total		3,080,000	7,736,000	2,039,000	31,374,000	0	251,000	3,753,000	48,232,000
Southcentral Total		3,132,000	46,786,000	5,969,000	757,375,000	165,000,000	251,000	3,753,000	978,262,000
Arctic-Yukon-Kuskokwim									
ADFG	Ruth Burnett	68,000		85,000					153,000
Arctic-Yukon-Kuskokwim Total		68,000	0	85,000	0	0	0	0	153,000

-continued-

Table 8. Page 2 of 2.

Region/Area/Operator/Hatchery		Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow	Total
Kodiak									
KRAA	Kitoi Bay		923,000	1,275,000	217,812,000	34,914,000			254,923,000
	Pillar Creek	115,000	4,437,000	263,000				200,000	5,014,000
Kodiak Total		115,000	5,359,000	1,537,000	217,812,000	34,914,000	0	200,000	259,737,000
Statewide Total		14,000,000	68,000,000	36,000,000	1,082,000,000	786,000,000	250,000	4,000,000	1,987,000,000

Note: Some figures may not total exactly due to rounding.

Table 9.–Alaska hatcheries releases as reported by operators, 2015.

Region/Operator/Hatchery		Site	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Total
Southeast											
Southern Southeast											
SSRAA	Burnett Inlet	Burnett Inlet			521,000		50,639,000				51,160,000
		Anita Bay	341,000		590,000						930,000
		Neck L			1,634,000						1,634,000
	Crystal Lake	Crystal Cr	589,000		20,000						609,000
	Neets Bay	Neets Bay	718,000		5,904,000		75,199,000				81,821,000
	Whitman Lake	Whitman L H	657,000		319,000		42,013,000				42,989,000
		Anita Bay					23,065,000				23,065,000
		Kendrick Bay					28,822,000				28,822,000
		Nakat Inlet			578,000		8,380,000				8,958,000
		Deer Mt Hatchery	88,000								88,000
POWHA	Klawock River	Klawock River			5,974,000						5,974,000
	Port Saint Nicholas	Port St Nicholas	174,000								174,000
		Coffman Cove	49,000								49,000
Southern Southeast Total			2,617,000	0	15,538,000	0	228,118,000	0	0	0	246,273,000
Northern Southeast											
NSRAA	Haines Projects	Haines Projects					3,373,000				3,373,000
	Hidden Falls	Takatz Bay					43,224,000				43,224,000
		Kasnyku Bay	674,000		3,237,000		30,382,000				34,293,000
		Southeast Cove					17,479,000				17,479,000
		Parry L			128,000						128,000
		Mist Cove			2,498,000						2,498,000
	Medvejie Creek	Bear Cove	1,386,000		78,000	220,000	18,197,000				19,880,000
		Deep Inlet			949,000		58,376,000				59,325,000
		Halibut Point M	431,000								431,000
	Sawmill Creek	Deep Inlet			949,000						949,000
		Medvejie			78,000						78,000
		Crawfish Inlet					13,370,000				13,370,000
AKI	Port Armstrong	Port Armstrong	197,000		1,945,000	87,665,000	22,817,000				112,624,000
DIPAC	Macaulay	Macaulay	219,000		1,013,000		33,391,000				34,623,000
		Amalga Harbor					39,562,000				39,562,000
		Auke Bay	89,000								89,000
		Boat Harbor					21,046,000				21,046,000
		Dredge/Twin	11,000								11,000
		Fish Creek	270,000								270,000
		Lena Cove	180,000								180,000
		Limestone Inlet					13,450,000				13,450,000
		Sheep Creek									0

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Table 9.– Page 2 of 3.

Region/Operator/Hatchery		Site	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Total
DIPAC	Macaulay	Skagway	229,000								229,000
	Snettisham	Snettisham		8,980,000							8,980,000
		Sweetheart L		516,000							516,000
		Tahltan/Tuya Lakes		2,684,000							2,684,000
		Tatsamenie L		918,000							918,000
		King Salmon Lk		169,000							169,000
NMFS	Little Port Walter	L Port Walter									0
SSSC	Sheldon Jackson	Crescent Bay			40,000	2,902,000	4,906,000				7,849,000
		Deep Inlet					8,174,000				8,174,000
Northern Southeast Total			3,685,000	13,267,000	10,916,000	90,787,000	327,746,000				446,401,000
Southeast Total			6,301,000	13,267,000	26,454,000	90,787,000	555,864,000	0	0	0	692,674,000
Southcentral											
Prince William Sound											
PWSAC	AFK H	Sawmill Bay				137,800,000	27,900,000				165,700,000
	Cannery Creek	Unakwik Inlet				172,000,000					172,000,000
	Gulkana I and II	Gulkana R		21,987,000							21,987,000
	Main Bay	Main Bay		10,730,000							10,730,000
	W Noerenberg	Lake Bay			295,000	132,000,000	81,000,000				213,295,000
		Port Chalmers									0
		Chenega Bay	44,000		25,000						69,000
		Cordova Sites			25,000						25,000
		Whittier Sites			25,000						25,000
VFDA	Solomon Gulch	Solomon Gulch			1,850,000	223,411,000					225,261,000
		Boulder Bay			20,000						20,000
Prince William Sound Total			44,000	32,717,000	2,239,000	665,211,000	108,900,000	0	0	0	809,111,000
Cook Inlet											
CIAA	Trail Lakes	Bear L/Res Bay		4,173,000	546,000						4,719,000
		English Bay Lk		200,000							200,000
		Hidden Lk		1,497,000							1,497,000
		Hazel L		621,000							621,000
		Kirschner L		237,000							237,000
		Leisure L		1,051,000							1,051,000
		Tutka Lagoon		524,000							524,000
	Tutka Bay Lagoon	Tutka Lagoon				11,249,000					11,249,000
		Paint L				1,025,000					1,025,000
	Port Graham	Port Graham				2,200,000					2,200,000

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Table 9.–Page 3 of 3.

Region/Operator/Hatchery		Site	Chinook	Sockeye	Coho	Pink	Chum	Arctic Char	Rainbow Trout	Grayling	Total
ADF&G	WJ Hernandez	Bird Cr			133,000						133,000
		Campbell Cr			52,000						52,000
		Cordova, Fleming	111,000								111,000
		Crooked Cr	146,000								146,000
		Deception Cr	214,000								214,000
		Eklutna Tailrace	425,000		136,000						561,000
		Halibut Cove	103,000								103,000
		Homer Spit	211,000		123,000						334,000
		Ninilchik R	151,000								151,000
		Seldovia Harbor	72,000								72,000
		Seward Lagoon	299,000		280,000						578,000
		Ship Cr	365,000		249,000						615,000
		Whittier	101,000								101,000
		Lakes	83,000		135,000			22,000	1,622,000	22,000	1,884,000
Cook Inlet Total			2,281,000	8,303,000	1,654,000	14,474,000	0	22,000	1,622,000	22,000	28,377,000
Southcentral Total			2,325,000	41,020,000	3,893,000	679,685,000	108,900,000	22,000	1,622,000	22,000	837,489,000
Arctic-Yukon-Kuskokwim											
ADF&G	Ruth Burnett	Region III Lakes	48,000		109,000			463,000	133,000	34,000	787,000
Arctic-Yukon-Kuskokwim Total			48,000	0	109,000	0	0	463,000	133,000	34,000	787,000
Kodiak											
KRAA	Kitoi Bay	Kitoi Bay		69,000	839,000	177,204,000	29,767,000				207,879,000
		Lakes		652,000							652,000
	Pillar Creek	Spiridon L									0
		Telrod Cove		631,000							631,000
		Anton Larsen Bay		219,000							219,000
		Ouzinkie		98,000							98,000
		Lakes									0
		American R	73,000								73,000
		Olds R	75,000								75,000
		Monashka R	75,000								75,000
		Salonie Cr	71,000								71,000
		Hidden L		178,000							178,000
		Waterfall L		99,000							99,000
		Spiridon L		2,250,000							2,250,000
		Ruth L		45,000							45,000
		Jennifer L		95,000							95,000
		Kodiak Road System							102,000		102,000
Kodiak/WestwardTotal			294,000	4,337,000	839,000	177,204,000	29,767,000	0	102,000	0	212,543,000
Statewide Total			9,000,000	59,000,000	31,000,000	948,000,000	695,000,000	485,000	1,857,000	56,000	1,744,000,000

Note: Some figures may not total exactly due to rounding.

Table 10.–Projected adult returns, by species, to Alaska fisheries enhancement projects in 2016.

Region/Operator/Hatchery/Location		Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Landlocked Salmon	Grayling	Arctic Char	Total
Southern Southeast											
SSRAA	Anita Bay	16,000		23,000		387,000					426,000
	Nakat Inlet			23,000		343,000					366,000
	Burnett Inlet			22,000		8,000					29,000
	Neck Lake			62,000							62,000
	Crystal Lake	4,000		1,000							5,000
	Neets Bay	19,000			255,000	1,487,000					1,761,000
	Whitman Lake	19,000		23,000							42,000
	Kendrick Bay					868,000					868,000
POWHA	Klawock River			186,000							186,000
	Port Saint Nicholas	3,000									3,000
	Coffman Cove	689									689
Southern Southeast Total		61,000		339,000	255,000	3,092,000					3,747,000
Northern Southeast											
NSRAA	Haines Projects					29,000					29,000
	Hidden Falls	5,000		194,000		1,433,000					1,632,000
	Mist Cove			150,000							150,000
	Southeast Cove					166,000					
	Banner Lake			5,000							
	Medvejie Creek	26,000				1,566,000					1,592,000
	Halibut Point	5,000									
	Sawmill Creek										
	Bear Cove			5,000							
	Deep Inlet			57,000							
AKI	Port Armstrong	3,000		194,000	1,419,000	519,000					2,135,000
DIPAC	Macaulay										
	Amalga Harbor					1,250,000					1,250,000
	Boat Harbor					386,000					386,000
	Limestone Inlet					147,000					147,000
	Fish Creek	1,000									1,000
	Lena Cove	120									120
	Gastineau Channel	2,000		51,000		746,000					799,000
	Auke Bay	1,000									1,000
	Pullen Cr/Lutak Inlet	213									213
	Snettisham		254,000								254,000
	Stikine River										
	Sweetheart Lake		4,000								4,000
	Taku River										
SSSC	Sheldon Jackson	13		3,000	67,000	245,000					315,000
NMFS	Little Port Walter	488									

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Table 10.–Page 2 of 3.

Region/Operator/Hatchery/Location		Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Landlocked Salmon	Grayling	Arctic Char	Total
Northern Southeast Total		45,000	258,000	660,000	1,486,000	6,487,000					8,697,000
Southeast Total		106,000	258,000	999,000	1,741,000	9,579,000					12,444,000
Prince William Sound											
PWSAC	Armin F. Koernig				6,200,000	269,000					6,469,000
	Cannery Creek				7,700,000						7,700,000
	Gulkana I&II		236,000								236,000
	Main Bay		1,584,000								1,584,000
	Wally Noerenberg			21,000	5,900,000	2,184,000					8,105,000
	Chenega			2,000							2,000
	Cordova			2,000							2,000
	Port Chalmers					345,000					345,000
	Whittier			2,000							2,000
VFDA	Solomon Gulch			101,000	17,435,000						17,536,000
	Boulder Bay			1,000							1,000
Prince William Sound Totals		0	1,820,000	129,000	37,235,000	2,798,000					41,982,000
Cook Inlet											
CIAA	Trail Lakes										
	Bear Lake		169,000	19,000							187,000
	English Bay		6,000								6,000
	Hazel/Leisure		16,000								16,000
	Hidden Lake		26,000								26,000
	Kirschner Lake		9,000								9,000
	Tutka Bay		62,000								62,000
	Shell Lake		1,000								
	Tutka Bay Lagoon				337,000						337,000
	Port Graham Bay				66,000						66,000
	Upper Paint				15,000						15,000
ADF&G	WJ Hernandez										
	Eklutna Tailrace	946		9,000							10,000
	Deception Creek	1,000									
	Ship Creek	3,000		17,000							
	Campbell Creek			4,000							
	Crooked Creek	570									
	Bird Creek			9,000							
	Ninilchik River	503									
	Homer Spit	2,000		8,000							
	Halibut Cove	607									607
	Seldovia	633									633
	Whittier	696									
	Resurrection Bay	1,000		19,000							

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Table 10.–Page 3 of 3.

Region/Operator/Hatchery/Location		Chinook	Sockeye	Coho	Pink	Chum	Rainbow Trout	Landlocked Salmon	Grayling	Arctic Char	Total
ADF&G	WJ Hernandez										
	Cordova	694									
	Valdez	707									707
	Region II Lakes						17,000	5,000	550	2,000	25,000
Cook Inlet Totals		14,000	289,000	84,000	418,000		17,000	5,000	550	2,000	762,000
Southcentral Total		14,000	2,109,000	213,000	37,653,000	2,798,000	17,000	5,000	550	2,000	42,744,000
Arctic-Yukon-Kuskokwim											
ADF&G	Ruth Burnett										
	Region III Lakes						36,000	9,000	8,000	3,000	56,000
Arctic-Yukon-Kuskokwim Total							36,000	9,000	8,000	3,000	56,000
Kodiak/Westward											
KRAA	Kitoi Bay		99,000	119,000	4,733,000	114,000					5,066,000
	Crescent Lake			2,000							
	Katmai			1,000							
	Pillar Creek										
	Crescent Lake		13,000								13,000
	Hidden Lake		19,000								19,000
	Spiridon Lake		117,000								117,000
	Telrod Cove		147,000								147,000
	Anton Larsen Bay		29,000								29,000
	Ouzinkie Village		11,000								11,000
	Kodiak Road System	2,000									2,000
Kodiak/Westward Total		2,000	435,000	122,000	4,733,000	114,000					5,404,000
Statewide Total		122,000	2,800,000	1,300,000	44,000,000	12,000,000	53,000	15,000	9,000	5,000	61,000,000

Table 11.–Details of the estimated Chinook salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S				
Southeast												
	Southern Southeast											
		SSRAA	Crystal Lake	Crystal Lake	28	794	979	302	1,494	-	903	4,500
				Anita Bay	4,849	17,144	3,340	-	-	-	490	25,823
			Neets Bay	Neets Bay	9,661	2,598	5,279	937	-	2,005	-	20,480
			Whitman Lake	Whitman Lake	17	355	2,905	2,883	1,887	3,959	1,296	13,302
		KTHC	Deer Mountain	Deer Mountain								0
		POWHA	Port Saint Nicholas	Port Saint Nicholas	26	28	190	56		302		602
				Coffman Cove	7	243	123	25	-	145	-	543
	Southern Southeast Total				14,562	21,134	12,626	4,147	3,381	6,109	2,689	64,707
	Northern Southeast											
		NSRAA	Hidden Falls	Hidden Falls	798	117	746	367	659	-	139	2,826
				Lutak Inlet								-
			Medvejie Creek	Medvejie Creek	3,455	3,252	9,632	1,692	6,067	2,725	688	27,511[a]
		AKI	Port Armstrong	Port Armstrong	4		64	1	650	1,137		1,856
		DIPAC	Macaulay	Macaulay Hatchery	54	502	269	2,555	810	26	353	4,569
				Lutak Inlet								-
				Skagway site	-	-	10	151	-	-	-	161
		FED	Little Port Walter	L Port Walter	82	14	1,323	22	772		251	2,464
		SSSC	Sheldon Jackson	Sheldon Jackson			16	3				19
	Northern Southeast Total				4,393	3,885	12,060	4,791	8,958	3,888	1,431	39,406
Southeast Total					18,955	25,019	24,686	8,938	12,339	9,997	4,120	104,113
Southcentral												
	Cook Inlet											
		ADF&G	WJ Hernandez	Crooked Cr	-	-	-	-	2,175	-	510	2,685
				Deception Cr	-	-	-	-	-	226	41	267
				Eklutna Tailrace	-	-	-	320	-	-	-	320
				Ninilchik R	-	-	-	-	573	-	135	708
				Ship Creek	-	-	-	874	1,437	-	646	2,957
	Cook Inlet Total				0	0	0	1,194	4,185	226	1,332	6,937
Southcentral Total					0	0	0	1,194	4,185	226	1,332	6,937
Kodiak/Westward												
	Kodiak											
		KRAA	Pillar Creek	Kodiak Road Sys Lakes	-	-	-	1,391	74	-	-	1,465
	Kodiak Total				-	-	-	1,391	74	-	-	1,465
Kodiak/Westward Total					0	0	0	1,391	74	0	0	1,465
Statewide Total					19,000	25,000	25,000	12,000	17,000	11,000	5,500	113,000

[a] About 1,800 of these returns of Medvejie Hatchery stock Chinook salmon were from releases at Halibut Point in Sitka.

Table 12.–Details of the estimated sockeye salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

					Common Property Harvest							
Region	Area	Agency	Hatchery	Project	Seine	Gillnet	Troll	Sp/PU/S	Broodstock	Cost Recovery	Other	Total Return
Southeast	Southeast											
		DIPAC	Snettisham	Snettisham	21,638	34,702	-	-	6,709	74,866	20,381	158,296
				Sweetheart L	317	165	-	3,000	-	-	-	3,482
				Stikine R								[a]
				Taku R								[a]
Southeast Total					21,955	34,867	0	3,000	6,709	74,866	20,381	161,778
Southcentral												
	Prince William Sound											
		PWSAC	Gulkana I and II	Gulkana	-	137,415	-	59,178	16,516	-	23,607	236,716
			Main Bay	Main Bay	175,819	1,167,217	-	1,500	15,250	180,516	16,005	1,556,307
	Prince William Sound Total				175,819	1,304,632	0	60,678	31,766	180,516	40,112	1,793,023
	Cook Inlet											
		CIAA	Trail Lakes	Bear L	4,633	-	-	12,000	3,945	92,596	11,685	124,859
				English Bay Lk	-	-	-	90	-	-	789	879
				Hidden L		7,656		7,755	890		12,253	28,554
				Kirschner L	-	-	-	-	3,666	23,571	-	27,237
				Leisure/Hazel L	4,516	-	-	500	-	-	-	5,016
				Tutka Bay	28,882	16,553	-	500	6,769	31,105	-	83,809
	Cook Inlet Total				38,031	24,209	0	20,845	15,270	147,272	24,727	270,354
Southcentral Total					213,850	1,328,841	0	81,523	47,036	327,788	64,839	2,063,377
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	48,843	-	-	80	602	8,379	3,791	61,695
			Pillar Creek	Foul Bay	8,237	-	-	-	-	-	-	8,237
				Spiridon L	57,999	145,722	-	600	-	34,223	700	239,244
				Waterfall Bay	-	-	-	-	-	-	500	500
	Kodiak Total				115,079	145,722	0	680	602	42,602	4,991	309,676
Kodiak/Westward Total					115,079	145,722	0	680	602	42,602	4,991	309,676
Statewide Total					351,000	1,509,000	0	85,000	54,000	445,000	90,000	2,500,000

[a] Hatchery data not available at time of publication.

Table 13.–Details of the estimated coho salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

					Common Property Harvest							
Region	Area	Agency	Hatchery	Project	Seine	Gillnet	Troll	Sp/PU/S	Broodstock	Cost Recovery	Other	Total Return
Southeast												
	Southern Southeast											
		SSRAA	Burnett Inlet	Burnett Inlet	608	5,925	1,313	863	3,270	4,100	1,500	17,579
				Neck L	1,399	30,375	2,756	29,140	-	37,950	-	101,620
				Anita Bay	106	2,857	2,551	115	-	-	-	5,629
			Crystal Lake	Crystal Lake	118	655	3,065	76	329	-	500	4,743
			Neets Bay	Neets Bay	24,542	28,287	58,178	7,124	2,286	2,366	-	122,783
			Whitman Lake	Whitman Lake	893	977	6,410	786	3,853	-	0	12,919
				Anita Bay	196	5,258	4,694	212				10,360
				Nakat Inlet	827	17,554	7,308	456				26,145
		KTHC	Deer Mountain	Deer Mountain								0
		POWHA	Klawock River	Klawock Lake	28,005	167	94,965	6,468	3,685	34,178	32,513	199,981
	Southern Southeast Total				56,694	92,055	181,240	45,240	13,423	78,594	34,513	501,759
	Northern Southeast											
		NSRAA	Hidden Falls	Hidden Falls	741	130	15,616	889	19,813	12,676	8,049	57,914
				Deer Lake	1,996	-	69,415	2,636	-	56,729	14,873	145,649
				Cliff Lake			493					493
			Sawmill Creek	Deep Inlet	1,843	576	7,295	702	181	-	546	11,143
				Medvejie Creek	340	105	2,227	281	1,115		103	4,171
		AKI	Port Armstrong	Port Armstrong	3,189		74,731	462	7,525	120,422	38,213	244,542
		DIPAC	Macaulay	Macaulay Hatchery	794	6,885	17,281	13,989	962	32,690	1,830	74,431
		SSSC	Sheldon Jackson	Sheldon Jackson					7			7
	Northern Southeast Total				8,903	7,696	186,565	18,959	29,603	222,517	63,614	538,350
Southeast Total					65,597	99,751	367,805	64,199	43,017	301,111	98,127	1,040,109
Southcentral												
	Prince William Sound											
		PWSAC	W Noerenberg	Lake Bay	16,466	11,583	-	500	3,084	-	-	31,633
				Chenega	-	-	-	2,100	-	-	-	2,100
				Cordova	-	-	-	2,100	-	-	-	2,100
				Whittier	-	-	-	2,100	-	-	-	2,100
		VFDA	Solomon Gulch	Solomon Gulch	-	32,108	-	35,731	2,555	14,571	167	85,132

-continued-

Table 13. Page 2 of 2.

Region	Area	Agency	Hatchery	Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
					Seine	Gillnet	Troll	Sp/PU/S				
	Prince William Sound Total				16,466	43,961	0	42,531	5,639	14,571	167	123,065
	Cook Inlet											
		CIAA	Trail Lakes	Bear L				5,238	471		1,448	7,157
		ADF&G	WJ Hernandez	Bird Cr	-	-	-	1,350	-	-	1,003	2,353
				Eklutna Tailrace	-	-	-	3,395	-	-	-	3,395
				Ship Creek	-	-	-	2,588	1,558	-	665	4,811
	Cook Inlet Total				0	0	0	12,571	2,029	0	3,116	17,716
Southcentral Total					16,466	43,691	0	55,102	7,668	14,571	3,283	140,781
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	35,722	-	-	-	1,520	3,618	-	40,860
			Pillar Creek	Kodiak Road Sys Lakes	-	-	-	1,765	-	-	-	1,765
	Kodiak Total				35,722	0	0	1,765	1,520	3,618	0	42,625
Kodiak/Westward Total					35,722	0	0	1,765	1,520	3,618	0	42,625
Statewide Total					118,000	143,000	368,000	121,000	52,000	319,000	101,000	1,220,000

Table 14.–Details of the estimated pink salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

					Common Property Harvest							
Region	Area	Agency	Hatchery	Project	Seine	Gillnet	Troll	Sp/PU/S	Broodstock	Cost Recovery	Other	Total Return
Southeast												
	Northern Southeast											
		NSRAA	Medvejie Creek	Medvejie Creek	-	-	-	-	8,310	36	800	9,146
		AKI	Port Armstrong	Port Armstrong	269,871				250,171	141,569	60,000	721,611
		KNFC	Gunnuk Creek	Gunnuk Creek								0
		SSSC	Sheldon Jackson	Sheldon Jackson	-	-	-	-	4,520	116,411	1,250	122,181
	Northern Southeast Total				269,871	0	0	0	263,001	258,016	62,050	852,938
Southeast Total					269,871	0	0	0	263,001	258,016	62,050	852,938
Southcentral												
	Prince William Sound											
		PWSAC	AF Koernig	Armin F Koernig	9,287,046	9,276	-	-	244,902	1,074,146	15,000	10,630,370
			Cannery Creek	Cannery Creek	9,316,981	10,594	-	-	293,451	282,455	10,000	9,913,481
			W Noerenberg	Lake Bay	14,006,384	508,630	-	-	308,469	2,412,739	3,500	17,239,722
		VFDA	Solomon Gulch	Solomon Gulch	31,390,744	-	-	10,933	561,547	2,076,370	56,249	34,095,843
	Prince William Sound Total				64,001,155	528,500	0	10,933	1,408,369	5,845,710	84,749	71,879,416
	Cook Inlet											
		CIAA	Tutka Bay Lagoon	Tutka Bay	70,400	11,385	-	2,000	165,008	2,084,948	138,653	2,472,394
	Cook Inlet Total				70,400	11,385	0	2,000	165,008	2,084,948	138,653	2,472,394
Southcentral Total					64,071,555	539,885	0	12,933	1,573,377	7,930,658	223,402	74,351,810
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	1,940,062	-	-	-	296,424	2,886,216	473,570	5,596,272
	Kodiak Total				1,940,062	-	-	-	296,424	2,886,216	473,570	5,596,272
Kodiak/Westward Total					1,940,062	0	0	0	296,424	2,886,216	473,570	5,596,272
Statewide Total					66,000,000	540,000	0	13,000	2,100,000	11,000,000	759,000	81,000,000

Table 15.–Details of the estimated chum salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

					Common Property Harvest							
Region	Area	Agency	Hatchery	Project	Seine	Gillnet	Troll	Sp/PU/S	Broodstock	Cost Recovery	Other	Total Return
Southeast												
	Southern Southeast											
		SSRAA	Burnett Inlet	Anita Bay	131,966	193,005	1,809					326,780
			Neets Bay	Anita Bay	22,705	33,207	311	0	0	0	0	56,223
				Nakat Inlet	3,820	168,315	0					172,135
				Neets Bay	956,483	254,722	185,863	0	184,277	649,320	142,203	2,372,868
			Whitman Lake	Kendrick Bay	853,927	111,428	2,479	0	0	0	0	967,834
				Nakat Inlet	0	47,319	347,034	0	0	0	0	394,353
				Anita Bay	5,676	8,301	78					14,055
	Southern Southeast Total				1,975,077	816,297	537,574	0	184,277	649,320	142,203	4,290,193
	Northern Southeast											
		NSRAA	Haines Projects	Haines Projects		13,524					20,284	33,808
			Hidden Falls	Hidden Falls	49,417	0	0	0	224,330	4,728	10,460	288,935
				Southeast Cove	0	0	0	0	0	13,428	0	13,428
			Medvejie Creek	Medvejie Creek	1,232,635	611,930	203,775	0	88,302	6,511	3,527	2,146,680
		AKI	Port Armstrong	Port Armstrong	4,573		3,049		44,016	19,579	5,000	76,217
		DIPAC	Macaulay	Gastineau Channel	25,248	366,488	8,446	4,100	171,717	344,030	20,900	940,929
				Amalga Harbor	251,488	314,122	12,351	0	0	798,025	0	1,375,986
				Boat Harbor	12,344	443,555	4,129	0	0	0	0	460,028
				Limestone Inlet	3,958	142,217	1,324	0	0	0	0	147,499
		SSSC	Sheldon Jackson	Sheldon Jackson	0	0	0	0	498	765	0	1,263
				Deep Inlet	165,383	82,103	27,341	0	11,847	874	473	288,021
	Northern Southeast Total				1,745,046	1,973,939	260,415	4,100	540,710	1,187,940	60,644	5,772,794
Southeast Total					3,719,623	2,790,236	797,989	4,100	724,987	1,837,260	202,847	10,062,987
Southcentral												
	Prince William Sound											
		PWSAC	AF Koernig	Armin F Koernig	128,355	55,082	0	0	0	0	0	183,437
			W Noerenberg	Lake Bay	163,240	803,414	0	1,000	179,453	844,995	15,000	2,007,102
				Port Chalmers	13,371	130,273	0	0	0	0	0	143,644
	Prince William Sound Total				304,966	988,769	0	1,000	179,453	844,995	15,000	2,334,183
Southcentral Total					304,966	988,769	0	1,000	179,453	844,995	15,000	2,334,183
Kodiak/Westward												
	Kodiak											
		KRAA	Kitoi Bay	Kitoi Bay	41,988	0	0	0	71,456	1,422	11,848	126,714
	Kodiak Total				41,988	0	0	0	71,456	1,422	11,848	126,714
Kodiak/Westward Total					41,988	0	0	0	71,456	1,422	11,848	126,714
Statewide Total					4,100,000	3,800,000	798,000	5,000	976,000	2,700,000	230,000	12,500,000

Table 16.–Details of the estimated "other" hatchery-produced returns to Alaska fisheries enhancement projects, as reported by operators, 2015.

Region	Area	Agency	Hatchery	Project	Species	Common Property Harvest		Total Return
						Sport	Broodstock	
Southcentral								
	Cook Inlet							
		ADF&G	WJ Hernandez	WJH Region II Lakes	Arctic Char	1,763	69	1,832
					Grayling	550		550
					Landlocked Salmon	5,319		5,319
					Rainbow	17,224	4,674	21,898
	Cook Inlet Total					24,856	4,743	29,599
Southcentral Total						25,000	4,700	30,000
Arctic/Yukon/Kuskokwim								
		ADF&G	Ruth Burnett	Ruth Burnett	Arctic Char	733		733
					Grayling	737		737
					Landlocked Salmon	2,653		2,653
					Rainbow	9,965		9,965
Arctic/Yukon/Kuskokwim Total						14,088		14,088
Statewide Total						39,000		44,000

Table 17.–Summary of salmon production of eggs collected in 2015 from Fish 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 released, by the issued permit for the particular project.

A. 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	Permitted Number
Southeast			
	City of Pelican	Gastineau chum	250,000 eggs
	NOAA Little Port Walter	Keta River king	400,000 eggs
	NOAA Little Port Walter	Unuk River king	400,000 eggs
	US Forest Service	Taku River coho	100,000 eggs
Arctic-Yukon-Kuskokwim			
	Native Village of White Mountain	Boston Creek king	20 spawning pair
	Native Village of White Mountain	Niukluk River coho	30 spawning pair
	Norton Sound Economic Development Corporation	North River chum	20 spawning pair
	Norton Sound Economic Development Corporation	Snake River chum	250 spawning pair
	Norton Sound Economic Development Corporation	Snake River coho	63 spawning pair
	Norton Sound Economic Development Corporation	Solomon River chum	60 spawning pair
	Norton Sound Economic Development Corporation	Unalakleet River king	20 spawning pair

B. Educational and Vocational Permits

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

Area	Permittee	Stock/Species	Permitted Number
Southeast			
	Juneau-Douglas High School	Dredge Lake coho	5,000 eggs
	Petersburg High School	Blind Slough coho	50,000 eggs
Westward			
	Unalaska City School	Iliuliuk River coho	3 spawning pair

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Table 17.–Page 2 of 4.

C. 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 and not released. Resultant fry can be released at approved locations.

Area	Permittee	Species	Permitted Number
Southeast			
	Haines School	coho	500
	Hoonah High School	coho	250
	Juneau Community Charter School	coho	400
	Keet Gooshi Heen School	coho	500
	Taiya Inlet Watershed Council	pink	200
	Taiya Inlet Watershed Council	king	200
	Tongass School of Arts and Sciences	coho	100
	Point Higgins	coho	30
Southcentral			
	ADF&G Lobby	coho	500
	Airport Heights Elementary	coho	500
	Alaska Native Cultural Charter School (ANCCS)	coho	500
	Alpenglow Elementary	coho	500
	Anchor Lutheran School	coho	500
	Aquarian Elementary	coho	500
	Aurora Borealis	coho	500
	Aurora Elementary	coho	500
	Bartlett High School	coho	500
	Baxter Elementary	coho	500
	Bear Valley Elementary	coho	500
	Begich Middle School	coho	500
	Benny Benson	coho	500
	Big Lake Elementary	coho	300
	Birchwood ABC School	coho	500
	Bowman Elementary	coho	500
	Butte Elementary School	coho	300
	Campbell Elementary	coho	500
	Chapman Elementary	coho	500
	Chester Valley Elementary	coho	500
	Chinook Elementary	coho	500
	Chugiah Optional	coho	500
	Chugiak Elementary	coho	500
	Clark Middle School	coho	500
	College Gate Elementary	coho	500
	Colony High School	coho	500
	Cook Inlet Academy	coho	500
	Cooper Landing	coho	500
	Copper River Watershed Project	coho	500
	Cottonwood Creek Elementary School	coho	500
	Creekside Park Elementary	coho	500
	Denali Montessori Elementary	coho	500
	Dillingham Middle School	coho	500
	Dimond High School	coho	500

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Table 17.–Page 3 of 4.

C. Scientific and Educational Permits (continued).

Area	Permittee	Species	Permitted Number
	Eagle Academy Charter School	coho	500
	Eagle River Elementary	coho	500
	Eagle River High School	coho	500
	East Anchorage High School	coho	500
	Fairview Elementary	coho	500
	Faith Lutheran Elementary	coho	500
	Finger Lake Elementary	coho	500
	Girdwood K-8 School	coho	500
	Gladys Wood Elementary	coho	500
	Glennallen Elementary	coho	500
	Golden View Middle School	coho	500
	Gruening Middle School	coho	500
	Hanshew Middle School	coho	500
	Hermon Hutchins Elementary	coho	500
	Homer Flex High School	coho	500
	Homer High School	coho	500
	Homestead Elementary	coho	500
	Houston High School	coho	500
	Huffman Elementary	coho	500
	Jesse Lee School	coho	500
	Kaleidoscope Elementary	coho	500
	Kalifornsky Beach Elementary	coho	500
	Kasuun Elementary	coho	500
	Kellogg FIELD school	coho	500
	Kenai Central High School	coho	500
	Kenai Middle School	coho	500
	Kenny Lake	coho	300
	Kincaid Elementary	coho	500
	Klatt Elementary	coho	500
	Knik Elementary	coho	500
	Lake Hood Elementary	coho	500
	Larsen School	coho	500
	Little Fireweed Academy	coho	500
	Machetanz Elementary	coho	500
	McLaughlin School	coho	500
	McNeil Canyon Elementary	coho	500
	Mears Middle School	coho	500
	Midnight Sun Charter	coho	500
	Mirror Lake Middle School	coho	500
	Mt. Illiamna	coho	500
	Mt. Spurr Elementary	coho	500
	Mt. View Elementary	coho	500
	Mt. View Elementary	coho	500
	Muldoon Elementary	coho	500
	Newhalen School	coho	250
	Nikiski North Star Elementary	coho	500
	Nikolaevsk Elementary	coho	500
	Ninilchik School	coho	500
	Northern Lights ABC	coho	500
	Ocean View Elementary	coho	500
	Paul Banks Elementary	coho	500
	Ptarmigan Elementary	coho	500
	Rabbit Creek Elementary	coho	500
	Ravenwood Elementary	coho	500
	Razdolna School	coho	500
	Redoubt Elementary School	coho	500
	Rilke Schule	coho	500
	Russian Jack Elementary	coho	500
	Saint Johns Private School	coho	500
	SAVE High School	coho	500
	Scenic Park	coho	500
	Service High School	coho	500

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C. Scientific and Educational Permits (continued).

Area	Permittee	Species	Permitted Number
	Seward Elementary School	coho	500
	Seward Middle School	coho	500
	Shaw Elementary	coho	500
	Sherrod Elementary School	coho	500
	Snowshoe Elementary	coho	500
	Soldotna Elementary School	coho	500
	Soldotna Prep Middle School	coho	500
	Spring Hill Elementary	coho	500
	Sterling Elementary School	coho	500
	Susitna Elementary	coho	500
	Talkeetna Elementary	coho	500
	Tanalian School	coho	500
	Teeland Middle School	coho	500
	The Study School	coho	500
	Trailside Elementary	coho	500
	Turnagain Elementary	coho	500
	Tustumena Elementary	coho	500
	Ursa Major Middle School	coho	500
	Ursa Minor Elementary	coho	500
	Voznesenka School	coho	500
	Wasilla Christian School	coho	500
	West High School	coho	500
	West Homer Elementary	coho	500
	Whaley School	coho	500
	William Tyson	coho	500
	Willow Crest	coho	500
	Winterberry	coho	500
	Wonder Park Elementary	coho	500
	Ya Ne Dah Ah/ Chickaloon Village	coho	300
Arctic-Yukon-Kuskokwim			
	Aniak Jr Sr High School	coho	500
	Delta Elementary School	coho	500
	Delta Greely Junior High School	coho	500
	Fort Yukon School	coho	500
	Gladys Jung School	coho	500
	Ladd Elementary School	coho	250
	Mikelnguut Elitnaurviat school	coho	500
	Nordale Elementary School	coho	250
	Pearl Creek Elementary School	coho	250
	Scammon Bay	coho	500
	Ticasuk Brown Elementary	coho	250
	Tok School	coho	500
	Two Rivers School	coho	250
	University Park Elementary	coho	250
	Watershed Charter School	coho	250
	Weller Elementary	coho	250
	Woodriver Elementary School	coho	250
Westward			
	East Elementary	coho	500
	Kodiak Christian School	coho	500
	Kodiak High School	coho	500
	Main Elementary	coho	500
	North Star Elementary	coho	500
	Peterson Elementary	coho	500
	St. Mary's School	coho	500

Table 18.–Details of the estimated Chinook salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2014. Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

Region/Area/Operator/Hatchery		Project	Common Property Harvest: Seine	Gillnet	Troll	Sport/Personal Use/Subsistence	Broodstock	Cost Recovery	Other	Total Return
Southeast										
Southern Southeast										
SSRAA	Crystal Lake	Crystal Lake	-	496	1,113	120	2,011	-	262	4,002
		Anita Bay	2,969	13,149	2,422	168	-	-	-	18,708
	Neets Bay	Neets Bay	7,046	3,612	5,658	789	-	5,508	600	23,213
	Whitman Lake	Whitman Lake	55	250	2,975	1,630	1,887	2,518	1,315	10,630
KTHC	Deer Mountain	Deer Mountain	-	13	104	-	-	-	-	117
POWHA	Port St Nicholas	Port St Nicholas	10	36	349	36	-	323	6	760
		Coffman Cove	4	310	130	9	-	102	2	557
Southern Southeast Total			10,084	17,866	12,751	2,752	3,898	8,451	2,185	57,987
Northern Southeast										
NSRAA	Hidden Falls	Hidden Falls	415	226	509	113	568	-	281	2,112
		Lutak Inlet	-	12	-	-	-	-	-	12
	Medvejie Creek	Medvejie Creek	1,482	3,406	5,500	1,394	2,951	2,332	394	17,459
AKI	Port Armstrong	Port Armstrong	2	7	356	168	524	468	119	1,644
DIPAC	Macaulay	Macaulay	-	913	154	1,754	983	19	359	4,182
		Lutak Inlet	-	33	-	-	-	-	-	33
		Skagway site	-	97	66	42	-	-	32	237
FED	Little Port Walter	L Port Walter	47	64	645	29	972	-	65	1,822
SSSC	Sheldon Jackson	Sheldon Jackson	70	-	78	11	-	-	2	161
Northern Southeast Total			2,016	4,758	7,308	3,511	5,998	2,819	1,252	27,662
Southeast Total			12,100	22,624	20,059	6,263	9,896	11,270	3,437	85,649
Southcentral										
Cook Inlet										
ADF&G	WJ Hernandez	Crooked Cr	-	-	-	-	164	-	737	901
		Deception Cr	-	-	-	-	82	-	261	343
		Eklutna Tailrace	-	-	-	589	-	-	-	589
		Ninilchik R	-	-	-	-	1,026	-	92	1,118
		Ship Creek	-	-	-	882	854	-	423	2,159
Cook Inlet Total			0	0	0	1,471	2,126	0	1,513	5,110
Southcentral Total			0	0	0	1,471	2,126	0	1,513	5,110
Kodiak/Westward										
Kodiak										
KRAA	Pillar Creek	Kodiak Rd System Lks	-	-	-	2,375	26	-	-	2,401
Kodiak Total			-	-	-	2,375	26	-	-	2,401
Kodiak/Westward Total			0	0	0	2,375	26	0	0	2,401
Statewide Total			12,100	22,624	20,059	10,109	12,048	11,270	4,950	93,160

Note: Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

Table 19.–Details of the estimated sockeye salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2014. Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

			Common Property Harvest							
Region/Area/Operator/Hatchery		Project	Seine	Gillnet	Troll	Sport/Personal Use/Subsistence	Broodstock	Cost Recovery	Other	Total Return
Southeast										
Northern Southeast										
DIPAC	Snettisham	Snettisham	1,241	81,218	-	-	6,656	122,305	1,824	213,244
		Sweetheart L	317	165	-	3,122	-	-	-	3,604
		Stikine R	-	9,987	-	-	-	-	60,178	70,165
		Taku R	26	859	-	40	-	-	1,399	2,324
Northern Southeast Total			1,584	92,229	0	3,162	6,656	122,305	63,401	290,834
Southeast Total			1,584	92,229	0	3,162	6,656	122,305	63,401	290,834
Southcentral										
Prince William Sound										
PWSAC	Gulkana I and II		64,263	233,664	-	117,220	16,233	-	37,504	468,884
	Main Bay	Main Bay	46,815	1,149,542	-	1,000	12,652	-	71,672	1,281,681
Prince William Sound Total			111,078	1,383,206	0	118,220	28,885	0	109,176	1,750,565
Cook Inlet										
CIAA	Trail Lakes	Bear L	5,306	-	-	20,000	3,857	125,971	10,989	166,123
		English Bay Lk	42	-	-	-	877	-	7,118	8,037
		Hidden L	-	-	-	-	1,442	-	22,424	23,866
		Kirschner L	3,608	-	-	-	-	16,555	-	20,163
		Leisure/Hazel L	-	-	-	-	-	-	-	0
		Tutka Bay	12,227	15,198	-	7,000	4,205	30,404	1,000	70,034
Cook Inlet Total			21,183	15,198	0	27,000	10,381	172,930	41,531	288,223
Southcentral Total			132,261	1,398,404	0	145,220	39,266	172,930	150,707	2,038,788
Kodiak/Westward										
Kodiak										
KRAA	Kitoi Bay	Kitoi Bay	78,786	-	-	234	935	14,234	9,565	103,754
	Pillar Creek	Foul Bay	12,363	-	-	-	-	-	-	12,363
		Settler's Cove	-	-	-	2,685	-	-	-	2,685
		Spiridon L	79,411	124,208	-	1,000	-	63,299	2,000	269,918
		Waterfall Bay	2,270	-	-	-	-	-	-	2,270
Kodiak Total			172,830	124,208	0	3,919	935	77,533	11,565	390,990
Kodiak/Westward Total			172,830	124,208	0	3,919	935	77,533	11,565	390,990
Statewide Total			306,675	1,614,841	0	152,301	46,857	372,768	225,673	2,719,115

Table 20.–Details of the estimated coho salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2014. Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

			Common Property Harvest							
Region/Area/Operator/Hatchery		Project	Seine	Gillnet	Troll	Sport/Personal Use/Subsistence	Broodstock	Cost Recovery	Other	Total Return
Southeast										
Southern Southeast										
SSRAA	Burnett Inlet	Burnett Inlet	1,315	7,405	3,060	2,130	3,260	14,100	2,500	33,770
		Neck L	3,605	46,495	11,220	30,420	-	69,000	-	160,740
	Crystal Lake	Crystal Lake	62	343	983	-	1,585	-	-	2,973
	Neets Bay	Neets Bay	52,754	89,955	197,474	15,560	23,538	36,800	2,127	418,208
	Whitman Lake	Whitman Lake	4,975	2,140	12,025	2,607	5,401	4,480	99	31,727
		Anita Bay	2,970	13,150	2,420	-	-	-	100	18,640
		Nakat Inlet	1,115	22,770	10,775	215	-	-	-	34,875
KTHC	Deer Mountain	Deer Mountain	1,420	519	523	197	-	-	287	2,946
POWHA	Klawock River	Klawock Lake	27,161	91	98,246	3,394	3,570	61,393	13,318	207,173
Southern Southeast Total			95,377	182,868	336,726	54,523	37,354	185,773	18,431	911,052
Northern Southeast										
NSRAA	Hidden Falls	Hidden Falls	227	195	23,314	1,683	14,884	37,862	4,540	82,705
		Deer Lake	1,126	193	98,195	7,482	-	122,011	14,410	243,417
	Medvejie Creek	Medvejie Creek	176	76	3,508	269	1,091	56	497	5,673
	Sawmill Creek	Deep Inlet	1,630	420	9,573	609	-	8	226	12,466
		Bear Cove	176	76	3,580	391	1,091	56	497	5,817
AKI	Port Armstrong	Port Armstrong	119	47	91,810	382	8,330	131,068	22,500	254,256
DIPAC	Macaulay	Macaulay	-	4,945	4,295	3,125	-	11,924	379	24,668
KNFC	Gunnuk Creek	Gunnuk Creek	-	-	4,496	-	-	-	31,244	35,740
SSSC	Sheldon Jackson	Sheldon Jackson	192	37	8,458	401	512	222	279	10,101
Northern Southeast Total			2,714	5,910	244,151	10,932	24,817	303,151	70,075	661,750
Southeast Total			98,091	188,778	580,877	65,455	62,171	488,924	88,506	1,572,802
Southcentral										
Prince William Sound										
PWSAC	W Noerenberg	Lake Bay	24,991	143,426	-	500	6,584	10,877	-	186,378
		Chenega	-	-	-	3,200	-	-	-	3,200
		Cordova	-	-	-	6,300	-	-	-	6,300
		Whittier	-	-	-	6,300	-	-	-	6,300
VFDA	Solomon Gulch	Solomon Gulch	309	-	-	10,131	1,404	1,139	460	13,443
Prince William Sound Total			25,300	143,426	0	26,431	7,988	12,016	460	215,621

-continued-

Table 20.–Page 2 of 2.

Region/Area/Operator/Hatchery		Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
			Seine	Gillnet	Troll	Sport/Personal Use/Subsistence				
Cook Inlet										
CIAA	Trail Lakes	Bear L	-	-	-	5,400	383	-	1,389	7,172
ADF&G	WJ Hernandez	Bird Cr	-	-	-	2,751	-	-	630	3,381
		Eklutna Tailrace	-	-	-	4,103	-	-	-	4,103
		Ship Creek	-	-	-	2,949	1,660	-	1,329	5,938
Cook Inlet Total			0	0	0	15,203	2,043	0	3,348	20,594
Southcentral Total			25,300	143,426	0	41,634	10,031	12,016	3,748	236,215
Kodiak/Westward										
Kodiak										
KRAA	Kitoi Bay	Kitoi Bay	230,401	-	-	200	7,012	189	-	237,802
	Pillar Creek	Kodiak Road Sys Lakes		-	-	4,950	-	-	-	4,950
Kodiak/Westward Total			230,401	0	0	5,150	7,012	189	0	242,752
Statewide Total			354,548	332,207	580,375	115,258	79,214	501,129	96,314	2,059,045

Table 21.–Details of the estimated pink salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2014. Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

Region/Area/Operator/Hatchery Project			Common Property Harvest							
			Seine	Gillnet	Troll	Sport/Personal Use/Subsistence	Broodstock	Cost Recovery	Other	Total Return
Southeast										
Northern Southeast										
NSRAA	Medvejie Creek		-	-	-	-	1,901	476	800	3,177
AKI	Port Armstrong		92,884	-	-	-	126,251	124,708	60,000	403,843
KNFC	Gunnuk Creek		186,158	-	46,539	-	-	-	-	232,697
SSSC	Sheldon Jackson		-	-	-	-	5,485	60,919	37,595	103,999
Northern Southeast Total			279,042	0	46,539	0	133,637	186,103	98,395	743,716
Southeast Total			279,042	0	46,539	0	133,637	186,103	98,395	743,716
Southcentral										
Prince William Sound										
PWSAC	AF Koernig		3,397,697	72,274	-	-	187,665	741,318	12,000	4,410,954
	Cannery Creek		4,080,846	182,838	-	-	337,152	66,935	5,000	4,672,771
	W Noerenberg		4,677,614	751,046	-	-	253,381	1,840,907	1,000	7,523,948
VFDA	Solomon Gulch		23,517,189	-	-	8,112	237,447	1,592,943	43,561	25,399,252
Prince William Sound Total			35,673,346	1,006,158	0	8,112	1,015,645	4,242,103	61,561	42,017,415
Cook Inlet										
CIAA	Tutka Bay Lagoon		5,502	-	-	3,000	22,401	32	35,453	68,858
		Halibut Cove	43,442	-	-	-	1,740	-	32,295	77,477
		Port Graham	19,896				1,740		14,791	36,427
Cook Inlet Total			74,342	0	0	3,000	25,881	32	64,716	146,335
Southcentral Total			35,747,688	1,006,158	0	11,112	1,041,526	4,242,135	141,068	42,153,260
Kodiak/Westward										
Kodiak										
KRAA	Kitoi Bay		5,099,604	-	-	-	279,404	676,456	160,000	6,215,464
Kodiak/Westward Total			5,099,604	-	-	-	279,404	676,456	160,000	6,215,464
Statewide Total			41,126,334	1,006,158	46,539	11,112	1,454,567	5,104,694	399,463	49,122,440

Table 22.–Details of the estimated chum salmon returns to Alaska fisheries enhancement projects, as reported by operators, 2014.

Region/Area/Operator/Hatchery		Project	Common Property Harvest				Broodstock	Cost Recovery	Other	Total Return
			Seine	Gillnet	Troll	Sport/Personal Use/Subsistence				
Southeast										
Southern Southeast										
SSRAA	BI/NB/WL	Anita Bay	137,112	130,589	2,116	-	-	-	2,453	272,270
	NB/WL	Nakat Inlet	13,820	187,117	-	-	-	-	7,544	208,481
	Neets Bay	Neets Bay	247,083	85,981	146,243	-	226,500	577,551	33,346	1,316,704
	Whitman Lake	Kendrick Bay	438,405	15,240	810	-	-	-	18,884	473,339
Southern Southeast Total			836,420	418,927	149,169	-	226,5000	577,551	62,227	2,270,794
Northern Southeast										
NSRAA	Haines Projects	Haines	-	12,415	-	-	2,896	-	15,726	31,037
	Hidden Falls	Hidden Falls	252,003	-	4	-	128,448	54,301	35,590	470,346
	Medvejie Creek	Medvejie Creek	542,900	240,233	14,443	-	95,772	16,010	4,083	913,441
AKI	Port Armstrong	Port Armstrong	1,450	-	5,801	-	24,942	30,821	9,500	72,514
DIPAC	Macaulay	Gastineau Channel	4,789	290,873	3,263	3,500	153,090	72,373	8,000	535,888
		Amalga Harbor	237,402	452,660	7,245	-	-	492,783	-	1,190,090
		Boat Harbor	6,072	669,305	4,137	-	-	-	-	679,514
		Limestone Inlet	844	92,997	575	-	-	-	-	94,416
KNFC	Gunnuk Creek	Gunnuk Creek	23,094	-	7,698	-	-	-	46,189	76,981
		Southeast Cove	41,394	-	13,798	-	-	30,217	82,788	168,197
SSSC	Sheldon Jackson	Sheldon Jackson	-	-	-	-	1,282	1,113	-	2,395
		Deep Inlet	85,661	37,905	2,279	-	15,111	2,526	644	144,126
Northern Southeast Total			1,195,609	1,796,388	59,243	3,500	421,541	700,144	202,520	4,378,945
Southeast Total			2,032,029	2,215,315	208,412	3,500	648,041	1,277,695	264,747	6,649,739
Southcentral										
Prince William Sound										
PWSAC	AF Koernig	Armin F Koernig	72,970	9,184	-	-	-	-	-	82,154
	W Noerenberg	Lake Bay	25,599	602,906	-	1,000	179,818	198,753	10,000	1,018,076
		Port Chalmers	152,782	40,419	-	-	-	-	-	193,201
Prince William Sound Total			251,351	652,509	0	1,000	179,818	198,753	10,000	1,293,431
Southcentral Total			251,351	652,509	0	1,000	179,818	198,753	10,000	1,293,431
Kodiak/Westward										
Kodiak										
KRAA	Kitoi Bay	Kitoi Bay	45,582	-	-	-	49,450	-	3,000	98,032
Kodiak/Westward Total			45,582	0	0	0	49,450	0	3,000	98,032
Statewide Total			2,328,962	2,867,824	208,412	4,500	877,309	1,476,448	277,747	8,041,202

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Table 23.–Details of the estimated "other" hatchery-produced returns to Alaska fisheries enhancement projects, as reported by operators, 2014. Highlighted numbers are updated numbers from the Alaska salmon fisheries enhancement 2014 annual report (Vercessi 2015).

						Common Property Harvest			
Region	Area	Agency	Hatchery	Project	Species	Sport	Personal Use/Subsistence	Broodstock	Total Return
Southcentral									
	Cook Inlet								
		ADF&G	WJ Hernandez	WJH - Region II Lakes	Arctic Char	2,664		66	2,730
					Grayling	613	-	-	613
					Landlocked Salmon	8,590	-	-	8,590
					Rainbow	16,074	-	3,255	19,329
	Cook Inlet Total					27,941	-	3,321	31,262
Southcentral Total						27,941	-	3,321	31,262
Arctic/Yukon/Kuskokwim									
		ADF&G	Ruth Burnett	Ruth Burnett - Lakes	Arctic Char	2,791	-	-	2,791
					Grayling	991	-	-	991
					Landlocked Salmon	7,499	-	-	7,499
					Rainbow	25,670	-	-	25,670
Arctic/Yukon/Kuskokwim Total						36,951	0	0	36,951
Statewide Total						64,892	0	3,321	68,213

Table 24.–Summary of anadromous salmon production (all species) from Alaska hatcheries and fisheries enhancement projects, 1966–2015.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1966	0	1	0
1967	0	1	0
1968	0	1	0
1969	0	1	0
1970	0	1	0
1971	0	1	0
1972	2	2	0
1973	4	2	0
1974	9	3	0
1975	36	11	6
1976	61	13	8
1977	100	41	187
1978	134	75	218
1979	153	87	1,621
1980	299	96	3,061
1981	475	217	4,911
1982	548	365	6,939
1983	647	419	6,560
1984	829	512	8,258
1985	997	659	16,651
1986	1,025	763	12,674
1987	1,388	814	25,363
1988	1,341	1,115	18,432
1989	1,419	1,087	35,441
1990	1,602	1,154	48,897
1991	1,635	1,319	48,567
1992	1,725	1,324	23,237
1993	1,685	1,465	33,478
1994	1,759	1,299	55,676
1995	1,913	1,503	37,291
1996	1,688	1,638	50,012
1997	1,730	1,477	51,260
1998	1,773	1,451	56,043
1999	1,847	1,434	72,290
2000	1,734	1,470	63,107
2001	1,804	1,478	61,729
2002	1,866	1,484	49,325
2003	1,933	1,521	79,888
2004	1,734	1,648	46,467
2005	1,705	1,427	80,978
2006	1,822	1,433	46,502
2007	1,724	1,560	80,263
2008	1,661	1,487	60,441
2009	1,783	1,463	45,005
2010	1,808	1,561	90,817
2011	1,912	1,539	47,836
2012	1,744	1,674	47,251
2013	2,005	1,551	111,385
2014	1,908	1,765	62,032
2015	1,983	1,742	96,000
Total	55,955	45,152	1,686,107

Table 25.–Summary of Chinook salmon production from Alaska hatcheries and fisheries enhancement projects, 1966–2015.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1966	0	0	0
1967	0	1	0
1968	0	0	0
1969	0	0	0
1970	0	0	0
1971	0	0	0
1972	0	0	0
1973	0	0	0
1974	0	1	0
1975	1	0	0
1976	1	0	0
1977	3	1	0
1978	2	1	0
1979	2	1	3
1980	3	1	7
1981	1	1	5
1982	3	1	12
1983	7	2	13
1984	10	4	21
1985	19	4	26
1986	16	6	40
1987	17	8	94
1988	18	9	75
1989	15	8	78
1990	17	10	118
1991	20	7	174
1992	13	10	132
1993	12	12	112
1994	13	10	127
1995	14	7	169
1996	12	7	166
1997	12	7	150
1998	13	7	104
1999	12	8	114
2000	12	8	174
2001	14	9	188
2002	19	8	157
2003	15	10	159
2004	16	10	207
2005	15	10	139
2006	17	10	108
2007	17	11	137
2008	18	11	140
2009	17	12	116
2010	13	11	106
2011	13	8	131
2012	11	10	93
2013	14	9	124
2014	14	9	92
2015	20	9	84
Total	500	288	3,895

Table 26.–Summary of sockeye salmon production from Alaska hatcheries and fisheries enhancement projects, 1972–2015.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1972	0	0	0
1973	2	0	0
1974	2	1	0
1975	8	1	0
1976	24	2	0
1977	19	14	27
1978	35	16	13
1979	30	17	318
1980	38	15	700
1981	51	28	401
1982	59	45	56
1983	68	53	210
1984	86	52	382
1985	108	73	754
1986	102	77	1,296
1987	107	60	992
1988	107	69	1,651
1989	112	77	2,037
1990	99	74	4,165
1991	113	70	5,432
1992	104	74	4,185
1993	122	61	5,139
1994	114	78	4,177
1995	115	81	1,505
1996	127	75	2,911
1997	97	77	3,304
1998	95	71	2,488
1999	91	66	3,588
2000	73	60	2,076
2001	89	39	3,329
2002	92	67	3,645
2003	94	64	4,750
2004	60	71	3,554
2005	81	39	2,761
2006	92	53	2,618
2007	83	63	2,347
2008	79	61	1,781
2009	80	57	1,791
2010	81	56	2,548
2011	91	54	3,036
2012	86	61	2,642
2013	83	57	2,351
2014	75	60	2,718
2015	68	59	2,500
Total	3,342	2,189	87,679

Table 27.–Summary of coho salmon production from Alaska hatcheries and fisheries enhancement projects.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1966	0	1	0
1967	0	1	0
1968	0	1	0
1969	0	1	0
1970	0	1	0
1971	0	0	0
1972	2	2	0
1973	2	2	0
1974	1	2	0
1975	7	4	0
1976	5	3	0
1977	5	5	13
1978	6	3	0
1979	4	3	71
1980	4	2	21
1981	8	3	55
1982	17	3	108
1983	17	10	96
1984	21	11	180
1985	21	15	309
1986	22	13	659
1987	26	15	455
1988	28	19	287
1989	24	16	503
1990	22	18	946
1991	24	14	1,287
1992	21	15	1,397
1993	25	15	1,023
1994	28	18	1,327
1995	27	21	1,313
1996	30	21	1,369
1997	34	23	1,088
1998	29	21	1,393
1999	23	22	1,542
2000	33	15	1,655
2001	32	20	1,799
2002	35	21	2,120
2003	38	19	1,495
2004	33	23	1,203
2005	33	22	1,444
2006	36	22	1,361
2007	34	26	1,133
2008	40	25	1,453
2009	39	24	1,152
2010	35	29	1,359
2011	42	30	1,420
2012	41	25	973
2013	36	28	1,743
2014	41	28	2,058
2015	36	31	1,200
Total	1,031	677	37,809

Table 28.–Summary of pink salmon production from Alaska hatcheries and fisheries enhancement projects.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns (thousands)
1973	1	0	0
1974	5	0	0
1975	15	5	6
1976	23	4	8
1977	66	18	147
1978	79	50	202
1979	91	60	1,224
1980	181	64	2,318
1981	328	140	4,396
1982	344	252	6,610
1983	406	261	5,939
1984	443	338	5,866
1985	604	366	14,158
1986	511	484	8,739
1987	859	432	21,860
1988	797	730	13,767
1989	975	675	31,476
1990	1,013	811	41,631
1991	998	862	39,493
1992	1,077	797	14,429
1993	1,031	919	20,497
1994	1,076	787	41,055
1995	1,162	921	24,770
1996	929	999	29,214
1997	1,064	892	33,957
1998	1,119	873	38,651
1999	1,085	878	51,973
2000	1,074	880	40,395
2001	1,101	942	47,247
2002	1,168	938	30,835
2003	1,108	962	59,773
2004	960	965	30,565
2005	949	808	69,076
2006	964	809	26,702
2007	952	851	64,308
2008	908	823	43,411
2009	943	818	29,276
2010	979	855	73,849
2011	1,023	883	31,623
2012	861	943	27,999
2013	1,133	798	91,790
2014	1,059	1,016	49,123
2015	1,082	948	81,000
Total	31,464	25,911	1,168,359

Table 29.–Summary of chum salmon production from Alaska hatcheries and fisheries enhancement projects.

Year	Egg Takes (millions)	Fry Releases (millions)	Total Returns
1974	1	0	0
1975	5	1	0
1976	7	2	0
1977	8	3	0
1978	12	4	3
1979	26	7	6
1980	74	13	16
1981	87	46	53
1982	125	63	153
1983	149	94	301
1984	269	108	1,809
1985	245	201	1,404
1986	374	182	1,939
1987	380	298	1,963
1988	392	289	2,653
1989	294	310	1,347
1990	450	241	2,037
1991	480	365	2,181
1992	510	428	3,094
1993	496	459	6,707
1994	529	407	8,989
1995	596	473	9,533
1996	590	535	16,353
1997	524	478	12,761
1998	517	479	13,407
1999	636	461	15,073
2000	541	508	18,806
2001	568	467	9,166
2002	551	451	12,568
2003	679	466	13,710
2004	665	578	10,939
2005	627	549	7,558
2006	714	539	15,714
2007	639	609	12,338
2008	615	567	13,655
2009	705	552	12,670
2010	700	609	12,955
2011	743	563	11,627
2012	743	635	15,544
2013	739	659	15,377
2014	720	651	8,041
2015	780	695	12,000
Total	17,724	14,354	292,449

Table 30.–Summary of commercial harvest of salmon from Alaska fisheries enhancement projects, 1977–2015.

Year	Total commercial harvest[a]	Total cost-recovery harvest	Commercial common property harvest	Hatchery-produced fish in commercial common property harvest	% of hatchery-produced fish in total commercial harvest	% of hatchery-produced fish in commercial common property
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	15,012,91	136,125,788	16,063,656	21%	12%
1990	153,223,849	10,387,95	142,835,897	34,372,132	29%	24%
1991	183,957,665	13,169,03	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	15,916,25	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	14,657,12	158,376,140	29,199,550	25%	18%
1997	122,047,351	19,410,25	102,637,099	26,780,072	38%	26%
1998	150,090,563	15,649,06	134,441,495	34,553,704	33%	26%
1999	215,180,312	22,607,62	192,572,686	42,656,151	30%	22%
2000	135,897,068	18,981,23	116,915,832	39,780,299	43%	34%
2001	172,628,831	18,443,77	154,185,054	38,500,563	33%	25%
2002	128,681,747	19,067,52	109,614,226	25,743,907	35%	23%
2003	159,887,885	22,936,73	136,951,146	49,881,589	46%	36%
2004	164,996,265	22,015,46	142,980,802	20,106,465	26%	14%
2005	219,699,789	21,262,57	198,437,212	53,566,262	34%	27%
2006	139,935,798	18,942,10	120,993,691	23,723,769	30%	20%
2007	211,522,916	19,601,35	191,921,566	57,682,118	37%	30%
2008	144,910,315	12,898,10	132,012,215	44,920,941	40%	34%
2009	160,855,846	13,789,12	147,066,718	28,139,180	26%	19%
2010	169,171,088	10,463,51	158,707,572	77,324,429	52%	49%
2011	175,961,536	12,153,91	163,807,623	32,209,873	25%	20%
2012	125,911,498	7,326,714	118,584,784	36,903,254	35%	31%
2013	280,315,710	9,480,010	270,835,700	97,104,919	38%	36%
2014	154,270,976	7,466,365	146,804,611	50,811,844	38%	35%
2015	263,887,506	14,553,28	249,408,564	78,014,204	35%	31%

Source: Alaska Department of Fish and Game. 2014. 2014 Alaska commercial salmon harvests – Exvessel values. http://www.adfg.alaska.gov/static/fishing/PDFs/commercial/table_2014_commercial_salmon_harvest_values.pdf (Accessed February 12, 2015).

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

Table 31.–Summary of statewide commercial harvest of hatchery-produced salmon from Alaska's fisheries enhancement projects, in thousands of fish, 1977–2015.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	-	0	-	126	-	126
1978	0	1	-	114	2	117
1979	0	301	-	532	2	835
1980	4	638	0	1,406	9	2,057
1981	2	362	49	3,904	40	4,357
1982	4	28	85	6,067	74	6,257
1983	2	158	82	5,274	213	5,730
1984	5	239	139	4,839	1,552	6,774
1985	10	449	243	12,891	1,123	14,717
1986	15	884	443	7,630	1,392	10,364
1987	25	622	204	19,819	1,438	22,109
1988	31	1,034	144	12,099	2,007	15,314
1989	37	1,343	324	28,411	962	31,077
1990	70	2,858	765	39,580	1,487	44,760
1991	79	3,665	1,059	36,247	1,519	42,569
1992	62	2,727	1,235	12,190	2,398	18,613
1993	60	3,893	773	18,023	5,927	28,676
1994	46	2,619	1,120	38,814	8,005	50,604
1995	81	1,075	1,085	22,715	8,691	33,647
1996	92	2,317	1,096	26,179	14,155	43,838
1997	71	2,500	808	30,983	11,823	46,184
1998	40	1,882	1,087	34,564	12,629	50,202
1999	52	2,566	1,278	47,193	14,152	65,241
2000	97	1,521	1,252	38,191	17,685	58,745
2001	112	2,500	1,334	44,616	8,360	56,922
2002	95	2,750	1,705	28,443	11,816	44,809
2003	89	3,695	1,102	55,072	12,781	72,739
2004	127	2,671	919	28,309	10,081	42,107
2005	81	1,972	1,114	64,950	6,676	74,794
2006	58	2,137	1,075	24,774	14,621	42,664
2007	87	2,033	890	62,678	11,584	77,272
2008	100	1,510	1,200	42,076	12,927	57,813
2009	86	1,534	932	27,484	11,887	41,923
2010	74	2,061	1,112	72,485	12,053	87,784
2011	103	2,677	1,149	29,877	10,658	44,464
2012	73	2,304	770	26,699	14,375	44,222
2013	96	1,801	1,518	88,943	14,227	106,585
2014	66	2,296	1,768	47,264	6,882	58,276
2015	79	2,305	948	77,540	11,398	92,270
Total	2,131	65,624	29,858	1,091,462	266,210	1,455,286

Table 32.–Summary of commercial harvest of hatchery-produced salmon from Southeast Alaska fisheries enhancement projects, 1977–2015.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	-	-	-	108,173	-	108,173
1978	-	-	-	-	2,214	2,214
1979	445	-	-	33,555	1,514	35,514
1980	4,388	-	-	500	5,627	10,515
1981	1,504	-	48,224	139,000	3,286	192,014
1982	3,352	-	83,128	16,568	64,874	167,922
1983	1,175	-	80,418	181,494	199,623	462,710
1984	5,234	-	138,082	235,694	1,466,670	1,845,680
1985	10,039	-	227,701	911,977	933,167	2,082,884
1986	14,219	18,600	427,244	116,114	1,095,304	1,671,481
1987	23,719	36,000	155,405	1,370,029	1,296,283	2,881,436
1988	28,585	20,400	51,674	124,571	1,290,171	1,515,401
1989	34,810	36,672	93,208	859,426	601,039	1,625,155
1990	68,207	114,167	526,611	1,319,810	785,933	2,814,728
1991	78,387	112,332	901,169	1,774,348	1,190,607	4,056,843
1992	58,359	208,034	1,027,697	3,515,448	2,114,365	6,923,903
1993	55,124	363,605	690,645	688,861	4,672,092	6,470,327
1994	43,546	171,702	930,116	5,787,031	6,965,625	13,898,020
1995	78,077	211,343	876,343	1,530,366	7,645,023	10,341,152
1996	88,953	482,314	846,948	2,009,727	12,041,241	15,469,183
1997	68,783	352,567	619,892	2,447,974	9,931,592	13,420,808
1998	38,296	237,127	872,816	2,235,834	11,559,308	14,943,381
1999	50,770	135,446	1,075,022	4,087,903	11,393,715	16,742,856
2000	96,432	259,611	624,916	438,750	12,689,973	14,109,682
2001	111,805	392,135	999,619	2,346,847	5,643,197	9,493,603
2002	94,159	120,106	1,446,712	1,924,064	5,615,259	9,200,300
2003	88,166	118,894	884,519	929,740	8,963,620	10,984,939
2004	124,643	557,456	726,358	1,464,011	8,096,243	10,968,711
2005	80,465	240,140	733,530	1,582,244	4,664,919	7,301,298
2006	57,575	378,940	565,156	528,023	12,409,239	13,938,933
2007	86,319	188,560	598,084	1,218,852	7,803,377	9,895,192
2008	100,042	114,097	781,051	173,914	8,090,814	9,259,918
2009	85,654	137,067	737,684	1,318,308	8,808,558	11,087,271
2010	73,943	91,202	959,848	1,198,717	7,792,532	10,116,242
2011	102,898	173,898	871,947	1,339,987	8,687,074	11,175,804
2012	72,677	218,926	710,674	340,783	10,760,144	12,103,204
2013	95,570	179,181	1,206,772	2,500,909	10,489,177	14,471,609
2014	66,158	216,000	1,356,670	511,684	5,733,451	7,883,963
2015	78,641	131,688	948,000	527,887	9,145,108	10,831,324
Total	2,171,119	6,018,210	23,823,883	47,839,123	210,651,958	290,504,293

Table 33.–Summary of commercial harvest of hatchery-produced salmon from Prince William Sound fisheries enhancement projects, 1977–2015.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1977	-	183	-	17,545	-	17,728
1978	-	720	-	114,188	-	114,908
1979	-	900	-	498,748	-	499,648
1980	-	350	-	1,405,528	2,930	1,408,808
1981	-	3,600	-	2,138,544	36,686	2,178,830
1982	-	3,600	-	5,679,161	1,569	5,684,330
1983	-	6,600	-	4,385,455	13,108	4,405,163
1984	-	5,318	-	4,037,386	82,991	4,125,695
1985	-	31,955	-	8,067,647	64,137	8,163,739
1986	-	30,404	7,263	6,792,641	199,077	7,029,385
1987	100	47,347	26,640	17,304,638	127,397	17,506,122
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	480,200	129,270	32,870,650	250,408	33,730,712
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	197,560	139,430	14,246,639	662,712	15,247,232
1996	588	804,530	166,824	22,751,594	2,076,445	25,799,981
1997	924	1,378,696	62,944	24,686,332	1,878,810	28,007,706
1998	978	768,074	45,585	24,760,828	1,031,706	26,607,171
1999	-	440,326	80,249	37,968,264	2,617,072	41,105,911
2000	-	490,077	478,633	33,040,270	4,690,867	38,699,847
2001	-	972,582	175,083	28,466,847	2,499,721	32,114,233
2002	-	1,163,539	36,232	18,771,143	6,111,569	26,082,483
2003	-	1,571,592	76,843	46,935,174	3,351,054	51,934,663
2004	-	694,501	46,578	20,422,252	1,745,266	22,908,597
2005	-	517,890	227,644	47,620,680	1,919,070	50,285,284
2006	-	1,183,213	340,551	19,835,604	2,034,278	23,393,646
2007	-	1,234,571	166,107	53,461,389	3,559,558	58,421,625
2008	-	856,523	297,900	39,783,382	4,743,408	45,681,213
2009	-	949,481	39,260	17,225,812	2,977,790	21,192,343
2010	-	1,510,501	37,989	68,047,457	4,069,152	73,665,099
2011	-	1,757,043	206,733	26,362,128	1,650,418	29,976,322
2012	-	1,622,566	11,074	23,390,393	3,396,596	28,420,629
2013	-	1,041,824	258,104	74,616,332	3,640,837	79,557,097
2014	-	1,494,284	180,742	40,921,607	1,102,613	43,699,246
2015	-	1,660,967	74,728	70,375,365	2,138,730	74,249,790
Total	9,022	24,710,433	4,152,252	946,568,850	62,540,000	1,037,980,557

Table 34.–Summary of commercial harvest of hatchery-produced salmon from Cook Inlet fisheries enhancement projects, in thousands of fish, 1978–2015.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1978	42	-	-	-	-	42
1979	-	299,858	-	-	-	299,858
1980	-	638,058	102	-	-	638,160
1981	105	358,726	1,034	963,350	-	1,323,215
1982	300	23,990	1,575	181,400	7,426	214,691
1983	900	151,400	1,902	577,200	140	731,542
1984	220	231,444	1,042	230,000	898	463,604
1985	300	415,493	3,681	463,600	1,875	884,949
1986	350	808,503	7,178	380,190	23,152	1,219,373
1987	670	521,349	21,945	84,500	5,313	633,777
1988	1,450	676,669	22,042	836,000	8,423	1,544,584
1989	1,620	330,263	28,731	877,600	4,560	1,242,774
1990	1,500	378,708	14,728	167,400	49,257	611,593
1991	820	585,514	18,546	204,800	25,801	835,481
1992	2,315	388,021	10,580	373,577	2,933	777,426
1993	2,519	497,376	22,681	637,807	38,002	1,198,385
1994	1,200	256,977	26,516	1,563,101	74,725	1,922,519
1995	2,214	494,248	18,652	2,423,894	110,962	3,049,970
1996	2,311	520,143	25,485	442,816	22,711	1,013,466
1997	830	359,332	16,304	2,637,370	1,745	3,015,581
1998	819	192,548	18,638	1,295,388	106	1,507,499
1999	1,112	1,150,784	7,188	1,080,130	-	2,239,214
2000	726	310,815	15,270	1,052,285	-	1,379,096
2001	586	724,095	7,133	530,265	-	1,262,079
2002	755	840,439	13,106	1,051,320	-	1,905,620
2003	772	1,204,972	5,849	619,079	-	1,830,672
2004	2,008	1,142,202	7,631	2,460,712	-	3,612,553
2005	626	999,050	1,536	2,143,317	-	3,144,529
2006	639	460,023	600	251,781	-	713,043
2007	467	402,332	48	112,801	-	515,648
2008	-	223,062	350	-	-	223,412
2009	30	201,778	-	-	-	201,808
2010	-	148,478	-	-	-	148,478
2011	-	254,223	-	-	-	254,223
2012	-	138,961	-	-	-	138,961
2013	-	118,069	-	66,581	-	184,650
2014	-	209,311	-	54,478	-	263,789
2015	226	209,512	-	2,166,733	-	2,376,471
Total	28,432	16,866,726	320,073	25,929,475	378,029	43,522,735

Table 35.–Summary of commercial harvest of hatchery-produced salmon from Kodiak fisheries enhancement projects, in thousands of fish, 1981–2015.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1981	-	-	-	663,414	-	663,414
1982	-	-	-	190,300	-	190,300
1983	-	-	-	130,000	-	130,000
1984	-	2,000	-	335,600	-	337,600
1985	-	1,800	12,000	3,448,000	121,100	3,582,900
1986	75	26,900	600	341,500	70,300	439,375
1987	105	17,437	-	1,060,000	3,860	1,081,402
1988	70	244,000	2,400	605,361	150,976	1,002,807
1989	-	800,000	-	6,500,000	-	7,300,000
1990	-	2,291,000	5,000	539,500	4,100	2,839,600
1991	-	2,487,200	9,800	1,397,600	31,700	3,926,300
1992	-	1,486,686	5,140	821,900	3,500	2,317,226
1993	-	2,529,042	16,016	12,278,700	34,525	14,858,283
1994	-	1,890,526	46,784	2,054,663	5,007	3,996,980
1995	-	172,040	50,235	4,513,653	215,311	4,951,239
1996	-	510,379	56,850	974,400	14,200	1,555,829
1997	-	408,959	108,940	1,211,128	11,021	1,740,048
1998	-	684,331	149,833	6,272,000	38,000	7,144,164
1999	-	839,506	115,900	4,057,000	140,900	5,153,306
2000	-	460,098	133,238	3,659,698	303,783	4,556,817
2001	-	411,527	151,732	13,272,127	216,625	14,052,011
2002	-	625,581	209,259	6,696,774	88,724	7,620,338
2003	-	799,382	135,049	6,587,893	466,205	7,988,529
2004	-	277,331	138,136	3,962,421	239,610	4,617,498
2005	-	215,236	151,729	13,603,742	91,814	14,062,521
2006	-	114,902	168,205	4,158,109	177,548	4,618,764
2007	-	207,924	125,781	7,884,867	220,726	8,439,298
2008	-	316,430	120,366	2,118,392	93,025	2,648,213
2009	-	246,067	154,562	8,939,565	100,999	9,441,193
2010	-	310,589	113,675	3,238,678	191,284	3,854,226
2011	-	491,670	70,335	2,174,871	320,532	3,057,408
2012	-	323,637	48,353	2,968,070	218,740	3,558,800
2013	-	462,097	52,732	11,759,018	97,380	12,371,227
2014	-	374,571	230,590	5,776,060	45,582	6,426,803
2015	-	303,403	39,340	4,826,278	43,410	5,212,431
Total	250	20,332,251	2,622,580	149,021,282	3,760,487	175,736,850

Table 36.–Actively operated Alaska hatcheries contact information, 2015.

Code[a]	Agency	Address	City, State, Zip	Office phone	Hatchery	Hatchery Manager	Director	Email
Southern Southeast								
R	SSRAA	14 Borch Street	Ketchikan, AK 99901	(907) 225-9605			Dave Landis	davidl@ssraa.org
				(907) 254-1242	Burnett Inlet	Steve Reid		burnettinlet@starband.net
				(907) 650-7077	Crystal Lake[b]	Loren Thompson		loren.crystallake@gmail.com
				(907) 225-8790	Neets Bay	Steve Hilton		neetsbay@ssraa.org
				(907) 225-2635	Whitman Lake	Jay Creasy		whitman@kpunet.net
				(907) 225-9606	Deer Mountain	Matt Allen		deermountain@ssraa.org
				(907)-247-8790	Neck Lake Project	Ron Parsley, Jr.		necklake@ssraa.org
N	POWHA	PO Box 554	Craig, AK 99921	(907) 755-2231			Jeff Lundberg	powha@hughes.net
					Klawock River[b]	Jeff Lundberg		jlundberg@hughes.net
					Port Saint Nicholas	Jeff Lundberg		jlundberg@hughes.net
F	MIC	PO Box 8	Metlakatla, AK 99929	(907) 886-3150	Tamgas Creek	Steve Leask		tchsteve@hughes.net
Northern Southeast								
R	NSRAA	1308 Sawmill Cr. Rd	Sitka, AK 99835	(907) 747-6850			Steve Reifenstuhl	steve_reifenstuhl@nsraa.org
				(907) 766-3110	Haines Projects	Benji Burbank		benji_burbank@nsraa.org
				(907) 725-0995	Hidden Falls[b]	Jon Pearce		jon_pearce@nsraa.org
				(907) 738-1438	Medvejie Creek	Adam Olson		adam_olson@nsraa.org
				(907) 747-5863	Sawmill Creek	Rebecca Olson		rebecca_olson@nsraa.org
N	AKI	PO Box 21990	Juneau, AK 99802	(907) 586-3443			Bart Watson	aki@ak.net
				(907) 568-2228	Port Armstrong	Ben Contag		portarmstrong@starband.net
N	DIPAC	2697 Channel Dr.	Juneau, AK 99801	(907) 463-5114			Eric Prestegard	Eric_prestegard@dipac.net
				(907) 463-5114	Macaulay Salmon	Charlie Currit		charlie_currit@dipac.net
				(907) 463-5115	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	Angie Bowers		abowers@sitkascience.org
F	NMFS	17109 Lena Point Loop Rd	Juneau, AK 99801	(907) 789-6047	Little Port Walter[c]	Andrew Gray		andrew.gray@noaa.gov john.joyce@noaa.gov
Prince William Sound								
R	PWSAC	PO Box 1110	Cordova, AK 99574	(907) 424-7511			Dave Reggiani	dave.pwsac@ak.net
					AF Koernig	Chris Kelley		afk.pwsac@ak.net
					Cannery Creek[b]	Chris Mitchell (acting)		cch.pwsac@ak.net
					Gulkana[b]	Gary Martinek		gkh.cvinternet@ak.net
					Main Bay[b]	Jason Myhrer		mbh.pwsac@ak.net
					W Noerenberg	Klint Hischke		wnh.pwsac@ak.net

-continued-

Table 36.–Page 2 of 2.

Code[a]	Agency	Address	City, State, Zip	Office phone	Hatchery	Hatchery Manager	Director	Email
Prince William Sound (cont.)								
N	VFDA	PO Box 125	Valdez, AK 99686	(907) 835-4874			Mike Wells	vfdamike@valdezfisheries.com
				(907) 835-1329	Solomon Gulch	Rob Unger		sghatchery@cvinternet.net
Cook Inlet								
R	CIAA	40610 Kalifornsky Beach Rd	Kenai, AK 99611	(907) 283-5761			Gary Fandrei	gfandrei@ciaanet.org
				(907) 288-3688	Trail Lakes[b]	Tom Prochazka		tprochazka_tlh@ciaanet.org
				(866) 309-0640	Tutka Bay Lagoon[b]	Dean Day		dday_tblh@ciaanet.org
				(907) 283-5761	Port Graham	Mike Smimmo		msmimmo_pgh@ciaanet.org
Kodiak								
R	KRAA	104 Center Street Suite 205	Kodiak, AK 99615	(907) 486-6555			Tina Fairbanks	kraa.fairbanks@gci.net
								kraa@gci.net
				(907) 743-0617	Kitoi Bay[b]	Andrew Aro		kitoi@gci.net
				(907) 486-4730	Pillar Creek[b]	Alan Seale		pch@gci.net
S	ADF&G- Division of Sport Fish						Jeff Milton	jeffery.milton@alaska.gov
		941 N. Reeve Blvd.	Anchorage, AK 99501	(907) 269-0296	WJ Hernandez	Andrea Tesch		andrea.tesch@alaska.gov
		1150 Wilbur Street	Fairbanks, AK 99701	(907) 451-2661	Ruth Burnett	Gary George		gary.george@alaska.gov

[a] R = Regional Aquaculture Association, Private Nonprofit; N = Nonregional Aquaculture Association, Private Nonprofit; F = Federal; S = State.

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

[c] Hatchery research facility.

Table 37.–Active Alaska hatcheries, 2015.

Code[a]	Agency	Corporate name	Hatchery	PNP Permit #	PNP permit issued	Species permitted	Web Site
Southern Southeast							
R	SSRAA	Southern Southeast Regional Aquaculture Assoc.	Burnett Inlet	40	9/30/1997	sockeye, coho, chum	www.ssraa.org
			Crystal Lake[b]			Chinook, coho	
			Neets Bay	19	6/17/1983	chum, coho, Chinook	
			Whitman Lake	8	3/9/1978	chum, coho, Chinook	
N	POWHA	Prince of Wales Hatchery Association	Klawock River[b]	38	2/19/1996	coho, sockeye, steelhead	www.powha.org
			Port Saint Nicholas	43	6/25/2004	Chinook, chum	
F	MIC	Tamgas Creek Hatchery	Tamgas Creek[c]			chum, coho, Chinook, sockeye	
Northern Southeast							
R	NSRAA	Northern Southeast Regional Aquaculture Assoc.	Haines Projects	34	4/29/1992	chum, sockeye	www.nsraa.org
			Hidden Falls[b]	28	6/22/1988	chum, Chinook, coho	
			Medvejie Creek	16	8/17/1981	chum, coho, Chinook, pink	
			Sawmill Creek	44	3/11/2007	Coho, chum	
N	AKI	Armstrong-Keta, Inc.	Port Armstrong	13	2/23/1981	pink, chum, Chinook, coho	www.armstrongketa.org
N	DIPAC	Douglas Island Pink and Chum, Inc.	Macaulay	25	6/3/1987	chum, pink, coho, Chinook	www.dipac.net
			Snettisham[b]	39	7/15/1996	sockeye	
N	SSSC	Sitka Sound Science Center	Sheldon Jackson	45	4/13/2011	pink, chum, coho	www.sitkasoundsciencecenter.org
F	NMFS	National Marine Fisheries Service	Little Port Walter[d]	NA		Chinook	www.afsc.noaa.gov/ABL/MSI/msi_lpw.htm
Prince William Sound							
R	PWSAC	Prince William Sound Aquaculture Association	AF Koernig	2	9/29/1975	pink, chum	www.pwsac@ak.net
			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	Solomon Gulch	15	6/26/1981	pink, coho, Chinook	

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Table 37.–Page 2 of 2.

Code[a]	Agency	Corporate name	Hatchery	PNP Permit #	PNP permit issued	Species permitted	Website
Cook Inlet							
R	CIAA	Cook Inlet Aquaculture Association	Eklutna	17	2/5/1982	sockeye, coho	www.ciaanet.org
			Trail Lakes[b]	27	6/22/1988	sockeye, coho, Chinook	
			Tutka Bay Lagoon[b]	32	1/3/1994	pink, sockeye	
			Port Graham	46	1/14/2014	pink	
S	ADF&G	Alaska Department of Fish and Game	WJ Hernandez[c]	NA		char, grayling, rainbow trout, Chinook, coho	www.adfg.alaska.gov
Kodiak							
R	KRAA	Kodiak Regional Aquaculture Association	Kitoi Bay[b]	29	7/5/1988	pink, chum, coho, sockeye	
			Pillar Creek[b]	41	5/1/1998	sockeye, coho, Chinook, rainbow trout	www.kraakodiak.org
Arctic-Yukon-Kuskokwim							
S	ADF&G	Alaska Department of Fish and Game	Ruth Burnett	NA		char, grayling, rainbow trout, Chinook, coho	www.adfg.alaska.gov

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

[b] State-owned hatchery contracted to private sector.

[c] Federally recognized tribal reservation hatchery.

[d] Hatchery research facility.

Table 38.–Permitted capacity of Alaska private nonprofit hatcheries, in millions of eggs, 2015.

Region/Area	Corp.	Hatchery	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
Southeast									
Southern Southeast									
	SSRAA	Burnett Inlet		2.70	4.50		43.00		50.20
		Crystal Lake[a]	4.00		0.25				4.25
		Neets Bay	2.00		5.00		102.70		109.70
		Whitman Lake	2.10		7.00		44.30		53.40
	KTHC	Deer Mountain	0.13		0.38			0.05	0.56
	POWHA	Klawock River		5.00	5.00			0.05	10.05
		Port Saint Nicholas	0.77				8.0		8.77
Southern Southeast Total			9.00	7.70	22.13		198.00	0.10	236.93
Northern Southeast									
	NSRAA	Haines projects		2.00			4.80		6.80
		Hidden Falls	3.80		7.70		101.00[b]		112.50
		Medvejie Creek	5.20		3.30	0.30	77.00		85.80
		Sawmill Creek			4.33		30.00		34.33
	AKI	Port Armstrong[c]	2.00		5.00	105.00	60.00		172.00
	DIPAC	Macaulay	1.25		1.50		125.00	0.025	127.78
		Snettisham		33.50					33.50
	KNFC	Gunnuk Creek			0.50	20.00	65.00		85.50
	SSSC	Sheldon Jackson			0.25	3.00	12.00		15.25
Northern Southeast Total			12.25	35.50	22.73	178.30	444.80	0.025	673.43
Southeast Totals			16.65	43.20	44.86	178.30	636.80	0.125	910.39
Southcentral									
Prince William Sound									
	PWSAC	Armin F. Koernig				162.00	34.00		196.00
		Cannery Creek				187.00			187.00
		Gulkana		36.75					36.75
		Main Bay		12.40					12.40
		Wally Noerenberg	4.00		4.00	148.00	131.00		287.00
	VFDA	Solomon Gulch	0.30		2.00	230.00			232.30
Prince William Sound Totals			4.30	49.15	6.00	727.00	165.00		951.45
Cook Inlet									
	CIAA	Eklutna		18.00	0.16				18.16
		Trail Lakes	4.00	30.00	6.00				40.00
		Tutka Bay		0.66		125.00			125.66
		Port Graham				129.00			125.00
Cook Inlet Totals			4.00	48.66	6.16	250.00			308.82
Southcentral Totals			8.30	97.81	12.16	977.00	165.00		1,260.27
Kodiak/Westward									
Kodiak									
	KRAA	Kitoi Bay		0.85	2.30	215.00	36.00		254.15
		Pillar Creek	0.45	20.00	0.50			0.092	21.04
Kodiak/Westward Totals			0.45	20.85	2.80	215.00	36.00	0.092	275.19
Statewide Total			30.00	161.86	59.67	1,320.30	837.80	0.19	2,445.85

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

[b] A conditional additional capacity of 55 million chum salmon eggs can also be produced at Hidden Falls Hatchery to continue the Gunnuk Creek Hatchery releases at Southeast Cove. The conditional capacity cannot be in addition to the Gunnuk Creek Hatchery capacity. Gunnuk Creek Hatchery is not currently operational.

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

Table 39.–Alaska salmon fisheries enhancement program timeline of events. See notes at bottom of table for more detail.

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

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Table 39.–Page 2 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
1981	1 state hatchery closed (East Creek)	17	12	3
	2 state hatcheries constructed (Sikusuilaq and Trail Lakes)	19		
	1 PNP hatchery permit rescinded & new permit issued to new operator at Salmon Creek [#9, new #14]		12	
	3 PNP permits issued [Port Armstrong (#13), Solomon Gulch (#15), Medvejie Creek (#16)]		15	
1982	2 PNP permits issued [Eklutna (#17) and Favorite Bay (#18)]		17	
1983	3 PNP permits issued [Neets Bay (#19), Esther Island [renamed Wally Noerenberg Hatchery in 1990] (#20), Crittenden Creek (#22)]		20	
	1 state hatchery completed (Broodstock Development Center)	20		
1984	1 PNP permit issued to Santa Anna (#21)		21	
1985	1 PNP permit issued to Port Camden (#23)		22	
1986	1 PNP permit issued to [Beaver Falls (#24) jointly operated ADF&G/SSRAA]	19	23	
1987	1 PNP permit issued to Gastineau [renamed Macaulay Salmon Hatchery in 2000 (#25)]		24	
1988	Aquatic Farm Act signed; statute passes allowing contracting of hatchery operations			
	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 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	
	Fisheries Rehabilitation, Enhancement and Development Division merged with the Commercial Fisheries Division to form the Commercial Fisheries Management and Development Division			

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Table 39.–Page 3 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
1993	3 state hatcheries transferred from Commercial Fisheries Management and Development to Sport Fish Division (Broodstock Development Center, Elmendorf, and Ft. Richardson)	11	32	3
	2 state hatcheries contracted to private sector (Crooked Creek and Klawock River)	9	34	
	1 state hatchery closed (Big Lake)	8		
1994	1 state hatchery conveyed (Deer Mountain)	7		
	3 PNP permits issued [Crooked Creek (#35), Klawock River (#36), Deer Mountain (#37)]		35	
	Ft. Richardson Hatchery merged with Broodstock Development Center	6		
1995	1 PNP hatchery permit rescinded and new permit issued to new operator at Klawock River (#36, new #38)		35	
	1 state hatchery transferred from Division of Commercial Fisheries Management & Development to Division of Sport Fish (Crystal Lake)			
	1 state hatchery closed (Sikusuilaq)	5		
1996	1 state hatchery contracted to private sector [Snettisham (#39)]	4	36	
	1 state hatchery transferred from Commercial Fisheries Management and Development Division to Sport Fish Division (Clear)			
	3 PNP permits revoked [Crittenden Creek (#22), Santa Anna (#21), and Favorite Bay (#18)]		33	
1997	1 state hatchery closed (Clear)	3		
	2 state contracted (PNP) hatcheries closed [Beaver Falls (#24), Crooked Creek (#35)]		31	
	1 PNP hatchery rescinded & new permit issued to new operator at Burnett Inlet (#5, new #40)		31	
1998	1 PNP hatchery permit issued [Pillar Creek (#41), already operating under contract]			
2000	1 state hatchery contracted to private sector [Crystal Lake Hatchery (PNP permit not issued)]	2	32	
	1 PNP hatchery permit rescinded [Port Camden (# 23)]		31	
	1 PNP hatchery permit issued [Gulkana (#42), already operating under contract]			
2001	1 PNP hatchery permit rescinded [Kowee Creek (#6)]		30	
2004	1 PNP hatchery permit issued [Port Saint Nicholas (#43)]		31	
2007	1 PNP hatchery permit issued [Sawmill Creek (#44)]		32	
2008	1 PNP hatchery permit rescinded [Burro Creek (#12)]		31	
2011	1 PNP hatchery permit rescinded & new permit issued to new operator at Sheldon Jackson (#3, new #45)		31	
	1state hatchery closed (Elmendorf), 1 state hatchery opened (William Jack Hernandez)	2		

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Table 39.–Page 4 of 4.

Year	Event	No. of state operated hatcheries	No. of PNP owned or operated hatcheries	No. of federal hatcheries
2012	1 state hatchery opened (Ruth Burnett)	3		
	1 PNP hatchery permit rescinded & a new permit issued to new operator at Port Graham (#33, new #46)		31	
2014	1 state hatchery closed (Fort Richardson)	2	31	3
2015	1 PNP Hatchery, Sheep Creek in Juneau, permit was voluntarily rescinded.	2	30	3

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

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

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