Fishery Management Report No. 16-19

2015 Lower Cook Inlet Area Finfish Management Report

by

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and

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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

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ABSTRACT

The 2015 Lower Cook Inlet (LCI) management area (all coastal waters and inland drainages entering waters north of Cape Douglas, west of Cape Fairfield, and south of Anchor Point) commercial salmon harvest was 6,751,859 salmon. The harvest was composed of 6,388,392 pink *Oncorhynchus gorbuscha*, 244,892 sockeye *O. nerka*, 113,441 chum *O. keta*, 4,340 coho *O. kisutch*, and 804 Chinook salmon *O. tshawytscha*. Approximately 67% of the harvest, 4,512,536 fish, was sold as common property harvest, and 2,239,323 fish were sold for hatchery cost recovery including carcass sales. Homepack harvest and donated fish (4,411) accounted for less than 1% of the harvest. Based on fish ticket reporting of prices, the preliminary value of the commercial salmon harvest was $6.2 million, including hatchery sales. This amount does not include postseason adjustments, bonuses, etc. During the 2015 season, 24 set gillnet and 19 purse seine permit holders reported deliveries. Set gillnet exvessel harvest value was an estimated $441,000, with average permit earnings of $18,362. Purse seine fishery exvessel harvest value was an estimated $3.5 million, with average permit earnings of $184,449. Revenue generated by cost recovery for hatchery operations was approximately $2.2 million. An additional $559,000 was disbursed to Cook Inlet Aquaculture Association from an Area H 2% salmon enhancement tax. The LCI management area personal use and subsistence fisheries harvested 4,527 salmon. For these fisheries, approximately 184 subsistence and personal use permits were issued to Alaska residents. In addition, 1,408 coho salmon were landed by sport fish permit holders in a fishing derby in Seward. Although these fish were subsequently sold commercially, they are not included in the total commercial harvest. The commercial Pacific herring *Clupea pallasii* fishery in the Kamishak Bay District remained closed in 2015 for the 14th consecutive year to allow the spawning population to continue rebuilding.

Key words: Pacific salmon *Oncorhynchus* spp., sockeye salmon *O. ner* , pink salmon *O. gorbuscha*, chum salmon *O. keta*, Chinook salmon *O. tshawytscha*, coho salmon *O. kisutch*, Pacific herring *Clupea pallasii*, harvest, set gillnet, purse seine, commercial salmon harvest, salmon enhancement, hatchery, cost recovery, sport fishery, subsistence fishery, personal use fishery, escapement, Cook Inlet Aquaculture Association CIAA, Lower Cook Inlet, Kamishak Bay, Kachemak Bay, Resurrection Bay, Annual Management Report AMR

INTRODUCTION

LOWER COOK INLET MANAGEMENT AREA COMMERCIAL SALMON AND HERRING FISHERIES

The Lower Cook Inlet (LCI) management area comprises waters of the Cook Inlet Area, south of the latitude of Anchor Point including the western shore of Cook Inlet south to Cape Douglas, and the eastern shore of Cook Inlet along the Kenai Peninsula to Cape Fairfield. This area is included in Area H and encompasses all coastal waters and inland drainages entering this area (Figure 1).

This salmon management area is divided into 5 districts that correspond to local geography and distribution of the 5 species of Pacific salmon (*Oncorhynchus* spp.) harvested by commercial fisheries (Figures 1–18). The management objective for all districts is the achievement of spawning escapement goals for major stocks, while allowing for orderly fisheries to harvest fish surplus to spawning requirements. In addition, Alaska Department of Fish and Game (ADF&G) follows regulatory guidelines to manage fisheries and allow private nonprofit hatcheries to achieve cost recovery and broodstock objectives.

Three hatcheries currently contribute to the area's salmon fisheries. The Trail Lakes Hatchery (TLH) at Mile 29 of the Seward Highway produces sockeye *O. nerka* and coho salmon *O. kisutch* and is operated by the Cook Inlet Aquaculture Association (CIAA). ADF&G operates the Ship Creek Hatchery Complex near Anchorage that produces Chinook *O. tshawytscha* and coho salmon, which are released in the LCI area. In addition, the Tutka Bay Lagoon Hatchery once again began incubating pink salmon *O. gorbuscha* eggs in 2011 for release into Kachemak Bay.

Gear utilized in commercial salmon fisheries includes purse seine and set gillnet. Purse seine gear is permitted to be fished in the Southern, Outer, Eastern, and Kamishak Bay districts. Set gillnet gear is permitted to be fished in the Southern District. The Barren Islands District is closed by regulation to salmon harvest.

When Pacific herring *Clupea pallasii* spawning biomass allows for a commercial fishery in the Kamishak District, annual harvest level ranges are established in regulation and divided between the commercial purse seine sac roe fishery in that district (90%) and the Shelikof Strait food and bait fishery (10%) in the Kodiak management area. Other districts in LCI were closed to commercial herring harvest by the Alaska Board of Fisheries (BOF) in 2002, pending an increase in stock levels sufficient to ensure that a commercial herring fishery can be conducted in a sustainable manner.

OVERVIEW OF AREAWIDE SALMON AND HERRING FISHERIES

The 2015 LCI management area commercial salmon harvest was 6,751,859 fish (Table 1; Figure 19). The harvest was composed of 6,388,392 pink, 244,892 sockeye, 113,441 chum *O. keta*, 4,340 coho, and 804 Chinook salmon. Hatchery runs of sockeye salmon in general were below forecast in Resurrection Bay and at other hatchery release sites. Commercial harvest of coho and sockeye salmon were below previous 10-year (2005–2014) averages (Table 2). Approximately 67% of the harvest, 4,512,536 fish, was attributed to the common property fishery, and 2,239,333 fish to hatchery cost recovery, including carcass sales and donations. An additional 17,755 sockeye and 265,203 pink salmon were harvested by hatcheries for broodstock (Appendices F2 and F3). Homepack harvest (1,253 salmon) accounted for less than 1% of the commercial harvest from LCI districts (Table 1). The 2015 preliminary exvessel value estimates by gear group from the common property fishery, both wild and enhanced salmon, were $3.5 million (88.8%) for purse seine and $440,698 (11.2%) for set gillnet (Table 3; Figure 20). The average price per pound paid to fishermen was below the previous 10-year average for all salmon species except sockeye (Table 4). The overall harvest values for purse seine in 2015 was approximately double the previous 10-year harvest average, whereas set gillnet harvest value was only 1.7 times the previous 10-year average value (Table 5).

No commercial fisheries for herring occurred in 2015 in order to allow the population further opportunity to rebuild from historically low abundance (Figure 21). This is the 14th consecutive year the commercial fisheries have remained closed to allow the spawning population to continue rebuilding.

SALMON SEASON SUMMARY BY DISTRICT

SOUTHERN DISTRICT

The Southern District includes the waters of eastern Cook Inlet south of Anchor Point and north of a line from Cape Elizabeth to Cape Douglas excluding waters east of a line from Point Adam to the tip of Cape Elizabeth (Figures 1–5). Commercial fishing in this district is restricted by regulation to waters along the south shore of Kachemak Bay from Chugachik Island near the terminus of Kachemak Bay to Point Bede approximately 4 miles south of the village of Nanwalek (English Bay). Purse seine gear is permitted in all open waters of this district during periods established by emergency order (EO). Commercial set gillnet harvest is restricted to approximately 15 miles of shoreline in 5 subdistricts in this district: east shore of Ismailof Island near Halibut Cove; waters surrounding McDonald Spit extending to Jakolof Bay; waters east of

Barabara Point extending approximately 1.4 miles; waters along the west shore of outer Seldovia Bay; and waters of a portion of the south shore of Port Graham and English Bay. Any Cook Inlet Area (Area H) commercial set gillnet permit holder may register to fish in these areas. This registration, however, would preclude that permit holder from fishing in the Northern and Central districts in Cook Inlet for the remainder of that calendar year. Other areas in the "Greater Cook Inlet Area," as defined in 5 AAC 21.345, may be fished in a given year by set gillnet permit holders fishing in the Southern District. The primary target species in this district for both purse seine and set gillnet permit holders are sockeye and pink salmon, although modest numbers of chum and coho salmon are also harvested. The major natural producer of sockeye salmon in this district is the English Bay River. Pink salmon historically have returned in large numbers to Humpy Creek, as well as numerous smaller streams in the Southern District. Hatchery releases began in 1972, when 241,000 coho and 34,000 Chinook salmon were released into Kasitsna Creek. This was followed by releases of chum and pink salmon into Halibut Cove Lagoon in 1974 and 1975. Sockeye salmon were released into Leisure Lake and Halibut Cove Lagoon in 1976. Since that time, hatchery releases have continued to provide added salmon production to sites within this district (Appendices F12, F13, and F14).

Preseason Outlook and Harvest Strategy

The 2015 commercial wild stock harvest forecast for the Southern District was 26,000 pink and 40,700 sockeye salmon (Table 6; Appendix H1). The enhanced sockeye salmon run to CIAA release sites was forecast to be 82,900 fish. A total of 1.5 million hatchery-produced pink salmon were anticipated to return to the LCI Area in 2015 from the 2014 release of 51 million fry from Tutka Bay Lagoon and 188,000 from Port Graham Bay (Appendices F7, F9, and F14).

As specified in regulation, the set gillnet fishing season in the Southern District opens on or after June 1 with two 48-hour periods per week specified unless modified by EO. The seine fishing season and fishing periods are opened and closed by EO depending on the available harvestable surplus of both wild and hatchery stock salmon. Given that cost-recovery objectives were initially anticipated to be met by sockeye salmon returns to Resurrection Bay, all returning hatchery sockeye and pink salmon in excess of broodstock requirements in other areas were anticipated to be available for commercial common property harvest. Considering recent irregular runs of sockeye salmon to the Port Graham Subdistrict, the commercial set gillnet fishery would remain closed in this area until observations at the English Bay River indicated sufficient escapement to achieve both the sustainable escapement goal (SEG) and hatchery broodstock requirements. Hatchery harvest for this and previous seasons is discussed fully in the *Cook Inlet Salmon Enhancement* section.

Early season management of the Southern District (excluding the Port Graham Subdistrict) is based on actual harvest versus anticipated harvest. Port Graham Subdistrict management is based on anticipated versus actual run strength to the English Bay Lakes as measured by the English Bay River weir. Environmental conditions, fishing effort, and harvest consistency throughout the period are also taken into account. By early July, ground survey estimates of chum and early pink salmon escapement begin to weigh more heavily when scheduling commercial fishing periods. These surveys become primary tools in late July and August when management focus shifts to pink salmon in this district.

Season Summary

The total 2015 Southern District sockeye salmon commercial common property harvest was 90,844 fish, with 36,061 (39.7%) harvested by the set gillnet fleet and 54,783 harvested by seine permit holders (Appendices A1–A3). In addition 32,455 sockeye salmon were harvested from the Tutka Bay Lagoon Hatchery Special Harvest Area (SHA) by CIAA for cost recovery, and 6,769 fish were harvested for broodstock purposes (Appendix F2). Total pink salmon harvest was 169,330 fish with 141,604 (83.7%) harvested by the seine fleet and 27,726 harvested by set gillnet permit holders. In addition, CIAA harvested 165,008 pink salmon from the Tutka Bay Lagoon Hatchery SHA and purchased 21,408 from the Port Graham Hatchery SHA for use as broodstock (Appendix F3). A total of 804 Chinook salmon were harvested in the Southern District with 752 fish harvested by set gillnet permit holders and the remaining by seine permit holders. Also, a total of 12,989 chum salmon were harvested, with 11,539 by set gillnet and 1,450 by seine permit holders. In addition, 4,099 coho salmon were landed, with 3,102 by set gillnet and 997 by seine permit holders (Table 1; Appendices A1 and A2). A total of 278 sockeye, 67 Chinook, 479 coho, 28 chum, and 401 pink salmon were retained by 20 commercial permit holders for personal "homepack" use and not sold (Table 1; Appendix E7).

Prior to the first commercial set gillnet fishing period on Monday, June 1, AD&FG released an EO that defined the seaward boundary of the 5 areas in the Southern District where commercial set gillnets are legal using GPS coordinates located 1,000 feet seaward of the mean lower low water (MLLW) isobar established on NOAA nautical charts. Prior to this EO, the legal boundary was implied by 5AAC 21.330(b)(1), which states that "Set gillnets may be used…within 1,000 feet of beach areas that at mean low water are connected by exposed land to the shore…"

This regulation was identified by Alaska State Troopers as being problematic for their field staff given that mean low water (MLW) is a nonstandard reference that would be highly difficult to establish in the field without additional technical staff and equipment. The standard reference used in all other shore fisheries in Cook Inlet as well as on NOAA navigational charts is MLLW, which is defined as the average of the lower low water height of each tidal day observed over the 17-year National Tidal Datum Epoch. Assigning GPS coordinates to points along a line 1,000 feet seaward of MLLW would further simplify identification of this line for stake holders and enforcement staff where the only equipment required to locate these points is a cell phone or inexpensive handheld GPS receiver.

Shortly after the first fishing period concluded, on June 4 a set gillnet permit holder contacted ADF&G and voiced concern that the section of the "new line" that was established on the east side of Ismailof Island invalidated a portion of her shore fishery lease that she had fished for 2 decades. Consulting DNR Shore Fishery Diagram No. 1824 showed that her lease terminated on a line identified only as "ADF&G Closure Line" on the diagram. Further examination revealed that this line was incorrectly located on this document. The actual boundary (151°12.25′W long) specified in regulation was approximately 400 feet to the west. The regulatory boundary was established in 1961 and was first identified in regulation using the North American Datum of 1927 as 151°12.12′W longitude.

Given that this error had been unnoticed by ADF&G management staff, DNR shore fishery permitting staff, and the Alaska State Troopers for close to 20 years, and impacted only 2 permit holders, the eastern boundary of the legal area where commercial set gillnet is legal was moved approximately 400 feet eastwards using EO authority.

The Southern District set gillnet commercial fishing season was announced by EO on May 8 and opened on June 1 (Table 7). The first 48-hour commercial fishing period was also announced in this EO to begin at 6:00 AM on Monday, June 1. The harvest from this period was 493 sockeye, 39 Chinook, and 50 chum salmon with 9 permit holders reporting deliveries (Appendix A1). During this period, waters of the Port Graham Subdistrict remained closed to commercial set gillnet harvest as a precautionary measure due to irregular sockeye salmon runs in recent years. The English Bay weir began operation on May 22 and through June 1 had passed 94 sockeye salmon during this period. Passage increased with a total of 501 sockeye salmon counted through June 7. This was within the anticipated SEG range of 234–526 fish for this period. The anticipated range was the SEG range apportioned out daily in accordance with the historic run timing that would be required to meet the SEG on July 31 (Appendices A4–A6; Table 8).

The second 48-hour period began the following Thursday on June 4 at 6:00 AM and had 8 permit holders reporting 302 sockeye, 21 Chinook, and 66 chum salmon harvested (Appendix A1). During the following period on Monday, June 8, harvest increased with a total of 640 sockeye, 62 Chinook, and 185 chum salmon harvested by 9 permit holders (Appendix A1). English Bay weir passage increased during the week of June 8–14 with a total of 1,983 sockeye salmon passed. A cumulative total of 1,141–2,567 fish were anticipated in order to fall within the final SEG range of 6,000–13,500 on July 31.

A commercial fishing period occurred beginning on Thursday, June 11, in the Southern District excluding the Port Graham Subdistrict with 9 permit holders reporting a harvest of 93 Chinook, 1,665 sockeye, and 773 chum salmon. Weather over the past weeks was overcast with warm temperatures and scant rain. Harvest from the following period beginning on Monday, June 15, decreased with 10 permit holders delivering 72 Chinook, 916 sockeye, and 442 chum salmon (Appendix A1). Although cumulative sockeye salmon passage at the English Bay weir remained within the SEG targets for those dates, ADF&G was concerned that inconsistent daily passage could portend an early and lackluster run. Consequently, the commercial fishery in the Port Graham Subdistrict remained closed. During the week of June 15–July 21, passage increased with a total of 933 sockeye salmon passed during this 7-day period versus an anticipated count of 642–1,444 fish during this time period. Cumulative passage on June 21 was 2,916 fish versus an anticipated cumulative count of 1,783–4,011 fish (Appendix A4). Historically, passage at the weir has been extremely sporadic with fish numbers influenced by rainfall and tides, as well as subsistence harvests by residents of Nanwalek and Port Graham. Consequently, staff elected to keep the common property commercial fishery in the Port Graham Subdistrict closed until this run could support additional commercial harvest, as well as subsistence harvest and escapement needs. Elsewhere in the Southern District, harvest from the Thursday, June 18 fishing period improved somewhat with 61 Chinook, 1,545 sockeye, and 562 chum harvested by 8 permit holders (Appendix A1).

Weir passage over the next week (June 22–28) decreased markedly with 778 fish counted, which was below the SEG range anticipated for passage during that week of 1,532–3,446 fish. Total passage through June 28 was 3,694 sockeye salmon versus an anticipated total cumulative passage of 3,315–7,458 fish. Historically, approximately 55% of the English Bay weir escapement has been counted as of this date (Appendix A4). Commercial set gillnet harvest in other portions of the Southern District during the week of June 22–28 was similar to previous weeks harvest (Appendix A1).

The Southern District commercial purse seine season was opened by EO on June 22 with a fishing schedule of 3 weekly 16-hour periods (6:00 AM to 10:00 PM) established on Mondays, Wednesdays, and Fridays in portions of the district east of McDonald Spit (Table 8). Although no deliveries were reported from the Monday, June 22 fishing period, harvest from the Wednesday fishing period was confidential due to fewer than 3 permit holders reporting deliveries (Appendix A2). Harvest from the Friday, June 26 fishing period was 137 sockeye salmon with 3 permit holders reporting deliveries. Harvest and participation increased the following week with 9 permit holders delivering 5,090 sockeye and 16,858 pink salmon. An increase in fishing time to 5 days per week (Monday–Friday) effective on Monday, July 6, was announced on Thursday, July 2. Hatchery SHAs remained closed during these fishing periods. The intent of this added time was to begin harvesting what was anticipated to be a significant enhanced pink salmon return to the Tutka Bay Lagoon Hatchery. Increased time would reduce the possibility of hatchery-produced salmon straying, as well as diminish the possibility that a large return would overwhelm the capability of cost-recovery boats to harvest these fish in an orderly and effective manner. Harvest from Monday, July 6, through Friday, July 10, was 12,981 sockeye and 33,264 pink salmon by 11 permit holders. Similarly, set gillnet harvest from the Monday and Thursday 48-hour fishing periods increased with 3,767 sockeye and 4,818 pink salmon harvested. Sockeye salmon passage at the English Bay River weir declined in both weeks from June 29–July 5 and from July 6–July 12. Cumulative passage on July 12 was 5,263 fish versus an anticipated minimum SEG of 5,607 sockeye salmon required to achieve the escapement goal of 6,000 fish on July 31, when the weir historically has been removed. Ground surveys of the Port Graham River on July 8 documented levels of chum salmon that were above the minimum final SEG of 1,450 for that system as well as levels of pink salmon that were above the escapement expected for that date. Consequently, on July 10, waters of the Port Graham Section of the Port Graham Subdistrict were opened to both set gillnet and purse seine commercial salmon harvest on the schedule established for those gears elsewhere in the Southern District. Weir passage at English Bay River remained lacking in vitality but steady the following week (July 13–19) with a cumulative passage of 5,785 counted through the weir on July 19 versus an anticipated minimum of 5,903 fish.

Purse seine pink salmon harvest increased significantly during the Monday, July 13 through Friday, July 17 fishing periods with 42,229 fish harvested by 11 permit holders (Appendix A2). Sockeye salmon harvest also increased this week with 16,567 harvested. A significant portion of the purse seine harvest occurred in the Tutka Hatchery SHA. Otoliths were sampled from these commercially harvested fish and examined for hatchery thermal marks. Pink salmon otoliths are still being analyzed and results will be documented in future versions of this annual report. Set gillnet harvest peaked during the week of July 12–July 18 with a total of 6,663 sockeye, 6,497 pink, and 2,339 chum salmon harvested by 20 permit holders. Sockeye salmon passage through the English Bay weir surpassed the minimum cumulative SEG of 6,000 fish for this system on Sunday, July 26, after subtraction of otolith harvested fish (Appendices A5 and A6). Commercial set gillnet harvest was opened the following day in the English Bay Section at 6:00 AM concurrent with other set gillnet fisheries ongoing in the Southern District. Set gillnet harvest remained robust during this week with 21 permits delivering 6,181 sockeye and 5,262 pink salmon. Purse seine harvests of both species declined during the July 20–July 24 fishing periods with 11 permit holders reporting 13,942 pink and 14,092 sockeye salmon landed. With harvests increasing in the Outer District, purse seine participation declined in the Southern District the following week with 7 permit holders delivering 10,091 pink and 5,661 sockeye salmon. During

the following week, nearly all seine fishing effort shifted to the Outer District, where a record pink salmon harvest was occurring. Set gillnet harvest continued to be productive through the next 2 weeks (July 26–August 1 and August 2–August 8), with 3,207 sockeye salmon harvested in the first week and 5,446 harvested in the second. Pink salmon harvest declined with only 2,933 and 2,076 harvested during those weeks respectively. Set gillnet harvest declined markedly during the week of August 9–August 15 with only 1,511 sockeye and 2,281 pink salmon delivered by 12 permit holders. Harvests in the weeks following this are confidential due to fewer than 3 permit holders reporting deliveries in these reporting periods. Similarly, purse seine harvest in Southern District was very low in August with only 1 significant delivery of 23,000 pink salmon from the Port Graham Subdistrict in late August that was sold live to a processor for resale to Cook Inlet Aquaculture Association for use as broodstock at the Port Graham Hatchery (Appendix A2). The 2015 salmon season was closed to purse seine fishing on September 19 and to set gillnet fishing by regulation on October 1 (Table 7).

The final escapement indices for Southern District pink salmon stocks monitored using ground surveys each exceeded at least the low end of their respective SEG ranges (Appendix A9). Spawning escapement for chum salmon to the Port Graham River was 4,030 fish, as measured by ground surveys. This was within the SEG range of 1,450–4,800 fish for this system (Appendices A7–A9). Final spawning escapement for English Bay River was 6,290 sockeye salmon. This is within the SEG range of 6,000–13,500 fish. The previous 10-year average spawning escapement was 11,425 for this system (Appendix A6).

Although the Port Graham Section of the Port Graham Subdistrict, as well as the English Bay Section, did open to commercial set gillnet harvest beginning on July 9 and July 27, respectively, no commercial set gillnet harvests were reported this season for that area.

The total 2015 Southern District common property commercial harvest of 90,844 sockeye salmon was above the previous 10-year average harvest of 55,153 fish (Table 6; Appendices A3, A8, and H1). The pink salmon commercial common property harvest (169,330) was above the anticipated harvest of 26,000 fish and the previous 10-year average harvest of 35,718 fish (Appendix A3).

OUTER DISTRICT

The Outer District includes the waters of LCI along the Kenai Peninsula south and east of a line from Point Adam to Cape Elizabeth, and east of the longitude of Cape Elizabeth to the longitude of Aligo Point, which is 35 miles southwest of Seward (Figures 1, 2, and 6–9). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary target species have been sockeye and pink salmon. The major natural producers of sockeye salmon in this district are Delight, Desire, and Delusion lakes. All 3 of these lakes were reported to have been glaciated in the early part of the 20th century with the McCarty Glacier terminus stretching from James Lagoon on the west to McCarty Lagoon on the east (Cook and Norris 1998, page 251). Pink salmon return in large numbers to Rocky Bay, Port Dick, and Windy Bay, as well as several smaller systems. In addition, modest numbers of chum salmon are regularly harvested from Dogfish Lagoon and Port Dick. There have been no regular releases of hatchery salmon into this district (Appendix F12).

At the December 2013 BOF meeting, Dogfish Lagoon Creeks was added to the 8 pre-existing pink salmon index streams in the Outer District and an SEG of 1,200–8,400 pink salmon was created. This stream complex has been regularly surveyed for more than forty years.

Preseason Outlook and Harvest Strategy

The 2015 commercial wild stock harvest forecast for the Outer District was 14,800 sockeye and 370,000 pink salmon (Table 6; Appendix H1). As specified in regulation, the seine fishing season and periods are opened and closed by EO depending on the available harvestable surplus of wild stock salmon returning to spawning systems in the Outer District.

Historically, sockeye, pink, and chum salmon commercial harvest management in this district relied heavily on aerial and ground surveys of major spawning systems for those species. Beginning in 1997 until 2014, daily monitoring of sockeye salmon returning to Delight Lake had been conducted using a picket weir staffed by ADF&G field personnel. Funding for the weir was cut in 2015 and escapement monitoring is now conducted using aerial survey. Typically, sockeye salmon runs to this lake, as well as Desire and Delusion lakes, peak in late July. Escapement into these lakes is frequently driven by rain events with weeks of limited passage followed by a significant spike in escapement as the result of increased water volume in the lake outflow. By early August, chum and pink salmon runs to this district may increase to harvestable levels.

Season Summary

The 2015 commercial wild stock harvest forecast for the Outer District was 14,800 sockeye, 41,700 chum, and 370,000 pink salmon. On July 9, portions of the Outer District were announced to open beginning on Monday, July 13, to commercial common property salmon harvest on a schedule of fishing periods Monday, Wednesday, and Friday 6:00 AM to 10:00 PM. This was based on an aerial survey flown on July 8 of the Outer District that identified chum salmon in several bays that were above anticipated levels for that date (Appendix B4). A ground survey conducted on July 9 counted 3,632 chum salmon in Port Dick Creek (Appendix B3). This compared to the SEG of 1,900–4,450 fish for this system. As a result, an additional fishing period was added on Tuesday, July 14, and the closed waters area at the terminus of Port Dick was reduced in size. In addition, significant pink salmon harvests in other districts indicated the potential for a return to the Outer District that was above the projected amount and possibly in the range of the parent year (2013) where a record harvest of 2.0 million pink salmon was harvested in the Outer District (Appendices B1, B2). Harvest during fishing periods from July 13–17 was 81,942 pink and 19,262 chum salmon with 4 permit holders delivering. Harvest the following week (July 19–25) was 48,750 pink and 18,412 chum salmon harvested by 3 permit holders. Harvest during the week of July 26 through August 1 increased dramatically, with 478,600 pink and 28,514 chum salmon delivered by 12 permit holders. The majority of the pink salmon in this harvest came from the Windy Bay area. An aerial survey of this system conducted on July 29 documented 23,420 pink salmon in Windy Bay Left Creek. This was in the upper end of the SEG range for this system of 3,650–29,950 fish. In addition, this run should only be at 22% completion on that date (Yuen and Bucher 1993). In light of this, portions of the Outer District were placed on a schedule of Monday through Friday, 6:00 AM to 10:00 PM fishing periods beginning on August 3. Harvest during the week of August 2–8 was extraordinary with 1.2 million pink salmon delivered by 15 permit holders. Similar to the previous week, the majority of this week's harvest was reported from the Windy Bay Subdistrict with lesser quantities from Dogfish Bay and Port Dick areas. Harvest the following week (August 9–15) was 1.3 million pink salmon with Windy Bay returns responsible for the preponderance of the harvest; however, 280,000 pink salmon were reported from South Nuka Bay. This is an unusually large number for this bay given that South Nuka Creek has an SEG of only 2,700–14,250 fish. These fish were taken to Cordova for processing. Otolith samples (n = 26 fish) taken

by Cordova ADF&G staff from this delivery showed 100% unmarked pink salmon. Harvest opportunity was increased from Monday to Friday, 6:00 AM to 10:00 PM fishing periods to 7 day per week, 6:00 AM to 10:00 PM periods beginning on Saturday, August 15. Harvest during August 16–August 22 was 701,371 pink salmon with 11 permit holders reporting deliveries. Harvest the final week (August 23–29) was 332,465 pink salmon with 4 permits reporting. There were no further harvests from the Outer District in 2015 (Appendices B1–B7).

This district closed for the 2015 season on September 19. A total of 19 permits reported deliveries from the Outer District in 2015, which was above the previous 10-year annual average of 11 permits. Total harvest from this district was 613 sockeye, 4.1 million pink, 97,974 chum, and 41 coho salmon. Sockeye salmon harvest was below the anticipated harvest of 14,800 fish (Appendices B2, H1). With the closure of the Delight Lake weir, monitoring of this system was conducted by aerial survey (Appendix B5). Surveys were sporadic due to poor weather conditions and pilot availability. The peak count for sockeye salmon in Delight Lake was 3,220 fish. This was below the historic SEG range of 5,950–12,550 fish as calibrated for aerial observation. This was the SEG range used prior to 2010 when the range was adjusted to 7,550–17,650 at the BOF meeting for escapement monitoring and inseason management based on weir counts. Consequently, the East Nuka Subdistrict remained closed in 2015. The chum salmon harvest was above the anticipated harvest of 41,700 fish. Pink salmon harvest was significantly above the anticipated harvest of 370,000 fish (Appendices B1 and B2).

EASTERN DISTRICT

The Eastern District includes all state waters of the Gulf of Alaska between the longitudes of Aligo Point and Cape Fairfield (Figures 1, 2, and 10). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary target species have been sockeye and pink salmon with commercial harvests in modest numbers occurring sporadically (Appendix C2). Harvests of chum salmon were larger in this district during the 1980s when hatchery runs of this species to neighboring Prince William Sound were also robust. The natural producers of sockeye salmon in this district have been Bear and Aialik lakes. Sockeye salmon production in Aialik Lake is a relatively recent event, with this lake having been covered by the Pedersen Glacier as late as 1909 (Cook and Norris 1998, pages 8 and 9). Beginning in 1990, CIAA released up to 3.4 million sockeye salmon juveniles into Bear Lake, in addition to 1.3 million to 1.7 million into Resurrection Bay in some years since 2008 (Appendix F12).

Pink salmon production in the Eastern District has been the result of natural spawning, excluding 1999 and 2000, when 24,000 and 48,000 pink salmon were released by the Alaska Sea Life Center into Resurrection Bay (Appendix F14). The largest pink salmon producers in this district are Salmon Creek with a 10-year (1980–1989) average escapement of 4,500 pink salmon and Bear Creek with a 10-year (1997–2006) average escapement of 11,800 fish. In addition, Thumb and Humpy coves collectively produced an average of 10,500 pink salmon per year from 1997 to 2006 (Appendix C11). Ground surveys of this area in recent years have been curtailed due to budgetary constraints combined with historic low runs to this area (Appendix C11).

Since the early 1960s, coho salmon production has been the subject of enhancement efforts in Resurrection Bay. Historically, commercial harvest of this species in the Eastern District was minimal (Appendix C2). In 1966, commercial harvest of coho salmon north of a line from Cape Resurrection to Callisto Head was prohibited, and in 1968 this regulatory line was moved south

to its current position at Aialik Cape. Beginning in 1985 with the start of hatchery releases of Chinook salmon in the Seward area (Appendix F11), commercial harvest of this species north of a line from Cape Resurrection to Aialik Cape was prohibited. In addition, since 1989 the *Resurrection Bay Salmon Management Plan* (5 AAC 21.376) has directed commercial fishery managers to conduct those fisheries in a manner that does not interfere with recreational fisheries for enhanced Chinook and coho salmon in Resurrection Bay. Consequently, the majority of coho salmon in this area have been harvested by sport users, and runs of pink and chum salmon have generally been insufficient to target for commercial harvest. Since 1956, the Seward Chamber of Commerce has conducted a fishing derby that focuses on enhanced and wild coho salmon returning to local spawning systems at the head of Resurrection Bay. Beginning in 1990, coho salmon harvested by participants in the derby have been sold commercially by the Chamber of Commerce to a local processor as a fundraiser for that organization and are listed separately from commercial common property harvests (Appendix C2).

Preseason Outlook and Harvest Strategy

The enhanced sockeye salmon run to CIAA release sites in Resurrection Bay was forecast to be 323,000 fish (Table 6, Appendix H1). As specified in regulation, the seine fishing season and fishing periods are opened and closed by EO depending on the available harvestable surplus of both wild stock and enhanced salmon returning to the Eastern District. CIAA announced preseason that all of the sockeye salmon anticipated to return to Resurrection Bay release sites would be required to meet corporate cost recovery, as well as broodstock needs. Early season management of the Eastern District is based on actual harvest versus anticipated harvest, as well as passage at the Bear Creek weir, which is located 8 km (5 miles) from saltwater. Beginning in July, management is based on aerial surveys of sockeye salmon runs to Aialik Lake. Historically, runs of pink and chum salmon to this district have been below the level required to support consistent and sustainable commercial harvests.

Season Summary

The total 2015 Eastern District sockeye salmon commercial common property harvest was 4,633 fish (Appendices C1 and C2). An additional 155 pink and 115 chum salmon were also harvested. CIAA harvested 92,776 sockeye salmon for cost recovery from Resurrection Bay and at the Bear Lake weir.

The Bear Lake SHA opened by regulation to corporate cost-recovery harvest and broodstock collection at 6:00 AM on May 15. Although the first delivery did not occur until May 26, sockeye salmon began arriving at the Bear Creek weir on May 19 with over 908 fish counted through May 31 versus an anticipated 18 fish past the weir by this date. This was similar to last year's early run timing where 1,834 sockeye salmon were counted through the weir by this date. Cost-recovery harvest from May 26 through May 31 was 5,720 sockeye salmon. Harvests increased substantially from June 1 to June 6 with nearly 14,000 fish harvested during this period, and an additional 36,000 harvested the following week (June 7–13). Weir passage remained significantly above anticipated passage with over 10,513 sockeye salmon counted through June 13 versus an anticipated cumulative range of 406–891 fish to achieve the final escapement goal of 6,370–13,970 fish. This range is the combination of the SEG for Bear Lake sockeye salmon (700–8,300) and the CIAA broodstock goal for this species (5,670 fish). The Eastern District opened to daily commercial common property harvest fishing periods beginning on Thursday, July 2, after 57,017 sockeye salmon had been harvested by cost-recovery purse seine

vessels and 28,453 at the weir. Three commercial permit holders reported deliveries through the next week with a total of 4,633 sockeye, 155 pink, and 115 chum salmon landed. There were no further deliveries with this area closing by announcement on Friday, July 17. Similar to last year, weir counts remained well ahead of anticipated weir counts with nearly 47,000 enumerated as of July 10. Of those fish, only 12,778 were passed through the weir into the lake, with a final count of 35,759 sold for cost recovery at the weir and 2,062 fish donated to members of the public. Final passage into Bear Lake was 13,505 with 3,945 fish harvested for broodstock. The remaining 9,560 fish were allowed to spawn naturally in the lake. This escapement was above the SEG range of 700–8,300 fish and above the previous 10-year spawning escapement average of 9,158 sockeye salmon (Appendices C3, C4, C7, and F2).

A total of 261 coho salmon passed through the weir. An additional 705 coho salmon were harvested at the weir for CIAA and ADF&G broodstock. Also, 1,013 coho salmon were donated to members of the public (Appendices C5–C7, F4).

Poor weather conditions in 2015 resulted in only 3 aerial surveys of Aialik Lake. Surveys were conducted on July 8, August 4, and August 12 with a peak count of 3,182 fish occurring on the last survey. As has been the case in the past 3 years, high levels of suspended silt and algae in the lake made aerial surveying of this system problematic. This is the 5th consecutive year where the SEG range of 3,700–8,000 fish was not met. As a result of this, no commercial fishing periods were announced targeting sockeye salmon runs to Aialik Lake in 2015 (Appendices C8–C11). A total of 1,408 coho salmon were harvested by sport users and sold to local processors by the Seward Chamber of Commerce during the annual silver (coho) salmon derby (Appendix C2).

KAMISHAK BAY DISTRICT

The Kamishak Bay District includes all state waters on the west side of Cook Inlet south of the latitude of Anchor Point and north of a line from Cape Douglas to Elizabeth Island (Figures 1, 2, and 11–13). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary naturally occurring target species was chum and pink salmon. From 1959 through 1980, the average harvest was 31,000 pink, 34,000 chum, and 2,000 sockeye salmon. However, after the release of hatchery sockeye salmon to systems in this district, this species became a major component of the harvest. From 1981 to 2010, the average harvest was 67,000 pink, 52,000 chum, and 55,000 sockeye salmon. In addition to sockeye releases, pink salmon were also released into Paint River from 1980 to 1983 (Appendices F12 and F14). The major natural producers of pink salmon in this district have been the Bruin Bay River, Sunday Creek, and Brown's Peak Creek. Major chum salmon producers have been the Big Kamishak and Little Kamishak rivers as well as Cottonwood Creek. In addition, numerous other rivers and streams have periodically produced pink and chum salmon runs.

Prior to 1981, Mikfik Lake was the largest single producer of sockeye salmon in this district with an average run of 6,600 from 1970 to 1980. The second-largest producer, Chenik Lake, had an average run of 3,800 during this period with Amakdedori Creek and Kamishak rivers having average runs of 1,200 and 1,300 sockeye salmon, respectively. Generally, runs to Chenik Lake increased significantly after enhancement (1978–1996) with average harvests of 55,900 per year during this period (Appendix F16). However, there were years when escapement dropped below 1,000 fish, possibly stemming from high densities of sockeye salmon in the lake resulting in an infectious hematopoietic necrosis (IHN) outbreak. Stocking of Chenik Lake was curtailed in 1996 and the population recovered quickly without further enhancement. The large runs

experienced since 2002 have derived entirely from natural production. Average annual escapement to Mikfik Lake from 1981 to 2010 was 11,100 fish, with escapement to Chenik Lake at 8,700 fish and escapement to nearby Amakdedori Creek and Kamishak rivers increasing slightly to 2,700 and 1,800 respectively. Kirschner Lake has been stocked regularly with sockeye salmon since 1987. In addition, hatchery sockeye salmon were also released from 1986 to 1996 at several other smaller systems in this district (Appendix F12). In addition, at the 2013 BOF meeting, the SEG for Mikfik Lake was adjusted from 6,300–12,150 to 3,400–13,000 to reflect the change from aerial survey enumeration of the whole drainage to video monitoring of escapement into Mikfik Lake.

Preseason Outlook and Harvest Strategy

The 2015 commercial wild stock harvest forecast for the Kamishak Bay District was 37,900 sockeye salmon. A commercial pink salmon harvest was not anticipated (Table 6; Appendix H1). The enhanced CIAA sockeye salmon run to Kirschner Lake was forecast to be 39,500 fish (Appendix F1; Table 6). As specified in regulation, the fishing season in the Kamishak Bay District opens from June 1 until closed by EO. Historically, the Kamishak District has been opened for extended 7-day periods, with specific areas closed as needed by EO to address anticipated escapement shortfalls (e.g., McNeil River chum salmon) or to allow for hatchery cost recovery harvest. CIAA initially announced that all of the 39,500 sockeye salmon anticipated to return to the Kirschner Lake release site would be available for common property harvest. Early season management of the Kamishak Bay District is based on actual harvest versus anticipated harvest as well as passage at the Mikfik and Chenik Lake video monitoring sites. In addition, aerial surveys are flown, weather permitting, to monitor sockeye and chum salmon escapement to index streams, as well as recover recording media from video monitoring sites for inseason review in the Homer office. Beginning in July, management is also based on aerial surveys of pink and chum salmon runs to spawning systems in this district. Surveys are also flown in late August and September to monitor progress of coho salmon runs to select streams in this district.

Season Summary

The total 2015 Kamishak Bay District commercial common property harvest is confidential due to fewer than 3 seine permit holders participating (Appendix D1 and D2). Given the below-anticipated success of cost recovery in the Eastern District in 2015, commercial common property harvest in the Kirschner Lake SHA remained closed to allow corporate harvest of this run.

The portion of the Kamishak Bay District south of Nordyke Island was opened to commercial common property harvest on Monday, May 25, in order to harvest Mikfik sockeye salmon returns. In 2014, an unanticipated large and early return resulted in the opening of closed waters inside of the McNeil Spit to commercial salmon harvest. Historically, department fishery managers have endeavored to avoid opening waters inside of McNeil Spit by having preemptive fishing periods in outside waters to prevent a buildup of these fish. However, in 2015 a return of similar magnitude did not materialize. On June 1, the remaining subdistricts in the Kamishak District opened to commercial common property harvest 24 hours per day, 7 days a week. CIAA harvested 23,571 sockeye salmon for cost recovery and 3,666 for broodstock use from the

Kirschner Lake SHA (ADF&G fish ticket[1] database; CIAA 2015 a-b). Robust chum, sockeye, and pink salmon returns to the Southern and Outer districts, as well as the difficulty in acquiring tender coverage in this area, probably all contributed to scant common property effort in the Kamishak District this year.

Video monitoring in 2015 of returning sockeye salmon to Mikfik and Chenik lakes occurred with only minimal technical difficulty at Mikfik Lake. An early breakup of ice allowed early floatplane access for installation of the Mikfik Lake video system on May 22. En route to Mikfik Lake, ADF&G staff noticed that beavers (*Castor canadensis*) had constructed a significant dam complex in Mikfik Creek below the lake. Two trips were made on June 2, and again on July 7 to remove these dams and open the creek to sockeye salmon passage. In spite of this, aerial surveys in late July and August revealed that the beavers had again rebuilt a dam blocking passage at Mikfik Creek.

A total of 3,502 sockeye salmon were counted from video at Mikfik Lake through August 11. The count was within the SEG range of 3,400–13,000 and below the previous 10-year average of 9,307 fish (Appendix D7). A total of 19,073 sockeye salmon were documented in Chenik Lake from June 15 to August 16 with the camera operational for the entire period (Appendices D3–D6). This was above the SEG range of 3,500–14,000 fish and also above the previous 10-year average of 14,647 sockeye salmon (Appendix D7).

The peak aerial survey count for Amakdedori Creek was 2,910 sockeye salmon (Appendix D9). This was above the SEG range of 1,250–2,600 fish and above the 10-year average of 2,243 fish. The SEG was met or exceeded for each of the 3 pink salmon index streams in Kamishak Bay (Appendices D8, D11). Poor observational conditions due to stormy weather or excessive glacial silt resulted in erratic aerial survey results that may have contributed to reduced counts of pink and chum salmon in this district.

There were no sockeye salmon harvested by the commercial common property fleet from the Kamishak District in 2015. The anticipated preseason harvest was of 37,900 wild sockeye and the previous 10-year average harvest was 70,093 sockeye salmon (Appendix D2). Total pink salmon harvest from this district is confidential. The previous 10-year average harvest was 29,547 pink salmon. Total chum salmon harvest is confidential. The previous 10-year average was 33,412 fish (Appendix D2). In addition to 23,571 sockeye, 1,560 wild pink salmon were harvested by CIAA for cost-recovery purposes from the Kirschner Lake SHA (Appendix F2).

LOWER COOK INLET SUBSISTENCE, PERSONAL USE AND HOMEPACK COMMERCIAL FISHERIES

The Cook Inlet subsistence management area (5 AAC 01.550) includes all state waters between Cape Douglas and Cape Fairfield, excluding waters of the upper Susitna River (5 AAC 01.550). Superimposed on this area is the Anchorage-Matsu-Kenai Nonsubsistence Area described in 5 AAC 99.015(a)(3). This area makes up more than 90% of the area described in 5 AAC 01.550. Under Alaska Statute 16.05.258 (c), the BOF may not permit subsistence fishing in nonsubsistence areas. A small portion of the LCI management area is outside the nonsubsistence areas, including the southwest tip of the Kenai Peninsula with the communities of Seldovia, Port

[1] Statewide electronic fish ticket database [Internet]. 1985- . Juneau, AK: Alaska Department of Fish and Game, Division of Commercial Fisheries. (cited: May 2016). [URL not available as some information is confidential]. Hereafter referred to as fish ticket or fish ticket database.

Graham, and Nanwalek, as well as portions of the western shore of upper Cook Inlet near Tyonek in the Northern Cook Inlet management area. However, in order to provide harvest opportunity in addition to sport fishing to Alaska residents within these nonsubsistence areas, the BOF has defined 2 personal use salmon fisheries in LCI, and has defined seasons and gear types for personal use herring and smelt fisheries. In addition, both resident and nonresident commercial permit holders historically have been allowed to retain legally harvested fish from their commercial catch for their own use as homepacks.

NANWALEK/PORT GRAHAM SUBSISTENCE FISHERY

Subsistence fishing is allowed in the Port Graham and Koyuktolik (Dogfish Bay) subdistricts from April 1 through September 30, and in the Port Chatham and Windy Bay subdistricts from April 1 through August 1. Extended fishing periods in these areas are defined in regulation as from 10:00 PM Thursday to 10:00 AM Wednesday (132 hours) each week. Set gillnets up to 35 fathoms in length, 6 inches in mesh size, and 45 meshes in depth may be used. This fishery has been specifically administered by ADF&G staff since the late 1970s. However, local dependence by residents on returning salmon to meet basic nutritional needs has been identified since pre-statehood (Stanek 1985). Fishing in these areas has tended to focus primarily on salmon returning to English Bay Lakes as well as to the Port Graham River. Over the last 20 years, sockeye salmon runs to English Bay Lakes have been significantly depressed. This has reduced both local commercial and subsistence salmon harvests. Partially in response to this at the November 2001 BOF meeting, waters of the Port Chatham and Windy Bay subdistricts were added to regulation as areas available for salmon harvest to subsistence permit holders. Historically, separate permits have been issued to residents of Port Graham (population 168) and Nanwalek (population 287). Permission to fish in Koyuktolik, Port Chatham, Port Graham, and Windy Bay is specified on both of these permits. Historically, there has been no requirement on these permits for the subsistence user to report from which harvest areas some or all of the harvest was caught. There is no bag or annual possession limit for subsistence salmon in the Port Graham, Port Chatham, Windy Bay, or Koyuktolik (Dogfish Bay) subdistricts.

In 2015, 50 permits were sent to the Nanwalek Traditional Council and 40 permits were sent to the Port Graham Village Council. In addition, 10 permits were sent to the Anchorage ADF&G office, and 10 permits were kept at the Homer ADF&G office front counter for distribution. All permits were serially numbered and printed on Rite-in-the-Rain paper. Representatives from the village councils were asked to disperse these permits to residents of these villages who intended to harvest salmon for subsistence use so that those households would be in compliance with 5 AAC 01.580. Prior to 2012, a village resident was paid to disperse and collect permits from both of these communities and provide ADF&G with a final harvest estimate. Permits were not actively distributed from ADF&G offices prior to 2012.

In 2015, sockeye salmon escapement past the English Bay River weir was generally at or above the anticipated escapement by date for this system. Consequently, subsistence fisheries were not restricted in 2015 as they had been in many previous years when escapement has been consistently below the SEG range (Appendix A4, A6, and E2).

In 2015, only 9 permits were issued to Nanwalek (English Bay) residents and only 1 was returned at the end of the season with 35 sockeye salmon reported harvested (Appendix E2, E8). This compares to the previous 10-year average of 23 permits reporting 24 Chinook, 2,259 sockeye, 1,087 coho, 1,234 pink, and 230 chum salmon. Nanwalek residents reported that

this harvest was shared among the community. A total of 18 permits were issued to Port Graham residents. Of those, 2 permits were returned with a harvest of 36 Chinook, 842 sockeye, 47 coho, 539 pink, and 872 chum salmon reported (Appendix E8). Two Anchorage residents also reported harvesting 273 salmon from subsistence fisheries in the Port Graham and Windy Bay areas (Appendix E8). Total reported subsistence harvest from the Port Graham area excluding the English Bay section but including the Windy Bay catch was 36 Chinook, 842 sockeye, 47 coho, 539 pink, and 872 chum salmon (Appendix E1). This compares to the previous 10-year average of 18 permits reporting 78 Chinook, 689 sockeye, 66 coho, 141 pink, and 145 chum salmon.

On August 19 Nanwalek IRA sent a letter to CIAA directing them to cease enhancement of Second Lake and to not land aircraft on Second Lake without express permission of the village council. Reasons given were that broodstock taken from the English Bay Lakes was being used to create runs elsewhere and that Nanwalek residents were seeing diminished subsistence runs as a result of this activity. The Port Graham Hatchery Association and later CIAA have removed broodstock from Second Lake during 22 of the past 27 years. During 10 of those years the resulting fry was released exclusively back into the English Bay Lakes system. During 4 of those years, fry were also released into Port Graham Bay. Fry originating from brood years 2009–2014 were released in areas outside of Port Graham Subdistrict (Appendix F21). From 2013 to 2015, returning adults were examined for hatchery otolith marks. In those years, hatchery contributions to English Bay Lake returns were estimated at 7.0%, 14.7%, and 12.3% respectively. In addition, otoliths were examined from sockeye salmon harvested in the commercial set gillnet fishery in the Seldovia, Tutka Bay, Barabara, and Halibut Cove subdistricts beginning in 2013. Although there were no English Bay origin marked fish identified in 2013, in 2014 out of the 768 sockeye salmon sampled that year, 748 had readable otoliths, 21 (2.8%) of which had a thermal mark associated with English Bay Lakes backstocked sockeye salmon. In 2015, out of 833 readable otoliths that have been analyzed so far, 11 (1.3%) have thermal marks indicating they are of English Bay Lake origin. Approximately 137 otoliths remain to be analyzed from 2015.

The combined total harvest as reported on subsistence permits from both the English Bay and Port Graham Sections was 2,371 salmon and was below the previous 10-year average of 5,934 salmon. This was also below the customary and traditional use finding of 4,800–7,200 salmon (5 AAC 01.566) for the Port Graham, Koyuktolik, Port Chatham, and Windy Bay subdistricts combined. This may be the result of under-reporting by residents of these 2 villages.

SELDOVIA SUBSISTENCE FISHERY

There are 2 subsistence fishing seasons specified in regulation that take place each year in the waters of the Seldovia Bay Subdistrict. The first season consists of two 48-hour periods each week beginning at 6:00 AM on Monday and Thursday from April 1 through May 30. The second season consists of two 36-hour periods on the first 2 weekends in August. Legal gear is set gillnets up to 35 fathoms in length, 6 inches in mesh size, and 45 meshes in depth. This fishery was created in 1995 by the BOF. The intent of the BOF was for this fishery to avoid harvesting hatchery Chinook salmon that have been released annually into the Seldovia Harbor since 1987 (Appendix F15). These releases are funded under the federal Dingell–Johnson Sport Fish Restoration Fund. Allowing a subsistence harvest on these Chinook salmon would violate the intent of this federal program. Furthermore, there have been no significant historic runs of Chinook salmon to the Seldovia area (or other locations in LCI south of the Anchor River). The customary and traditional use worksheet submitted to the BOF in 2005 identified Chinook

salmon as being the least important of the 5 species to residents of Seldovia as far as traditional subsistence use was concerned. In addition to structuring the timing of the fishery to avoid this hatchery run, the BOF also imposed an annual possession limit of 20 Chinook salmon per household for this species and an overall guideline harvest level of 200 Chinook salmon per year. There is no bag or annual possession limit for other salmon species in the Seldovia subsistence fishery. A permit issued by ADF&G is required prior to setting gear, and catches are recorded on the permit. Catches are also reported to the Homer area office inseason so that cumulative harvest totals can be monitored and coho salmon deducted from the fall personal use coho salmon fishery guideline harvest level specified in 5 AAC 77.549(a).

In 2015, 40 permits for the spring fishery were sent to the Seldovia harbormaster's office, in addition to 10 permits retained at the Homer ADF&G office and 10 that were sent to the Anchorage ADF&G office. An additional 20 permits for the fall fishery were sent to the harbormaster's office, and a total of 15 permits were kept at both the Anchorage and Homer ADF&G offices. All permits were serially numbered and printed on Rite-in-the-Rain paper. The Seldovia harbormaster was instructed to have Alaska residents complete the name and address portion of the permits while under witness of a harbormaster employee and then have that employee fax a copy of the completed permit back to the Homer ADF&G office.

In 2015, out of 6 permits dispersed to Alaska residents for the early season, 4 permits were returned. Of these 4, all reported having fished. These 4 permits reported harvesting 16 Chinook, 70 sockeye, and 4 pink salmon. This compares to a previous 10-year average of 11 permits issued, 8 permits returned, and 5 reporting not fishing with an average harvest of 10 Chinook and 34 sockeye salmon. Two permits were issued for the August weekend seasons with both permits returned; however, neither of the permit holders reported having fished. The previous 10-year average for the August weekend fishery is 5 permits issued, and 4 permits returned with a harvest of 30 sockeye, 11 coho, 45 pink, and 17 chum salmon (Appendix E3). Total harvest for both the early and late season was 90 salmon versus a previous 10-year harvest average of 156 salmon. Currently, there is no customary and traditional use finding for this subsistence fishery as there are for other LCI subsistence fisheries (5 AAC 01.566(d)).

CHINA POOT PERSONAL USE DIP NET AND PERSONAL USE COHO SALMON FISHERIES

There are 2 personal use salmon fisheries currently specified in regulation in LCI. These are the China Poot personal use dip net fishery and the Southern District personal use coho salmon fishery.

The China Poot dip net fishery dates back to 1980 when returns from the 1976 hatchery release of sockeye salmon began (Appendices F12 and F15). This fishery is managed by ADF&G, Division of Sport Fish. Prior to 1996, harvest from this fishery was documented as part of the *Statewide Harvest Survey*. Currently, there are no reporting requirements to monitor overall harvest from this fishery. The daily bag and possession limit for this fishery is 6 sockeye salmon.

The personal use coho fishery in the Southern District dates back prior to statehood, when it was considered a subsistence fishery. From 1986 through 1995, various court rulings converted it to a personal use fishery and then back to a subsistence fishery. A court action in late 1994 reestablished the boundaries of the Anchorage Nonsubsistence Area (5 AAC 99.015(a)(3)) that put the location of this fishery within the nonsubsistence area, thereby invalidating the subsistence regulations that governed this fishery at that time (Figure 14). As a result, early in

1995, the BOF readopted personal use regulations governing this fishery into permanent regulation and rescinded subsistence regulatory language pertaining to this fishery.

Regulations pertaining to this fishery are found in 5 AAC 77.549 *Personal Use Coho Salmon Fishery Management Plan*. These currently specify a guideline harvest range of 1,000–2,000 coho salmon. Additionally, coho salmon caught in the Seldovia subsistence fishery described in 5 AAC 01.560(b)(8)(B) are deducted from this annual harvest goal. Coho salmon targeted in this fishery have shifted from exclusively wild stock fish to include hatchery coho salmon, which have periodically been stocked in several locations in Kachemak Bay since the mid-1970s (Appendix F19). Since the late 1980s, annual releases of 100,000–325,000 coho salmon smolt into the Nick Dudiak Fishing Lagoon, located on the Homer Spit, have periodically contributed significantly to the personal use harvest (Figure 15). Samples taken in 1999 and 2000 of coho salmon caught in this fishery from sites on the Homer Spit adjacent to the Nick Dudiak Fishing Lagoon documented a hatchery component of 81% and 90%, respectively, for these 2 years (Szarzi et al. 2010). However, as a result of decreased releases and poor runs of late-season coho salmon in the Nick Dudiak Fishing Lagoon, harvest effort has shifted away from the Homer Spit to waters between Fritz Creek and Swift Creek (Appendix E6; Figure 14). The wild stock components of this fishery are primarily bound for the Fox River drainage at the head of Kachemak Bay. However, there are numerous smaller runs of coho salmon scattered throughout Kachemak Bay.

In addition to holding a valid sport fishing license and being an Alaska resident, participants in the personal use coho salmon fishery must obtain a fishery-specific permit from the Homer ADF&G office. Beginning in 1999, ADF&G has requested that permit holders voluntarily report their harvest daily in order to facilitate inseason management and assure that the 1,000–2,000 guideline harvest level specified in 5 AAC 77.549 is observed, while providing opportunity for harvest to reach at least the lower end of the goal. Harvest during the 2015 season was 1,373 coho, 509 sockeye, 10 Chinook, 152 pink, and 22 chum salmon, with 136 permits issued, 131 permits returned, and 91 reported as actively fished (Appendix E4). Coho salmon in 2015 were abundant with only 4 fishing days required to meet the guideline harvest level. The first 48 hour fishing period occurred on Monday, August 17 beginning at 6:00 AM, and the second fishing period began at 6:00 AM on Thursday, August 20. The fishery was closed by EO at the conclusion of the second period at 6:00 AM, August 22.

The previous 10-year average was 126 permits issued with 1,321 coho salmon harvested. Unlike recent years but similar to 2014, this season started with a significant number of coho salmon available for harvest along the Homer Spit and in the Mud Bay area. Leading up to the season, sport fishermen and observers on the Homer Spit observed large concentrations of coho salmon transiting the area. This resulted in increased interest and effort early in the season targeting coho salmon in this easily observable and accessible area. As might be expected, harvest by section shifted significantly from recent years, which had been dominated by catches from the Fritz Creek to Swift Creek section. This section still easily reported the highest number of coho harvested (647), with the adjacent area to the west (Mud Bay to Fritz Creek) reporting a harvest of 279. Continuing this westward trend, the harvest from the east side of the Homer Spit was 264 coho salmon. Coho harvest from Bear Cove to Neptune Bay was 117 coho salmon, followed by the Neptune Bay to Little Tutka section with 32 coho salmon. The Troublesome Creek to Coal Point section reported 4 coho salmon (Appendix E6).

Without a harvest sampling program in place it is difficult to tell what portion of the catch could be attributed to hatchery fish returning to the Nick Dudiak Fishing Lagoon on the Homer Spit. However, with a strong run to that location this year and significant harvest in adjacent areas, it was likely that enhanced runs contributed significantly to this year's personal use harvest (Appendix E6). A single aerial survey of an index system within the Fox River drainage indicated reasonable natural runs of coho salmon as well.

Of the 136 permits issued, 82% were held by Homer area residents, 9% by Anchorage area residents, and the remaining 9% by residents of Anchor Point and other locations in Alaska (Appendices E5 and E8).

COMMERCIAL HOMEPACK

Historically, both resident and nonresident commercial permit holders have been allowed to retain legally taken fish from their commercial catch for their own use. In 2007, the BOF amended 5 AAC 39.130(c)(10) requiring that the number of fish of any species retained by commercial fishermen for their own use be documented on a fish ticket. Previously these fish had been voluntarily noted on fish tickets by some permit holders.

In 2015, 16 set gillnet and 4 purse seine permit holders reported retaining 67 Chinook, 278 sockeye, 479 coho, 401 pink, and 28 chum salmon for their own personal use (Appendix E7). Of those, 10 were residents of Seldovia, 9 permit holders were Homer residents, and 1 permit holder was an Anchorage resident (Appendix E8).

COOK INLET SALMON ENHANCEMENT

Fisheries enhancement and rehabilitation in Alaska began in earnest in the early 1970s with the creation by the Alaska State Legislature in 1971 of FRED to help build and stabilize fisheries production. Prior to and during this time, there were sporadic releases of coho and Chinook salmon to systems in Resurrection Bay and at Kasitsna Bay near Homer. These fish were produced at ADF&G hatcheries in Anchorage on Ship Creek as well as at the Big Lake and Fire Lake hatcheries.

In 1974, the Alaska legislature passed the Private Non-Profit Hatchery Act, which stated,

> "It is the intent of this act to authorize the private ownership of salmon hatcheries by qualified non-profit 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."

Shortly thereafter, CIAA was created in 1976. Tutka Bay Lagoon Hatchery (TBLH) was built by the state of Alaska in 1976 and began rearing sockeye and pink salmon that year (Appendix F7). In 1983, the TBLH began operations producing sockeye and coho salmon (Appendix F8). Also in 1983, the Eklutna Hatchery began producing chum and coho salmon. The Crooked Creek Hatchery (CCH) was built in 1975 and began producing sockeye and Chinook salmon 2 years later, with coho salmon production starting in 1979. In 1991, residents of Port Graham formed the Port Graham Hatchery Corporation (PGHC) and began producing sockeye and pink salmon at a converted cannery in the village of Port Graham (Appendix F9). Early in 2014 CIAA

acquired the assets of the PGHC, including permitted egg capacity, and is currently restoring the hatchery to working condition after a protracted period of inactivity.

CIAA is among 12 nonprofit corporations in the State of Alaska that maintain private hatcheries with the capacity to produce salmon for harvest in common property fisheries. After merging with PGHC in early 2015, CIAA is now the second largest hatchery nonprofit in Alaska in terms of overall egg capacity.

In 2015, CIAA contributed 60.2% (148,802) of the total LCI sockeye salmon harvest of 247,232 fish, and just under one third of the total LCI pink salmon harvest of 6.4 million fish (Table 1; Appendices F1 and F6). These numbers are based on harvest location and not on otolith sampling of commercially harvested fish. In addition to sockeye and pink salmon releases, CIAA also has released an average of 627,200 coho salmon over the last 10 years (Appendices F8), and the Ship Creek Hatchery Complex (operated by ADF&G) has released an average of 613,000 Chinook salmon into LCI where both of these species are primarily harvested by sport users (Appendices F10 and F11).

Pink salmon otoliths were collected from selected streams in the Southern and Outer District. Samples were collected in groups of 96 otoliths from spawned out carcasses. Individual fish were sampled from throughout the spawning system with no preference for gender or carcass condition. Streams were sampled 1-3 times throughout the course of the run. Otoliths were examined for thermal marks that would indicate hatchery origin. Of the 1,893 otoliths that were readable, 23.1% had hatchery thermal marks. Of these 63.4% had marks indicating a Tutka Bay Lagoon Hatchery release, 0.4% had marks indicating they were released from the Port Graham SHA, and 8.0% had thermal marks from hatcheries in Prince William Sound (Appendix F22). This was similar to findings last year where otoliths were collected from 7 streams in the Southern District. Of the 1,142 otoliths that were readable in 2014, 44.5% were of hatchery origin. Of these, 30.9% had marks indicating a Tutka Bay Lagoon Hatchery release, 29.9% had marks indicating they were released from the Port Graham SHA, and 39.2% had thermal marks from hatcheries in Prince William Sound (Appendix F23). These results may not represent the full extent of stray hatchery pink salmon spawning in LCI streams because the Kitoi Hatchery located on Afognak Island does not currently mark their fish.

TUTKA BAY LAGOON HATCHERY

TBLH is located in Tutka Bay, approximately 23 kilometers (14 miles) south of Homer (Figure 17). TBLH, constructed in 1976, is owned by ADF&G and has been operated by CIAA under contract since 1992. The facility was originally constructed as a pink and sockeye salmon hatchery. However, it also produced chum salmon from 1979 to 1990. Water for hatchery operations is supplied by Tutka Lagoon Creek. Permitted water capacity is 76 L/s, with a current usage of 68 L/s. The TBLH had an initial capacity of 10 million pink salmon eggs, but major renovation work in 1993–1994 increased the physical capacity to 150 million eggs. In addition, TBLH has a sockeye salmon egg physical capacity of 1.8 million, as well as raceways to accommodate the resulting fry. However, problems with infectious hematopoietic necrosis virus outbreaks have plagued this facility and made for erratic sockeye salmon releases from 1977 to 1999 when this species was incubated (Appendix F7). Sockeye salmon produced at TBLH were released into Leisure Lake (1977), Tustumena Lake (1978), English Bay (1990), and Tutka Bay (1996, 1997, and 1999). Fish released into Tutka Bay in 1996, 1997, and 1999 were of Packers Lake stock. Beginning in 2005, sockeye salmon were incubated and reared at the Trail Lakes

Hatchery using Hidden Lake broodstock and were transferred to Tutka Bay Lagoon for imprinting and release, which resulted in better survival rates. Discussion regarding sockeye salmon releases from this site is located in the *Remote Releases* portion of this section. Pink salmon were raised consistently at the TBLH from 1977 to 2004 with releases ranging in number from 318,000 (1977) to 105 million (1996) and an average release of 42.4 million fry. All pink salmon broodstock was derived locally from the adjacent Tutka Lagoon Creek. Pink salmon were not only released from the hatchery site directly but also remote released from Halibut Cove Lagoon (1975, 1977, 1986–1992), Paint River (1980–1983), Homer Spit (1987–1992), and Ingram Creek (1987–1990) in Turnagain Arm (Appendices F6, F7, and F14). Pink salmon production was halted in 2004 because of low prices for this species, which resulted in an inability to generate adequate cost recovery revenue to fund the pink salmon program. Chum salmon were reared and released on site from 1979 to 1990 in numbers ranging from 7,992 (1981) to 3.2 million in 1988, with an average release of 841,000 fish. The original broodstock for the chum salmon return was taken from Port Dick Creek (Appendices F7).

In 2013 CIAA resumed production of pink salmon. TBLH has a permitted capacity of 125 million pink and 660,000 sockeye salmon eggs. Prior to 2013, thermal marks were not applied to any fish cultured at this location. However, following facility upgrades in 2012, thermal marks were applied to the 4.4 million pink salmon that were released from Tutka Bay Lagoon in 2013, as well as releases in 2014 and 2015.

The 2015 pink salmon run to the TBLH was only the third year of returns since beginning production of this species after a 7-year hiatus. Of the 51.1 million BY2013 fry released last year, an estimated 1.5 million (3%) were anticipated to return (Appendix F14, H1). The actual run was estimated at 2.5 million fish (Appendix F1). Of these fish, 92,039 females and 72,969 males were collected and stored in net pens for broodstock (Appendix F2). Based on an average of 1,350 eggs per female, these fish had the potential of producing 124 million green eggs for incubation. However, high water temperatures and crowding in the lagoon with fish both inside and outside of the net pens, as well as very large numbers of decaying carcasses in Tutka Lagoon Creek, resulted in significant mortality. The final tally of green eggs harvested was 13.8 million eggs. This situation occurred in part due to the disappointing sockeye salmon return to hatchery release sites in Resurrection Bay. Those fish would have comprised the entirety of the CIAA cost-recovery goal, with the Tutka Bay pink salmon return (excluding escapement and broodstock needs) available to commercial common property permit holders. Compounding the problem were strong wild pink salmon returns in the Outer District that distracted commercial permit holders who had committed to harvest pink salmon for CIAA cost recovery. This resulted in periodic large buildups that crowded into the Tutka Lagoon and Tutka Lagoon Creek.

An additional 21,408 fish were harvested for broodstock from the Port Graham general subdistrict. These fish were caught in the common property fishery, sold live to a processor, and then resold to Cook Inlet Aquaculture Association. Of those, 17,795 were sorted for use as broodstock. From these fish (11,748 females), 2.2 million eggs were taken. This is significantly fewer eggs than could have been harvested (15.9 million) had significant mortality not occurred with these fish as well. The resulting fry will be released in the Port Graham SHA in the spring of 2016.

Total pink salmon cost recovery harvest was 2.1 million fish. Of the 17 years where CIAA has prosecuted cost-recovery harvests at this location for this species, the 2015 harvest was the second largest exceeded only by the 1997 return when 2.4 million fish were harvested.

The final escapement index for Tutka Lagoon Creek pink salmon in 2015 was 81,584. This was above the SEG of 6,500–17,000 pink salmon and above the previous 10-year average escapement for this system of 23,700 fish. This is the second largest escapement on record for this creek since 1970. In 2005, a total of 133,600 pink salmon were counted. During that year, 1.6 million fish were harvested for cost recovery by CIAA and no broodstock were taken.

TRAIL LAKES HATCHERY

The TLH is located on the Seward Highway, approximately 47 kilometers (29 miles) north of Seward (Figure 10). ADF&G built this hatchery in 1982, and CIAA has operated it under contract since 1989. Initially, this facility produced sockeye, coho, and Chinook salmon. Water for hatchery operations is supplied by ground wells that are capable of producing approximately 139–186 L/s, of which 132 L/s are required for hatchery operations. All releases from this hatchery are remote releases. Sockeye salmon have been consistently produced at the TLH since 1983 with releases ranging from 516,000 (1986) to 18.9 million (2002), with an average of 9.2 million fish per year from 2005 to 2014. In addition to release sites in upper Cook Inlet, TLH-produced hatchery sockeye salmon have been released into LCI systems such as Bear Lake and Grouse Lake, as well as lakes (Leisure, Hazel, and Kirschner) that were stocked by the Tutka, Crooked Creek, and Eklutna hatcheries prior to 1998. See the section *LCI Remote Releases* under *Cook Inlet Salmon Enhancement* for further information regarding specific remote release sites. Coho salmon have also been produced at TLH in consistent numbers since 1983 with releases ranging in size from 75,000 (1996) up to 1.7 million (1987), with a previous 10-year average release of 627,200 fish from 2005 to 2014 (Appendix F8). The majority of the coho salmon reared in recent years have been released into Bear Lake. Chinook salmon were produced from 1984 to 1988, and chum salmon were raised for 1 year with a release of 455,809 in 1985 into Resurrection Bay systems. This hatchery has been consistently applying thermal marks to releases since 1991.

In 2015, the total run of adult sockeye salmon to remote release sites from this hatchery in Cook Inlet was 277,608 fish (Appendix F1). The overall documented run was less than the CIAA forecast run of 480,810 sockeye salmon (Appendix F1). A total of 148,802 sockeye salmon were sold for hatchery cost recovery worth $835,315 (Table 3). A total of 17,755 sockeye salmon were collected for broodstock, and of those, only 6,086 were viable broodstock with the remainder being holding mortalities or otherwise unsuitable for egg harvest and donated to members of the public (Appendix F2). The common property fishery harvested approximately 89,432 of the total TLH sockeye salmon run (Appendix F1). This includes remote releases at Hidden Lake, Kirschner Lake, Resurrection Bay, and sites in Kachemak Bay. Currently, TLH has a permitted capacity of 6 million coho, 4 million Chinook, and 30 million sockeye salmon eggs.

In 2015, a total of 7.7 million sockeye salmon eggs composed of 3 stocks were collected from 4 sites in Cook Inlet (CIAA 2015 a-b).

Sockeye salmon were released at 7 locations in LCI as well as into Hidden Lake in 2015. Bear Lake stock was released into Resurrection Bay and stocked back into Bear Lake. English Bay stock smolt taken from adults that returned in 2013 (BY2013) were backstocked (200,200 fish) into English Bay Lakes. Tutka Bay Lagoon sockeye salmon releases (523,500 smolt) were all from 2013 returns to Tutka Lagoon of English Bay lineage fish. No broodstock were taken from English Bay Lakes in 2015 at the written request of the Nanwalek IRA Council in an August 19,

2015 letter (see *Lower Cook Inlet Subsistence, Personal Use And Homepack Commercial Fisheries* section of this report for further information). Hazel, Leisure, and Kirschner lakes were stocked with English Bay stock fry (CIAA 2015 a-b).

In 2015, a total of 1,979 adult coho salmon returned to the Bear Creek weir. CIAA used 284 fish for broodstock with 4 of those nonviable. An additional 202 were holding mortalities with 219 used by ADF&G hatchery staff as broodstock for the "Salmon in the classroom" project. A total of 1,013 were excess fish that were donated to members of the public. Finally, 261 adult coho were allowed to migrate into Bear Lake where they spawned naturally. From the 280 fish used for broodstock, a total of 575,260 green eggs were harvested, which is fewer than the 4.0 million eggs that CIAA is permitted for this species (Appendices F1, F4, and F5). The majority of the coho salmon run originated from the BY12 fry release (460,000). No coho salmon were commercially harvested in the common property fishery from the Eastern District, and only 41were harvested from the Outer District in 2015. In the Southern District, 4,099 coho salmon were harvested in the commercial common property fishery with 479 of those fish retained as homepack by the permit holder. Given that 77,000 BY12 smolt from the Ship Creek Hatchery Complex in Anchorage were stocked into the Nick Dudiak Fishing Lagoon on the Homer Spit, an unknown percentage of the Southern District commercial coho salmon harvest may have originated from that facility.

PORT GRAHAM HATCHERY

The Port Graham Hatchery (PGH) is in the village of Port Graham (Figures 1 and 18) and originally was located in a converted Whitney-Fidalgo salmon cannery. The hatchery was permitted in September 1992 and was actively operated by the Port Graham Hatchery Corporation until 2007. Ownership of this facility was transferred to Cook Inlet Aquaculture Association in 2014. Water for operations in the main hatchery building was supplied by the untreated Port Graham municipal water supply at a rate of 13–28 L/s. Freshwater for the adult holding and egg-take complex comes from nearby Cannery Creek via an 8 in pipeline at a rate of 50–107 L/s. Prior to permitting, the hatchery had been conducting experimental pink and sockeye salmon egg takes and fry releases via a scientific/educational permit since 1990. Sockeye salmon were raised at this facility during many years from 1991 to 2006 with releases ranging from 85,000 (1991) to 918,000 (1999) with an average release of 316,000 fish between 1991 and 2006 (Appendices F9 and F19). This facility provided sockeye salmon fry and smolt for the Nanwalek Salmon Enhancement Project (NSEP) from 1992 to 2008. See the NSEP section under *LCI Remote Releases* for further details on this project.

Pink salmon were released during most years from 1991 to 2007 with releases ranging from 255,000 (1991) up to 57.2 million (2003) and an average release of 11.6 million fry. In addition, coho salmon eggs were collected from the Port Graham River in 1996, and in October 1997 a total of 29,963 coho salmon smolt were released from this facility. The coho salmon project was discontinued after this release. In January 1998 a fire completely destroyed the original Port Graham Hatchery building, including incubation modules containing pink and sockeye salmon eggs collected during the previous year. A separate building that housed the empty coho salmon module was undamaged by the fire. This building was converted to pink and sockeye salmon incubation to allow for incubation of eggs collected during the upcoming summer. Rearing infrastructure in this newer building allowed the hatchery manager to thermally mark all pink salmon fry beginning in 1998. Sockeye salmon thermal marking began in 2003. In 2006 the loss

of a hatchery manager, combined with financial troubles, resulted in sockeye and pink salmon releases ending in 2006 and 2007, respectively. Consequently, the PGHC contracted with the CIAA in 2007 to harvest 510,000 sockeye salmon eggs from returning PGH fish, incubate them at the TLH, and then release them as fry in the English Bay Lakes (246,000; October 30, 2008) and as smolt in Port Graham (112,000; June 15, 2009) (CIAA 2015 a-b).

For the first time since 2007, pink salmon fry were released into the Port Graham Hatchery SHA in 2013 and again in 2014. In both years, fry were released directly into the bay without a net pen and without being fed. In 2014 188,000 fry were released with an anticipated return of 3% (5,640 adults) in 2015. However, similar to 2014, none of these fish materialized at the release site (CIAA 2015 a-b; Appendix F14).

As a result of this, CIAA reported purchasing 21,408 pink salmon caught in the Port Graham Subdistrict from a processor for use as broodstock. Of these, 17,795 were sorted to be used as brood. Of those, 11,748 were females with the capacity to yield 15.6 million eggs. However, as a result of holding mortality in the net pens in Tutka Bay lagoon, only 2.2 million green eggs were taken with only 61.1% of those (1.4 million) surviving to the eyed stage of development (CIAA 2015 a-b).

Some of the returning hatchery-reared fish may have strayed into the nearby Port Graham River. Escapement into the Port Graham River was 82,356 pink salmon. This is above the 10-year average escapement for this system of 28,100 fish (Appendix A9). Historically, many of the highest consecutive years of escapement for this system were also years when this hatchery was operational and releasing large numbers of pink salmon.

As was the case last year, broodstock for the Port Graham releases was transported to the TBLH where the eggs will be allowed to ripen and hatch, with the final release occurring at the Port Graham Hatchery historic release site without feeding or holding in net pens at this location. See the Tutka Bay Lagoon Hatchery section under *Cook Inlet Salmon Enhancement* for further information regarding the Port Graham pink salmon harvested in 2015.

A total of 2.2 million BY2014 pink salmon fry that were incubated at the TBLH were remote released directly into the Port Graham Hatchery SHA in 2015. No net pens were used and the fry were not fed (CIAA 2015 a-b).

LCI REMOTE RELEASES

Nanwalek Salmon Enhancement Project (NSEP)

The English Bay Lakes system is located approximately 1.6 kilometers (1 mile) southeast of the village of Nanwalek (formerly English Bay; Figures 1, 2, 5, and 18). The English Bay Lakes system is a chain of 5 small lakes with a total surface area of approximately 200 hectares (0.77 square miles). These lakes have the only commercially significant stock of sockeye salmon native to the Southern District of LCI. Production in this system declined in the early 1980s, resulting in commercial fishery closures beginning in 1985 and later subsistence harvest restrictions in order to increase escapement. ADF&G's FRED Division conducted limnology studies and reported in 1992 that these lakes were nutrient poor, and given that recent escapements (1985–1990) were only 60% of the historical average, "the amount of nutrients from carcasses has been reduced from what it once was, and has further decreased fertility of the lakes in the English Bay watershed" (Edmundson et al. 1992). Stocking at English Bay Lakes began in 1990 with a release of 855,000 fry that were grown from eggs collected the previous

year in English Bay and reared at the Big Lake Hatchery facility near Wasilla. With the closure of Big Lake Hatchery in 1992, incubation and early rearing of sockeye salmon from English Bay Lakes occurred at the nearby PGH. The EBL system has received sockeye salmon releases in all but 7 years since 1990. These releases have varied significantly in number from 50,096 to 906,057 during that time, with an average of 207,000 fry per release over the last 4 years. In October 2015, CIAA released 200,200 "fall fry" (BY2014) into Second Lake in the English Bay Lake system (Appendices F12 and F20, F21).

A total of 126 sockeye salmon were sampled for otoliths throughout the summer at the English Bay weir. Of the 121 that could be read, 12.3% were found to have hatchery thermal marks. Age groups of the adult fish sampled at the weir were 30.6% age 1.2, 58.7% age 1.3, 8.2% age 2.2, and 2.5% age 2.3. In addition, a smolt weir was installed and maintained earlier in the season with 139,984 sockeye salmon smolt counted and otoliths collected from 693 individuals. Of the 670 that were readable, 14.2% had a hatchery thermal mark. Overall, 77.3% of the outmigrating smolt were age 1, with the remaining being age 2. In addition, a total of 6,839 coho salmon smolt and 27,882 pink salmon fry emigrated from English Bay Lakes (CIAA 2015b).

Leisure and Hazel Lakes

Leisure Lake (also known as China Poot) is located approximately 18 kilometers (11 miles) southeast of Homer (Figures 1, 2, and 16). Leisure Lake has a surface area of approximately 100 hectares (0.4 square miles). The lake outlet has a set of impassable falls that prevents the return of anadromous adult sockeye salmon. This lake has been stocked regularly with an average of 1.6 million sockeye salmon fry per year since 1976 (Appendix F12). Until the early 1990s, Leisure Lake was used experimentally to determine fry stocking densities that would produce optimum adult returns. Lake fertilization was initiated in 1984 to increase salmon production. The brood source for stocking from 1976 until 2004 was Tustumena Lake. A lawsuit by the Wilderness Society and the Alaska Center for the Environment challenging the permit to collect these eggs in a designated wilderness area within the Kenai National Wildlife Refuge resulted in the loss of Tustumena Lake as a collection site. The broodstock source was changed to Hidden Lake in Upper Cook Inlet. Hidden Lake is 680 hectares (2.6 square miles) in size and is 68 kilometers (42 miles) east of Soldotna. Hidden Lake has an indigenous population of sockeye salmon of similar timing to Tustumena Lake. This stock was first enhanced by ADF&G in 1976 and later by CIAA. From 2004 through 2011, Hidden Lake was the source of broodstock for Leisure Lake and Hazel Lake stocking. In 2012, fry from English Bay Lakes were planted into Hazel Lake, with Hidden Lake stock sockeye salmon planted into Leisure Lake. In 2015, English Bay stock fry were planted into both Leisure and Hazel Lake. Hazel Lake is located approximately 4 kilometers (2.5 miles) southwest of Leisure Lake (Figure 1). Hazel Lake has a surface area of approximately 90 hectares (0.35 square miles) and drains into the Wosnesenski River, which is approximately 14 kilometers (9 miles) long. Hazel Lake has been stocked for 25 of the last 28 years with an average of 1.1 million sockeye salmon juveniles (Appendix F12).

Hatchery salmon returning to both Hazel and Leisure lakes have been thermally marked since brood year 1990. However, without funding to support a sampling program, ADF&G has been unable to take full advantage of these identifying features. Since 2013, ADF&G has collected 100 sockeye salmon heads per week from the Southern District set gillnet harvest and CIAA has examined their otoliths for thermal marks. In 2014 the proportion of marked fish from the commercial set gillnet fishery was 22.1% overall with over half (58.8%) of those probably originating from the Tutka Lagoon release. Hazel and Leisure Lake releases probably made up

22.4% of the hatchery fish, with English Bay Lake releases composing 12.7% of the marked fish. The remaining 6.1% were a combination of Resurrection Bay, PWS, and Hidden Lake fish. Of the 1,000 otoliths collected in 2015, 863 have been analyzed and 833 were sufficiently readable to determine the hatchery of origin, or if the fish was wild. Unfortunately, problems experienced during thermal marking meant it was only possible to determine the hatchery of origin (e.g., Trail Lakes Hatchery or TLH) for a good portion (18.3%) of the marked fish, but not the program/release site (e.g., Tutka). Overall, 77.1% of the readable otoliths were from wild fish and 22.9% were from hatchery fish. Of the 191 hatchery-marked fish examined in 2015, 93.2% came from TLH and 6.8% from Main Bay Hatchery in PWS. Of the 143 TLH marked fish that could be assigned to a release site, 31.5% were from Tutka, 27.3% from Hazel/Leisure/Kirschner, 7.7% from English Bay Lakes, and the remainder from Resurrection Bay/Bear Lake (33.6%) (data on file with Lower Cook Inlet Management group, Division of Commercial Fisheries, Homer).

Estimated commercial harvest contributions by returning Leisure Lake and Hazel Lake sockeye salmon are shown in Appendix F15. These values are the total seine harvest of all sockeye salmon from the Southern District. Prior to returns of significant numbers of enhanced salmon to the Southern District in 1980, the seine harvest of sockeye salmon was minimal with a range of 5 to 5,232 fish and an average of 1,749 fish since 1959, excluding 1978, when 54,000 were harvested (Appendix A3). Prior to enhancement, the set gillnet harvest from 1959 to 1980 ranged from 6,148 to 54,404 fish with an average of 19,538 fish. After enhancement, the set gillnet harvest increased to 30,015 fish per year on average. However, the average seine harvest since 1985 has increased more than 50 times over the previous amount to more than 96,000 fish per year.

Overall return to this site from 2011 (BY10) and 2012 (BY11) sockeye salmon releases (2.7 and 3.3 million respectively) was estimated at 23,513 fish. The 2011 fry release to both Leisure and Hazel lakes was derived from Hidden Lake stock; however, 2012 releases of BY11 fish were split with English Bay lineage fish released at Hazel Lake, and Hidden Lake stock fish released at Leisure Lake (Appendices F1, F12, and F15; Figures 19 and 20).

Kirschner Lake

Kirschner Lake is the third lake in LCI that has historically been used for remote sockeye salmon releases. Kirschner Lake is located on the west side of Cook Inlet and is 24 kilometers (15 miles) due west of Burr Point, which is the northernmost point of Augustine Island (Figure 12). Kirschner Lake is approximately 140 hectares (0.54 square miles) in size and has a barrier falls at the outlet that prevents freshwater migration of returning anadromous salmon. Kirschner Lake has been stocked for 25 of the last 29 years with an average of 286,000 fry. In 2015 CIAA released 237,000 sockeye salmon fed fry of mixed English Bay and Hidden Lake stock into Kirschner Lake. Harvest in 2015 was below anticipated harvest (39,500 fish) with 23,571 sockeye salmon harvested for cost recovery, and 3,666 harvested for broodstock. An additional 1,439 wild stock pink salmon were harvested on August 2 along with 10,583 sockeye salmon. This represents an incidental harvest level of 13.6% non-hatchery produced salmon on that date. CIAA requested that the Kirschner Lake SHA remained closed to common property harvest in 2015 in order to allow harvest of returning sockeye salmon to meet brood and cost-recovery needs. This year's run is the result of 2011 (BY10 English Bay) and 2012 (BY11 English Bay) fry releases (Appendices F1, F12, and F17).

Tutka Bay Lagoon

In addition to pink salmon releases from the TBLH, the lagoon has also been a remote release site for sockeye salmon hatched at TLH since 2005. This is due to pathogen-related issues at the TBLH facility that are specific to sockeye salmon, which has hampered production of this species at this hatchery. Releases at this site historically have been of Hidden Lake stock since 2005 (with Packers Lake stock released during years of local TBLH production). However, beginning in 2011, all releases have been of English Bay Lake stock. The intent of this is to develop an independent English Bay stock brood source and not rely on annual runs to English Bay Lakes for brood. Sockeye salmon releases from this location are documented in Appendix F12.

The overall sockeye salmon adult run to this release site in 2015 was estimated at 84,806 fish (Appendices F1 and F18). Of these, 32,455 were reported on fish tickets as being harvested for cost recovery from the Tutka SHA, and 6,769 for broodstock and hatchery excess with an additional 45,582 harvested in the Tutka hatchery subdistrict outside of the SHA (Appendices F1 and F2).

In 2015, CIAA remote released 523,500 sockeye salmon smolt (BY 2013) into Tutka Lagoon. (CIAA 2015a-b). These fish were hatched and reared to smolt at the TLH before being transferred to net pens at TBLH for imprinting. Of those released, all were of English Bay Lake-Hidden Lake stock. The sockeye salmon run to this facility in 2015 were English Bay Lakes stock.

Port Graham

Similar to the Tutka Bay Lagoon Hatchery SHA, in recent years the Port Graham Hatchery SHA has served as a remote release site for smolt and fry incubated at other locations. This occurred in 2009 with the release of 112,000 English Bay stock sockeye salmon, and again in 2013 with 102,000 BY2011 English Bay stock sockeye salmon. Also in 2013, CIAA released 14.3 million Port Graham River stock pink salmon fry into the PGH SHA, and 188,000 the following year (Appendices F12, F14). The intent of these pink salmon releases is that they can be used as a brood source for the PGH, which CIAA acquired in 2015. A return of 5,100 sockeye salmon were anticipated to return from the 2013 release; however, there were no reports of sockeye salmon staging at the release site in 2015.

Paint River Fish Ladder

The Paint River drainage in the Kamishak Bay District contains at least 40 kilometers (25 miles) of potential salmon spawning and rearing habitat. Currently the Paint River system is barren of salmon due to a 12 m waterfall at tide line that was impassable prior to 1993. The former FRED Division and CIAA initiated feasibility studies for a fishway in 1979. CIAA received state and federal grant funds to build the fishway, completing construction in the fall of 1991. Commissioner Carl Rosier declared the fish pass officially operational in January 1993.

The Paint River Lakes were stocked via air drop with sockeye salmon fry in 9 of the 11 years from 1986 to 1996 and again in 2002 to test the feasibility of developing a sockeye salmon return to the fish pass project site. Releases ranged in size from 500,000 fry in 1996 to 2.2 million in 1988. In addition, the Paint River was stocked with approximately 0.5 million pink salmon fry from 1980 to 1983. Returns from the pink salmon releases were documented by aerial survey with a few dozen to 5,000 fish observed in saltwater below the fish ladder during 3 of the 4

return years. Although there were several sightings of sockeye salmon in the area of the fish ladder during return years of the sockeye releases, the only harvest that occurred was in 1991 where 400 sockeye salmon were harvested in the Paint River Subdistrict. The stated policy during these years was that the fish pass remained closed unless significant numbers of returning sockeye salmon were observed. Typically from 1991–2003, 500–1,000 sockeye salmon were observed in the Paint River Subdistrict with the peak observation occurring in 1998 when 1,900 fish were observed near the fish ladder. During these years the Paint River fish ladder remained closed to passage for the returning salmon (Hammarstrom 2003).

Modifications were made to the ladder in 2010, 2011, and 2012 to address concerns made by ADF&G Division of Wildlife Conservation that brown bears could fall into open cells of the fish ladder and drown. The fish ladder was opened for the first time to migrating salmon from early-June through September in 2011. Following this, an aerial survey was made of the Paint River drainage with no salmon observed. The ladder has been reopened seasonally since 2011. No salmon were observed on aerial surveys in 2012 or 2013. On September 7, 2014, visiting CIAA staff found 1 live coho salmon and 3 unidentified salmon carcasses above the ladder. In addition, later that day when flying a survey upstream of the ladder, ADF&G and CIAA staff observed what appeared to be 6 to10 coho (or possibly Chinook) salmon in Duneletak Creek 5 miles above the ladder (Hollowell et al. 2015). Aerial surveys in 2015 did identify what appeared to be 50 to 100 chum salmon over the summer in the Paint River drainage.

In 2014, CIAA purchased 3,028 pink salmon caught in Bruin Bay from commercial fishermen. From these fish 1.4 million green eggs were harvested, and 1.0 million fry produced (Hollowell et al. 2015).These were released on April 8 in Upper Paint River Lake, approximately 21 km above the Paint River fish ladder (Appendix F14). From these, 15,000 adults are anticipated to return in 2016.

Bear Lake and Resurrection Bay

Bear Lake is located approximately 10 kilometers (6 miles) northeast of Seward. Bear Lake has a surface area of approximately 180 hectares (0.69 square miles) and has been monitored since 1960, when a picket weir was established where Bear Creek intersects the Salmon River. Initial enhancement activities in the early 1960s focused on coho salmon and the control of predators such as threespine stickleback (*Gasterosteus aculeatus*) and Dolly Varden char, as well as alleged competing species such as sockeye salmon. To accomplish this, the pesticide Rotenone was methodically applied to the lake on August 26, 1963, by ADF&G biologists. In addition, "a barrier 5 feet high was then constructed to hold the treated water until detoxification, and to prevent the ingress of nonsalmonid species" (Bandirola 1965, page 148).

Coho salmon hatched from eggs collected in Bear Creek in the previous fall were reintroduced in November and December of 1963.

> "The barrier at the outlet of rehabilitated Bear Lake was destroyed as a result of the Good Friday earthquake and reinfestation of the lake by Dolly Varden and threespine sticklebacks occurred. A concrete weir to assess upstream and downstream salmon migrations and to serve as a permanent barrier was completed in Bear Creek on August 25, 1964." (Bandirola 1966, page 129)

This barrier is a low concrete dam with spaced pickets along the upper surface. Water spilling over the top of the dam prevents smaller fish from travelling upstream, and larger fish are

stopped by the pickets. A submerged wire cage is set in the main water outflow. This is closed and mechanically hoisted into a building above the dam and opened onto a sorting table. Smaller fish such as Dolly Varden char, sculpin (Family *Cottidae*), Pacific lamprey *(Entosphenus tridentatus*), and threespine stickleback drop through the sides and bottom of the basket back to the downstream area. Once on the sorting table, salmon can be passed to the upstream side of the dam or harvested for broodstock and hatchery cost-recovery purposes. Trout, char, and species of salmon other than coho and sockeye are passed back to the downstream side of the weir. In addition to Dolly Varden char, weir operators have documented in annual reports returning steelhead trout (*O. mykiss*), Chinook salmon, and pink and chum salmon to the downstream side of the weir. Members of the public have also reported observing hundreds to thousands of coho salmon milling downstream of the weir in late fall after the weir has closed for the season. CIAA has been responsible for operation of this weir since 1990.

Bear Lake was again treated with Rotenone by ADF&G biologists in 1971 on July 21 and 22. The stated goal of this treatment was the eradication of threespine stickleback from Bear Lake with no mention of removing other species such as sockeye salmon, Dolly Varden char, Pacific lamprey, freshwater sculpin, etc. According to McHenry (1972), "the lake could no longer rear substantial numbers of juvenile coho salmon due to extreme competition for survival from threespine sticklebacks." In 1988, the BOF revised the *Bear Lake Management Plan* (5 AAC 21.375) to allow for the enhancement of sockeye salmon in this lake. Bear Lake has been stocked since 1963 with coho salmon. From 2005 through 2014, an average of 516,800 coho salmon smolt have been released annually (Appendix F13). Broodstock for many of the coho salmon releases in the early 1960s came from the Swanson River (Kenai Peninsula), Pasagshak River (Kodiak Island), Ketchikan Creek (Southeast Alaska), and Dairy Creek (Seward Lagoon), as well as Big Creek in Oregon. Sockeye salmon have been stocked into this lake annually since 1990 with a recent 10-year (2005–2014) average of 2.6 million released (Appendix F12). Sockeye salmon released into this lake from the Trail Lakes Hatchery from 1990 to 1992 came from the Upper Russian River and Big River, both of which drain into upper Cook Inlet. In addition, in 1998, 507,000 Tustumena Lake sockeye salmon smolt that had also been reared at the Trail Lakes Hatchery were released. Since that time, all other releases have been derived from broodstock harvested at Bear Lake (McHenry 1972).

In addition to Bear Lake, coho and other species of Pacific salmon have been released into several locations in Resurrection Bay since the late 1970s. Returns for these species typically are targeted by noncommercial users as specified in the *Resurrection Bay Salmon Management Plan* (5 AAC 21.376). Both pink and chum salmon have been released irregularly into a variety of locations in Resurrection Bay (Appendices F14). In 2008, CIAA began releasing an average of 1.6 million sockeye salmon smolt annually from net pens anchored in Resurrection Bay.

The sockeye salmon runs to Resurrection Bay in 2015 primarily came from 3.8 million BY10 Bear Lake fry released in 2011, 2.5 million BY11 Bear Lake fry released in 2012, and 2.1 million BY11 smolt released in 2013. Of the fish released in 2012, 1.3 million were released from net pens in Resurrection Bay, as were all of the smolt in 2013. Although the anticipated run was 322,737 sockeye salmon, the actual run was approximately 200,000 fish shy of that at 112,976 (Appendices F1 and F12).

In 2015, 1,979 adult coho salmon returned to the Bear Creek weir during its period of operation. CIAA collected 280 coho salmon for broodstock for a total of 575,260 green eggs, which is fewer than the 4.0 million eggs that CIAA is permitted for this species. In addition, CIAA

donated 1,013 excess coho salmon from the weir to members of the public (Appendices F1 and F5). Sampling of the sport fishery from 2003 to 2005 determined that 29.8% of the fish harvested were thermally marked hatchery coho salmon (Bosch 2011). Additional information regarding 2015 runs to Bear Lake may be found in the Eastern District section of this report.

LOWER COOK INLET COMMERCIAL HERRING FISHERY

LCI herring fishing first began in the Southern District in 1914 with the development of a gillnet fishery within Kachemak Bay. During the peak of the fishery, 8 salteries, including 6 near Halibut Cove, were in operation. A purse seine fishery in Kachemak Bay began in 1923. But after 3 successive years of average annual harvests approaching 8,000 short tons (1 short ton = 2,000 pounds), herring populations, and hence the fishery, collapsed (Rounsefell 1930).

The next LCI herring fishery began in 1939 and was centered in the Resurrection Bay and Day Harbor areas of the Eastern District (Figure 10). Product from this purse seine fishery was used exclusively for oil and meal reduction. Although the fishery continued through 1959, peak harvests occurred from 1944 to 1946, averaging 16,000 short tons over those years (Reid 1971). After this time period, stocks sharply declined, apparently due to overexploitation.

The Kamishak Bay sac roe fishery began in 1973 and will be discussed in more detail in the following section.

HARVEST STRATEGY AND STOCK ASSESSMENT

The LCI herring management area includes waters of Cook Inlet, south of the latitude of Anchor Point including the western shore of Cook Inlet south to Cape Douglas, and the eastern shore of Cook Inlet along the Kenai Peninsula to Cape Fairfield (Figure 1). This management area is divided into 5 districts that match those for LCI salmon.

Commercial fishing for Pacific herring in LCI has historically occurred in 4 of the 5 management districts, with Barren Islands District the sole area where commercial herring fishing has not occurred (Figure 2). Historic fisheries have included food/bait, meal/oil reduction, and sac roe harvest with legal gear at times including both gillnet and seine. All of these fisheries have suffered periods of stock depletion and extended closures (Appendix G2).

Currently, 2 separate herring management plans regulate fisheries in LCI, both adopted in 2001 by the BOF. The first management plan (5 AAC 27.463) renders waters of the Southern, Outer, and Eastern Districts closed to commercial herring harvest, citing concerns for stock abundance and sustainability of commercial harvest in these areas. The *Kamishak Bay District Herring Management Plan* (5 AAC 27.465) describes the management strategies used to set and implement the guideline harvest levels for the Kamishak Bay sac roe fishery and is the only plan currently in place that could allow a commercial herring fishery in LCI. This plan was most recently adjusted in 2001 to include a reduction in the maximum exploitation rate allowed in the fishery, from a former level of 20% of the forecasted herring biomass, to a new level of 15%, and a reduction in the biomass threshold (the minimum necessary to allow a fishery) from 8,000 short tons to 6,000 short tons. Highlights of the original plan that were retained include a management strategy intended to limit the harvest of herring age 5 and younger, and an allocation of 10% of the allowable harvest of Kamishak Bay herring to the Shelikof food/bait fishery in the Kodiak management area. Lawful gear in the Kamishak Bay sac roe fishery is restricted to purse seine. The limited entry permit system for sac roe herring seining in Cook

Inlet was implemented in 1977, and 75 permanent permits are currently issued for the management area. Historical harvest and management information for the Kamishak Bay sac roe fishery can be found in Appendices G3 and G4.

The Kamishak Bay sac roe fishery began in 1973 when 8 permit holders harvested 243 short tons (Schroeder and Kyle 1986). Participation in the fishery and harvest increased rapidly, peaking at 4,824 short tons harvested in 1976 before a stock decline prompted closure of the fishery after only 415 short tons were harvested in 1979 (Schroeder and Kyle 1986). The stock recovered quickly, and the fishery reopened in 1985 with a harvest of 1,132 short tons (Schroeder and Kyle 1986). The fishery remained open seasonally from 1985 to 1998 with an average annual harvest of 2,878 short tons before being closed again beginning with the 1999 season due to low abundance levels (Hammarstrom 2000). Management since that time has concentrated on assessment of the Kamishak Bay herring biomass to determine when commercial harvest can be sustainably resumed.

The primary method of herring biomass assessment in LCI is aerial survey. When adequate funding is available, aerial surveys are conducted annually throughout the herring spawning season in the Kamishak Bay and Southern districts, from mid-April through early June, to determine the relative abundance and distribution of herring. Because a commercial herring fishery has not occurred in the Outer and Eastern districts in many years and is not likely to occur in the near future, aerial surveys of these areas are no longer conducted. Even though no commercial fishery is expected in Southern District, fishermen do annually participate in a personal use herring fishery in Kachemak Bay. Aerial surveys of Kamishak Bay have been moderately consistent across seasons, with numbers and distribution of herring schools, location and extent of spawning events, and visibility factors affecting survey results recorded on index maps for each survey. Beginning in 2012, hard copy index maps were replaced by tablet computers running a customized version of ArcPad that allowed surveyors to enter their observations directly onto digital charts. Three standard conversion factors are used to estimate herring biomass based on each 538 ft^2 (50 m^2) of school surface area sighted and the following water depth parameters: 1) 1.52 short tons for water depths of 16 ft or less; 2) 2.56 short tons for water depths between 16 and 26 ft; and 3) 2.83 short tons for water depths greater than 26 ft (Lebida and Whitmore 1985; Otis and Bechtol 1999).

Due to invariably poor weather and water clarity, aerial surveys rarely provide reliable estimates of total herring biomass returning to Kamishak District Bay waters (Otis et al. 1998). As a result, an age-structured-assessment (ASA) model has been used since 1994 to forecast herring abundance for Kamishak Bay, as well as to "hindcast" previous years' total abundance (Appendix G5). This dynamic model incorporates a variety of heterogeneous data sources, including a time series of commercial catch age composition; total run age composition; and aerial survey biomass estimates from years with adequate survey conditions and coverage. The model simultaneously minimizes the differences between expected and observed values for each of its components, updates hindcasts of previous years' abundance, and produces a forecasted estimate of the following year's run. This tool is important both for management to help determine appropriate harvest levels and for research to revise previous biomass estimates with updated return data and gain a more accurate assessment of trends over time (Appendix G5).

When funding is available, ADF&G utilizes a chartered commercial seine vessel to aid in herring assessment in Kamishak Bay District and opportunistically in the Southern District. In years when no commercial fishery occurs, ADF&G is unable to utilize the fleet to collect samples for

age, sex, and size composition analysis. By chartering a commercial purse seine vessel, age, sex, and size and disease samples together with additional related information can be collected and used to further aid in understanding the dynamics of the Kamishak Bay herring stock. These surveys also facilitate the collection of samples for other cooperative research projects that have contributed to our overall understanding of herring disease (Hershberger et al. 2016) and stock structure (Otis et al. 2010; Libungan et al. 2016). When sufficient funding is available, separate vessel charters are conducted to sample different portions of the spawning migration (early and late). In years when a fishery occurs (traditionally in the early part of the migration), a single "late season" sampling charter is employed to obtain a more complete picture of the overall run. Hydroacoustic observations of herring schools and water temperature/depth parameters are concurrently documented during the charters. The information gathered during these sampling efforts provides age class data that 1) allows the staff to generate an age composition estimate of the overall biomass observed by aerial surveyors throughout the entire duration of the spawning migration; and 2) facilitates the evaluation of the relative strength of recruiting year classes. This is critical in generating the annual herring forecast. The charters further serve to corroborate the relative magnitude of herring biomass observed by aerial surveyors.

Funding for vessel charters was eliminated in 2011, resulting in a lack of age, sex, and size data for use in the ASA model during 2011 or 2012. Fortunately, temporary funding was identified in 2013, 2014, and 2015, enabling staff to resume use of this important stock assessment tool during those years.

SEASON SUMMARY

In 2015, ADF&G staff flew 7 aerial surveys between 20 April and 29 May to assess the size and distribution of herring schools and herring spawning events in Kamishak Bay. In addition, ADF&G chartered a commercial herring seiner to conduct 2 vessel surveys from April 25 to May 1 and from May 10 to May 16 to collect representative age composition and disease samples from the spawning biomass. These charters collected over 2,300 herring throughout Kamishak Bay District between Cape Douglas and Oil Bay. This allowed ADF&G staff to estimate the age composition of the observed spawning biomass in 2015 and to generate a 2016 forecast. Appendix G1 summarizes the ASA model's estimated age composition of the 2015 spawning biomass and the 2016 forecasted biomass.

Aerial surveyors documented just 666 short tons (st; 1 short ton = 2,000 pounds) of herring in Kamishak Bay in 2015, the lowest aerial survey biomass index in the past 26 years. Also, for only the third time since 1990, aerial surveyors did not observe any spawning events in 2015. This was in sharp contrast to 2013 when the aerial biomass (7,800 st) and miles of spawn indices (10.0 miles from 22 spawning events) were the highest levels documented since the mid-1990s. Although the 2014 indices were not quite as high (6,138 st; 3.2 miles of spawn from 14 spawning events), they were still relatively strong (Appendix G5). Thus, the sharp drop in abundance indices in 2015 was unexpected, but they were corroborated by equally poor hydroacoustic observations of herring schools during the 2 vessel charters conducted in 2015. The reason for this abrupt decline in abundance is unknown but is suspected to be related to the El Nino conditions that prevailed around the North Gulf of Alaska over the winter and spring of 2014/2015, resulting in water temperatures about 1.5-2.0° C warmer than usual.

Another component of the Kamishak Bay herring stock assessment program over the past decade has been disease assessment. *Ichthyophonus* is a protozoan pathogen that has been linked to

population declines of Atlantic herring (Burge et al. 2014), and is hypothesized to have contributed to the decline and lack of recovery of Pacific herring in Prince William Sound (Marty et al. 2003, 2010). ADF&G began collecting disease samples from the Kamishak stock in 2005 to evaluate whether disease may have been a factor in the decline and suppressed productivity of the Kamishak herring population. Samples collected during 2005-2007 showed high *Ichthyophonus* infection rates ranging from 17-55%. In 2015, ADF&G staff collected tissue samples from 60 herring during the first vessel charter and sent them to ADF&G's Pathology Lab in Anchorage for analysis. For the seventh consecutive year, *Ichthyophonus* infection rates were found to be very low (1.7%) in the Kamishak Bay herring stock.

Ichthyophonus incidence has been demonstrated to increase with host size and age in Pacific herring (Herschberger et al. 2002, Herschberger et al. 2016). The period of time during which *Ichthyophonus* was most prevalent in the Kamishak stock coincided with the timing of the loss of older members of that population (e.g., herring $\geq$ age-8). More recently, because infection rates have been very low, ADF&G is again finding herring up to age-13 in samples collected from Kamishak Bay. Along with *Ichthyophonus*, ADF&G regularly screens samples for viral hemorrhagic septicemia (VHS) and viral erythrocytic necrosis (VEN), neither of which has been found to be at levels triggering concern. Thus, it would appear that disease is not a contributing factor in the sharp decline of herring that occurred in Kamishak Bay in 2015.

The forecasted herring biomass generated by the ASA model for 2016 in Kamishak Bay District is 1,603 short tons, which is well below the *Kamishak Bay District Herring Management Plan* (KBDHMP) regulatory threshold of 6,000 short tons necessary to consider allowing a commercial harvest (Figure 21). Also, the second vessel charter in 2015 documented very few herring schools and no samples were collected, indicating extremely weak recruitment of age-3 to 5 herring within the current spawning biomass.

Management regulations governing commercial harvests in Kamishak Bay seek to target older, repeat spawners to protect recruit-class herring representing future productivity. Recent years' observations confirm that recruitment of younger fish into the Kamishak spawning population over the past 20 years has been relatively poor. Although there is no definitive explanation for this lack of a strong recruitment event, the prevailing hypothesis suggests that poor fitness of the fish, characterized by low average weights-at-age, has contributed to higher than normal over-winter mortality. Although there was a slight increase in mean weight-at-age of herring sampled in Kamishak Bay in 2015, average weights remain near the lowest observed over the past 30 years.

2016 HERRING SEASON OUTLOOK

The forecasted herring biomass generated by the ASA model for 2016 in Kamishak Bay District is 1,603 short tons. This is below the minimum regulatory threshold of 6,000 tons specified in the *Kamishak Bay District Herring Management Plan* (5 AAC 27.465). Given the low biomass and lack of recent strong recruitment events, ADF&G will not prosecute a commercial fishery in 2016.

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FIGURES AND TABLES

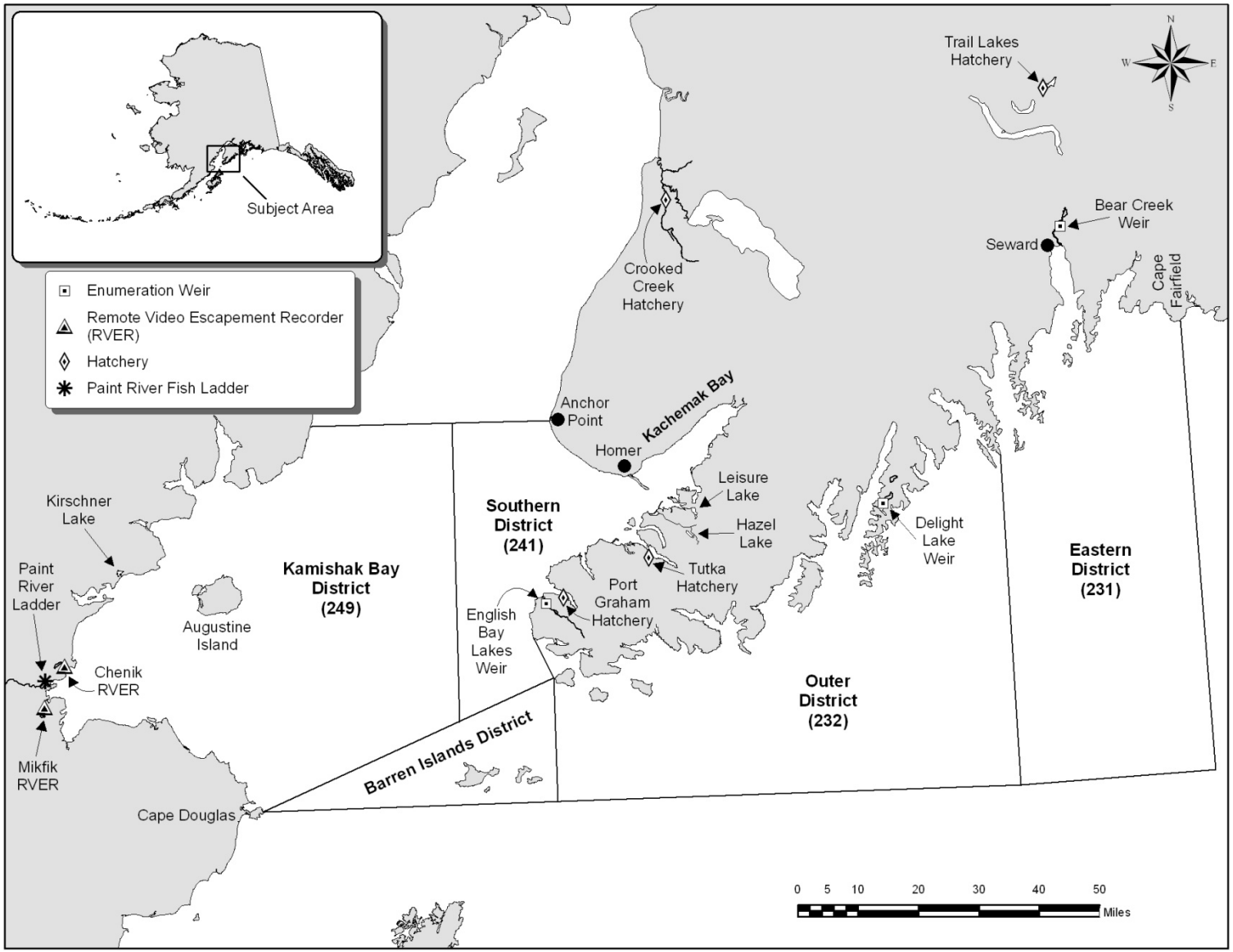

Figure 1.–Lower Cook Inlet management area showing commercial fishing districts, salmon hatcheries, weir and fish ladder locations, and remote video salmon monitoring sites.

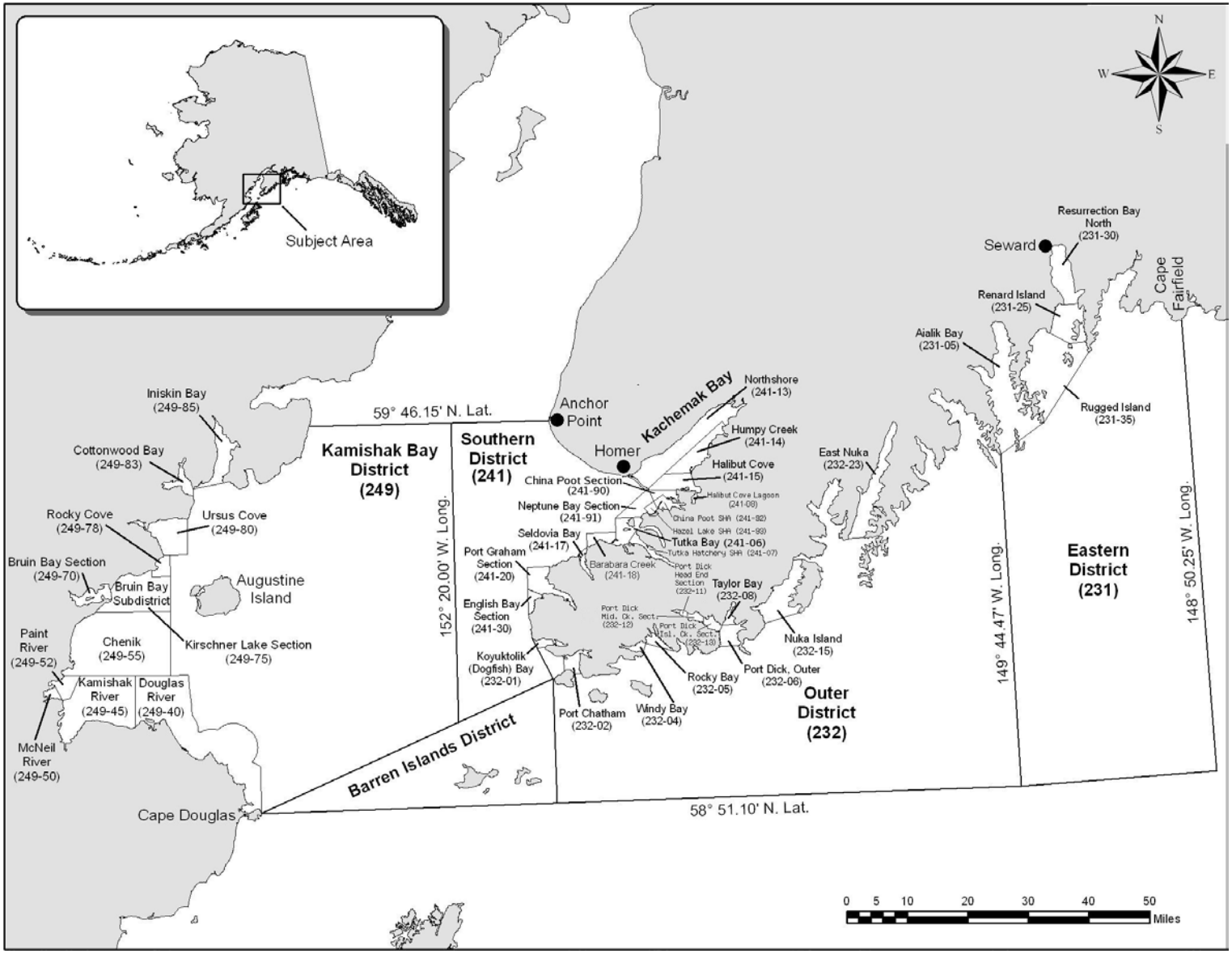

Figure 2.–Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts.

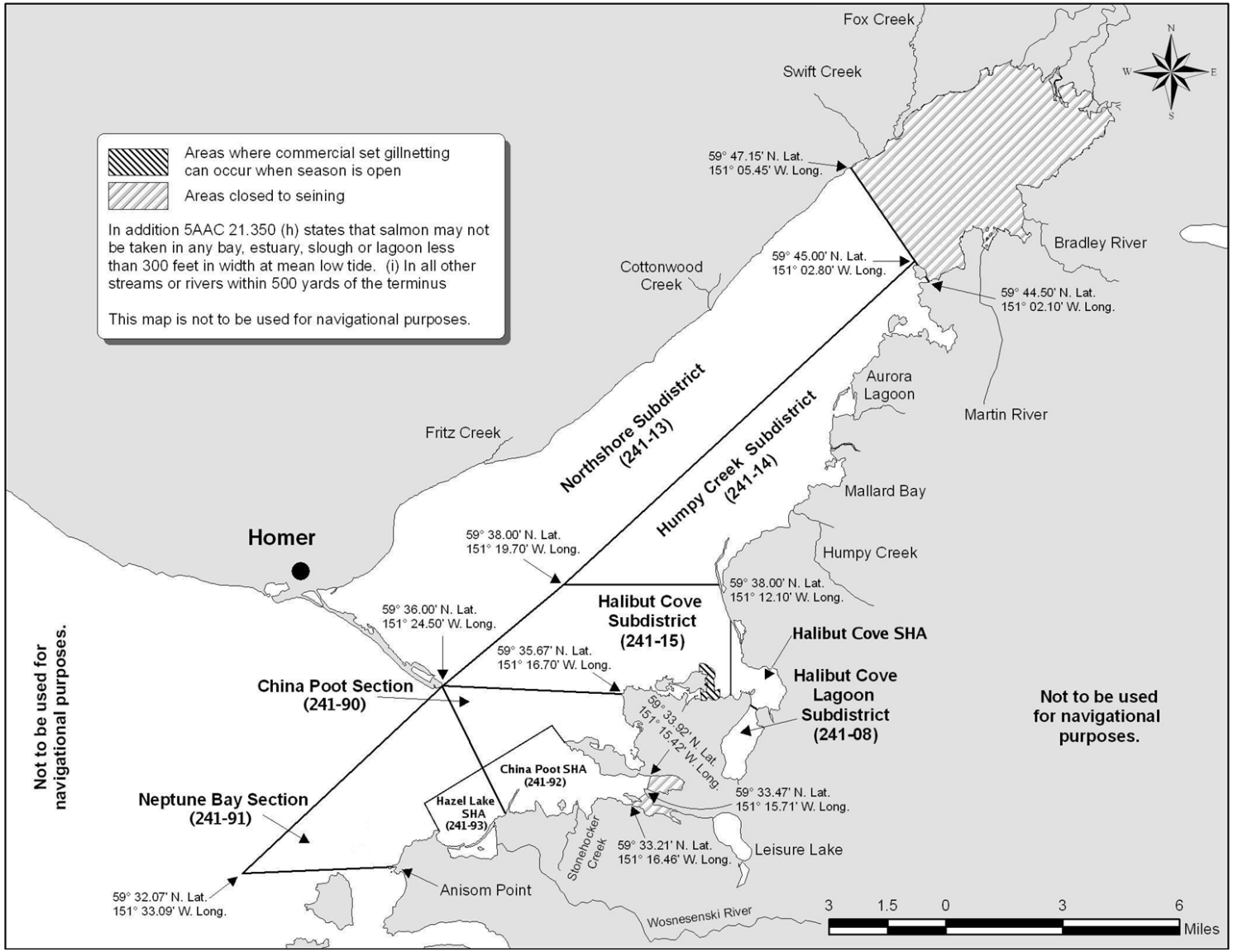

Figure 3.–Southern District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Chugachik Island to Anisom Point.

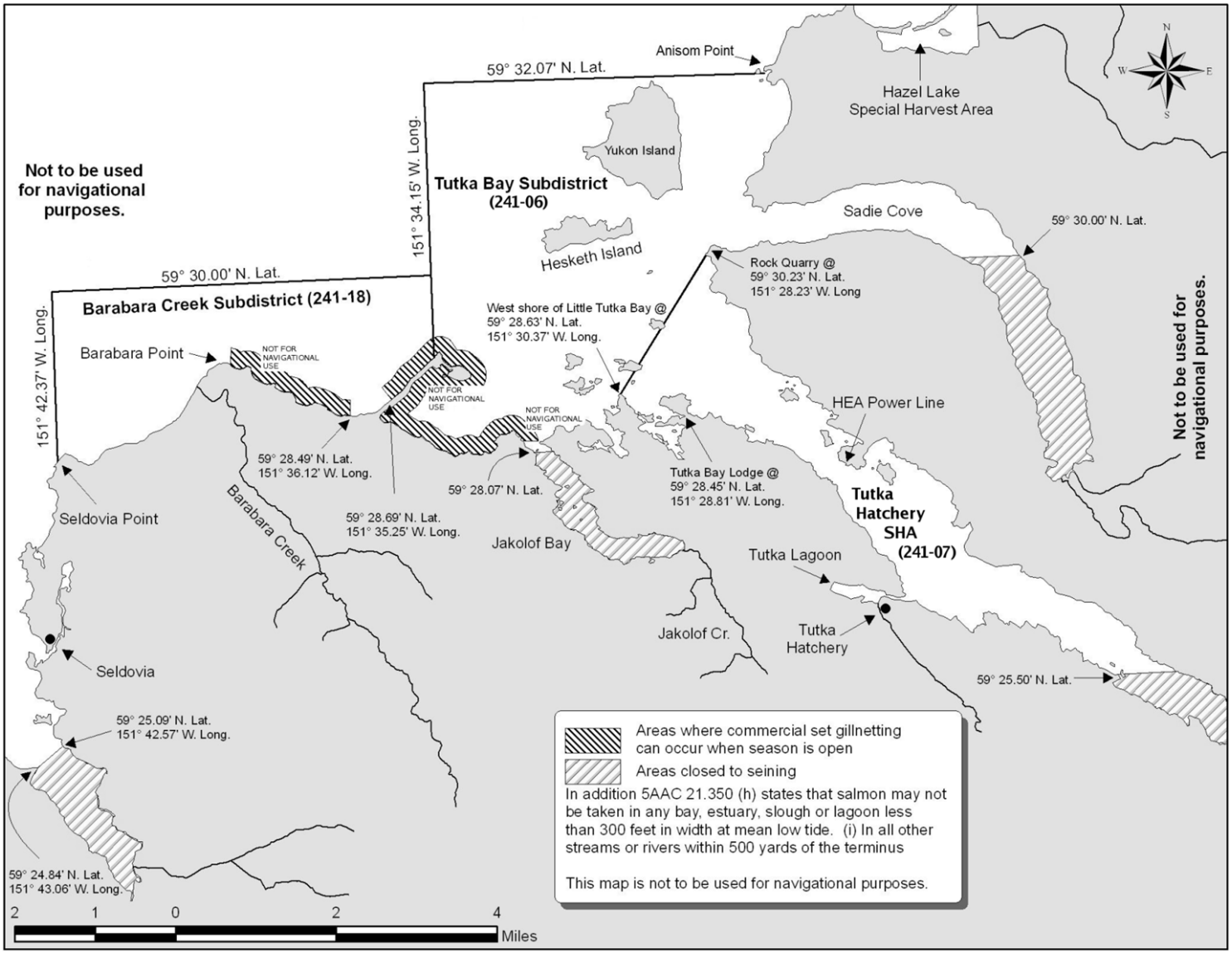

Figure 4.–Southern District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Anisom Point to Seldovia Point.

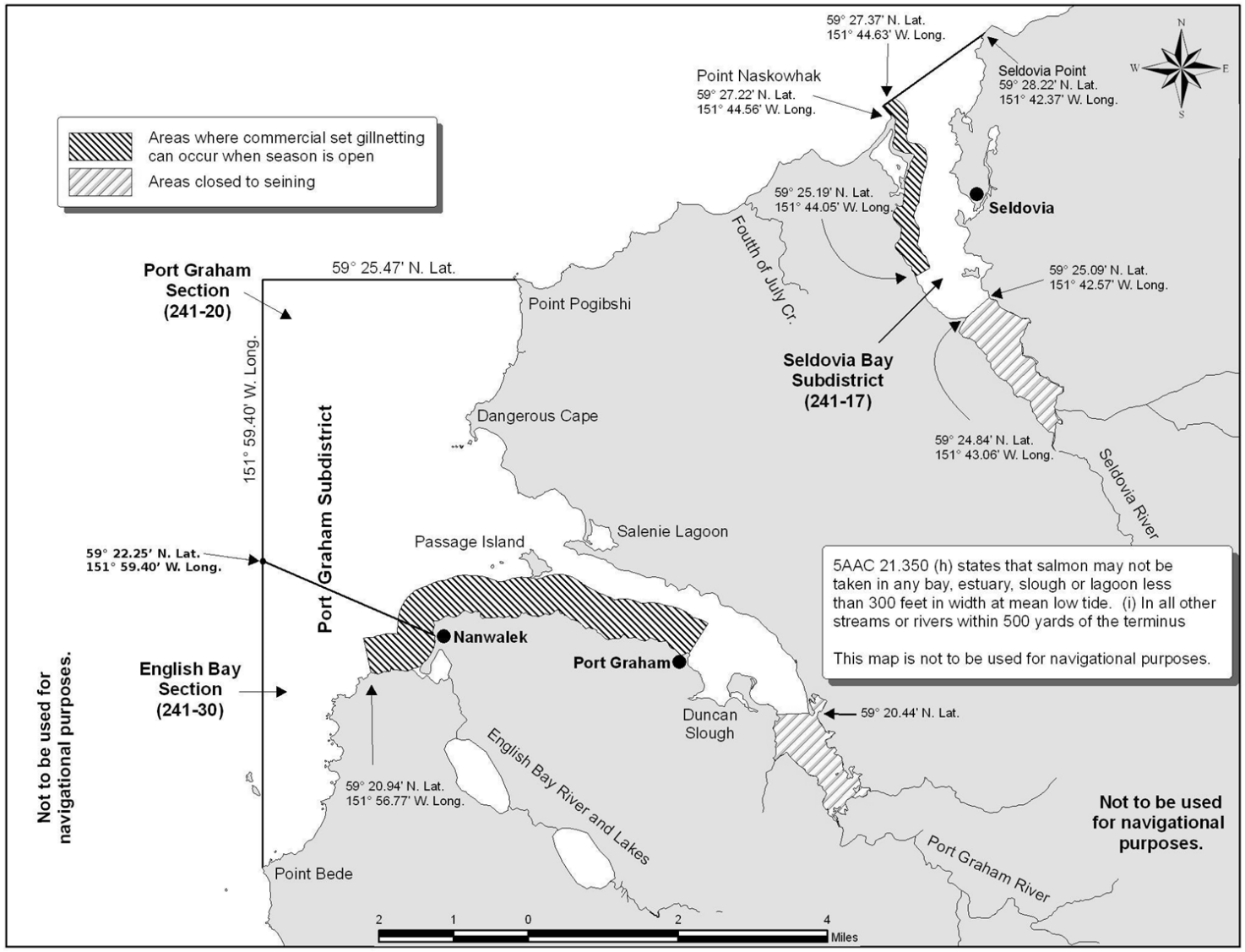

Figure 5.–Southern District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Seldovia Point to Point Bede.

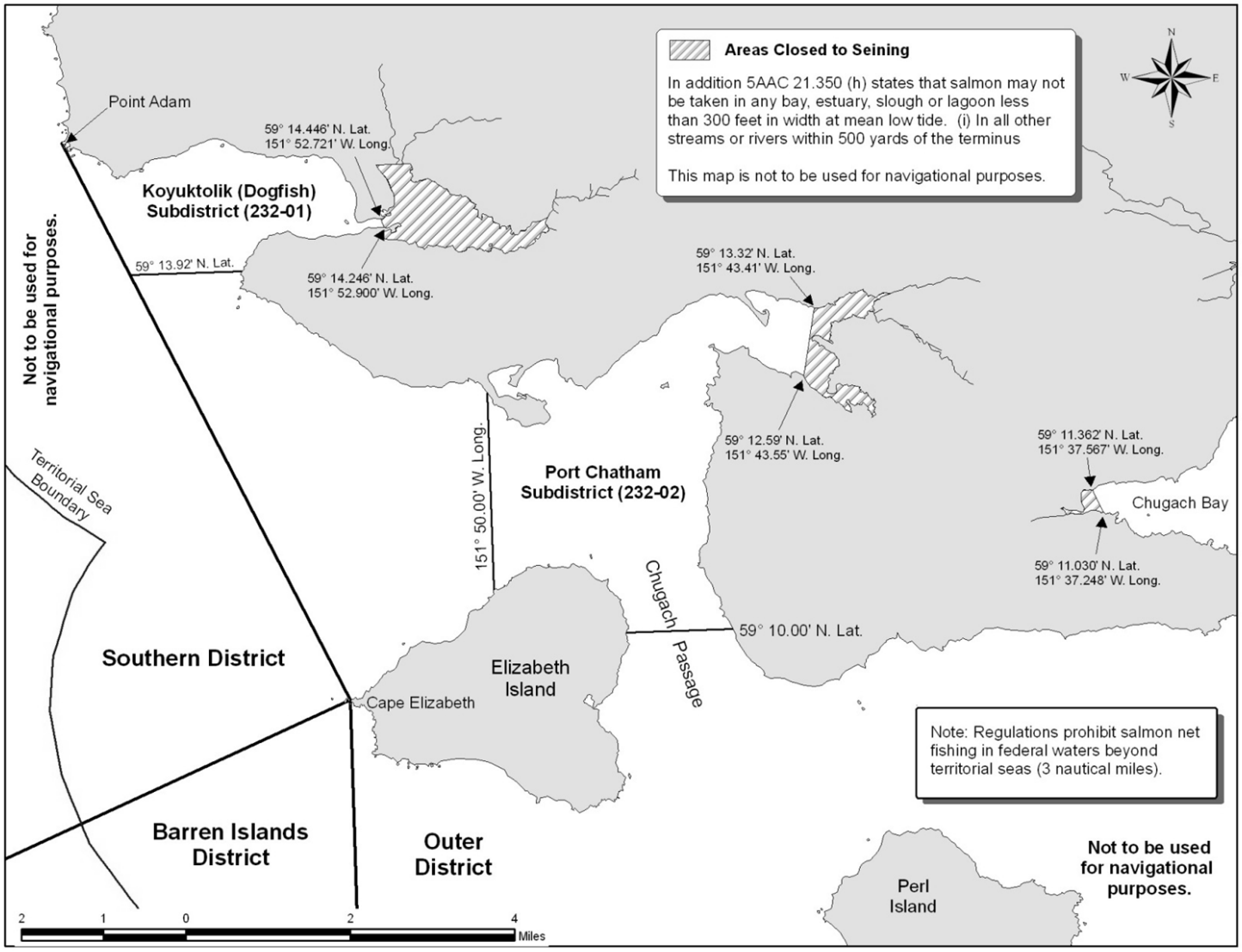

Figure 6.–Outer District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Point Adam to Chugach Bay.

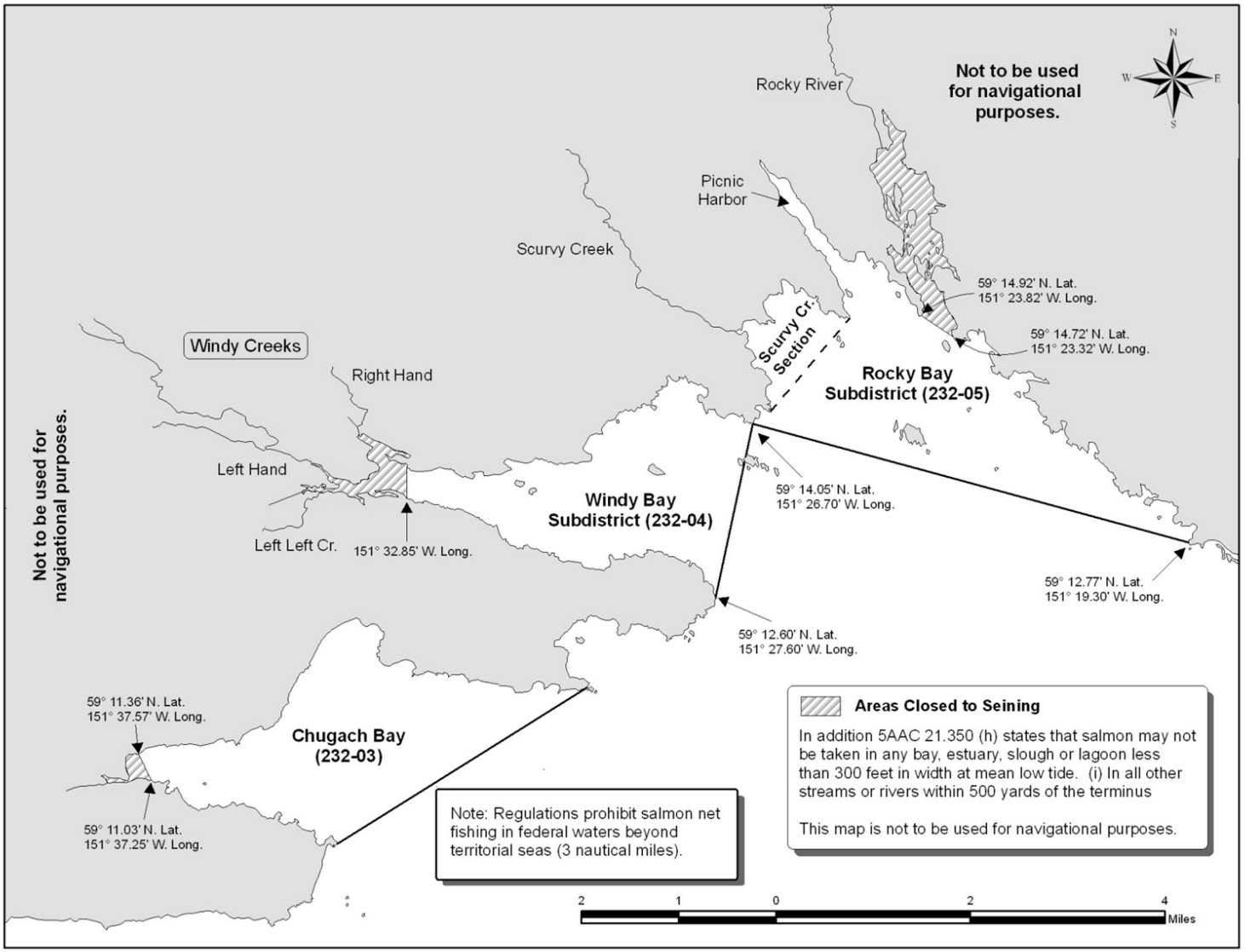

Figure 7.–Outer District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Chugach Bay to Rocky Bay.

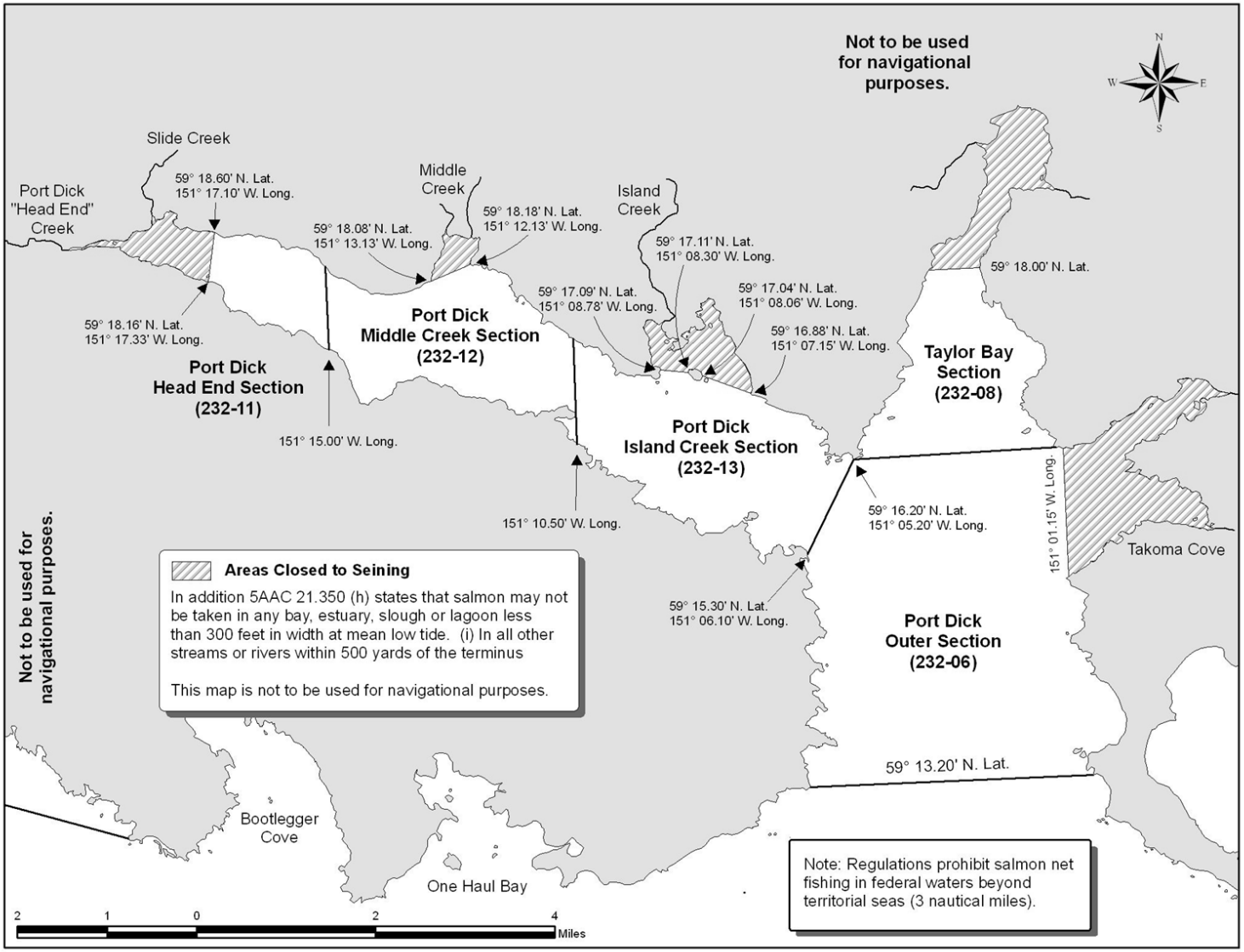

Figure 8.–Outer District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Port Dick area.

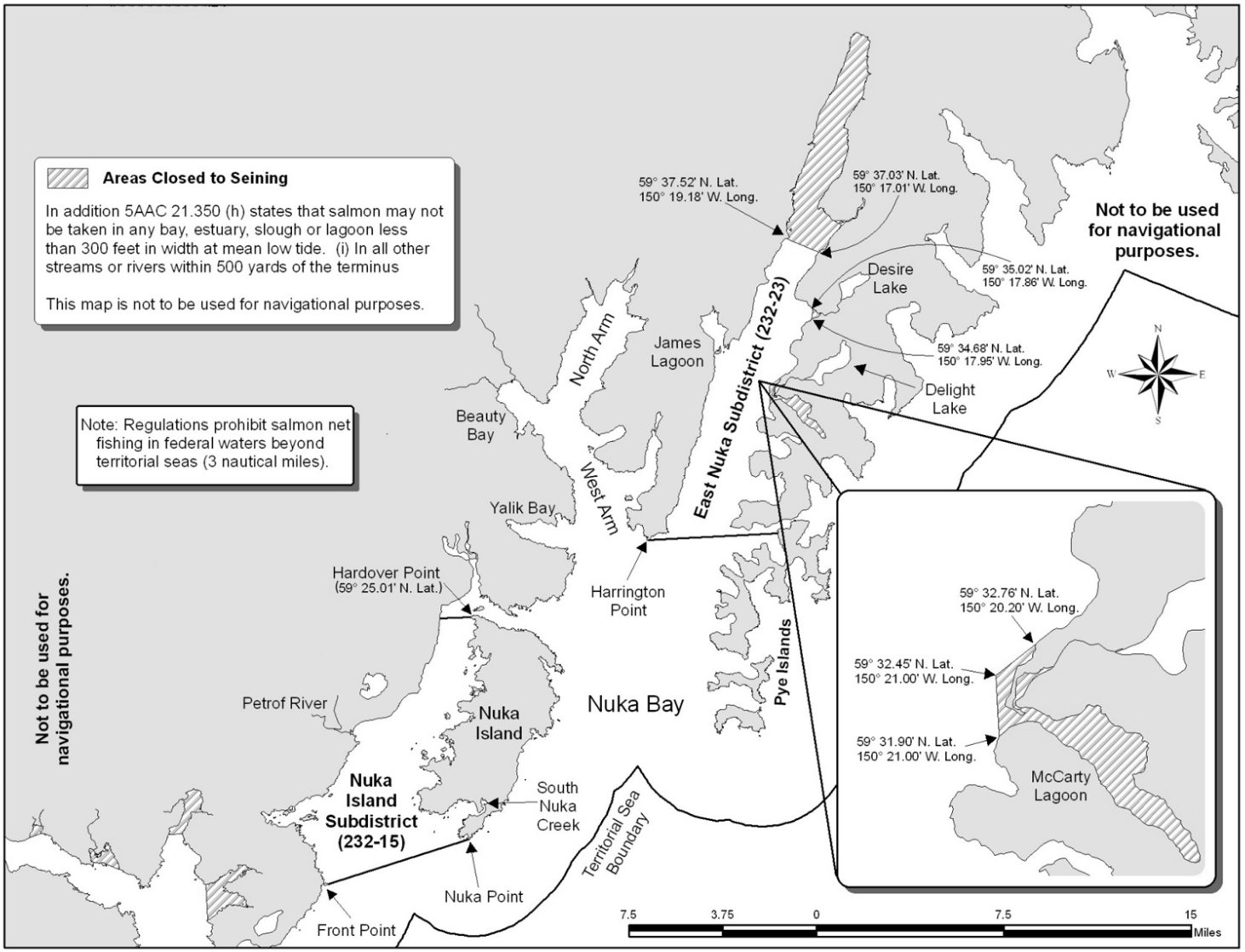

Figure 9.–Outer District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Nuka Bay area.

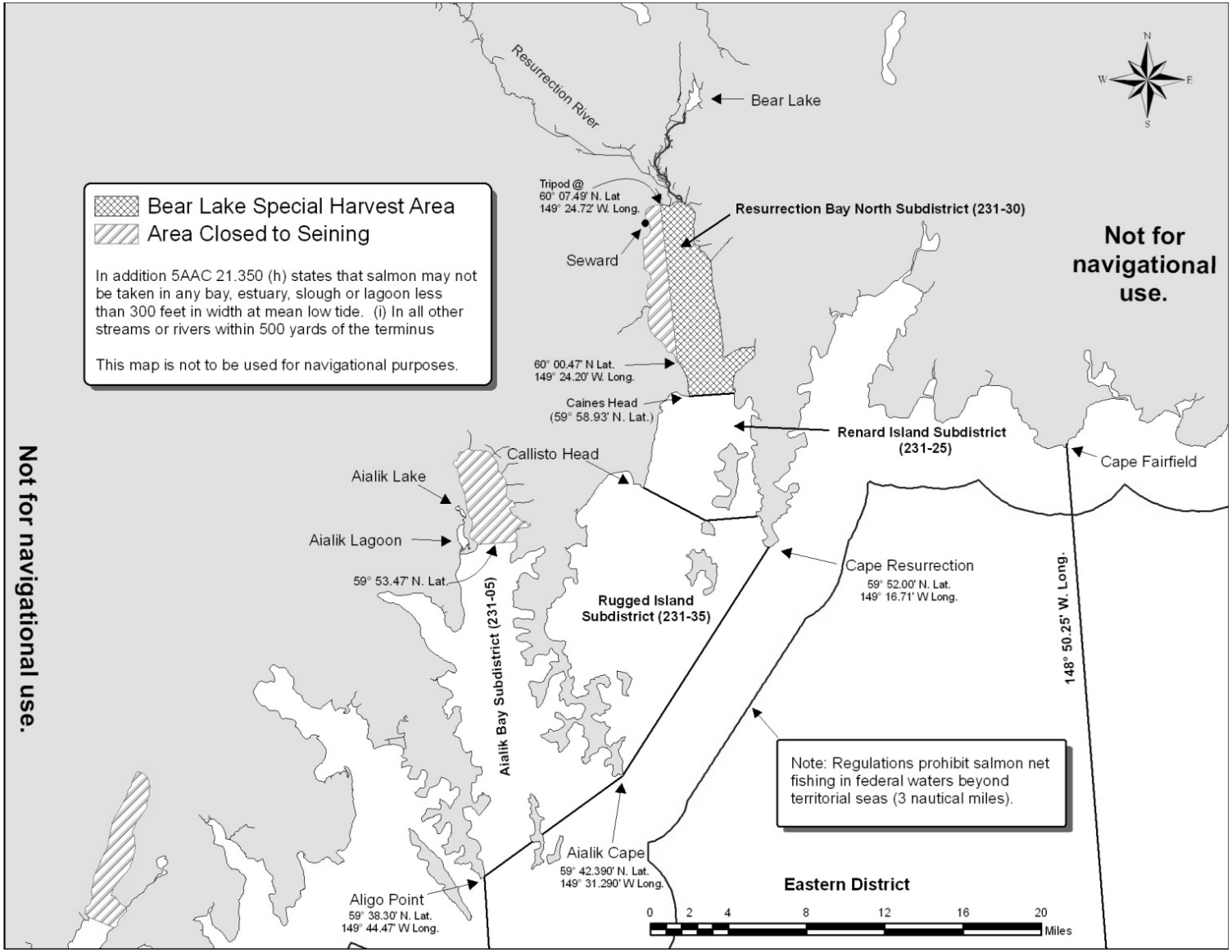

Figure 10.–Eastern District of Lower Cook Inlet management area showing commercial fishing districts, reporting subdistricts, and hatchery special harvest area (SHA), Aligo Point to Cape Fairfield.

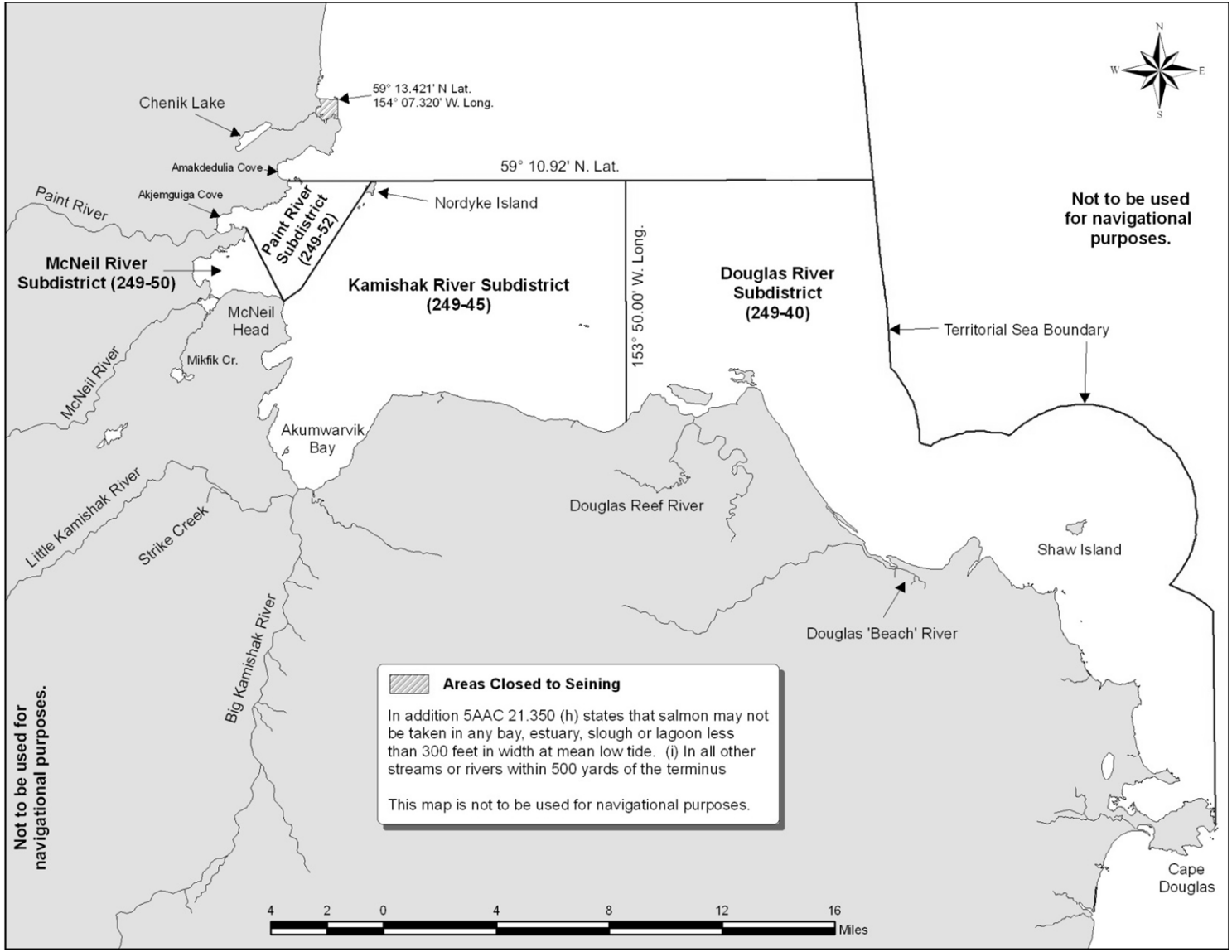

Figure 11.–Kamishak Bay District of Lower Cook Inlet management area showing commercial fishing districts and reporting subdistricts, Chenik Lake to Cape Douglas.

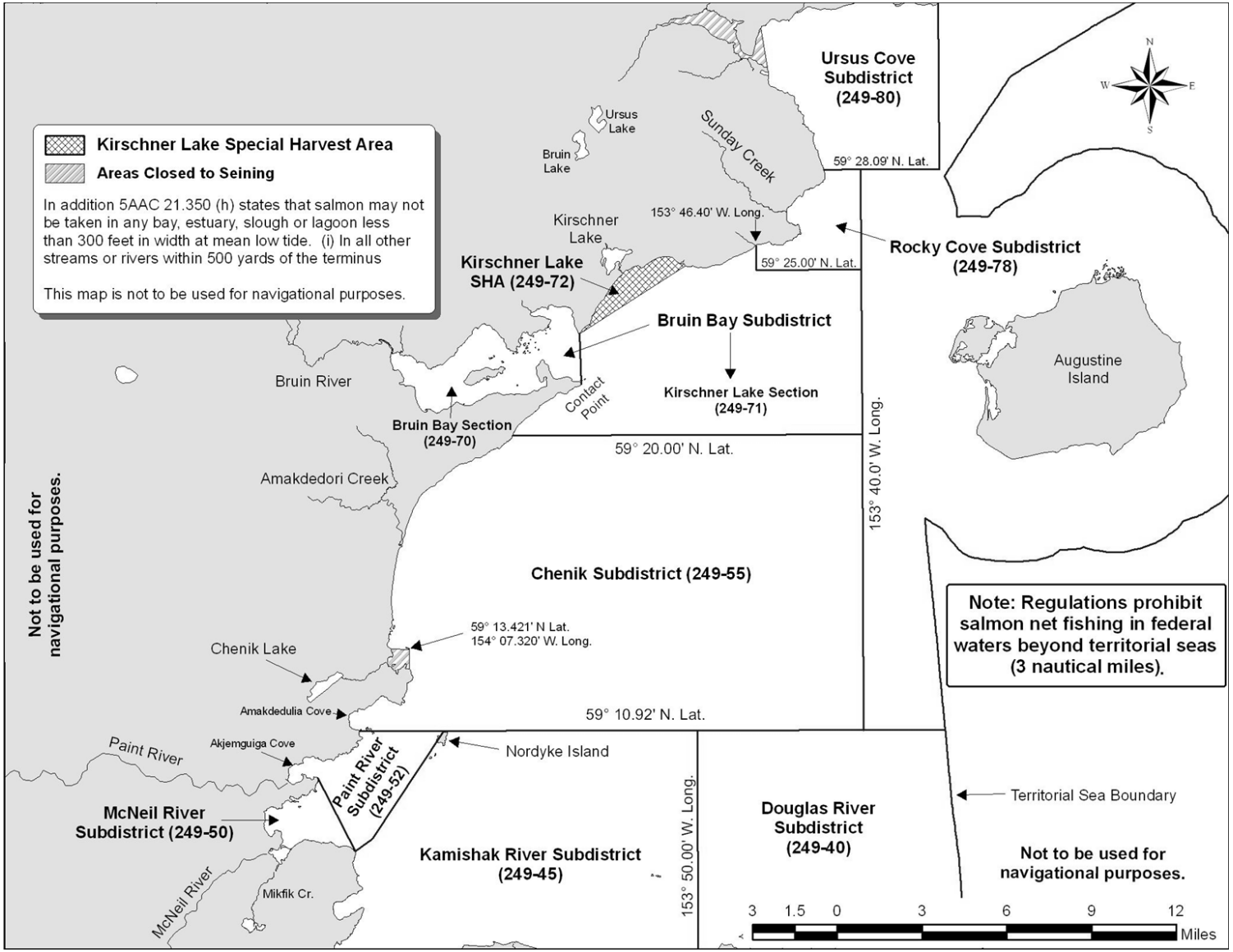

Figure 12.–Kamishak Bay District of Lower Cook Inlet management area showing commercial fishing districts, reporting subdistricts, and hatchery special harvest area, McNeil River to Ursus Cove.

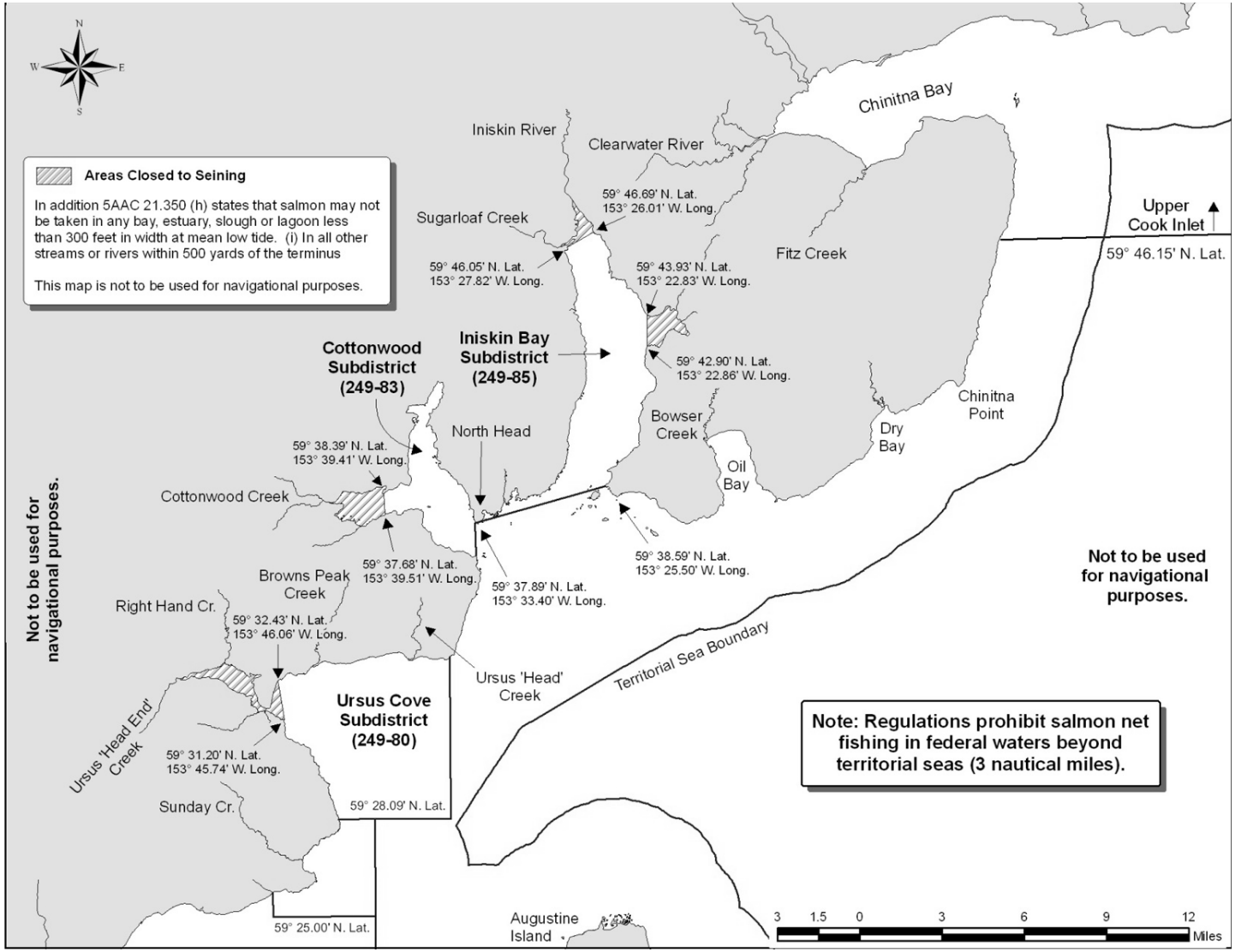

Figure 13.–Kamishak Bay District of Lower Cook Inlet management area showing commercial fishing districts, Ursus Cove to Chinitna Point.

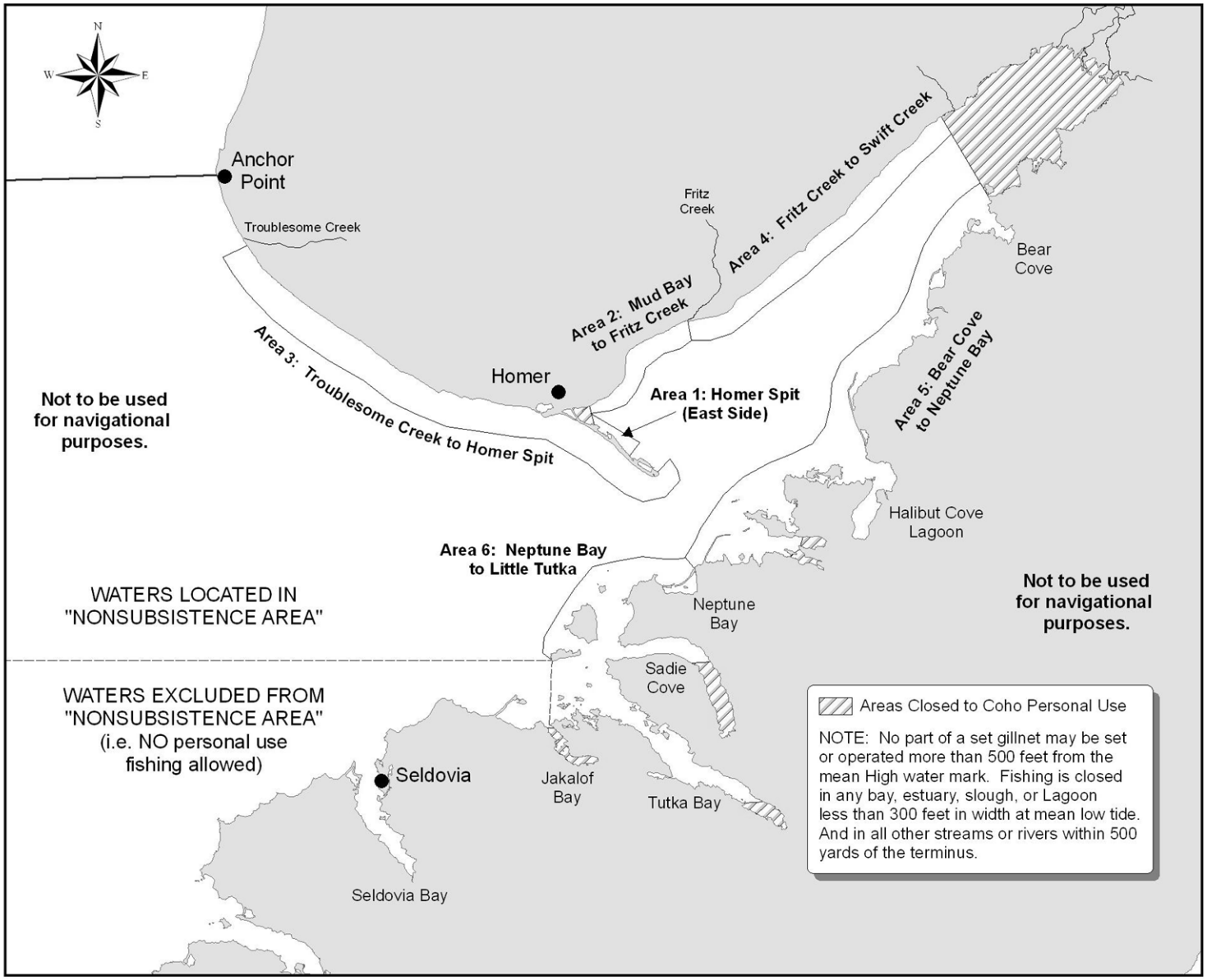

Figure 14.–Kachemak Bay personal use coho salmon fishery registration areas.

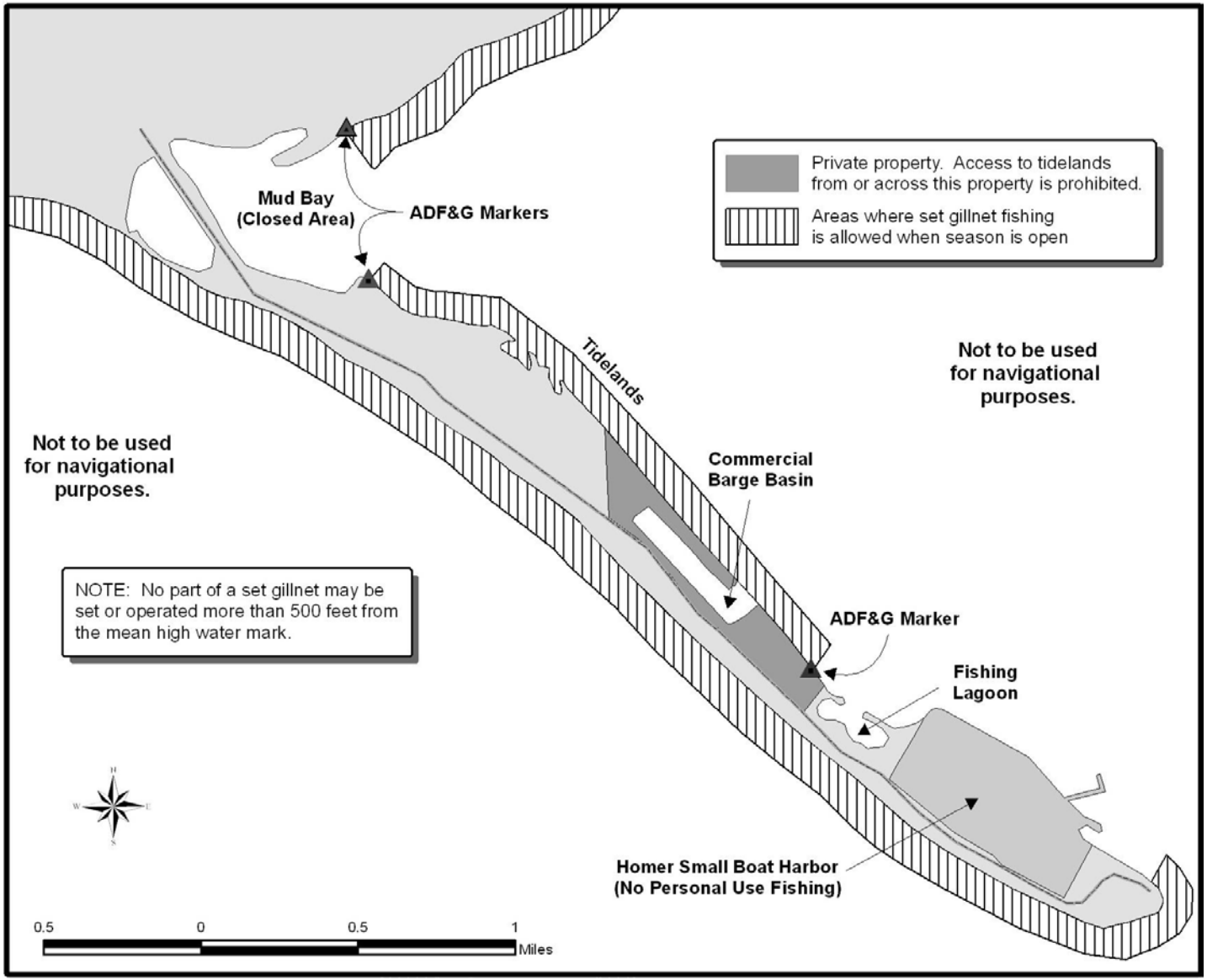

Figure 15.–Southern District personal use coho salmon fishery: Homer Spit area.

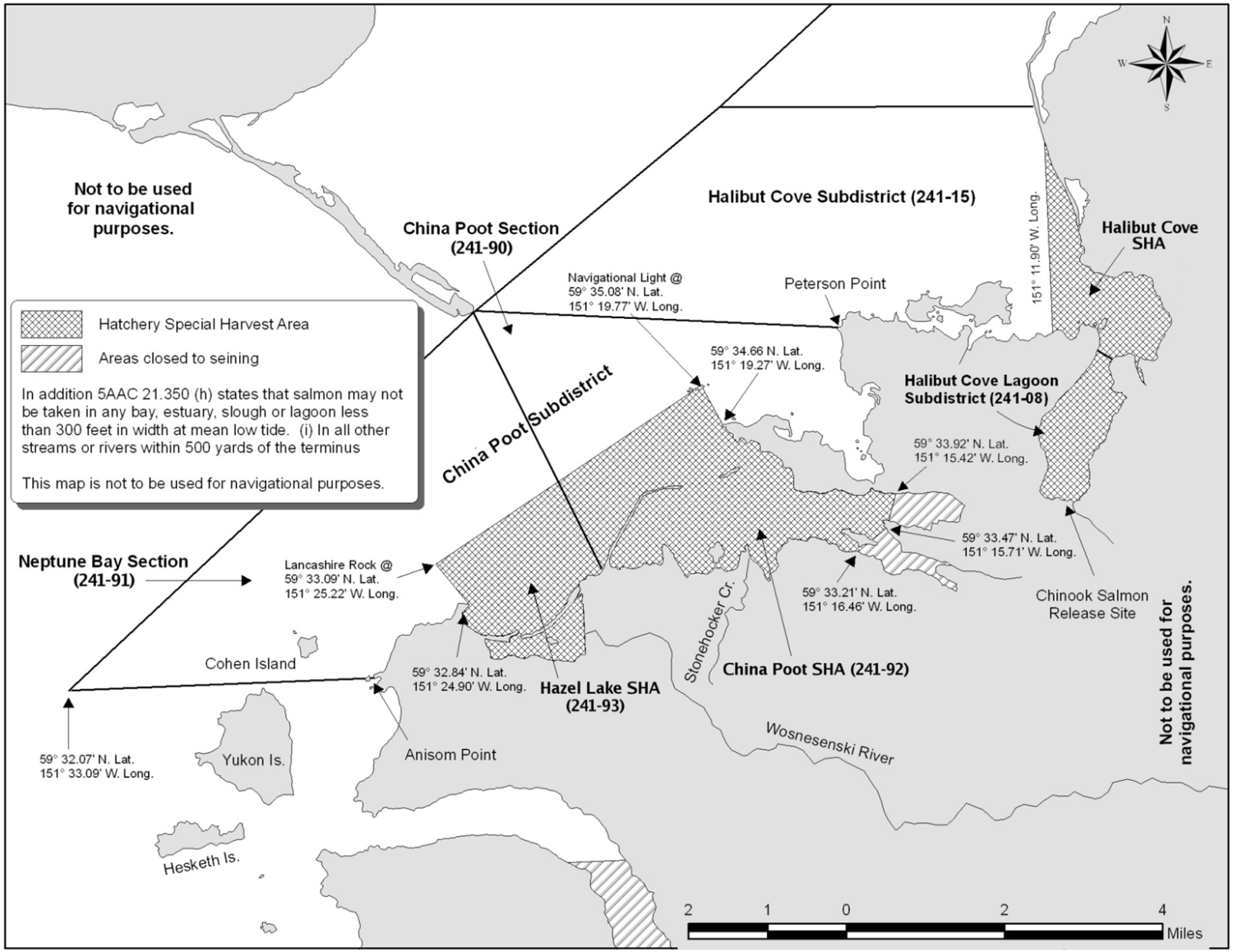

Figure 16.–Lower Cook Inlet management area, Southern District hatchery special harvest areas, Halibut Cove to Anisom Point.

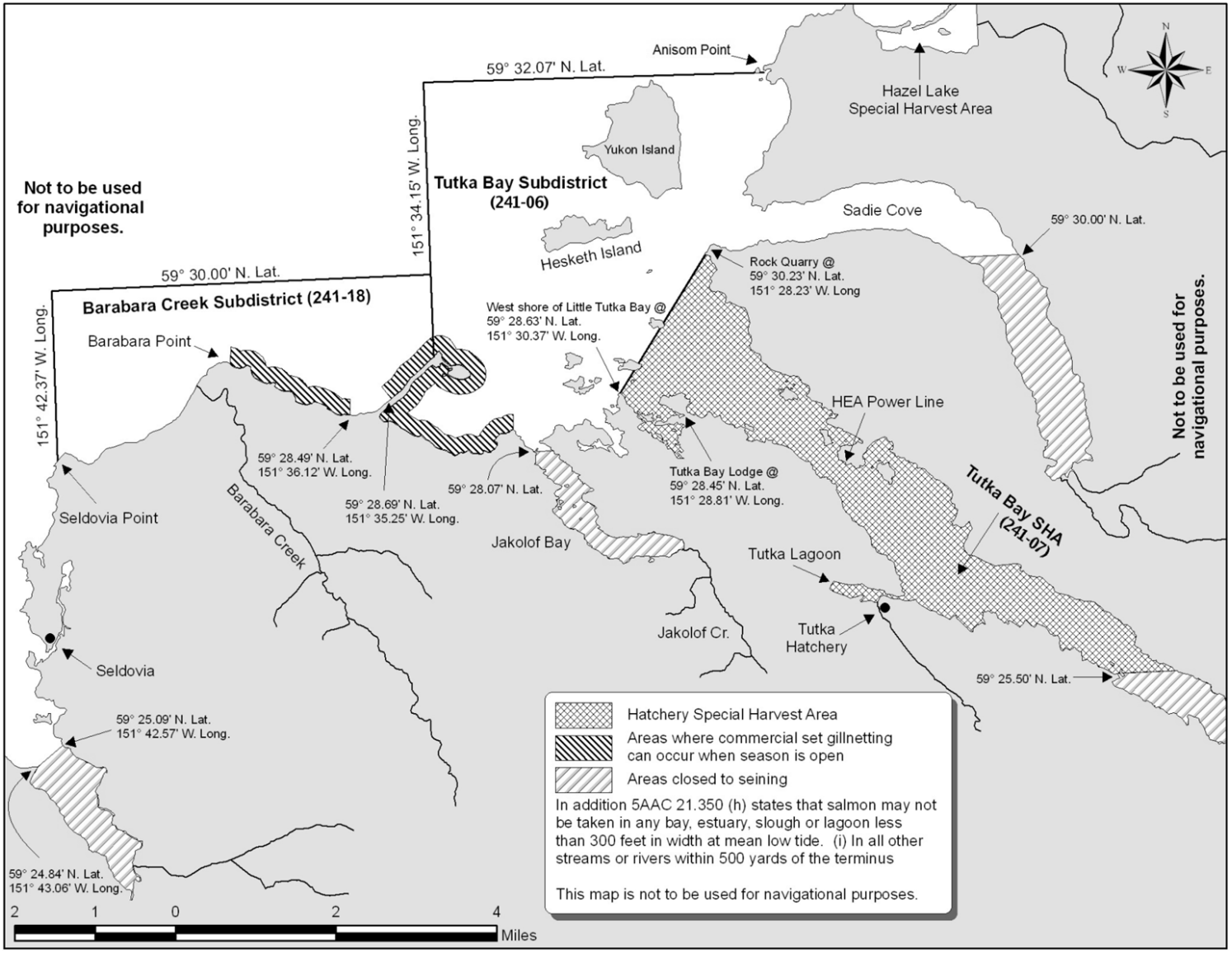

Figure 17.–Lower Cook Inlet management area, Southern District hatchery special harvest areas, Anisom Point to Seldovia Point.

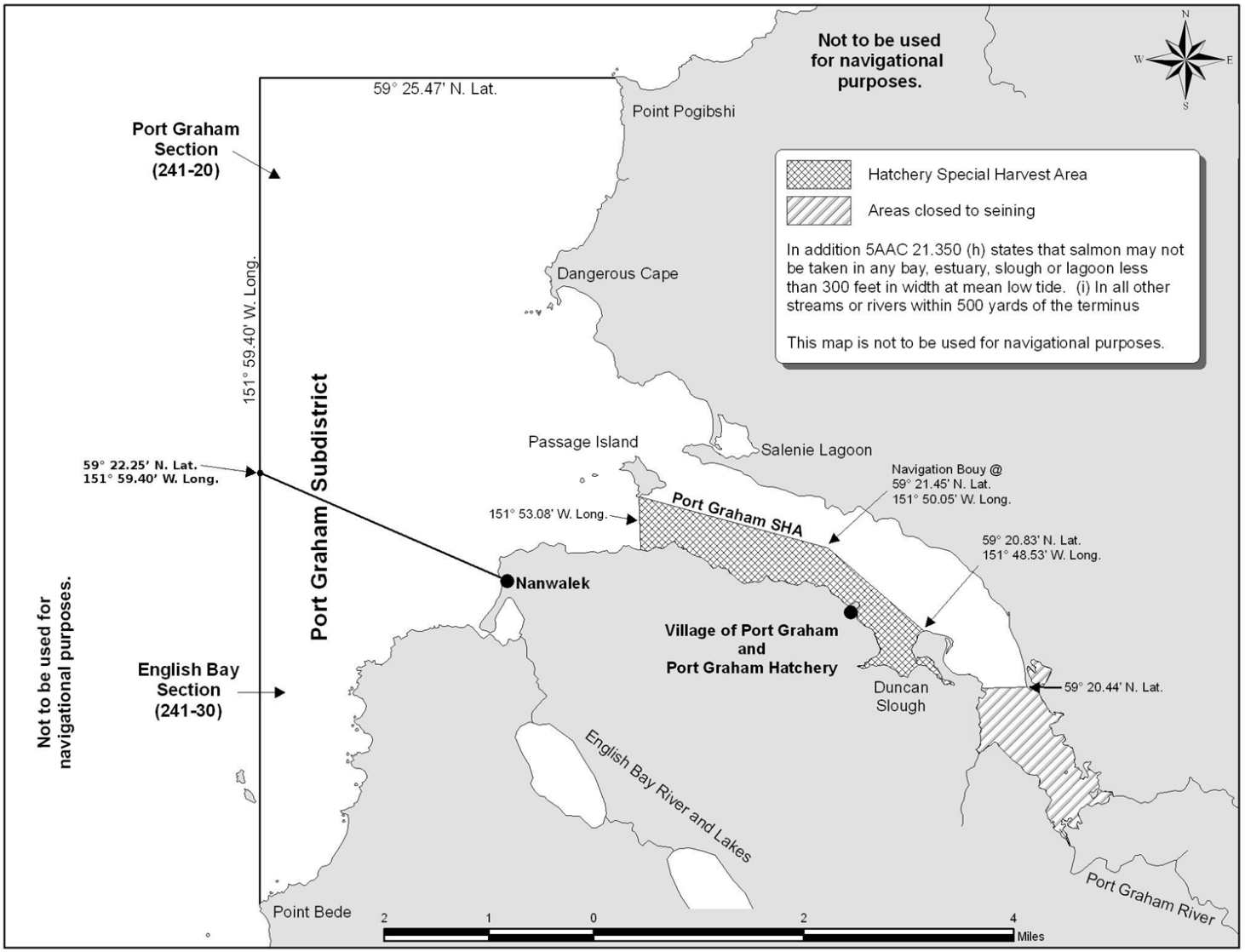

Figure 18.–Lower Cook Inlet management area, Southern District hatchery special harvest areas, Port Graham Area.

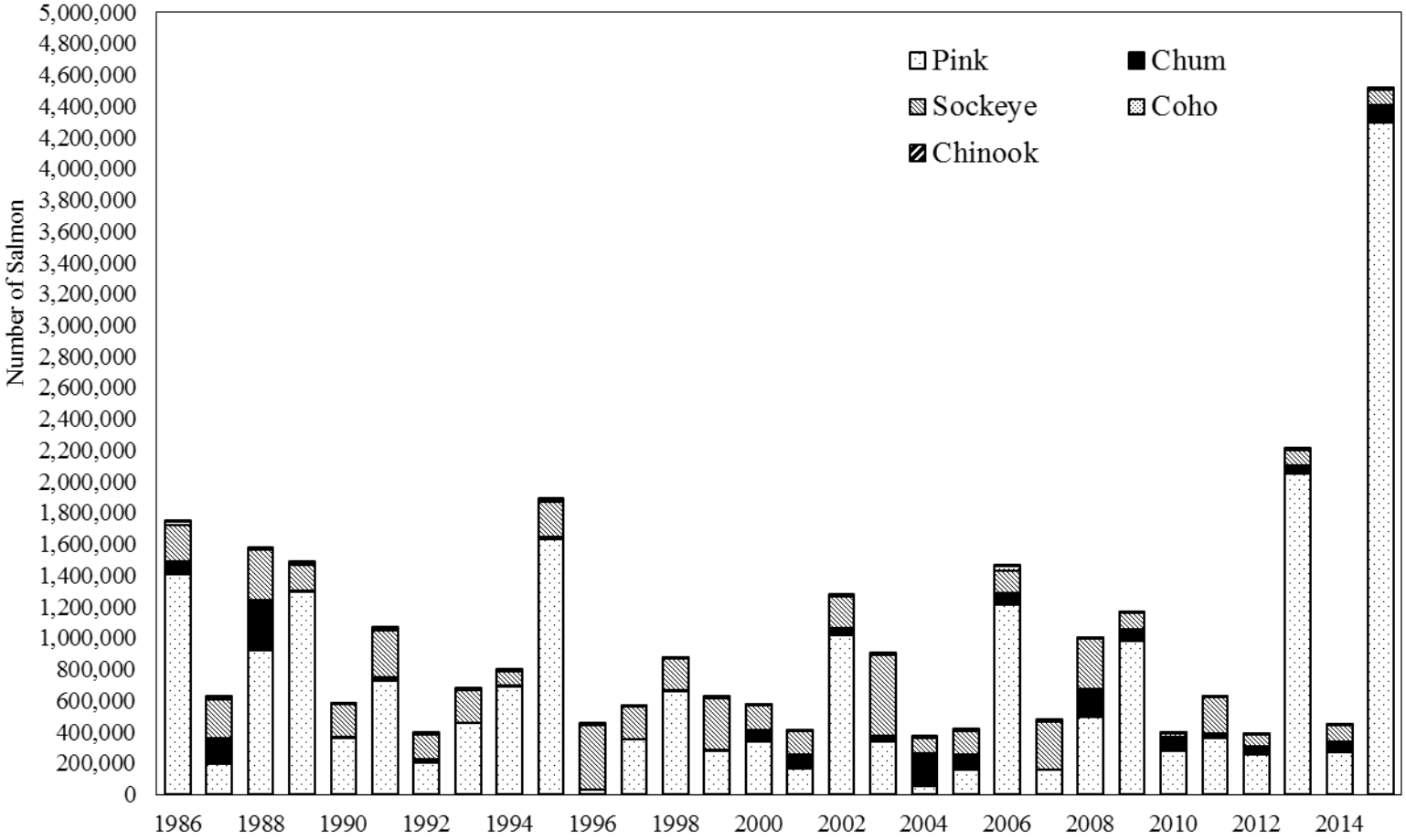

Figure 19.–Commercial common property salmon harvests in Lower Cook Inlet, 1986–2015.

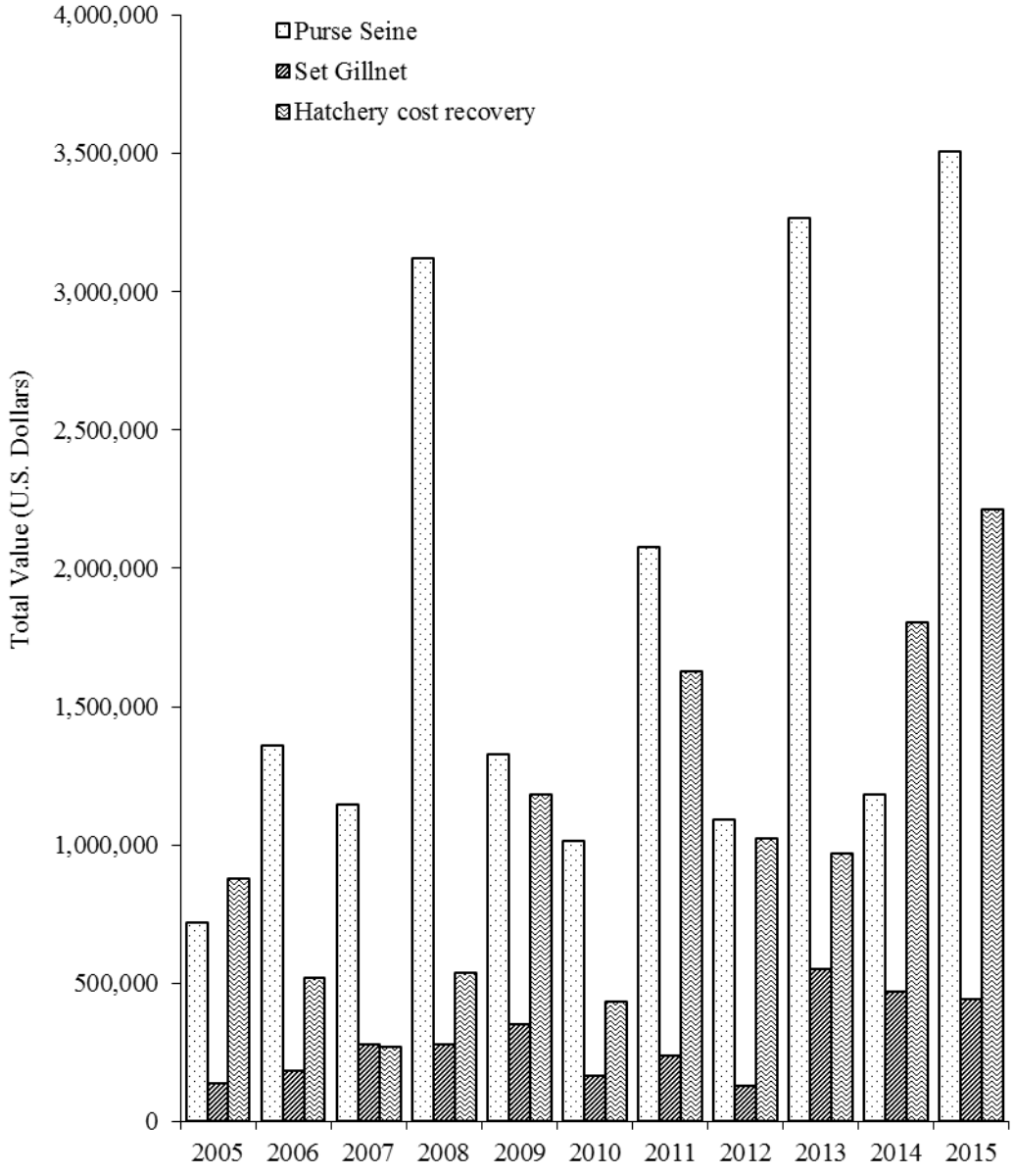

Figure 20.–Exvessel value of Lower Cook Inlet commercial salmon harvest, 2005–2015.

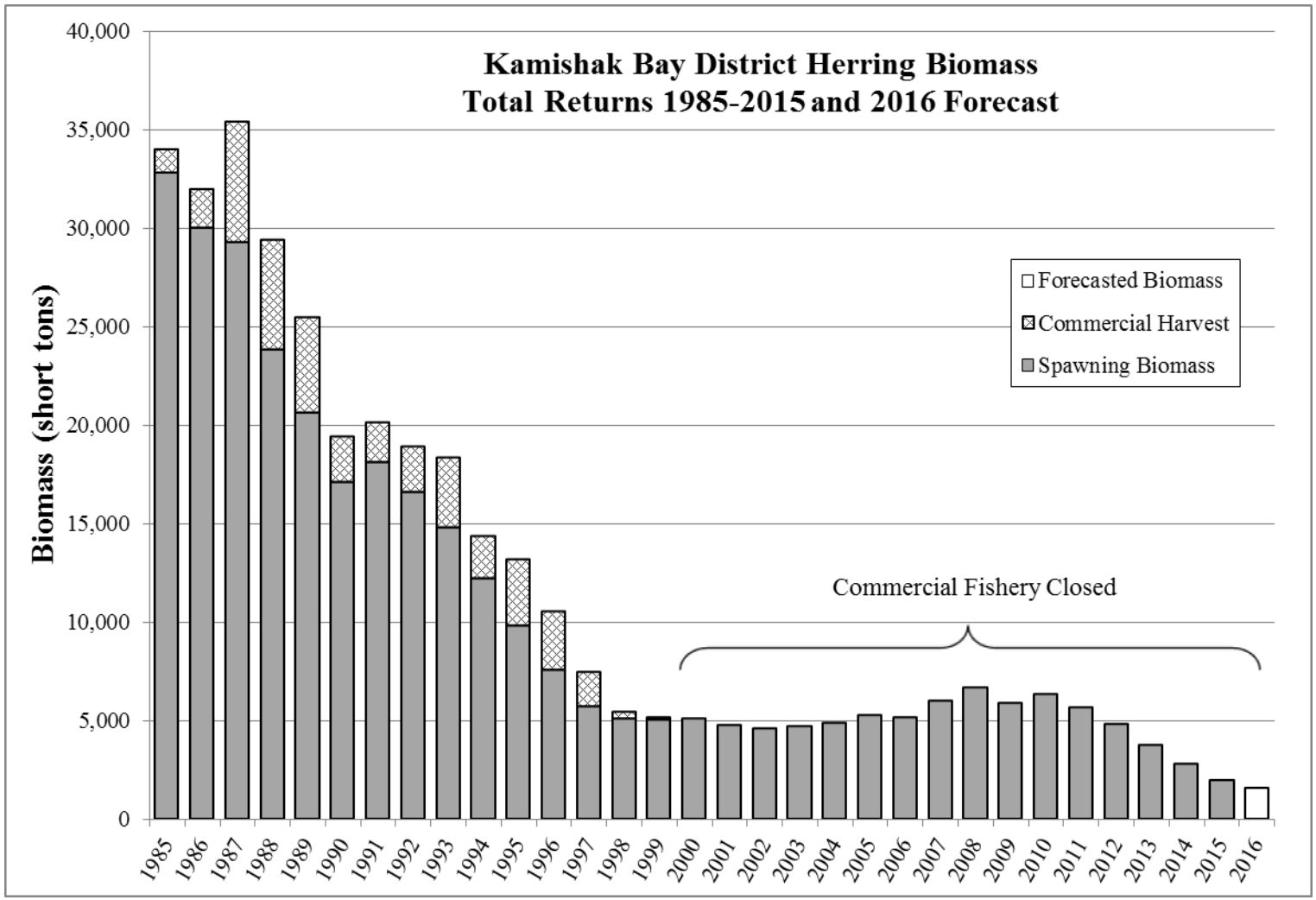

Figure 21.–Age-structured-assessment (ASA) biomass estimates and commercial harvests of Pacific herring in the sac roe seine fishery, Kamishak Bay District, Lower Cook Inlet, 1985–2015 and 2016 projection.

Note: All spawning biomass estimates derived from 2015 ASA calculations.

Table 1.–Lower Cook Inlet Management Area commercial salmon harvest by gear and district, 2015.

District	Permits [a]	Chinook [a]	Sockeye [a]	Coho [a, b]	Pink [a]	Chum [a]	Total
Southern District	15	52	54,783	997	141,604	1,450	198,886
Outer District	19		613	41	4,096,578	97,974	4,195,206
Eastern District	3		4,633		155	115	4,903
Kamishak Bay District	[c]				[c]	[c]	[c]
Purse seine total	19	52	60,029	1,038	4,272,072	100,165	4,433,356
Southern District	24	752	36,061	3,102	27,726	11,539	79,180
Set gillnet total	24	752	36,061	3,102	27,726	11,539	79,180
Commercial common property total		804	96,090	4,140	4,299,798	111,704	4,512,536
Port Graham Hatchery							
Tutka Bay Hatchery				199	2,087,024	1,737	2,088,960
Trail Lakes Hatchery			148,802	1	1,560		150,363
Hatchery cost recovery total[d]			148,802	200	2,088,584	1,737	2,239,323
Commercially sold total		804	244,892	4,340	6,388,382	113,441	6,751,859
Homepack	20	67	278	479	401	28	1,253
Hatchery donated fish[e]			2,062	1,096			3,158
Misc. Total		67	2,340	1,575	401	28	4,411
Lower Cook Inlet total		871	247,232	5,915	6,388,783	113,469	6,756,270

[a] Numbers of fish and numbers of permit holders delivering are from ADF&G fish ticket database.

[b] 1,408 coho salmon were harvested in the Seward Salmon Derby. These were sold by the sponsor to commercial processors. These fish were caught by sport permit holders using rod and reel (troll gear). This harvest is not included in the commercial harvest total catch.

[c] Confidential data. Fewer than 3 permits reporting.

[d] Hatchery sales for hatchery operating costs.

[e] Excess sockeye and coho salmon harvested at the Bear Creek weir.

Table 2.–Total commercial salmon harvest by species from all gear types, Lower Cook Inlet area, including cost recovery for all Cook Inlet Area hatcheries, 1985–2015.

Year	Gear	n-permits [a]	Chinook [a]	Sockeye [a]	Coho [a]	Pink [a]	Chum [a]
1985	Purse seine	51	85	255,234	5,585	1,206,819	26,421
1985	Set gillnet	34	924	23,163	3,908	22,898	4,217
1985	Hatchery	0	0	0	0	0	0
	Total		1,009	278,397	9,493	1,229,717	30,638
1986	Purse seine	61	51	213,054	15,258	1,394,049	80,262
1986	Set gillnet	34	745	21,807	2,827	14,244	2,426
1986	Hatchery	0	0	0	0	0	0
	Total		796	234,861	18,085	1,408,293	82,688
1987	Purse seine	67	526	220,648	10,970	192,207	156,965
1987	Set gillnet	29	653	28,209	2,025	9,224	2,419
1987	Hatchery	0	0	0	0	0	0
	Total		1,179	248,857	12,995	201,431	159,384
1988	Purse seine	72	549	306,309	4,742	895,420	319,768
1988	Set gillnet	27	1,145	14,758	2,819	29,268	4,423
1988	Hatchery	0	0	0	0	0	0
	Total		1,694	321,067	7,561	924,688	324,191
1989	Purse seine	65	612	149,301	5,864	1,280,716	9,428
1989	Set gillnet	23	1,281	13,970	4,792	16,210	1,877
1989	Hatchery	0	0	0	0	0	0
	Total		1,893	163,271	10,656	1,296,926	11,305
1990	Purse seine	71	199	188,032	733	353,781	5,013
1990	Set gillnet	20	1,361	15,863	1,046	12,646	1,938
1990	Hatchery	0	0	0	5,876	17,243	0
	Total		1,560	203,895	7,655	383,670	6,951
1991	Purse seine	68	576	281,250	7,068	722,535	22,623
1991	Set gillnet	20	842	20,525	5,011	3,954	1,577
1991	Hatchery	0	0	0	0	0	0
	Total		1,418	301,775	12,079	726,489	24,200
1992	Purse seine	61	603	143,537	3,049	187,853	20,511
1992	Set gillnet	20	1,288	17,002	848	15,958	1,687
1992	Hatchery	0	0	16,105	1,528	275,957	5
	Total		1,891	176,644	5,425	479,768	22,203
1993	Purse seine	51	1,079	195,896	1,710	445,283	1,776
1993	Set gillnet	17	1,089	14,791	3,088	12,008	2,591
1993	Hatchery	0	0	0	0	0	0
	Total		2,168	210,687	4,798	457,291	4,367
1994	Purse seine	30	127	73,543	7,024	670,944	3,049
1994	Set gillnet	16	1,103	14,004	1,073	23,621	2,419
1994	Hatchery	0	1	27,871	4,968	953,364	1
	Total		1,231	115,418	13,065	1,647,929	5,469
1995	Purse seine	46	225	207,237	9,867	1,593,453	11,676
1995	Set gillnet	23	2,078	19,406	3,564	41,654	3,958
1995	Hatchery	0	0	38,780	1,318	1,213,357	2
	Total		2,303	265,423	14,749	2,848,464	15,636

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Year	Gear	n-permits [a]	Chinook [a]	Sockeye [a]	Coho [a]	Pink [a]	Chum [a]
1996	Purse seine	34	126	339,626	3,892	17,546	946
1996	Set gillnet	24	1,054	69,338	5,779	14,813	2,792
1996	Hatchery	0	1	41,492	1,334	420,431	26
	Total		1,181	450,456	11,005	452,790	3,764
1997	Purse seine	23	126	144,091	1,185	288,969	1,736
1997	Set gillnet	25	1,135	59,401	4,475	64,162	4,166
1997	Hatchery	0	0	36,681	3,177	2,461,300	6
	Total		1,261	240,173	8,837	2,814,431	5,908
1998	Purse seine	39	119	177,250	2,325	639,505	883
1998	Set gillnet	24	952	26,131	1,057	24,403	3,754
1998	Hatchery	0	0	80,648	10,717	793,911	10
	Total		1,071	284,029	14,099	1,457,819	4,647
1999	Purse seine	43	273	302,070	2,873	276,742	3,606
1999	Set gillnet	20	1,491	27,646	1,374	5,348	4,335
1999	Hatchery	0	0	147,063	2,502	858,398	0
	Total		1,764	476,779	6,749	1,140,488	7,941
2000	Purse seine	36	168	129,133	506	321,342	67,769
2000	Set gillnet	24	1,019	26,503	621	21,845	5,214
2000	Hatchery	0	1	66,693	169	1,044,119	271
	Total		1,188	222,329	1,296	1,387,306	73,254
2001	Purse seine	25	123	119,806	909	156,657	85,473
2001	Set gillnet	18	865	28,503	1,811	13,393	3,487
2001	Hatchery	0	0	60,619	34	422,881	9
	Total		988	208,928	2,754	592,931	88,969
2002	Purse seine	25	40	158,284	1,502	1,013,649	38,541
2002	Set gillnet	24	1,513	46,812	2,393	6,741	4,681
2002	Hatchery	0	0	84,194	311	949,671	37
	Total		1,553	289,290	4,206	1,970,061	43,259
2003	Purse seine	27	302	438,236	3,121	335,147	30,625
2003	Set gillnet	24	878	81,722	2,291	7,325	4,998
2003	Hatchery	0	0	122,024	253	513,649	63
	Total		1,180	641,982	5,665	856,121	35,686
2004	Purse seine	24	258	84,633	5,647	57,878	205,445
2004	Set gillnet	19	1,400	16,087	1,164	834	1,234
2004	Hatchery	0	0	29,363	0	2,458,843	0
	Total		1,658	130,083	6,811	2,517,555	206,679
2005	Purse seine	29	85	134,649	914	161,255	97,274
2005	Set gillnet	17	525	15,669	1,905	341	1,326
2005	Hatchery	0	0	81,058	1	2,144,818	2
	Total		610	231,376	2,820	2,306,414	98,602
2006	Purse seine	24	50	125,878	26,019	1,206,631	69,810
2006	Set gillnet	22	580	14,219	2,426	12,288	2,019
2006	Hatchery	0	0	83,464	0	252,658	125
	Total		630	223,561	28,445	1,471,577	71,954

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Year	Gear	n-permits [a]	Chinook [a]	Sockeye [a]	Coho [a]	Pink [a]	Chum [a]
2007	Purse seine	19	28	278,570	1,827	162,762	266
2007	Set gillnet	16	439	28,870	1,616	0	1,437
2007	Hatchery	0	0	58,514	26	124,649	74
	Total		467	365,954	3,469	287,411	1,777
2008	Purse seine	25	42	293,363	740	498,930	174,128
2008	Set gillnet	18	148	26,819	599	1,884	1,394
2008	Hatchery	0	0	87,208	2	4,886	208
	Total		190	407,390	1,341	505,700	175,730
2009	Purse seine	13	1	65,771	9	985,451	71,700
2009	Set gillnet	19	83	38,220	968	2,136	2,274
2009	Hatchery	0	0	175,539	1	1,760	0
	Total		84	279,530	978	989,347	73,974
2010	Purse seine	14	10	8,615	589	274,859	93,245
2010	Set gillnet	21	29	14,765	171	3,106	1,503
2010	Hatchery	0	0	69,219	31	246	7
	Total		39	92,599	791	278,211	94,755
2011	Purse seine	23	36	211,700	49	359,058	29,741
2011	Set gillnet	21	100	22,782	103	2,643	1,946
2011	Hatchery	0	0	158,272	0	205	4
	Total		136	392,754	152	361,906	31,691
2012	Purse seine	16	47	61,728	142	245,190	54,177
2012	Set gillnet	15	86	10,260	33	10,305	927
2012	Hatchery	0	0	114,592	7	772	330
	Total		133	186,580	182	256,267	55,434
2013	Purse seine	11	141	61,305	1,955	2,048,707	51,684
2013	Set gillnet	19	250	38,238	3,616	1,961	2,698
2013	Hatchery	0	0	70,193	0	48,017	20
	Total		391	169,736	5,571	2,098,685	54,402
2014	Purse seine	20	18	64,898	269	267,808	67,865
2014	Set gillnet	19	330	33,090	521	3,549	5,372
2014	Hatchery	0	20	173,030	1	161	278
	Total		368	271,018	791	271,518	73,515
Previous 10-yr Average	Purse seine	19	46	130,648	3,251	621,065	70,989
	Set gillnet	19	257	24,293	1,196	3,821	2,090
	Hatchery	0	2	107,109	7	257,817	105
	Total		305	262,050	4,454	882,704	73,183
2015	Purse seine	19	59	60,149	1,100	4,272,374	100,165
2015	Set gillnet	24	812	36,219	3,519	27,825	11,567
2015	Hatchery	0	0	148,802	200	2,088,584	1,737
	Total		871	245,170	4,819	6,388,783	113,469

[a] Numbers of fish and numbers of permit holders delivering are from ADF&G fish ticket database. These numbers do not include sport caught fish from the Seward salmon derby that were later sold. Historical numbers in this table include commercial homepack fish.

Table 3.–Mean price and estimated exvessel value of the total commercial salmon harvest excluding homepacks by gear type, Lower Cook Inlet, 2015.

Purse seine			Average		
Species	Number [a]	Pounds [a]	weight	Price [a]	Value
Chinook	59	368	6.84	$1.70	$624
Sockeye	60,149	292,235	4.87	$1.45	$424,498
Coho	1,092	6,940	6.68	$0.42	$2,892
Pink	4,272,374	13,991,832	3.28	$0.20	$2,788,824
Chum	100,165	646,440	6.57	$0.45	$287,699
	4,433,839	14,937,815			$3,504,537

Set gillnet			Average		
Species	Number [a]	Pounds [a]	weight	Price [a]	Value
Chinook	812	7,763	10.40	$3.16	$24,510
Sockeye	36,219	192,617	5.34	$1.86	$359,009
Coho	3,519	18,768	6.04	$0.73	$13,635
Pink	27,825	101,065	3.64	$0.18	$18,010
Chum	11,567	74,887	6.49	$0.34	$25,534
	79,942	395,100			$440,698

Hatchery sales			Average		
Species	Number [a]	Pounds [a]	weight	Price [a]	Value
Chinook	0	0	0.00	$0.00	$0
Sockeye	148,802	624,042	4.19	$1.32	$821,739
Coho	200	1,386	6.93	$0.40	$554
Pink	2,088,584	6,004,909	2.88	$0.23	$1,383,195
Chum	1,737	11,110	6.40	$0.40	$4,444
	2,239,323	6,641,447			$2,209,932

Total harvest			Average		
Species	Number [a]	Pounds [a]	weight	Price [a]	Value
Chinook	871	8,131	10.19	$3.09	25,135
Sockeye	245,180	1,108,894	4.53	$1.45	1,605,245
Coho	4,811	27,094	6.23	$0.63	17,082
Pink	6,388,783	20,097,806	3.14	$0.21	4,190,029
Chum	113,469	732,437	6.56	$0.43	317,677
	6,753,104	21,974,362			$6,155,167

Gear type	Value of catch	No. of permits [a]	Average earnings
Purse seine	$3,504,537	19	$184,449
Set gillnet	$440,698	24	$18,362
Subtotal-Value of CPF Catch	$3,945,236		
Hatchery	$2,209,932		
Grand total	$6,155,167		

[a] Mean prices are based on weighted average prices from ADF&G fish ticket database. Pounds and numbers of fish are based on fish ticket reporting.

Table 4.–Average price paid to permit holders for salmon, Lower Cook Inlet, 1990–2015.

	Chinook salmon			Sockeye salmon			Coho salmon			Pink salmon			Chum salmon		
Year	Seine	Set gillnet	Combined	Seine	Set Gillnet	Combined	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined
1990	NA	NA	$1.35 [b]	$1.38	$1.89	$1.88	$0.50	$0.84	$0.84	$0.35	$0.30	$0.32	$0.40	$0.55	$0.55
1991	NA	$1.53	$1.53	NA	$1.45	$1.45	NA	NA	$0.29 [b]	NA	$0.25	$0.25	NA	$0.41	$0.41
1992	$0.97	$1.41	$1.29	$1.45	$1.46	$1.45	$0.43	$0.50	$0.44	$0.15	$0.15	$0.15	$0.26	$0.33	$0.27
1993	$0.89	$1.10	$1.02	$0.78	$1.00	$0.80	$0.42	$0.58	$0.52	$0.14	$0.13	$0.14	$0.30	$0.26	$0.28
1994	$0.90	$0.96	$0.95	$1.12	$1.23	$1.14	$0.66	$0.71	$0.66	$0.16	$0.15	$0.16	$0.15	$0.35	$0.25
1995	$0.85	$1.19	$1.17	$1.11	$1.20	$1.11	$0.47	$0.53	$0.49	$0.15	$0.16	$0.15	$0.23	$0.26	$0.24
1996	$0.76	$1.37	$1.32	$0.90	$1.00	$0.92	$0.29	$0.40	$0.36	$0.05	$0.06	$0.05	$0.15	$0.19	$0.18
1997	$0.69	$1.32	$1.29	$0.81	$0.84	$0.82	$0.29	$0.49	$0.46	$0.11	$0.10	$0.11	$0.19	$0.25	$0.23
1998	$0.68	$1.58	$1.58	$0.98	$1.01	$0.99	$0.55	$0.66	$0.60	$0.13	$0.14	$0.13	$0.19	$0.29	$0.28
1999	$0.97	$2.07	$2.04	$1.32	$1.67	$1.41	$0.45	$0.70	$0.62	$0.13	$0.16	$0.14	$0.10	$0.43	$0.35
2000	$0.75	$1.94	$1.86	$0.98	$1.01	$0.98	$0.45	$0.54	$0.49	$0.09	$0.15	$0.09	$0.29	$0.18	$0.28
2001	$0.75	$1.87	$1.76	$0.64	$0.73	$0.66	$0.30	$0.43	$0.39	$0.09	$0.05	$0.09	$0.36	$0.20	$0.35
2002	$0.30	$1.12	$1.10	$0.56	$0.68	$0.58	$0.17	$0.25	$0.22	$0.06	$0.03	$0.06	$0.16	$0.19	$0.16
2003	$0.25	$1.14	$1.02	$0.61	$0.74	$0.64	$0.20	$0.11	$0.16	$0.05	$0.02	$0.05	$0.15	$0.20	$0.15
2004	$0.33	$1.68	$1.56	$0.80	$1.16	$0.86	$0.44	$0.52	$0.45	$0.05	$0.07	$0.05	$0.20	$0.21	$0.20
2005	$0.83	$1.65	$1.54	$0.87	$1.30	$0.93	$0.29	$0.53	$0.45	$0.08	$0.10	$0.08	$0.22	$0.24	$0.22
2006	$0.50	$2.41	$2.26	$1.10	$1.74	$1.18	$0.50	$0.82	$0.53	$0.11	$0.11	$0.11	$0.31	$0.26	$0.31
2007	$0.70	$2.73	$2.70	$0.88	$1.45	$0.95	$0.50	$0.46	$0.48	$0.11	$0.11	$0.11	$0.25	$0.25	$0.25
2008	$0.65	$3.67	$3.57	$1.39	$1.64	$1.42	$0.50	$0.84	$0.66	$0.23	$0.23	$0.23	$0.55	$0.25	$0.55
2009	$1.00	$3.50	$3.45	$1.20	$1.49	$1.33	$0.52	$0.80	$0.80	$0.22	$0.18	$0.22	$0.54	$0.25	$0.53
2010	$0.50	$3.76	$3.57	$1.46	$1.88	$1.74	$1.08	$1.27	$1.12	$0.33	$0.25	$0.33	$0.79	$0.47	$0.79
2011	$1.93	$4.19	$3.85	$1.56	$1.56	$1.56	$0.52	$0.79	$0.70	$0.41	$0.30	$0.37	$0.83	$0.61	$0.81
2012	$2.08	$4.53	$4.09	$1.59	$1.80	$1.63	$0.75	$1.06	$0.80	$0.39	$0.25	$0.38	$0.70	$0.37	$0.70
2013	$1.02	$5.14	$4.53	$2.00	$2.21	$2.11	$0.83	$1.01	$0.95	$0.38	$0.33	$0.38	$0.53	$0.35	$0.52
2014	$2.67	$3.92	$3.89	$1.94	$2.23	$2.15	$0.75	$1.24	$1.11	$0.28	$0.26	$0.28	$0.59	$0.47	$0.57
10-year Average	$1.11	$3.38	$3.18	$1.34	$1.68	$1.44	$0.61	$0.85	$0.73	$0.24	$0.20	$0.23	$0.50	$0.34	$0.49
2015	$1.70	$3.16	$3.11	$1.45	$1.86	$1.62	$0.42	$0.73	$0.64	$0.20	$0.18	$0.20	$0.45	$0.34	$0.43

Note: These prices are based on weighted average prices from ADF&G fish ticket database and do not reflect postseason adjustments and bonuses. Caution should be used when estimating value from these prices.

Table 5.–Estimated exvessel value of commercial salmon harvest by gear type with previous 10-year average, Lower Cook Inlet, 2005–2015.

Purse seine Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	10-yr Average	2015
Chinook	889	344	305	228	34	15	648	483	689	411	405	624
Sockeye	488,641	605,442	1,080,994	1,924,898	347,202	58,349	1,485,538	461,300	644,508	618,967	771,584	424,498
Coho	1,842	96,927	5,112	2,183	41	4,131	157	706	9,366	1,314	13,385	2,892
Pink	43,183	473,506	57,072	408,666	665,639	328,849	423,068	300,992	2,403,739	264,127	567,190	2,788,824
Chum	183,716	180,231	443	784,343	314,421	619,305	166,691	323,923	205,517	294,110	308,732	287,699
	$718,271	$1,356,450	$1,143,925	$3,120,319	$1,327,338	$1,010,648	$2,076,101	$1,087,404	$3,263,819	$1,178,929	1,678,253	$3,504,537
Set gillnet Species												
Chinook	12,921	19,100	19,991	14,408	5,412	1,792	8,032	4,847	15,135	11,533	11,317	24,510
Sockeye	115,746	134,339	251,705	253,544	332,005	151,183	218,700	109,526	502,583	433,220	250,255	359,009
Coho	6,864	16,475	4,724	3,406	4,953	1,458	488	200	20,959	3,220	6,614	13,635
Pink	133	5,337	0	1,650	1,073	2,728	2,606	10,074	2,217	3,351	2,869	18,010
Chum	2,287	4,350	2,508	2,678	4,216	4,972	7,975	2,528	6,842	18,062	4,262	25,534
	$137,950	$179,600	$278,928	$275,685	$347,659	$162,132	$237,801	$127,176	$547,736	$469,385	254,963	$440,698
Hatchery sales Species												
Chinook	0	0	0	0	0	0	0	0	0	245	24	0
Sockeye	291,395	419,805	222,175	528,507	1,177,187	430,230	1,625,199	1,021,125	910,285	1,799,731	842,564	821,739
Coho	2	0	96	4	2	222	0	44	0	0	41	554
Pink	585,235	97,059	44,580	3,867	1,249	280	487	1,074	57,622	130	87,939	1,383,195
Chum	3	282	142	1,009	0	33	16	1,034	83	628	289	4,444
	$876,635	$517,146	$266,993	$533,387	$1,178,437	$430,765	$1,625,702	$1,023,277	$967,990	$1,800,733	824,482	$2,209,932
Average earnings												
Purse seine	$24,768	$56,519	$60,207	$124,813	$102,103	$72,189	$90,265	$67,963	$296,711	$58,946	95,448	$184,449
Set gillnet	$8,115	$8,164	$17,433	$15,316	$18,298	$7,721	$11,324	$8,478	$28,828	$24,704	14,838	$18,362
Number of permits fished												
Purse seine	29	24	19	25	13	14	23	16	11	20	19	19
Set gillnet	17	22	16	18	19	21	21	15	19	19	19	24

Table 6.–Preseason harvest or total run projections for the 2015 commercial common property salmon fishery by district and species, Lower Cook Inlet Area.

District/facility	Forecast type	Chinook[a]	Sockeye[a]	Coho[a]	Pink[b]	Chum[a]
Southern District	Commercial harvest	210	40,700	1,400	26,000	3,500
Outer District	Commercial harvest	4	14,800	40	370,000	41,700
Eastern District	Commercial harvest	0	0	0	0	230
Kamishak Bay District	Commercial harvest	2	37,900	100	0	16,800
Total wild stock		216	93,400	1,540	396,000	62,230
Tutka Lagoon Hatchery	Total return	0	48,160	0	1,533,000	0
Port Graham Hatchery	Total return	0	5,100	0	2,820	0
Kirschner Lake	Total return	0	39,500	0	0	0
Leisure Lake	Total return	0	27,944	0	0	0
Hazel Lake	Total return	0		0	0	0
Resurrection Bay	Total return	0	322,737	0	0	0
Halibut Cove	Total return	0	0	0	0	0
English Bay Lakes	Total return	0	1,696	0	0	0
Total hatchery[c]			445,137	0	1,535,820	0
Total Hatchery and wild		216	538,537	1,540	1,931,820	62,230

[a] Chinook, coho, chum, and natural sockeye salmon harvests are 2010–2014 average commercial harvests.

[b] Pink salmon commercial harvests are projected total run minus anticipated escapement.

[c] Hatchery operators provide total run forecasts.

Table 7.–Emergency orders issued for the commercial, personal use, and subsistence salmon fisheries in Lower Cook Inlet, 2015.

E.O. number/ Issue date	Description
2-F-H-01-15/ Friday, May 1	Identification of some salmon streams in Lower Cook Inlet pursuant to 5AAC 39.290(a)(2).
2-F-H-02-15/ Friday, May 8	Southern and Kamishak districts, set gillnet and purse seine. Opens waters of the Kamishak District south of Nordyke Island to commercial salmon harvest on May 25 and establishes 7-day per week purse seine fishing periods in this area. Opens remaining subdistricts in this district on June 1 on this schedule. Opens waters of the Southern District to commercial salmon harvest and establishes two weekly 48-hour set gillnet fishing periods in the Southern District excluding the Pt. Graham Subdistrict beginning at 6:00 am on Mondays and Thursdays effective Monday, June 1.
2-F-H-03-15/ Monday, June 1	Southern District, set gillnet. Defines seaward boundaries approximately 1,000 offshore of mean lower low water in which set gillnets may be used to commercially harvest salmon in the Southern District.
2-F-H-04-15/ Friday, June 5	Southern District, set gillnet. Redefines the eastern boundary of the area in the Halibut Cove Subdistrict where set gillnets may be used to commercially harvest salmon.
2-F-H-05-15/ Friday, June 12	Southern District, subsistence harvest. Expands the subsistence fishing schedule in the Port Graham Section of the Port Graham Subdistrict to 7 days per week.
2-F-H-06-15/ Friday, June 19	Kamishak and Southern districts, purse seine. Closes waters of McNeil, Chenik and Paint River to commercial salmon harvest and effective Monday, June 22 opens Tutka Bay, China Poot, and Halibut Cove subdistricts excluding hatchery special harvest areas to commercial salmon purse seine harvest for 16-hour fishing periods from 6:00 am to 10:00 pm on Mondays, Wednesdays, and Fridays until further notice.
2-F-H-07-15/ Monday, June 29	Eastern District, purse seine. Opens portions of the Eastern District to daily Monday-Friday 16-hour 6:00 am to 10:00 pm salmon purse seine fishing periods. Closes this fishery on Friday, July 3.
2-F-H-08-15/ Friday, July 2	Southern District, purse seine. Modifies 2-F-H-06-15 by extending the Monday, Wednesday, Friday fishing schedule in the Southern District to a Monday through Friday schedule of daily 16-hour fishing periods effective Monday, July 6.
2-F-H-09-15/ Thursday, July 9	Southern, Kamishak and Outer subdistricts, purse seine and set gillnet. Opens the Seldovia and Port Graham subdistricts on a seine fishing schedule concurrent with the schedule established in emergency order 2-F-H-08-15. Opens the Port Graham Section of the Port Graham Subdistrict to commercial set gillnet harvest on a schedule of fishing periods concurrent with those established in emergency order 2-F-H-02-15 for this gear. Opens portions of the Outer District from Dogfish Bay to Petrof Glacier on a Monday, Wednesday and Friday schedule of 16-hour fishing periods. Opens portions of the Chenik Subdistrict to commercial purse seine harvest.
2-F-H-10-15/ Friday, July 10	Outer District, purse seine. Opens portions of the western end of Port Dick from July 13-15 for daily 16-hour fishing periods.

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Table 7.–Page 2 of 2.

E.O. number/ Issue date	Description
2-F-H-11-15/ Tuesday, July 14	Outer District, purse seine. Opens Windy Bay, Port Dick Head End, and Port Dick Middle Creek subdistricts on a schedule of Monday, Wednesday, and Friday 16-hour fishery openings.
2-F-H-12-15/ Friday, July 24	Port Graham Subdistrict, purse seine and set gillnet. Opens the English Bay section to commercial set gillnet harvest for regular 48-hour Monday and Thursday fishing periods beginning at 6:00 am on those days. Moves the regulatory closed waters line at the head of Port Graham Bay southwards.
2-F-H-13-15/ Friday, July 30	Outer District, purse seine. Expands the fishing schedule in portions of the Outer District to a Monday through Friday schedule of daily 16-hour fishing periods. Adjusts regulatory closed waters in the Dogfish Bay Subdistrict and opens the Port Chatham Subdistrict to commercial purse seine harvest.
2-F-H-14-15/ Wednesday, August 5	Outer District, purse seine. Opens the Port Dick Outer Section and waters in the area of South Nuka Bay. Suspends selected regulatory closed waters areas in the Outer District.
2-F-H-15-15/ Friday, August 7	Kamishak and Southern districts, purse seine. Rescinds closed waters restrictions above the "Pothole" of the Bruin River as well as the Port Graham Subdistrict.
2-F-H-16-15/ Friday, August 7	Southern District, personal use fishing. Clarifies regulatory language regarding the scheduling of the Kachemak Bay Personal Use Coho fishery and associated closed waters.
2-F-H-17-15/ Thursday, August 13	Outer and Southern subdistricts, purse seine. Extends fishing time in portions of the Outer District from a schedule of Monday through Friday daily fishing periods to a seven day per week schedule of daily 16-hour openings. Opens waters of Touglaalek Bay, the Port Dick Island Creek Section, and the China Poot and Hazel Lake special harvest areas to purse seine harvest on schedules concurrent with those districts.
2-F-H-18-15/ Friday, August 1	Outer districts, purse seine. Suspends regulatory closed waters in the Rocky Bay and Dogfish Bay subdistricts.
2-F-H-19-15/ Thursday, August 20	Southern District, personal use fishery. Closes the personal use fishery on Saturday, August 22.
2-F-H-20-15/ Friday, September 18	Southern District, purse seine fishery. Closes the 2015 commercial salmon purse seine fishing season in Area H.

Table 8.–Escapements relative to escapement goals and methods used to monitor escapements in 2015 for Chinook, chum, pink, and sockeye salmon stocks in Cook Inlet, Alaska.

Stock	2015 Escapement	Escapement goal Type (BEG, SEG)	Range Lower	Midpoint	Upper	Monitoring method Aerial	Ground	Video	Weir
Chum salmon (12 with goals)									
Port Graham River	4,030	SEG	1,450	3,125	4,800		X		
Dogfish Lagoon	13,312	SEG	3,350	6,250	9,150		X		
Rocky River	3,138	SEG	1,200	3,300	5,400	X	X		
Port Dick Creek	13,230	SEG	1,900	3,175	4,450	X	X		
Island Creek	18,479	SEG	6,400	11,000	15,600	X	X		
Big Kamishak River	6,990	SEG	9,350	16,675	24,000	X			
Little Kamishak River	14,370	SEG	6,550	15,175	23,800	X			
McNeil River	20,494	SEG	24,000	36,000	48,000	X			
Bruin River	11,006	SEG	6,000	8,125	10,250	X			
Ursus Cove	14,783	SEG	6,050	7,950	9,850	X			
Cottonwood Creek	16,962	SEG	5,750	8,875	12,000	X			
Iniskin Bay	7,513	SEG	7,850	10,775	13,700	X			
Pink salmon (18 with goals)									
Humpy Creek	38,025	SEG	21,650	53,600	85,550		X		
China Poot Creek	7,366	SEG	2,900	5,550	8,200		X		
Tutka Creek	81,584	SEG	6,500	11,750	17,000		X		
Barabara Creek	25,203	SEG	1,900	5,425	8,950		X		
Seldovia Creek	108,793	SEG	19,050	29,000	38,950		X		
Port Graham River	82,356	SEG	7,700	13,775	19,850		X		
Dogfish Lagoon Cks.	50,058	SEG	1,200	4,800	8,400	X	X		
Port Chatham	42,613	SEG	7,800	14,400	21,000		X		
Windy Creek Right	17,009	SEG	3,350	7,150	10,950	X			
Windy Creek Left	33,640	SEG	3,650	16,800	29,950	X			
Rocky River	107,931	SEG	9,350	31,800	54,250		X		
Port Dick Creek	98,002	SEG	18,550	38,425	58,300	X	X		
Island Creek	50,387	SEG	7,200	17,750	28,300	X	X		
S. Nuka Island Creek	8,900	SEG	2,700	8,475	14,250	X			
Desire Lake	46,290	SEG	1,900	11,050	20,200	X			
Bruin River	40,801	SEG	18,650	87,200	155,750	X			
Sunday Creek	60,385	SEG	4,850	16,850	28,850	X			
Brown's Peak Creek	29,141	SEG	2,450	10,625	18,800	X			
Sockeye salmon (8 with goals)									
English Bay	6,290	SEG	6,000	9,750	13,500	X			X
Delight Lake	3,220	SEG	5,950	9,250	12,550	X			
Desire Lake	2,830	SEG	8,800	12,000	15,200	X			
Bear Lake	9,560	SEG	700	4,500	8,300				X
Aialik Lake	3,182	SEG	3,700	5,850	8,000	X			
Mikfik Lake	3,502	SEG	3,400	8,200	13,000	X		X	
Chenik Lake	19,073	SEG	3,500	8,750	14,000	X		X	
Amakdedori Creek	2,910	SEG	1,250	1,925	2,600	X			

Note: SEG = sustainable escapement goal, BEG = biological escapement goal.

APPENDIX A: SOUTHERN DISTRICT

Appendix A1.–Southern District commercial set gillnet salmon harvest (excluding homepacks) by period, 2015.

			Permits		Chinook		Sockeye		Coho		Pink		Chum	
Period [a]	Date	Hours	Fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 [a]	06/01-06/03	48	9	12	39	442	493	2,549					50	339
2 [a]	06/04-06/06	48	8	10	21	236	302	1,460					66	387
3 [a]	06/08-06/10	48	9	13	62	734	640	3,167	1	5			185	1,334
4 [a]	06/11-06/13	48	9	14	93	983	1,665	8,193	1	6	4	12	773	5,639
5 [a]	06/15-06/17	48	10	12	72	827	916	4,423					442	2,890
6 [a]	06/18-06/20	48	12	14	61	710	1,545	7,725	30	110	9	28	562	3,483
7 [a]	06/22-06/24	48	8	16	76	794	724	3,698	99	631	9	27	518	3,460
8 [a]	06/25-06/27	48	8	14	65	530	920	4,445	18	90	26	86	499	3,195
9 [a]	06/29-07/01	48	12	19	69	676	1,153	5,880	59	364	1,312	4,772	801	5,304
10 [a]	07/02-07/04	48	8	12	30	266	681	3,472	219	1,317	1,890	7,131	531	3,383
11 [a]	07/06-07/08	48	11	20	14	120	2,001	10,405	219	1,387	1,847	7,269	869	5,729
12 [a]	07/09-07/11	48	14	33	39	390	1,766	9,483	208	1,263	2,971	10,895	818	5,081
13 [a]	07/13-07/15	48	15	27	36	346	2,179	11,596	255	1,552	3,194	11,471	1,015	6,499
14 [a,b]	07/16-07/18	48	17	37	17	145	4,484	24,825	271	1,702	3,303	11,829	1,324	8,601
15 [a,b,c]	07/20-07/22	48	14	24	16	175	3,178	17,597	318	1,879	2,853	10,313	642	4,076
16 [a,b,c]	07/23-07/25	48	15	32	11	145	3,003	15,861	209	1,285	2,409	8,769	585	3,439
17 [a,b,c]	07/27-07/29	48	12	22	7	75	1,473	8,208	288	1,638	1,026	3,654	337	2,156
18 [a,b,c]	07/30-08/01	48	10	18	3	28	1,734	9,690	246	1,225	1,907	6,832	279	1,835
19 [a,b,c]	08/03-08/05	48	10	17	20	133	2,889	16,307	105	670	806	2,956	311	1,993
20 [a,b,c]	08/06-08/08	48	10	13			2,557	14,219	128	855	1,270	4,427	411	2,693
21 [a,b,c]	08/10-08/12	48	9	11	1	8	906	4,888	206	1,338	645	2,435	199	1,227
22 [a,b,c]	08/13-08/15	48	7	7			605	3,278	150	1,017	1,636	5,591	214	1,390
23 [a,b,c,d]	08/17-08/19	48	[d]	[d]			[d]	[d]	[d]	[d]	[d]	[d]	[d]	[d]
24 [a,b,c,d]	08/20-08/22	48	[d]	[d]			[d]	[d]	[d]	[d]	[d]	[d]	[d]	[d]
25 [a,b,c,d]	08/24-08/26	48	[d]	[d]			[d]	[d]	[d]	[d]	[d]	[d]	[d]	[d]
35 [a,b,c,e]	09/28-09/30	18												
Total			24	402	752	7,763	36,061	192,618	3,102	18,768	27,726	101,065	11,539	74,886
Average weight						10.40		5.34		6.03		3.64		6.49

[a] Set gillnet sections located in Halibut Cove, Tutka Bay, Barabara Creek, and Seldovia Bay Subdistricts open to commercial harvest.

[b] Set gillnet section in Port Graham Section open to commercial harvest concurrent with Halibut Cove, Tutka Bay, Barabara Creek, and Seldovia Bay Subdistricts.

[c] Set gillnet section in English Bay Section open to commercial harvest concurrent with the Port Graham Section and the Halibut Cove, Tutka Bay, Barabara Creek, and Seldovia Bay Subdistricts.

[d] Confidential data. Fewer than 3 permits reporting.

[e] No deliveries during Periods 26–35 that occurred from August 27 through September 30.

Appendix A2.–Southern District commercial purse seine salmon harvest (excluding homepacks) by period, 2015.

			Permits		Chinook		Sockeye		Coho		Pink		Chum	
Period	Date	Hours	Fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 [a]	6/22/2015	16	0	0										
2 [a,b]	6/24/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
3 [a]	6/26/2015	16	3	3			137	575			1	2	1	7
4 [a]	6/29/2015	16	6	6	3	15	456	2,150	2	7	582	1,881	5	30
5 [a]	7/1/2015	16	7	9	5	29	2,349	9,771	29	143	3,941	12,753	18	98
6 [a]	7/3/2015	16	8	8	6	25	2,285	9,811	46	190	12,335	37,215	19	112
7 [a]	7/6/2015	16	7	7	2	5	2,462	10,997	10	45	5,896	17,176	11	67
8 [a]	7/7/2015	16	8	9	2	9	3,353	15,055	87	565	8,066	25,936	25	138
9 [a]	7/8/2015	16	7	7			1,512	6,330	1	6	4,830	14,401	1	5
10 [a]	7/9/2015	16	8	10	3	27	3,453	14,630	25	127	7,692	22,019	9	46
11 [a,c]	7/10/2015	16	7	7	1	2	2,201	9,526	18	103	6,780	22,539	21	190
12 [a,c]	7/13/2015	16	6	8	4	29	881	4,320	23	137	10,210	30,239	16	108
13 [a,c]	7/14/2015	16	6	6	3	27	1,820	9,956	52	453	7,375	27,865	18	122
14 [a,c]	7/15/2015	16	7	9	8	72	2,782	16,717	80	585	6,683	28,775	52	334
15 [a,c]	7/16/2015	16	9	10	3	13	1,377	8,170	47	378	5,836	23,815	36	215
16 [a,c]	7/17/2015	16	8	12	1	26	9,707	51,289	142	878	12,125	33,133	126	867
17 [a,c]	7/20/2015	16	7	7			2,364	11,500	47	315	5,844	18,693	483	3,801
18 [a,c]	7/21/2015	16	7	8	2	23	6,376	37,092	159	1,298	3,870	14,729	76	459
19 [a,c]	7/22/2015	16	6	6			2,752	11,393	13	91	1,211	3,976	11	80
20 [a,b,c]	7/23/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
21 [a,c]	7/24/2015	16	5	6			2,525	11,996	73	513	2,902	7,571	45	406
22 [a,c]	7/27/2015	16	4	4			949	5,052	16	99	1,040	3,030	7	35
23 [a,b,c]	7/28/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
24 [a,c]	7/29/2015	16	3	3	1	1	1,102	6,323	21	123	6,983	19,169	136	951
25 [a,b,c]	7/30/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
26 [a,b,c]	7/31/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
28 [a,b,c,d]	8/4/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
47 [a,b,c,d]	8/31/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
53 [a,b,c,d]	9/8/2015	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Total			15	159	52	368	54,783	270,772	997	6,652	141,604	446,157	1,450	10,381
Average weight						6.84		4.94		6.66		3.15		7.04

Note: Unless otherwise noted, regular closed waters were in effect.

[a] Waters of the Tutka Bay, China Poot, Neptune Bay, and Halibut Cove subdistricts, excluding waters of the special harvest area in the first 3 of those subdistricts, are open to commercial salmon seine harvest for regular 16-hour periods.

[b] Confidential data. Fewer than 3 permits reporting.

[c] Waters of the Seldovia and Port Graham Subdistrict excluding the English Bay Section open to commercial salmon seine harvest for 16-hour periods.

[d] No deliveries during 16-hour periods that occurred from August 5 to August 30 and from September 1 to September 7, as well as after September 8 until the season closed on September 20.

Appendix A3.–Total commercial common property salmon harvest (excluding homepacks) in the Southern District, 1970–2015.

Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
			Set gillnet			
1970		26	11,455	1,154	18,512	1,575
1971		41	18,398	1,449	8,564	1,352
1972		69	31,340	323	6,303	2,819
1973		134	23,970	1,089	20,222	2,374
1974		175	26,996	3,010	11,097	2,713
1975	32	96	26,588	2,337	49,490	4,020
1976	27	176	33,993	1,321	13,412	1,353
1977	25	175	54,404	869	38,064	2,765
1978	26	1,052	86,934	3,053	11,556	4,117
1979	39	483	34,367	7,595	69,368	5,266
1980	38	225	29,922	8,038	26,613	2,576
1981	40	222	53,665	6,735	68,794	8,524
1982	40	894	42,389	5,557	15,838	7,113
1983	39	822	41,707	1,799	20,553	4,377
1984	24	643	45,806	2,979	20,764	5,412
1985	34	924	23,163	3,908	22,898	4,217
1986	34	745	21,807	2,827	14,244	2,426
1987	29	653	28,209	2,025	9,224	2,419
1988	27	1,145	14,758	2,819	29,268	4,423
1989	23	1,281	13,970	4,792	16,210	1,877
1990	20	1,361	15,863	1,046	12,646	1,938
1991	20	842	20,525	5,011	3,954	1,577
1992	20	1,288	17,002	848	15,958	1,687
1993	17	1,089	14,791	3,088	12,008	2,591
1994	16	1,103	14,004	1,073	23,621	2,419
1995	23	2,078	19,406	3,564	41,654	3,958
1996	24	1,054	69,338	5,779	14,813	2,792
1997	25	1,135	59,401	4,475	64,162	4,166
1998	24	952	26,131	1,057	24,403	3,754
1999	20	1,491	27,646	1,374	5,348	4,335
2000	24	1,019	26,503	621	21,845	5,214
2001	18	865	28,503	1,811	13,393	3,487
2002	24	1,513	46,812	2,393	6,741	4,681
2003	24	878	81,722	2,291	7,325	4,998
2004	19	1,400	16,087	1,164	834	1,234
2005	17	525	15,669	1,905	341	1,326
2006	22	580	14,219	2,426	12,288	2,019
2007	16	439	28,870	1,616	0	1,437
2008	18	148	26,819	599	1,884	1,394
2009	19	83	38,220	968	2,136	2,274
2010	21	29	14,765	171	3,106	1,503
2011	21	100	22,782	103	2,643	1,946
2012	15	86	10,260	33	10,305	928
2013	18	234	38,238	3,466	1,804	2,685
2014	18	320	32,910	393	3,231	5,355
Previous 10-yr avg	19	254	24,275	1,168	3,774	2,087
2015	24	752	36,061	3,102	27,726	11,539

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Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
			Purse seine			
1970		64	665	2,390	189,554	6,298
1971		0	5	1,702	41,502	1,505
1972		0	5	960	2,823	2,117
1973		5	102	152	77,352	1,214
1974		7	33	44	37,778	12
1975		46	805	702	844,125	1,408
1976		266	1,287	584	86,405	164
1977		7	259	386	118,961	3,969
1978		459	54,154	1,265	240,205	1,408
1979		716	2,975	3,251	917,541	2,955
1980		189	13,007	3,530	451,406	2,029
1981		802	24,215	1,241	1,385,188	12,396
1982		32	1,044	1,608	280,718	11,353
1983		36	91,964	1,634	669,701	9,904
1984		18	117,438	436	316,021	4,186
1985	37	49	60,890	350	496,000	1,292
1986	43	31	15,031	268	528,277	3,134
1987	38	505	61,453	138	81,298	2,611
1988	49	510	90,544	168	823,114	3,319
1989	57	608	84,082	1,875	971,278	1,264
1990	56	185	66,549	506	148,198	495
1991	50	556	142,560	4,388	148,143	357
1992	53	564	82,455	429	125,106	193
1993	42	1,073	131,367	1,341	271,303	197
1994	25	126	47,494	299	612,724	211
1995	39	211	132,892	1,593	1,220,316	572
1996	29	126	269,553	3,795	10,293	719
1997	19	126	121,184	1,122	160,595	92
1998	35	118	143,350	1,186	498,090	201
1999	37	269	198,862	1,388	242,003	289
2000	29	165	78,072	147	4,515	125
2001	19	121	99,866	895	107,967	293
2002	19	40	121,054	1,376	5,342	122
2003	21	301	391,768	3,117	47,913	732
2004	19	256	21,621	267	2,273	138
2005	23	85	65,333	816	32,201	422
2006	16	47	52,020	610	3,446	163
2007	13	27	61,193	1,710	10,394	127
2008	13	40	62,675	720	4,941	66
2009[a]	0	0	0	0	0	0
2010[a]	0	0	0	0	0	0
2011	5	26	9,945	24	512	16
2012	11	39	6,396	44	175,770	439
2013	11	140	28,032	1,902	33,288	265
2014	16	18	23,188	269	58,890	3,360
10-yr avg	11	42	30,878	610	31,944	486
2015	19	52	54,783	997	141,604	1,450

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Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
			Purse seine and set gillnet combined			
1970		90	12,120	3,544	208,066	7,873
1971		41	18,403	3,151	50,066	2,857
1972		69	31,345	1,283	9,126	4,936
1973		139	24,072	1,241	97,574	3,588
1974		182	27,029	3,054	48,875	2,725
1975		142	27,393	3,039	893,615	5,428
1976		442	35,280	1,905	99,817	1,517
1977		182	54,663	1,255	157,025	6,734
1978		1,511	141,088	4,318	251,761	5,525
1979		1,199	37,342	10,846	986,909	8,221
1980		414	42,929	11,568	478,019	4,605
1981		1,024	77,880	7,976	1,453,982	20,920
1982		926	43,433	7,165	296,556	18,466
1983		858	133,671	3,433	690,254	14,281
1984		661	163,244	3,415	336,785	9,598
1985		973	84,053	4,258	518,898	5,509
1986		776	36,838	3,095	542,521	5,560
1987		1,158	89,662	2,163	90,522	5,030
1988		1,655	105,302	2,987	852,382	7,742
1989		1,889	98,052	6,667	987,488	3,141
1990		1,546	82,412	1,552	160,844	2,433
1991		1,398	163,085	9,399	152,097	1,934
1992		1,852	99,457	1,277	141,064	1,880
1993		2,162	146,158	4,429	283,311	2,788
1994		1,229	61,498	1,372	636,345	2,630
1995		2,289	152,298	5,157	1,261,970	4,530
1996		1,180	338,891	9,574	25,106	3,511
1997		1,261	180,585	5,597	224,757	4,258
1998		1,070	169,481	2,243	522,493	3,955
1999		1,760	226,508	2,762	247,351	4,624
2000		1,184	104,575	768	26,360	5,339
2001		986	128,369	2,706	121,360	3,780
2002		1,553	167,866	3,769	12,083	4,803
2003		1,179	473,490	5,408	55,238	5,730
2004		1,656	37,708	1,431	3,107	1,372
2005		610	81,002	2,721	32,542	1,748
2006		627	66,239	3,036	15,734	2,182
2007		466	90,063	3,326	10,394	1,564
2008		188	89,494	1,319	6,825	1,460
2009 [a]		83	38,220	968	2,136	2,274
2010 [a]		29	14,765	171	3,106	1,503
2011		126	32,727	127	3,155	1,962
2012		125	16,656	77	186,075	1,367
2013		374	66,270	5,368	35,092	2,950
2014		338	56,098	662	62,121	8,715
Previous 10-yr avg		297	55,153	1,778	35,718	2,573
2015		804	90,844	4,099	169,330	12,989

Source: ADF&G fish ticket database.

[a] No commercial common property purse seine fishing periods occurred in 2009 or 2010.

Appendix A4.–Anticipated daily and cumulative sockeye salmon escapement versus actual escapement through the English Bay weir, 2015.

	Actual		Anticipated	Apportioned SEG				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
6/1	19	94	0.0%	1	1	3	3	Weir installed 5/22
6/2	4	98	0.1%	3	5	8	11	
6/3	0	98	0.1%	1	6	2	13	
6/4	127	225	0.7%	34	40	77	90	
6/5	62	287	1.1%	23	63	52	142	
6/6	107	394	2.1%	63	126	142	285	
6/7	107	501	3.9%	107	234	241	526	
6/8	177	678	7.0%	186	420	419	945	
6/9	474	1,152	7.7%	42	462	95	1,041	
6/10	327	1,479	11.8%	247	710	556	1,596	
6/11	140	1,619	15.8%	239	949	538	2,134	
6/12	52	1,671	17.1%	78	1,027	176	2,311	
6/13	82	1,753	18.0%	50	1,077	112	2,423	
6/14	230	1,983	19.0%	64	1,141	144	2,567	
6/15	37	2,020	20.1%	66	1,207	148	2,715	
6/16	35	2,055	21.1%	56	1,262	125	2,840	
6/17	119	2,174	21.8%	46	1,309	104	2,945	
6/18	48	2,222	22.9%	67	1,375	150	3,094	
6/19	391	2,613	24.3%	83	1,458	186	3,280	
6/20	158	2,771	27.6%	199	1,657	448	3,728	
6/21	145	2,916	29.7%	126	1,783	284	4,011	
6/22	265	3,181	32.3%	156	1,939	350	4,362	
6/23	56	3,237	35.9%	216	2,155	487	4,849	
6/24	109	3,346	39.9%	239	2,394	538	5,386	
6/25	147	3,493	43.5%	212	2,606	478	5,864	
6/26	52	3,545	46.0%	150	2,757	338	6,202	
6/27	99	3,644	49.2%	196	2,952	440	6,643	
6/28	50	3,694	55.3%	362	3,315	815	7,458	
6/29	48	3,742	60.7%	324	3,639	730	8,187	
6/30	120	3,862	64.4%	225	3,864	507	8,695	
7/1	71	3,933	68.1%	220	4,084	494	9,189	
7/2	379	4,312	71.4%	199	4,283	447	9,636	
7/3	80	4,392	74.5%	185	4,467	415	10,051	
7/4	99	4,491	76.5%	119	4,587	269	10,320	
7/5	233	4,724	79.4%	175	4,762	394	10,714	
7/6	63	4,787	81.4%	122	4,884	274	10,988	
7/7	62	4,849	84.3%	175	5,058	394	11,382	
7/8	58	4,907	86.3%	121	5,179	271	11,653	
7/9	94	5,001	87.8%	90	5,269	202	11,855	
7/10	130	5,131	89.2%	84	5,353	189	12,044	
7/11	74	5,205	91.7%	151	5,503	339	12,383	
7/12	58	5,263	93.5%	103	5,607	232	12,615	

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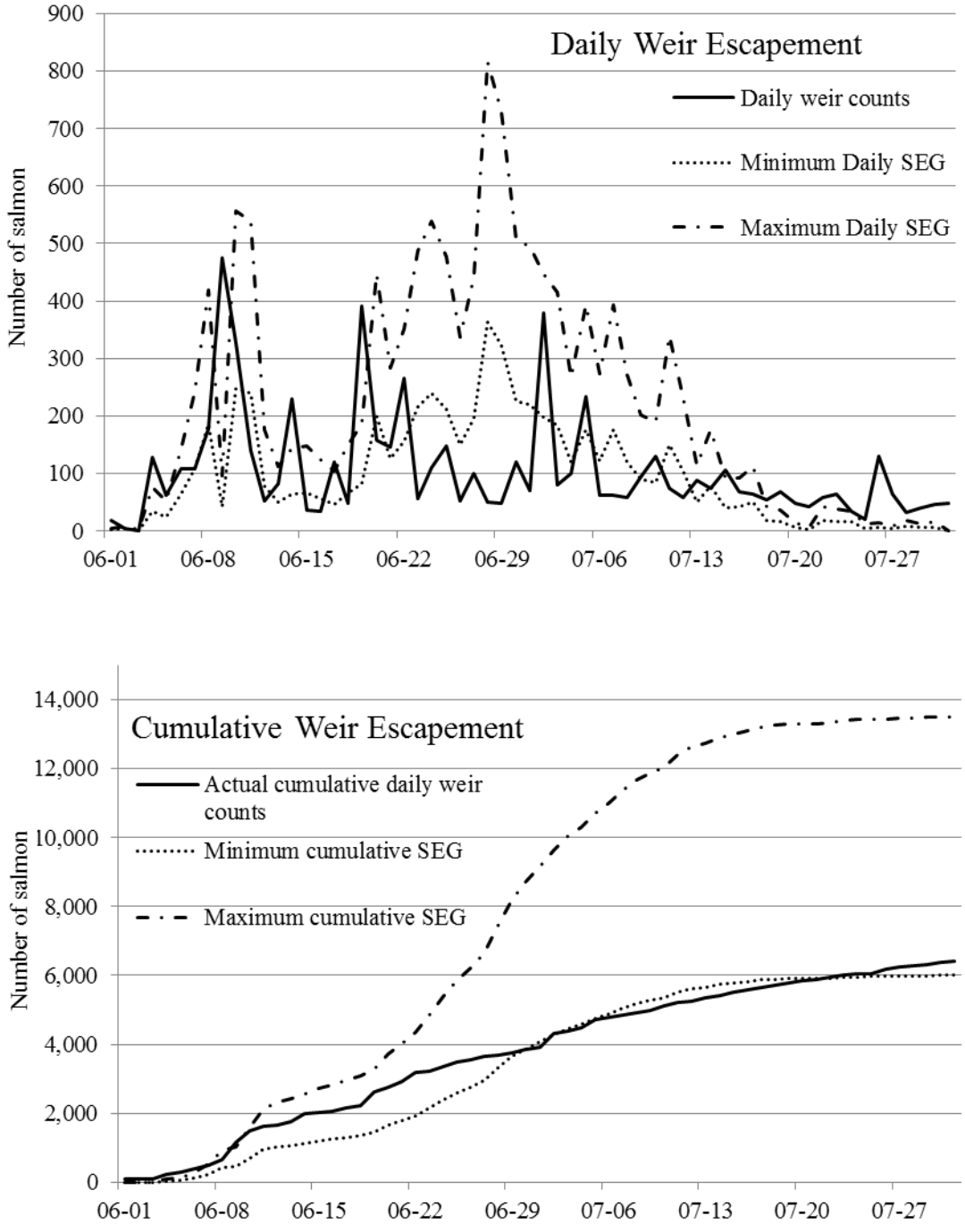
	Actual		Anticipated	Apportioned SEG				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/13	89	5,352	94.3%	51	5,658	115	12,730	
7/14	74	5,426	95.6%	78	5,736	176	12,906	
7/15	105	5,531	96.3%	41	5,777	92	12,998	
7/16	68	5,599	97.0%	41	5,818	93	13,090	
7/17	64	5,663	97.8%	50	5,868	113	13,203	
7/18	54	5,717	98.1%	19	5,887	43	13,246	
7/19	68	5,785	98.4%	16	5,903	37	13,283	
7/20	48	5,833	98.5%	7	5,910	15	13,297	
7/21	43	5,876	98.6%	3	5,913	6	13,303	
7/22	58	5,934	98.9%	19	5,931	42	13,345	
7/23	65	5,999	99.1%	17	5,948	37	13,382	
7/24	34	6,033	99.4%	16	5,963	35	13,417	
7/25	21	6,054	99.5%	5	5,968	11	13,429	
7/26	129	6,183	99.6%	7	5,975	15	13,444	
7/27	65	6,248	99.7%	3	5,978	8	13,451	
7/28	33	6,281	99.8%	8	5,986	18	13,469	
7/29	41	6,322	99.9%	6	5,992	13	13,482	
7/30	46	6,368	100.0%	7	5,999	16	13,498	
7/31	48	6,416	100.0%	0	5,999	0	13,498	Last report from weir crew.

Note: English Bay River sustainable escapement goal range is 6,000–13,500. Anticipated escapement derived using historical run timing.



Appendix A5.–Minimum and maximum anticipated cumulative and daily escapement of sockeye salmon versus actual escapement through the English Bay weir, 2015.

Appendix A6.–Sockeye salmon escapement past the English Bay weir, 1927–1941 and 1993–2015.

Year	Sustainable escapement goal	Total weir passage	Broodstock harvested	Harvested for otoliths	Spawning escapement
1927		19,197	0		19,197
1928		24,025	0		24,025
1929		15,407	0		15,407
1930		18,858	0		18,858
1931		18,878	0		18,878
1932		22,933	0		22,933
1933		NS	0		NS
1934		NS	0		NS
1935		15,851	0		15,851
1936		15,767	0		15,767
1937		14,857	0		14,857
1938		16,779	0		16,779
1939		48,777	0		48,777
1940		30,357	0		30,357
1941		26,905	0		26,905
1942–1992	–	–	–	–	–
1993	10,000–20,000	8,939	0		8,939
1994	10,000–20,000	13,800	0		13,800
1995	10,000–20,000	22,467	1,767		20,700
1996	10,000–20,000	12,335	1,230		11,105
1997	10,000–20,000	15,430	1,065		14,365
1998	10,000–20,000	15,432	1,296		14,136
1999	10,000–20,000	15,844	1,234		14,610
2000	10,000–20,000	12,613	1,376		11,237
2001	10,000–20,000	10,508	0		10,508
2002	6,000–13,500	16,550	1,573		14,977
2003	6,000–13,500	19,978	219		19,759
2004	6,000–13,500	16,435	1,390		15,045
2005	6,000–13,500	7,574	0		7,574
2006	6,000–13,500	16,533	0		16,533
2007	6,000–13,500	16,487	0		16,487
2008	6,000–13,500	11,993	0		11,993
2009	6,000–13,500	18,439	256		18,183
2010	6,000–13,500	12,253	0		12,253
2011	6,000–13,500	12,036	2,116		9,920
2012	6,000–13,500	3,855	411		3,444
2013	6,000–13,500	12,910	1,753	253	10,904
2014	6,000–13,500	7,995	877	163	6,955
Previous 10-yr average		12,008	541		11,425
2015	6,000–13,500	6,416	0	126	6,290

Appendix A7.–Pink and chum salmon escapements, as measured by ground survey, using area under the curve estimation in the Southern District, 2015.

Location	Species	Survey number	Survey date (t_i)	Previous survey date	Days between surveys	Current live count, (c_i)	Previous live count	Previous + current live count	Fish days[b], (A_b)	Accum. fish days	Escape. Index[c]	Accum. Escape. Index[d]	Accum. Percent Escape	Carcass Count	Live plus Carcass
Barabara	pink	[t]start	6/29												
Creek		1	7/17	6/29	17.5	4,730	0	4,730	41,388	41,388	2,365	2,365	9%	6	4,736
(index		2	7/29	7/17	12	6,960	4,730	11,690	70,140	111,528	4,008	6,373	25%	771	7,731
system)		3	8/14	7/29	16	4,457	6,960	11,417	91,336	202,864	5,219	11,592	46%	4,501	8,958
		4	8/28	8/14	14	8,996	4,457	13,453	94,171	297,035	5,381	16,973	67%	6,532	15,528
		5	9/10	8/28	13	5,610	8,996	14,606	94,939	391,974	5,425	22,398	89%	9,291	14,901
		[t]end	9/27		17.5				49,088	441,061	2,805	25,203	100%		
China	pink	[t]start	7/20												
Poot Creek		1	8/7	7/20	17.5	1,330	0	1,330	11,638	11,638	665	665	9%	7	1,337
(index		2	8/17	8/7	10	3,465	1,330	4,795	23,975	35,613	1,370	2,035	28%	6	3,471
system)		3	8/27	8/17	10	4,282	3,465	7,747	38,735	74,348	2,213	4,248	58%	102	4,384
		4	9/9	8/27	13	1,752	4,282	6,034	39,221	113,569	2,241	6,490	88%	2,458	4,210
		[t]end	9/26		17.5				15,330	128,899	876	7,366	100%		
Humpy	pink	[t]start	6/28												
Creek		1	7/16	6/28	17.5	227	0	227	1,986	1,986	114	114	0%	0	227
(index		2	7/27	7/16	11	4,121	227	4,348	23,914	25,900	1,367	1,480	4%	4	4,125
system)		3	8/19	7/27	23	19,731	4,121	23,852	274,298	300,198	15,674	17,154	45%	248	19,979
		4	9/3	8/19	15	13,370	19,731	33,101	248,258	548,456	14,186	31,340	82%	2,414	15,784
		[t]end	9/20		17.5				116,988	665,443	6,685	38,025	100%		
Humpy	chum	[t]start	6/28												
Creek		1	7/16	6/28	17.5	355	0	355	3,106	3,106	178	178	15%	0	355
(not an		2	7/27	7/16	11	838	355	1,193	6,562	9,668	375	552	47%	1	839
index		3	8/19	7/27	23	70	838	908	10,442	20,110	597	1,149	97%	77	147
system)		4	9/3	8/19	15	0	70	70	525	20,635	30	1,179	100%	2	2
		[t]end	9/3		0				0	20,635	0	1,179	100%		

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Appendix A7.–Page 2 of 2.

Location	Species	Survey number	Survey date (t_i)	Previous survey date	Days between surveys	Current live count, (c_i)	Previous live count	Previous + current live count	Fish days[b], (A_b)	Accum. fish days	Escape. Index[c]	Accum. Escape. Index[d]	Accum. Percent Escape	Carcass Count	Live plus Carcass
Port	pink	[t]start	6/20												
Graham		1	7/8	6/20	17.5	1,876	0	1,876	16,415	16,415	938	938	1%	0	1,876
River		2	7/23	7/8	15	10,399	1,876	12,275	92,063	108,478	5,261	6,199	8%	35	10,434
(index		3	8/6	7/23	14	39,219	10,399	49,618	347,326	455,804	19,847	26,046	32%	2,294	41,513
system)		4	8/24	8/6	18	35,631	39,219	74,850	673,650	1,129,454	38,494	64,540	78%	10,539	46,170
		[t]end	9/10		17.5				311,771	1,441,225	17,816	82,356	100%		
Port	chum	[t]start	6/20												
Graham		1	7/8	6/20	17.5	2,146	0	2,146	18,778	18,778	1,073	1,073	27%	0	2,146
River		2	7/23	7/8	15	1,958	2,146	4,104	30,780	49,558	1,759	2,832	70%	752	2,710
(index		3	8/6	7/23	14	364	1,958	2,322	16,254	65,812	929	3,761	93%	733	1,097
system)		4	8/24	8/6	18	81	364	445	4,005	69,817	229	3,990	99%	73	154
		[t]end	9/10		17.5				709	70,525	41	4,030	100%		
Seldovia	pink	[t]start	7/2												
River		1	7/20	7/2	17.5	9,500	0	9,500	83,125	83,125	4,750	4,750	4%	1	9,501
(index		2	8/4	7/20	15	37,014	9,500	46,514	348,855	431,980	19,935	24,685	23%	1,464	38,478
system)		3	8/21	8/4	17	41,030	37,014	78,044	663,374	1,095,354	37,907	62,592	58%	12,674	53,704
		4	9/8	8/21	18	24,747	41,030	65,777	591,993	1,687,347	33,828	96,420	89%	23,566	48,313
		[t]end	9/25		17.5				216,536	1,903,883	12,374	108,793	100%		
Seldovia	chum	[t]start	7/2												
River		1	7/20	7/2	17.5	996	0	996	8,715	8,715	498	498	38%	275	1,271
(not an		2	8/4	7/20	15	365	996	1,361	10,208	18,923	583	1,081	83%	399	764
index		3	8/21	8/4	17	42	365	407	3,460	22,382	198	1,279	98%	66	108
system)		4	9/8	8/21	18	1	42	43	387	22,769	22	1,301	100%	2	3
		[t]end	9/25		17.5				9	22,778	1	1,302	100%		
Tutka	pink	[t]start	6/27												
Bay		1	7/15	6/27	17.5	393	0	393	3,439	3,439	197	197	0%	0	393
Lagoon		2	8/13	7/15	29	31,815	393	32,208	467,016	470,455	26,687	26,883	33%	7,320	39,135
Creek		3	8/26	8/13	13	37,930	31,815	69,745	453,343	923,797	25,905	52,788	65%	24,870	62,800
(index		4	9/4	8/26	9	25,150	37,930	63,080	283,860	1,207,657	16,221	69,009	85%	21,010	46,160
system)		[t]end	9/21		17.5				220,063	1,427,720	12,575	81,584	100%		

[a] Fish days (A_b) = (Days between surveys * (prev. count + current count)) ÷ 2. Run timing from Bue et al. 1998.

[b] Escapement index = A_b / 17.5 day stream-life estimate.

[c] Area under the curve estimate equals the cumulative escapement index.

Appendix A8.–Escapement indices and harvests by subdistricts in the Southern District, Lower Cook Inlet, 2015.

	Harvest[a]				Escapement index[b]				Combined harvest and escapement index counts			
Location	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum
North Shore Subdistrict (241-13)	233	992	59	13	–	–	–	–	233	992	59	13
Humpy Creek Subdistrict (241-14)	0	0	0	0	–	–	38,025	1,179	0	0	38,025	1,179
Halibut Cove Subdistrict (241-15, -08)	17,960	917	2,398	726	–	–	–	–	17,960	917	2,398	726
China Poot Subdistrict (241-90, -92)	10,651	210	4,220	89	–	–	7,366	–	10,651	210	11,586	89
Neptune Bay Subdistrict (241-91, -93)	7,413	124	6,002	71	–	–	–	–	7,413	124	6,002	71
Tutka Bay Subdistrict (241-06, -07)	83,389	3,199	2,324,113	9,354	–	–	81,584	–	83,389	3,199	2,405,697	9,354
Barabara Creek Subdistrict (241-18)	3,908	54	240	512	–	–	25,203	–	3,908	54	25,443	512
Seldovia Bay Subdistrict (241-17)	11,295	22	199	3,020	–	–	108,793	1,302	11,295	22	108,992	4,322
Port Graham Subdistrict (241-20/-30)	919	55	45,229	3,386	6,290 [c]	–	82,356	4,030	7,209	55	127,585	7,416
Southern District total[d]	135,768	5,573	2,382,460	17,171	6,290	–	343,327	6,511	142,058	5,573	2,725,787	23,682

[a] Harvests include all commercial, subsistence, personal use and hatchery harvests.

[b] Unexpanded aerial or ground survey index count.

[c] Escapement from weir count minus broodstock harvest.

[d] Additional non-index streams where salmon were observed are also included. Therefore, cumulative escapement values in this table are greater than escapement indices that historically contribute to sustainable escapement goal ranges as shown for index streams only.

Appendix A9.–Estimated pink and chum salmon escapements in thousands of fish for the major spawning systems in the Southern District of the Lower Cook Inlet Area, 1975–2015.

	Pink salmon							Chum salmon
	Humpy Creek	China Poot Creek	Tutka Lagoon Creek	Barabara Creek	Seldovia River	Port Graham River	Total pink salmon escapement	Port Graham River
1975	64.0	21.6	17.6	22.7	36.2	27.3	189.4	3.0
1976	27.2	2.0	11.5	0.2	25.6	6.5	73.0	0.4
1977	86.0	3.9	14.0	5.7	35.7	20.6	165.9	5.2
1978	46.1	11.2	15.0	1.4	24.6	6.7	105.0	4.8
1979	200.0	20.6	10.6	10.0	43.7	32.7	317.6	2.2
1980	64.4	12.3	17.3	5.8	65.5	40.2	205.5	1.1
1981	115.0	5.0	21.1	16.8	62.7	18.4	239.0	4.8
1982	31.9	3.1	18.5	2.1	38.4	28.9	122.9	2.5
1983	104.0	14.1	12.9	14.8	27.9	4.6	178.3	1.9
1984	84.2	8.4	10.5	1.0	14.2	10.9	129.2	2.1
1985	117.0	1.9	14.0	1.6	22.8	26.3	183.6	0.5
1986	49.7	11.5	13.4	1.8	28.2	17.5	122.1	0.6
1987	26.6	3.1	4.8	0.3	7.6	3.8	46.2	1.5
1988	21.4	3.9	11.2	0.7	16.9	7.9	62.0	3.0
1989	93.0	8.5	11.9	4.5	26.2	19.1	163.2	1.3
1990	27.0	4.2	38.5	3.9	27.8	20.1	121.5	2.6
1991	17.4	2.6	16.8	10.9	30.0	29.0	106.7	1.1
1992	14.9	4.1	26.7	2.2	14.7	5.4	68.0	1.4
1993	36.0	1.6	27.4	11.9	43.4	12.8	133.1	2.5
1994	14.1	5.7	14.5	4.5	24.4	7.6	70.8	5.2
1995	89.3	2.0	15.9	10.8	48.5	10.0	176.5	3.8
1996	9.0	2.8	3.5	2.4	17.8	7.0	42.5	3.7
1997	78.3	2.8	45.0	12.5	39.1	12.5	190.2	4.1
1998	17.5	5.7	17.5	2.8	31.5	12.6	87.6	5.1
1999	12.8	0.7	27.9	3.9	12.2	9.7	67.2	6.6
2000	22.4	7.5	19.0	5.6	53.5	15.6	123.6	11.4
2001	30.5	6.6	4.5	2.3	12.3	10.3	66.5	6.0
2002	37.1	6.5	15.9	3.2	26.9	58.5	148.1	5.3
2003	90.9	6.7	30.9	5.1	35.1	14.9	183.6	2.9
2004	28.9	3.3	17.8	5.4	56.8	44.0	156.2	1.2
2005	93.8	9.2	133.6	14.4	98.6	69.1	418.7	0.7
2006	48.4	7.2	25.8	3.6	70.0	31.2	186.2	2.2
2007	54.0	6.2	5.7	25.2	69.4	25.6	186.1	1.9
2008	90.9	5.1	14.1	16.6	53.5	24.7	204.9	1.8
2009	5.2	1.1	3.8	2.6	14.6	14.0	41.3	1.0
2010	70.7	2.2	2.1	13.9	25.9	16.6	131.5	1.4
2011	1.7	3.5	22.0	8.2	46.2	20.9	102.4	1.8
2012	67.9	8.4	10.4	1.4	44.7	34.5	167.3	0.7
2013	6.7	7.1	9.5	17.4	36.8	11.9	89.5	1.9
2014	44.4	1.4	10.2	3.6	35.9	32.3	127.7	3.7
10-yr average	48.4	5.2	23.7	10.7	49.6	28.1	165.5	1.7
2015	38.0	7.4	81.6	25.2	108.8	82.4	343.3	4.0

Note: Area under the curve escapement indices are derived from periodic ground surveys with a 17.5 day stream-life factor applied.

APPENDIX B: OUTER DISTRICT

Appendix B1.–Outer District commercial purse seine salmon harvest (excluding homepacks) by period, 2015.

Period	Date	Hours	Permits Fished	Landings	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
1 [a]	7/13/2015	16	4	5			192	780	14	100	25,777	79,738	14,182	95,934
2 [b]	7/14/2015	16												
3 [a,c]	7/15/2015	16	4	4			1	6			32,764	104,705	4,380	29,642
4 [a,d]	7/17/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
5 [a,c]	7/20/2015	16	3	3							26,418	91,712	9,858	59,144
6 [a,c,d]	7/22/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
7 [a,c,d]	7/24/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
8 [a,c]	7/27/2015	16	5	8							143,410	443,096	270	1,462
9 [a,c]	7/29/2015	16	10	17							175,547	537,252	8,156	26,616
10 [a,c,e]	7/31/2015	16	12	15			4	21			159,649	594,450	20,088	140,512
11 [a,c,e]	8/3/2015	16	14	27			406	2,032	13	97	241,540	867,137	9,447	63,524
12 [a,c,e]	8/4/2015	16	14	20							144,704	450,214	2,378	16,666
13 [a,c,e]	8/5/2015	16	15	22							162,267	530,496	4,062	26,386
14 [a,c,e,f]	8/6/2015	16	15	24							289,277	899,184	171	1,031
15 [a,c,e,f]	8/7/2015	16	14	27			2	10			338,985	1,289,756	52	474
16 [a,c,e,f]	8/10/2015	16	11	15					3	10	268,444	842,578	817	4,904
17 [a,c,e,f]	8/11/2015	16	8	14							165,774	511,055		
18 [a,c,d,e]	8/12/2015	16	11	18			5	25	5	32	282,714	821,584	104	810
19 [a,c,e,f]	8/13/2015	16	15	21							197,581	646,980	346	2,170
20 [a,c,e,f,g]	8/14/2015	16	10	13							243,018	743,752	6,507	45,528
21 [a,c,e,f,g]	8/15/2015	16	9	13							119,140	393,245	3,532	24,725
22 [a,c,e,f,g]	8/16/2015	16	12	25					4	38	161,468	520,468		
23 [a,c,e,f,g]	8/17/2015	16	6	10			3	16			112,441	390,880	7	56
24 [a,c,e,f,g]	8/18/2015	16	7	7							105,393	330,773		
25 [a,c,e,f,g]	8/19/2015	16	6	6							96,429	327,460		
26 [a,c,e,f,g]	8/20/2015	16	9	19							132,374	443,485	1,204	6,652
27 [a,c,e,f,g]	8/21/2015	16	4	5							93,266	344,511	80	693
28 [a,c,e,f,g]	8/23/2015	16	3	4					2	11	82,813	230,851	1,878	13,146
29 [a,c,e,f,g]	8/24/2015	16	4	6							91,409	297,182	837	5,864
30 [a,c,d,e,f,g]	8/25/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
31 [a,c,d,e,f,g]	8/26/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
34 [a,c,d,e,f,g,h]	8/29/2015	16	d	d	d	d	d	d	d	d	d	d	d	d
Total			19	348	0	0	613	2,890	41	288	3,892,602	12,732,544	88,356	565,939
Average weight						NA		4.71		7.02		3.27		6.41

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Note: Unless otherwise noted, regular closed waters were in effect.

[a] Portions of East Nuka Subdistrict, Dogfish Bay Subdistrict, Rocky Bay Subdistrict, and Port Dick Middle and Head End sections open to commercial harvest for 16-hour periods.

[b] Port Dick Middle Creek section and Head End section open to commercial harvest for a 16-hour period.

[c] Waters of the Windy Bay Subdistrict open to commercial harvest for 16-hour period.

[d] Confidential data. Fewer than 3 permits reporting.

[e] Waters of Port Chatham Subdistrict and Port Dick Island Creek section open to commercial harvest for 16-hour periods.

[f] Waters of the Port Dick Outer Section and waters near South Nuka Bay to commercial harvest for 16-hour periods.

[g] Waters of the Outer District in the vicinity of Touglaalek Bay (aka One Haul Bay, Worthless Bay, Cockle Bay) open to commercial harvest for 16-hour periods.

[h] No deliveries during 16-hour fishing periods from August 30 through September 19.

Appendix B2.–Total commercial common property salmon harvest (excluding homepacks) in Outer District 1970–2015.

Year	Fished	Landings	Chinook	Sockeye	Coho	Pink	Chum
1970			5	1,037	243	434,700	137,408
1971			0	1,625	174	310,706	118,995
1972			7	26,092	17	963	43,466
1973			1	2,006	31	195,342	76,286
1974			1	206	21	1,300	11,924
1975			0	124	7	159,908	11,348
1976			7	18,886	0	93	412
1977			34	33,733	78	1,129,250	70,167
1978			236	10,695	45	70,080	19,224
1979			30	25,297	135	1,945,536	180,558
1980			10	22,514	16	154,041	32,246
1981			61	18,133	485	1,714,115	238,393
1982			129	66,781	92	67,523	63,075
1983			14	16,835	54	199,794	27,203
1984			3	28,411	90	89,068	3,077
1985	34	632	19	91,957	3,210	618,222	11,844
1986	40	539	6	48,472	5,052	401,755	11,701
1987	32	396	14	31,845	2,481	23,890	28,663
1988	32	185	5	9,501	2	6,094	71,202
1989	10	66	1	10,286	72	52,677	43
1990	47	265	2	17,404	74	191,320	614
1991	35	255	2	6,408	12	359,664	14,337
1992	5	6	0	572	1	146	181
1993	21	143	2	4,613	119	159,159	970
1994	6	17	0	5,930	993	13,200	32
1995	13	78	12	17,642	1,272	192,098	474
1996	3	12	0	14,999	96	7,199	3
1997	9	27	0	6,255	63	128,373	1,575
1998	10	41	0	15,991	45	102,172	611
1999	8	29	3	51,117	1,482	32,484	2,062
2000	11	72	2	21,623	20	306,555	302
2001	5	23	0	7,339	5	48,559	408
2002	11	86	0	21,154	74	569,955	3,810
2003	6	21	1	26,615	4	281,663	137
2004	9	25	2	11,082	13	42,636	27,911
2005	5	20	0	1	3	110,195	12,524
2006	11	162	3	3,198	1,139	1,121,892	12,883
2007	5	31	1	32,461	113	147,409	49
2008	16	146	0	1,704	0	467,592	100,819
2009	11	150	1	8	9	853,037	35,126
2010	10	101	0	3,003	16	272,427	22,463
2011	13	106	10	46,356	25	357,472	25,763
2012	15	70	8	77	98	69,359	51,313
2013	11	229	1	119	53	2,015,105	49,062
2014	15	99	0	24,264	0	163,938	59,702
Previous 10-yr avg	11	111	2	11,119	146	557,843	36,970
2015	19	359	0	613	41	4,096,578	97,974

Source: ADF&G fish ticket database.

Appendix B3.–Pink and chum salmon escapements measured by aerial survey using area under the curve estimation in Outer District, 2015.

Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Delight Lake	pink	[t]start	6/24											
(not an index		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
system)		2	7/8	6/24	14	0	0	0	0	0	0	0	0%	
		3	7/14	7/8	6	0	0	0	0	0	0	0	0%	
		4	7/25	7/14	11	0	0	0	0	0	0	0	0%	
		5	7/29	7/25	4	1,210	0	1,210	2,420	2,420	138	138	3%	
		6	8/4	7/29	6	1,430	1,210	2,640	7,920	10,340	453	591	15%	
		7	8/12	8/4	8	5,000	1,430	6,430	25,720	36,060	1,470	2,061	51%	
		8	8/25	8/12	13	100	5,000	5,100	33,150	69,210	1,894	3,955	99%	
		[t]end	9/11		17.5				875	70,085	50	4,005	100%	5,000
Desire Lake	pink	tstart	6/24											
(index		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
system)		2	7/8	6/24	14	0	0	0	0	0	0	0	0%	
		3	7/14	7/8	6	0	0	0	0	0	0	0	0%	
		4	7/25	7/14	11	400	0	400	2,200	2,200	126	126	0%	
		5	7/29	7/25	4	0	400	400	800	3,000	46	171	0%	
		6	8/4	7/29	6	13,000	0	13,000	39,000	42,000	2,229	2,400	5%	
		7	8/12	8/4	8	29,210	13,000	42,210	168,840	210,840	9,648	12,048	26%	
		8	8/25	8/12	13	26,500	29,210	55,710	362,115	572,955	20,692	32,740	71%	
		tend	9/11		17.5				231,875	804,830	13,250	46,290	100%	29,210
Dogfish Lagoon	chum	[t]start	6/20											
Creeks		1	7/8	6/20	17.5	4,160	0	4,160	36,400	36,400	2,080	2,080	13%	
(index		2	7/14	7/8	6	6,170	4,160	10,330	30,990	67,390	1,771	3,851	24%	
system)		3	7/25	7/14	11	12,330	6,170	18,500	101,750	169,140	5,814	9,665	59%	
		4	7/29	7/25	4	17,510	12,330	29,840	59,680	228,820	3,410	13,075	80%	
		5	8/4	7/29	6	330	17,510	17,840	53,520	282,340	3,058	16,134	99%	
		6	8/12	8/4	8	350	330	680	2,720	285,060	155	16,289	100%	
		7	8/18	8/12	6	0	350	350	1,050	286,110	60	16,349	100%	
		8	8/25	8/18	7	0	0	0	0	286,110	0	16,349	100%	
		[t]end	8/25		0				0	286,110	0	16,349	100%	17,510

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape	Peak count
Dogfish Lagoon	pink	[t]start	7/8											
Creeks		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/14	7/8	6	0	0	0	0	0	0	0	0%	
system)		3	7/25	7/14	11	1,300	0	1,300	7,150	7,150	409	409	0%	
		4	7/29	7/25	4	2,700	1,300	4,000	8,000	15,150	457	866	1%	
		5	8/4	7/29	6	26,800	2,700	29,500	88,500	103,650	5,057	5,923	6%	
		6	8/12	8/4	8	36,730	26,800	63,530	254,120	357,770	14,521	20,444	22%	
		7	8/18	8/12	6	42,700	36,730	79,430	238,290	596,060	13,617	34,061	36%	
		8	8/25	8/18	7	73,810	42,700	116,510	407,785	1,003,845	23,302	57,363	61%	
		[t]end	9/11		17.5				645,838	1,649,683	36,905	94,268	100%	73,810
James Lagoon	chum	[t]start	7/11											
Creeks		1	7/29	7/11	17.5	2,720	0	2,720	23,800	23,800	1,360	1,360	40%	
(not an index		2	8/4	7/29	6	1,110	2,720	3,830	11,490	35,290	657	2,017	59%	
system)		3	8/12	8/4	8	1,600	1,110	2,710	10,840	46,130	619	2,636	77%	
		[t]end	8/29		17.5				14,000	60,130	800	3,436	100%	2,720
James Lagoon	pink	[t]start	7/11											
Creeks		1	7/29	7/11	17.5	710	0	710	6,213	6,213	355	355	1%	
(not an index		2	8/4	7/29	6	5,920	710	6,630	19,890	26,103	1,137	1,492	6%	
system)		3	8/12	8/4	8	30,300	5,920	36,220	144,880	170,983	8,279	9,770	39%	
		[t]end	8/29		17.5				265,125	436,108	15,150	24,920	100%	30,300
Petrof River	chum	[t]start	6/24											
(not an index		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
system)		2	7/8	6/24	14	160	0	160	1,120	1,120	64	64	1%	
		3	7/14	7/8	6	420	160	580	1,740	2,860	99	163	3%	
		4	7/25	7/14	11	1,800	420	2,220	12,210	15,070	698	861	15%	
		5	8/4	7/25	10	4,720	1,800	6,520	32,600	47,670	1,863	2,724	47%	
		6	8/12	8/4	8	2,750	4,720	7,470	29,880	77,550	1,707	4,431	76%	
		[t]end	8/29		17.5				24,063	101,613	1,375	5,806	100%	4,720

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Petrof River	pink	[t]start	6/24											
(not an index		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
system)		2	7/8	6/24	14	0	0	0	0	0	0	0	0%	
		3	7/14	7/8	6	0	0	0	0	0	0	0	0%	
		4	7/25	7/14	11	0	0	0	0	0	0	0	0%	
		5	8/4	7/25	10	7,000	0	7,000	35,000	35,000	2,000	2,000	29%	
		6	8/12	8/4	8	4,610	7,000	11,610	46,440	81,440	2,654	4,654	67%	
		[t]end	8/29		17.5				40,338	121,778	2,305	6,959	100%	7,000
Port Chatham	pink	[t]start	7/8											
(index		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
system)		2	7/25	7/8	17	3,300	0	3,300	28,050	28,050	1,603	1,603	6%	
		3	7/29	7/25	4	4,110	3,300	7,410	14,820	42,870	847	2,450	9%	
		4	8/4	7/29	6	2,000	4,110	6,110	18,330	61,200	1,047	3,497	13%	
		5	8/12	8/4	8	9,800	2,000	11,800	47,200	108,400	2,697	6,194	23%	
		6	8/25	8/12	13	19,000	9,800	28,800	187,200	295,600	10,697	16,891	64%	
		[t]end	9/11		17.5				166,250	461,850	9,500	26,391	100%	19,000
Port Dick-	chum	[t]start	6/20											
Headend Creek		1	7/8	6/20	17.5	1,300	0	1,300	11,375	11,375	650	650	10%	
(index		2	7/14	7/8	6	4,230	1,300	5,530	16,590	27,965	948	1,598	26%	
system)		3	7/25	7/14	11	3,500	4,230	7,730	42,515	70,480	2,429	4,027	64%	
		4	7/29	7/25	4	2,600	3,500	6,100	12,200	82,680	697	4,725	76%	
		5	8/4	7/29	6	1,300	2,600	3,900	11,700	94,380	669	5,393	86%	
		6	8/25	8/4	21	70	1,300	1,370	14,385	108,765	822	6,215	99%	
		[t]end	9/11		17.5				613	109,378	35	6,250	100%	4,230

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escap.	Peak count
Port Dick-	pink	[t]start	7/8											
Headend Creek		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
(index		2	7/14	7/8	6	5,200	0	5,200	15,600	15,600	891	891	3%	
system)		3	7/25	7/14	11	8,240	5,200	13,440	73,920	89,520	4,224	5,115	15%	
		4	7/29	7/25	4	9,170	8,240	17,410	34,820	124,340	1,990	7,105	21%	
		5	8/4	7/29	6	10,100	9,170	19,270	57,810	182,150	3,303	10,409	31%	
		6	8/25	8/4	21	15,500	10,100	25,600	268,800	450,950	15,360	25,769	77%	
		[t]end	9/11		17.5				135,625	586,575	7,750	33,519	100%	10,100
Port Dick-	chum	[t]start	6/24											
Island creek		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
(index		2	7/8	6/24	14	100	0	100	700	700	40	40	1%	
system)		3	7/14	7/8	6	80	100	180	540	1,240	31	71	2%	
		4	7/25	7/14	11	3,620	80	3,700	20,350	21,590	1,163	1,234	27%	
		5	7/29	7/25	4	2,420	3,620	6,040	12,080	33,670	690	1,924	42%	
		6	8/4	7/29	6	2,100	2,420	4,520	13,560	47,230	775	2,699	59%	
		7	8/12	8/4	8	200	2,100	2,300	9,200	56,430	526	3,225	70%	
		8	8/25	8/12	13	1,500	200	1,700	11,050	67,480	631	3,856	84%	
		[t]end	9/11		17.5				13,125	80,605	750	4,606	100%	3,620
Port Dick-	pink	[t]start	6/24											
Island creek		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
(index		2	7/8	6/24	14	0	0	0	0	0	0	0	0%	
system)		3	7/14	7/8	6	0	0	0	0	0	0	0	0%	
		4	7/25	7/14	11	0	0	0	0	0	0	0	0%	
		5	7/29	7/25	4	510	0	510	1,020	1,020	58	58	1%	
		6	8/4	7/29	6	3,000	510	3,510	10,530	11,550	602	660	6%	
		7	8/12	8/4	8	8,300	3,000	11,300	45,200	56,750	2,583	3,243	30%	
		8	8/25	8/12	13	5,300	8,300	13,600	88,400	145,150	5,051	8,294	76%	
		[t]end	9/11		17.5				46,375	191,525	2,650	10,944	100%	8,300

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Port Dick-	chum	[t]start	6/20											
Middle Creek		1	7/8	6/20	17.5	130	0	130	1,138	1,138	65	65	15%	
(not an index		2	7/14	7/8	6	110	130	240	720	1,858	41	106	25%	
system)		3	7/25	7/14	11	50	110	160	880	2,738	50	156	37%	
		4	7/29	7/25	4	300	50	350	700	3,438	40	196	47%	
		5	8/4	7/29	6	130	300	430	1,290	4,728	74	270	64%	
		6	8/12	8/4	8	200	130	330	1,320	6,048	75	346	82%	
		7	8/25	8/12	13	0	200	200	1,300	7,348	74	420	100%	
		[t]end	8/25		0				0	7,348	0	420	100%	300
Port Dick-	pink	[t]start	7/8											
Middle Creek		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/14	7/8	6	1,400	0	1,400	4,200	4,200	240	240	8%	
system)		3	7/25	7/14	11	320	1,400	1,720	9,460	13,660	541	781	28%	
		4	7/29	7/25	4	250	320	570	1,140	14,800	65	846	30%	
		5	8/4	7/29	6	0	250	250	750	15,550	43	889	31%	
		6	8/12	8/4	8	1,200	0	1,200	4,800	20,350	274	1,163	41%	
		7	8/25	8/12	13	1,400	1,200	2,600	16,900	37,250	966	2,129	75%	
		[t]end	9/11		17.5				12,250	49,500	700	2,829	100%	1,400
Port Dick-	chum	[t]start	6/24											
Slide Creek		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/8	6/24	14	90	0	90	630	630	36	36	4%	
system)		3	7/14	7/8	6	480	90	570	1,710	2,340	98	134	15%	
		4	7/25	7/14	11	450	480	930	5,115	7,455	292	426	48%	
		5	7/29	7/25	4	100	450	550	1,100	8,555	63	489	55%	
		6	8/4	7/29	6	520	100	620	1,860	10,415	106	595	67%	
		7	8/12	8/4	8	300	520	820	3,280	13,695	187	783	88%	
		8	8/25	8/12	13	0	300	300	1,950	15,645	111	894	100%	
		[t]end	8/25		0				0	15,645	0	894	100%	520

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Port Dick-	pink	[t]start	6/24											
Slide Creek		1	6/24	6/24	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/8	6/24	14	0	0	0	0	0	0	0	0%	
system)		3	7/14	7/8	6	120	0	120	360	360	21	21	0%	
		4	7/25	7/14	11	0	120	120	660	1,020	38	58	1%	
		5	7/29	7/25	4	320	0	320	640	1,660	37	95	2%	
		6	8/4	7/29	6	1,700	320	2,020	6,060	7,720	346	441	8%	
		7	8/12	8/4	8	1,200	1,700	2,900	11,600	19,320	663	1,104	19%	
		8	8/25	8/12	13	4,900	1,200	6,100	39,650	58,970	2,266	3,370	58%	
		[t]end	9/11		17.5				42,875	101,845	2,450	5,820	100%	4,900
Rocky River	chum	[t]start	6/20											
(index		1	7/8	6/20	17.5	520	0	520	4,550	4,550	260	260	8%	
system)		2	7/14	7/8	6	1,860	520	2,380	7,140	11,690	408	668	21%	
		3	7/25	7/14	11	2,400	1,860	4,260	23,430	35,120	1,339	2,007	64%	
		4	7/29	7/25	4	1,600	2,400	4,000	8,000	43,120	457	2,464	79%	
		5	8/4	7/29	6	1,000	1,600	2,600	7,800	50,920	446	2,910	93%	
		6	8/12	8/4	8	0	1,000	1,000	4,000	54,920	229	3,138	100%	
		7	8/18	8/12	6	0	0	0	0	54,920	0	3,138	100%	
		8	8/25	8/18	7	0	0	0	0	54,920	0	3,138	100%	
		[t]end	8/25		0				0	54,920	0	3,138	100%	2,400
Rocky River	pink	[t]start	7/8											
(index		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
system)		2	7/14	7/8	6	3,200	0	3,200	9,600	9,600	549	549	1%	
		3	7/25	7/14	11	32,100	3,200	35,300	194,150	203,750	11,094	11,643	11%	
		4	7/29	7/25	4	23,830	32,100	55,930	111,860	315,610	6,392	18,035	17%	
		5	8/4	7/29	6	27,400	23,830	51,230	153,690	469,300	8,782	26,817	25%	
		6	8/12	8/4	8	39,000	27,400	66,400	265,600	734,900	15,177	41,994	39%	
		7	8/18	8/12	6	52,100	39,000	91,100	273,300	1,008,200	15,617	57,611	53%	
		8	8/25	8/18	7	57,000	52,100	109,100	381,850	1,390,050	21,820	79,431	74%	
		[t]end	9/11		17.5				498,750	1,888,800	28,500	107,931	100%	57,000

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
South Nuka	pink	[t]start	7/11											
Island Creek		1	7/29	7/11	17.5	310	0	310	2,713	2,713	155	155	3%	
(index		2	8/4	7/29	6	700	310	1,010	3,030	5,743	173	328	7%	
system)		3	8/12	8/4	8	6,400	700	7,100	28,400	34,143	1,623	1,951	43%	
		4	8/18	8/12	6	100	6,400	6,500	19,500	53,643	1,114	3,065	67%	
		5	8/25	8/18	7	2,150	100	2,250	7,875	61,518	450	3,515	77%	
		[t]end	9/11		17.5				18,813	80,330	1,075	4,590	100%	8,900[d]
Taylor Bay	pink	[t]start	7/17											
Creek		1	8/4	7/17	17.5	4,100	0	4,100	35,875	35,875	2,050	2,050	28%	
(not an index		2	8/12	8/4	8	6,000	4,100	10,100	40,400	76,275	2,309	4,359	59%	
system)		[t]end	8/29		17.5				52,500	128,775	3,000	7,359	100%	6,000
Windy Bay-	pink	[t]start	7/8											
Left Creek		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
(index		2	7/14	7/8	6	1,920	0	1,920	5,760	5,760	329	329	1%	
system)		3	7/25	7/14	11	10,620	1,920	12,540	68,970	74,730	3,941	4,270	13%	
		4	7/29	7/25	4	23,420	10,620	34,040	68,080	142,810	3,890	8,161	24%	
		5	8/4	7/29	6	9,600	23,420	33,020	99,060	241,870	5,661	13,821	41%	
		6	8/12	8/4	8	15,300	9,600	24,900	99,600	341,470	5,691	19,513	58%	
		7	8/25	8/12	13	9,690	15,300	24,990	162,435	503,905	9,282	28,795	86%	
		[t]end	9/11		17.5				84,788	588,693	4,845	33,640	100%	23,420
Windy Bay-	pink	[t]start	7/8											
Right Creek		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
(index		2	7/14	7/8	6	3,340	0	3,340	10,020	10,020	573	573	3%	
system)		3	7/25	7/14	11	3,630	3,340	6,970	38,335	48,355	2,191	2,763	16%	
		4	7/29	7/25	4	4,200	3,630	7,830	15,660	64,015	895	3,658	22%	
		5	8/4	7/29	6	2,900	4,200	7,100	21,300	85,315	1,217	4,875	29%	
		6	8/12	8/4	8	11,900	2,900	14,800	59,200	144,515	3,383	8,258	49%	
		7	8/25	8/12	13	4,970	11,900	16,870	109,655	254,170	6,266	14,524	85%	
		[t]end	9/11		17.5				43,488	297,658	2,485	17,009	100%	11,900

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Windy Bay-	chum	[t]start	6/20											
Right Creek		1	7/8	6/20	17.5	102	0	102	893	893	51	51	10%	
(not an index		2	7/14	7/8	6	0	102	102	306	1,199	17	68	13%	
system)		3	8/4	7/14	21	400	0	400	4,200	5,399	240	308	61%	
		[t]end	8/21		17.5				3,500	8,899	200	508	100%	400

Note: Final counts include fish observed in bays if no further harvest occurred. Run timing from Bue et al. 1998.

[a] Fish days (A_b) = (Days between surveys * (prev. count + current count)) ÷ 2

[b] Escapement index = A_b / 17.5 day stream-life estimate.

[c] Area under the curve estimate equals the cumulative escapement index.

[d] Includes 2,500 fish observed in bay counts on August 12.

Appendix B4.–Pink and chum salmon escapements measured by ground survey using area under the curve estimation in Outer District, 2015.

Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Carcass Count	Live plus Carcass
Dogfish Lagoon	chum	[t]start	6/26												
Creeks		1	7/14	6/26	17.5	1,651	0	1,651	14,446	14,446	826	826	6%	13	1,664
(Index		2	7/28	7/14	14	5,985	1,651	7,636	53,452	67,898	3,054	3,880	29%	980	6,965
system)		3	8/20	7/28	23	4,752	5,985	10,737	123,476	191,374	7,056	10,936	82%	6,070	10,822
		[t]end	9/6		17.5				41,580	232,954	2,376	13,312	100%		
Dogfish Lagoon	pink	[t]start	6/26												
Creeks		1	7/14	6/26	17.5	394	0	394	3,448	3,448	197	197	0%	0	394
(not an		2	7/28	7/14	14	12,303	394	12,697	88,879	92,327	5,079	5,276	11%	980	13,283
index system)		3	8/20	7/28	23	31,714	12,303	44,017	506,196	598,522	28,925	34,201	68%	7,080	38,794
		[t]end	9/6		17.5				277,498	876,020	15,857	50,058	100%		
Port Chatham	chum	[t]start	7/12												
Creeks		1	7/30	7/12	17.5	394	0	394	3,448	3,448	197	197	43%	111	505
(not an		2	8/11	7/30	12	154	394	548	3,288	6,736	188	385	83%	307	461
index system)		[t]end	8/28		17.5				1,348	8,083	77	462	100%		
Port Chatham	pink	[t]start	7/12												
Creeks		1	7/30	7/12	17.5	11,773	0	11,773	103,014	103,014	5,887	5,887	14%	485	12,258
(Index		2	8/11	7/30	12	36,804	11,773	48,577	291,462	394,476	16,655	22,541	55%	5,809	42,613
system)		[t]end	8/28		17.5				322,035	716,511	18,402	40,943	100%		
Port Dick-	chum	[t]start	6/21												
Headend Creek		1	7/9	6/21	17.5	3,632	0	3,632	31,780	31,780	1,816	1,816	14%	2	3,634
(Index		2	7/21	7/9	12	7,584	3,632	11,216	67,296	99,076	3,845	5,661	43%	851	8,435
system)		3	8/5	7/21	15	2,696	7,584	10,280	77,100	176,176	4,406	10,067	76%	5,363	8,059
		4	9/15	8/5	41	3	2,696	2,699	55,330	231,506	3,162	13,229	100%	120	123
		[t]end	10/2		17.5				26	231,532	2	13,230	100%		
Port Dick-	pink	[t]start	6/21												
Headend Creek		1	7/9	6/21	17.5	195	0	195	1,706	1,706	98	98	0%	0	195
(Index		2	7/21	7/9	12	7,818	195	8,013	48,078	49,784	2,747	2,845	3%	7	7,825
system)		3	8/5	7/21	15	35,942	7,818	43,760	328,200	377,984	18,754	21,599	22%	28	35,970
		4	9/15	8/5	41	20,521	35,942	56,463	1,157,492	1,535,476	66,142	87,741	90%	8,950	29,471
		[t]end	10/2		17.5				179,559	1,715,035	10,261	98,002	100%		

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Carcass Count	Live plus Carcass
Port Dick-	chum	[t]start	7/6												
Island Creek		1	7/24	7/6	17.5	3,902	0	3,902	34,143	34,143	1,951	1,951	11%	5	3,907
(Index system)		2	7/31	7/24	7	6,674	3,902	10,576	37,016	71,159	2,115	4,066	22%	152	6,826
		3	8/12	7/31	12	9,810	6,674	16,484	98,904	170,063	5,652	9,718	53%	1,929	11,739
		4	9/2	8/12	21	2,692	9,810	12,502	131,271	301,334	7,501	17,219	93%	3,862	6,554
		5	9/15	9/2	13	298	2,692	2,990	19,435	320,769	1,111	18,330	99%	2,930	3,228
		[t]end	10/2		17.5				2,608	323,376	149	18,479	100%		
Port Dick-	pink	[t]start	7/6												
Island Creek		1	7/24	7/6	17.5	465	0	465	4,069	4,069	233	233	0%	0	465
(Index		2	7/31	7/24	7	1,611	465	2,076	7,266	11,335	415	648	1%	4	1,615
system)		3	8/12	7/31	12	20,773	1,611	22,384	134,304	145,639	7,675	8,322	17%	47	20,820
		4	9/2	8/12	21	21,083	20,773	41,856	439,488	585,127	25,114	33,436	66%	980	22,063
		5	9/15	9/2	13	10,466	21,083	31,549	205,069	790,195	11,718	45,154	90%	5,510	15,976
		[t]end	10/2		17.5				91,578	881,773	5,233	50,387	100%		
Port Dick-	chum	[t]start	6/21												
Slide Creek		1	7/9	6/21	17.5	251	0	251	2,196	2,196	126	126	2%	0	251
(not an		2	7/21	7/9	12	1,939	251	2,190	13,140	15,336	751	876	15%	36	1,975
index system)		3	8/5	7/21	15	4,661	1,939	6,600	49,500	64,836	2,829	3,705	61%	787	5,448
		[t]end	8/22		17.5				40,784	105,620	2,331	6,035	100%		
Port Dick-	pink	[t]start	7/9												
Slide Creek		1	7/9	7/9	0	0	0	0	0	0	0	0	0%	0	0
(not an		2	7/21	7/9	12	76	0	76	456	456	26	26	3%	0	76
index system)		3	8/5	7/21	15	885	76	961	7,208	7,664	412	438	50%	8	893
		[t]end	8/22		17.5				7,744	15,407	443	880	100%		

Note: Final counts include fish observed in bays if no further harvest occurred. Run timing from Bue et al. 1998.

[a] Fish days (A_b) = (Days between surveys * (prev. count + current count)) ÷ 2

[b] Escapement index = A_b / 17.5 day stream-life estimate.

[c] Area under the curve estimate equals the cumulative escapement index.

Appendix B5.–Sockeye salmon aerial survey counts from the Outer District, 2015.

Location	Survey number	Survey date	Live count	Peak count
Delusion Lake	1	07/01/15	100	
	2	07/11/15	100	100
Desire Lake	1	06/24/15	0	
	2	07/08/15	650	
	3	07/14/15	1,850	
	4	07/25/15	250	
	5	07/29/15	0	
	6	08/04/15	900	
	7	08/12/15	2,830	
	8	08/25/15	1,739	2,830
Delight Lake	1	06/24/15	0	
	2	07/08/15	2,890	
	3	07/14/15	1,720	
	4	07/25/15	190	
	5	07/29/15	2	
	6	08/04/15	25	
	7	08/12/15	3,220	
	8	08/25/15	170	3,220

Appendix B6.–Escapement indices and harvests by subdistricts in the Outer District, Lower Cook Inlet, 2015.

	Harvest[b]				Escapement index[c]			Combined harvest and escapement index counts			
Location	Sockeye	Coho	Pink	Chum	Sockeye	Pink	Chum	Sockeye	Coho	Pink	Chum
Dogfish Bay Subdistrict (232-01)	0		144,863	33,526		50,058	13,312	0		194,921	46,838
Port Chatham Subdist. (232-02)	4		243,356	523		42,613	505	4		285,969	1,028
Chugach Bay Subdistrict (232-03)								0		0	0
Windy Bay Subdistrict (232-04)	412	20	2,799,182	12,630		50,649	508	412	20	2,849,831	13,138
Rocky Bay Subdistrict (232-05)	33	3	200,646	999		107,931	3,138	33	3	308,577	4,137
Outer Port Dick Subdist. (232-06)	25		11,944	2,878				25		11,944	2,878
Pt. Dick Headend Sect. (232-11)	134	11	34,133	21,211		98,002	13,230	134	11	132,135	34,441
Pt. Dick Mid. Ck. Sect. (232-12)			32,939	10,662		2,829	420	0		35,768	11,082
Pt. Dick Island Ck. Sect. (232-13)		2	115,706	13,620		50,387	18,479	0	2	166,093	32,099
Taylor Bay Subdistrict (232-08)			27,000			7,359		0		34,359	0
Port Dick area subtotal	192		422,368	49,370		158,577	32,129	192	36	580,945	81,499
E. Side Gore Pt. Subdist. (232-10)											
Nuka Island Subdistrict (232-15)	5	5	486,629	986		23,610	5,806	5	5	510,239	6,792
East Nuka Subdistrict (232-23)					6,150	81,290	3,436	6,150		81,290	3,436
Outer District total[a]	613	41	4,096,398	97,035	6,150	514,728	58,834	6,763	41	4,611,126	155,869

[a] Harvests include all commercial and subsistence harvests.

[b] Unexpanded aerial or ground survey index count, or weir count. Also includes non-index streams.

[c] Additional non-index streams where salmon were observed are also included. Therefore, cumulative escapement values in this table are greater than escapement indices that historically contribute to SEG ranges as shown for index streams only.

Appendix B7.–Estimated pink, chum, and sockeye salmon escapements in thousands of fish for the major spawning systems in the Outer District of the Lower Cook Inlet Area, 1975–2015.

	Pink salmon										
Year	Dogfish Lagoon	Port Chatham	Windy Right Creek	Windy Left Creek	Rocky River	Port Dick Creek	Island Creek	South Nuka Creek	Desire Lake Creek	James Lagoon[a]	Total index count
1975	2.3	7.7	18.7	9.7	4.4	62.8	0.1	28.0	0.4		134.1
1976			0.2	0.2	2.7	12.7			0.6		16.4
1977	8.1	14.2	11.1	47.3	36.7	109.3	0.6	12.0	0.8		240.1
1978	0.6	0.3	0.3	1.1	8.2	44.9	0.4		1.0		56.8
1979	7.3	20.8	10.4	74.8	85.0	116.0	0.6	15.0	3.0		332.9
1980	0.3	7.7	3.3	10.9	6.4	56.1	2.2	0.3	16.0	4.6	103.2
1981	2.6	11.2	4.7	31.3	25.0	106.0	25.0	16.0	5.0	14	226.8
1982	2.6	2.0	4.7	4.4	6.6	19.9	15.0	0.4	12.0	6	67.6
1983	1.0	3.5	4.3	11.9	16.6	64.1	15.3		8.5	5.1	125.2
1984	0.6	7.8	3.4	2.5	9.0	44.6	35.0	0.6	23.0	4	126.5
1985	0.2	8.9	5.4	8.9	12.1	65.3	27.9	3.6	62.5	9	194.8
1986	0.4	11.5	2.5	2.2	12.0	41.6	16.6	7.0	32.0	6.6	125.8
1987	1.2	10.2	2.0	5.6	4.5	4.5	0.1	2.8	11.0	1.1	41.9
1988	0.3	21.0	1.3	3.4	5.4	12.0	7.2	1.2	2.5	1.7	54.3
1989	0.2	31.7	6.6	25.2	10.3	55.4	6.7	7.3	47.0	4.9	190.4
1990	7.1	27.8	7.1	7.5	18.0	41.7	25.0	13.3	1.0	3.8	148.5
1991	9.3	23.8	20.7	34.5	26.1	54.2	24.4	16.4	1.3	4.4	210.7
1992		4.3	3.9	8.2	25.4	6.9	12.5	6.1	0.4	0.4	67.7
1993	0.3	22.2	13.6	25.9	70.0	37.0	12.1	34.3	19.3	3.3	234.7
1994	1.3	3.3	2.2	3.0	17.1	18.1	28.3	1.4		0.8	74.7
1995	13.3	14.0	11.4	31.6	56.3	6.6	10.6	6.2		0.6	150.0
1996	2.3	8.6	9.9	2.5	80.1	23.2	40.1	6.8			173.5
1997	20.0	42.7	13.9	64.6	48.1	36.9	71.1	9.3	6.2		312.8
1998	6.7	22.2	19.5	12.9	165.0	59.1	83.6	14.0	6.2		389.2
1999	12.4	10.7	5.2	24.0	17.2	8.5	8.6	2.4	6.8		95.8
2000	11.1	16.7	23.0	20.1	131.6	124.4	70.8	13.6	21.1	3.9	432.4
2001	2.0	17.9	10.3	61.8	73.0	44.7	81.8	20.7	67.5	2.3	379.7
2002	1.3	18.1	14.4	28.9	112.5	108.0	44.1	14.8	78.4	3.1	420.5
2003	5.2	35.0	23.3	82.8	287.4	107.7	118.6	41.4	34.8		736.2
2004	3.2	26.4	12.0	23.3	53.8	13.3	33.6	6.4	24.3		196.3
2005	22.3	44.4	22.2	72.0	198.7	122.2	26.4	11.2	46.0		565.4
2006	8.0	24.2	17.1	65.2	67.8	51.5	107.7	5.1	74.8		421.4
2007	4.1	14.5	18.3	37.3	190.0	44.2	87.2	6.6	11.8		414.0
2008	8.0	16.4	12.5	64.1	90.9	34.2	49.7	12.3	9.5		297.6
2009	9.2	25.3	15.0	57.3	173.6	41.7	44.5	19.9	73.9		460.4
2010	6.3	3.0	6.4	24.2	27.0	41.1	69.5		3.0		180.6
2011	3.9	15.8	1.7	12.2	22.7	16.9	10.2		0.6	0.3	84.0
2012	11.4	5.4	5.8	11.7	15.7	18.1	20.1	0.5	2.2	0.0	90.8
2013	26.4	57.4	11.7	47.8	75.8	55.8	26.0	8.4	56.9	24.4	366.4
2014	8.8	10.3	5.7	10.1	17.1	48.7	50.4	11.0	0.4	1.0	162.7
10-yr avg	10.9	21.7	11.7	40.2	87.9	47.4	49.2	9.4	27.9	6.4	306.2
2015	50.1	42.6	17.0	33.6	107.9	98.0	50.4	8.9	46.3	30.3	454.8

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Appendix B7.–Page 2 of 2.

	Chum salmon					Sockeye salmon			
Year	Dogfish Lagoon	Rocky River	Port Dick Creek	Island Creek	Total index count	Delusion Lake [a]	Delight Lake	Desire Lake	Total index count
1975	5.0	25.0	4.0	7.4	41.4		2.0	6.5	8.5
1976	3.0	12.0	1.5	1.0	17.5		6.0	11.0	17.0
1977	6.4	11.0	5.0	11.0	33.0		5.2	10.7	15.9
1978	9.3	6.3	8.9	17.0	41.4		8.0	10.0	18.0
1979	8.2	35.0	4.0	17.0	64.0		8.0	12.0	20.0
1980	4.0	23.0	4.2	11.0	42.1		10.0	17.0	27.0
1981	12	13.0	4.1	18.0	45.6		7.3	12.0	19.3
1982	8.5	2.8	1.7	8.7	21.7		25.0	18.0	43.0
1983	5.3	4.0	4.5	36.0	50.0		7.0	12.0	19.0
1984	8.6	3.5	2.7	26.0	40.4		10.5	15.0	25.5
1985	4.9	2.5	1.0	9.1	17.5		26.0	18.0	44.0
1986	2.5	2.0	1.7	8.6	14.8		13.0	10.0	23.0
1987	2.0	0.2	6.1	13.0	21.5		10.5	13.4	23.9
1988	8.6	0.3	9.0	7.8	25.7		1.2	9.0	10.2
1989	1.8	1.2	3.3	4.8	11.1		7.7	9.0	16.7
1990	1.0	0.8	1.1	2.3	5.2		5.2	9.5	14.7
1991	3.1		7.4	17.0	27.8		4.1	8.2	12.3
1992	0.8	1.7	5.4	6.7	14.6		5.9	11.9	17.8
1993	5.4	0.1	2.5	3.6	11.6		5.6	11.0	16.6
1994	11.0	1.9	3.5	8.8	25.5		5.6	10.5	16.1
1995	4.2	5.1	3.3	7.7	20.3		15.8	15.8	31.6
1996	6.7	2.0	2.3	6.9	17.9		7.7	9.4	17.1
1997	13.0	1.1	1.9	5.2	20.9		27.8 [b]	14.7	42.5
1998	9.8	0.7	1.8	3.4	15.7		9.2 [b]	7.9	17.1
1999	19.0	5.4	2.9	16.0	43.5		17.0	14.6	31.6
2000	20	4.2	3.4	12.0	39.3		12.3	4.0	16.3
2001	6.1	3.0	1.8	6.3	17.2	2.8	10.1	5.5	15.6
2002	10.0	5.7	12.0	15.0	43.4	3.6	19.6 [c]	16.0	35.6
2003	13.0	5.5	5.6	16.0	40.7	2.0	7.5 [c]	8.4	15.9
2004	3.6	17.0	8.6	15.0	44.5	1.0	7.3 [c]	10.7	18.0
2005	2.7	6.1	4.8	21.0	34.3	1.1	15.2 [c]	4.8	20.0
2006	5.4	11.0	2.8	5.6	25.0	1.0	10.9 [c]	18.6	29.5
2007	4.9	1.6	2.8	3.1	12.4	2.1	44.0 [c]	10.0	54.0
2008	6.2	3.8	12.0	13.0	34.7	1.8	23.9 [c]	10.7	34.6
2009	4.4	2.5	5.6	9.3	21.8	1.3	12.7 [c]	16.0	28.7
2010	12.7	1.3	2.4	3.4	19.8	0.6	23.8 [c]	6.3	30.1
2011	12.9	4.5	7.1	11.8	36.3	1.8	20.2 [c]	9.6	29.8
2012	8.8	3.1	8.4	14.9	35.2		10.9 [c]	8.8	19.7
2013	9.3	8.1	4.1	8.8	30.4	1.7	6.0 [c]	8.4	14.4
2014	11.2	6.9	1.8	2.7	22.6	0.0	22.3 [c]	11.5	33.8
Previous 10-yr avg	7.9	4.9	5.2	9.3	27.2	1.3	19.0	10.5	29.5
2015	13.3	3.1	13.2	18.5	48.2	0.1	3.2 [c]	2.8	6.1

[a] Non-index stream.

[b] Escapement derived from weir counts.

[c] Escapement derived from a combination of weir, video counts, and/or aerial counts.

APPENDIX C: EASTERN DISTRICT

Appendix C1.–Eastern District common property commercial purse seine salmon harvest (excluding homepacks) by period, 2015.

			Permits		Chinook		Sockeye		Coho		Pink		Chum	
Period	Date	Hours	Fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1[a]	7/2	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2	7/6	16	3	3			1,170	4,751			27	97	8	58
3[a]	7/7	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
4[a]	7/8	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
6[a,b]	7/10	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
Total			3	8	0	0	4,633	18,573	0	0	155	578	115	847
Average weight						NA		4.01		NA		3.73		7.37

[a] Confidential data. Fewer than 3 permits reporting.

[b] No further deliveries were reported from this district for the remainder of the 2015 commercial salmon season.

Appendix C2.–Commercial common property and derby commercial sales harvest (excluding homepacks) by species in the Eastern District, 1970–2015.

		Commercial Common property harvest					Derby sales
Year	Permits	Chinook	Sockeye	Coho	Pink	Chum	Coho
1970		11	4,895	691	50,946	1,305	
1971		32	2,203	1,115	5	423	
1972		12	413	903	18,232	767	
1973		5	3,057	801	1,919	55	
1974		0	193	524	378	7	
1975		0	596	124	383	2	
1976		0	5	200	35,423	45	
1977		0	5,776	360	1,349	3,229	
1978		0	2	582	29,738	100	
1979		0	0	296	0	0	
1980		0	122	426	155,779	720	
1981		0	9,270	470	44,989	3,279	
1982		0	3,092	950	143,639	7,698	
1983		0	25,932	594	36,154	7,934	
1984		47	54,459	536	135,290	10,534	
1985	14	11	24,311	1	92,403	5,146	
1986	10	0	3,055	3	40,243	3,757	
1987	9	0	3,687	1	14,333	14,913	
1988	13	1	20,253	1	1,740	24,668	
1989	12	0	8,538	3,913	92	312	
1990	8	0	7,682	127	11,815	307	1,642
1991	6	1	4,703	331	167,250	80	917
1992	7	0	432	1,131	60,007	86	477
1993	6	0	171	247	10,616	9	1,428
1994	6	1	1,610	3,835	44,987	2,792	1,608
1995	19	0	25,626	918	12,000	330	2,960
1996	17	0	36,981	1	35	223	2,600
1997	9	0	11,044	0	1	66	2,167
1998	7	1	9,797	1,094	38,829	51	2,554
1999	11	1	22,682	3	1,930	1,232	1,289
2000	13	0	19,193	332	4,099	1,273	1,689
2001	3	0	2,629	0	0	6	2,155
2002	7	0	14,647	0	0	5	2,687
2003	10	0	7,341	0	0	19	3,821
2004	8	0	16,645	0	0	1	4,400
2005	15	0	19,297	3	13,072	385	4,788
2006	13	0	32,393	1	3,460	270	2,274
2007	11	0	15,407	0	0	53	2,850
2008	11	0	57,060	0	0	34	1,223
2009	0	0	0	0	0	0	1,570
2010	0	0	0	0	0	0	1,100
2011	16	0	56,111	0	24	112	1,207
2012	0	0	0	0	0	0	1,400
2013	0	0	0	0	0	0	1,380
2014	[a]	[a]	[a]	[a]	[a]	[a]	606
Previous 10-year avg	7	0	18,557	0	731	121	1,840
2015	3	0	4,633	0	155	115	1,408

Source: ADF&G fish ticket database.

[a] Confidential data. Fewer than 3 permits reporting.

Appendix C3.–Anticipated daily and cumulative sockeye salmon escapement versus actual escapement through the Bear Creek weir, 2015.

	Actual Escapement to Bear Lake			Anticipated SEG plus CIAA brood goal [a]				Actual weir donations[b]		Actual weir cost recovery		Actual Total sockeye at Bear Creek weir	
			Antic.	Minimum		Maximum							
Date	Daily	Total	percent	Daily	Total	Daily	Total	Daily	Total	Daily	Total	Daily	Total
5/17	0	0	0.0%	0	0	0	0					0	0
5/18	0	0	0.0%	0	0	0	0					0	0
5/19	1	1	0.0%	0	0	0	0					1	1
5/20	0	1	0.0%	0	0	0	0					0	1
5/21	0	1	0.0%	0	0	0	0					0	1
5/22	28	29	0.0%	0	0	0	0					28	29
5/23	57	86	0.0%	0	0	0	0					57	86
5/24	35	121	0.0%	0	0	0	0					35	121
5/25	41	162	0.0%	0	0	0	0					41	162
5/26	55	217	0.0%	2	2	4	4					55	217
5/27	54	271	0.1%	2	3	4	8					54	271
5/28	79	350	0.1%	0	4	1	8					79	350
5/29	185	535	0.1%	2	6	4	13					185	535
5/30	211	746	0.2%	9	15	20	33					211	746
5/31	162	908	0.3%	3	18	7	40					162	908
6/1	245	1,153	0.4%	10	28	21	61					245	1,153
6/2	356	1,509	0.8%	21	49	45	107					356	1,509
6/3	461	1,970	0.8%	3	52	7	113					461	1,970
6/4	606	2,576	1.1%	18	70	40	154					606	2,576
6/5	707	3,283	1.4%	19	89	41	195					707	3,283
6/6	453	3,736	1.7%	21	110	46	241					453	3,736
6/7	571	4,307	2.2%	30	140	66	307					571	4,307
6/8	702	5,009	2.6%	23	162	50	356					702	5,009
6/9	1,329	6,338	3.3%	46	209	101	457					1,329	6,338
6/10	1,712	8,050	3.9%	41	249	89	547					1,712	8,050
6/11	952	9,002	4.7%	51	301	112	659				0	952	9,002
6/12	794	9,796	5.5%	50	350	109	768			382	382	1,176	10,178
6/13	717	10,513	6.4%	56	406	123	891			870	1,252	1,587	11,765
6/14	791	11,304	7.6%	76	482	167	1,058			1,118	2,370	1,909	13,674
6/15	191	11,495	9.2%	102	584	223	1,281			1,315	3,685	1,506	15,180
6/16	211	11,706	10.9%	109	693	240	1,520			1,873	5,558	2,084	17,264
6/17	158	11,864	13.3%	154	847	338	1,858			1,854	7,412	2,012	19,276
6/18	213	12,077	15.4%	132	979	290	2,148			2,170	9,582	2,383	21,659
6/19	213	12,290	17.4%	132	1,111	289	2,437			1,131	10,713	1,344	23,003
6/20	163	12,453	20.4%	188	1,299	413	2,849			2,101	12,814	2,264	25,267
6/21	126	12,579	22.9%	158	1,457	347	3,196			3,381	16,195	3,507	28,774
6/22	199	12,778	25.6%	175	1,632	384	3,580			599	16,794	798	29,572
6/23	0	12,778	28.5%	186	1,819	408	3,988			1,431	18,225	1,431	31,003
6/24	0	12,778	31.4%	181	2,000	398	4,386			1,047	19,272	1,047	32,050
6/25	0	12,778	34.1%	174	2,174	382	4,768			903	20,175	903	32,953
6/26	0	12,778	36.2%	131	2,305	287	5,054			3,530	23,705	3,530	36,483
6/27	0	12,778	39.1%	186	2,490	407	5,461			582	24,287	582	37,065
6/28	0	12,778	41.9%	178	2,668	390	5,851			1,361	25,648	1,361	38,426
6/29	0	12,778	45.2%	213	2,881	467	6,318			528	26,176	528	38,954
6/30	0	12,778	49.1%	245	3,126	537	6,855			691	26,867	691	39,645

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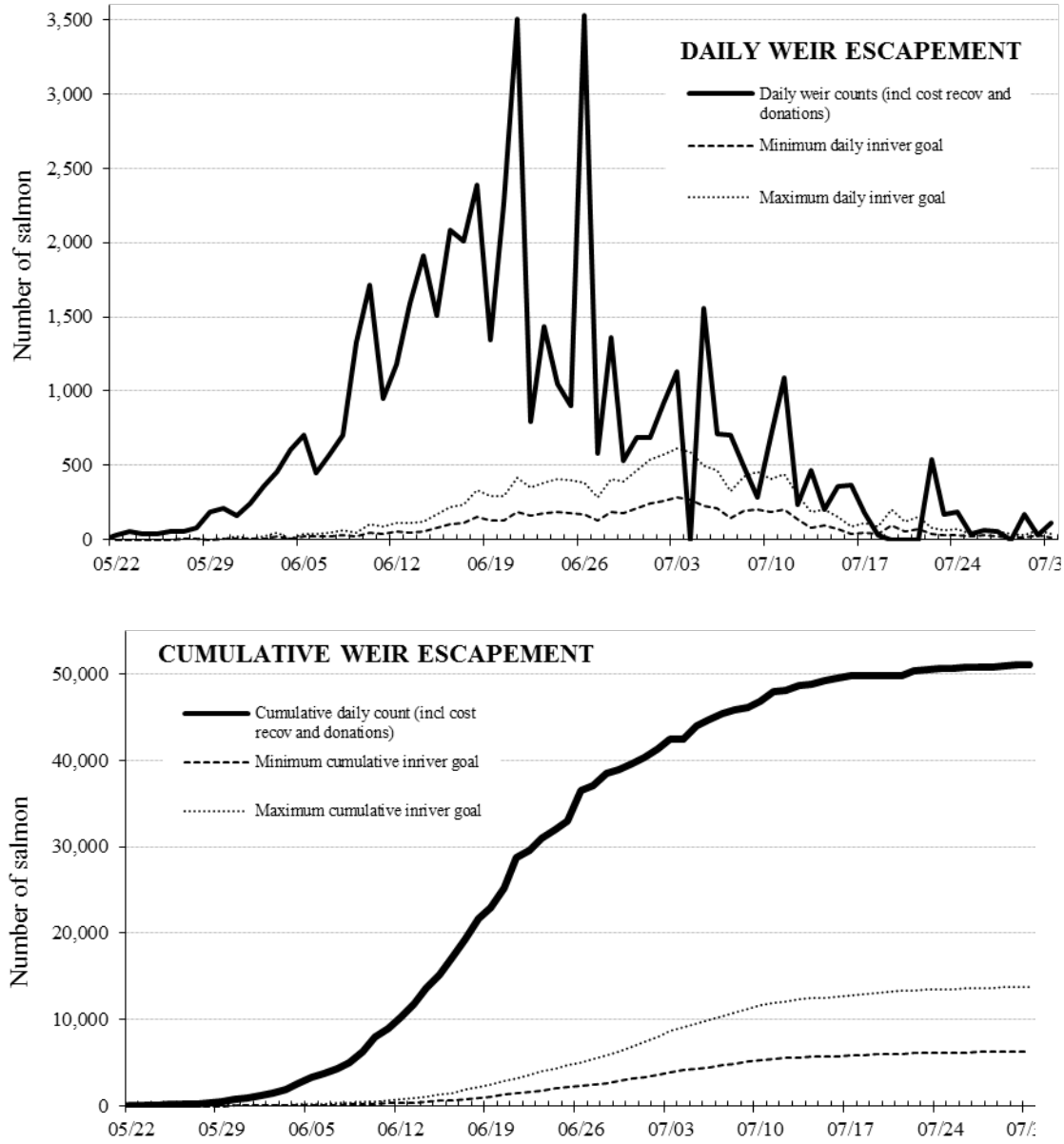
	Actual Escapement to Bear Lake			Anticipated SEG plus CIAA brood goal [a]				Actual weir donations[b]		Actual weir cost recovery		Actual Total sockeye at Bear Creek weir	
			Antic.	Minimum		Maximum							
Date	Daily	Total	percent	Daily	Total	Daily	Total	Daily	Total	Daily	Total	Daily	Total
7/1	0	12,778	53.2%	261	3,387	572	7,428			690	27,557	690	40,335
7/2	0	12,778	57.6%	281	3,668	616	8,044	20	20	896	28,453	916	41,251
7/3	0	12,778	61.8%	267	3,935	585	8,629	26	46	1,107	29,560	1,133	42,384
7/4	0	12,778	65.3%	226	4,160	495	9,124		46		31,119	0	42,384
7/5	0	12,778	68.6%	212	4,372	465	9,589		46	1,559	31,831	1,559	43,943
7/6	0	12,778	71.0%	148	4,520	325	9,914		46	712	32,524	712	44,655
7/7	0	12,778	74.0%	192	4,712	421	10,335	7	53	693	33,013	700	45,355
7/8	0	12,778	77.2%	207	4,919	453	10,788		53	489	33,294	489	45,844
7/9	0	12,778	80.1%	184	5,103	404	11,192		53	281	33,987	281	46,125
7/10	0	12,778	83.3%	201	5,304	441	11,633		53	693	35,059	693	46,818
7/11	0	12,778	85.5%	139	5,443	304	11,937	19	72	1,072	35,293	1,091	47,909
7/12	0	12,778	86.8%	83	5,527	183	12,120		72	234	35,759	234	48,143
7/13	0	12,778	88.2%	93	5,619	204	12,324		72	466	35,759	466	48,609
7/14	0	12,778	89.3%	69	5,688	152	12,475	206	278		35,759	206	48,815
7/15	0	12,778	89.9%	39	5,727	85	12,560	360	638		35,759	360	49,175
7/16	0	12,778	90.7%	50	5,777	110	12,670	366	1,004		35,759	366	49,541
7/17	0	12,778	91.3%	41	5,818	89	12,759	182	1,186		35,759	182	49,723
7/18	0	12,778	92.8%	92	5,910	202	12,961	30	1,216		35,759	30	49,753
7/19	0	12,778	93.7%	56	5,966	123	13,084		1,216		35,759	0	49,753
7/20	0	12,778	94.8%	71	6,037	156	13,240		1,216		35,759	0	49,753
7/21	0	12,778	95.4%	37	6,074	82	13,322		1,216		35,759	0	49,753
7/22	541	13,319	95.8%	28	6,103	61	13,383		1,216		35,759	541	50,294
7/23	111	13,430	96.3%	34	6,137	75	13,458	59	1,275		35,759	170	50,464
7/24	75	13,505	96.6%	18	6,155	40	13,499	111	1,386		35,759	186	50,650
7/25	0	13,505	97.1%	28	6,183	62	13,560	42	1,428		35,759	42	50,692
7/26	0	13,505	97.5%	25	6,208	56	13,616	65	1,493		35,759	65	50,757
7/27	0	13,505	97.7%	17	6,225	36	13,652	54	1,547		35,759	54	50,811
7/28	0	13,505	97.9%	13	6,238	29	13,681		1,547		35,759	0	50,811
7/29	0	13,505	98.4%	29	6,267	63	13,744	173	1,720		35,759	173	50,984
7/30	0	13,505	98.6%	17	6,284	37	13,781	27	1,747		35,759	27	51,011
7/31	0	13,505	98.8%	9	6,292	19	13,800	113	1,860		35,759	113	51,124
8/1	0	13,505	0.0%	0	6,292	0	13,800	88	1,948		35,759	88	51,212
8/2	0	13,505	0.0%	0	6,292	0	13,800		1,948		35,759	0	51,212
8/3	0	13,505	0.0%	0	6,292	0	13,800	66	2,014		35,759	66	51,278
8/4	0	13,505[c]	0.0%	0	6,292	0	13,800	48	2,062		35,759	48	51,326

Note: Bear Creek sustainable escapement goal is 700–8,300 sockeye salmon. CIAA broodstock goal is 5,670 for a desired inriver run of 6,370–13,970 fish.

[a] Projected daily goal based on expected run timing applied to minimum and maximum cumulative goals at the end of the run.

[b] Weir harvest is cost recovery and donations of excess fish above daily SEG plus broodstock needs.

[c] A total of 3,945 sockeye salmon were beach seined from the lake for use as broodstock..



Appendix C4.–Sockeye salmon passage past Bear Creek weir versus minimum and maximum inriver goals, 2015.

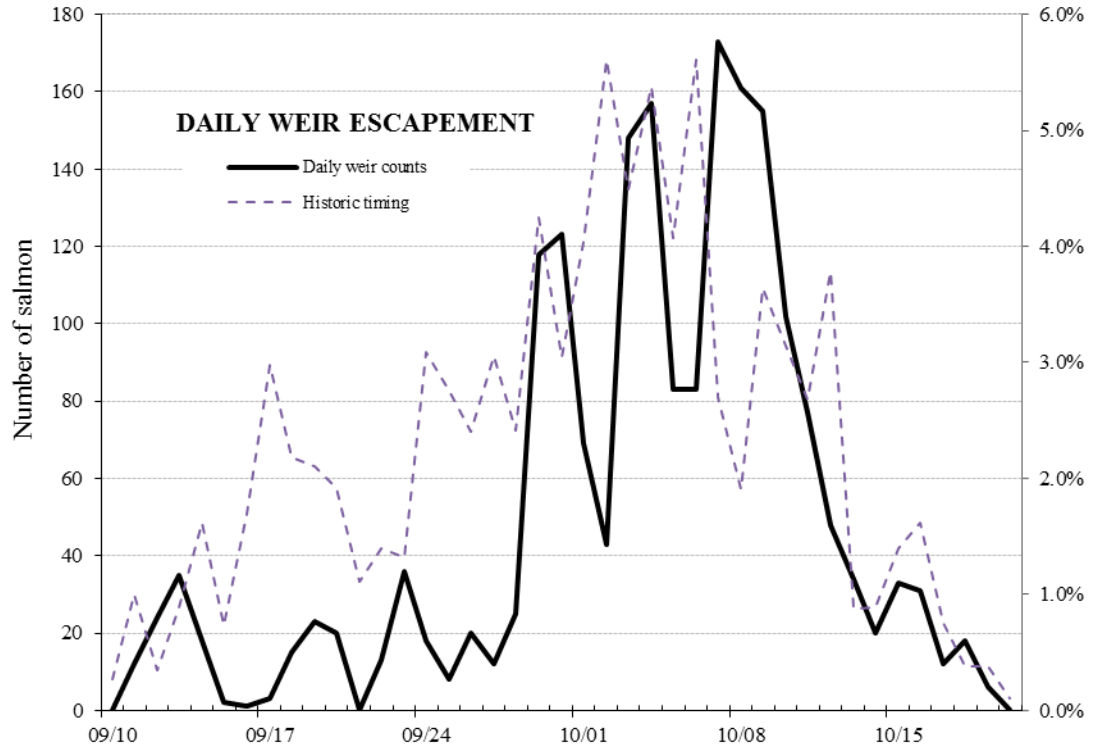
Note: A total of 51,326 sockeye salmon returned to the Bear Creek weir in 2015. Of those, 13,505 were passed through the weir into Bear Lake. An additional 37,821 were harvested at the weir for cost recovery or donated to the public. A total of 3,945 were harvested from Bear Lake for use as hatchery broodstock. Total estimated natural spawning escapement is estimated at 9,560 fish. Inriver goal is the sustainable escapement goal range (700–8,300) added to the CIAA hatchery broodstock goal (5,670) for this species.

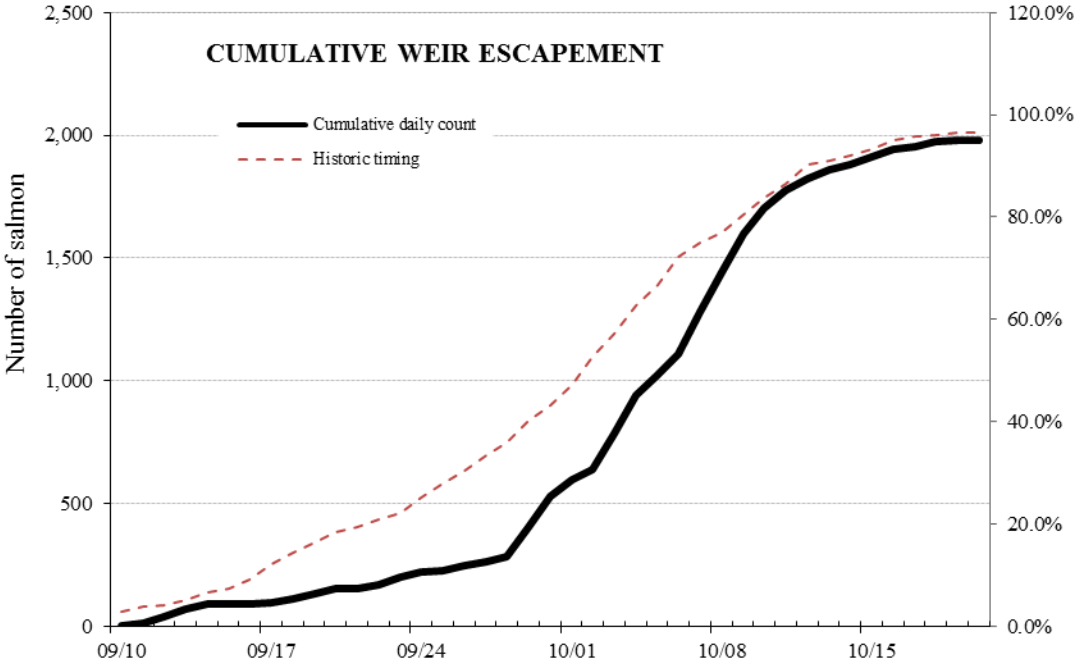
Appendix C5.–Coho salmon escapement through the Bear Creek weir, 2015.

Date	Escapement to Bear Lake Daily	Escapement to Bear Lake Total	Antic. percent	Broodstock harvest[a] Daily	Broodstock harvest[a] Total	Weir donations Daily	Weir donations Total	Cumulative coho at Bear Creek weir Daily	Cumulative coho at Bear Creek weir Total
9/10	0	0	2.8%	0	0	0	0	0	0
9/11	12	12	3.8%	0	0	0	0	12	12
9/12	24	36	4.1%	0	0	0	0	24	36
9/13	35	71	5.0%	0	0	0	0	35	71
9/14	18	89	6.6%	0	0	0	0	18	89
9/15	2	91	7.4%	0	0	0	0	2	91
9/16	1	92	9.1%	0	0	0	0	1	92
9/17	3	95	12.1%	0	0	0	0	3	95
9/18	15	110	14.3%	0	0	0	0	15	110
9/19	23	133	16.4%	0	0	0	0	23	133
9/20	20	153	18.3%	0	0	0	0	20	153
9/21	0	153	19.4%	0	0	0	0	0	153
9/22	0	153	20.8%	13	13	0	0	13	166
9/23	3	156	22.1%	33	46	0	0	36	202
9/24	2	158	25.2%	16	62	0	0	18	220
9/25	4	162	27.9%	4	66	0	0	8	228
9/26	3	165	30.3%	17	83	0	0	20	248
9/27	4	169	33.4%	8	91	0	0	12	260
9/28	3	172	35.8%	22	113	0	0	25	285
9/29	0	172	40.1%	118	231	0	0	118	403
9/30	0	172	43.1%	42	273	81	81	123	526
10/1	1	173	47.2%	1	274	67	148	69	595
10/2	0	173	52.8%	26	300	17	165	43	638
10/3	0	173	57.3%	20	320	128	293	148	786
10/4	0	173	62.6%	22	342	135	428	157	943
10/5	0	173	66.7%	5	347	78	506	83	1,026
10/6	0	173	72.3%	10	357	73	579	83	1,109
10/7	0	173	75.0%	67	424	106	685	173	1,282
10/8	0	173	76.9%	73	497	88	773	161	1,443
10/9	0	173	80.6%	72	569	83	856	155	1,598
10/10	0	173	83.7%	33	602	69	925	102	1,700
10/11	6	179	86.4%	22	624	49	974	77	1,777
10/12	7	186	90.2%	28	652	13	987	48	1,825
10/13	1	187	91.0%	12	664	21	1,008	34	1,859
10/14	0	187	91.9%	15	679	5	1,013	20	1,879
10/15	1	188	93.3%	32	711	0	1,013	33	1,912
10/16	1	189	94.9%	30	741	0	1,013	31	1,943
10/17	0	189	95.7%	12	753	0	1,013	12	1,955
10/18	1	190	96.1%	17	770	0	1,013	18	1,973
10/19	2	192	96.4%	4	774	0	1,013	6	1,979
10/20	69	261	96.6%	-69[b]	705	0	1,013	0	1,979

[a] A total of 486 fish were harvested for broodstock by CIAA, and 210 were used by ADF&G as broodstock for educational programs.

[b] A total of 69 coho salmon were removed from the raceways on October 20 and released into Bear Lake.





Appendix C6.–Coho salmon passage past the Bear Creek weir, 2015.

Appendix C7.–Adult sockeye and coho salmon escapement, and Dolly Varden char and smolt outmigrations past Bear Creek weir, 1992–2015.

	Upstream migration to Bear Lake								Downstream migration to Resurrection Bay			
	Sockeye				Coho							
Year	Weir harvest, (sold or donated)	Brood stock harvest	Spawning escapement	Total run at weir	Weir harvest, (sold or donated)	Brood stock harvest	Spawning escapement	Total run at weir	Sockeye (smolt)	Coho (smolt)	Dolly Varden (adult)	Comments
1992			1,925	1,925	1,234	689	1,132	3,055	133,787	112,852	2,186	Est. 800 coho below weir after closure.
1993	1,663	218	4,827	6,708	7,199	678	794	8,671	345,767	53,495	378	5,000 pink salmon below weir.
1994	8,047	1,370	7,335	16,752	4,927	1,038	475	6,440	253,886	54,422	627	Est. 300 coho below weir after closure.
1995	20,869	1,808	6,526	29,203	1,125	1,726	444	3,295	73,500	89,200	278	
1996	7,945	1,813	6,199	15,957	723	608	380	1,711	156,000	154,900	406	Est. 3,600 coho below weir after closure.
1997	10,051	720	7,225	17,996		598	276	874	276,000	114,100	630	Est. 750 coho below weir after closure.
1998	21,020	2,272	6,155	29,447	9,862	780	350	11,023	107,800	92,200	1,203	Coho reported below weir after closure.
1999	9,146	1,982	5,833	17,439	2,499	939	368	3,812	75,800	106,800	2,212	23 coho below weir after closure.
2000	1,670	3,984	7,844	13,716	5,390	719	597	6,765	175,000	70,900	2,195	Est. 200 coho below weir after closure.
2001	3,558	4,195	8,606	16,364	1,754	644	495	2,893	387,500	101,400	1,168	Est. 20 coho below weir after closure.
2002	2,722	4,226	8,278	15,227	1,745	864	875	3,484	107,200	94,200	1,168	
2003	2,776	3,735	9,498	16,010	2,065	1,021	395	3,506	1,326,476	208,120	231	
2004		3,725	8,198	11,923	1,224	876	572	2,672	123,213	73,397	158	
2005	31,905	3,122	10,285	45,312	1,536	808	546	2,947	1,420,428	65,448	51	
2006	30,651	4,060	8,338	43,049	681	892	516	2,089	1,962,415	49,980	95	
2007	7,250	4,265	8,575	20,090		727	386	1,113	1,347,874	78,891	64	
2008	3,706	4,172	9,264	17,142	403	697	368	1,467	308,459	63,943	60	
2009	32,515	2,954	10,364	45,833		529	535		241,106	54,829	44	181 coho below weir after closure.
2010	2,943	4,004	8,880	15,827	248	490	492	1,230	598,911	48,867	349	
2011	4,894	3,612	9,608	18,114		491	359	850	477,844	40,433	2,681	
2012	1,802	4,428	8,031	14,381	31	578	315	924	466,990	45,936	1,425	4,000 pink salmon below weir.
2013	3,162	3,606	9,004	15,772	2,044	1,103	300	3,447	791,705	36,219	759	
2014	15,569	3,857	9,233	28,659	671	567	534	1,772	393,553	21,113	191	
Prev 10yr average	13,440	3,808	9,158	26,418	561	688	435	1,760	800,929	50,566	572	
2015	37,821	3,945	9,560	51,326	1,013	705	261	1,979	728,764	91,657	263	

Source: Data from CIAA (1992–2015).

Appendix C8.–Sockeye salmon aerial survey counts from the Eastern District, 2015.

Location	Survey number	Survey date	Live count	Peak count
Aialik Lake and creek	1	7/8/15	70	
	2	8/4/15	561	
	3	8/12/15	3,182	3,182

Appendix C9.–Pink and chum salmon escapements using area under the curve estimation in the Eastern District, 2015.

Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. index[b]	Accum. escape. index[c]	Accum. percent escape.	Peak count
Aialik Lake	pink	[t]start	7/8											
		1	7/8	7/8	0	0	0	0	0	0	0	0	0%	
		2	8/4	7/8	27	800	0	800	10,800	10,800	617	617	77%	
		3	8/12	8/4	8	0	800	800	3,200	14,000	183	800	100%	
		[t]end	8/12		0				0	14,000	0	800	100%	800

Note: Final counts include fish observed in bays if no further harvest occurred. Run timing from Bue et al. 1998.

[a] Fish days (A_b) = (Days between surveys * (prev. count + current count)) ÷ 2

[b] Escapement index = A_b / 17.5 day stream-life estimate.

[c] Area under the curve estimate equals the cumulative escapement index.

Appendix C10.–Escapement indices and harvests by subdistrict in the Eastern District of Lower Cook Inlet, 2015.

	Harvest[a]				Escapement index[b]				Combined harvest and escapement index counts			
Location	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum
Aialik Bay Subdistrict (231-05)					3,182		800		3,182		800	
Harding Entrance Subdistrict (231-10)												
Outer Resurrection Bay Subdist. (231-25)												
Resurrection Bay Subdistrict (231-30)	99,471	3,127	155	115	9,560	261			109,031	3,388	155	115
Humpy Cove Subdistrict (231-40)												
Day Harbor Subdistrict (231-60)												
Eastern District total	99,471	3,127	155	115	12,742	261	800	0	112,213	3,388	955	115

[a] Harvests include all commercial, sport derby, and hatchery harvests.

[b] Unexpanded aerial or ground survey index counts or weir counts.

Appendix C11.–Estimated sockeye and pink salmon escapements in thousands of fish for the major spawning systems in the Eastern District of the Lower Cook Inlet Area, 1975–2015.

	Pink salmon							Sockeye salmon		
Year	Aialik Lagoon	Bear Creek	Salmon Creek	Tonsina Creek	Thumb Cove	Humpy Cove	Total	Aialik Lake	Bear Lake [a,b]	Total
1975								8.0	0	8.0
1976	0.4	10.0	16.9	5.7	2.0	1.4	36.4	8.0	0.6	8.6
1977								5.0	0	5.0
1978		7.8	11.0	1.5	2.0	0.9	23.2	3.0	0	3.0
1979								5.0	0	5.0
1980		13.3	15.5	0.7	1.2	5.7	36.4	6.6	1.5	8.1
1981		0.4	0.1	0.2	1.0	0.4	2.1	1.8	0.7	2.5
1982	5.0	7.9	21.0	7.5	7.9	4.0	53.3	22.4	0.5	22.9
1983	3.0	0.8	0.5	5.4	4.9	2.0	16.6	20.0	0.7	20.7
1984	4.0	7.7	10.2	6.0	4.2	2.5	34.6	22.0	0.5	22.5
1985	9.4	4.1	2.1	48.2	14.5	5.0	83.3	8.0	1.1	9.1
1986	6.0	14.0	8.3	11.2	4.0	0.9	44.4	7.6	0.8	8.4
1987	1.5	3.5	1.7	3.4	2.7	0.3	13.1	9.2	0.3	9.5
1988	0.7	0.2	0.1	0.1	0.3	0.4	1.8	13.0	0.1	13.1
1989	0.8	1.7	1.6	0.5	4.2	1.0	9.8	6.5	0.1	6.6
1990		4.4		1.2		3.8	9.4	5.7	1.1	6.8
1991		15.4		0.3	3.4		19.1	3.7	0.7	4.4
1992		2.3			0.4		2.7	2.5	1.9	4.4
1993		6.6		3.2	5.5	0.9	16.2	3.0	4.8	7.8
1994		34.8		7.0	10.8	2.2	54.8	7.3	7.3	14.6
1995	1.1	38.6		0.5	9.3	1.8	51.3	2.6	6.5	9.1
1996		8.0		0.4	9.5	3.4	21.3	3.5	6.2	9.7
1997		6.3		0.4	4.7	2.2	13.6	11.4	7.2	18.6
1998	0.4	13.2		2.3	21.0	1.2	38.1	4.9	6.2	11.1
1999	0.9	7.8		0.5	9.2	4.0	22.4	3.8	5.8	9.6
2000		35.6		6.6	8.5	1.7	52.4	4.3	7.8	12.1
2001		3.0		2.8	3.1	0.3	9.2	5.1	8.6	13.7
2002		2.7		6.9	3.7	1.8	15.1	6.1	8.3	14.4
2003		4.4		5.2	5.1	2.6	17.3	5.4	9.5	14.9
2004		1.2		3.5	4.3	1.0	10.0	10.1	8.2	18.3
2005	0.8	34.5		9.9	8.7	14.6	68.5	5.3	10.3	15.6
2006		9.0		6.5	5.2	1.9	22.6	4.8	8.3	13.1
2007								5.4	8.6	13.9
2008								4.2	9.3	13.5
2009								3.1	10.4	13.5
2010								5.3	8.9	14.2
2011								3.5	9.6	13.1
2012	0.0	4.1						2.1	8.0	10.1
2013	0.0	8.1		5.3	0.6	1.8	15.8	3.5	9.0	12.5
2014							0.0	0.5	9.2	9.7
10-yr avg	0.4	10.6		6.3	5.8	5.0	29.6	4.9	9.1	14.0
2015	0.8						0.8	3.2	9.6	12.7

[a] Weir counts.

[b] Beginning in 1994, Bear Lake escapement figures are derived from total weir count minus number of fish collected for hatchery broodstock.

APPENDIX D: KAMISHAK BAY DISTRICT

Appendix D1.–Kamishak Bay District commercial salmon harvest (excluding homepacks) by period, 2015.

			Permits		Chinook		Sockeye		Coho		Pink		Chum	
Period	Date	Hours	Fished	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 [a]	05/25-05/31	160												
2 [b]	06/01-06/07	160												
3 [b]	06/08-06/14	160												
4 [b]	06/15-06/21	160												
5 [c]	06/22-06/28	160												
6 [c]	06/29-07/05	160												
7 [c,d,e]	07/06-07/12	160	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]
8 [c,d]	07/13-07/19	160												
9 [c,d]	07/20-07/26	160												
10 [c,d,e]	07/27-08/02	160	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]
11 [c,d]	08/03-08/09	160												
12 [c,d]	08/10-08/16	160												
13 [c,d]	08/17-08/23	160												
14 [c,d]	08/24-08/30	160												
15 [c,d]	08/31-09/06	160												
16 [c,d]	09/07-09/13	160												
Total			[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]
Average weight						NA		NA		NA		3.12		7.53

Note: Unless otherwise noted, all Kamishak Bay Subdistricts were open to commercial harvest from June 1, 2015, to September 19, 2015, with regular closed waters in effect.

[a] Waters of Kamishak Bay District south of the latitude of Nordyke Island open to commercial purse seine harvest.

[b] Waters of Kamishak Bay District open to commercial purse seine harvest.

[c] Waters of Kamishak Bay District excluding the Kirschner Lake SHA, and excluding Chenik, McNeil River, and Paint River Subdistricts open to commercial purse seine harvest.

[d] Waters of Chenik Subdistrict open to commercial purse seine harvest.

[e] Confidential data. Fewer than 3 permits reporting.

Appendix D2.–Total commercial common property harvest (excluding homepacks) by species in the Kamishak Bay District 1970–2015.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum
1970			0	2,846	218	22,500	95,841
1971			0	3	121	32,094	26,327
1972			0	47	31	342	26,374
1973			0	1	28	12,568	35,584
1974			0	0	2,915	48	4,554
1975			0	29	3,041	9,432	4,868
1976			1	3,988	1,111	1,112	48,848
1977			1	7,425	105	6,308	65,659
1978			0	4,619	1,584	982	48,669
1979			9	1,778	1,116	58,484	28,711
1980			0	3,877	2,495	101,864	35,921
1981			1	4,972	1,845	66,097	73,501
1982			11	18,014	38,685	43,871	108,946
1983			1	11,207	7,138	1,405	142,901
1984			2	24,642	13,230	137,133	70,595
1985	10	72	6	78,076	2,024	194	8,139
1986	25	386	14	146,496	9,935	423,774	61,670
1987	32	439	7	123,663	8,079	72,686	110,565
1988	38	634	33	186,011	4,471	64,468	220,579
1989	20	144	3	46,395	4	256,669	7,809
1990	30	318	12	96,397	26	2,448	3,597
1991	33	479	17	127,579	2,337	47,478	7,849
1992	23	232	39	60,078	1,488	2,594	20,051
1993	14	89	4	59,745	3	4,205	600
1994	8	17	0	18,509	1,897	33	14
1995	7	27	2	31,077	6,084	169,039	10,300
1996	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1997	3	6	0	5,608	0	0	3
1998	4	4	0	8,112	0	414	20
1999	6	8	0	29,409	0	325	23
2000	10	41	1	10,245	7	6,173	66,069
2001	7	40	2	9,972	9	131	84,766
2002	5	53	0	1,429	52	438,352	34,604
2003	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2004	6	46	0	35,285	5,367	12,969	177,395
2005	8	37	0	50,018	92	5,787	83,943
2006	5	34	0	38,267	24,269	77,833	56,494
2007	4	24	0	169,509	4	4,959	37
2008	11	44	2	171,924	20	26,397	73,209
2009	9	81	0	65,763	0	132,414	36,574
2010	9	54	10	5,612	573	2,432	70,782
2011	5	38	0	99,288	0	1,050	3,850
2012	6	34	0	55,255	0	61	2,425
2013	5	15	0	33,154	0	314	2,357
2014	8	20	0	12,137	0	44,227	4,449
Previous 10-yr avg	7	38	1	70,093	2,496	29,547	33,412
2015	[a]	[a]	[a]	[a]	[a]	[a]	[a]

Source: ADF&G fish ticket database.

[a] Confidential data. Fewer than 3 permits reporting.

Appendix D3.–Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the video monitoring site at Chenik Lake, 2015.

	Actual		Antic.	Apportioned sustainable escapement goals				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
6/14	0	0	0.0%	0	492	1	1,969	Camera installed on 6/14.
6/15	99	99	0.0%	25	518	102	2,070	
6/16	6	105	0.0%	49	567	196	2,266	
6/17	3	108	0.0%	218	784	872	3,138	
6/18	0	108	0.0%	224	1,008	895	4,033	
6/19	0	108	0.2%	268	1,277	1,073	5,106	
6/20	0	108	0.2%	99	1,376	397	5,503	
6/21	0	108	0.2%	169	1,545	677	6,180	
6/22	0	108	0.2%	147	1,692	587	6,767	
6/23	0	108	0.3%	23	1,714	90	6,857	
6/24	0	108	0.6%	14	1,728	54	6,911	
6/25	0	108	4.4%	62	1,790	249	7,160	
6/26	7	115	8.6%	197	1,987	788	7,947	
6/27	0	115	14.0%	186	2,173	744	8,692	
6/28	1	116	14.1%	204	2,376	814	9,506	
6/29	1,264	1,380	14.1%	127	2,504	509	10,014	
6/30	2,066	3,446	14.8%	141	2,644	564	10,578	
7/1	778	4,224	16.2%	126	2,770	504	11,081	
7/2	0	4,224	22.4%	70	2,840	279	11,360	
7/3	516	4,740	28.8%	93	2,933	370	11,730	
7/4	829	5,569	36.5%	66	2,998	263	11,993	
7/5	0	5,569	39.3%	88	3,086	350	12,343	
7/6	551	6,120	44.2%	9	3,095	37	12,381	
7/7	0	6,120	48.4%	41	3,136	165	12,546	
7/8	0	6,120	49.0%	21	3,158	86	12,632	
7/9	0	6,120	49.4%	15	3,173	59	12,691	
7/10	0	6,120	51.2%	58	3,230	230	12,921	
7/11	1,830	7,950	56.8%	35	3,266	142	13,062	
7/12	428	8,378	62.1%	55	3,321	221	13,283	
7/13	0	8,378	67.9%	57	3,378	227	13,510	
7/14	663	9,041	71.6%	32	3,409	126	13,636	
7/15	255	9,296	75.6%	16	3,425	65	13,701	
7/16	447	9,743	79.2%	29	3,454	115	13,816	
7/17	7	9,750	81.2%	11	3,465	44	13,860	
7/18	0	9,750	83.8%	18	3,483	74	13,934	
7/19	0	9,750	85.7%	1	3,484	3	13,936	
7/20	0	9,750	88.2%	2	3,486	7	13,944	
7/21	4	9,754	88.5%	7	3,493	27	13,970	
7/22	7	9,761	89.6%	2	3,494	7	13,977	
7/23	0	9,761	90.2%	4	3,498	14	13,992	
7/24	673	10,434	90.7%	1	3,499	3	13,994	
7/25	1,715	12,149	92.3%	0	3,499	2	13,996	
7/26	307	12,456	93.3%	0	3,499	0	13,996	
7/27	1,695	14,151	94.9%	0	3,499	0	13,996	
7/28	2,797	16,948	96.5%	0	3,499	0	13,997	
7/29	802	17,750	97.4%	0	3,499	0	13,997	

-continued-

	Actual		Antic.	Apportioned sustainable escapement goals				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/30	252	18,002	97.9%	0	3,499	0	13,997	
7/31	166	18,168	98.7%	0	3,499	0	13,997	
8/1	98	18,266	99.0%	0	3,499	0	13,997	
8/2	14	18,280	99.5%	0	3,499	0	13,997	
8/3	121	18,401	99.6%	0	3,499	0	13,997	
8/4	320	18,721	99.6%	0	3,499	0	13,997	
8/5	70	18,791	99.8%	0	3,499	0	13,997	
8/6	186	18,977	99.9%	0	3,499	2	13,999	
8/7	7	18,984	100.0%	0	3,499	0	13,999	
8/8	0	18,984	100.0%	0	3,499	0	13,999	
8/9	0	18,984	100.0%	0	3,499	0	13,999	
8/10	9	18,993	100.0%	0	3,499	0	13,999	
8/11	48	19,041	100.0%	0	3,499	0	13,999	
8/12	19	19,060	100.0%	0	3,499	0	13,999	
8/13	0	19,060	100.0%	0	3,499	0	13,999	
8/14	13	19,073	100.0%	0	3,499	0	13,999	
8/15	0	19,073	100.0%	0	3,499	0	13,999	
8/16	0	19,073	100.0%	0	3,499	0	13,999	
8/17	0	19,073	100.0%	0	3,499	0	13,999	Hard drive filled 8/17 afternoon.

Note: Anticipated escapement derived from run timing and Chenik Lake sockeye salmon sustainable escapement goal (3,500–14,000 fish).

Appendix D4.–Anticipated daily and cumulative sockeye salmon escapement versus actual escapement past the video monitoring site at Mikfik Lake, 2015.

	Actual		Antic	Apportioned sustainable escapement goal				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
6/1	0	0	0.4%	15	15	58	58	Camera installed, 5/23.
6/2	377	377	0.5%	1	16	2	60	Beaver dam breached 5/23
6/3	156	533	0.5%	0	16	0	60	
6/4	216	749	0.7%	9	25	36	97	
6/5	34	783	1.8%	36	61	138	235	
6/6	0	783	2.0%	6	67	23	258	
6/7	111	894	2.2%	8	75	29	287	
6/8	0	894	3.2%	33	108	128	414	
6/9	0	894	6.0%	95	203	363	778	
6/10	363	1,257	8.3%	78	282	299	1,077	
6/11	1,513	2,770	11.3%	104	386	398	1,474	
6/12	183	2,953	12.4%	35	420	133	1,608	
6/13	8	2,961	26.1%	467	888	1,787	3,394	
6/14	0	2,961	31.3%	177	1,065	678	4,073	
6/15	2	2,963	33.6%	78	1,143	299	4,371	
6/16	0	2,963	34.4%	25	1,168	96	4,467	
6/17	0	2,963	38.5%	140	1,308	535	5,003	
6/18	0	2,963	42.1%	122	1,430	467	5,469	
6/19	0	2,963	47.9%	199	1,629	759	6,229	
6/20	0	2,963	58.4%	357	1,986	1,365	7,594	
6/21	0	2,963	65.6%	245	2,231	938	8,532	
6/22	0	2,963	67.4%	59	2,291	227	8,759	
6/23	0	2,963	67.9%	19	2,309	71	8,830	
6/24	0	2,963	76.0%	276	2,586	1,056	9,886	
6/25	0	2,963	76.8%	25	2,611	96	9,982	
6/26	0	2,963	78.3%	51	2,662	194	10,177	
6/27	0	2,963	82.1%	129	2,791	495	10,672	
6/28	0	2,963	83.4%	45	2,836	173	10,845	
6/29	0	2,963	84.1%	24	2,861	93	10,938	
6/30	0	2,963	84.1%	0	2,861	0	10,938	
7/1	0	2,963	84.2%	0	2,861	2	10,940	
7/2	136	3,099	84.2%	2	2,863	9	10,949	
7/3	0	3,099	84.3%	2	2,865	7	10,956	
7/4	31	3,130	84.3%	2	2,867	7	10,963	
7/5	0	3,130	84.6%	8	2,875	31	10,993	
7/6	0	3,130	88.5%	133	3,008	508	11,501	
7/7	110	3,240	90.3%	62	3,070	239	11,739	Beaver dam removal
7/8	2	3,242	92.7%	82	3,152	312	12,051	
7/9	0	3,242	93.0%	9	3,161	36	12,088	
7/10	0	3,242	93.3%	10	3,171	38	12,125	
7/11	0	3,242	93.3%	1	3,172	4	12,130	
7/12	0	3,242	93.5%	6	3,179	25	12,154	
7/13	0	3,242	94.3%	29	3,207	109	12,263	
7/14	0	3,242	94.7%	12	3,219	45	12,308	
7/15	0	3,242	94.7%	1	3,220	4	12,312	
7/16	0	3,242	94.7%	0	3,220	0	12,313	

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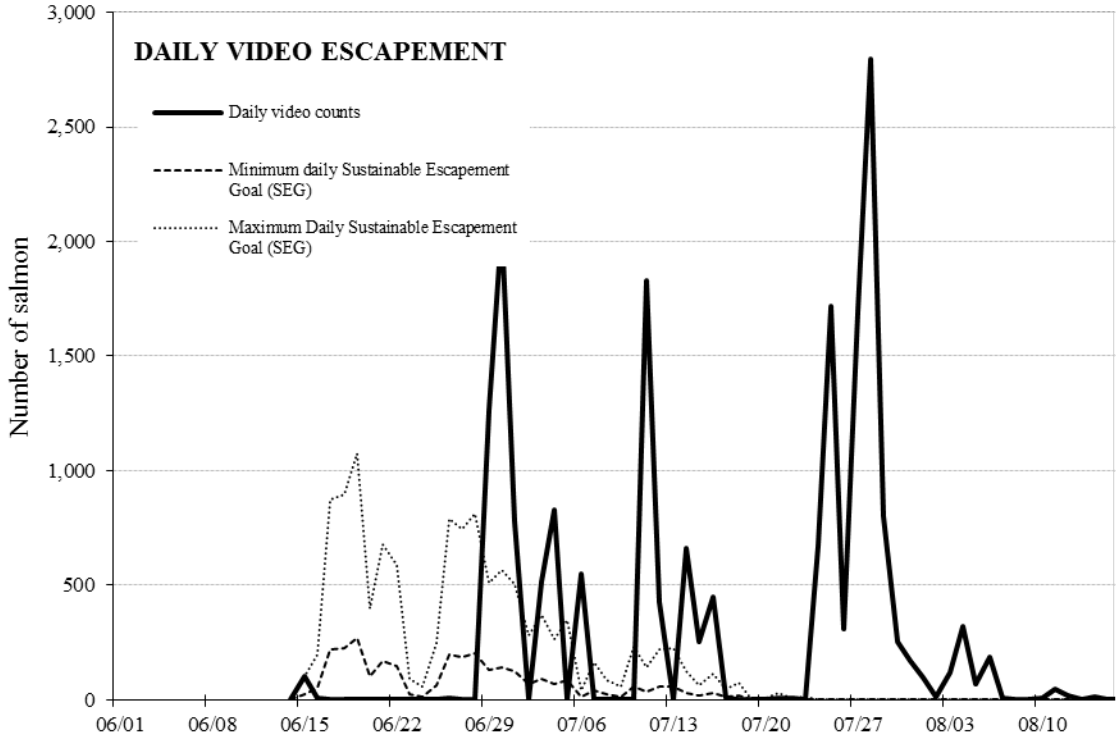
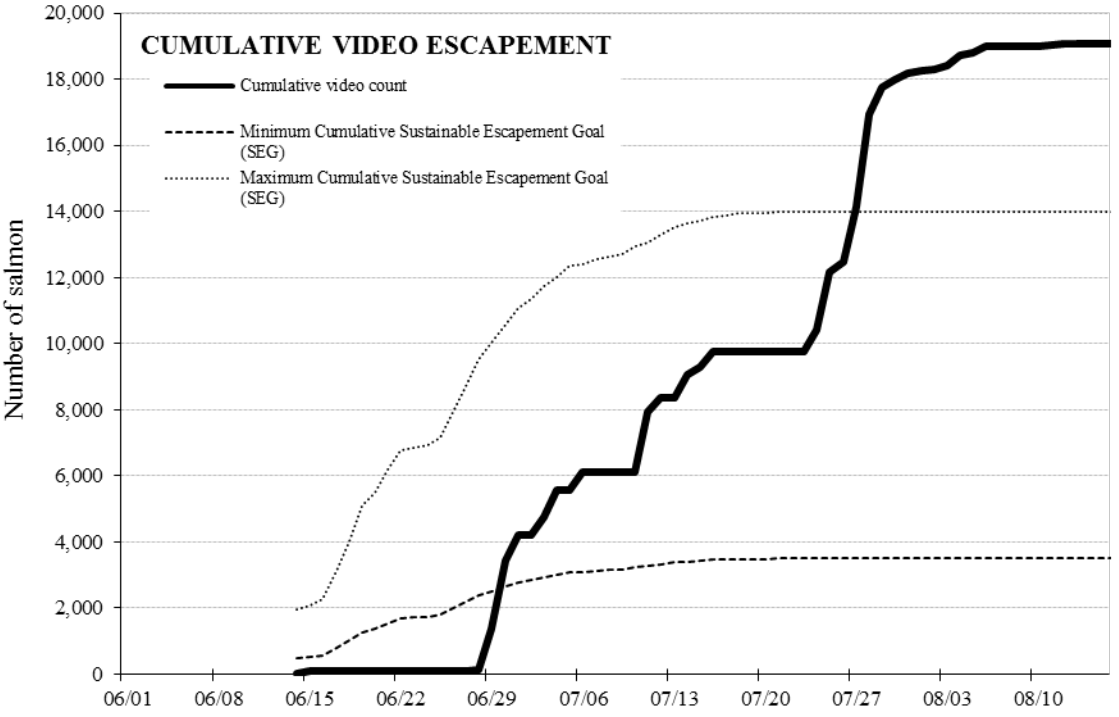
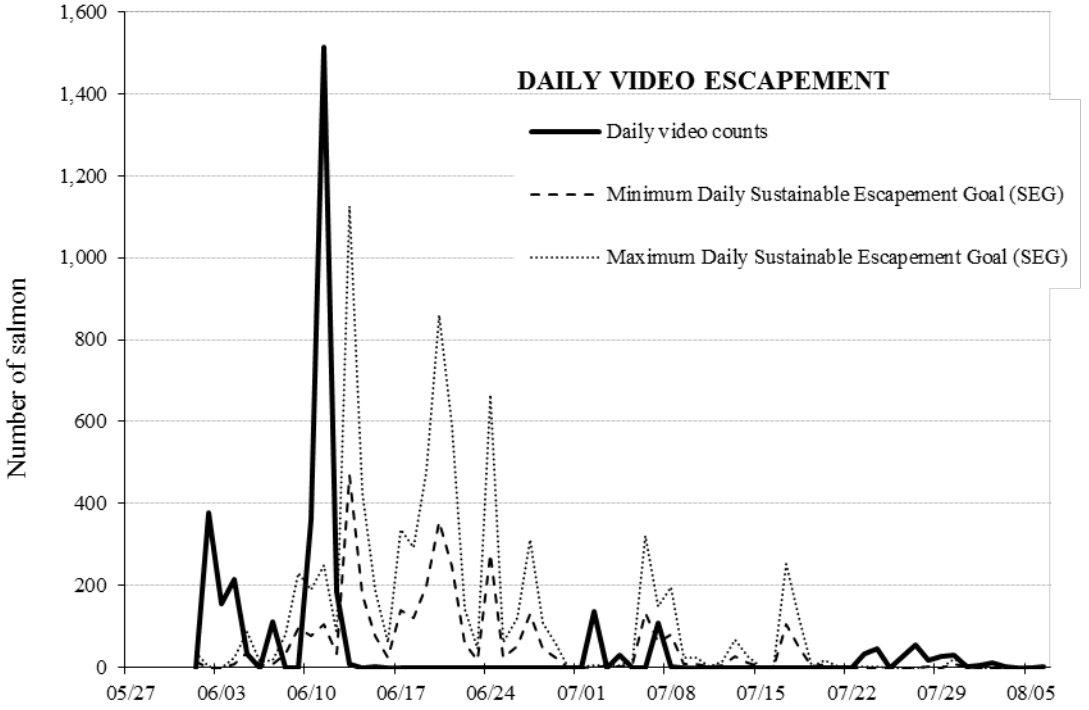
	Actual		Antic	Apportioned sustainable escapement goal				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/17	0	3,242	97.8%	104	3,324	398	12,711	
7/18	0	3,242	99.2%	50	3,374	190	12,900	
7/19	0	3,242	99.3%	1	3,375	3	12,904	
7/20	0	3,242	99.5%	7	3,382	28	12,932	
7/21	0	3,242	99.5%	0	3,383	2	12,934	
7/22	0	3,242	99.5%	0	3,383	2	12,935	
7/23	34	3,276	99.5%	1	3,384	2	12,937	
7/24	45	3,321	99.5%	0	3,384	1	12,939	
7/25	0	3,321	99.5%	0	3,384	0	12,939	
7/26	28	3,349	99.5%	0	3,384	0	12,939	
7/27	55	3,404	99.5%	0	3,384	0	12,939	
7/28	19	3,423	99.6%	1	3,385	3	12,942	
7/29	27	3,450	99.6%	0	3,385	0	12,942	
7/30	29	3,479	99.8%	9	3,394	35	12,977	
7/31	1	3,480	99.9%	4	3,398	13	12,991	
8/1	4	3,484	99.9%	0	3,398	0	12,991	
8/2	13	3,497	99.9%	0	3,398	0	12,991	
8/3	2	3,499	99.9%	0	3,398	1	12,992	
8/4	0	3,499	99.9%	0	3,398	1	12,993	
8/5	0	3,499	100.0%	1	3,399	3	12,996	
8/6	3	3,502	100.0%	1	3,400	2	12,998	
8/7	0	3,502	100.0%	0	3,400	398	12,711	
8/8	0	3,502	100.0%	0	3,400	190	12,900	
8/9	0	3,502	100.0%	0	3,400	3	12,904	
8/10	0	3,502	100.0%	0	3,400	28	12,932	
8/11	0	3,502	100.0%	0	3,400	2	12,934	Hard drive removed 8/11.

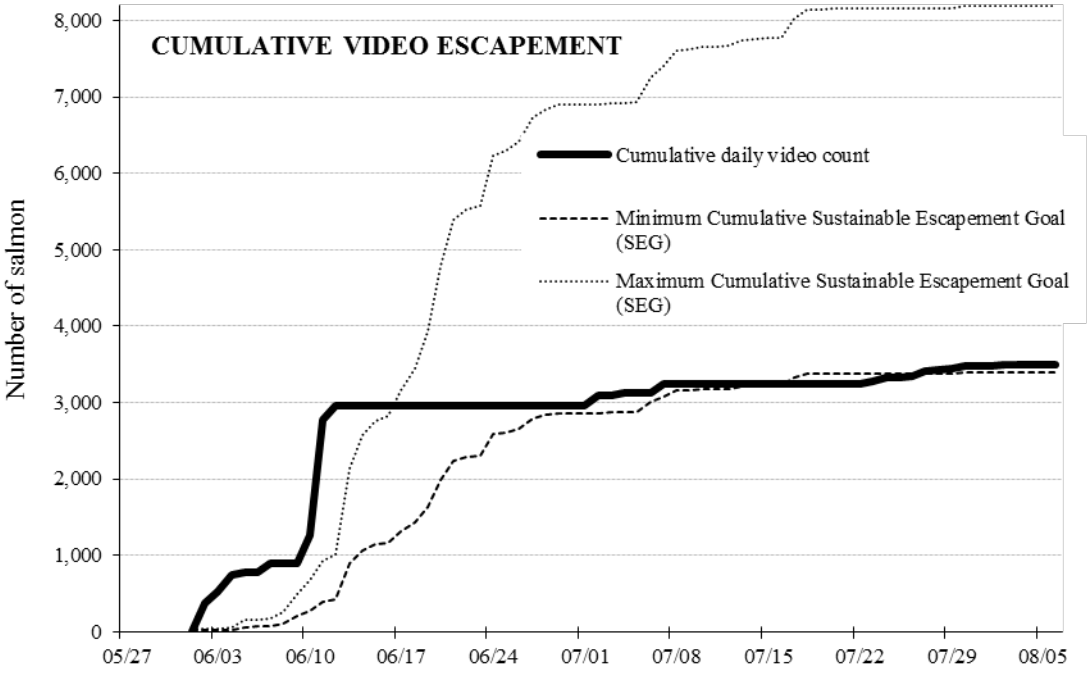
Note: Anticipated escapement derived from run timing and Mikfik Lake sockeye salmon sustainable escapement goal of 3,400–13,000 fish.





Appendix D5.–Minimum and maximum anticipated cumulative and daily escapement of sockeye salmon versus actual escapement past the video monitoring station at Chenik Lake, 2015.





Appendix D6.–Minimum and maximum anticipated cumulative and daily escapement of sockeye salmon versus actual escapement past the Mikfik Lake video monitoring station, 2015.

Appendix D7.–Sockeye salmon escapement into Chenik Lake and Mikfik Lake, 1927–2015.

Year	Chenik		Mikfik	
1927	7,069	[a]		
1928	31,007	[a]		
1929	30,440	[a]		
1930	23,638	[a]		
1931	33,514	[a]		
1932	53,012	[a]		
1933	39,222	[a]		
1934	35,778	[a]		
1935	16,041	[a]		
1936	19,349	[a]		
1937	8,256	[a]		
1938	3,804	[a]		
1939	4,076	[a]		
(No weir from 1940–1991)				
1992	9,269	[a]	7,800	[b]
1993	4,000	[a]	6,400	[b]
1994	808	[a]	9,500	[b]
1995	1,086	[a]	10,100	[b]
1996	2,990	[a]	10,500	[b]
1997	2,338	[a]	8,500	[b]
1998	1,880	[b]	12,600	[b]
1999	2,850	[b]	15,700	[b]
2000	4,800	[b]	10,386	[d]
2001	250	[b]	5,400	[b]
2002	4,650	[b]	16,700	[b]
2003	13,825	[b]	8,009	[d]
2004	17,000	[b]	14,829	[d]
2005	14,507	[c]	6,499	[d]
2006	13,868	[c]	14,983	[d]
2007	18,288	[c]	10,975	[d]
2008	11,284	[c]	9,104	[d]
2009	15,264	[d]	20,965	[d]
2010	17,312	[d]	5,221	[b]
2011	10,330	[d]	345	[b]
2012	16,505	[d]	3,131	[d]
2013	11,333	[d]	4,042	[d]
2014	17,797	[d]	17,802	[d]
Previous 10-yr average	14,647		9,307	
2015	19,073	[d]	3,502	[d]

[a] Escapement derived from weir counts.

[b] Escapement derived from aerial surveys.

[c] Escapement derived from a combination of weir, video counts, and/or aerial counts.

[d] Escapement derived from video counts.

Appendix D8.–Pink and chum salmon escapements as measured by aerial survey using area under the curve estimation in the Kamishak Bay District, 2015.

Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. Index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Amakdedori	pink	[t]start	6/22											
Creek		1	6/22	6/22	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/2	6/22	10	0	0	0	0	0	0	0	0%	
system)		3	7/10	7/2	8	0	0	0	0	0	0	0	0%	
		4	7/24	7/10	14	1,710	0	1,710	11,970	11,970	684	684	3%	
		5	7/30	7/24	6	10,100	1,710	11,810	35,430	47,400	2,025	2,709	10%	
		6	8/6	7/30	7	4,890	10,100	14,990	52,465	99,865	2,998	5,707	22%	
		7	8/14	8/6	8	18,000	4,890	22,890	91,560	191,425	5,232	10,939	42%	
		8	9/2	8/14	19	5,020	18,000	23,020	218,690	410,115	12,497	23,435	90%	
		[t]end	9/19		17.5				43,925	454,040	2,510	25,945	100%	18,000
Big	chum	[t]start	7/10											
Kamishak		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
River		2	7/24	7/10	14	133	0	133	931	931	53	53	1%	
		3	7/30	7/24	6	2,910	133	3,043	9,129	10,060	522	575	8%	
		4	8/6	7/30	7	2,161	2,910	5,071	17,749	27,809	1,014	1,589	23%	
		5	8/14	8/6	8	5,820	2,161	7,981	31,924	59,733	1,824	3,413	49%	
(index		6	9/2	8/14	19	400	5,820	6,220	59,090	118,823	3,377	6,790	97%	
system)		[t]end	9/19		17.5				3,500	122,323	200	6,990	100%	5,820
Brown's	chum	[t]start	6/22											
Peak Creek		1	7/10	6/22	17.5	115	0	115	1,006	1,006	58	58	4%	
(not an index		2	7/24	7/10	14	300	115	415	2,905	3,911	166	224	16%	
system)		3	7/30	7/24	6	960	300	1,260	3,780	7,691	216	440	32%	
		4	8/6	7/30	7	1,700	960	2,660	9,310	17,001	532	972	71%	
		5	8/14	8/6	8	0	1,700	1,700	6,800	23,801	389	1,360	100%	
		6	9/2	8/14	19	0	0	0	0	23,801	0	1,360	100%	
		[t]end	9/2		0				0	23,801	0	1,360	100%	1,700

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. Index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Brown's	pink	[t]start	7/10											
Peak Creek		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(index		2	7/24	7/10	14	0	0	0	0	0	0	0	0%	
system)		3	7/30	7/24	6	6,820	0	6,820	20,460	20,460	1,169	1,169	4%	
		4	8/6	7/30	7	3,700	6,820	10,520	36,820	57,280	2,104	3,273	11%	
		5	8/14	8/6	8	23,500	3,700	27,200	108,800	166,080	6,217	9,490	33%	
		6	9/2	8/14	19	6,610	23,500	30,110	286,045	452,125	16,345	25,836	89%	
		[t]end	9/19		17.5				57,838	509,963	3,305	29,141	100%	23,500
Bruin River	chum	[t]start	6/22											
(index		1	7/10	6/22	17.5	1,880	0	1,880	16,450	16,450	940	940	9%	
system)		2	7/24	7/10	14	6,900	1,880	8,780	61,460	77,910	3,512	4,452	40%	
		3	7/30	7/24	6	6,010	6,900	12,910	38,730	116,640	2,213	6,665	61%	
		4	8/6	7/30	7	900	6,010	6,910	24,185	140,825	1,382	8,047	73%	
		5	8/14	8/6	8	2,420	900	3,320	13,280	154,105	759	8,806	80%	
		6	9/2	8/14	19	850	2,420	3,270	31,065	185,170	1,775	10,581	96%	
		[t]end	9/19		17.5				7,438	192,608	425	11,006	100%	9,360
Bruin River	pink	[t]start	7/10											
(index		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
system)		2	7/24	7/10	14	0	0	0	0	0	0	0	0%	
		3	7/30	7/24	6	16,500	0	16,500	49,500	49,500	2,829	2,829	7%	
		4	8/6	7/30	7	17,200	16,500	33,700	117,950	167,450	6,740	9,569	23%	
		5	8/14	8/6	8	29,010	17,200	46,210	184,840	352,290	10,562	20,131	49%	
		6	9/2	8/14	19	4,720	29,010	33,730	320,435	672,725	18,311	38,441	94%	
		[t]end	9/19		17.5				41,300	714,025	2,360	40,801	100%	29,010

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. Index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Cottonwood	chum	[t]start	7/10											
Creek		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(index		2	7/24	7/10	14	710	0	710	4,970	4,970	284	284	2%	
system)		3	7/30	7/24	6	2,110	710	2,820	8,460	13,430	483	767	5%	
		4	8/6	7/30	7	2,100	2,110	4,210	14,735	28,165	842	1,609	10%	
		5	8/14	8/6	8	4,500	2,100	6,600	26,400	54,565	1,509	3,118	19%	
		6	9/2	8/14	19	10,300	4,500	14,800	140,600	195,165	8,034	11,152	68%	
		[t]end	9/19		17.5				90,125	285,290	5,150	16,962	100%	10,300
Douglas River	chum	[t]start	7/6											
(not an index		1	7/24	7/6	17.5	241	0	241	2,109	2,109	121	121	13%	
system)		2	7/30	7/24	6	30	241	271	813	2,922	46	167	18%	
		3	8/6	7/30	7	800	30	830	2,905	5,827	166	333	37%	
		4	8/14	8/6	8	410	800	1,210	4,840	10,667	277	610	67%	
		5	9/2	8/14	19	70	410	480	4,560	15,227	261	870	96%	
		[t]end	9/19		17.5				613	15,839	35	905	100%	800
Douglas	chum	[t]start	6/22											
Beach River		1	7/10	6/22	17.5	10	0	10	88	88	5	5	0%	
(not an index		2	7/30	7/10	20	1,530	10	1,540	15,400	15,488	880	885	7%	
system)		3	8/6	7/30	7	704	1,530	2,234	7,819	23,307	447	1,332	10%	
		4	8/14	8/6	8	8,300	704	9,004	36,016	59,323	2,058	3,390	26%	
		5	9/2	8/14	19	4,810	8,300	13,110	124,545	183,868	7,117	10,507	81%	
		[t]end	9/19		17.5				42,088	225,955	2,405	12,912	100%	8,300

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. Index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Douglas	chum	[t]start	7/10											
Reef River		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/30	7/10	20	650	0	650	6,500	6,500	371	371	26%	
system)		3	8/6	7/30	7	98	650	748	2,618	9,118	150	521	37%	
		4	8/14	8/6	8	710	98	808	3,232	12,350	185	706	50%	
		5	9/2	8/14	19	320	710	1,030	9,785	22,135	559	1,265	89%	
		[t]end	9/19		17.5				2,800	24,935	160	1,425	100%	710
Douglas	pink	[t]start	7/10											
Reef River		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/30	7/10	20	0	0	0	0	0	0	0	0%	
system)		3	8/6	7/30	7	70	0	70	245	245	14	14	3%	
		4	8/14	8/6	8	500	70	570	2,280	2,525	130	144	35%	
		5	9/2	8/14	19	0	500	500	4,750	7,275	271	416	100%	
		[t]end	9/2		0				0	7,275	0	416	100%	500
Iniskin River	chum	[t]start	7/6											
(index		1	7/24	7/6	17.5	910	0	910	7,963	7,963	455	455	6%	
system)		2	7/30	7/24	6	2,470	910	3,380	10,140	18,103	579	1,034	14%	
		3	8/6	7/30	7	3,000	2,470	5,470	19,145	37,248	1,094	2,128	28%	
		4	8/14	8/6	8	6,450	3,000	9,450	37,800	75,048	2,160	4,288	57%	
		[t]end	8/31		17.5				56,438	131,485	3,225	7,513	100%	6,450
Little	chum	[t]start	6/22											
Kamishak		1	7/10	6/22	17.5	150	0	150	1,313	1,313	75	75	1%	
River		2	7/24	7/10	14	5,207	150	5,357	37,499	38,812	2,143	2,218	17%	
(index		3	7/30	7/24	6	14,370	5,207	19,577	58,731	97,543	3,356	5,574	42%	
system)		4	8/6	7/30	7	2,855	14,370	17,225	60,288	157,830	3,445	9,019	67%	
		5	8/14	8/6	8	4,740	2,855	7,595	30,380	188,210	1,736	10,755	80%	
		6	9/2	8/14	19	70	4,740	4,810	45,695	233,905	2,611	13,366	100%	
		[t]end	9/19		17.5				613	234,518	35	13,401	100%	14,370

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[a], (A_b)	Accum. fish days, (A_b)	Escape. Index[b]	Accum. Escape. Index[c]	Accum. Percent Escape.	Peak count
Little	pink	[t]start	7/10											
Kamishak		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
River		2	7/24	7/10	14	0	0	0	0	0	0	0	0%	
(not an index		3	7/30	7/24	6	0	0	0	0	0	0	0	0%	
system)		4	8/6	7/30	7	1,464	0	1,464	5,124	5,124	293	293	40%	
		5	8/14	8/6	8	100	1,464	1,564	6,256	11,380	357	650	90%	
		6	9/2	8/14	19	21	100	121	1,150	12,530	66	716	99%	
		[t]end	9/19		17.5				184	12,713	11	726	100%	1,464
McNeil	chum	[t]start	6/1											
River		1	6/15	6/1	14	860	0	860	5,934	5,934	430	430	3%	
(index		2	6/22	6/15	7	1,802	860	2,662	9,317	15,251	675	1,105	6%	
system)		3	7/2	6/22	10	6,390	1,802	8,192	40,960	56,211	2,968	4,073	22%	
		4	7/10	7/2	8	5,010	6,390	11,400	45,600	101,811	3,304	7,378	40%	
		5	7/24	7/10	14	1,933	5,010	6,943	48,601	150,412	3,522	10,899	59%	
		6	7/30	7/24	6	10,580	1,933	12,513	37,539	187,951	2,720	13,620	74%	
		7	8/6	7/30	7	2,788	10,580	13,368	46,788	234,739	3,390	17,010	92%	
		[t]end	8/19		14				19,237	253,976	1,394	18,404	100%	10,580
North Head	chum	[t]start	7/12											
Creek		1	7/30	7/12	17.5	350	0	350	3,063	3,063	175	175	44%	
(not an index		2	8/6	7/30	7	350	350	700	2,450	5,513	140	315	80%	
system)		3	8/14	8/6	8	0	350	350	1,400	6,913	80	395	100%	
		[t]end	8/14		0				0	6,913	0	395	100%	350
North Head	pink	[t]start	7/12											
Creek		1	7/30	7/12	17.5	5,000	0	5,000	43,750	43,750	2,500	2,500	16%	
(not an index		2	8/6	7/30	7	7,100	5,000	12,100	42,350	86,100	2,420	4,920	31%	
system)		3	8/14	8/6	8	13,100	7,100	20,200	80,800	166,900	4,617	9,537	59%	
		[t]end	8/31		17.5				114,625	281,525	6,550	16,087	100%	13,100

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[b], (A_b)	Accum. fish days, (A_b)	Escape. Index[c]	Accum. Escape. Index[d]	Accum. Percent Escape.	Peak count
Sugarloaf	chum	[t]start	7/6											
Creek		1	7/24	7/6	17.5	250	0	250	2,188	2,188	125	125	12%	
(not an index		2	7/30	7/24	6	302	250	552	1,656	3,844	95	220	20%	
system)		3	8/6	7/30	7	220	302	522	1,827	5,671	104	324	30%	
		4	8/14	8/6	8	970	220	1,190	4,760	10,431	272	596	55%	
		[t]end	8/31		17.5				8,488	18,918	485	1,081	100%	460
Sunday	chum	[t]start	7/10											
Creek		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(not an index		2	7/24	7/10	14	310	0	310	2,170	2,170	124	124	17%	
system)		3	7/30	7/24	6	130	310	440	1,320	3,490	75	199	27%	
		4	8/6	7/30	7	1,200	130	1,330	4,655	8,145	266	465	63%	
			8/14	8/6	8	0	1,200	1,200	4,800	12,945	274	740	100%	
		5	9/2	8/14	19	0	0	0	0	12,945	0	740	100%	
		[t]end	9/2		0				0	12,945	0	740	100%	1,200
Sunday	pink	[t]start	7/10											
Creek		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
(index		2	7/24	7/10	14	1,380	0	1,380	9,660	9,660	552	552	1%	
system)		3	7/30	7/24	6	4,420	1,380	5,800	17,400	27,060	994	1,546	3%	
		4	8/6	7/30	7	8,700	4,420	13,120	45,920	72,980	2,624	4,170	7%	
		5	8/14	8/6	8	58,200	8,700	66,900	267,600	340,580	15,291	19,462	32%	
		6	9/2	8/14	19	8,850	58,200	67,050	636,975	977,555	36,399	55,860	93%	
		[t]end	9/19		17.5				77,438	1,054,993	4,425	60,385	100%	58,200

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Location	Species	Survey number	Survey date (t_i)	Previous survey date (t_i-1)	Days between surveys (t_i-t_{i-1})	Current live count, (c_i)	Previous live count (c_{i-1})	Previous + current live count (c_i+c_{i-1})	Fish days[b], (A_b)	Accum. fish days, (A_b)	Escape. Index[c]	Accum. Escape. Index[d]	Accum. Percent Escape.	Peak count
Ursus	chum	[t]start	6/22											
Lagoon		1	7/10	6/22	17.5	230	0	230	2,013	2,013	115	115	1%	
Creeks		2	7/24	7/10	14	164	230	394	2,758	4,771	158	273	2%	
(index		3	7/30	7/24	6	1,210	164	1,374	4,122	8,893	236	508	3%	
system)		4	8/6	7/30	7	1,340	1,210	2,550	8,925	17,818	510	1,018	7%	
		5	8/14	8/6	8	5,510	1,340	6,850	27,400	45,218	1,566	2,584	17%	
		6	9/2	8/14	19	8,830	5,510	14,340	136,230	181,448	7,785	10,368	70%	
		[t]end	9/19		17.5				77,263	258,710	4,415	14,783	100%	2,840
Ursus	pink	[t]start	7/10											
Lagoon		1	7/10	7/10	0	0	0	0	0	0	0	0	0%	
Creeks		2	7/24	7/10	14	0	0	0	0	0	0	0	0%	
(not an index		3	7/30	7/24	6	100	0	100	300	300	17	17	2%	
system)		4	8/6	7/30	7	970	100	1,070	3,745	4,045	214	231	23%	
		5	8/14	8/6	8	300	970	1,270	5,080	9,125	290	521	52%	
		6	9/2	8/14	19	300	300	600	5,700	14,825	326	847	85%	
		[t]end	9/19		17.5				2,625	17,450	150	997	100%	970

Note: Final counts include fish observed in bays if no further harvest occurred. Run timing from Bue et al. 1998.

[a] Fish days (A_b) = (Days between surveys x (prev. count + current count)) ÷ 2.

[b] Escapement index = Ab / 17.5 day stream-life estimate (except McNeil River chum calculations use a 13.8-day stream-life estimate)

[c] The McNeil River chum salmon AUC index is not the final escapement index. After applying a run-timing expansion factor, the final escapement index was 20,494. For all other stocks, the area-under-the-curve estimate equals the cumulative escapement index.

Appendix D9.–Sockeye salmon aerial survey counts from the Kamishak Bay District, 2015.

Location	Survey number	Survey date	Live count	Peak count
Amakdedori Creek	1	06/22/15	221	
	2	07/02/15	150	
	3	07/10/15	920	
	4	07/24/15	391	
	5	07/30/15	2,910	
	6	08/06/15	340	
	7	08/14/15	2,872	
	8	09/02/15	353	2,910
Big Kamishak	1	07/10/15	361	
	2	07/24/15	580	
	3	07/30/15	1,180	
	4	08/06/15	138	
	5	08/14/15	240	
	6	09/02/15	60	1,180
Douglas Reef River	1	07/10/15	90	
	2	07/30/15	450	
	3	08/06/15	15	
	4	08/14/15	80	
	5	09/02/15	30	450
Mikfik Lake [a]	1	6/15/2015	3,590	
	2	6/22/2015	1,330	
	3	7/2/2015	1,520	
	4	7/10/2015	420	
	5	7/24/2015	861	
	6	8/6/2015	200	
	7	9/2/2015	202	3,590

[a] Aerial surveys are used for inseason management but the final escapement index (3,502) was derived by video monitoring.

Appendix D10.–Escapement indices and harvests by subdistricts in the Kamishak Bay District, Lower Cook Inlet, 2015.

	Harvest[a]				Escapement index[b]				Combined harvest and escapement index counts			
Location	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum	Sockeye	Coho	Pink	Chum
Augustine Subdistrict (249-30)												
Douglas River Subdistrict (249-40)					450	524	500	15,242	450	650	500	15,242
Kamishak River Subdistrict (249-45)					1,180	0	2,154	21,360	1,180		2,154	21,360
McNeil Cove Subdistrict (249-50)					3,502	0	500	14,899	3,502		500	14,899
Chenik/Amakdedori Subdistrict (249-55)					21,983	0	25,945	0	21,983		25,945	
Bruin Bay Subdistrict (249-70)					0	0	40,801	11,006	0		40,801	11,006
Kirschner Lake Section (249-71)					–	–	–	–				
Kirschner Lake SHA (249-72)	23,571		1,560		–	–	–	–	23,571		1,560	
Rocky Cove Subdistrict (249-78)			33,735	626	0		60,285	1,200			94,020	1,826
Ursus Cove Subdistrict (249-80)					0		30,111	16,483			30,111	16,483
Cottonwood Bay Subdistrict (249-83)					0		18,187	16,697	0		18,187	16,697
Iniskin Bay Subdistrict (249-85)					0		0	8,594			0	8,594
Kamishak Bay District total[c]	23,571	0	35,295	626	27,115	524	178,483	105,481	50,686	650	213,778	106,107

[a] Harvests include all commercial and subsistence harvests.

[b] Unexpanded aerial or ground survey index count, or weir count. Also includes non-index streams.

[c] Additional non-index streams where salmon were observed are also included. Therefore cumulative escapement values in this table are greater than escapement indices that historically contribute to SEG ranges as shown for index streams only.

Appendix D11.–Estimated pink, chum and sockeye salmon escapements in thousands of fish for the major spawning systems in the Kamishak Bay District of the Lower Cook Inlet Area, 1975–2015.

	Pink salmon						
Year	Big Kamishak River	Little Kamishak River	Amakdedori Creek	Bruin Bay River	Sunday Creek	Brown's Peak Creek	Total of index streams
1975			5.0	20.0	20.0	10.0	50.0
1976	8.0	6.0		13.5	0.3	1.2	15.0
1977				60.0	9.0	13.0	82.0
1978	12.0	0.4	0.9	33.0	0.2	0.9	34.1
1979	10.0	3.5	6.0	200.0	12.0	15.0	227.0
1980	2.0	0.6	3.8	400.0	5.2	2.3	407.5
1981			1.5	95.0	14.2	17.7	126.9
1982	5.0	2.2	6.3	75.0	12.0	3.5	90.5
1983			0.2	4.0	4.7	1.7	10.4
1984		0.1		110.0	12.0	6.8	128.8
1985		1.6	1.0	3.5	11.4	7.0	21.9
1986	5.0	2.0	6.0	1,200.0	109.0	28.0	1,337.0
1987			0.4	24.0	29.7	40.2	93.9
1988	1.0	0.5	1.0	29.0	18.0	17.0	64.0
1989			2.0	350.0	103.0	120.0	573.0
1990			0.1	19.0	2.8	1.0	22.8
1991		0.9	0.7	74.9	20.9	16.7	112.5
1992			3.2	3.2	2.9	5.0	11.1
1993			1.7	86.4	57.8	41.6	185.8
1994			0.7	5.9	3.1	1.3	10.3
1995			4.5	307.3	95.9	96.7	499.9
1996	16.7			27.5	2.8	2.4	32.7
1997			1.7	162.7	52.5	42.3	257.5
1998	2.0			134.9	24.0	7.9	166.8
1999	5.7	4.2		2.9	5.3	2.6	10.8
2000	14.9	13.0		176.7	39.8	9.8	226.3
2001			6.0	18.5	26.2	19.2	63.9
2002		3.4	0.9	1,598.5	81.9	27.5	1,707.9
2003				138.7	346.7	285.0	770.4
2004		3.0		66.5	31.5	18.1	116.1
2005				98.3	116.2	61.0	275.5
2006		77.0		515.1	70.0	35.7	620.9
2007		5.1		350.4	394.8	249.4	994.6
2008		34.3		150.7	20.4	17.4	188.5
2009	10.4	0.8	9.2	1,067.4	106.3	63.6	1,237.3
2010			0.7	40.3	6.6	3.1	50.0
2011	9.3	13.1	4.2	4.5	0.8	2.0	7.4
2012	2.7	9.3	3.0	31.8	1.3	2.8	35.9
2013		0.5	8.0	15.0	6.0	4.1	25.1
2014		4.8	2.4	121.6	7.7	4.0	133.3
10-yr avg	7.4	18.1	4.6	239.5	73.0	44.3	356.8
2015	0.7	1.5	24.9	40.8	60.4	29.1	130.3

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	Chum salmon							
Year	Big Kamishak River	Little Kamishak River	McNeil River	Bruin Bay	Ursus Cove[a]	Cottonwood Creek	Iniskin Bay	Total of index streams
1975	1.1	1.9	1.5	1.5	5.0	8.0	7.0	26.0
1976	24.0	21.0	10.0	4.0	6.0	5.0	13.5	83.5
1977			20.0	18.0	9.3	10.0	4.4	61.7
1978	23.0	30.0	45.0	4.0	9.7	12.5	11.4	135.6
1979	15.0	15.0	8.0	15.0	5.0	2.5	4.0	64.5
1980	10.0	13.0	8.0	15.0	8.0	4.2	9.3	67.5
1981	11.0	6.0	30.0	10.0	10.0	9.0	9.0	85.0
1982	25.0	18.0	25.0	10.0	9.0	7.0	12.8	106.8
1983	25.0	25.0	48.0	5.5	7.7	8.3	12.0	131.5
1984	19.0	12.0	21.0	8.0	7.0	6.5	9.8	83.3
1985	6.0	4.5	9.5	2.0	3.0	3.0	5.0	33.0
1986	24.0	17.0	22.0	1.0	11.0	11.0	5.9	91.9
1987	12.0	18.0	26.0	10.0	9.9	17.0	9.1	102.0
1988	15.0	13.0	49.0	7.0	9.4	16.0	9.5	118.9
1989	30.0	12.0	34.0	8.0	6.3	8.0	5.9	104.2
1990	2.5	7.9	8.0	4.0	3.8	4.3	8.4	38.9
1991	8.7	8.4	10.0	6.0	1.3	7.7	8.3	50.4
1992	4.5	7.1	19.2	8.5	1.7	6.1	3.4	50.5
1993	9.1	6.3	17.4	6.0	7.7	12.0	8.0	66.5
1994		9.0	15.0	6.1	6.2	10.2	18.9	65.4
1995			14.4	6.6	11.1	15.4	22.7	70.2
1996	11.1	4.4	16.1	14.9	7.6	16.1	7.8	78.0
1997			27.5	8.8	6.2	5.6	15.4	63.5
1998	7.1	9.7	23.5	9.4	4.6	2.3	18.6	75.2
1999	11.6	8.9	13.5	10.3	21.0	12.0	23.3	100.6
2000	45.3	26.9	18.6	13.6	41.7	24.1	23.6	193.8
2001	36.3	27.2	17.0	21.8	37.7	15.9	13.8	169.7
2002	17.4	16.4	11.3	9.9	17.1	42.2	28.5	142.8
2003	16.4	22.2	23.3	13.1	30.4	72.8	18.7	196.9
2004	57.9	45.3	11.2	15.9	16.0	16.3	22.0	184.6
2005	25.7	12.1	17.4	21.2	12.2	17.9	16.5	123.0
2006	58.2	42.9	28.2	7.0	15.7	13.2	15.6	180.8
2007	14.8	15.6	13.6	3.1	20.9	12.5	5.3	85.8
2008	4.5	21.3	9.8	17.5	6.5	11.6	20.0	91.2
2009	15.0	4.2	18.8	10.1	12.9	19.4	30.8	111.2
2010		18.4	10.5	6.2	11.8	15.8	19.3	82.0
2011	5.5	19.3	31.0	3.5	10.6	4.7	16.5	91.2
2012	12.4	30.3	9.8	16.1	2.8	2.8	3.0	77.2
2013	3.3	6.7	9.5	8.8	10.3	5.2	5.9	49.8
2014	5.7	15.1	17.5	3.6	5.3	7.1	13.0	67.2
10-yr avg	16.1	18.6	16.6	9.7	10.9	11.0	14.6	97.6
2015	7.0	14.4	20.5	11.0	14.8	17.0	7.5	92.1

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	Sockeye salmon				
Year	Mikfik Lake	Chenik Lake	Amakdedori Creek	Kamishak Rivers	Total of index streams
1975	6.0	0.1	0.8		6.9
1976	10.0	0.9	1.6		12.5
1977	9.8	0.2	2.6		12.6
1978	12.0	0.1	2.6	1.0	15.7
1979	6.0	0.0	1.0	0.4	7.4
1980	6.5	3.5	2.6	0.1	12.7
1981	5.3	2.5	1.9	0.8	10.5
1982	35.0	8.0	3.2	10.0	56.2
1983	7.0	11.0	1.2	5.0	24.2
1984	6.0	13.0	1.4	2.5	22.9
1985	20.0	3.5	0.9	0.8	25.2
1986	7.8	7.0	1.9	5.0	21.7
1987	9.0	10.0	1.1		20.1
1988	10.1	9.0	0.4	0.5	20.0
1989	11.5	12.0	1.2	0.5	25.2
1990	8.8	17.0	1.8	0.2	27.8
1991	9.7	10.2 [b]	1.9	0.7	22.5
1992	7.8	9.3 [b]	1.9	4.9	23.9
1993	6.4	4.0 [b]	2.0		12.4
1994	9.5	0.8 [b]	0.8		11.1
1995	10.1	1.1 [b]	2.4		13.6
1996	6.5	3.0 [b]	2.9	1.8	14.2
1997	8.5	2.3 [b]	1.5		12.3
1998	12.6	1.9	4.1		18.6
1999	15.7	2.9	8.8	2.2	29.6
2000	10.9	4.8	3.3	1.5	20.5
2001	5.4	0.3	2.7	2.5	10.9
2002	16.7	4.7	3.2	3.3	27.9
2003	12.8	13.8	11.8	2.6	41.0
2004	14.0	17.0	7.2	0.8	39.0
2005	6.0	14.5 [c]	1.7	3.9	26.1
2006	17.7	13.9 [c]	0.3		31.9
2007	11.2	18.3 [c]	3.8	0.1	33.5
2008	5.6	11.3 [c]	3.2	0.2	20.3
2009	15.1	15.3 [c]	2.2	0.1	32.7
2010	11.3	17.3 [c]	1.2	0.1	29.9
2011	0.4	10.3 [c]	3.4	1.6	15.8
2012	3.1	16.5 [c]	0.8	1.1	21.5
2013	4.0	11.3 [c]	1.5	0.1	17.0
2014	18.1	17.8 [c]	4.3	0.2	40.3
Previous 10-yr avg	9.2	14.7	2.2	0.8	27.0
2015	3.5	19.1 [c]	2.9	1.2	26.7

Note: Unless otherwise noted, estimated escapements are derived from aerial surveys.

[a] "Ursus Cove" is the sum of Ursus Lagoon RH Creek and Ursus Lagoon Creek.

[b] Escapement derived from weir counts.

[c] Escapement derived from a combination of weir, video counts, and/or aerial counts.

APPENDIX E: SUBSISTENCE, PERSONAL USE AND HOMEPACK HARVESTS

Appendix E1.–Subsistence net and rod and reel salmon harvest in numbers of fish by species for the village of Port Graham, Lower Cook Inlet, 1979–2015.

		Reported Harvest						
Year	Households Reporting	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Dolly Varden	Total salmon
1979		222	777	506	1,170	494	0	3,169
1980								
1981		116	1,694	625	298	150	0	2,883
1982	34	107	820	602	858	183	15	2,570
1983	30	67	1,026	431	174	95	1	1,793
1984	23	27	2,037	125	269	6	0	2,464
1985	23	141	481	91	32	24	0	769
1986	27	123	274	179	237	13	12	826
1987	33	20	219	575	230	70	20	1,114
1988	27	96	411	459	542	75	18	1,583
1989	20	51	94	460	640	58	159	1,303
1990	32	211	524	803	1,013	102	666	2,653
1991	33	155	58	541	1,494	185	257	2,433
1992	36	129	98	475	745	178	398	1,625
1993	31	253	154	346	997	135	214	1,885
1994	42	273	260	859	866	461	1,133	2,719
1995 [a]	49	486	379	369	786	376	66	2,396
1996	48	255	684	341	312	251	161	1,843
1997	25	202	324	203	497	152	57	1,378
1998	16	164	271	243	459	240	20	1,377
1999	21	383	382	427	150	214	64	1,556
2000	35	241	784	252	355	483	0	2,115
2001	15	104	176	57	20	32	0	389
2002	23	250	417	90	150	74	0	981
2003	16	321	1,991	425	266	150	87	3,153
2004 [b]	50	283	572	514	363	130	0	1,862
2005	46	265	192	51	349	52	0	909
2006	14	192	31	1	26	24	207	274
2007	24	92	552	0	74	63	12	781
2008 [c]	18	77	550	0	36	22	37	685
2009	25	33	1,982	132	49	69	40	2,265
2010	16	30	116	124	24	37	0	331
2011	15	35	684	107	132	150	0	1,108
2012	7	24	661	14	282	26	0	1,007
2013	10	15	1,034	66	27	86	0	1,228
2014	7	19	1,089	166	410	922	0	2,606
Previous 10-year Average	18	78	689	66	141	145	42	1,119
2015	4	36	842	47	539	872	0	2,336

Source: Data on file with ADF&G, Division of Subsistence; gear types include set gillnet, rod/reel, and handline.

[a] Salmon totals and permits include 3 reports from nonresidents of Port Graham Village.

[b] ADF&G Division of Subsistence estimate.

[c] Harvest reports for 2008 incomplete.

Appendix E2.–Subsistence net and rod and reel salmon harvest in numbers of fish by species for the village of Nanwalek (formerly English Bay), Lower Cook Inlet, 1978–2015.

Year	Households reporting	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Dolly Varden	Total salmon
1978								
1979		137	1,545	2,437	2,186	305	0	6,610
1980								
1981		24	1,075	314	621	19	0	2,053
1982	27	17	1,534	891	2,074	37	75	4,553
1983	16	0	1,454	40	13	0	0	1,507
1984	1	18	1,225	385	404	0	0	2,032
1985	1	5	696	530	313	2	0	1,546
1986	17	2	373	302	825	1	144	1,503
1987	22	1	682	339	484	44	20	1,550
1988	21	8	610	385	1,214	35	70	2,252
1989	24	0	63	695	855	16	523	1,629
1990	28	54	638	614	1,947	49	2,833	3,302
1991	30	8	630	1,512	3,093	36	848	5,279
1992	35	71	437	675	676	58	1,331	1,917
1993	25	24	994	567	1,666	122	577	3,373
1994	28	27	570	511	1,113	43	473	2,264
1995	38	99	1,416	169	487	0	465	2,171
1996	27	55	1,060	598	437	25	221	2,175
1997	1	0	1	0	14	1	0	16
1998	3	5	18	0	0	0	31	23
1999	32	102	2,775	1,320	1,873	890	631	6,960
2000	32	18	3,880	1,579	1,251	471		7,199
2001	34	29	909	1,238	1,434	196		3,806
2002	56	96	10,203	967	1,681	414	230	13,361
2003	35	144	3,221	513	1,306	381	102	5,565
2004	24	52	2,968	842	1,277	95	291	5,234
2005	23	27	1,934	1,142	1,259	128	605	4,490
2006	39	111	2,215	1,179	2,038	207	679	5,750
2007								
2008	53	46	3,615	1,345	2,646	76	315	7,728
2009	19	11	1,515	396	865	71	420	2,858
2010	20	0	1,514	1,324	1,030	271	365	4,139
2011	41	18	5,009	1,381	2,499	362		9,269
2012[a]	1	0	300	400	200	5	50	905
2013[a]	4	2	3,854	2,619	383	811	500	7,669
2014[a]	3	3	377	0	4	143	0	527
Previous 10-yr average	23	24	2,259	1,087	1,214	230	367	4,815
2015[a]	1		35					35

Source: Data on file with ADF&G, Division of Subsistence; gear types include set gillnet, rod/reel, and handline.

[a] Limited reporting from Nanwalek residents in 2012 - 2015 may have resulted in a conservative estimate of harvest.

Appendix E3.–Salmon set gillnet harvest in numbers of fish by species and permit/effort information for the Seldovia area subsistence fishery, Lower Cook Inlet, 1997–2015.

	Permits				Reported harvest					
Year	Issued	Returned	Fished	Not Fished	Chinook	Sockeye	Coho	Pink	Chum	Total
Early Season: April–May[a]										
1997	19	16	12	4	44	19	0	0	0	63
1998	20	19	10	9	132	61	0	8	0	201
1999	16	15	12	3	150	130	0	0	38	318
2000	28	21	17	4	189	249	0	0	14	452
2001	19	17	14	3	134	124	0	0	0	258
2002	20	18	12	6	123	222	0	0	3	348
2003	19	13	10	3	67	210	0	1	54	332
2004	13	10	9	1	91	63	0	0	15	169
2005	15	13	4	9	46	0	0	0	0	46
2006	15	12	6	6	12	10	0	1	0	23
2007	15	12	5	7	19	27	0	0	0	46
2008	10	8	3	5	3	15	0	0	0	18
2009	6	5	1	4	14	0	0	0	0	14
2010	11	8	2	6	0	54	0	0	0	54
2011	4	2	1	1	0	49	0	0	0	49
2012	16	6	2	4	3	26	0	0	0	29
2013	7	5	4	1	1	93	0	0	0	93
2014	12	8	4	4	3	69	0	0	2	74
Prev 10-yr average	11	8	3	5	10	34	0	0	0	54
2015	6	4	4	0	16	70	0	4	0	90
Late Season: August[b]										
1997	1	1	0	1	0	0	0	0	0	0
1998	3	2	1	1	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0
2002	1	1	1	0	0	9	13	31	6	59
2003	1	1	1	0	0	10	1	12	1	24
2004	1	1	1	0	0	0	4	0	0	4
2005	3	2	2	0	0	70	13	93	12	188
2006	2	2	1	1	0	0	0	21	0	21
2007	4	4	3	1	0	24	9	80	27	140
2008	2	2	2	0	0	16	41	65	5	127
2009	12	9	8	1	0	78	10	44	14	146
2010	5	4	3	1	2	46	31	66	35	180
2011	3	2	1	1	0	6	0	10	0	16
2012	4	1	1	0	0	3	0	20	0	23
2013	5	3	3	0	1	5	1	45	10	62
2014	9	7	6	1	2	47	0	5	63	117
Prev 10-yr average	5	4	3	1	1	30	11	45	17	102
2015	2	2	0	2	0	0	0	0	0	0

Source: Data on file with ADF&G, Division of Subsistence; gear types include set gillnet, rod/reel, and handline.

[a] Early season dates in 1996 and 1997 from April 1 to May 20; subsequent years were from April 1 to May 30.

[b] Late season dates are restricted to the first 2 weekends in August.

Appendix E4.–Personal use/subsistence set gillnet salmon harvest in numbers of fish by species and effort, Southern District (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery), Lower Cook Inlet, 1975–2015.

	Permits				Reported harvest						
Year	Issued	Returned	Fished	Not fished	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
1975	292	276	221	55	4	47	1,960	632	61	95	2,799
1976	242	221	138	83	16	46	1,962	1,513	56	75	3,668
1977	197	179	137	42	12	46	2,216	639	119	84	3,116
1978	311	264	151	113	4	35	2,482	595	34	89	3,239
1979	437	401	238	163	6	37	2,118	2,251	41	130	4,583
1980	533	494	299	195	43	32	3,491	1,021	25	153 [a]	4,765
1981	403	383	283	100	15	73	4,370	718	68	0	5,244
1982	395	372	301	71	41	49	7,398	956	154	0	8,598
1983	344	328	210	118	5	17	2,701	305	44	2	3,074
1984	368	346	219	127	3	25	3,639	804	105	27	4,603
1985	328	302	205	97	5	49	3,317	138	34	3	3,546
1986	349	310	247	63	7	68	3,831	3,132	56	0	7,094
1987	363	339	250	89	5	50	3,979	279	61	0	4,374
1988	439	417	300	117	14	73	5,007	1,445	75	0	6,614
1989	477	453	333	120	41	156	7,219	883	53	49	8,401
1990	578	543	420	123	12	200	8,323	1,846	69	0	10,450
1991	472	459	295	164	8	47	4,931	366	23	0	5,375
1992	365	350	239	111	5	63	2,277	643	21	0	3,009
1993	326	317	215	102	6	44	1,992	463	18	0	2,523
1994	286	284	224	60	66	80	4,097	1,178	18	0	5,439
1995	235	232	178	54	118	108	2,916	343	7	0	3,492
1996	299	293	213	80	302	102	3,347	1,022	24	0	4,797
1997	276	264	186	78	384	191	1,817	257	12	0	2,661
1998	227	214	142	72	135	20	1,461	167	5	0	1,788
1999	146	141	111	30	276	119	1,803	168	3	0	2,369
2000	213	206	151	55	104	28	2,064	304	4	0	2,504
2001	154	148	112	34	86	27	1,579	150	16	0	1,858
2002	122	113	93	20	61	33	1,521	251	12	0	1,878
2003	104	96	72	24	17	57	1,071	170	9	0	1,324
2004	91	83	65	18	7	56	1,554	172	16	0	1,805
2005	108	96	69	27	8	57	833	296	13	0	1,207
2006	89	82	62	20	15	41	1,295	221	5	0	1,577
2007	141	133	95	38	10	113	1,431	641	34	0	2,229
2008	146	142	107	35	2	92	1,844	687	14	0	2,639
2009	145	142	90	52	9	273	646	101	4	1	1,034
2010	128	122	82	41	14	149	875	251	17	0	1,306
2011	119	112	81	31	15	223	806	145	5	3	1,197
2012	98	95	69	26	5	137	1,471	275	6	0	1,894
2013	123	118	89	29	9	122	1,732	135	3	0	2,001
2014	160	154	115	39	13	310	2,273	20	178	0	2,794
Prev. 10-year Avg	126	120	86	34	10	152	1,321	277	28	0	1,788
2015	136	131	91	40	10	509	1,373	152	22	6	2,072

Note: Figures after 1991 include information from both returned permits and inseason oral reports.

[a] Steelhead trout *Oncorhynchus mykiss*.

Appendix E5.–Summary of personal use/subsistence salmon gillnet permit holders in the Southern District of Lower Cook Inlet (excluding the Port Graham/Nanwalek subsistence fishery and the Seldovia subsistence fishery) by area of residence, 1990–2015.

	Homer/ Fritz Cr.		Anchorage Area[a]		Halibut Cove		Anchor Pt./ Ninilchik		Seldovia		Pt. Graham/ Nanwalek		Kenai/ Soldotna		Other		Total Permits
Year	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Issued
1990	441	76.3	36	6.2	5	0.9	65	11.2	12	2.1	0	0.0	6	1.0	13	2.2	578
1991	384	81.4	27	5.7	8	1.7	41	8.7	6	1.3	0	0.0	4	0.8	2	0.4	472
1992	302	82.7	21	5.8	5	1.4	32	8.8	3	0.8	0	0.0	1	0.3	1	0.3	365
1993	242	74.2	25	7.7	5	1.5	44	13.5	3	0.9	0	0.0	5	1.5	2	0.6	326
1994	235	82.2	20	7.0	4	1.4	21	7.3	1	0.3	0	0.0	1	0.3	4	1.4	286
1995	191	81.3	15	6.4	7	3.0	20	8.5	1	0.4	0	0.0	0	0.0	1	0.4	235
1996	241	80.6	16	5.4	7	2.3	26	8.7	3	1.0	1	0.3	2	0.7	3	1.0	299
1997	232	84.1	13	4.7	3	1.1	20	7.2	4	1.4	0	0.0	1	0.4	3	1.1	276
1998	175	77.1	18	7.9	2	0.9	24	10.6	5	2.2	0	0.0	2	0.9	1	0.4	227
1999	96	65.8	18	12.3	1	0.7	23	15.8	3	2.1	0	0.0	4	2.7	1	0.7	146
2000	168	78.9	15	7.0	2	0.9	21	9.9	4	1.9	0	0.0	1	0.5	2	0.9	213
2001	109	70.8	10	6.5	3	1.9	20	13.0	5	3.2	0	0.0	4	2.6	3	1.9	154
2002	85	70.2	7	5.8	3	2.5	14	11.6	6	5.0	0	0.0	5	4.1	1	0.8	121
2003	74	71.2	9	8.7	2	1.9	11	10.6	4	3.8	0	0.0	4	3.8	0	0.0	104
2004	70	76.9	9	9.9	2	2.2	7	7.7	2	2.2	0	0.0	1	1.1	0	0.0	91
2005	80	74.1	12	11.1	2	1.9	8	7.4	1	0.9	0	0.0	3	2.8	2	1.9	108
2006	74	84.1	6	6.8	1	1.1	4	4.5	0	0.0	0	0.0	2	2.3	1	1.1	88
2007	116	82.3	11	7.8	3	2.1	7	5.0	0	0.0	0	0.0	1	0.7	3	2.1	141
2008	121	82.9	3	2.1	2	1.4	13	8.9	2	1.4	0	0.0	3	2.1	2	1.4	146
2009	107	73.8	11	7.6	1	0.7	19	13.1	2	1.4	0	0.0	5	3.4	0	0.0	145
2010	103	80.5	8	6.3	1	0.8	9	7.0	2	1.6	0	0.0	5	3.9	0	0.0	128
2011	87	68.0	13	10.2	2	1.6	9	7.0	2	1.6	0	0.0	6	4.7	0	0.0	119
2012	75	76.5	7	7.1	1	1.0	10	10.2	0	0.0	0	0.0	5	5.1	0	0.0	98
2013	102	82.9	9	7.3	0	0.0	7	5.7	0	0.0	0	0.0	5	4.1	0	0.0	123
2014	125	78.1	13	8.1	1	0.6	11	6.9	1	0.6	0	0.0	8	5.0	1	0.6	160
Previous 10-year Average	99	78.3	9	7.4	2	1.1	10	7.6	1	0.7	0	0	4	3.4	1	0.7	125.6
2015	112	82.4	12	8.8	0	0.0	9	6.6	0	0.0	0	0.0	3	2.2	0	0.0	136

[a] After 1989, "Anchorage Area" includes Mat-Su Valley, Eagle River, Chugiak, and/or Fort Richardson.

Appendix E6.–Historical harvest and numbers of permits actively fished by area for the Southern District personal use coho salmon set gillnet fishery, 1981–2015.

	Troublesome Creek to tip of Homer Spit		East side of Homer Spit		Mud Bay to Fritz Creek		Fritz Creek to Swift Creek		Bear Cove to Neptune Bay		Neptune Bay to Little Tutka Bay	
Year	Permits	Coho	Permits	Coho	Permits	Coho	Permits	Coho	Permits	Coho	Permits	Coho
1981		68		419		1,239		2,382		259		3
1982		118		471		3,307		3,260		237		5
1983		18		126		944		1,319		202		92
1984		25		274		1,686		1,517		102		35
1985		119		87		1,218		1,681		261		51
1986		36		490		1,415		1,651		166		73
1987		101		590		1,103		1,953		180		52
1988		78		472		1,248		2,769		384		56
1989		234		1,259		1,591		3,455		616		74
1990		287		2,117		1,748		3,478		465		228
1991		328		1,585		798		1,873		245		51
1992		37		938		464		719		116		18
1993		86		881		295		627		74		29
1994		211		1,413		596		1,558		314		5
1995		414		1,124		372		769		202		35
1996	16	220	85	1,871	39	364	38	603	32	272	3	17
1997	19	149	81	1,294	36	133	32	134	13	83	5	24
1998	10	86	77	1,062	29	162	10	39	13	75	3	37
1999	4	25	67	1,225	11	123	4	43	16	286	9	101
2000	11	210	84	1,372	18	169	15	126	16	120	7	67
2001	12	94	55	920	10	90	8	185	19	189	10	101
2002	11	212	38	624	13	99	8	195	13	201	10	190
2003	7	81	29	627	10	57	7	43	12	135	7	128
2004	2	75	23	610	8	131	9	228	15	365	8	145
2005	4	23	27	305	4	43	8	126	16	190	10	146
2006	1	20	20	388	9	179	9	248	18	375	5	85
2007	0	0	24	179	11	153	32	885	20	170	8	44
2008	1	28	23	322	30	368	25	776	16	259	12	91
2009	5	29	12	39	15	52	32	310	18	187	8	29
2010	0	0	15	118	18	65	38	466	28	194	13	32
2011	3	31	15	54	10	49	44	536	27	103	14	33
2012	3	0	11	72	13	32	42	1,202	19	140	7	25
2014	5	52	27	591	22	574	37	780	13	194	10	82
Previous 10-year Average	2	18	19	211	15	165	32	658	20	203	10	65
2015	3	4	23	264	19	279	28	647	13	117	4	32

Appendix E7.–Salmon retained from the commercial harvest for personal use (homepack) by species and gear type from Lower Cook Inlet districts, 1996–2015.

	Permits		Chinook salmon		Sockeye salmon		Coho salmon		Pink salmon		Chum salmon	
Year	Set gillnet	Purse seine	Set gillnet	Purse seine	Set gillnet	Purse seine	Set gillnet	Purse seine	Set gillnet	Purse seine	Set gillnet	Purse seine
1996	1	2	6		19	32	5					
1997	1		1		11							
1998												
1999												
2000												
2001												
2002	1				20				100		3	
2003	2		3		2				750			
2004	1		2		38		10		9		4	
2005	3	1	7		79	10	38		121		8	
2006	4	3	9		58	169	73	17	72		13	7
2007	4		1		204		76		3			
2008	2				39		7		40		6	
2009	3		1		35		14		23		9	
2010	2		2		29		4				3	
2011	3	1	2	3	62		3		487		27	
2012	7		4		63		61		323		31	
2013	6		16		155		150		157		13	
2014	8	1	10		180	3	128		318		17	
Previous 10-year average	4	1	5	1	90	36	55	3	154		13	1
2015	16	4	60	7	158	120	417	62	99	302	28	

Note: No homepacks from commercial harvest reported before 1996. Regulations requiring reporting of fish harvested but not sold (5 AAC 39.130(c)(10)) on fish tickets established in 2008.

Appendix E8.–Lower Cook Inlet commercial homepack and personal use harvest by permit holder community of residence, 2015.

Commercial Homepack[a]

Community	Permits	Chinook	Sockeye	Coho	Pink	Chum	Total
Homer	9	44	137	363	310	2	856
Seldovia	10	23	121	116	89	26	375
Anchorage	1		20		2		22
USA balance	0	0	0	0	0	0	0
Total	20	67	278	479	401	28	1,253

Southern District Personal Use set gillnet fishery [b]

	Permits		Chinook	Sockeye	Coho	Pink	Chum	Total
Community	issued	returned	salmon	salmon	salmon	salmon	salmon	salmon
Anchorage area	11	10	2	55	130	39	4	230
Anchor Pt./Ninilchik/Nikolaevsk	10	10		56	55	7		118
Fairbanks	0	0						
Halibut Cove	0	0						
Homer	112	108	8	366	1,176	99	15	1,664
Kenai/Soldotna	3	3		32	12	7	3	54
Pt.Graham/Nanwalek	0	0						
Seldovia	0	0						
Total	136	131	10	509	1,373	152	22	2,066

Port Graham/Nanwalek subsistence fishery [c]

	Permits		Chinook	Sockeye	Coho	Pink	Chum	Total
Community	issued	returned	salmon	salmon	salmon	salmon	salmon	salmon
Anchorage area	2	2	2	132	2	35	102	273
Homer	0	0						
Nanwalek	9	1		34				34
Port Graham	18	2	34	710	45	504	770	2,063
Valdez	1	0						
Total	40	5	36	877	47	539	872	2,371

Seldovia subsistence fishery [d,e]

	Permits		Chinook	Sockeye	Coho	Pink	Chum	Total
Community	issued	returned	salmon	salmon	salmon	salmon	salmon	salmon
Anchorage area	0	0						
Homer	0	0						
Nanwalek	0	0						
Ninilchik	1	0						
Pt.Graham/Nanwalek	0	0						
Seldovia	7	6	16	70		4		90
Total	8	6	16	70		4		90

[a] Homepack fish as defined in 5 AAC 39.010 as finfish retained from lawfully taken commercial catch for that person's own use.

[b] As defined in 5 AAC 77.549 *Personal Use Coho Salmon Fishery Management Plan.*

[c] Defined as subsistence harvest from the Port Graham and Nanwalek Sections of the Port Graham Subdistrict in the Southern District.

[d] Defined as subsistence harvest from the Seldovia Subdistrict in the Southern District.

[e] Includes harvests from both early and late season Seldovia subsistence fisheries.

APPENDIX F: HATCHERY PRODUCTION AND RETURNS

Appendix F1.–Summary of salmon runs to Lower Cook Inlet hatchery release sites, 2015.

Sockeye salmon

Hatchery or release site, (hatchery [a])	BY 2010 Release	BY 2011 Release	2015 Forecast Run	Estimated CPF[b] Contribution	Estimated Sales Harvest[c] Contribution	Broodstock & Unharvested Contribution	Estimated Total Run	2015 Eggs Collected
Bear Lake and Resurrection Bay, (TLH)	3,794,000	4,580,000	322,737	4,633	94,838	13,505	112,976	5,148,399
Hidden Lake, (TLH)	1,044,000	948,000	35,673	15,711	600	12,736	29,047	1,445,598
Leisure and Hazel lakes, (TLH)	2,659,000	3,314,000	27,944	23,477	0	36	23,513	0
Kirschner Lake, (TLH)	160,000	300,000	39,500	0	23,571	3,666	27,237	401,073
English Bay Lakes, (TLH)	203,300	213,000	1,696	unknown	0	6,416	unknown	0
Tutka Bay Lagoon, (TLH)[d]	371,300	511,000	48,160	45,582	32,455	6,769	84,806	740,610
Port Graham Hatchery, (TLH)	0	102,000	5,100	29	0	0	29	0
Total Sockeye Salmon	8,231,600	9,968,000	480,810	89,432	151,464	43,128	277,608	7,735,680

Coho salmon

Hatchery or release site, (hatchery)	BY 2012 Release	2015 Forecast Run	Estimated CPF Contribution	Estimated Sales Harvest Contribution	Broodstock & Unharvested Contribution	Estimated Total Run	Eggs Collected
Bear Lake and Resurrection Bay, (TLH)	460,000	10,094	NA	983	936	NA	575,260
Total Coho Salmon	460,000	10,094	NA	0	936	NA	575,260

Pink salmon

Hatchery or release site, (hatchery)	BY 2013 Release	2015 Forecast Run	Estimated CPF Contribution	Estimated Sales Harvest Contribution	Broodstock & Unharvested Contribution	Estimated Total Run	Eggs Collected
Tutka Bay Lagoon Hatchery (TBLH)	51,110,000	1,533,000	110,298	2,143,277	246,592	2,500,167	29,125,813
Port Graham hatchery site (TBLH)	188,000	2,820	0	0	0	0	2,247,953
Total Pink Salmon	51,298,000	1,535,820	110,298	2,143,277	246,592	2,500,167	31,373,766
Total-All Salmon			199,730	2,294,741	290,656	2,777,775	39,684,706

[a] TLH = Trail Lakes Hatchery, TBLH = Tutka Bay Lagoon Hatchery.

[b] Common Property Fisheries (CPF) include commercial, sport, personal use, and subsistence harvests.

[c] Hatchery cost recovery sales in number of fish.

[d] Includes hatchery donated fish. Tutka Bay Lagoon Hatchery has not produced sockeye salmon since 2004. Returns of this species are from remote releases from the Trail Lakes Hatchery. Sockeye salmon eggs collected at this facility were taken back to the Trail Lakes Hatchery for incubation.

Appendix F2.–Daily sockeye salmon sales and broodstock collection; sales and broodstock summary in numbers of fish for Cook Inlet Aquaculture Association, 2015.

			Sales Harvest[a]		Donated		Broodstock Harvest	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
5/26	Purse seine	Resurrection Bay	501	501				
5/27	Purse seine	Resurrection Bay	906	1,407				
5/28	Purse seine	Resurrection Bay	1,159	2,566				
5/29	Purse seine	Resurrection Bay	739	3,305				
5/30	Purse seine	Resurrection Bay	1,224	4,529				
5/31	Purse seine	Resurrection Bay	1,191	5,720				
6/1	Purse seine	Resurrection Bay	1,763	7,483				
6/2	Purse seine	Resurrection Bay	1,199	8,682				
6/3	Purse seine	Resurrection Bay	760	9,442				
6/5	Purse seine	Resurrection Bay	2,226	11,668				
6/6	Purse seine	Resurrection Bay	2,111	13,779				
6/7	Purse seine	Resurrection Bay	4,940	18,719				
6/8	Purse seine	Resurrection Bay	5,799	24,518				
6/9	Purse seine	Resurrection Bay	3,960	28,478				
6/11	Purse seine	Resurrection Bay	6,414	34,892				
6/12	Purse seine	Resurrection Bay	9,671	44,563				
6/13	Purse seine	Resurrection Bay	5,353	49,916				
6/14	Purse seine	Resurrection Bay	2,473	52,389				
6/15	Purse seine	Resurrection Bay	2,505	54,894				
6/16	Purse seine	Resurrection Bay	1,489	56,383				
6/17	Purse seine	Resurrection Bay	634	57,017				
6/12	Weir or beach seine	Bear Lake	382	382				
6/13	Weir or beach seine	Bear Lake	870	1,252				
6/14	Weir or beach seine	Bear Lake	1,118	2,370				
6/15	Weir or beach seine	Bear Lake	1,315	3,685				
6/16	Weir or beach seine	Bear Lake	1,873	5,558				
6/17	Weir or beach seine	Bear Lake	1,854	7,412				
6/18	Weir or beach seine	Bear Lake	2,170	9,582				
6/19	Weir or beach seine	Bear Lake	1,131	10,713				
6/20	Weir or beach seine	Bear Lake	2,101	12,814				
6/21	Weir or beach seine	Bear Lake	3,381	16,195				
6/22	Weir or beach seine	Bear Lake	599	16,794				
6/23	Weir or beach seine	Bear Lake	1,431	18,225				
6/24	Weir or beach seine	Bear Lake	1,047	19,272				
6/25	Weir or beach seine	Bear Lake	903	20,175				
6/26	Weir or beach seine	Bear Lake	3,530	23,705				
6/27	Weir or beach seine	Bear Lake	582	24,287				
6/28	Weir or beach seine	Bear Lake	1,361	25,648				
6/29	Weir or beach seine	Bear Lake	528	26,176				
6/30	Weir or beach seine	Bear Lake	691	26,867				
7/1	Weir or beach seine	Bear Lake	690	27,557				
7/2	Weir or beach seine	Bear Lake	896	28,453	20	20		
7/3	Weir or beach seine	Bear Lake	1,107	29,560	26	46		
7/5	Weir or beach seine	Bear Lake	1,559	31,119		46		
7/6	Weir or beach seine	Bear Lake	712	31,831		46		
7/7	Weir or beach seine	Bear Lake	693	32,524	7	53		

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			Sales Harvest[a]		Donated		Broodstock	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/8	Weir or beach seine	Bear Lake	489	33,013		53		
7/9	Weir or beach seine	Bear Lake	281	33,294		53		
7/10	Weir or beach seine	Bear Lake	693	33,987		53		
7/11	Weir or beach seine	Bear Lake	1,072	35,059	19	72		
7/12	Weir or beach seine	Bear Lake	234	35,293		72		
7/13	Weir or beach seine	Bear Lake	466	35,759		72		
7/14	Weir or beach seine	Bear Lake			206	278		
7/15	Weir or beach seine	Bear Lake			360	638		
7/16	Weir or beach seine	Bear Lake			366	1,004		
7/17	Weir or beach seine	Bear Lake			182	1,186		
7/18	Weir or beach seine	Bear Lake			30	1,216		
7/23	Weir or beach seine	Bear Lake			59	1,275		
7/24	Weir or beach seine	Bear Lake			111	1,386		
7/25	Weir or beach seine	Bear Lake			42	1,428		
7/26	Weir or beach seine	Bear Lake			65	1,493		
7/27	Weir or beach seine	Bear Lake				1,493	266	266
7/28	Weir or beach seine	Bear Lake			54	1,547	570	836
7/29	Weir or beach seine	Bear Lake			173	1,720	308	1,144
7/30	Weir or beach seine	Bear Lake			27	1,747	572	1,716
7/31	Weir or beach seine	Bear Lake			113	1,860	576	2,292
8/1	Weir or beach seine	Bear Lake			88	1,948	408	2,700
8/2	Weir or beach seine	Bear Lake			66	2,014	411	3,111
8/3	Weir or beach seine	Bear Lake			48	2,062	420	3,531
8/4	Weir or beach seine	Bear Lake				2,062	414	3,945
6/22	Purse seine	Tutka Bay					430	430
6/25	Purse seine	Tutka Bay					793	1,223
6/29	Purse seine	Tutka Bay					2,290	3,513
7/2	Purse seine	Tutka Bay	18	18			2,461	5,974
7/5	Purse seine	Tutka Bay	2,060	2,078			101	6,075
7/6	Purse seine	Tutka Bay	1,985	4,063				6,075
7/8	Purse seine	Tutka Bay	4,825	8,888			0	6,075
7/9	Purse seine	Tutka Bay	3,377	12,265				6,075
7/10	Purse seine	Tutka Bay	1,133	13,398				
7/13	Purse seine	Tutka Bay	1,592	14,990			0	6,075
7/14	Purse seine	Tutka Bay	1,576	16,566				6,075
7/15	Purse seine	Tutka Bay	767	17,333			129	6,204
7/16	Purse seine	Tutka Bay					217	6,421
7/17	Purse seine	Tutka Bay	5,064	22,397				6,421
7/18	Purse seine	Tutka Bay					120	6,541
7/19	Purse seine	Tutka Bay	2,015	24,412				6,541
7/21	Purse seine	Tutka Bay	438	24,850				6,541
7/23	Purse seine	Tutka Bay	2,951	27,801				6,541
7/24	Purse seine	Tutka Bay	1,118	28,919				6,541
7/25	Purse seine	Tutka Bay	500	29,419				6,541
7/26	Purse seine	Tutka Bay	926	30,345			228	6,769
7/27	Purse seine	Tutka Bay	84	30,429				6,769
7/28	Purse seine	Tutka Bay	1,765	32,194				6,769
8/1	Purse seine	Tutka Bay	261	32,455				6,769

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			Sales Harvest[a]		Donated		Broodstock	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/10	Purse seine	Kirschner Lake	12,988	12,988				
8/2	Purse seine	Kirschner Lake	10,583	23,571			1,666	1,666
9/2	Purse seine	Kirschner Lake		23,571			2,000	3,666
9/9	Beach seine	English Bay Lakes					0	0
9/15	Beach seine	English Bay Lakes					0	0
9/20	Beach seine	English Bay Lakes					0	0
9/16	weir or beach seine	Hidden Lake[b]					82	82
9/18	weir or beach seine	Hidden Lake[b]					82	164
9/21	weir or beach seine	Hidden Lake[b]					120	284

Hatchery escapement summary in numbers of fish[c]	
Donated fish (Harv code 37)	2,062
Raceway harvest (Harvest code 22)	0
Viable broodstock (spawned, eggs in incubators)	6,086
Unviable broodstock (green/over-ripe/bad)	140
Unspawned fish (e.g., excess males/females)	0
Holding mortalities (raceway, pen mortalities)	9,467
Estimated unharvested return	0
Total hatchery harvest	17,755

Sales summary	
Whole fish sales (Harv code 21)	148,802
Carcass sales (Harv code 22)	0
Total sales	148,802

[a] Source: ADF&G fish ticket database.

[b] CIAA projects conducted in Upper Cook Inlet.

[c] Data from CIAA (2015a-b) and ADF&G fish ticket database.

Appendix F3.–Daily pink salmon sales and broodstock collection; sales and broodstock summary in numbers of fish for Cook Inlet Aquaculture Association, 2015.

			Sales harvest[a]		Broodstock harvest[b]	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative
6/22	purse seine	Tutka Bay Lagoon			1,461	1,461
6/25	purse seine	Tutka Bay Lagoon			3,628	5,089
6/29	purse seine	Tutka Bay Lagoon			3,079	8,168
7/2	purse seine	Tutka Bay Lagoon	16,691	16,691	9,711	17,879
7/5	purse seine	Tutka Bay Lagoon	42,735	59,426	5,270	23,149
7/6	purse seine	Tutka Bay Lagoon	62,641	122,067		23,149
7/8	purse seine	Tutka Bay Lagoon	38,421	160,488	22,311	45,460
7/9	purse seine	Tutka Bay Lagoon	34,505	194,993		45,460
7/10	purse seine	Tutka Bay Lagoon	20,091	215,084		
7/12	purse seine	Tutka Bay Lagoon	38,600	253,684		45,460
7/13	purse seine	Tutka Bay Lagoon	38,978	292,662	6,952	52,412
7/14	purse seine	Tutka Bay Lagoon	201,719	494,381		52,412
7/15	purse seine	Tutka Bay Lagoon	14,919	509,300	8,309	60,721
7/16	purse seine	Tutka Bay Lagoon		509,300	3,535	64,256
7/17	purse seine	Tutka Bay Lagoon	191,779	701,079		64,256
7/18	purse seine	Tutka Bay Lagoon		701,079	6,203	70,459
7/19	purse seine	Tutka Bay Lagoon	98,034	799,113		70,459
7/21	purse seine	Tutka Bay Lagoon	48,240	847,353		70,459
7/23	purse seine	Tutka Bay Lagoon	190,745	1,038,098		70,459
7/24	purse seine	Tutka Bay Lagoon	67,907	1,106,005		70,459
7/25	purse seine	Tutka Bay Lagoon	110,431	1,216,436		70,459
7/26	purse seine	Tutka Bay Lagoon	101,540	1,317,976		70,459
7/27	purse seine	Tutka Bay Lagoon	11,897	1,329,873		70,459
7/28	purse seine	Tutka Bay Lagoon	133,175	1,463,048	6,549	77,008
8/1	purse seine	Tutka Bay Lagoon	52,266	1,515,314		77,008
8/2	purse seine	Tutka Bay Lagoon		1,515,314	11,000	88,008
8/7	purse seine	Tutka Bay Lagoon		1,515,314	13,000	101,008
8/8	purse seine	Tutka Bay Lagoon	74,317	1,589,631		101,008
8/9	purse seine	Tutka Bay Lagoon	226,777	1,816,408		101,008
8/10	purse seine	Tutka Bay Lagoon	90,427	1,906,835	13,000	114,008
8/16	purse seine	Tutka Bay Lagoon		1,906,835	17,000	131,008
8/17	purse seine	Tutka Bay Lagoon	158,151	2,064,986		131,008
8/19	purse seine	Tutka Bay Lagoon	22,038	2,087,024		131,008
8/20	purse seine	Tutka Bay Lagoon		2,087,024	11,000	142,008
9/1	purse seine	Tutka Bay Lagoon		2,087,024	23,000	165,008
7/10	purse seine	Kirschner Lake	121	121		
8/2	purse seine	Kirschner Lake	1,439	1,560		
7/27	purse seine	Port Graham			9,351[c]	9,351
7/29	purse seine	Port Graham			4,825[c]	14,176
7/30	purse seine	Port Graham			4,825[c]	19,001
8/5	purse seine	Port Graham			907[c]	19,908
9/9	purse seine	Port Graham			1,500[c]	21,408

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Hatchery escapement summary in numbers of fish	
Donated fish (Harv code 37)	0
Raceway harvest	0
Viable broodstock (spawned, eggs in incubators)	40,821
Unviable broodstock (green/over-ripe/bad)	13,784
Unspawned fish (e.g., excess males/females)	22,047
Holding mortalities (raceway, pen mortalities)	106,151
Estimated unharvested return	82,400
Total hatchery harvest	265,203

Sales summary	
Whole fish sales (Harv code 21)	2,088,584
Carcass sales (Harv code 22)	0
Total sales	2,088,584

[a] From ADF&G fish ticket database.

[b] Data from CIAA (2015 a-b).

[c] Broodstock harvested by common property permit holder. This is not included in total hatchery harvest.

Appendix F4.–Daily coho salmon sales and broodstock collection; sales and broodstock summary in numbers of fish for Cook Inlet Aquaculture Association, 2015.

			Sales harvest		Broodstock harvest		Weir donations[a]	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
6/26	Weir	Bear Creek	1	1				
7/13	Purse seine	Tutka Bay Lagoon	1	2				
7/15	Purse seine	Tutka Bay Lagoon	8	10				
7/19	Purse seine	Tutka Bay Lagoon	8	18				
7/21	Purse seine	Tutka Bay Lagoon	1	19				
7/23	Purse seine	Tutka Bay Lagoon	2	21				
7/24	Purse seine	Tutka Bay Lagoon	164	185				
7/26	Purse seine	Tutka Bay Lagoon	15	200				
9/22	Weir	Bear Creek			13	13		
9/23	Weir	Bear Creek			33	46		
9/24	Weir	Bear Creek			16	62		
9/25	Weir	Bear Creek			4	66		
9/26	Weir	Bear Creek			17	83		
9/27	Weir	Bear Creek			8	91		
9/28	Weir	Bear Creek			22	113		
9/29	Weir	Bear Creek			118	231		
9/30	Weir	Bear Creek			42	273	81	81
10/1	Weir	Bear Creek			1	274	67	148
10/2	Weir	Bear Creek			26	300	17	165
10/3	Weir	Bear Creek			20	320	128	293
10/4	Weir	Bear Creek			22	342	135	428
10/5	Weir	Bear Creek			5	347	78	506
10/6	Weir	Bear Creek			10	357	73	579
10/7	Weir	Bear Creek			67	424	106	685
10/8	Weir	Bear Creek			73	497	88	773
10/9	Weir	Bear Creek			72	569	83	856
10/10	Weir	Bear Creek			33	602	69	925
10/11	Weir	Bear Creek			22	624	49	974
10/12	Weir	Bear Creek			28	652	13	987
10/13	Weir	Bear Creek			12	664	21	1,008
10/14	Weir	Bear Creek			15	679	5	1,013
10/15	Weir	Bear Creek			32	711		1,013
10/16	Weir	Bear Creek			30	741		1,013
10/17	Weir	Bear Creek			12	753		1,013
10/18	Weir	Bear Creek			17	770		1,013
10/19	Weir	Bear Creek			4	774		1,013
10/20	Weir	Bear Creek			-69	705		1,013

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	Sales harvest		Broodstock harvest		Weir donations[a]	
	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
Hatchery escapement summary in numbers of fish[b]						
Donated fish (Harv code 37)						1,013
Raceway harvest (Harvest code 22)						0
Viable broodstock (spawned, eggs in incubators)						280
Unviable broodstock (green/over-ripe/bad)						4
Brood stock for ADF&G "Salmon in the classroom" project						219
Holding mortalities (raceway, pen mortalities)						202
Escapement for hatchery watershed						261
Total hatchery return						1,979
Sales and donation summary						
Whole fish sales (Harv code 21)						200
Carcass sale (Harv code 22)						0
Total sales						200

[a] Donated to public at weir by CIAA. Source: ADF&G fish ticket database.

[b] Sixty-nine fish were released into Bear Lake from the brood holding pen.

Appendix F5.–Historical harvest contributions, and total run of sockeye and coho salmon to Cook Inlet hatchery release sites, 1978–2015.

	Sockeye salmon					Coho salmon[a]			
Return Year	Hatchery contrib. to the CCPF	Hatchery contrib. to broodstock esc.	Hatchery contrib. to cost recov.	Hatchery donated	Total hatchery run	Hatchery contrib. to broodstock esc.	Hatchery contrib. to cost recov.	Hatchery donated	Total hatchery run
1978						100			100
1979	299,858	3,974			303,833	7,089			7,089
1980	638,058	30,927			668,985	6,376			6,376
1981	358,726	9,700			368,460				
1982	23,990	19,283			45,218				
1983	151,400	16,103			173,903				
1984	231,444	50,800			287,758	4,620			4,620
1985	415,493	179,400			608,252	5,335			5,335
1986	808,503	12,020			841,552	1,938			1,938
1987	521,349	34,600			572,648	300			300
1988	676,669	594			686,184				
1989	251,532	12,000	78,731		356,263				
1990	370,195	2,708	8,513		389,059		5,855		5,855
1991	479,910	86,650	3,604		590,136		6,035		6,035
1992	378,823	24,103	9,198		420,374	689	1,234		1,923
1993	459,756	38,231	37,620		551,457	678	7,199		7,877
1994	205,837	17,655	51,140		277,632	731	4,967		5,698
1995	260,844	6,010	63,404		344,048				
1996	348,846	5,455	76,272		445,157	608	723		1,331
1997	184,409	1,645	90,464		284,310	594	2,690		3,284
1998	110,659	3,561	81,889		211,166	780	9,905		10,685
1999	968,473	16,317	182,311		1,236,748	939	2,499		3,438
2000	216,149	17,681	94,666	13,690	356,263	976	5,370	5,146	11,492
2001	656,309	17,773	67,786	7,343	840,524	644	1,754	1,758	4,156
2002	754,609	19,744	85,830	1,364	966,783	1,044	2,352	1,436	4,832
2003	1,080,584	20,311	124,388	2,275	1,306,299	1,234	2,228	1,816	5,278
2004	1,112,259	11,167	29,943		1,251,938	972	1,224	1,215	3,411
2005	924,377	7,379	74,673	1,302	1,104,598	953	1,536	1,518	4,007
2006	382,433	14,600	77,590	784	514,373	754	600	1,511	2,865
2007	345,027	12,754	57,305	271	450,136	608			608
2008	134,226	7,658	88,836	201	245,704	525	350	402	1,277

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Appendix F5.–Page 2 of 2.

Return Year	Sockeye salmon					Coho salmon			
	Hatchery contrib. to the CCPF	Hatchery contrib. to broodstock esc.	Hatchery contrib. to cost recov.	Hatchery donated	Total hatchery run	Hatchery contrib. to broodstock esc.	Hatchery contrib. to cost recov.	Hatchery donated	Total hatchery run
2009	26,798	10,403	174,980	782	235,419	483	0	138	621
2010	78,645	10,214	69,833	465	194,834	452	0	220	672
2011	94,153	7,572	159,860	211	261,585	454	0	385	839
2012	0	12,035	114,593	254	126,628	578	0	321	899
2013	10,732	9,364	71,913	1,129	93,138	354	0	2,044	2,398
2014	8,374	10,318	172,400	1,671	192,763	383	0	671	1,054
Previous 10-yr avg	222,752	10,230	106,198	707	341,918	554	829	801	1,524
2015	4,633	15,693	143,544	2,062	165,932	486	1	727	1,214

Note: Harvest estimates of hatchery fish are from CIAA (2015 a-b).

[a] Historic return locations documented were Bear Lake, Fritz Creek, Halibut Cove Lagoon, Grouse Lake, Caribou Lake, Homer Spit, Resurrection Bay, and Seldovia. Releases of hatchery coho salmon in LCI began in 1966. No returns were documented prior to 1978. Includes CIAA Trail Lake Hatchery production and F&G Ship Creek Complex production.

Appendix F6.–Estimated historical harvest contributions and total runs of pink salmon to greater Cook Inlet hatchery release sites, 1978–2015.

Return year	Brood year	Fry release	Hatchery contribution to the CCPF	Hatchery contribution cost recovery	Hatchery contribution broodstock esc.	Hatchery donated	Total hatchery run	Estimated marine survival
1978	1976	318,280			3,700		3,700	1.16%
1979	1977	4,820,937			369,000		369,000	7.65%
1980	1978	9,243,717			315,000		315,000	3.41%
1981	1979	6,795,244	963,350		47,279		1,010,629	14.87%
1982	1980	10,268,753	181,400		4,400		185,800	1.81%
1983	1981	15,475,435	577,200				577,200	3.73%
1984	1982	15,232,750	230,000				230,000	1.51%
1985	1983	18,142,463	463,600				463,600	2.56%
1986	1984	23,818,500	380,135	55	50		380,240	1.60%
1987	1985	26,265,176	84,500				84,500	0.32%
1988	1986	8,278,967	836,000				836,000	10.10%
1989	1987	15,589,360	877,600				877,600	5.63%
1990	1988	36,977,190	167,400				167,400	0.45%
1991	1989	36,974,370	204,800				204,800	0.55%
1992	1990	30,602,576	97,577	276,000	69,000		442,577	1.45%
1993	1991	33,760,487	228,376	409,431	102,000		739,807	2.19%
1994	1992	48,700,000	604,037	959,064	153,966		1,717,067	3.53%
1995	1993	62,395,000	1,210,572	1,213,322	182,348		2,606,242	4.18%
1996	1994	63,358,000	19,510	423,306	140,152		582,968	0.92%
1997	1995	111,469,975	172,262	2,465,108	188,197		2,825,567	2.53%
1998	1996	89,918,000	507,850	787,538	175,468		1,470,856	1.64%
1999	1997	90,000,000	222,228	857,902	151,903		1,232,033	1.37%
2000	1998	64,797,691	8,580	1,043,705	269,808		1,322,093	2.04%
2001	1999	66,287,812	108,735	421,530	198,148		728,413	1.10%
2002	2000	126,635,207	9,791	1,041,529	252,777		1,304,097	1.03%
2003	2001	105,971,985	2,924	616,155	261,457	590	881,126	0.83%
2004	2002	125,167,000	1,523	2,459,189	117,222		2,577,934	2.06%
2005	2003	84,247,031	4,779	2,138,538	84,088		2,227,405	2.64%
2006	2004	26,567,983	5,000	246,781	27,741		279,522	1.05%
2007	2005	13,883,682		112,801			112,801	0.81%
2008	2006	13,282,049						

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Return year	Brood year	Fry release	Hatchery contribution to the CCPF [b]	Hatchery contribution cost recovery	Hatchery contribution broodstock esc.	Hatchery donated	Total hatchery return	Estimated marine survival
2009	2007	0	0	0	0		0	
2010	2008	0	0	0	0		0	
2011	2009	0	0	0	0		0	
2012	2010	0	0	0	0		0	
2013	2011	11,246,399	0	48,017	143,884	0	191,901	1.71%
2014	2012	18,603,000	0	32	28,739	0	28,771	0.15%
2015	2013	51,298,000	0	2,087,024	165,008	0	2,252,032	4.39%
2016	2014	14,474,300						

Note: Harvest estimates of hatchery fish are from CIAA (2015 a and b). CCPF = Commercial Common Property Fleet.

Appendix F7.–Tutka Bay Lagoon Hatchery salmon releases, 1977–2015.

Year released	Sockeye	Pink	Chum
1977	91,347 [a]	318,280 [a]	
1978	400,000 [a]	4,820,937 [a]	
1979		9,243,717 [a]	597,377 [a]
1980		6,795,244 [a]	
1981		10,268,753 [a]	7,992 [a]
1982		15,475,435 [a]	15,440 [a]
1983		15,232,750 [a]	1,117,745 [a]
1984		18,142,463 [a]	140,500 [a]
1985		23,537,000 [a]	25,977 [a]
1986		26,234,600 [a]	18,000 [a]
1987		8,240,700 [a]	445,700 [a]
1988		15,589,360 [a]	3,211,200 [a]
1989		36,977,190 [a]	2,164,393 [a]
1990	355,347 [a]	36,684,662 [a]	1,508,557 [a]
1991		30,000,000 [a]	
1992		31,950,000 [a]	
1993		48,700,000 [a]	
1994		61,100,000 [a]	
1995		63,000,000 [a]	
1996	75,000 [a]	105,000,000 [a]	
1997	245,000 [a]	89,000,000 [a]	
1998		90,000,000 [a]	
1999	100,000 [a]	60,132,000 [a]	
2000		65,120,870 [a]	
2001		99,336,410 [a]	
2002		99,371,000 [a]	
2003		67,967,000 [a]	
2004		47,964,360 [a]	
2005	[b]		
2006	[b]		
2007	[b]		
2008	[b]		
2009	[b]		
2010	[b]		
2011	[b]		
2012	[b]	11,246,399 [a]	
2013		18,603,000 [c]	
2014		51,298,000 [c]	
2015		12,274,240 [c]	

[a] No thermal marking.

[b] Sockeye salmon fry reared and thermally marked at Trail Lakes Hatchery, remote released as smolt at Tutka Bay Hatchery. Release numbers are included in releases for Trail Lakes Hatchery.

[c] Thermally marked.

Appendix F8.–Trail Lakes Hatchery salmon releases, 1983–2015.

Year released	Chinook	Sockeye	Coho	Chum
1983		2,310,751	1,039,673	
1984	406,755	1,236,864	1,283,815	
1985	398,586	1,805,792	1,538,361	455,809
1986	217,648	516,000	1,530,116	
1987	268,399	3,718,311	1,702,446	
1988	98,429	9,074,486	945,999	
1989		5,690,000	1,337,340	
1990		7,679,698	840,585	
1991		6,345,252 [a]	390,841	
1992		7,575,637 [a]	255,533	
1993		7,979,820 [a]	620,588	
1994		6,640,000 [a]	320,000	
1995		6,339,485 [a]	516,400	
1996		4,110,638 [a]	75,000	
1997		10,857,470 [a]	601,700	
1998		7,653,000 [a]	409,000	
1999		9,923,500 [a]	357,000	
2000		12,521,000 [a]	418,000 [b]	
2001		1,140,000 [a]	432,000 [b]	
2002		18,907,200 [a]	528,500 [b]	
2003		16,128,000 [a]	761,000 [b]	
2004		17,272,000 [a]	996,000 [b]	
2005		9,959,000 [a]	988,000 [b]	
2006		5,785,000 [a]	1,146,000 [b]	
2007		12,668,800 [a]	956,000 [b]	
2008		13,203,000 [a]	685,000 [b]	
2009		7,953,000 [a]	382,000 [b]	
2010		8,616,000 [a]	435,000 [b]	
2011		9,324,200 [a]	437,000 [b]	
2012		7,636,300 [a]	315,000 [b]	
2013		7,482,000 [a]	405,000 [b]	
2014		9,368,500 [a]	523,000 [b]	
Previous 10-year average		9,199,580	627,200	
2015		8,302,700 [a]	546,000 [b]	

[a] Thermal marking of sockeye salmon releases began in 1991 (BY 1990).

[b] Thermal marking of coho salmon releases began in 2000 (BY 1999).

Appendix F9.–Port Graham Hatchery salmon releases, 1991–2015.

Year	Sockeye	Coho	Pink
1991	84,757		255,000
1992	144,982		1,810,487
1993	194,700		
1994	830,159		1,295,000
1995			358,000
1996	292,134		6,469,975
1997	199,000	29,963	918,000
1998			
1999	918,348		4,617,362 [a]
2000	906,057		1,142,726 [a]
2001			27,298,797 [a]
2002			6,600,985 [a]
2003	694,647 [a]		57,200,000 [a]
2004	159,616 [a]		36,282,671 [a]
2005	203,000 [a]		26,567,983 [a]
2006	422,060 [a]		13,883,682 [a]
2007			13,282,049 [a]
2008			
2009	[b]		
2010			
2011			
2012			
2013	[b]		[c]
2014			[c]
2015			2,205,000 [a]

[a] Thermally marked.

[b] Remote releases from Trail Lakes Hatchery.

[c] Remote releases from Tutka Bay Lagoon Hatchery.

Appendix F10.–Ship Creek Hatchery Complex, (Fort Richardson, Elmendorf, and William Jack Hernandez combined) hatchery salmon fry releases, 1966–2015.

Year released	Chinook	Coho
1966	166,874	0
1967	538,356	38,200
1968	82,400	199,700
1969	95,900	264,000
1970	45,700	225,400
1971	217,390	92,343
1972	71,814	87,700
1973	166,134	683,685
1974	212,540	210,300
1975	91,100	281,800
1976	513,400	895,200
1977	351,952	775,803
1978	747,629	617,822
1979	1,088,542	1,471,899
1980	770,235	602,394
1981	391,950	1,553,864
1982		1,096,569
1983	578,441	424,542
1984	1,021,553	831,147
1985	1,727,379	660,854
1986	1,474,079	1,991,102
1987	869,520	731,202
1988	1,624,351	1,333,453
1989	3,008,315	1,970,126
1990	2,256,778	1,281,500
1991	1,693,355	1,215,136
1992	1,765,804	1,329,869
1993	1,863,391	1,194,994
1994	1,709,950	994,250
1995	1,695,164	1,121,768
1996	1,899,284	1,042,477
1997	1,801,410	1,136,845
1998	1,531,021	1,249,781
1999	1,340,334	1,113,016
2000	2,173,708	
2001	1,353,660	1,226,342
2002	1,080,114 [a]	1,273,443 [a]
2003	2,203,046 [a]	944,706 [a]
2004	1,958,790 [a]	1,221,608 [a]
2005	2,334,649 [a]	1,457,233 [a]
2006	1,922,667 [a]	1,235,317 [a]
2007	2,067,938 [a]	1,193,374 [a]
2008	1,309,790 [a]	989,853 [a]
2009	1,205,594 [a]	1,168,549 [a]
2010	2,006,157 [a]	1,336,861 [a]
2011	1,741,377 [a]	1,050,001 [a]
2012	1,853,150 [a]	968,716 [a]
2013	1,428,414 [a]	1,079,549 [a]
2014	2,102,235 [a]	603,017 [a]
Previous 10-year average	1,767,479	1,115,984
2015	2,280,631 [a]	1,107,838 [a]

[a] Thermally marked.

Appendix F11.–Historic releases of Chinook salmon from hatcheries to Lower Cook Inlet, 1972–2015.

	Southern District (241)					
Year	Halibut Cove Lagoon	Homer Spit	Tutka Bay	Kasitsna Bay	Seldovia Harbor	English Bay Lakes
1972				33,800		
1975	3,463					
1976	16,183		26,000			
1977	49,947					
1978	126,306					
1979	224,708					
1980	155,054					
1981	101,861					
1983	200,900					
1984	84,000	88,753				
1985	98,000	152,226				
1986	101,331	103,946				
1987	94,100	103,860			80,420	
1988	93,874	219,572			111,435	
1989	115,682	212,737			108,300	
1990	112,458	210,087			98,525	109,465
1991	92,363	190,915			91,592	
1992	117,850	353,255			112,935	
1993	100,228	312,292			106,497	
1994	98,872	320,836			107,246	
1995	37,577	339,074			116,165	
1996	97,729	312,289			118,274	
1997	78,133	318,706			103,757	
1998	65,893	289,830			69,461	
1999	79,221	222,781			74,057	
2000	83,277	219,984			68,114	
2001	106,719	208,062			102,793	
2002	106,279	190,026			83,045	
2003	106,844	206,292			107,521	
2004	103,771	168,743			88,682	
2005	112,521	220,822			114,984	
2006	117,549	224,053			113,974	
2007	54,560	226,972			54,276	
2008	58,674	212,141			54,464	
2009	35,065	164,234			44,487	
2010	111,134	213,503			114,421	
2011	107,338	219,787			103,382	
2012	110,253	221,547			95,800	
2013	60,666	216,292			63,311	
2014	85,856	206,254			74,259	
Previous 10-yr avg	85,362	212,561			83,336	
2015	102,718	210,543			72,233	

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	Eastern District (231)					
Year	Resurrection Bay	Alaska Sea-Life Center	Thumb Cove	Box Canyon	Lowell Creek	Spring Creek
1972						
1975						
1976				25,100		
1977				50,036		
1978				150,488		
1979				257,530		
1980						
1981						
1983				54,521		
1984			71,427		39,206	
1985	53,587				132,708	
1986					100,900	
1987					95,963	
1988	109,020				95,673	
1989	109,464				122,800	75,063
1990	112,831				216,220	
1991	373,165				93,200	
1992	261,803				108,390	
1993	193,742				104,870	
1994	165,596				104,477	
1995	220,146				95,256	
1996	300,000				115,000	
1997	203,932				219,355	
1998	205,133				101,992	
1999	88,066				85,502	
2000	212,873				109,461	
2001	113,147				114,748	
2002	100,314				93,296	
2003	109,976				110,331	
2004	126,280	30,066			89,388	
2005	211,549	218,759			100,088	
2006	303,217	120,000				
2007	117,842	115,716				
2008	142,469					
2009						
2010	110,671				109,779	
2011	223,881					
2012	219,743					
2013	141,550					
2014	183,464					
Previous 10-yr avg	183,821				104,934	
2015	298,542					

Appendix F12.–Historic releases of sockeye salmon from hatcheries to Lower Cook Inlet, 1976–2015.

	Southern District (241)						Outer District (232)
Year	Leisure Lake	Hazel Lake	Halibut Cove Lagoon	Tutka Bay Lagoon	English Bay Lakes	Port Graham Subdist.	Port Dick Lake
1976	1,085		7,777				
1977	91,347						
1978	83,422						
1979							
1980	532,650						
1981	1,094,713						
1982	1,527,876						
1983	2,113,239						
1984	2,110,000						
1985	2,018,000						
1986	2,250,303						
1987	2,022,000						704,900
1988	2,100,000	783,000					221,700
1989	2,000,000	1,000,000					430,000
1990	2,000,000	1,500,000			855,347		
1991	2,000,000	1,300,000			255,071	84,757	
1992	2,000,000	1,000,000			290,298	144,982	
1993	2,000,000	1,000,000			755,692		
1994					820,174	9,985	
1995	1,632,000	1,061,000					
1996	1,490,000	1,030,000		75,000	292,134		
1997	2,000,000	1,000,000		245,000	199,000		
1998	1,877,000	1,218,000					
1999	265,400	453,100		100,000	918,348		
2000	1,708,000	1,248,000			906,057		
2001	89,000						
2002	2,246,200	1,280,100					
2003	2,240,000	1,547,000			694,647		
2004	2,002,000	351,000			50,096	109,520	
2005	2,252,000	1,558,000		96,000	203,000		
2006	680,000			260,000		422,060	
2007	2,315,000	1,411,000		143,800			
2008	2,053,000	1,161,000		483,000	246,000		
2009	1,225,000	1,186,000		301,000		112,000	
2010	1,933,000	1,218,000		278,000	202,000		
2011	1,415,000	1,244,000		281,900	203,300		
2012	2,074,000	1,240,000		371,300	213,000		
2013	1,800,000	1,450,000		511,000	211,000	102,000	
2014	1,353,000	1,223,000		599,500	209,000		
2015	1,051,000	621,000		523,500	200,200		

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	Kamishak District (249)					Eastern District (231)		
Year	Chenik Lake	Paint River Lakes	Kirschner Lake	Bruin Lake	Ursus Lake	Bear Lake	Resurrection Bay	Grouse Lake
1976								
1977								
1978	98,082							
1979	256,525							
1980								
1981	1,096,718							
1982								
1983								
1984								
1985								
1986	839,000	820,026						
1987	1,005,000		866,700					
1988	2,601,000	2,207,300	521,000					
1989	3,500,000	2,000,000	250,000					
1990	3,250,000	2,000,000	250,000			2,577,962		
1991	2,100,000	750,000	250,000	250,000		1,604,922		
1992	2,750,000	750,000	250,000	250,000	250,000	1,482,489		
1993	1,400,000	750,000	250,000	250,000	250,000	1,810,261		
1994			208,000			170,000		570,000
1995	1,129,000	588,000	251,000	251,000	252,000	330,000		993,000
1996	951,000	500,000	250,000	250,000	250,000	780,638		217,605
1997			250,000			788,000		2,428,000
1998			234,000			772,000		1,514,000
1999			172,700			1,380,000		
2000			249,000			1,796,000		
2001						145,000		
2002		507,700	301,500			3,210,300		
2003			298,000			1,801,000		
2004			251,000			3,012,000		
2005			316,000			3,422,000		
2006						3,393,000		
2007			254,000			3,056,000		
2008			300,000			2,400,000	1,600,000	
2009						2,543,000	1,675,000	
2010			255,000			2,200,000	1,650,000	
2011			160,000			2,488,000	0	
2012			300,000			2,490,000	1,305,000	
2013						2,548,000	2,090,000	
2014			217,000			2,405,000	1,742,000	
2015			237,000			2,415,000	1,758,000	

Appendix F13.–Historical releases of coho salmon from hatcheries to Lower Cook Inlet, 1963–2015.

	Southern District, (241)						
	Caribou Lake	Fritz Creek	Halibut Cove Lagoon	Homer Spit	Kasitsna Bay Creek	Seldovia	Port Graham Subdistrict
1963							
1964							
1965							
1966							
1967							
1968							
1969							
1970							
1971							
1972					241,400		
1973			326,800				
1974			755,279				
1975	141,217		475,600				
1976	155,700		461,244			112,661	
1977			7,253			99,380	
1978		66,545					
1979		44,717	47,810	23,015			
1980		21,315					
1981		55,006					
1982							
1983							
1984	119,071					59,840	
1985	139,789	31,242				81,924	
1986	137,951					71,496	
1987	150,000					45,000	
1988	150,000			62,547		80,000	
1989				153,869			
1990	180,000			122,945		50,000	
1991	180,000			100,236		50,000	
1992	150,000			100,570			

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	Eastern District, (231)					
	Resurrection Bay	Seward Lagoon	Bear Lake	Grouse Lake	Lowell Creek	Misc. small releases combined	Total coho salmon released
1963			148,057				148,057
1964			43,000				43,000
1965			69,800				69,800
1966			360,100				360,100
1967			246,400				246,400
1968		42,400	0				42,400
1969		27,100	47,900				75,000
1970		38,600	6,400			3,200	45,000
1971		10,900	50,983				61,883
1972		66,500	606,100				914,000
1973		30,200	443,300				800,300
1974		100,000	450,800				1,306,079
1975		100,700	449,900				1,167,417
1976		100,600	260,200	35,200			1,125,605
1977		100,456	45,902	35,003			287,994
1978		148,999	254,394	53,455			523,393
1979		98,566	265,963	44,010			524,081
1980		100,757	150,011	50,286			322,369
1981		109,958	246,545	54,953			466,462
1982		53,970	227,800	13,238			295,008
1983		82,506	248,801				331,307
1984		67,722	220,000	53,100			519,733
1985		50,256	300,446	56,134			659,791
1986		212,812	445,693			53,607	867,952
1987		66,525	223,300		57,232	257,461	542,057
1988		118,741	347,155		63,806		822,249
1989		272,346	490,000		66,606		982,821
1990		145,619	426,911		63,733		989,208
1991		119,057	390,060		30,400	4,000	869,753
1992		154,219	255,533		59,492		719,814

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	Southern District, (241)						
	Caribou Lake	Fritz Creek	Halibut Cove Lagoon	Homer Spit	Kasitsna Bay Creek	Seldovia	Port Graham
1993	150,000			116,129			
1994	63,600			156,213			
1995				110,701			
1996				149,000			
1997				120,242			29,963
1998				148,410			30,000
1999				129,602			
2000				122,338			
2001				225,042			
2002				216,355			
2003				325,735			
2004				243,243			
2005				220,707			
2006				449,216		114,000	
2007				228,244		97,000	
2008				217,843		88,000	
2009				157,696			
2010				130,206			
2011				129,080			
2012				107,250			
2013				132,027			
2014				76,535			
10-year avg				184,880			
2015				122,963			

-continued-

	Eastern District, (231)					
	Resurrection Bay	Seward Lagoon	Bear Lake	Grouse Lake	Lowell Creek	Total coho salmon released
1993		159,091	620,588		64,361	1,110,169
1994		221,577	320,000		38,000	799,390
1995		133,700	516,400		50,698	811,499
1996		182,000	425,000		69,000	825,000
1997		144,112	601,700		61,687	957,704
1998		74,365	409,000		65,687	727,462
1999		109,142	357,000		62,580	658,324
2000		145,693	418,000		54,184	740,215
2001		124,703	432,000		125,618	907,363
2002		121,743	528,500		119,512	986,110
2003		123,718	658,000		124,225	1,231,678
2004	192,000	323,798	691,000		131,989	1,582,030
2005		132,229	893,000		132,276	1,378,212
2006		131,326	562,000		277,261	1,533,803
2007		132,811	758,000		130,892	1,346,947
2008		233,365	502,000			1,041,208
2009		91,979	338,000		91,833	679,508
2010		134,008	435,000		133,947	833,161
2011		255,252	437,000			821,332
2012		249,309	315,000			671,559
2013		216,444	405,000			753,471
2014		97,675	532,000			697,210
10-year avg		167,440	516,800		153,242	975,641
2015		279,546	546,000			948,509

Appendix F14.–Historical releases of pink salmon from hatcheries to greater Cook Inlet, 1975–2015.

	Tutka Bay	Halibut Cove Lagoon	Halibut Cove-bight	Homer Spit	Port Graham Subdistrict
1975		50,916			
1976					
1977		318,280			
1978	4,820,937				
1979	9,243,717				
1980	6,245,103				
1981	9,759,144				
1982	15,070,927				
1983	14,730,794				
1984	18,142,463				
1985	23,537,000				
1986	22,228,600	4,006,000			
1987	4,385,600	3,001,400		594,500	
1988	12,003,878	3,022,491		310,016	
1989	30,091,053	6,229,062		331,695	
1990	23,689,702	6,000,000		603,845	
1991	23,657,112	6,039,062		303,826	255,000
1992	25,700,000	5,950,000		300,000	1,810,487
1993	48,700,000				
1994	61,100,000				1,295,000
1995	63,000,000				358,000
1996	105,000,000				6,469,975
1997	89,000,000				918,000
1998	90,000,000				
1999	60,132,000				4,617,362
2000	65,120,870				1,142,726
2001	99,336,410				27,298,797
2002	99,371,000				6,600,985
2003	67,967,000				57,200,000
2004	47,964,360				36,282,671
2005					26,567,983
2006					13,883,682
2007					13,282,049
2008					
2009					
2010					
2011					
2012	8,100,399		3,146,000[a]		
2013	4,353,000				14,250,000
2014	51,110,000				188,000
2015	11,249,240				2,200,060

-continued-

	Alaska Sea-Life Center (Seward)	Paint River	Eklutna River	Ingram Creek	Total pink salmon released
1975					50,916
1976					
1977					318,280
1978					4,820,937
1979					9,243,717
1980		550,141			6,795,244
1981		509,609			10,268,753
1982		404,508			15,475,435
1983		501,956			15,232,750
1984					18,142,463
1985			281,500		23,818,500
1986			30,576		26,265,176
1987			38,267	259,200	8,278,967
1988				252,975	15,589,360
1989				325,380	36,977,190
1990				311,101	36,974,370
1991					30,602,576
1992					33,760,487
1993					48,700,000
1994					62,395,000
1995					63,358,000
1996					111,469,975
1997					89,918,000
1998					90,000,000
1999	48,329				64,797,691
2000	24,216				66,287,812
2001					126,635,207
2002					105,971,985
2003					125,167,000
2004					84,247,031
2005					26,567,983
2006					13,883,682
2007					13,282,049
2008					
2009					
2010					
2011					
2012					11,246,399
2013					18,603,000
2014					51,298,000
2015		1,025,000			14,474,300

[a] Released outside of Halibut Cove Lagoon, 1 kilometer east.

Appendix F15.–Harvest of sockeye salmon returning to China Poot and Neptune Bays in the Southern District of Lower Cook Inlet, 1979–2015.

Return year	Sport harvest [a]	Personal use dip net harvest [b]	Commercial harvest [c]	Hatchery cost recovery [d]	Unharvested [e]	Total run
1979	650		2,975			3,625
1980	1,000	953	13,007			14,960
1981	1,500		24,215			25,715
1982	450	1,320	1,044		1,430	4,244
1983	480	5,466	91,946		10	97,902
1984	500	1,794	117,438		500	120,232
1985	500	796	60,890		920	63,106
1986	100	1,815	15,031		200	17,146
1987	200	1,231	61,453			62,884
1988	500	1,910	90,544		470	93,424
1989	1,000	5,416	84,082			90,498
1990	500	5,835	66,549			72,884
1991	1,000	1,528	142,560			145,088
1992	300	3,468	82,455	7,336		93,559
1993	400	4,551	131,367			136,318
1994	500	5,715	47,494	3,025		56,734
1995	1,000	8,605	132,892	12,497	450	155,444
1996	1,000	4,773	269,553	14,235	441	290,002
1997	650	4,773	121,184		1,130	127,737
1998	640	4,773	143,350	20,579	380	169,722
1999	640	4,773	187,207	16,188	522	209,330
2000	640	4,773	77,462	18,103	256	101,234
2001	640	4,773	99,866	27,037	57	132,373
2002	640	4,773	114,639	29,517	51	149,620
2003	640	4,773	391,768	35,557	121	432,859
2004	640	4,773	21,621	12,991	448	40,473
2005	640	4,773	65,333	29,737	1	100,484
2006	640	4,773	52,020	23,283	820	81,536
2007	640	4,773	61,193	22,586	501	89,693
2008	640	4,773	62,675	1,907	103	70,098
2009	640	4,773		205	223	5,841
2010	640	4,773		1,007	45	6,465
2011	640	4,773	9,945		18	15,376
2012	640	4,773	5,559	11,938	45	22,955
2013	640	4,773	15,554	8,755	13	29,735
2014	640	4,773	7,280	0	366	13,059
2015	640	4,773	18,064	0	36	23,513

[a] Sport harvest figures for 1997–2014 represent the estimated previous 10-year average.

[b] Personal use harvest data for 1979–1981 from permits issued from the Homer office. Data from 1983 to 1995 is from historical sport fish harvest reports (e.g., Mills 1984). Data from 1996 to current is an average of the last 5 years that the data were collected specifically for this fishery.

[c] The final commercial harvest figures are the total common property seine harvest in the Southern District except for 1999, 2000, and 2002, which only include harvests east of the Tutka District due to returning Tutka hatchery sockeye salmon in those years.

[d] From cost recovery conducted in China Poot and Neptune bays.

[e] Unharvested fish are the total count by ADF&G ground survey staff of sockeye salmon remaining in China Poot Creek.

Appendix F16.–Commercial harvest and escapement of sockeye salmon at Chenik Lake in the Kamishak Bay District of Lower Cook Inlet, 1976–2015.

Return year	Commercial harvest	Cost recovery	Escapement [a]	Total run
1976	[b]		900	900
1977	[b]		200	200
1978	[b]		100	100
1979	[b]		[c]	[c]
1980	[b]		3,500	3,500
1981	[b]		2,500	2,500
1982	[b]		8,000	8,000
1983	2,800		11,000	13,800
1984	16,500		13,000	29,500
1985	10,624		3,500	14,124
1986	111,348		7,000	118,348
1987	97,411		10,000	107,411
1988	161,936		9,000	170,936
1989	38,905		12,000	50,905
1990	70,347		17,000	87,347
1991	51,773		10,189	61,962
1992	5,609	8,769	9,269	14,878
1993	19,988		4,000	23,988
1994	[b]		808	808
1995	[b]		1,086	1,086
1996	[b]		2,990	2,990
1997	[b]		2,338	2,338
1998	[b]		1,880	1,880
1999	[b]		2,850	2,850
2000	[b]		4,800	4,800
2001	[b]		250	250
2002	[b]		4,650	4,650
2003	[b]		13,825	13,825
2004	33,177		17,000	50,177
2005	47,013		14,507 [d]	61,520
2006	11,783		13,868 [d]	25,651
2007	161,630		18,230 [d]	179,860
2008	171,255		11,284 [d]	182,539
2009	65,727		15,264 [d]	80,991
2010	5,471		17,312 [d]	22,783
2011	82,826		10,330 [d]	93,156
2012	55,255		16,505 [d]	71,760
2013	33,154		11,333 [d]	44,487
2014	7,241		17,774 [d]	25,015
2015	0		19,073 [d]	19,073

[a] Estimated from aerial surveys between 1976–1990 and 1998–present, weir counts between 1991 and 1997, unless otherwise noted.

[b] Closed to fishing.

[c] No data.

[d] Estimated from a combination of weir, video counts, and/or aerial counts.

Appendix F17.–Commercial harvest of sockeye salmon at Kirschner Lake in the Kamishak Bay District of Lower Cook Inlet, 1989–2015.

Return year	Common property commercial harvest	Cost recovery	Broodstock	Unharvested [a]	Total run
1989	190				190
1990	14,465				14,465
1991	42,654				42,654
1992	40,043				40,043
1993	36,322				36,322
1994	14,465	16,787			31,252
1995	8,772	5,350			14,122
1996	18,093	13,511			31,604
1997	2,842	6,125			8,967
1998	8,112	19,390			27,502
1999	22,256	17,504			39,760
2000	10,236	21,391			31,627
2001	9,198	29,740			38,938
2002		32,492			32,492
2003	11,671	38,741			50,412
2004		16,372			16,372
2005		14,969			14,969
2006	24,130	26,310			50,440
2007	7,725	27,719			35,444
2008		11,588			11,588
2009		18,771			18,771
2010		8,858			8,858
2011	12,732			210	12,942
2012		1,260		1,300	2,560
2013		8,288			8,288
2014	3,068	16,555			19,623
2015		23,571	3,666		27,237

[a] A barrier falls at the outlet of Kirschner Lake immediately above the intertidal zone precludes any escapement from entering this lake.

Appendix F18.–Commercial harvest and escapement of pink and sockeye salmon in the Tutka Bay Subdistrict in the Southern District of Lower Cook Inlet, 1975–2015.

	Sockeye salmon [a]			Pink salmon [a]					
Return year	Commercial harvest	Cost recovery	Total run	Commercial harvest	Cost recovery	Brood stock	Escapement	Sport catch	Total run
1975	12,600		12,600	89,200			17,600		106,800
1976	14,200		14,200	73,100		10,800 [b]	11,500		95,400
1977	21,300		21,300	21,900		6,528	14,000		42,428
1978	92,100		92,100	167,862		21,100	15,000		203,962
1979	15,600		15,600	421,816		21,200	10,600	2,000	455,616
1980	13,200		13,200	321,513		26,897	17,300	5,000	370,710
1981	41,000		41,000	1,026,574		22,000	28,000	6,000	1,082,574
1982	15,800		15,800	184,876		41,200	18,500	2,000	246,576
1983	35,900		35,900	615,459		53,800	12,900	5,000	687,159
1984	26,700		26,700	241,054		41,000	10,500	8,000	300,554
1985	14,886		14,886	491,181		43,000	14,000	8,000	556,181
1986	16,340		16,340	400,150		43,000	13,400	8,000	464,550
1987	14,659		14,659	56,465		22,000	4,800	500	83,765
1988	12,900		12,900	723,929		65,000	11,200	8,500	808,629
1989	13,461		13,461	632,147		5,100	11,900	10,000	659,147
1990	7,922		7,922	20,183	17,243	62,000	38,500	2,000	139,926
1991	7,039	34	7,073	14,691	101,837	103,100	16,820	2,000	238,448
1992	8,578		8,578	41,642	275,897	67,324	25,921	2,500	413,284
1993	5,797	8	5,805	128,347	409,431	107,242	27,403	2,000	674,423
1994	9,129	8	9,137	498,436	953,231	154,000	14,546	2,000	1,622,213
1995	12,323	3	12,326	1,212,342	1,213,322	166,052	15,899	3,000	2,610,615
1996	20,226	74	20,300	6,941	420,411	138,021	3,456	1,000	569,829
1997	9,686		9,686	130,406	2,375,653	216,786	45,000	2,100	2,769,945
1998	8,480		8,480	504,764	792,542	153,580	17,473	2,000	1,470,359
1999	18,711 [c]	88	18,799	222,228	857,902	151,903	27,947	2,000	1,261,980
2000	6,602	896	7,498	8,580	1,043,705	179,970	19,048	1,500	1,252,803
2001	16,500	5	16,505	109,682	421,408	179,006	4,451	1,500	716,047
2002	14,318		14,318	4,725	703,205	161,864	15,884	1,500	887,178
2003	24,090	2	24,092	4,324	507,215	207,285	30,866	1,500	751,190
2004	5,827		5,827	1,523	1,175,326	0[d]	17,846	1,500	1,196,195
2005	6,252		6,252	4,779	1,631,806		133,600	1,500	1,771,685
2006	5,865		5,865	11,223			25,800	1,500	38,523
2007	8,272		8,272				5,700	1,500	7,200
2008	6,414	14,604	21,018	1,884	377		14,100	1,500	17,861
2009	9,185	11,584	20,769	2,136			3,800	1,500	7,436
2010	6,307	38,087	44,394	2,536	161		2,100	1,500	6,297
2011	10,516	7,836	18,352	1,911	5	12,665 [e]	21,974	1,500	38,055
2012	4,839	17,756	22,595	4,434	171	8,140	10,436	1,500	24,681
2013	16,285	9,707	25,992	866	39,153	143,884	9,541	1,500	194,944
2014	27,425	30,404	57,829	11,004	32	22,401	10,152	1,500	45,089
2015	45,582	32,455	78,037	110,130	2,087,024	165,008	82,400	1,500	2,446,062

[a] Data from CIAA (2015 a and b).

[b] Start of enhancement at Tutka Lagoon Hatchery.

[c] First return of enhanced BY95 sockeye salmon. Previous year's harvest is intercepted China Poot runs and wild production.

[d] CIAA announced suspension of operations at Tutka Lagoon Hatchery.

[e] CIAA resumed operations at Tutka Lagoon Hatchery.

Appendix F19.–Harvest of salmon from the Port Graham Section of the Port Graham Subdistrict in the Southern District of Lower Cook Inlet, 1985–2015.

	Sockeye salmon			Pink salmon					
Return year	Commercial harvest	Subsist. harvest[a]	Cost recovery	Commercial harvest	Subsist. harvest[a]	Cost recovery	Broodstock (plus excess)	Escapement	Total run
1985	787	481		3,668	32			26,300	30,000
1986	363	274		4,658	237			17,500	22,395
1987	246	219		359	230			3,800	4,389
1988	103	411		126	542			7,900	8,568
1989		94			640			19,100	19,740
1990		524			1,013			20,100	21,113
1991		58			1,494			29,000	30,494
1992		98			745			5,400	6,145
1993		154			997			12,800	13,797
1994		260			866			7,600	8,466
1995		379			786		16,224	10,000	27,010
1996	5,203	684		821	312		2,131	7,000	10,264
1997	8,597	324		46,854	497	85,354	21,888	12,500	167,093
1998	3,652	271		598	459		21,888	12,600	35,545
1999		382			150			9,700	9,850
2000	1,153	784			355		89,838	15,600	105,793
2001		176			20		34,773	10,300	45,093
2002	3,576	417		14	150	238,672	146,433	58,500	443,769
2003	5,034	1,991			266		78,241	14,900	93,407
2004	1,032	572			363	1,283,517	99,376	44,000	1,427,256
2005		192			349	510,802	84,088	69,100	664,339
2006		31			26	247,990	27,741	31,200	306,957
2007		552	23		74	117,962		25,600	143,636
2008	2,971	550	26,274		36	2,670		24,700	27,406
2009	9,057	1,982	8,292		49	866		14,000	14,915
2010	740	116			24			16,600	16,624
2011	59	687			132			20,883	21,015
2012	30	661	30	21,645	282		[b]	34,486	56,413
2013	463	1,034		13,188	27		[c]	11,893	25,108
2014	42	136		43,442	164		1,740	32,295	77,641
2015	29	842		34,522	539		[d]	82,356	117,417

[a] Harvest as reported by Port Graham subsistence permit holders. The preponderance of harvest reported on the Port Graham permits are from the Port Graham section of the Port Graham Subdistrict.

[b] Commercial Common Property pink salmon; 19,918 fish of the 21,645 harvested commercially were sold alive to processor for resale to hatchery as broodstock.

[c] Commercial Common Property pink salmon; 11,800 fish of the 13,188 harvested commercially were sold alive to processor for resale to hatchery as broodstock.

[d] Commercial Common Property pink salmon; 21,408 fish of the 34,522 harvested commercially were sold alive to processor for resale to hatchery as broodstock.

Appendix F20.–Harvest of salmon in the English Bay Section of the Port Graham Subdistrict of the Southern District of Lower Cook Inlet, 1985–2015.

	Sockeye salmon			Coho salmon			Pink salmon		
Return year	Commercial harvest	Subsist. harvest [a]	Cost recovery	Commercial harvest	Subsist. harvest [a]	Cost recovery	Commercial harvest	Subsist. harvest [a]	Cost recovery
1985	2,712	696		2,250	530		8,830	313	
1986	1,592	373		1,475	302		4,106	825	
1987	2,114	682		1,352	339		1,985	484	
1988	1,254	610		1,384	385		10,562	1,214	
1989		63			695			855	
1990		638			614			1,947	
1991		630			1,512			3,093	
1992		437			675			676	
1993		994			567			1,666	
1994		570			511			1,113	
1995	2,580	1,416		1,823	169		10,168	487	
1996	6,981	1,060	5,934	1,553	598		658	437	
1997	16,657	1	7,817	1,414			12,940	14	
1998	8,080	18	6,202	23			760		1
1999		2,775	660		1,320			1,873	
2000	984	3,880			1,579			1,251	
2001		909			1,238			1,434	
2002	10,912	10,203	20,245	1	967		6	1,681	
2003	16,525	3,221	45,011	2	513		82	1,306	
2004	1,537	2,968		3	842			1,277	
2005		1,934			1,142			1,259	
2006		2,215			1,179			2,038	
2007	4,270	[b]		3	[b]			[b]	
2008	2,421	3,615			1,345			2,646	
2009	491	1,515			396			865	
2010	1,157	1,514			1,324			1,030	
2011	1,375	5,009			1,381		702	2,499	200
2012		300			400			200	
2013		3,854			2,619			383	
2014		211							
2015		35							

[a] Harvest as reported by Nanwalek subsistence permit holders. The preponderance of harvest reported on the Nanwalek permits are from the English Bay section of the Port Graham Subdistrict

[b] No data available.

Appendix F21.–English Bay Second Lake eggtakes and fry release locations, 1989–2015

Egg takes from English Bay Lakes (Second Lake)				Fry and smolt releases using eggs taken from English Bay Lakes[a]				
Brood year	adults harvested	green eggs taken	eyed eggs	English Bay Lakes	Port Graham	Tutka Bay Lagoon	Kirschner Lake	Hazel Lake
1989	383	427,000		855,347				
1990	291	420,000		255,071				
1991	362	512,000		290,298				
1992	966	995,000	200,000	755,692				
1993	1,031	1,100,000	865,728	820,174				
1994	1,236	1,408,800	926,900	0[b]				
1995	1,750	2,209,000	1,896,000	292,134				
1996	1,498	1,593,155	1,133,059	199,000				
1997	1,289	1,331,000	1,152,000	0[c]				
1998	1,289	1,462,185	1,330,632	918,348				
1999	1,234	1,228,000	1,126,000	906,057				
2000	1,376	1,478,000	1,260,000	0[b]				
2001	0							
2002	1,248	1,419,416	806,530	694,647				
2003	200	205,343	168,457	50,096	109,520			
2004	1,390	1,562,000	1,349,000	203,400	422,060			
2005	0							
2006	0							
2007	372	510,000	409,000	246,000	112,000			
2008	0							
2009	240	307,000	288,000	202,000		58,200		
2010	1,023	1,113,000	1,013,000	203,300		371,300	160,000	
2011	2,110	2,504,876	2,204,262	213,000	102,000	511,000		1,240,000
2012	412	432,022	383,597	211,000		139,000		
2013	1,753	2,120,000	1,904,000	209,000			1,675,500	
2014	877	1,093,154	847,069	200,200			607,110	
2015	0							

[a] Indicates total resultant release of fry and/or smolt from associated brood year.

[b] All eggs destroyed due to infectious hematopoietic necrosis virus.

[c] All eggs lost due to fire at the hatchery facility.

Appendix F22.–Occurrence of hatchery pink salmon in LCI index streams, 2015.

Location, collection date	AFK	CCH	SGH	WNH	PGH	TBLH	PWS hatcheries combined	LCI hatcheries combined	Hatchery total	no mark	Total fish (unmarked + hatchery)	Total percent hatchery	Total percent PWS	Total percent LCI	Percent unmarked
Barabara Creek, 8/14/2015			5				5	0	5	91	96	5.2%	5.2%	0.0%	94.8%
Barabara Creek, 8/28/2015	1		6	5		3	12	3	15	81	96	15.6%	12.5%	3.1%	84.4%
Barabara Creek, 9/10/2015	3	9		7		7	19	7	26	70	96	27.1%	19.8%	7.3%	72.9%
Barabara Creek- combined	4	9	11	12	0	10	36	10	46	242	288	16.0%	12.5%	3.5%	84.0%
China Poot Creek, 8/27/2015			5		1	1	5	2	7	35	42	16.7%	11.9%	4.8%	83.3%
China Poot Creek, 9/9/2015							0	0	0	96	96	0.0%	0.0%	0.0%	100.0%
China Poot Creek - combined	0	0	5	0	1	1	5	2	7	131	138	5.1%	3.6%	1.4%	94.9%
Humpy Creek, 8/19/2015			1			3	1	3	4	92	96	4.2%	1.0%	3.1%	95.8%
Humpy Creek, 9/3/2015	1		1				2	0	2	94	96	2.1%	2.1%	0.0%	97.9%
Humpy Creek - combined	1	0	2	0	0	3	3	3	6	186	192	3.1%	1.6%	1.6%	96.9%
Port Dick Creek- Head End, 8/5/2015					1		0	1	1	32	33	3.0%	0.0%	3.0%	97.0%
Port Dick Creek- Head End, 9/15/2015	4	8		2			14	0	14	76	90	15.6%	15.6%	0.0%	84.4%
Port Dick Creek- Head End - combined	4	8	0	2	1	0	14	1	15	108	123	12.2%	11.4%	0.8%	87.8%
Port Dick- Island Creek, 9/2/2015	12	3	2	5			22	0	22	74	96	22.9%	22.9%	0.0%	77.1%
Port Dick- Island Creek, 9/15/2015	10	5		1			16	0	16	80	96	16.7%	16.7%	0.0%	83.3%
Port Dick- Island Creek - combined	22	8	2	6	0	0	38	0	38	154	192	19.8%	19.8%	0.0%	80.2%
Port Graham River, 8/6/2015					1	1	0	2	2	94	96	2.1%	0.0%	2.1%	97.9%
Port Graham River, 8/24/2015					1		0	1	1	95	96	1.0%	0.0%	1.0%	99.0%
Port Graham River - combined	0	0	0	0	2	1	0	3	3	189	192	1.6%	0.0%	1.6%	98.4%
Seldovia River, 8/4/2015					3		0	3	3	93	96	3.1%	0.0%	3.1%	96.9%
Seldovia River, 9/8/2015	3	3	1	2			9	0	9	87	96	9.4%	9.4%	0.0%	90.6%
Seldovia River - combined	3	3	1	2	3	0	9	3	12	180	192	6.3%	4.7%	1.6%	93.8%
Tutka Lagoon Creek, 8/13/2015						94	0	94	94	2	96	97.9%	0.0%	97.9%	2.1%
Tutka Lagoon Creek, 9/4/2015						88	0	88	88	8	96	91.7%	0.0%	91.7%	8.3%
Tutka Lagoon Creek - combined	0	0	0	0	0	182	0	182	182	10	192	94.8%	0.0%	94.8%	5.2%
Dogfish Bay Creeks, 8/20/2015	3	1				1	4	1	5	91	96	5.2%	4.2%	1.0%	94.8%
English Bay River, 8/11/2015			31	1		4	32	4	36	60	96	37.5%	33.3%	4.2%	62.5%
South Nuka Bay, 9/2/2015	6				1	1	6	2	8	88	96	8.3%	6.3%	2.1%	91.7%
Tutka Head End Creek, 8/26/2015			5			74	5	74	79	17	96	82.3%	5.2%	77.1%	17.7%
Total	43	29	57	23	8	277	152	285	437	1,456	1,893	23.1%	8.0%	15.1%	76.9%
Percent of total fish in creeks	2.3%	1.5%	3.0%	1.2%	0.4%	14.6%	8.0%	15.1%	23.1%	76.9%					
Percent of hatchery fish in creeks	9.8%	6.6%	13.0%	5.3%	1.8%	63.4%	34.8%	65.2%							
Percent of PWS hatchery fish by facility	28.3%	19.1%	37.5%	15.1%											
Percent of LCI hatchery fish by facility					2.8%	97.2%									

Note: AFH = Armin F. Koernig Hatchery; CCH = Cannery Creek Hatchery; SGH = Solomon Gulch Hatchery; WNH = Wally Noerenberg Hatchery; PGH = Port Graham Hatchery; TBLH = Tutka Bay Lagoon Hatchery.

Appendix F23.–Occurrence of hatchery pink salmon in LCI index streams, 2014.

Location, collection date	AFH	CCH	SGH	WNH	PGH	TBLH	PWS hatcheries combined	LCI hatcheries combined	Hatchery total	no mark Total fish (unmarked + hatchery)		Total percent marked	Total percent PWS	Total percent LCI	Percent unmarked
Barabara Creek, 8/26/2014	6		2	3	2	1	11	3	14	2	16	87.5%	68.8%	18.8%	12.5%
Barabara Creek, 9/8/2014	25	25	1	21	2		72	2	74	5	79	93.7%	91.1%	2.5%	6.3%
Barabara Creek - combined	31	25	3	24	4	1	83	5	88	7	95	92.6%	87.4%	5.3%	7.4%
China Poot Creek, 8/28/2014				2			2	0	2	49	51	3.9%	3.9%	0.0%	96.1%
China Poot Creek, 9/5/2014				1			1	0	1	41	42	2.4%	2.4%	0.0%	97.6%
China Poot Creek - combined	0	0	0	3	0	0	3	0	3	90	93	3.2%	3.2%	0.0%	96.8%
Humpy Creek, 8/11/2014							0	0	0	94	94	0.0%	0.0%	0.0%	100.0%
Humpy Creek, 9/4/2014				1			1	0	1	94	95	1.1%	1.1%	0.0%	98.9%
Humpy Creek - combined	0	0	0	1	0	0	1	0	1	188	189	0.5%	0.5%	0.0%	99.5%
Port Graham River, 8/25/2014	1	1	1	1	50		4	50	54	41	95	56.8%	4.2%	52.6%	43.2%
Port Graham River, 9/11/2014	10	8		8	38		26	38	64	33	97	66.0%	26.8%	39.2%	34.0%
Port Graham River - combined	11	9	1	9	88	0	30	88	118	74	192	61.5%	15.6%	45.8%	38.5%
Seldovia River, 8/14/2014					5		0	5	5	102	107	4.7%	0.0%	4.7%	95.3%
Seldovia River, 8/27/2014	5	3		4	40		12	40	52	41	93	55.9%	12.9%	43.0%	44.1%
Seldovia River - combined	5	3	0	4	45	0	12	45	57	143	200	28.5%	6.0%	22.5%	71.5%
Tutka Lagoon 8/18/2014			1		2	85	1	87	88	7	95	92.6%	1.1%	91.6%	7.4%
Tutka Lagoon, 9/8/2014	2	5		5	4	70	12	74	86	6	92	93.5%	13.0%	80.4%	6.5%
Tutka Lagoon - combined	2	5	1	5	6	155	13	161	174	13	187	93.0%	7.0%	86.1%	7.0%
Dogfish Lagoon Creeks, 9/9/2014	14	5		10	8	1	29	9	38	55	93	40.9%	31.2%	9.7%	59.1%
English Bay River, 8/26/2014	14	5	1	8	1		28	1	29	64	93	31.2%	30.1%	1.1%	68.8%
Total	77	52	6	64	152	157	199	309	508	634	1,142				
Percent of total fish in creeks	6.7%	4.6%	0.5%	5.6%	13.3%	13.7%	17.4%	27.1%	44.5%	55.5%					
Percent of hatchery fish in creeks	15.2%	10.2%	1.2%	12.6%	29.9%	30.9%	39.2%	60.8%							
Percent of PWS hatchery fish by facility	38.7%	26.1%	3.0%	32.2%											
Percent of LCI hatchery fish by facility					49.2%	50.8%									

Note: AFH = Armin F. Koernig Hatchery; CCH = Cannery Creek Hatchery; SGH = Solomon Gulch Hatchery; WNH = Wally Noerenberg Hatchery; PGH = Port Graham Hatchery; TBLH = Tutka Bay Lagoon Hatchery.

APPENDIX G: HERRING

Appendix G1.–Total biomass estimates and commercial catch of Pacific herring in short tons by age class, Kamishak Bay District, Lower Cook Inlet, 2015, and 2016 forecast.

Age	2015 Est. Spawning Biomass	Percent by Weight	2015 Commercial Harvest[a]	Percent by Weight	2015 Total Biomass	Percent by Weight	2016 Forecast Biomass	Percent by Weight
1								
2								
3	0	0.0%	0	0	0	0.0%	267	16.7%
4	15	0.8%	0	0	15	0.8%	0	0.0%
5	136	6.7%	0	0	136	6.7%	17	1.1%
6	158	7.8%	0	0	158	7.8%	124	7.7%
7	176	8.8%	0	0	176	8.8%	134	8.4%
8	706	35.1%	0	0	706	35.1%	126	7.9%
9	169	8.4%	0	0	169	8.4%	483	30.1%
10	301	14.9%	0	0	301	14.9%	102	6.4%
11	260	12.9%	0	0	260	12.9%	168	10.5%
12	67	3.3%	0	0	67	3.3%	141	8.8%
13+	27	1.3%	0	0	27	1.3%	40	2.5%
TOTALS	2,015	100.0%	0	0	2,015	100.0%	1,603	100.0%

Note: st = short ton = 2,000 lbs.

[a] The commercial herring fishery in Kamishak Bay did not open in 2015.

Appendix G2.–Catch of Pacific herring in short tons and effort in number of permits making deliveries by district in the commercial sac roe seine fishery, Lower Cook Inlet, 1961–2015.

	Southern		Kamishak		Eastern		Outer		Total	
Year	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits	Tons	Permits
1961										
1962										
1963	1								1	
1964										
1965	2								2	
1966					7				7	
1967										
1968	20								20	
1969	551				758		38		1,347	
1970	2,709				2,100				4,809	
1971	[a]	[a]			831	22			844	24
1972	[a]	[a]			[a]	[a]			[a]	[a]
1973	204	16	243	14	831	25	301	12	1,579	37
1974	110	7	2,114	26	47	5	384	26	2,655	45
1975	24	5	4,119	40	CLOSED		CLOSED		4,143	41
1976			4,842	66	CLOSED		CLOSED		4,842	66
1977	291	13	2,908	57	CLOSED		CLOSED		3,199	58
1978	17	7	402	44	CLOSED		CLOSED		419	44
1979	13	3	415	35	CLOSED		CLOSED		428	36
1980	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1981	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1982	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1983	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1984	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1985	CLOSED		1,132	23	204	7	[a]	[a]	1,348	29
1986	CLOSED		1,959	54	167	4	28	3	2,154	57
1987	CLOSED		6,132	63	584	4	202	9	6,918	69
1988	CLOSED		5,548	75			[a]	[a]	5,605	76
1989	170	6	4,801	75					4,971	81
1990	CLOSED		2,264	75	CLOSED		CLOSED		2,264	75
1991	CLOSED		1,992	58					1,992	58
1992	CLOSED		2,282	56					2,282	56
1993	CLOSED		3,570	60	CLOSED		CLOSED		3,570	60
1994	CLOSED		2,167	61	CLOSED		CLOSED		2,167	61
1995	CLOSED		3,378	60	CLOSED		CLOSED		3,378	60
1996	CLOSED		2,984	62	CLOSED		CLOSED		2,984	62
1997	CLOSED		1,746[b]	45[b]	CLOSED		CLOSED		1,746	45
1998	CLOSED		331[b]	20[b]	CLOSED		CLOSED		331	20
1999	CLOSED		100[c]	1[c]	CLOSED		CLOSED		100	1
2000-2015	CLOSED		CLOSED		CLOSED		CLOSED		CLOSED	
1961-1999 Average [d]	295		2,520	49	556		146		2,205	

Source: ADF&G fish ticket database. Commercial Fisheries Entry Commission License Statistics, 1974–2015, Juneau.

[a] Confidential data. Fewer than 3 permits reporting.

[b] Includes both commercial harvest and ADF&G test fish harvest.

[c] Commercial fishery closed, ADF&G test fish harvest only.

[d] Averages based only on years with reported harvest.

Appendix G3.–Preseason estimates of biomass and projected commercial sac roe seine harvests, versus actual harvests, for Pacific herring in short tons (st), average roe recovery, numbers of permits making landings, and exvessel value in millions of dollars, Kamishak Bay District, Lower Cook Inlet, 1978–2015.

Year	Preseason		Actual commercial harvest (st)[a]	Average roe %	No. of permits w/landings	Exvessel value[b] (in millions)
	Forecasted biomass (st)	Projected harvest (st)[a]				
1978	[c]	[d]	402	33.4	44	[e]
1979	[c]	[d]	415	12.5	[e]	[e]
1980	[c]	[d]	CLOSED			
1981	[c]	[d]	CLOSED			
1982	[c]	[d]	CLOSED			
1983	[c]	[d]	CLOSED			
1984	[c]	[d]	CLOSED			
1985	[c]	[d]	1,132	11.3	23	1
1986	[c]	[d]	1,959	10.4	54	2.2
1987	[c]	3,833	6,132	11.3	63	8.4
1988	[c]	5,190	5,548	11.1	75	9.3
1989	37,785	5,000	4,801	9.5	75	3.5[f]
1990	28,658	2,292	2,264	10.8	75	1.8
1991	17,256	1,554	1,992	11.3	58	1.3
1992	16,431	1,479	2,282	9.7	56	1.4
1993	28,805	2,592	3,570	10.2	60	2.2
1994	25,300	3,421	2,167	10.6	61	1.5
1995	21,998	2,970	3,378	9.8	60	4.0
1996	20,925	2,250	2,984	10.1	62	6.0[f]
1997	25,300	3,420	1,746	9.3	45	0.4
1998	19,800	1,780	331	8.5	20	0.1
1999	[g]		CLOSED[h]			
2000	6,330		CLOSED			
2001	11,352		CLOSED			
2002	9,020		CLOSED			
2003	4,771		CLOSED			
2004	3,554		CLOSED			
2005	3,058		CLOSED			
2006	2,650		CLOSED			
2007	2,286		CLOSED			
2008	2,069		CLOSED			
2009	[i]		CLOSED			
2010	2,963		CLOSED			
2011	3,830		CLOSED			
2012	[i]		CLOSED			
2013	[i]		CLOSED			
2014	6,318		CLOSED			
2015	5,699		CLOSED			

[a] Kamishak Bay allocation only; does not include Shelikof Strait food/bait allocation.

[b] Exvessel values exclude any postseason retroactive adjustments (except where noted).

[c] Prior to 1989, preseason forecasts of biomass were not generated.

[d] Prior to 1987, preseason harvest projections were not generated.

[e] Data not available.

[f] Includes retroactive adjustment.

[g] 1999 preseason biomass calculated as a range of 6,000 to 13,000 st.

[h] ADF&G test fishing harvested 100 st.

[i] No forecast of abundance generated for 2009, 2012, and 2013 due to lack of samples in previous year(s).

Appendix G4.–Summary of herring sac roe seine fishery openings and commercial harvests in the Kamishak Bay District of Lower Cook Inlet, 1969–2015.

Year	Dates of openings	Total hours open	Harvest (short tons)	Catch Rate (short tons/ hour open)	Number of permits w/landings
1969–1972	No closed periods				
1973	No closed periods		243		8
1974	1/1–5/20		2,114		26
1975	1/1–6/6	Closed Iniskin Bay, 5/17	4,119		40
1976	1/1-5/21	(Closed Iniskin Bay, 5/17. Reopened Kamishak, 6/2)	4,824		66
1977	1/1–5/31	(Closed Kamishak Dist. 5/12; reopened 5/14–5/17; reopened 5/29–5/31)	2,908		57
1978[a]	4/16–5/31	96	402	4	44
1979	5/12–5/24	112	415	4	36
1980–1984	CLOSED				
1985	4/20–6/15	1,350	1,132	1	23
1986	4/20–6/13	1,303	1,959	2	54
1987	4/21–4/23	65	6,132	94	63
1988	4/22–4/29	42	5,548	132	74
1989	4/17–4/30	24.5	4,801	196	74
1990	4/22–4/23	8	2,264	283	75
1991	4/26	1	1,992	1,992	58
1992	4/24	0.5	2,282	4,564	56
1993	4/21	0.75	3,570	4,760	60
1994	4/25	0.5	778	1,556	35
	4/29	1	1,338	1,338	53
1995	4/27	0.5	1,685	3,370	45
	4/28	1	1,693	1,693	44
1996	4/24	0.5	2,984	5,968	62
	4/25[b]	0.5			
	4/29	1.5	1,580	1,053	42
1997	4/30	[c]	[c]	[c]	[c]
	5/1	12	51	4	4
	5/22[d]	[d]	54	[d]	–
	4/21	0.5	160	320	12
1998	4/22	2	136	68	11
	5/14[d]	[d]	10	[d]	–
	5/22[d]	[d]	23	[d]	–
1999–2015	CLOSED		100[e]		

[a] Management by emergency order began (closed until opened).

[b] Despite the open fishing period, the entire fleet collectively agreed not to fish due to ongoing price negotiations with processors.

[c] Confidential data. Fewer than 3 permits reporting.

[d] ADF&G test fish harvest.

[e] ADF&G test fish harvest in 1999.

Appendix G5.–Aerial survey indices, miles of observed spawn, and comparison of preseason biomass forecast/projected harvest and actual commercial herring sac roe seine harvest versus hindcast (age-structured-assessment) estimates of total biomass and exploitation rate in Kamishak Bay District, Lower Cook Inlet, 1990–2015.

Year	Aerial Survey biomass index (st)	Miles of spawn obs.	Preseason Forecasted biomass (st)	Preseason Projected harvest (st)[a]	Actual commercial harvest (st)[a]	Estimated exploitation rate (%)[b]	ASA Hindcast total biomass estimate (st)[c,d,e]	Hindcast exploitation rate (%)[c,f]
1990	17,506	16.1	28,658	2,292	2,264	7.9	17,102	13.2
1991	3,067	3.5	17,256	1,554	1,992	11.5	18,108	11
1992	12,257	5.9	16,431	1,479	2,282	13.9	16,583	13.8
1993	7,939	5.4	28,805	2,592	3,570	12.4	14,777	24.2
1994	4,633	7.2	25,300	3,421	2,167	8.6	12,183	17.8
1995	7,750	5.4	21,998	2,970	3,378	15.4	9,805	34.5
1996	5,924	19.5	20,925	2,250	2,984	14.3	7,559	39.5
1997	2,974	0.8	25,300	3,420	1,746	6.9	5,710	30.6
1998	1,885	2.2	19,800	1,780	331	1.7	5,074	6.5
1999	5,456	3.8	[g]		CLOSED[h]		5,030	
2000	8,117	0.6	6,330		CLOSED		5,074	
2001	2,437	1.3	11,352		CLOSED		4,751	
2002	3,748	0.2	9,020		CLOSED		4,548	
2003	1,692	1.6	4,771		CLOSED		4,666	
2004	857	0.9	3,554		CLOSED		4,825	
2005	1,319	0.0	3,058		CLOSED		5,245	
2006	1,298	0.0	2,650		CLOSED		5,143	
2007	1,237	0.2	2,286		CLOSED		5,979	
2008	2,098	1.2	2,069		CLOSED		6,652	
2009	2,161	3.2	[i]		CLOSED		5,852	
2010	4,500	1.8	2,963		CLOSED		6,327	
2011	3,471	2.9	3,830		CLOSED		5,619	
2012	1,399	1.0	[i]		CLOSED		4,810	
2013	7,838	10.0	[i]		CLOSED		3,743	
2014	6,138	3.2	6,318		CLOSED			
1990–2014 Average[j]	4,477	0.0	12,508	2,418	2,302	10	7,518	21.2
2015	666		5,699		CLOSED		2,015	

Note: st = short ton.

Sources: Data from Otis 2004; Otis and Cope 2004; and Yuen 1994.

[a] Kamishak Bay allocation only; does not include Shelikof Strait food/bait allocation.

[b] Estimated exploitation rate based on preseason forecasted biomass and actual commercial harvest for each year.

[c] Figures are based on the best available data at the time of publishing and are subject to change as new data is incorporated into the model; therefore, all figures herein supersede those previously reported.

[d] Age-structured-assessment (ASA) model integrates heterogeneous data sources and simultaneously minimizes differences between observed and expected return data to forecast the following year's biomass as well as hindcast previous years' biomass.

[e] ASA estimates based on the most recent available hindcast, run after the 2015 survey season.

[f] Estimated exploitation rate based on ASA hindcast estimates of biomass divided by actual commercial harvest.

[g] 1999 preseason biomass calculated as a range of 6,000 to 13,000 short ton.

[h] ADF&G test fishing harvested 100 short ton.

[i] No ASA forecasted or hindcasted abundance estimate possible due to lack of age composition samples.

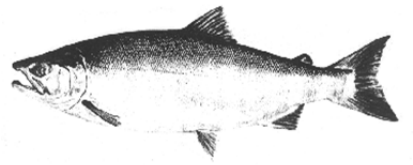
[j] Averages based only on years with data presented.

APPENDIX H: 2015 OUTLOOK

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE

Sam Cotten, Commissioner

Jeff Regnart, Director



Contact:
Glenn Hollowell, Area Finfish Management Biologist
Ted Otis, Area Finfish Research Biologist
Ethan Ford, Fisheries
Phone: (907) 235-8191

Homer Area Office
3298 Douglas Place
Homer, AK 99603
Date Issued: April 28, 2015,
Time: 2:00 PM

2015 LOWER COOK INLET SALMON FISHERY OUTLOOK

General Information

This outlook is provided to assist the commercial salmon industry in planning for the 2015 season in the Lower Cook Inlet (LCI) Management Area. Preseason forecasts and recent 5 year commercial common property harvest averages are the basis for the information provided. Forecasts for LCI can be found on ADF&G's web site:

http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon

Cook Inlet Aquaculture Association (CIAA) manages the Trail Lakes Hatchery (TLH), Port Graham Hatchery (PGH), and Tutka Bay Lagoon Hatchery (TBLH). Hatchery forecasts can be found through the CIAA web site:

http://www.ciaanet.org

Inseason modifications to harvest projections, season opening dates, and strategies for weekly fishing periods may occur as fisheries develop.

The forecasts for commercial common property fishery (CCPF) harvests by species are summarized in Table 1. The wild stock pink salmon forecast is derived from a spawner-recruit analysis, whereas run projections for other wild stock species are based on recent 5-year average historical production. Projected runs of hatchery-origin salmon are provided by CIAA. These projections of hatchery and wild stock runs will provide the basis for early-season management in all districts with other management tools such as aerial survey estimates, weir counts, remote video monitoring and anticipated harvest used as the season progresses.

Management of the LCI commercial salmon fisheries is based in the Homer area office. All emergency order (EO) announcements of fishery openings and closures are broadcast on VHF channel 10. As was done last year, fishery announcements from the Homer ADF&G office will

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routinely occur on Fridays at 2:00 PM, or earlier if possible. Announcement recordings will be available for commercial fisheries at 907-235-7307. Emergency order announcement information is also transmitted by email to all registered processors, local radio stations, news media and interested members of the public. Harvest information and fisheries announcements are located on the ADF&G web site: http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon

In addition, interested individuals may sign up to receive email announcements:

http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main

The first announcement is anticipated to be released at 2:00 PM, Friday, May 1.

CIAA anticipates a total of 445,137 hatchery produced sockeye and 1.5 million pink salmon to return to LCI release sites in 2015. The 2015 CIAA cost recovery goal is 4.1 million dollars. The majority of the cost recovery harvest is anticipated to come from Resurrection Bay with allowances made for some harvest during broodstock collections at Tutka Bay Hatchery if needed. As in past years, CIAA anticipates beginning cost recovery harvest in Resurrection Bay and expanding it to other areas until the goal is met. The overall commercial common property harvest from Lower Cook Inlet is anticipated to be 2.0 million salmon. Of these, 72.6% of the salmon are anticipated to be of hatchery origin (Table 1).

Set Gillnet Fishery

The **Southern District** is anticipated to open for the 2015 season on Monday, June 1 at 6:00 AM for a 48-hour period. Following periods will likely be 48-hours in length beginning at 6:00 AM on Monday and Thursday, as specified in regulation. Harvests for 2015 are anticipated to be similar to the historic average. The 5-year average harvest for this area and gear are 154 Chinook, 800 coho and 2,500 chum salmon. The 5-year commercial harvest average for the wild sockeye salmon is 23,800 fish. The department's preliminary pink salmon forecast estimated a harvestable surplus of 26,000 fish from the Southern District; which is to be shared by commercial set gillnet and purse seine permit holders. Fishing time in the Port Graham Subdistrict will be closely linked to escapement levels to English Bay Lakes. Management priority will be to provide for subsistence needs (4,800–7,200 salmon). The Port Graham Subdistrict is anticipated to remain closed to commercial harvest until English Bay River escapement is tracking to meet the overall spawning escapement goal (6,000–13,500) and hatchery broodstock goals. CIAA anticipates 10,200 sockeye salmon returning to the Port Graham Hatchery SHA. Further information regarding previous year's hatchery releases and commercial harvests may be found in Annual Management Reports for this area at:

http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon#/management

Purse Seine Fishery

Portions of the **Southern District** are anticipated to open to purse seine harvest in mid-June coinciding with enhanced returns to Leisure and Hazel lakes. Historically this return peaks from July 12–18 (week 29). CIAA anticipates a return of 27,944 sockeye salmon to Leisure and Hazel lakes combined, as well as 48,160 sockeye salmon to Tutka Bay, and 10,200 to Port Graham.

Commercial fishing time after mid-July will be correlated to pink salmon escapement at Humpy

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Creek, Seldovia Bay, Port Graham and other locations in this district. A total of 1.5 million hatchery produced pink salmon are anticipated to return to release sites in the Southern District.

Hatchery sockeye salmon returns to the **Eastern District** are forecast by CIAA to be 322,737 fish, all of which may be required for cost recovery and broodstock purposes. Wild stock harvest opportunity in the Eastern District will be linked to aerial survey observations of wild sockeye and pink salmon escapements to Aialik Lake and other spawning systems in this district. In addition, surveys of chum salmon index systems in Resurrection Bay and Day Harbor will be flown weather and time permitting.

Portions of the **Outer District** may open to commercial harvest in mid-July focusing on sockeye returns to McCarty Fjord lakes. Escapement to these systems is monitored by aerial survey (Desire and Delusion lakes), as well as a weir at the outlet of Delight Lake. In addition, waters in the western portion of this district may be open by this time focusing on pink and chum salmon returns to Port Dick, as well as Windy and Rocky bays. There are numerous other smaller systems in the Nuka Passage area that are also monitored for returning chum and pink salmon. In the far west end of this district, systems with the latest return timing: Dogfish Bay, Chugach Bay and Port Chatham will be evaluated for chum and pink salmon harvest potential from August to early September. The previous 5-year harvest average for this district is 14,800 sockeye and 41,700 chum salmon. The department has forecast a harvestable surplus of 370,000 pink salmon from this district. The parent year harvest of pink salmon in this district was 2.0 million fish.

While portions of the **Kamishak Bay District** typically open by regulation to commercial harvest on June 1, portions of this district may open on Monday, May 25 targeting sockeye salmon returns to Mikfik Lake. This may occur if significant numbers of returning sockeye are observed in this area at that time. Last year sockeye salmon were observed in the lower Mikfik River on May 22 with over 600 fish counted entering the lake by June 1. The final escapement to this lake of 18,062 exceeded the SEG range of 3,400–13,000 fish. The Mikfik Creek–McNeil Lagoon Salmon Fishery Management Plan directs fishery managers to prosecute the commercial fishery outside of the McNeil/Mikfik Lagoon to the maximum extent possible. Previous 5-year average harvests for this district (excluding the Kirschner Subdistrict) are 37,900 sockeye and 16,800 chum salmon with the majority of the sockeye salmon harvest attributed to Chenik Lake runs and the chum salmon harvest spread throughout the district. Due to poor pink salmon escapement in 2013, the department has forecast there will not be a large commercial harvest of pink salmon from this district. Returns of hatchery released sockeye salmon to the Kirschner Lake outfall remote release site are anticipated to be 39,500 fish. The department tracks salmon escapement in this district using remote video monitoring sites at Chenik and Mikfik lakes, as well as regular aerial survey observations of index streams.

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Table 1.- Projected commercial common property harvests and hatchery returns for Lower Cook Inlet, 2015.

SOCKEYE SALMON				Total anticipated harvest =	**215,600**
Natural stocks, (5-yr average commercial harvest)					
Southern District, (purse seine, excluding hatchery SHAs)					16,900
Southern District, (set gillnet)					23,800
Eastern District, (Aialik Bay)					0
Outer District					14,800
Kamishak Bay District, (excluding Kirschner Lake Subdistrict)					37,900
Sockeye salmon hatchery stocks[a]	**Hatchery return**	**Broodstock harvest**	**Cost recovery harvest**		**Commercial harvest**
Resurrection Bay	322,737	12,558	310,179		0
China Poot and Hazel lakes	27,944	0	0		27,944
Tutka Bay Lagoon	48,160	5,200	0		42,960
Kirschner Lake	39,500	0	0		39,500
Port Graham Bay	5,100	0	0		5,100
English Bay Lakes	1,696	0	0		1,696
PINK SALMON, ADF&G Preliminary Pink Salmon Forecast[b]				Total anticipated harvest =	**1,738,000**
Southern District (combined gear)					26,000
Eastern District					0
Outer District					370,000
Kamishak Bay District					0
Pink salmon hatchery stocks[a]	**Hatchery return**	**Broodstock harvest**	**Cost recovery harvest**		**Commercial harvest**
Tutka Bay Lagoon	1,533,000	191,000	0		1,342,000
Port Graham Bay	2,820	2,820	0		0
CHUM SALMON - 5-year average harvest				Total anticipated harvest =	**62,230**
Southern District (purse seine)					1,000
Southern District (set gillnet)					2,500
Eastern District					230
Outer District					41,700
Kamishak Bay District					16,800
COHO SALMON - 5-year average harvest				Total anticipated harvest =	**1,540**
Southern District (purse seine)					600
Southern District (set gillnet)					800
Eastern District					0
Outer District					40
Kamishak Bay District					100
CHINOOK SALMON – 5-year average harvest				Total anticipated harvest =	**216**
Southern District (purse seine)					56
Southern District (set gillnet)					154
Eastern District					0
Outer District					4
Kamishak Bay District					2
Total LCI anticipated commercial common property harvest- all salmon species =					**2,012,586**

[a] Available online at: http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon#/forecasts.

[b] Provided by Cook Inlet Aquaculture Association, based on parent year releases and recent ocean survival.