Fishery Management Report No. 20-27

2020 Report to the Alaska Board of Fisheries on the Status of the Allocation of Hatchery-Produced Salmon in the Southeast Alaska Region

by

Flip Pryor

December 2020

Alaska Department of Fish and Game **Divisions of Sport Fish and 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, and Special Publications. 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

FISHERY MANAGEMENT REPORT NO. 20-27

2020 REPORT TO THE ALASKA BOARD OF FISHERIES ON THE STATUS OF THE ALLOCATION OF HATCHERY-PRODUCED SALMON IN THE SOUTHEAST ALASKA REGION

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ABSTRACT

This report summarizes the development and implementation of the *Southeastern Alaska Area Enhanced Salmon Allocation Management Plan* [5 AAC 33.364], and the status of the allocation of hatchery-produced salmon among the three commercial gear groups in the Southeast Region through 2019: drift gillnet, purse seine, and troll.

Key words: Hatchery-produced salmon, allocation, gillnet, seine, troll, chum salmon, king salmon, coho salmon, pink salmon, sockeye salmon, Alaska Board of Fisheries, Regional Planning Team, and Southeast Alaska.

INTRODUCTION

Since the *Southeastern Alaska Area Enhanced Salmon Allocation Management Plan* [5 AAC 33.364] was adopted in 1994, the Alaska Department of Fish and Game (department) has written a report to the Alaska Board of Fisheries (board) every three-year board cycle with a status update on allocation of hatchery-produced salmon among the three commercial gear groups in the Southeast Region: drift gillnet, purse seine (seine), and troll. This report summarizes the development and implementation of the plan and monitors trends in harvest, price per pound, marine survival, and releases for the three most valuable hatchery-produced species: chum, coho, and king (Chinook) salmon. Marine survival by brood year was provided by Southern Southeast Regional Aquaculture Association (SSRAA), Northern Southeast Regional Aquaculture Association (NSRAA), and Douglas Island Pink and Chum, Incorporated (DIPAC). Due to multiple return years of different species, complete marine survival data are available for brood year 2012 king salmon, brood year 2014 chum salmon, and brood year 2016 coho salmon. The value data used in this report includes finalized data from 1985 to 2018 and preliminary 2019 data. In December 2020, private non-profit (PNP) operators will finalize 2019 fish contribution estimates in their annual report to the department. In the spring of 2021, Commercial Fisheries Entry Commission (CFEC) will produce preliminary 2020 price and weight data and finalize 2019 price data. In April 2021, the department will present finalized 2019 allocation values and preliminary 2020 allocation values to the Joint Northern Southeast and Southern Southeast Regional Planning Team (Joint RPT).

Currently, the allocation of hatchery-produced salmon does not conform to the allocation ranges defined in the plan. When reviewing the value of hatchery-produced salmon harvested by each gear group in five-year rolling averages, the drift gillnet fleet is above their allocation range, the troll fleet is below their range, and the seine fleet is within their range. Since 1985, hatchery chum and coho salmon releases have increased at specific release sites to address allocation imbalances. Since 2012, net gear opportunity to several terminal harvest areas has been manipulated to address allocation imbalance. Two factors outside of regulatory control, marine survival and price paid to fishermen, have exerted substantial influence on the distribution of benefits from the enhancement program.

BRIEF HISTORY OF THE ALLOCATION PLAN

In early 1991 the board asked the commercial fishermen of Southeast Alaska, through the two regional aquaculture associations, to develop a plan for the equitable sharing of the hatchery-produced salmon harvest. The Southeast Allocation Task Force (SATF) was formed to draft a plan. The SATF consisted of six voting members with three members from NSRAA and three members from SSRAA, and equal representation from each of the three commercial gear groups. Non-voting members included department staff, regional aquaculture association staff, and a non-regional

aquaculture association staff representative from DIPAC. The allocation plan was developed through a lengthy public process, and in 1994 the board approved the plan, which is now *Southeastern Alaska Area Enhanced Salmon Allocation Management Plan* (Appendix A). As set forth in Findings of the Alaska Board of Fisheries #94-148-FB (Appendix B) and adopted as *Southeast Alaska* [5 AAC 40.345], the Joint RPT reviews the allocation of hatchery-produced salmon each spring and makes recommendations to the commissioner on hatchery production changes to comply with the allocation plan. The Joint RPT also makes recommendations to the board concerning board proposals and fisheries management adjustments within terminal harvest areas that may affect allocation values.

DESCRIPTION OF THE ALLOCATION PLAN

The *Southeastern Alaska Area Enhanced Salmon Allocation Management Plan* defines ranges of commercial harvest value for each commercial gear group. Harvest value is derived from 1) hatchery operator reported number of hatchery-produced salmon harvested by commercial gear type, 2) CFEC calculated average price per pound by gear type, and 3) average weights, calculated by CFEC and published in the annual department report *Overview of Southeast Alaska and Yakutat Commercial, Personal Use, and Subsistence Salmon Fisheries: Reports to the Alaska Board of Fisheries*, with the exception of SSRAA chum salmon weights, which are provided by the hatchery operator. Allocation percentages are evaluated as five-year rolling averages of value. Defined allocation ranges are seine 44–49%; hand and power troll 27–32%; and drift gillnet 24–29%. If a gear group is out of its allocation range for three consecutive five-year averages, adjustment in production or adjustment of harvest opportunity within terminal harvest areas may be implemented to bring a gear group back into its range.

Findings of the Alaska Board of Fisheries #94-148-FB are associated with the allocation management plan. These findings provide a detailed explanation of the plan development process, a report of the Southeast Alaska Allocation Task Force for Enhanced Salmon, and guidelines for plan implementation.

ALLOCATION ADJUSTMENTS AND STATUS

If a gear group is outside its allocation percentage range for three consecutive years, the board may adjust fisheries within special harvest areas to bring the gear group within its allocation range. A special harvest area (SHA) is an area designated for cost-recovery harvest that may be open to traditional fisheries. If an SHA is open for traditional fisheries, harvest is managed as a terminal harvest area (THA) where traditional fishery regulations apply. For this report, THA will be used to define both SHA and THA.

The tools for adjusting allocation percentages are THA management adjustments (time in area), new hatchery production, and modification of existing hatchery production (Guideline #13 in Findings of the Alaska Board of Fisheries #94-148-FB). Management adjustments within a THA are used for short-term corrections. New production or modification of existing production are long-term remedies, which can take a salmon life cycle for changes to be realized. Production changes are traditionally initiated by hatchery organizations through the permit amendment process or the Joint RPT may make recommendations to the commissioner [5 AAC 40.345]. The allocation status of hatchery-produced salmon through 2019 has changed through time (Figure 1). Since 1995, troll harvest value has been below their allocation range. Since 2004, drift gillnet

harvest value has been above their allocation range. The seine harvest value has been within their allocation range for two consecutive years.

FACTORS AFFECTING THE ALLOCATION

The overall value of hatchery-produced salmon in Southeast trended upward from 2002 until a peak in 2012, then dipped and peaked again in 2018 (Figure 2). Chum salmon continue to be the dominant contributor to the value of hatchery-produced salmon in Southeast (Figure 3). Over the past 10 years chum salmon make up 81% of the hatchery-produced value, followed by coho salmon at 11%, king salmon at 5%, sockeye salmon at 2%, and pink salmon at 1%. This is significantly different from the base years used to establish the ranges, 1985–1993, when chum salmon was 51% of the hatchery-produced value, coho salmon 26%, sockeye salmon 9%, king salmon 8%, and pink salmon 6%. Details of how each species affects the overall value of hatchery-produced salmon is discussed later in this report.

The standard for measuring total value of the three gears (A, B, C) viewed as a five-year average is A + B + C = 100%. As a percentage of the total value, logic dictates if A increases, then (B + C) must decrease by the same amount. For this reason, it is possible for a gear group to decrease their percentage of the total value even if the value of hatchery-produced salmon caught by that group increases year after year. An example of this occurred when troll value trended upward from 2002 through 2013 (Figure 4), yet their allocation percentage decreased simultaneously.

HATCHERY PRODUCTION AND LIMITATIONS

Since the allocation plan was adopted in 1994, the Joint RPT has annually reviewed the allocation of hatchery-produced salmon and made recommendations on hatchery production to the department's commissioner. The Joint RPT has also made recommendations to the board concerning proposals that may affect allocation percentages. Additional details of the Joint RPT can be found in the *Actions Taken by the Regional Planning Team* section below.

There is an inherent risk of adjusting production to correct an imbalance in gear group allocation. One issue is the extended lag times from egg take to harvest. This is especially true for king and chum salmon due to their longer life cycle. A decision to modify production numbers will take four years to see the peak return for chum salmon and five years for king salmon. In a worst-case scenario, a decision to *increase* production results in little or no increased harvest value, if survivals and prices decline. A decision to *decrease* production could result in a magnified drop in harvest value if survivals and prices decline. Additionally, changes in production may not always benefit the target gear group. For example, increasing coho salmon releases to benefit the troll fleet could negatively impact the troll fleet if returning adults migrate through a traditional net fishery or the troll harvest rate is low and the net fisheries "clean up" the return in the terminal harvest area.

Southeast Alaska hatcheries have production limitations in the form of freshwater availability and the physical footprint needed for freshwater rearing. Large numbers of salmon eggs can be incubated in hatchery buildings and reared to the fry stage using a relatively small amount of water and physical space. Freshwater rearing, usually in round ponds or raceways, uses significantly more water and requires a large amount of flat space. Pink and chum salmon can be ponded as fry straight out of the hatchery building into saltwater net pens and reared to the smolt stage (two to four grams) in just a few months. The short rearing time and small release size keep costs down. This explains why large numbers of pink and chum salmon can be raised inexpensively (pennies

per smolt). King, coho, and sockeye salmon require a full year of freshwater rearing in relatively high flow raceways before they can be moved to saltwater net pens and reared to smolt stage (20 to 30 grams). The limitation of rearing space, the larger body size at release, and the high cost (dollars per smolt) associated with a full year of rearing, including food, explains why much smaller numbers of these species are raised. Southeast hatcheries are very close to maximum production of king and coho salmon without major upgrades to infrastructure or building new hatcheries. Some increases in production may come from experimental rearing practices such as zero-check rearing programs, which manipulate water temperature, photoperiod, and diet to increase growth to the smolt stage in just a few months. Several hatcheries in Southeast have experimented with zero-check king salmon programs with mixed results.

FISH PRICES

Prices in this report come from CFEC. On an annual basis, CFEC calculates estimates of salmon exvessel prices using the department's Commercial Operator's Annual Reports (COAR) and department fish tickets. The CFEC provides the department with preliminary price data for the Southeast area by species and gear group at the end of each calendar year. Final prices are determined the following year. The seine and drift gillnet prices are for whole fish. All troll prices are for gutted, head-on, except chum salmon prices which are for whole fish.

CHUM SALMON

Chum salmon are the dominant contributor to the overall value of hatchery-produced salmon, averaging 81% of the value, or an average of $39.6 million over the last 10 years. Although the two net gear groups receive the majority of hatchery-produced chum salmon value, the troll fleet has been effective at targeting chum salmon in some years (Figure 5). All three gear groups harvest similar sized fish and receive similar prices. The primary difference in value between the gear groups within a given year is number of fish harvested. Increases in chum salmon production, as well as access to terminal harvest areas, have been used to address allocation imbalance. The overall value of chum salmon can be affected by marine survival, size of the fish, and price. In 2012, record high values of hatchery-produced chum salmon were recorded due to high harvest, large fish, and a high price. In 2013, more chum salmon were harvested but the overall value decreased due to lower prices and smaller fish. In 2019, the overall value for all three gear groups fell due to lower harvests and prices.

The most recent 10-year average harvest of seine-caught hatchery-produced chum salmon is 3.2 million fish with an average value of $20.0 million. Over the last 10 years, the seine fleet has harvested 51% of hatchery-produced chum salmon. In 2018, the seine fleet had a record high value of $35.7 million. Although this was not the largest number of hatchery-produced chum salmon ever harvested by the seine fleet, the value was augmented by a high price (Figure 6).

The most recent 10-year average harvest of drift gillnet caught hatchery-produced chum salmon is 2.6 million fish, with an average value of $16.5. Over the last 10 years, the drift gillnet fleet has harvested 42% of hatchery-produced chum salmon. In 2012, the gillnet fleet had a record high value of just under $26 million. Although this was not the largest number of hatchery-produced chum salmon ever harvested by the gillnet fleet, the value was augmented by larger-than-average weights and a high price (Figure 7).

The most recent 10-year average harvest of troll caught hatchery-produced chum salmon is 436,000 fish, with an average value of $3.0 million. Over the last 10 years, the troll fleet has

harvested 6.9% of hatchery-produced chum salmon. In 2013, the troll fleet harvested a record high 936,000 hatchery-produced chum salmon with a record value of just under $5 million (Figure 8). Targeting hatchery-produced chum salmon has led to a significant increase in overall troll value but will not represent an increase in troll allocation percentage. Currently, the troll fleet does not harvest significantly larger chum salmon or receive a significantly larger price than the other gear groups; therefore, any gains in allocation percentage will need to come from an increased harvest of the overall number of hatchery-produced chum salmon.

Marine survival can also play an important role in determining value to a gear group (Figure 9). Marine survival by brood year for SSRAA, NSRAA, and DIPAC combined for the past 10 years is 2.1%, which is down from the 1985–2014 average of 2.5%. When comparing the three associations within brood years, the differences in survival can affect the allocation percentages. In the late 1990s, high marine survivals, particularly at Hidden Falls Hatchery, which primarily benefits the seine fleet, coupled with larger-than-average weights more than compensated for prices under $0.30 per pound resulting in a high economic return that pushed the seine fleet above their allocation range. More recently, high marine survivals of chum salmon returning to Macaulay Salmon Hatchery, which primarily benefit the drift gillnet fleet, coupled with low marine survivals at Hidden Falls Hatchery, have moved the drift gillnet fleet above their allocation range.

COHO SALMON

Coho salmon are the second largest contributor to the value of hatchery-produced salmon, contributing 11% of the overall value, or an average of just over $5 million for the last 10 years. The troll fleet receives most of the value from hatchery-produced coho salmon (Figure 10). The troll fleet not only catches most of these fish but also receives a significantly higher price per pound than the net fleets. The most recent 10-year average troll price is $1.72 per pound. These prices are significantly higher than the 1994–2003 average troll-caught price of $0.88 per pound when low price offset higher harvest rates (Figure 11). In 2013, the troll harvest of hatchery-produced coho salmon was a record 680,000 fish, which was followed by the second-highest catch of 578,000 fish in 2014. Although these catches contributed over $6 million to the troll fleet in each of those years, it only slightly improved the troll percentage. The primary reason for troll fleet gains in percentage of total value in those years was because of a drop in hatchery-produced chum salmon value, which allowed hatchery-produced coho salmon value to become a larger percentage of the total value (15% and 22% respectively). Increased releases of coho salmon to address allocation imbalance have been offset by decreased marine survival (Figure 12). The most recent 10-year average marine survival of hatchery-produced coho salmon is 4.4%, which is significantly lower than the overall marine survival since 1985 of 6.6%.

KING SALMON

King salmon are the third largest contributor to the value of hatchery-produced salmon, contributing 5% of the overall value, or an average of $2.3 million for the last 10 years. The troll fleet receives most of the value from hatchery-produced king salmon but in recent years, the value to the net fleets has been significant (Figure 13). Increased harvest of hatchery-produced king salmon will raise the value to the troll fleet but may not necessarily lead to an increase in the troll percentage of allocation, primarily due to the small percentage of overall value contributed by king salmon production. Additionally, increased restraints imposed by the Pacific Salmon Treaty, coupled with harvest restrictions to protect wild Southeast king salmon, have limited the amount of fishing time for the troll fleet, which reduces the troll catch and allows more fish to return to the

terminal areas where they are harvested by the net fleets. The most recent 10-year average price is $6.23 per pound for troll-caught king salmon, significantly higher than the average price since 1985, which is $3.53 (Figure 14). However, lower harvests have offset the higher prices. Release numbers have remained steady with marine survival trending downward since brood year 2006 (Figure 14). The most recent 10-year average marine survival is 1.5%.

SOCKEYE SALMON

Sockeye salmon have contributed 2% of the overall value of hatchery-produced salmon, just under $926,000 over the last 10 years. The only hatchery currently producing sockeye salmon is DIPAC's Snettisham Hatchery. The drift gillnet fleet harvests most of these fish, with a recent 10-year average of approximately $852,000. The seine fleet harvests the rest of the hatchery-produced sockeye salmon with a recent 10-year average of approximately $74,000.

PINK SALMON

Pink salmon have contributed 1% of the overall value of hatchery-produced salmon, approximately $633,000 over the last 10 years. The only hatchery currently producing pink salmon is Armstrong-Keta Incorporated's, Port Armstrong Hatchery. The seine fleet is the primary beneficiary of pink salmon releases.

ACTIONS TAKEN BY THE REGIONAL PLANNING TEAM

Two of the most influential factors affecting gear group values are marine survival and price per pound, both of which are outside the control of the hatchery associations, the department, and the board. The Joint RPT has never suggested that the present allocation imbalance is due to failure of the associations to follow board allocation guidelines.

The Joint RPT takes their assignment of 'allocation plan oversight' very seriously. Joint RPT meetings are a forum to discuss hatchery production changes and possible modifications of the harvest of hatchery-produced fish to address the allocation imbalance[1]. The Joint RPT believes the intent of the allocation plan has always been to try to increase targeted production and/or harvest opportunity of any gear group below its allocation range using measures that do not significantly and directly penalize the historical harvest opportunities of the gear group that is above its target range.

The Joint RPT has recommended to the commissioner that hatcheries continue to increase production, if possible, to help the gear group that is below its target allocation range. The Joint RPT continues to support chum and coho salmon production increases to address the allocation imbalance.

During the 1999/2000 board cycle, the Joint RPT submitted two proposals intended to increase opportunity for the troll fleet to harvest hatchery-produced king, coho, and chum salmon. The first proposal eliminated the 20% chum salmon cap during the spring king salmon fishery near Hidden Falls Hatchery. The second proposal allowed the department to extend the length of the weekly Snow Passage spring fishery based on hatchery-produced coho salmon harvest. Although both

[1] The role of the Joint RPT in making recommendations relative to allocation poses a unique situation for the three department representatives on the team. Department staff provide technical input and participate in team discussions, but only the six industry representatives on the Joint RPT vote on recommendations or proposals submitted to the Board of Fisheries.

proposals may have increased value to the troll fleet, neither change has significantly affected the allocation percentages.

During the 2008/2009 board cycle, the Joint RPT submitted a proposal to change from a 2:1 to a 1:1 ratio for drift gillnet and seine openings in the Deep Inlet Terminal Harvest Area for 2009, 2010, and 2011. Additionally, the Joint RPT submitted the "Industry Consensus 12/9/08" letter as a Record Copy. The industry consensus letter was a recommendation from the industry members who were present at the fall 2008 RPT meeting, was unanimously supported by the Joint RPT, and included a list of both long-term suggestions (increases in chum and coho salmon production) and short-term suggestions (recommendations on board proposals) for how to address the allocation imbalances. The board accepted the industry consensus letter and followed the guidelines regarding enhanced salmon allocation proposals. The proposals adopted by the board had some impact on the allocation values but not enough to solve the percentage imbalance. The long-term solutions of increased production mentioned in the letter may have affected gear group values but have yet to solve the percentage imbalance.

During the 2011/2012 board cycle, the Joint RPT submitted two proposals: a proposal to continue the 1:1 time ratio for drift gillnet and seine openings in the Deep Inlet THA through 2017, and a proposal to continue a 1:1 time ratio for drift gillnet and seine openings at the Anita Bay THA through 2017. The Joint RPT also submitted "Industry Consensus 12/8/11," which was written by industry representatives and unanimously supported by the Joint RPT. The consensus letter modified the sunset dates on their two proposals to 2014.

During the 2014/2015 board cycle, the Joint RPT submitted three "placeholder" board proposals: a proposal to set time ratio for drift gillnet and seine openings in Deep Inlet THA through an unspecified sunset date, a proposal to set time ratio for drift gillnet and seine openings at Anita Bay THA through an unspecified sunset date, and a proposal to continue the District 12 and 14 hatchery chum salmon troll fishery management plan through an unspecified sunset date. The Joint RPT also submitted recommendations to the board through written public comment. The letter withdrew the two Joint RPT proposals on THA rotations, supported the Joint RPT proposal to continue the District 12 and 14 chum salmon troll fisheries with an amended sunset of 2017, and gave recommendations on 19 other proposals.

During the 2017/2018 board cycle, the Joint RPT chose not to submit any proposals or make recommendations to the board through written public comment.

FIGURES

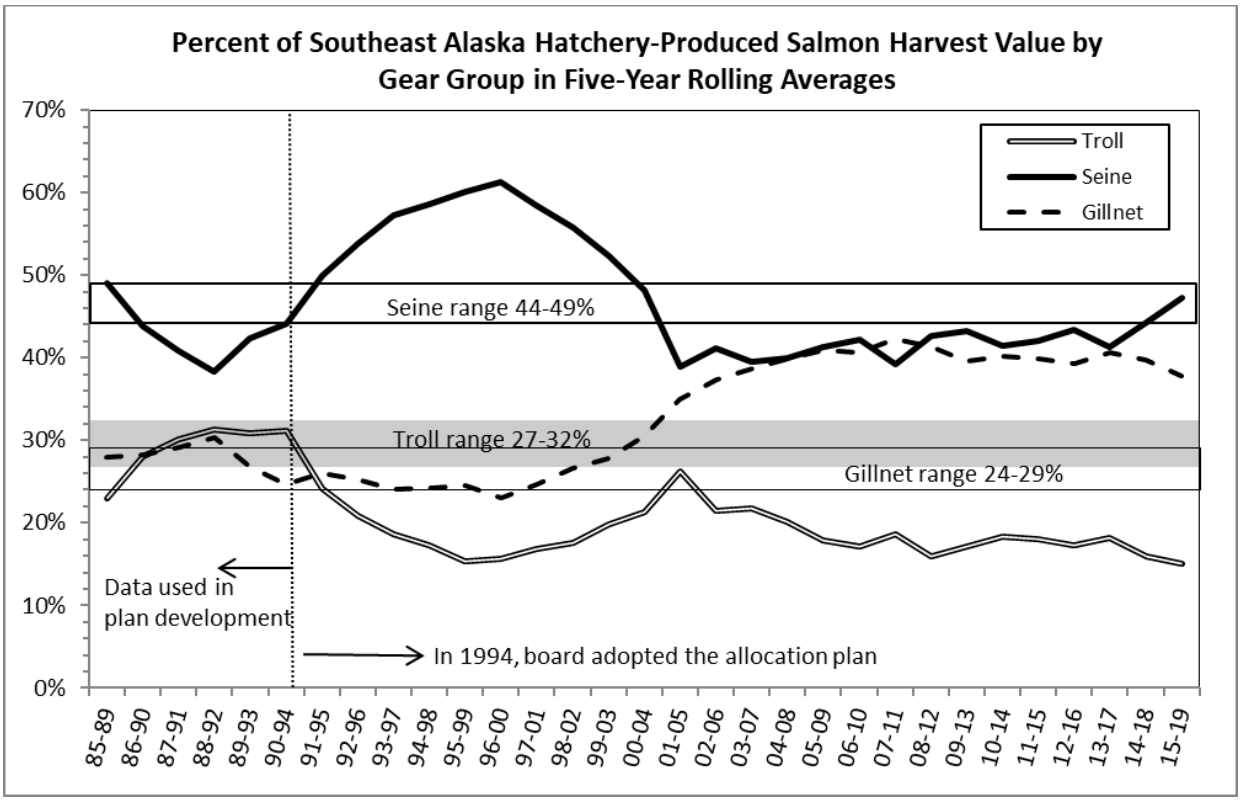

Figure 1.–Percent of Southeast Alaska hatchery-produced salmon harvest value by gear group in five-year rolling averages, 1985–2019.

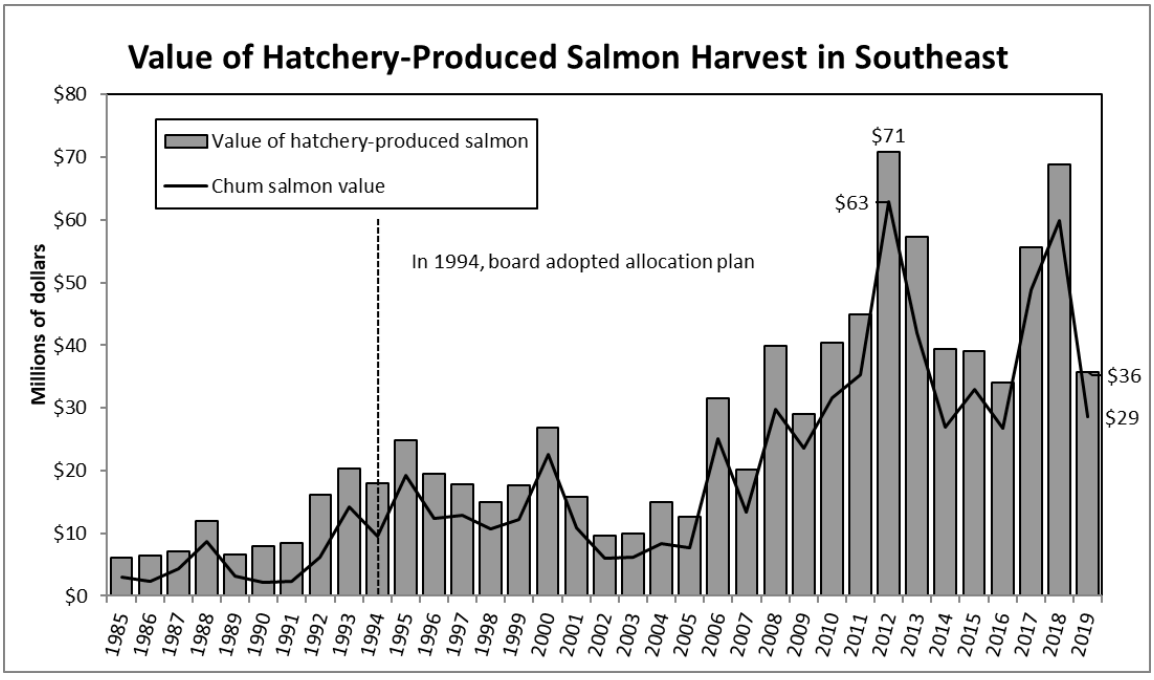

Figure 2.–Value of hatchery-produced salmon harvest in Southeast Alaska, 1985–2019.

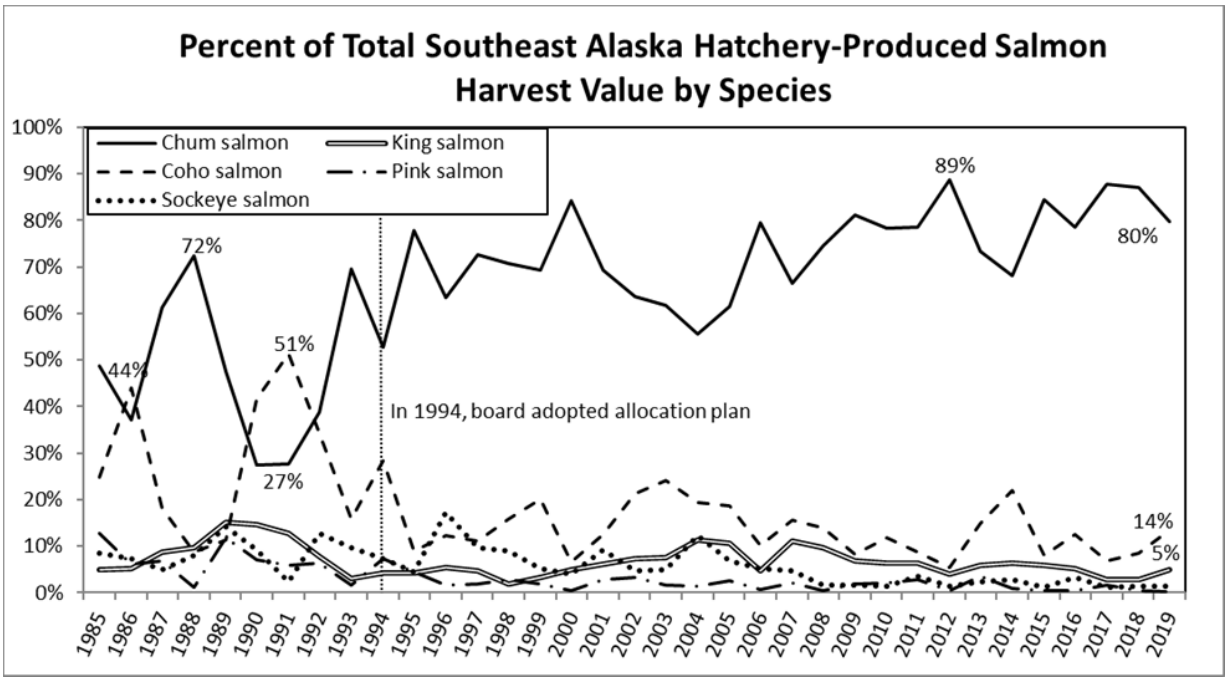

Figure 3.–Percent of total Southeast Alaska hatchery-produced salmon harvest value by species, 1985–2019.

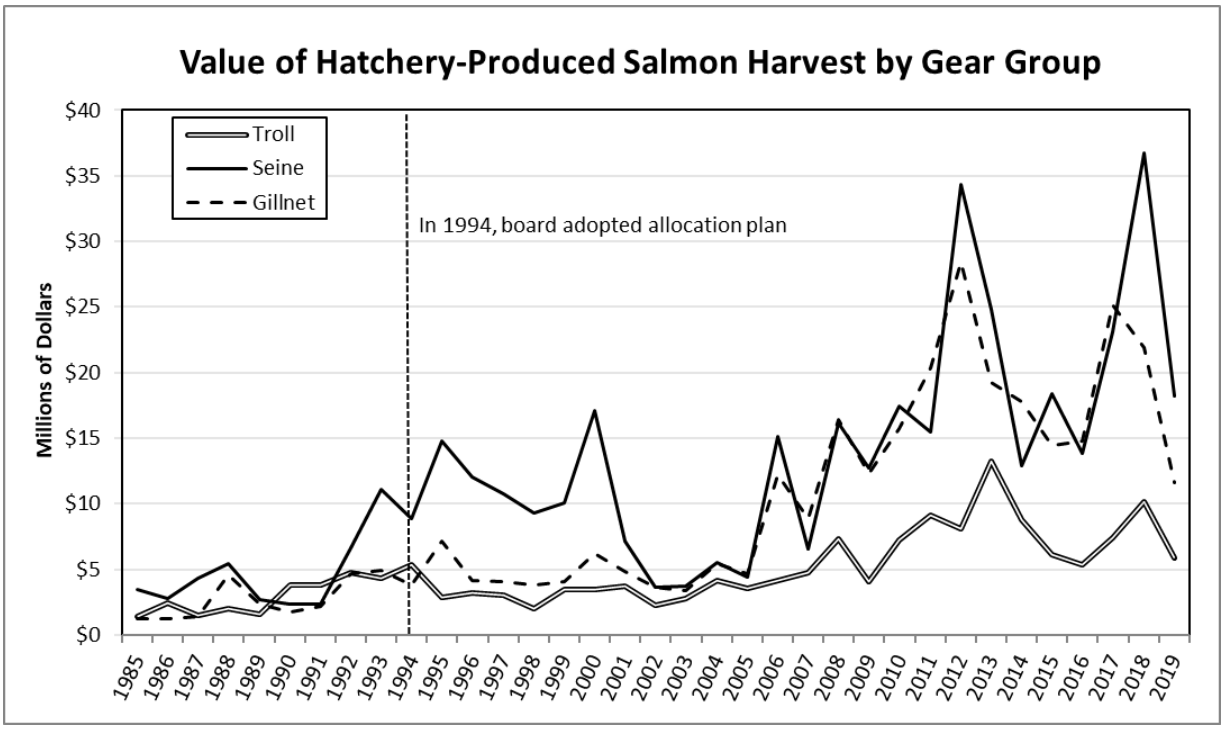

Figure 4.–Value of hatchery-produced salmon harvest by gear group, 1985–2019.

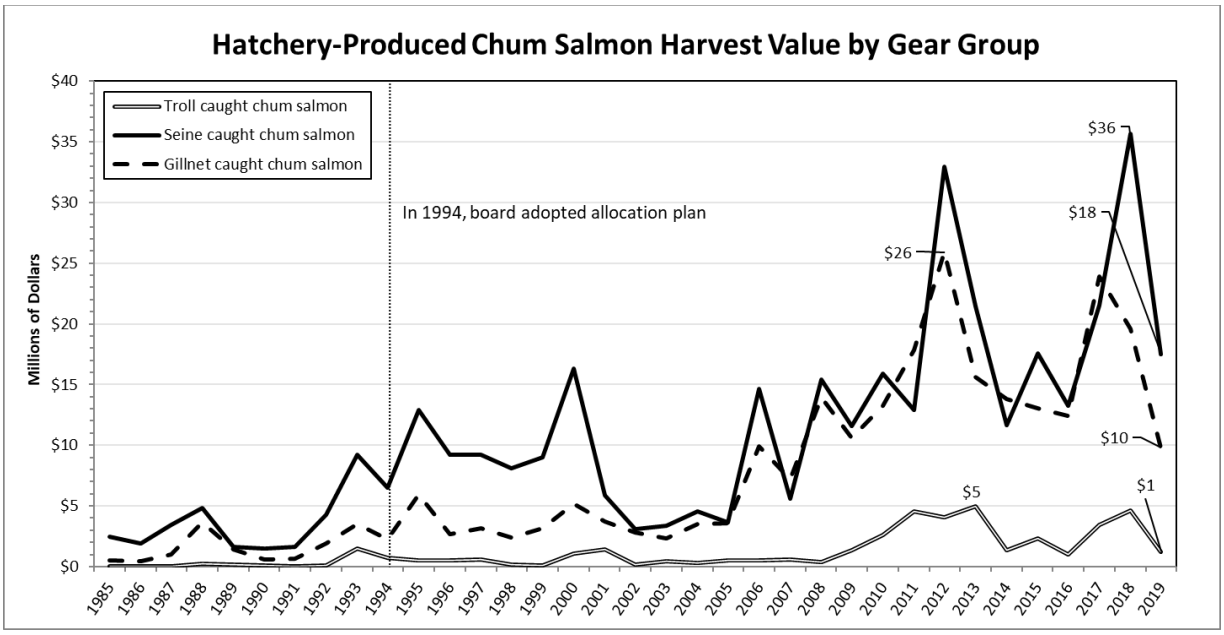

Figure 5.–Hatchery-produced chum salmon harvest value by gear group, 1985–2019.

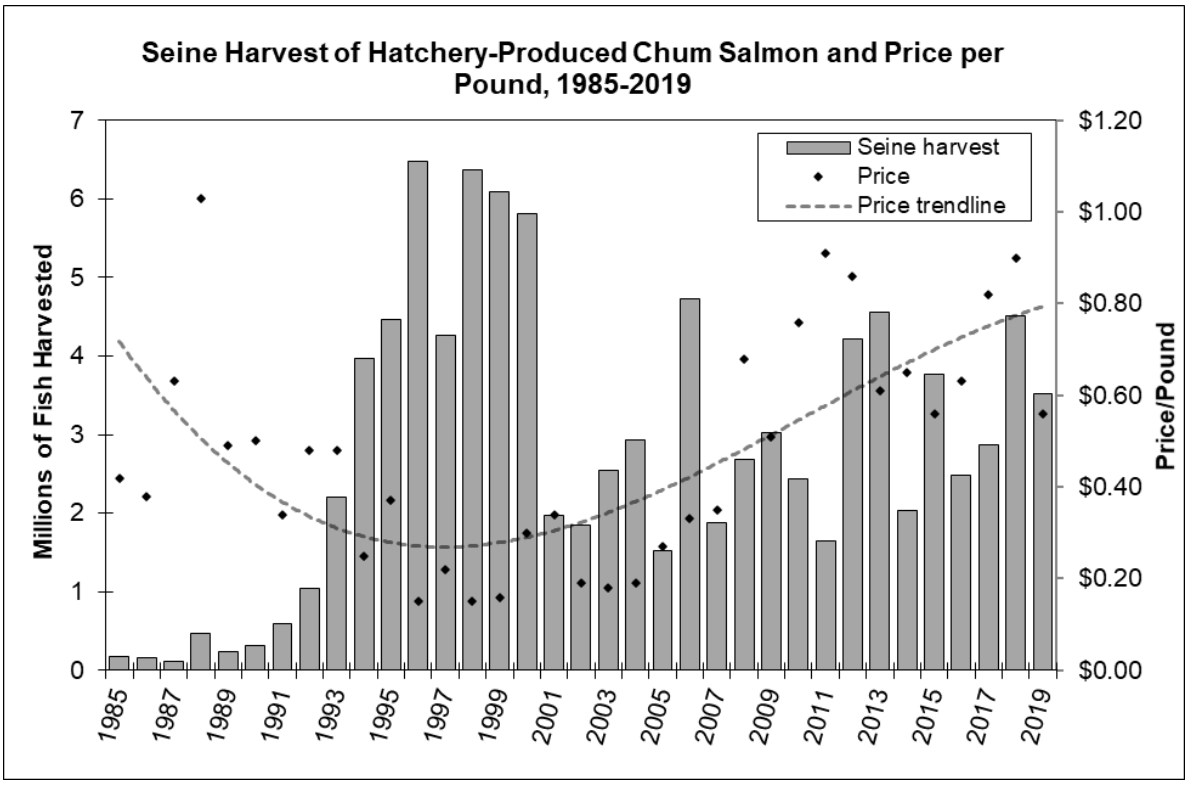

Figure 6.–Seine harvest of hatchery-produced chum salmon and price per pound, 1985–2019.

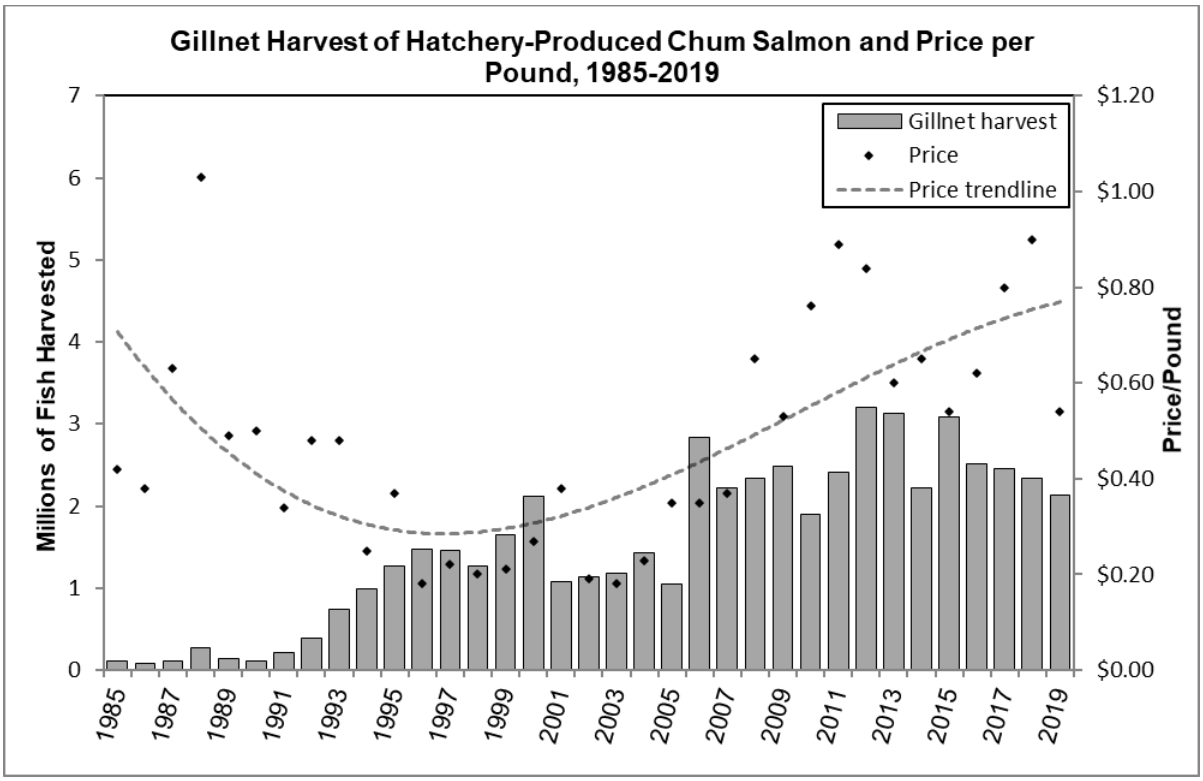

Figure 7.–Gillnet harvest of hatchery-produced chum salmon and price per pound, 1985–2019.

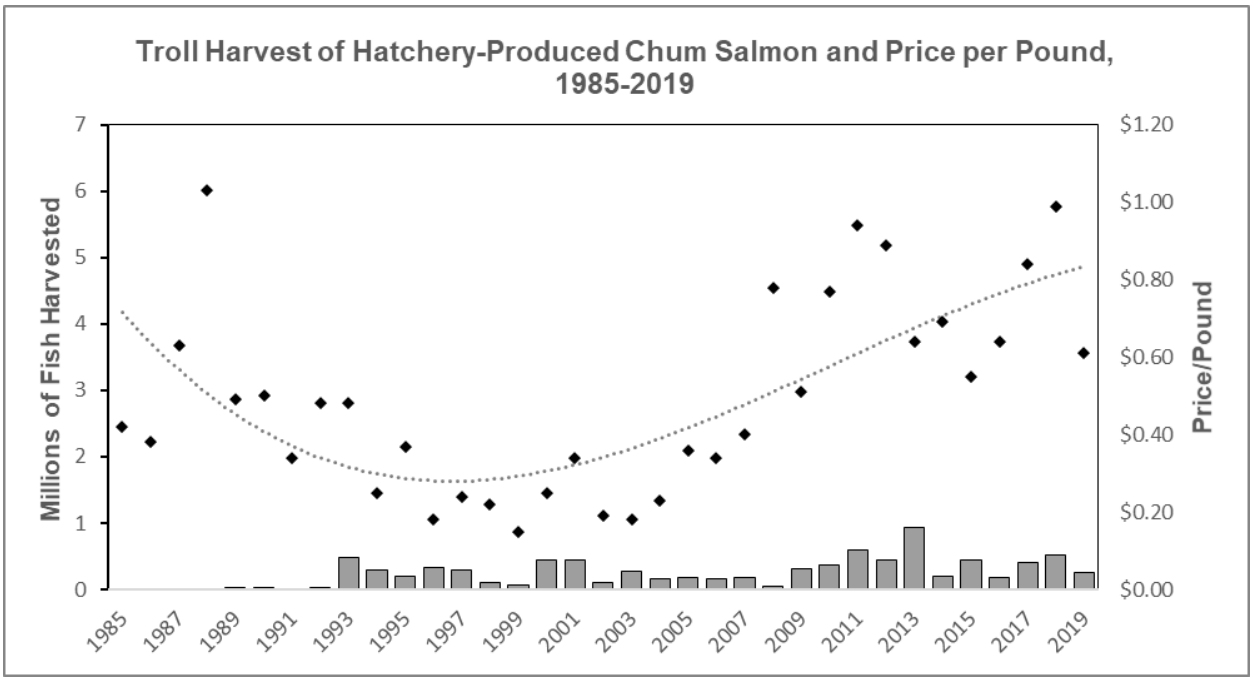

Figure 8.–Troll harvest of hatchery-produced chum salmon and price per pound, 1985–2019.

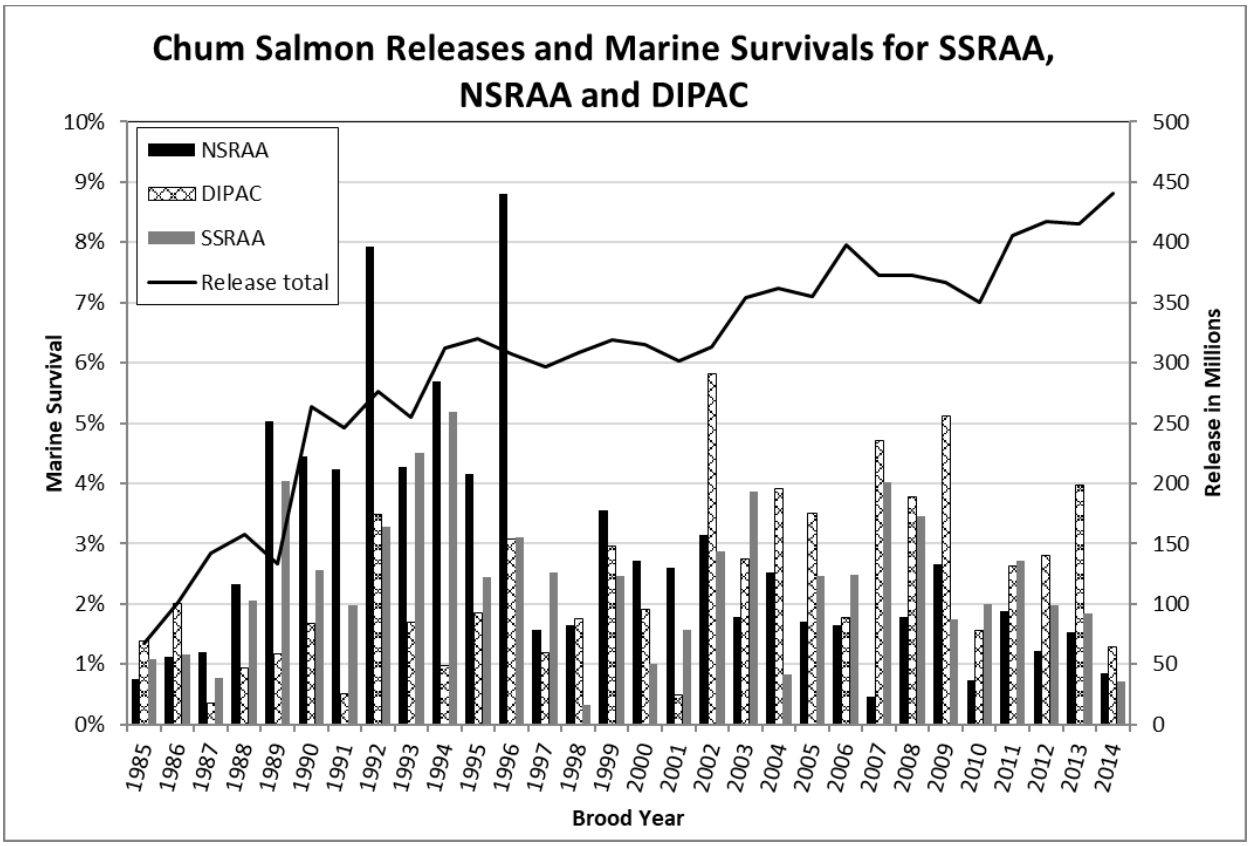

Figure 9.–Hatchery-produced chum salmon releases and marine survivals from NSRAA, SSRAA, and DIPAC.

Note: In 2019, five-year-old brood year 2014 chum salmon returned, completing the return cycle.

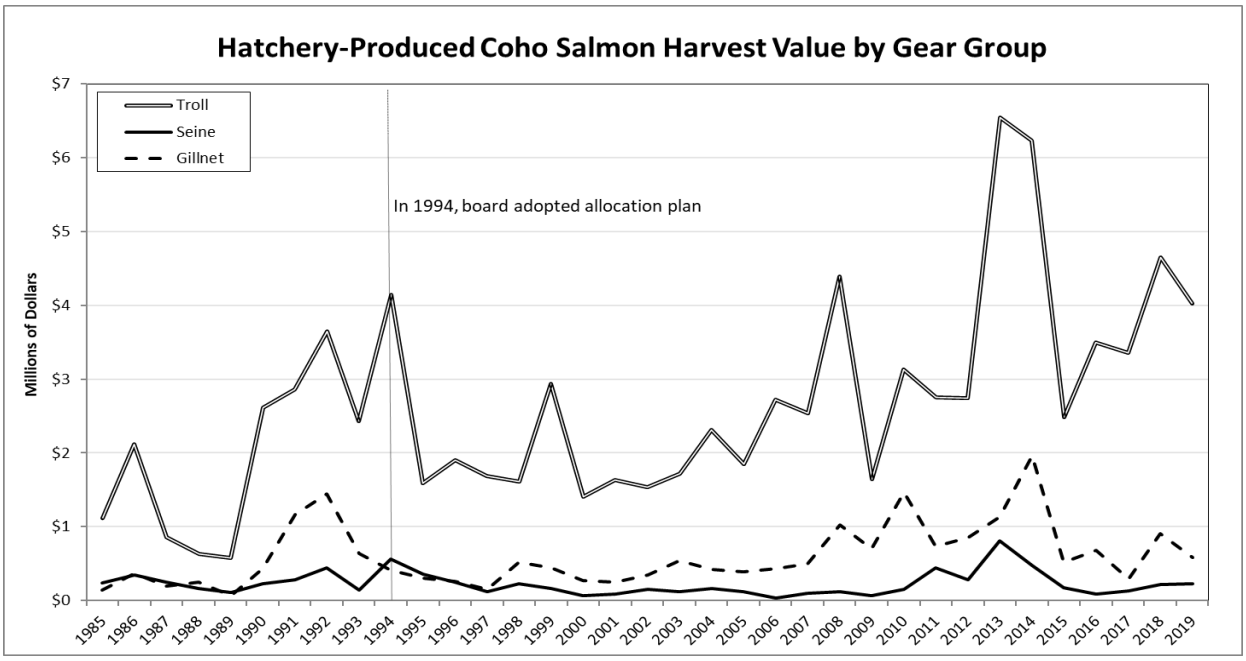

Figure 10.–Hatchery-produced coho salmon harvest value by gear group.

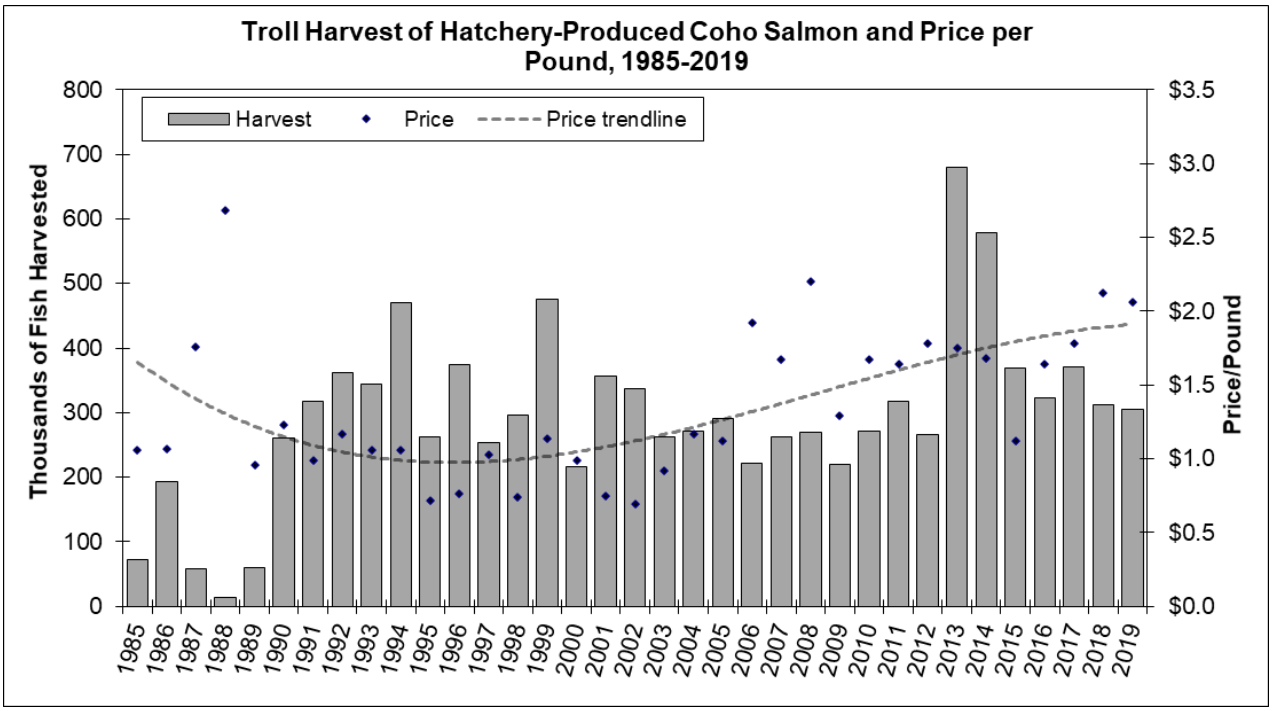

Figure 11.–Troll harvest of hatchery-produced coho salmon and price per pound, 1985–2019.

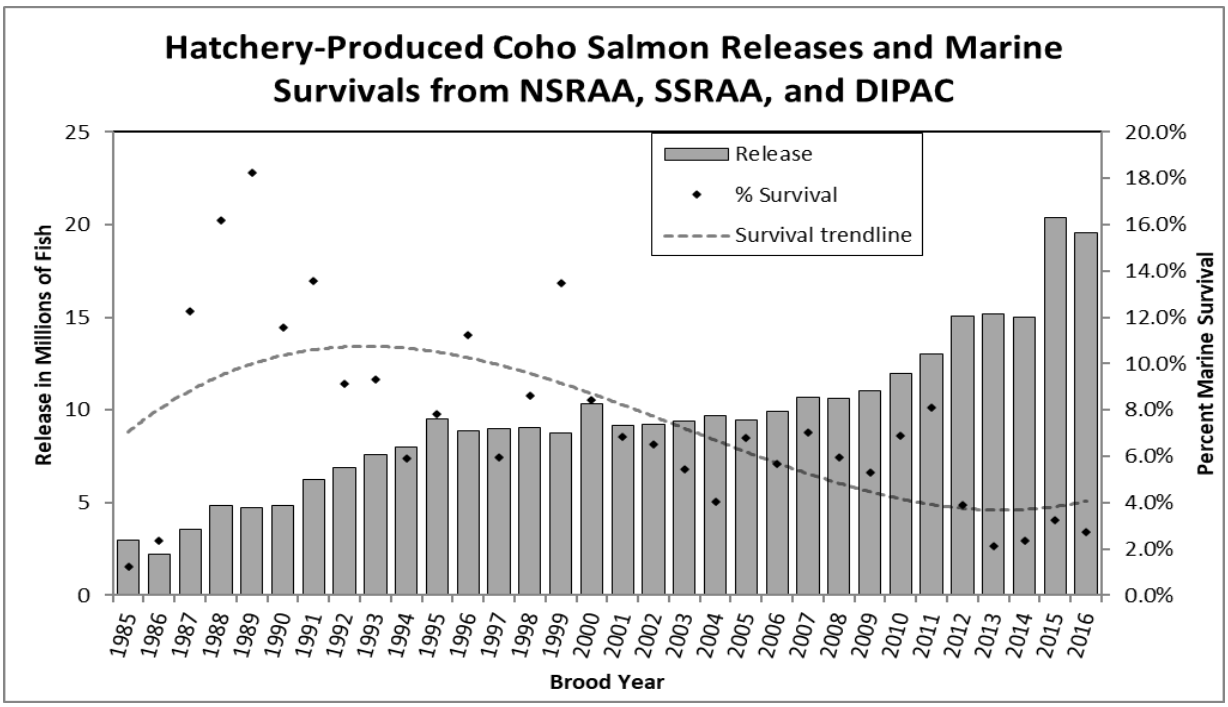

Figure 12.–Southeast Alaska hatchery-produced coho salmon releases and marine survivals from NSRAA, SSRAA, and DIPAC, 1985–2019.

Note: In 2019, the last brood year 2016 coho salmon returned, completing the life cycle.

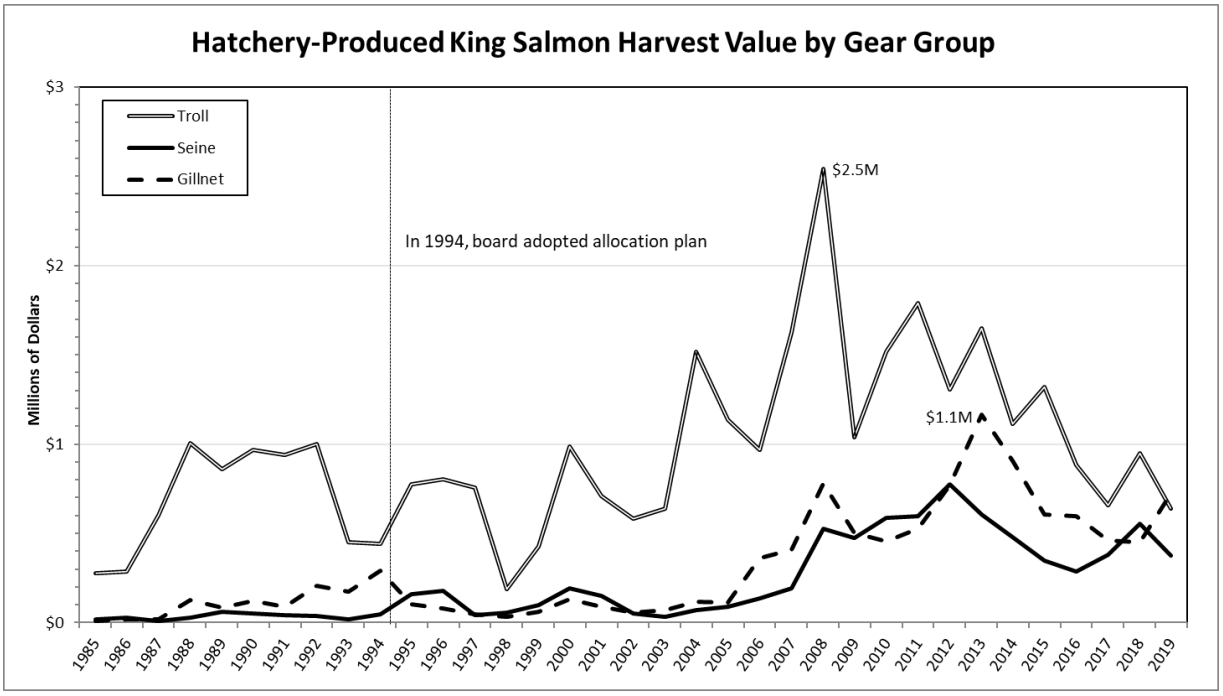

Figure 13.–Hatchery-produced king salmon harvest value by gear group, 1985–2019.

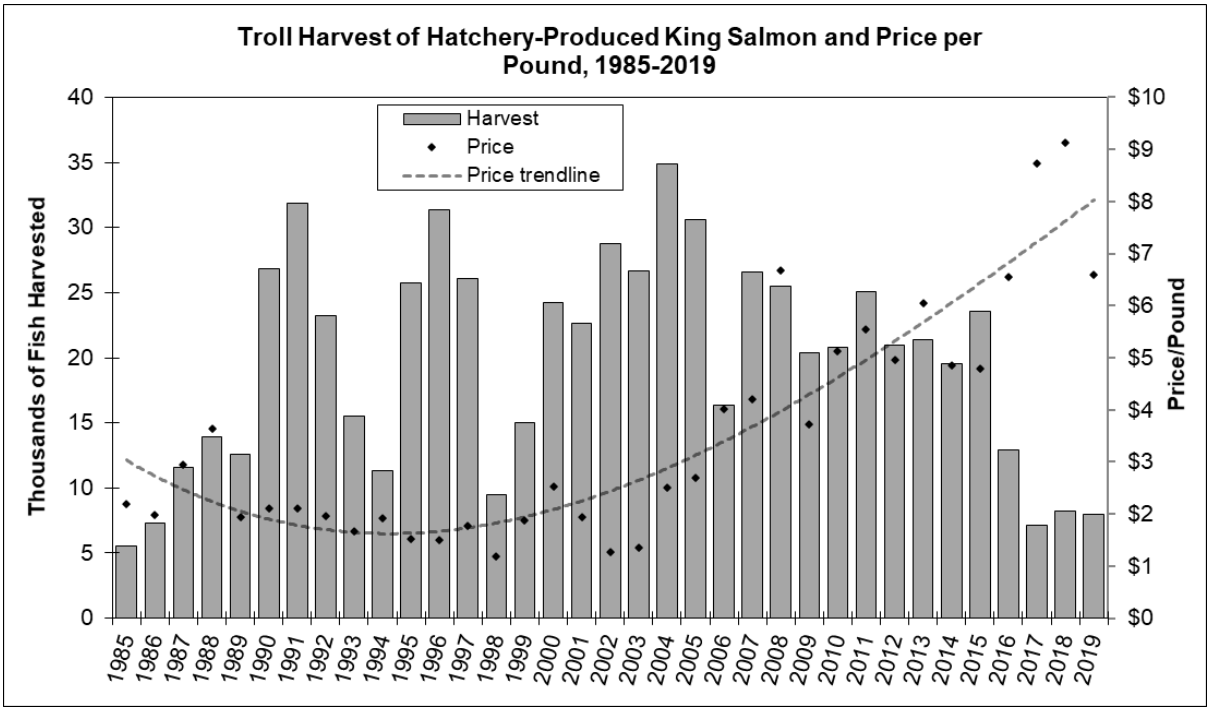

Figure 14.–Troll harvest of hatchery-produced king salmon and price per pound, 1985–2019.

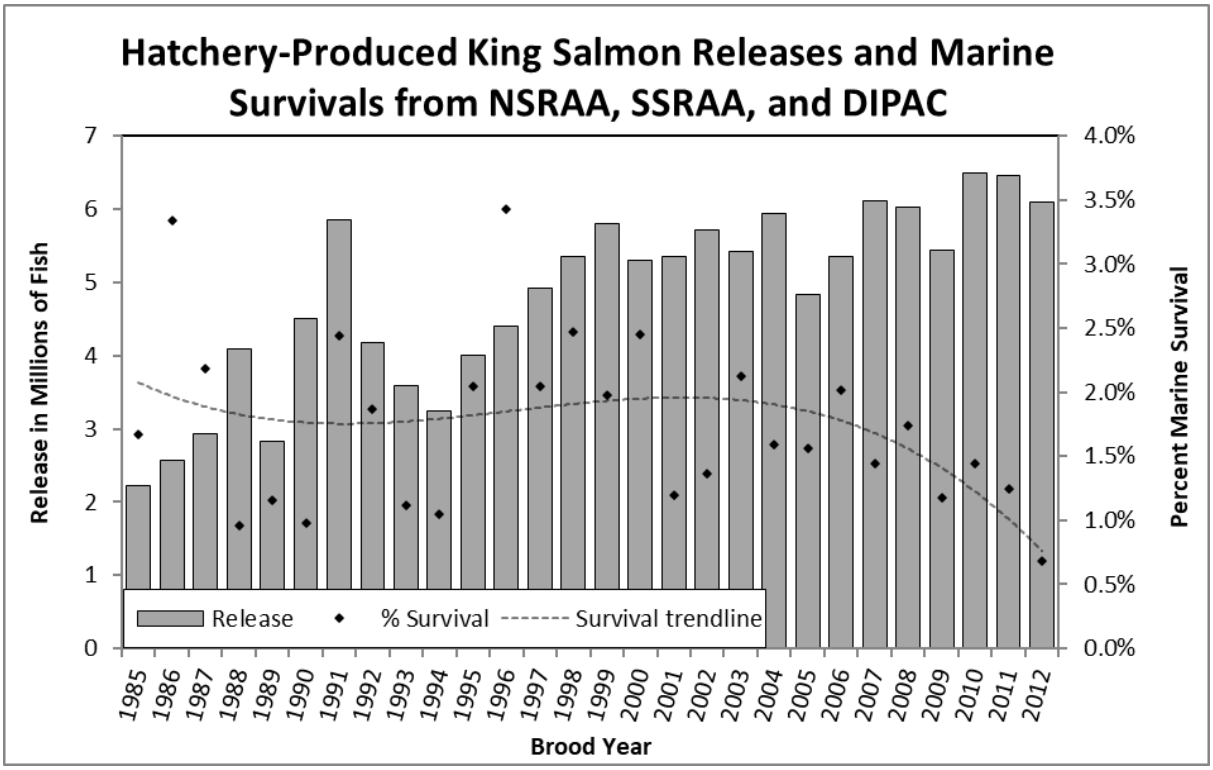

Figure 15.–Hatchery-produced king salmon releases and marine survivals from NSRAA, SSRAA, and DIPAC, 1985–2019.

Note: In 2019, the last of the brood year 2012 king salmon returned, completing the life cycle.

APPENDICES

(a) The purpose of the management plan contained in this section is to provide a fair and reasonable distribution of the harvest of salmon from enhancement projects among seine, troll, and drift gillnet commercial fisheries, and to reduce conflicts among these users, in the Southeastern Alaska Area. The Board of Fisheries establishes the following value allocations:

(1) seine–44 percent to 49 percent;
(2) hand and power troll–27 percent to 32 percent;
(3) drift gillnet–24 percent to 29 percent.

(b) The department shall evaluate the annual harvest of salmon stocks from enhancement projects to determine whether the distribution of the value of enhanced salmon taken in the seine, troll, and drift gillnet fisheries in the Southeastern Alaska Area is consistent with the allocation established in (a) of this section. The evaluation of allocation percentages shall be based on five-year increments, beginning with 1985. The value of the enhanced salmon harvested each year shall be determined by the department based on data from the Commercial Fisheries Entry Commission.

(c) If the value of the harvest of enhanced salmon stocks by a gear group listed in (a) of this section is outside of its allocation percentages for three consecutive years, the board will, in its discretion, adjust fisheries within special harvest areas to bring the gear group within its allocation percentage.

(d) The department may not make inseason adjustments or changes in management in or out of the special harvest areas to achieve the allocation percentages established in (a) of this section.

(Eff. 5/29/94, Register 130)
Authority: AS 16.05.251 AS 16.05.730 AS 16.10.440

(Previously finding #94-02-FB)

Southeastern Alaska Area Enhanced Salmon Allocation Management Plan (5 AAC 33.364)

Background: In March 1991 Mike Martin, Chairman of the Board of Fisheries, asked the Northern Southeast Regional Aquaculture Association (NSRAA) and the Southern Southeast Regional Aquaculture Association (SSRAA) to coordinate the development of the southeast wide allocation plan for all Enhanced salmon.

The issue concerned the benefits of commercial fishermen received from the enhancement activities especially in relation to the amount of the 3% Salmon Enhancement Tax (SET) paid. The issue was different between the Regional Associations and could not be resolved. Numerous proposals have been submitted to the Board of Fisheries to resolve the issue but none were acted upon. Chairman Martin requested that the two Regional Associations consider an all-Southeast Alaska Allocation Plan to include all enhancement activities: Fish and Game FRED division, Independent Non-profit Aquaculture corporations; and Regional Aquaculture Associations.

The Board of Directors of NSRAA and SSRAA agreed to accept the challenge. They formed a group that first met on March 29, 1991 in Ketchikan. The group called itself the Southeast Allocation Task Force (SATF). The SATF is composed of six voting members, three each from NSRAA and SSRAA, and each association provided one seine, one troll, and one drift gillnet representative for a total of two people from each gear type on SATF. All decisions were by consensus. No meeting was held without six voting members present.

There were two non-voting members on the SATF, one each from the FRED Division and a representative from the independent non-profit aquaculture corporations. DIPAC represented the independent seat. Also, each Regional Association provided one staff member. Pete Esquiro represented NSRAA and Don Amend represented SSRAA. The staff and non-voting members are resource people who provided technical input and comments when appropriate. The SATF also has had technical input from the NMFS at Auke Bay, the limited entry commission, and other people as needed.

All meetings were publicly held. Regionwide announcements were made in newspapers and radios. Public attendance was minimal, but a few showed up at each meeting. These people were allowed to address the SATF as recognized by the chair. There was no appointed sport representative, but these interests were present at a few meetings. There was a total of five meetings.

The SATF developed the number of fish caught and this was reviewed by scientists at the Auke Bay Laboratory. The value of the fish was provided by the Limited Entry Commission. The data does not include enhancement activities by the National Marine Fisheries Service (NMFS), Metlakatla Indian Community (MIC) on Annette Island, or the U.S. Forest Service (USFS). The production at NMFS is small and experimental. Although the production by the MIC is significant and they also harvest Alaska Enhanced fish, this was not included because their harvest and production cannot be controlled by the State. The USFS conducts many habitat enhancement activities, but the numbers cannot be verified or evaluated. All of Southeast Alaska was included (Districts 1–15), but the Yakutat area was excluded.

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The base period for data analysis was 1985. Production prior to 1985 was not significant and most projects were just coming online. The data was evaluated through 1990 and will be updated annually as it becomes available. Averages were based on this period when production was still increasing and changing. Estimates were made based upon all currently permitted capacity when at full production. Future production was based on planned increases in capacity, but not yet permitted or operational.

The development of the agreement was based on catches by power and hand trollers, seiners, and drift gillnetters. Set nets were not included and are not used in the areas analyzed. Sport, sport charter, subsistence, and personal use were not included. The agreement was based only upon those who pay the 3% SET. No allocation was suggested for these other groups. The belief was that they are restricted by bag limits and an allocation of enhanced fish is inappropriate.

The guidelines will be submitted to the Board of Fisheries and may be set in regulation, or developed into policy. The guidelines will be used by the Regional Planning Teams (RPTs) as one element in the evaluation of permit requests and proposed production changes. The Commissioner of Fish and Game will consider the guidelines when evaluating permits or establishing special harvest areas. The Commissioner of Commerce of Economic Development will consider them in determining salmon enhancement loans for changes in production. The Board of Fisheries will use it to make decisions concerning gear group disagreements that involve enhanced fish production. The guidelines are viewed as goals to achieve and remain flexible for changing conditions, such as management changes, treaty changes, gear changes, legislative changes, etc. It was not intended for Fish and Game management to use in managing the common property fishery, except in a very few special instances.

REPORT OF THE SOUTHEAST ALASKA ALLOCATION TASK FORCE (SATF) FOR ENHANCED SALMON.

Following are the fourteen (14) guiding principles which were developed along with rationale statements of each:

1). The primary goal of the Southeast Alaska salmon enhancement program is to provide additional fishing opportunities and revenue to traditional common property fisheries.

(A) Performance Goals: Hatchery program plans and performance, over time, should provide a 70% contribution (after broodstock) to common property fisheries. Out of recognition for those hatcheries not receiving any salmon enhancement tax (SET) revenues, a 60% contribution (after broodstock) to common property fisheries is an acceptable goal. This goal should be expanded to 70% when these non-association hatcheries retire their existing debt obligation to the State of Alaska.

(B) Operators of hatcheries and other enhancement projects will use these performance goals in designing the annual management plans they submit to the joint Regional Planning Team (RPT) for review prior to approval by the Commissioner.

(C) It is recommended that enhancement programs that achieve these performance goals be given priority from the Dept. of Commerce and Economic Development on the requests for funding from the Fisheries Enhancement Revolving Loan Fund.

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(D) Common property fisheries mean those fisheries available to the people for common use.

Rationale: The enhancement programs are primarily for the benefit of the common property fishery and not for the benefit of private and state ownership. To assure the emphasis is on the common property fisheries, the 70% and 60% performance goals specified in 1A shall be used in evaluating projects. Although contributions to the common property fisheries will vary from year to year depending on run strength, survival rates and management, the long-term benefit must be to the common property fisheries. No penalty for failures is suggested. However, hatchery proformas should include these production goals and, if not achieved over time, it is intended that management changes be made to assure these goals.

Broodstock are not included because they were viewed the same as escapement goals. Broodstock do not financially benefit anyone directly and are essential for continued production (see number 3).

2). Management of traditional "wildstock" fisheries are not to be restricted by cost recovery needs (economic escapement) of hatcheries.

Rationale: This concept is embodied in Alaska Statues (AS 16.05.730). The SATF could not envision any circumstance where a wildstock fishery should be interrupted to assure a cost recovery harvest.

3). Restrictions on conduct of traditional "wildstock" fisheries to meet broodstock needs should be absolutely minimal and should be clearly documented by adequate production and harvest data. Protection of broodstock should only occur in close proximity to terminal areas. (Consistent with AS 16.05.730, and regulations 5 AAC 40.005 and 5 AAC 40.220).

Rationale: The SATF recognizes the importance of broodstock. However, broodstock alone should not drive a common property fishery. Protection of broodstock should only occur in close proximity to terminal areas and only when the wildstocks can be adequately harvested in another area. The need for protection of broodstock in any area must be documented by showing that broodstock goals are adversely affected and the area contains significant broodstock. However, it is not intended that an operator manipulate activities just to ask for broodstock protection. For example, by conducting cost recovery harvest without taking proper steps to assure broodstock collection.

4). Enhancement projects should include tagging or marking that will allow determination of the amount of production harvested in the various fisheries.

Rationale: It is recommended that adequate tagging programs be required under the Commissioner's authority (AS 16.10.400). Operator estimates are not adequate for estimating contribution to common property fisheries. Tagging or marking programs are essential; however, because the technology for marking fish is still evolving, no method is recommended. It is assumed that the most reliable and cost-effective method will be used.

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5). The State of Alaska should commit to an adequate mark–recovery program for all enhanced salmon to provide harvest and production data.

Rationale: It is recommended that those responsible for enhancing fish should pay for the marking, but only the state has the resources to conduct the tag recovery program. The allocation agreement will not work unless the state commits to a mark recovery program. Also, there was evidence that the tag recovery program will not being conducted equally among the gear types or species harvested. For example, troll Chinook fisheries have been more intensively sampled, while the seine harvest has been sampled the least of the groups. The tag recovery program should be designed to provide an equal level of confidence in the contribution of enhanced salmon to each gear type.

6). Habitat enhancement and restoration projects where marking is not feasible will not be counted. Other field projects where marking is feasible and economically acceptable will be counted.

Rationale: Lake fry plants, stream bioenhancement, stream rehabilitation, and other enhancement strategies are frequently conducted with small numbers of fish in remote areas. It may not be practical or economically feasible to mark the fish. These enhancement and restoration projects are encouraged, and it is recognized that they contribute to the common property fisheries, but they will not be counted in the allocation percentages. However, where feasible, marking should be conducted.

7). The allocation percentage goals will be used to provide a fixed target for production.

Rationale: Enhancement projects and production goals have frequently been established based on political expediency or the economic viability of the operator. However, whenever fish are released and the returning adults harvested, an allocation is made. The allocation can become disproportionate based on the number of fish and where they are released.

It is desirable that new production, or revised existing production contribute to achieving the allocation percentage goals established. This, however, should not be the only criteria used to judge the desirability of new or revised production. If such new or revised production is "projected" to unbalance the distribution of enhanced salmon, and the change in production is otherwise considered desirable, the RPT will evaluate the overall enhancement program to determine what adjustments may be necessary to bring distribution of the harvest into compliance with the allocation percentage goals and make recommendations to the Commissioner.

8). Allocation percentage goals will be long term.

Rationale: It is recognized that survival rates can vary considerably within and among enhancement projects throughout S.E. Alaska. Also, variations in the management of the common property fisheries influence the harvest rates. The allocation percentage goals are not expected to be attained each year but should be attained over the long term. Any change in the production takes two to five years to impact a fishery. Therefore, allocation percentage goals should be based on a minimum of 5-year increments (see number 9).

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9). Overall contribution of revenue from salmon enhancement projects should be evaluated using the most recent five-year average. Adjustments should be implemented only after discrepancies are determined to exist in the five-year average for three consecutive years.

Rationale: See number 8 above. The distribution of enhanced fish is expected to vary widely from year to year. A five-year rolling average was used because it constitutes a production cycle and levels year to year variation. It is recognized that a single abnormal year can change the five-year average outside the range of the allocation percentage goals; therefore, the guidelines establish a three-year period of consistent discrepancy before any change is made.

10). The joint RPT will evaluate current enhanced salmon production and the distribution of harvest revenues and update this on an annual basis.

(A) Each facility should be evaluated after a minimum five years of operation to determine whether the 70% or 60% common property contribution, referred to in guiding principle 1A, is being achieved or to determine the realistic production and common property contribution for the facility.

(B) The joint RPT will conduct an evaluation to determine when the allocation percentages are not being achieved and adjustments are necessary.

(C) The joint RPT will recommend to the Commissioner adjustments to facilities' annual operating plans as necessary to accomplish the desired allocation goal.

Rationale: The SATF believes the joint RPT is the appropriate body to review the contribution data. The joint RPT is responsible for establishing and maintaining the comprehensive salmon plan, under the Commissioner's authority, and is responsible for recommending the permit changes for production to the Commissioner.

11). Achieving these allocation percentage goals should not result in any modifications, in time or area, to the traditional "wildstock" fisheries. Minor modification may be considered to allow experimental or test fisheries that would not adversely impact wildstocks.

Rationale: The SATF strongly believed that the common property fisheries for wildstocks should not be manipulated in order to achieve the allocation percentage goals. However, this is not intended to preclude experimental or test fisheries, special hatchery access fisheries, or the establishment of new special harvest areas in order to access enhanced fish. For example, this could include the June troll fisheries for Chinook, or late season openings, or other special openings used to target enhanced fish as long as wildstocks are not adversely impacted. It is recommended that the department allow targeted fisheries on enhanced stocks when they will not adversely impact sustained yield of wildstocks. The department should work closely with hatchery operators in establishing these fisheries, keeping in mind the 70% and 60% contribution goals. The harvest of enhanced salmon in a targeted wildstock fishery is considered incidental to the harvest of wild stocks.

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12). There should be no inseason changes in management of enhanced salmon in or out of the special harvest areas to achieve the allocation percentage goals.

Rationale: These guidelines are established to reach long term allocation percentages. Inseason common property fisheries adjustments should not be considered to meet allocation goals. No adjustment of wildstock fisheries should be allowed in order to meet the allocation percentage goals.

13). When adjustments are deemed necessary to the distribution of the harvest to meet allocation percentage goals, the following tools should be used: (1) special harvest area management adjustments; (2) new Enhanced salmon production; and (3) modification of enhancement projects production, including remote releases. Hidden Falls shall remain a seine/troll terminal harvest area (Consistent with 5 AAC 33.374).

(A) The joint RPT will make appropriate recommendations through the Commissioner to facility(s) annual operating plan(s) to attain allocation goals.

(B) Facilities may request changes in operating plans to meet allocation requirements.

Rationale: New production and facility modifications to meet the allocation percentage goals are long term changes and will take 5 to 10 years to have an impact. Changes in special harvest areas can be used in the short term to help modify any imbalances that occur.

For example, special harvest areas can be designated to only one gear group or the fishing time allowed to different gear groups could be adjusted. The effectiveness of this will also be contingent on the gear type and the targeted species. The SATF expects these adjustments will be reviewed by the joint RPT, and the joint RPT will make recommendations to the Commissioner as to the most appropriate action needed to achieve the allocation percentage goals. It is anticipated that short-term solutions such as special harvest area management adjustments will only be used until decisions concerning long-term adjustments can take effect. The allocation percentage goals will also be considered when reviewing permit alteration requests. If new production is not feasible or desirable, changes in remote releases can include new sites, change in species composition, change in the numbers of salmon released, or a combination of these.

(14). The allocative percentages will be as follows:

Seine–44% to 49%

Troll–27% to 32%

Gillnet–24% to 29%

Note: These percentages refer to the total value (nominal dollars) of enhanced salmon. These percentages are not intended to apply to wildstock allocations.