Fishery Management Report No. 22-11

2019 Lower Cook Inlet Area Finfish Annual 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

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Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

FISHERY MANAGEMENT REPORT NO. 22-11

2019 LOWER COOK INLET AREA FINFISH ANNUAL MANAGEMENT REPORT

by

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ABSTRACT

The Lower Cook Inlet consists of all coastal waters and inland drainages entering waters north of Cape Douglas, west of Cape Fairfield, and south of Anchor Point. In 2019, commercial harvest was approximately 2.4 million salmon and was composed of 2.0 million pink *Oncorhynchus gorbuscha*, 311,696 sockeye *O. nerka*, 55,508 chum *O. keta*, 12,712 coho *O. kisutch*, and 736 Chinook salmon *O. tshawytscha*. Approximately 85.7% of the harvest (2.0 million) salmon were sold as common property harvest, and 337,000 salmon were sold for hatchery cost recovery, including carcass sales. Homepack and donated fish (1,913 salmon) accounted for less than 1% of the harvest. Based on fish ticket reporting of prices, the preliminary value of the commercial salmon harvest was $5.3 million, including hatchery sales. This amount does not include postseason adjustments, bonuses, etc. During the 2019 season, 20 set gillnet and 22 purse seine permit holders reported deliveries. Set gillnet harvest value was an estimated $405,000, with average permit earnings of $20,255. Purse seine fishery exvessel harvest value was an estimated $3.2 million, with average permit earnings of $145,044. Revenue generated by cost recovery for hatchery operations was approximately $1.7 million. An additional $448,553 was disbursed to Cook Inlet Aquaculture Association from a 2% salmon enhancement tax in Area H. A total of 2,795 salmon were harvested in personal use and subsistence fisheries. Approximately 183 subsistence and personal use permits were issued to Alaska residents, in addition to 1,561 coho salmon landed by sport fish permit holders in a derby in Seward. Although these fish were subsequently sold commercially, they were not included in the total commercial harvest. The commercial Pacific herring *Clupea pallasii* fishery in the Kamishak Bay District remained closed in 2019 for the 21st consecutive year to allow the spawning population to continue rebuilding.

Keywords: Sockeye salmon *Oncorhynchus nerka*, pink salmon *O. gorbuscha*, chum salmon *O. keta*, Chinook salmon *O. tshawytscha*, coho salmon *O. kisutch*, Pacific herring *Clupea pallasii*

INTRODUCTION

LOWER COOK INLET MANAGEMENT AREA COMMERCIAL SALMON AND HERRING FISHERIES

The Lower Cook Inlet (LCI) Management Area is composed of waters of the Cook Inlet Management Area (Area H) 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. (Figures 1–14).

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 (Figure 2). These districts are further divided into subdistricts and sections for management and harvest reporting purposes (Figures 3–13). The primary management objective for all districts is to achieve spawning escapement goals for major salmon stocks and allow orderly fisheries to harvest fish surplus to spawning requirements. In addition, Alaska Department of Fish and Game (ADF&G) follows regulatory guidelines to both manage fisheries and allow private nonprofit hatcheries to achieve cost-recovery and broodstock objectives from harvests conducted within special harvest areas.

Four hatcheries currently contribute to the area's salmon fisheries. The Trail Lakes Hatchery at Mile 29 of the Seward Highway (Figure 1) produces sockeye *O. nerka* and coho salmon *O. kisutch* and is operated by the Cook Inlet Aquaculture Association (CIAA).[1] 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 2011, the Tutka Bay Lagoon Hatchery (TBLH) once again began incubating pink salmon *O. gorbuscha* eggs for release into Kachemak Bay. In

[1] Cook Inlet Aquaculture Association (CIAA) project and hatchery reports provide preliminary data used throughout this report. For more information please contact CIAA or visit the website: https://www.ciaanet.org/reports/ (accessed July 26, 2021).

2015, the Port Graham Hatchery (PGH) also began incubating pink salmon eggs for release in Port Graham Bay.

Gear utilized in commercial salmon fisheries includes purse seine and set gillnet. Purse seine gear is permitted to fish in the Southern, Outer, Eastern, and Kamishak Bay Districts (Figure 1). Set gillnet gear is permitted to fish 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 Bay District, annual harvest level ranges are established in regulation (5 AAC 27.465) 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

In 2019, the LCI commercial harvest of 2.4 million salmon included 1,980,124 pink, 311,696 sockeye, 55,508 chum *O. keta*, 12,712 coho, and 736 Chinook salmon (Table 1; Figure 15). Hatchery runs of sockeye and pink salmon in general were below forecast at hatchery release sites. Commercial harvests of sockeye, coho, and pink salmon were above the 10-year (2009–2018) averages (Table 2). Approximately 86% of the harvest (2,021,725 fish) was attributed to the common property fishery, whereas 14% (337,138 fish) came from hatchery cost recovery. An additional 6,941 sockeye and 166,677 pink salmon were harvested by hatcheries for broodstock (Appendices F1, F2, and F3). Homepack harvest (629 fish) accounted for less than 1% of the commercial harvest from LCI districts (Table 1). The 2019 preliminary exvessel value estimates by gear group from the common property fishery for both wild and enhanced salmon were \$3.2 million (88.7%) for purse seine and \$405,098 (11.3%) for set gillnet (Table 3; Figure 16). The average price per pound paid to fishers was generally above the 10-year average for all salmon species, with the exception of chum salmon (Table 4). The combined harvest value for purse seine and set gillnet in 2019 was \$3.6 million, which was above the 10-year average of \$2.4 million (Table 5). Hatchery harvest in 2019 was estimated at \$1.7 million. Of that, \$1.5 million was from sockeye salmon sales and much of the remainder from pink salmon sales.

No commercial fisheries for herring occurred in 2019 to allow the population further opportunity to rebuild from historically low abundance.

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 3 and 6). Commercial fishing in this district is restricted by regulation to waters primarily 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; Figures 4 and 5). 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: the 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 (Figures 3, 4, and 5). Although any Cook Inlet area (Area H) commercial set gillnet permit holder may register to fish in these areas, this registration would preclude that permit holder from fishing in the Northern District and Upper Subdistrict of the Central District 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 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 producer of wild sockeye salmon in this district is the English Bay River. Pink salmon historically have returned in large numbers to Humpy Creek and Seldovia River, as well as numerous smaller streams in the Southern District.

Preseason Outlook and Harvest Strategy

The 2019 commercial wild stock salmon harvest forecast for the Southern District was 126,500 pink and 80,700 sockeye salmon (Appendix G1). The enhanced sockeye salmon run to CIAA release sites was forecast to be 467,400 fish. A total of 2.1 million hatchery-produced pink salmon were anticipated to return to the LCI Area in 2019 from the 2018 release of 50.0 million fry from TBLH, and 21.2 million fry from PGH (Appendix F1).

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 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 not 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 required for cost-recovery harvest. Because of recent good runs of sockeye salmon to the Port Graham Subdistrict, the commercial set gillnet fishery opened on June 1.

Early season management of the Southern District (excluding the Port Graham Subdistrict) was based on actual harvest versus anticipated harvest. Port Graham Subdistrict management was based on anticipated run strength 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 were also taken into account. By early July, ground survey estimates of chum and early pink salmon escapement began to weigh more heavily when scheduling commercial fishing periods. These surveys became primary tools in late July and August when management focus shifted to pink salmon in this district.

Season Summary

The 2019 Southern District total sockeye salmon commercial common property harvest, excluding homepack, was 76,280 fish, with 29,274 (38.4%) harvested by the set gillnet fleet and 47,006 harvested by seine permit holders (Appendices A1–A3). In addition, CIAA harvested 10,596 and 1,990 sockeye salmon from the Tutka Bay Lagoon and China Poot special harvest areas (SHA) for cost recovery and 1,226 for broodstock purposes (Appendix F2). Total common property pink salmon harvest was 29,345 fish, with 22,934 (78.2%) harvested by the seine fleet and 6,411 harvested by set gillnet permit holders. In addition, CIAA harvested 179,639 pink salmon from the Tutka Bay Lagoon SHA for cost recovery, none from the Port Graham SHA, and 20 from the

China Poot SHA while targeting hatchery sockeye salmon returns at that location (Appendix F3). A total of 490 Chinook salmon were harvested by the common property fishery in the Southern District, with 350 harvested by set gillnet permit holders and the remaining by seine permit holders. A total of 4,206 chum salmon were harvested, with 3,908 by set gillnet and 298 by seine permit holders. In addition, 5,882 coho salmon were harvested, with 2,817 by set gillnet and 3,065 by seine permit holders (Table 1; Appendices A1 and A2). A total of 62 Chinook, 311 sockeye, 166 coho, 59 pink, and 31 chum salmon were retained by 17 commercial permit holders (10 seine, 7 set gillnet) for personal homepack use from this district and were not sold (Table 1; Appendix E7).

Set gillnet

The Southern District set gillnet commercial fishing season was opened by EO at 6:00 AM on Monday, June 3 (Table 6). This and all following commercial set gillnet fishing periods were 48 hours in length. There is only 1 sockeye salmon sustainable escapement goal (SEG) in the Southern District, which is an SEG of 6,000–13,500 fish (Table 7), assessed via a weir in the English Bay River.

Early season sockeye salmon harvest in the Southern District and escapement through the English Bay weir were both within expectations. Prior to June 15, a total of 797 sockeye salmon had been counted at the weir versus an anticipated range of 755–1,700 fish by this date in order to achieve the SEG on July 31 (Table 7; Appendix A4). Through June 29, sockeye salmon passage through the English Bay weir was estimated at 6,364 fish, which remained within the anticipated level (2,836–6,382; Appendices A4 and A5) required to achieve the SEG. Weir passage through July remained steady with 24,044 sockeye salmon counted through July 24. This was the last date that counts were reported and is above the upper end of the 6,000–13,500 fish SEG range.

The commercial set gillnet salmon season in the Southern District was closed by regulation on October 1, with a total harvest of 350 Chinook, 29,274 sockeye, 2,817 coho, 6,411 pink, and 3,908 chum salmon (Appendix A3).

Purse seine

The Southern District commercial purse seine season was opened by EO on Monday, June 17, with a fishing schedule of 3 weekly 16-hour periods (6:00 AM to 10:00 PM) on Mondays, Wednesdays, and Fridays in portions of the district east of McDonald Spit (Table 6).

Harvest in the early portion of the season prior to mid-July targets enhanced sockeye salmon returns to hatchery release sites in the Southern District. Much of this effort occurs outside of the hatchery SHAs while cost-recovery and broodstock harvest is occurring. In mid-July the focus shifts to pink salmon harvest targeting returns to TBLH as well as wild returns to Humpy Creek, Seldovia Creek, and the Port Graham River. Pink salmon returns to wild systems in the Southern District was disappointing in comparison to the greater-than-expected returns in the Outer District where much of the fleet fished from late July through August. There were no deliveries of salmon from the Southern District after the first week of August.

Hatchery cost-recovery harvest occurred in SHAs in the Tutka Bay and China Poot subdistricts. This is described in the hatchery section of this report.

Escapement

Of the 6 pink salmon index streams in the Southern District, 3 had final escapement estimates that were above the SEG ranges (Tutka Lagoon Creek, Barabara Creek, and Port Graham River), and

2 fell below the assigned SEG range (China Poot and Seldovia Creeks). Humpy Creek was within its assigned SEG. The only chum salmon SEG in the Southern District is for the Port Graham River. The final chum salmon escapement in this system was below the SEG range (Table 7; Appendices A7 and A8). The final spawning escapement for the English Bay River was 24,044 sockeye salmon, which was above the SEG range of 6,000–13,500 (Table 7). The 10-year average spawning escapement was 11,458 sockeye salmon for this system (Appendix A6). In addition, 131 adult sockeye salmon were observed in Hazel Lake.

Summary

The total 2019 Southern District common property commercial harvest of 76,280 sockeye salmon was well above the 10-year average harvest of 54,778 and slightly below the anticipated wild-only harvest of 80,700 (Appendices A3 and G1). The pink salmon commercial common property harvest of 29,345 was well below the anticipated wild-only harvest of 126,500, and also well below the 10-year average harvest of 157,393 (Appendix A3 and G1).

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 producers of wild 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, Port Dick, and Windy Bays, as well as several smaller systems. In addition, chum salmon are regularly harvested from Dogfish Lagoon and Port Dick.

Preseason Outlook and Harvest Strategy

The 2019 commercial wild stock harvest forecast for the Outer District was 5,700 sockeye and 2.2 million pink salmon (Appendix G1). 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, management of commercial sockeye, pink, and chum salmon fisheries in this district has relied heavily on aerial and ground surveys of major spawning systems for those species. From 1997 to 2014, daily monitoring of sockeye salmon returning to Delight Lake was conducted using a picket weir staffed by ADF&G field personnel. Funding for the weir was cut in 2015 and escapement monitoring through 2017 was conducted using aerial surveys. However, in 2018 and 2019, CIAA staffed the weir and provided daily inseason escapement counts to ADF&G fishery managers in Homer. Typically, sockeye salmon runs to this lake, as well as to 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 weir at Delight Lake was installed on July 2. An aerial survey of the lake prior to weir installation (June 28) counted 80 sockeye salmon. The current SEG for this system, established at the 2016 BOF meeting using the 3-tier Percentile Approach (Clark et al. 2014), is 5,100–10,600 fish (Otis et al. 2016a) and was calibrated to aerial surveys, which is a less efficient method of enumerating salmon than weirs. When functioning, weirs essentially provide a census of all fish entering a system. The SEG previously used when the weir was in place was 7,500–17,650 fish. That goal was calibrated to weir counts and it is a more appropriate escapement goal during years when the weir is used to monitor escapement (Otis et al. 2010), so it was used to manage the Delight Lake fishery in 2019. If the weir continues to be operated, this weir-based goal may need to be updated using the 3-tier Percentile Approach (Clark et al. 2014) to be consistent with other LCI goals (Otis et al. 2016a). No fish were passed during the first half of July as a result of the Delight Lake outlet stream being dry due to lack of rainfall in this area. From July 15 to July 20, over 8,000 sockeye salmon were counted at the weir. Shortly thereafter, the West Nuka Subdistrict opened to commercial harvest and remained open for regular periods for the remainder of the 2019 fishing season. The final count at the weir when it was removed on July 29 was 16,695 sockeye salmon, which is within the weir-based SEG for this system (Table 7; Appendices B3, B4). The peak aerial survey count for Delight Lake in 2019 was 1,130 fish (Appendix B8), which is well below the aerial survey calibrated SEG of 5,100–10,600 fish. Without the weir in place, the East Nuka Subdistrict would have remained closed in 2019. Similarly, aerial surveys in 2018 counted only 3,700 sockeye salmon in Delight Lake, whereas the weir counted 13,428 fish (Hollowell et al. 2019).

Western portions of the Outer District opened on Monday, July 15, on a schedule of Monday, Wednesday, and Friday 6:00 AM to 10:00 PM fishing periods and remained on this schedule until August 12, when a Monday–Friday schedule of 6:00 AM to 10:00 PM fishing periods was established as a result of strong pink salmon returns to this area and consistent commercial harvest (Appendix B1). This schedule was further expanded the following week to 7 days per week (Table 6).

Of the 9 pink salmon index streams in the Outer District monitored for escapement, 2 were within SEG ranges (Windy Left Creek, Desire Lake), 6 exceeded their SEG range (Dogfish Bay Lagoon, Port Chatham, Windy Creek Right, Rocky River, Port Dick Creek, and Island Creek), and 1 failed to meet the minimum SEG range (South Nuka Creek). There are 4 chum salmon index streams with SEGs in the Outer District. Of these, 1 was above the SEG range (Rocky River), and 3 were within their SEG ranges (Dogfish Bay Lagoon, Port Dick Creek, Island Creek; Table 7; Appendices B6, B7, B9).

Both sockeye salmon index systems in the Outer District (Delight Lake and Desire Lake) were within their respective SEG ranges (Table 7; Appendices B3 and B8). The range for Desire Lake is calibrated for aerial surveys and was modified at the 2016 BOF meeting (Otis et al. 2016a) using the 3-tier Percentile Approach (Clark et al. 2014). At that time, the aerial survey-based goal for Delight Lake (5,100–10,600) was adjusted as well. The SEG used in 2019 (7,500–17,650) to manage Delight Lake sockeye salmon returns, as measured by a weir, was the historic weir-based goal that was established in 2010 (Otis et al. 2010; Table 7; Appendices B3–B5).

Total harvest from this district was 184 Chinook, 15,482 sockeye, 2,889 coho, 1.7 million pink, and 19,460 chum salmon (Table 1; 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 occurring irregularly (Appendix C2). Harvests of chum salmon were larger in this district during the 1980s. The largest producers of wild sockeye salmon in this district have historically been Bear and Aialik Lakes. Sockeye salmon production in Aialik Lake is a relatively recent event because this lake was covered by the Pedersen Glacier as late as 1909 (Cook and Norris 1998).

Pink salmon production in the Eastern District has been the result of natural spawning. The largest pink salmon producers in this district are Salmon Creek, with a 10-year (1980–1989) average escapement of 6,100, and Bear Creek, with a 10-year (1997–2006) average escapement of 11,800. In addition, Thumb Cove and Humpy Cove together produced an average of 10,500 pink salmon per year (1997–2006; Appendix C9). Ground surveys of this area in recent years have been curtailed due to budgetary constraints and historically low runs (Appendix C9).

Since the early 1960s, coho salmon production in Resurrection Bay has been supplemented by enhancement efforts. Since 2001, commercial harvests of this species in the Eastern District were 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, 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) 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 fishermen 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 (Appendix C2).

Preseason Outlook and Harvest Strategy

The 2019 enhanced sockeye salmon run to CIAA release sites in Resurrection Bay was forecast to be 305,600 fish (Appendix G1). 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 the majority of the sockeye salmon run anticipated to return to Resurrection Bay release sites would be required to meet corporate cost-recovery harvest and 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 at the outlet of Bear Lake (Figures 1 and 10). 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 2019 Eastern District sockeye salmon commercial common property harvest was 4,307 fish harvested by 4 permit holders (Appendix C1, C2). CIAA harvested 82,685 sockeye salmon for cost recovery from Resurrection Bay in the Bear Lake SHA, and 41,415 at the Bear Lake weir (Appendix F2). An additional 863 excess sockeye (Appendix C3 and F2) and 1,183 coho salmon (Appendix F4) were donated to members of the public at the Bear Creek 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 23, sockeye salmon began arriving at the Bear Creek weir on May 18. Through June 13, a total of 12,760 fish were counted versus an anticipated minimum of 2,766 fish past the weir by this date (Appendices C3 and C4). Fish that arrived at the weir following this date were sold for cost recovery or donated to the public (Appendix F4).

Cost recovery from saltwater was completed on Friday, June 21 (Table 6). Following this, common property fishing periods were established beginning Monday, June 24, on a Monday-through-Friday schedule of 6:00 AM to 10:00 PM fishing periods. Commercial common property deliveries of hatchery-produced sockeye salmon continued through July 1 (Appendix C1). The 863 sockeye salmon that arrived at the weir in an unmarketable condition or were too few in number to warrant commercial sale, were documented on fish tickets and donated to members of the public (Appendices C3 and F2).

Final passage into Bear Lake was 12,760 sockeye salmon with 3,575 harvested for broodstock (Appendices C3, C4, and F2). The remaining 9,185 fish were allowed to spawn naturally in the lake. This escapement was above the SEG range of 700–8,300 (Table 7), and below the 10-year spawning escapement average of 9,346 (Appendix C7).

In 2019, a total of 1,416 coho salmon were passed through the weir and into Bear Lake and 1,934 fish were harvested at the weir (Appendices C5 and C6). Of those, 443 were harvested for CIAA and ADF&G broodstock. An additional 225 fish were holding mortalities or were unripe. Fish tickets documented that 1,183 coho salmon were donated to members of the public (Appendix F4). Also, 83 coho salmon were unaccounted for. These were probably donated to members of the public without fish tickets.

In 2019, there were 7 aerial surveys of Aialik Lake. Sockeye salmon were counted in the lake with a peak count of 5,000 fish on August 15 (Appendix C8). This was within the current SEG range of 3,200–5,400 for this system (Table 7). The previous 10-year average escapement to Aialik Lake is 3,100 sockeye salmon (Appendix C9).

A total of 1,561 coho salmon were donated to the Seward Chamber of Commerce by sport users participating in the annual silver salmon derby; these fish were sold to local processors to benefit the Chamber (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 target species have been naturally occurring chum, sockeye, and pink salmon.

Preseason Outlook and Harvest Strategy

The 2019 commercial wild stock harvest forecast for the Kamishak Bay District was 39,300 sockeye, 9,800 chum, and 106,900 pink salmon (Appendix G1). The enhanced CIAA sockeye salmon run to Kirschner Lake was forecast to be 39,000 fish (Appendices G1 and F1). As specified in regulation, the fishing season in the Kamishak Bay District opens from June 1 until closed by EO. Historically, the Kamishak Bay 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 announced preseason that all of the sockeye salmon anticipated to return to the Kirschner Lake release site would probably be required to meet cost-recovery goals. Early-season management of the Kamishak Bay District is based on actual harvest versus anticipated harvest as well as escapement past the Mikfik Lake and Chenik Lake video monitoring sites. In addition, aerial surveys are flown, weather permitting, to monitor sockeye and chum salmon escapement to index streams and to 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. Aerial surveys continued into late August and September to monitor progress of coho salmon runs to select streams in this district.

Season Summary

The total 2019 Kamishak Bay District commercial common property harvest was 59,069 sockeye, 31,629 chum, 3,349 coho, and 59,008 pink salmon harvested by 7 seine permit holders (Table 1; Appendices D1 and D2).

Waters of the Kamishak Bay District opened to commercial common property harvest on Friday, June 1, on a schedule of Monday through Sunday fishing periods, 24 hours per day. On June 17, waters of the Paint River and McNeil River subdistricts were closed to commercial harvest to prevent interception of chum salmon returning to the McNeil River (Table 6), which were designated as a *stock of concern* at the 2016 BOF meeting (Otis et al. 2016b). Additionally, on June 17, ADF&G opened the waters of Chenik Lagoon up to lat 154°08.33′N. In many recent years this system had sockeye salmon escapements in the upper end or above the SEG (Appendix D10). Escapement past the video monitoring station and into Chenik Lake was similar in numbers and timing to that seen in recent years with fewer fish than anticipated in the early portion of the return. The Chenik Subdistrict was closed to commercial harvest on July 12. This was in response a cumulative video count of fewer than 1,000 sockeye salmon in the lake versus an anticipated passage target of 2,300 fish in order to meet the minimum SEG of 2,900 fish by the end of August. Shortly thereafter, on July 14, the video system counted 1,969 sockeye salmon entering the lake and an additional 2,818 fish entering the following day. Total passage when video was retrieved on July 16 was approximately 4,300 fish and within the SEG. Because the SEG was achieved, the Chenik Subdistrict reopened to commercial fishing.

Similar to recent years, managing other areas of the Kamishak Bay District has been uneventful compared to managing the Chenik sockeye salmon return. The Kirschner Lake SHA was closed to common property harvest on June 17 and reopened on August 3. Total CIAA cost-recovery harvest during this time was 18,698 sockeye salmon (Appendices F1 and F2). An additional 1,929 pink (Appendix F3) and 4 chum salmon were harvested in the SHA and were sold for cost recovery.

Given the difficulty of fishing in the Kamishak Bay District, combined with the good pink and sockeye salmon returns to the Outer District, there was only modest effort in this area in 2019; in many weeks fewer than 3 permits reported deliveries (Appendix D1).

Salmon escapement to index streams in the Kamishak Bay District was fair with most streams meeting minimal SEG levels (Table 7; Appendices D8–D10). Anadromous waters restrictions (closed waters around the mouths of streams) were removed from several systems to facilitate harvest and reduce the possibility of exceeding the upper end of the SEG (Table 7).

A total of 2,901 sockeye salmon were counted from video at Mikfik Lake through late August (Appendices D4 and D6). The last date of recorded passage into the lake was June 18. Aerial and foot surveys of the Mikfik River following this date documented portions of the river had dried up as a result of lack of rainfall. The final count was below the SEG range of 3,400–11,000 (Table 7) and below the 10-year average of 7,765 (Appendices D7 and D10).

Final sockeye salmon escapement into Chenik Lake was 12,079 on August 27 (Appendices D3, D5, and D7). The SEG range for Chenik Lake is 2,900–13,700 (Table 7), and the 10-year average escapement is 15,522 fish (Appendices D7 and D10).

The peak aerial survey count for Amakdedori Creek was 1,620 sockeye salmon (Appendix D9). This was within the SEG range of 1,200–2,600 (Table 7) and below the 10-year average of 2,200 fish (Table 7; Appendix D10).

All 3 pink salmon SEGs in the Kamishak Bay District were achieved in 2019. Of the 7 chum salmon index streams, all but 2 (McNeil River and Cottonwood Creek) had final escapements above the minimum SEG (Table 7; Appendix D10).

There were 59,069 sockeye salmon harvested by the commercial common property fleet from the Kamishak Bay District in 2019 (Table 1; Appendices D1 and D2). The anticipated preseason harvest was 39,300 wild sockeye salmon (Appendix G1), slightly below the 10-year average harvest of 42,594 (Appendix D2). The total coho salmon harvest of 3,349 was above the 10-year average harvest of 1,041 fish (Appendix D2) and below the preseason anticipated harvest of 4,100 fish (Appendix G1). The total pink salmon harvest from this district was 59,008 fish (Table 1; Appendices D1 and D2) versus an anticipated harvest of 106,900 fish (Appendix G1). The 10-year average annual harvest was 47,425 pink salmon (Appendix D2). The total chum salmon harvest of 31,629 fish (Table 1; Appendices D1 and D2) was above the 10-year average of 17,462 fish (Appendix D2). CIAA harvested 18,698 sockeye salmon for cost-recovery purposes from the Kirschner Lake SHA (Appendices F1 and F2); this was below the anticipated harvest of 39,000 fish (Appendices F1 and G1).

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 portion of the LCI Management Area is outside the nonsubsistence areas and includes the southwest tip of the Kenai Peninsula and the communities of Seldovia, Port Graham, and

Nanwalek, as well as portions of the western shore of the Northern District of Upper Cook Inlet near Tyonek. However, in order to provide harvest opportunity in addition to sport fishing to Alaska residents within these nonsubsistence areas, the BOF has provided 2 personal use salmon fisheries in LCI, and defined seasons and gear types for personal use herring and smelt fisheries. In addition, both resident and nonresident commercial permit holders have been allowed to retain legally harvested fish from their commercial catch for their own use as homepack (5 AAC 39.130(b)(12)).

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. Fishing periods in these areas are defined in regulation, occurring 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. 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 2019, 50 permits were sent to the Nanwalek Traditional Council, 40 permits were sent to the Port Graham Village Council, 10 permits were sent to the Anchorage ADF&G office, and 10 permits were kept at the Homer ADF&G office. All permits were serially numbered and printed on Rite in the Rain paper. Representatives from the village councils were asked to dispense these permits to village residents 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 dispense and collect permits from both of these communities and provide ADF&G with a final harvest estimate. This practice was discontinued due to budget cuts. Permits were not actively distributed from ADF&G offices prior to 2012.

In 2019, the English Bay River weir was operated by residents of Nanwalek for the fourth year since 2011. From 2012 to 2015, CIAA supervised operation of the weir. Sockeye salmon run timing past the English Bay River weir in 2019 was generally as anticipated. In spite of the weir starting a week later than normal on June 7 and also ending a week early on July 24, weir counts exceeded the 6,000–13,500 SEG range with a final count of 24,044 sockeye salmon (Appendix A4).

Three permits were returned by Port Graham residents in 2019. The total reported harvest was 547 salmon. Harvest reporting in Port Graham has declined in recent years with 1 permit returned in 2018. The 10-year average was 10 households reporting a harvest of 23 Chinook, 786 sockeye, 78 coho, 296 pink, and 147 chum salmon (Appendix E1).

In 2019, ADF&G received 3 permits back from Nanwalek residents with a total harvest of 1 Chinook, 480 sockeye, 14 coho, and 52 pink salmon reported harvested (Appendix E2). Harvest reporting has been irregular in recent years, with 2 households reporting in 2012 and 2015, and only 1 household reporting fishing activity in 2017, and 2018. The 10-year average harvest for Nanwalek was 11 households reporting a combined harvest of 6 Chinook, 1,358 sockeye, 680 coho, 579 pink, and 106 chum salmon (Appendix E2). Unlike all other set gillnet fisheries in Cook Inlet, and many other subsistence fisheries in Alaska, subsistence fishing gear in the Port Graham Subdistrict may be fished unattended. Subsistence harvest reports are due in the Homer office by November 30. Reports submitted after December 31 will be included in the following year's Annual Management Report as harvested the previous year.

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.

A subsistence set gillnet fishery for salmon was created in Seldovia Bay by the BOF in 1995. The harvest of Chinook salmon was limited to 200 fish to avoid impacting the stocked Chinook salmon fishery in Seldovia Bay. The annual possession limit is 20 Chinook salmon per household. The fishery is opened for two 48-hour periods per week from April 1 to May 30 and one 36-hour period each of the first 2 weekends in August. In February 1998, the BOF adopted a proposal extending the April/May period by 10 days to May 30. The highest reported subsistence harvest was 189 Chinook salmon in 2000 and the lowest was 12 reported in 2006 (Hammarstrom and Dickson 2007). Regulation requires that permit holders be physically present at the net while deployed to avoid underreporting of harvested fish.

Chinook salmon released into the Seldovia Harbor are funded under the federal Dingell–Johnson Sport Fish Restoration Fund. Allowing a subsistence harvest of these Chinook salmon would violate the intent of this federal program. Furthermore, there are no significant wild 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 the least important salmon 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 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.

In 2019, 40 permits for the spring fishery were sent to the Seldovia harbormaster's office, 10 permits were retained at the Homer ADF&G office, and 10 were sent to the Anchorage ADF&G office. An additional 20 permits for the fall fishery were sent to the Seldovia harbormaster's office. 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 send a copy of the completed permit back to the Homer ADF&G office.

In 2019, 6 permits were dispensed to Alaska residents for the early season and 5 were returned. Of those, all 5 reported having fished (Appendix E3). A total harvest of 6 Chinook, 53 sockeye, and 1 pink salmon was reported, compared to the 10-year average of 8 permits issued, 5 permits returned, and 3 that reported not fishing with an average harvest of 6 Chinook, 48 sockeye, and 1 pink salmon. One permit was issued for the August weekend fishery and was not returned. The 10-year average for the August weekend fishery was 5 permits issued and 3 permits returned, with a harvest of 1 Chinook, 19 sockeye, 4 coho, 19 pink, and 18 chum salmon (Appendix E3). Total harvest for both the early and late season combined was 60 salmon versus a 10-year harvest average of 116 salmon. Currently, there is no specific customary and traditional allocation 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 gillnet fishery.

The China Poot dip net fishery started in 1980. Under the guidance of 5AAC 77.545 *Kachemak Bay Personal Use Dip Net Fishery Management Plan*, this fishery is managed by ADF&G, Division of Sport Fish. Prior to 1996, harvest from this fishery was documented as part of the Alaska Sport Fishing Survey, often called 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.

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 to facilitate inseason management (1) to ensure that the 1,000–2,000 salmon guideline harvest range specified in 5 AAC 77.549 is observed, and (2) to provide opportunity for harvest to reach at least the lower end of the range. Harvest during the 2019 season was 1,287 coho, 147 sockeye, 9 Chinook, 162 pink, and 27 chum salmon, with 156 permits issued, 151 permits returned, and 109 reported as actively fished (Appendix E4). Similar to the 5 previous years, the coho salmon personal use fishery was relatively brief, with only two 48-hour fishing periods (96 hours total) required to meet the guideline harvest range. The season opened on Monday, August 19, beginning at 6:00 AM, and closed via EO at 6:00 AM on Saturday, August 24, at the conclusion of the second fishing period. The 10-year average was 142 permits issued and 1,544 coho salmon harvested (Appendix E4). Although harvest rates were generally considered good in most areas, some long-time participants expressed concern about low coho salmon catches adjacent to local small stock streams in the China Poot/Neptune Bay area.

Coho salmon harvest data from the personal use fishery showed that catches were most robust along the shore from Fritz Creek to Swift Creek, with 499 coho salmon reported by 23 permit holders (Appendix E6). This was followed by the east side of the Homer Spit with 267 coho salmon reported by 31 permit holders. Although harvest from the shore from Mud Bay to Fritz Creek (244 coho salmon by 24 permit holders) was lower than that on the east side of the Homer Spit, catch per permit holder was higher. Harvest was significantly lower in the remaining 3 areas: 18 permit holders reporting 189 coho salmon in the Bear Cove–Neptune Bay area, 8 permit holders reporting 56 coho salmon from the shore between Neptune Bay and Little Tutka Bay, and 5 permit holders reporting 32 coho salmon between Troublesome Creek and the tip of the Homer Spit (Appendix E6).

Without a harvest sampling program in place, it is difficult to estimate the portion of the harvest that could be attributed to hatchery fish returning to the Nick Dudiak Fishing Lagoon on the Homer Spit. Of the 156 permits issued, 80% were held by Homer area residents, 6% by Anchorage-area residents, and the remaining 14% 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)(12) to require that the number of fish of any species retained by commercial fishers 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 2019, 7 set gillnet and 10 purse seine permit holders reported retaining 62 Chinook, 311 sockeye, 166 coho, 59 pink, and 31 chum salmon for their own personal use (Appendix E7). Of those, 6 were residents of Homer, 3 permit holders were Seldovia residents, and the remaining 8 permit holders were Anchorage, Port Graham, Halibut Cove, Ninilchik, Anchor Point, and lower 48 residents (Appendix E8).

COOK INLET SALMON FISHERY ENHANCEMENT

TUTKA BAY LAGOON HATCHERY

The 2019 pink salmon run to the TBLH was only the seventh year of returns since resuming pink salmon production after a 7-year hiatus. Of the 50.0 million BY (brood year) 2017 fry released in 2018, an estimated 1.5 million adults (3%) were anticipated to return (Appendices F1 and G1). The actual run was estimated at 334,357 fish (Appendix F1). Of these fish, CIAA reported that 85,252 were harvested for broodstock (Appendix F3).

Total pink salmon cost-recovery harvest from this facility in 2019 was 179,639 fish.

PORT GRAHAM HATCHERY

In 2019, a total of 10.1 million pink salmon fry that had been incubated at the Port Graham Hatchery (PGH) were held in net pens in the SHA and released on May 31, 2019. This marks the fourth year in which fry released in the PGH SHA were incubated in the PGH facility. Releases from 2013 to 2015 were incubated at the TBLH facility. A total of 17,469 pink salmon were harvested for broodstock from the PGH SHA in 2019 (Appendices F1 and F3).

Although waters of the Port Graham Subdistrict were open from Monday, August 19, through the end of the 2019 season on a regular schedule of fishing periods, no commercial common property or cost-recovery deliveries were reported. Harvest opportunity was restricted in Port Graham because chum salmon returns to the Port Graham River were below expectations and failed to achieve the lower bound of the SEG range (1,200–2,700 fish) for this system.

Total return to this facility was estimated at only 17,469 pink salmon and was less than the anticipated return of 625,500 fish (Appendices F1 and G1).

Of the 17,469 harvested for broodstock, only 9,929 (56.8%) were utilized with 8.0 million eggs collected. The high level of mortality of adult fish may have been related to unusually warm temperatures that occurred in this area in 2019.

TRAIL LAKES HATCHERY

In 2019, the total run of adult sockeye salmon to remote release sites from this Cook Inlet hatchery was 208,873 fish, below the CIAA forecast of 498,142 fish (Appendix F1). The 156,247 sockeye salmon sold for hatchery cost recovery or donated to members of the public were worth

$1.5 million (Tables 2 and 3; Appendix F1). A total of 6,078 sockeye salmon were collected for broodstock across all TLH sites, and of those, only 5,597 fish (92.1%) were viable broodstock. The remainder were holding mortalities (172 fish) or otherwise unsuitable for egg harvest (309) and were subsequently donated to members of the public (Appendix F2). The common property fishery harvested approximately 30,706 of the total TLH sockeye salmon run of 208,873 (Appendix F1). This is based on area of harvest and not otolith marks. Harvests outside of SHAs may be underrepresented. These harvests include remote releases at Kirschner Lake, Resurrection Bay, and sites in Kachemak Bay, as well as harvests associated with the Hidden Lake release in Upper Cook Inlet. Currently, TLH has a permitted capacity of 4 million Chinook, 30 million sockeye, and 6 million coho salmon eggs.

In 2019, a total of 8.2 million sockeye salmon eggs composed of 3 stocks were collected from 3 sites in Cook Inlet (Appendices F1 and F2).

In 2019, a total of 3,350 adult coho salmon returned to the Bear Creek weir (Appendix C5). CIAA collected 245 fish for broodstock, 240 of which were viable (Appendix F4). An additional 30 fish were used in the Salmon in the Classroom program, and an additional 173 fish were used for broodstock at the ADF&G Anchorage hatchery. The remaining 1,183 fish were donated to members of the public (Appendix F4). A total of 1,416 adult coho salmon were passed through the weir and into Bear Lake where they spawned naturally (Appendices C5 and C6). Of the fish used for broodstock, a total of 604,869 green eggs were harvested, which was fewer than the 4.0 million eggs that CIAA was permitted for (Appendix F1). The majority of the coho salmon run originated from the BY 2016 fry release (223,000 fry; Appendix F1).

LOWER COOK INLET REMOTE RELEASES

Leisure Lake and Hazel Lake

In 2019, overall sockeye salmon returns to Hazel and Leisure Lakes were derived from 2015 (BY 2014; 1.6 million) releases because there was no release in 2016 due to a shortfall in 2015 broodstock harvests. Total run was estimated at 17,949 (Appendix F1). The 2015 release was English Bay Lake stock fish.

Kirschner Lake

Sockeye salmon harvest in 2019 was below the anticipated level of 39,000 fish (Appendix F1) with 18,698 harvested for cost recovery, and 4,824 fish harvested in the commercial common property fishery (Appendix F1). The 2019 run is the result of 2015 (BY 2014 English Bay) and 2016 (BY 2015 English Bay) fry releases (Appendix F1).

Tutka Bay Lagoon

The overall sockeye salmon adult run to this release site in 2019 was estimated to be 14,450 fish (Appendix F1). Of these, 10,596 were reported on fish tickets as being harvested for cost recovery from the Tutka Bay SHA, 1,226 were harvested for broodstock, and an additional 2,628 were harvested commercially (including homepacks) in the Tutka Bay Subdistrict (Appendices F1 and F2).

Paint River Fish Ladder

In 2017, CIAA purchased 3,969 pink salmon harvested in the nearby Bruin Bay Subdistrict and collected 1.5 million eggs from them. These eggs were incubated at PGH and the 305,000 resulting

fry were released in the Paint River system on May 15, 2018. As a result of below-normal rainfall in this area during the summer of 2019, the ladder was dry during a significant portion of the season. CIAA staff on the ground and ADF&G staff conducting aerial surveys documented several thousand pink salmon schooling at the base of the ladder at this time.

Bear Lake and Resurrection Bay

The sockeye salmon runs to Resurrection Bay in 2019 originated primarily from the 4.1 million BY 2014 and 4.2 million BY 2015 releases of smolt and fry into Bear Lake and the net pens in Resurrection Bay (Appendix F1).

In 2019, 3,350 adult coho salmon returned to the Bear Creek weir during its period of operation through October 14 (Appendix C5). CIAA collected 203 coho salmon for broodstock for a total of 604,869 green eggs, which was fewer than the 4.0 million eggs that CIAA was permitted for this species. There were 1,183 fish donated to members of the public. An additional 83 coho salmon were unaccounted for and probably donated to the public without being documented on a fish ticket (Appendices F1 and F4).

LOWER COOK INLET COMMERCIAL HERRING FISHERY

2019 SEASON SUMMARY

ADF&G did not conduct aerial or vessel surveys to assess the Kamishak Bay herring stock in 2019. Information regarding previous years' harvests can be found in the herring section of the 2018 Lower Cook Inlet Annual Management Report (Hollowell et al. 2019).

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TABLES AND FIGURES

Table 1.–Lower Cook Inlet Management Area commercial salmon harvest by gear and district, 2019.

District	Permit holders[a]	Chinook[a]	Sockeye[a]	Coho[a,b]	Pink[a]	Chum[a]	Total
Southern District	21	140	47,006	3,065	22,934	298	73,443
Outer District	21	184	15,482	2,889	1,710,012	19,460	1,748,027
Eastern District	4	0	4,307	2	112	19	4,440
Kamishak Bay District	7	0	59,069	3,349	59,008	31,629	153,055
Purse seine total	21	324	125,864	9,305	1,792,066	51,406	1,978,965
Southern District	20[c]	350	29,274	2,817	6,411	3,908	42,760
Set gillnet total	20	350	29,274	2,817	6,411	3,908	42,760
Commercial common property total		674	155,138	12,122	1,798,477	55,314	2,021,725
Hatchery cost-recovery total[d]		0	155,384	3	181,588	163	337,138
Commercially sold total		674	310,522	12,125	1,980,065	55,477	2,358,863
Homepack		62	311	166	59	31	629
Hatchery donated fish[e]		–	863	421	–	–	1,284
Misc. total		62	1,174	587	59	31	1,913
Lower Cook Inlet total		736	311,696	12,712	1,980,124	55,508	2,360,776

[a] Numbers of fish and numbers of permit holders delivering are from ADF&G statewide electronic fish ticket database [Internet]. 1985–2019. Juneau, AK. [URL not available as some information is confidential].

[b] There were 1,561 coho salmon harvested in the Seward Salmon Derby and 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] Of the 20 permit holders that delivered, 2 were dual permits.

[d] Hatchery sales for hatchery operating costs. Includes incidentally harvested wild salmon.

[e] Excess sockeye and pink salmon harvested at the Bear Creek weir and Tutka Bay Lagoon Hatchery. Dashes indicate no data.

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, 2001–2019.

Year	Gear	Permits[a]	Chinook[a]	Sockeye[a]	Coho[a]	Pink[a]	Chum[a]
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
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

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Table 2.–Page 2 of 2.

Year	Gear	Permits[a]	Chinook[a]	Sockeye[a]	Coho[a]	Pink[a]	Chum[a]
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
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
2016	Purse Seine	19	153	68,294	774	52,016	71,986
2016	Set Gillnet	21	766	19,542	858	22,077	2,165
2016	Hatchery	0	0	172,733	0	27,121	94
	Total		919	260,569	1,632	101,214	74,245
2017	Purse Seine	18	190	165,925	4,079	1,860,434	189,523
2017	Set Gillnet	20	471	37,202	9,542	44,025	7,962
2017	Hatchery	0	4	90,597	1,071	113,691	246
	Total		665	293,724	14,692	2,018,150	197,731
2018	Purse Seine	20	183	113,335	10,856	509,757	44,389
2018	Set Gillnet	24	196	15,259	3,175	56,709	4,258
2018	Hatchery	0	2	241,866	1,356	997,613	82
	Total		381	370,460	15,387	1,564,079	48,729
10-yr Average	Purse Seine	17	84	88,172	1,982	1,087,565	77,448
	Set Gillnet	20	312	26,558	2,251	17,434	4,067
	Hatchery	0	3	141,484	267	327,817	280
	Total		399	256,214	4,500	1,432,816	81,795
2019	Purse Seine	22	374	126,068	9,328	1,792,113	51,415
2019	Set Gillnet	20	362	29,381	2,960	6,423	3,930
2019	Hatchery	0	0	156,247	424	181,588	163
	Total		736	311,696	12,712	1,980,124	55,508

[a] Numbers of fish and numbers of permit holders delivering are from the ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential]. 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 homepack) by gear type, Lower Cook Inlet, 2019.

PURSE SEINE			Average		
Species	Number[a]	Pounds[a]	weight	Price[a]	Value
Chinook	374	5,341	15.82	$3.60	$19,229
Sockeye	126,068	532,184	4.21	$2.32	$1,232,374
Coho	9,328	73,780	7.91	$0.97	$71,361
Pink	1,792,113	5,604,047	3.13	$0.30	$1,680,547
Chum	51,415	374,948	7.29	$0.50	$187,464
	1,979,298	6,590,300			$3,190,974
SET GILLNET			Average		
Species	Number[a]	Pounds[a]	weight	Price[a]	Value
Chinook	362	3,513	10.03	$4.79	$16,828
Sockeye	29,381	163,114	5.56	$2.19	$357,204
Coho	2,960	16,698	5.91	$0.90	$14,960
Pink	6,423	22,811	3.55	$0.25	$5,687
Chum	3,930	26,539	6.77	$0.39	$10,418
	43,056	232,675			$405,098
HATCHERY SALES			Average		
Species	Number[a]	Pounds[a]	weight	Price[a]	Value
Chinook	0	0	0.00	$0.00	$0
Sockeye	156,247	699,341	4.48	$2.11	$1,475,610
Coho	424	2,608	5.67	$0.65	$1,695
Pink	181,588	538,296	2.96	$0.42	$223,393
Chum	163	1,029	6.31	$0.50	$515
	338,422	1,241,274			$1,701,212
TOTAL HARVEST			Average		
Species	Number[a]	Pounds[a]	weight	Price[a]	Value
Chinook	736	8,854	12.86	$4.07	36,057
Sockeye	311,696	1,394,639	4.47	$2.20	3,065,187
Coho	12,712	93,086	7.40	$0.95	88,017
Pink	1,980,124	6,165,154	3.11	$0.31	1,909,627
Chum	55,508	402,516	7.25	$0.49	198,396
	2,360,776	8,064,249			$5,297,284

Gear Type	Value of catch	No. of permit holders[b]	Average earnings
Purse seine	$3,190,974	22	$145,044
Set gillnet	$405,098	20	$20,255
Subtotal value of CPF catch	$3,596,072		
Hatchery	$1,701,212		
TOTAL VALUE	$5,297,284		

[a] Mean prices are based on weighted average prices from the ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential]. Pounds and numbers of fish are based on fish ticket reporting.

[b] In 2019, 2 set gillnet permit holders fished dual permits. Permit stacking has been permitted by the Alaska Board of Fisheries since 2014. In addition, in 2019, 1 purse seine permit was transferred midseason.

Table 4.–Average price per pound paid to permit holders for salmon, Lower Cook Inlet, 1990–2019.

	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	$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	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
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
2016	$1.43	$3.14	$2.92	$1.45	$1.78	$1.60	$0.63	$1.01	$0.97	$0.21	$0.15	$0.19	$0.50	$0.36	$0.45
2017	$4.34	$3.79	$3.86	$1.41	$2.16	$1.97	$0.95	$0.77	$0.80	$0.30	$0.15	$0.24	$0.75	$0.50	$0.63
2018	$2.95	$4.79	$4.17	$2.14	$2.56	$2.20	$1.23	$1.41	$1.27	$0.39	$0.19	$0.37	$0.78	$0.71	$0.78
10-year Average	$1.73	$3.88	$3.68	$1.55	$1.86	$1.71	$0.69	$0.95	$0.85	$0.29	$0.23	$0.28	$0.62	$0.40	$0.60
2019	$3.60	$4.79	$4.07	$2.32	$2.19	$2.29	$0.97	$0.90	$0.95	$0.30	$0.25	$0.30	$0.50	$0.39	$0.49

Source: These prices are based on weighted average prices from the ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential] 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 10-year average, Lower Cook Inlet, 2009–2019.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Prev. 10-yr average	2019
Purse seine												
Species												
Chinook	34	15	648	483	689	411	624	1,966	10,485	3,115	1,847	19,229
Sockeye	347,202	58,349	1,485,538	461,300	644,508	618,967	424,498	478,989	1,062,723	1,066,657	664,873	1,232,374
Coho	41	4,131	157	706	9,366	1,314	2,892	3,140	23,363	117,622	5,012	71,361
Pink	665,639	328,849	423,068	300,992	2,403,739	264,127	2,788,824	49,958	1,955,477	775,003	1,020,075	1,680,547
Chum	314,421	619,305	166,691	323,923	205,517	294,110	287,699	243,999	1,117,301	293,259	396,996	187,464
Total value	$1,327,338	$1,010,648	$2,076,101	$1,087,404	$3,263,819	$1,178,929	$3,504,537	$778,052	$4,169,350	$2,255,656	2,044,020	$3,190,974
Set gillnet												
Species												
Chinook	5,412	1,792	8,032	4,847	15,135	11,533	24,510	23,757	29,001	9,992	13,401	16,828
Sockeye	332,005	151,183	218,700	109,526	502,583	433,220	359,009	190,984	455,125	203,034	295,537	357,204
Coho	4,953	1,458	488	200	20,959	3,220	13,635	4,735	44,430	28,897	10,453	14,960
Pink	1,073	2,728	2,606	10,074	2,217	3,351	18,010	13,896	25,531	40,586	8,832	5,687
Chum	4,216	4,972	7,975	2,528	6,842	18,062	25,534	4,905	28,931	22,787	11,552	10,418
Total value	$347,659	$162,132	$237,801	$127,176	$547,736	$469,385	$440,698	$238,277	$583,018	$305,295	350,431	$405,098
Hatchery sales												
Species												
Chinook	0	0	0	0	0	245	0	0	0	68	31	0
Sockeye	1,177,187	430,230	1,625,199	1,021,125	910,285	1,799,731	821,739	1,642,913	862,685	3,070,644	1,336,174	1,475,610
Coho	2	222	0	44	0	0	554	0	2,909	2,598	415	1,695
Pink	1,249	280	487	1,074	57,622	130	1,383,195	24,290	94,108	1,570,933	173,604	223,393
Chum	0	33	16	1,034	83	628	4,444	422	1,055	398	857	515
Total value	$1,178,437	$430,765	$1,625,702	$1,023,277	$967,990	$1,800,733	$2,209,932	$1,667,624	$960,758	$4,644,642	1,318,358	$1,701,212
Avg. earnings												
Purse seine	$102,103	$72,189	$90,265	$67,963	$296,711	$58,946	$184,449	$40,950	$231,631	$112,783	125,799	$145,044
Set gillnet	$18,298	$7,721	$11,324	$8,478	$28,828	$24,704	$18,362	$11,347	$29,151	$16,068	17,428	$20,255
No. of permit holders fishing												
Purse seine	13	14	23	16	11	20	19	19	18	20	17	22
Set gillnet	19	21	21	15	19	19	24	21	20	19	20	20

Table 6.–Emergency orders issued for the commercial, personal use, and subsistence salmon fisheries in Lower Cook Inlet, 2019.

EO number[a]/Issue date	Description
2-F-LCI-001-19/ Friday, May 31	**Southern and Kamishak Bay districts, commercial harvest.** Opens waters of the Southern District to commercial salmon harvest and establishes 2 weekly 48-hour set gillnet fishing periods in the Southern District beginning at 6:00 AM on Mondays and Thursdays effective Monday, June 3. Establishes 7-day per week purse seine fishing periods in the Kamishak Bay District begining June 1. Closes McNeil and Paint River subdistricts to salmon fishing effective June 17. Opens portions of Chenik Lagoon up on June 18. Corrects 3 erroneous seaward boundary points for the commercial set gillnet fishery.
2-F-LCI-002-19/ Friday, June 14	**Southern District, purse seine.** Opens the commercial purse seine salmon fishing season on Monday, June 17 in the Southern and Eastern districts and establishes a Monday, Wednesday, and Friday fishing schedule in portions of the former. Establishes a season closure for this gear of September 30. Allows commercial seine harvest up to the fresh water of the Wosnesenski River.
2-F-LCI-003-19/ Thursday, June 20	**Southern and Kamishak Bay districts, purse seine.** Establishes a schedule of M–F fishing periods in Resurrection Bay with no fishing on July 4 or 5. Establishes the China Poot and Hazel Lake SHA as separate areas. Closes waters of the China Poot SHA on June 26. Closes waters of the Kirschner SHA on June 24.
2-F-LCI-004-19/ Friday, June 21	**Eastern District, purse seine.** Closes the Resurrection Bay SHA to cost recovery harvest.
2-F-LCI-005-19/ Friday, July 5	**Southern District, purse seine.** Closes Chenik Lagoon to commercial purse seine salmon harvest. Opens the China Poot SHA to cost-recovery harvest.
2-F-LCI-006-19/ Friday, July 12	**Southern, Eastern, and Kamishak Bay districts, purse seine.** Closes portions of the China Poot SHA to cost-recovery harvest. Opens the Outer District purse seine season on July 15 and establishes a schedule of MWF fishing periods in portions of that district. Suspends commercial common property fishing in Resurrection Bay effective at 10:00 PM on July 19. Closes the Chenik Subdistrict to salmon harvest at 10:00 PM on July 12.
2-F-LCI-007-19/ Wednesday, July 17	**Kamishak Bay District, purse seine.** Opens portions of the Chenik Subdistrict to commercial harvest effective July 18.
2-F-LCI-008-19/ Saturday, July 20	**Outer and Southern districts, purse seine.** Establishes fishing periods in the Humpy Creek Subdistrict and suspends regulatory closed waters in that area. Opens the East Nuka Subdistrict for a single 16-hour fishing period on Monday, July 22.
2-F-LCI-009-19/ Monday, July 22	**Outer District, purse seine.** Establishes a schedule of MWF fishing periods in the East Nuka Subdistrict and Petrof area. Suspends closed waters in McCarty Lagoon.
2-F-LCI-010-19/ Tuesday, July 30	**Southern District, subsistence harvest.** Extends the regulatory 5½ day fishing period to 6½ days.
2-F-LCI-011-19/ Tuesday, July 30	**Southern District, purse seine.** Allows commercial common property purse seine harvest in the China Poot SHA including a portion of the regulatory closed waters area.
2-F-LCI-012-19/ Friday, August 2	**Southern and Kamishak Bay districts, purse seine.** Closes the China Poot SHA to commercial harvest. Rescinding anadromous closed waters in the area of Brown's Peak Creek, Sunday Creek, and Chenik Lagoon. Opens the Kirschner SHA and Port Chatham Subdistrict to commercial common property harvest.

-continued-

Table 6.–Page 2 of 2.

EO number[a]/Issue date	Description
2-F-LCI-013-19/ Saturday, August 10	**Outer District, purse seine.** Establishes a 16-hour fishing period in portions of the Port Dick Subdistrict. Adds Tuesdays and Thursdays to the ongoing Outer District schedule exclusive of the Port Dick area.
2-F-LCI-014-19/ Monday, August 12	**Outer District, purse seine.** Opens the Taylor Bay and Outer Port Dick sections for one 16-hour period on Wednesday, August 14.
2-F-LCI-015-19/ Wednesday, August 14	**Outer District, purse seine.** Opens the Taylor Bay and Outer Port Dick sections for one 16-hour period on Friday, August 16.
2-F-LCI-016-19/ Thursday, August 15	**Outer District, purse seine.** Establishes a 16-hour fishing period in portions of the Port Dick Subdistrict on Friday, August 16.
2-F-LCI-017-19/ Friday, August 16	**Southern and Outer districts, purse seine.** Establishes a M–F, 6:00 AM to 10:00 PM fising schedule in the Port Dick Outer and Taylor Bay sections. Establishes a MWF schedule of fishing periods concurrent with other Southern District areas in the Port Graham Subdistrict exclusing the hatchery SHA. Opens waters of the Tutka Bay SHA seaward of the HEA powerlines on a MWF schedule. Reestablishes closed waters in the Neptune Bay Section.
2-F-LCI-018-19/ Monday, August 19	**Outer District, purse seine.** Establishes a schedule of M–F 6:00 AM to 10:00 PM fishing periods in portions of the Port Dick Subdistrict.
2-F-LCI-019-19/ Thursday, August 22	**Outer District, purse seine.** Adds Saturday and Sunday periods to the current M–F fishing schedule in portions of the Outer District.
2-F-LCI-020-19/ Thursday, August 22	**Southern District, personal use fishing.** Closes the Kachemak Bay Personal Use set gillnet fishery for the 2019 season on Saturday, August 24, at 6:00 AM.
2-F-LCI-021-19/ Thursday, August 22	**Southern District, purse seine.** Closes waters of the Hazel Lake SHA to commercial salmon fishing.
2-F-LCI-022-19/ Friday, August 30	**Kamishak Bay and Outer districts, purse seine.** Reestablishes closed waters at Chenik Creek, Brown's Peak Creek, and Sunday Creek. Rescinds closed waters for Port Dick and Island Creeks. Decreases the size of the regulatory closed waters area in Taylor Bay.
2-F-LCI-023-19/ Friday, September 6	**Lower Cook Inlet, purse seine.** Reestablishes closed waters in Port Dick, Island Creek, and Taylor Bay. Closes the Lower Cook Inlet commercial salmon purse seine season on September 23.
2-F-LCI-024-19/ Monday, September 9	**Southern District, aquatic plants.** Establishes a commercial season for the harvest of detached kelp that has washed up on beaches where stakeholders have applied for and received Alaska Department of Fish and Game commissioner's permits.

[a] Effective in 2019, emergency order enumeration format changed from 2-F-H-000-YY to 2-F-LCI-000-YY to avoid confusion with Upper Cook Inlet emergency orders.

Table 7.–Escapements relative to escapement goals, and methods used to monitor escapements in 2019 for Chinook, chum, pink, and sockeye salmon stocks in Cook Inlet, Alaska.

Stock	2019 Escapement	Escapement goal Type[a] (BEG, SEG)	Range Lower	Midpoint	Upper	Monitoring method Aerial	Ground	Video	Weir	Comments
CHUM SALMON (12 with goals)										
Port Graham River	1,074	SEG	1,200	1,950	2,700		X			
Dogfish Lagoon	3,640	SEG	3,500	6,050	8,600	X	X			used aerial index
Rocky River	6,569	SEG	1,500	2,950	4,400	X				
Port Dick Creek	2,000	SEG	1,900	3,100	4,300	X	X			used ground index
Island Creek	5,482	SEG	5,100	8,500	11,900	X	X			used ground index
Big Kamishak River	51,030	SEG	6,800	11,200	15,600	X				
Little Kamishak River	22,611	SEG	8,000	12,400	16,800	X				
McNeil River	9,205	SEG	24,000	36,000	48,000	X				
Bruin River	25,283	SEG	5,200	7,600	10,000	X				
Ursus Cove	13,400	SEG	5,900	8,000	10,100	X				
Cottonwood Creek	3,908	SEG	5,200	8,700	12,200	X				
Iniskin Bay	15,294	SEG	5,900	9,750	13,600	X				
PINK SALMON (18 with goals)										
Humpy Creek	25,667	SEG	17,500	34,450	51,400		X			
China Poot Creek	1,575	SEG	2,500	4,400	6,300		X			
Tutka Creek	53,732	SEG	6,500	11,750	17,000		X			
Barabara Creek	9,462	SEG	2,000	3,800	5,600		X			
Seldovia Creek	18,337	SEG	21,800	29,600	37,400		X			
Port Graham River	29,588	SEG	7,700	13,700	19,700		X			
Dogfish Lagoon Cks.	22,043	SEG	800	3,950	7,100	X	X			used ground index
Port Chatham	39,585	SEG	7,800	12,950	18,100	X	X			used ground index
Windy Creek Right	13,744	SEG	3,400	7,300	11,200	X				
Windy Creek Left	25,580	SEG	5,400	16,250	27,100	X				
Rocky River	75,412	SEG	11,700	33,250	54,800	X				
Port Dick Creek	93,157	SEG	17,900	33,850	49,800	X	X			used ground index
Island Creek	63,691	SEG	9,600	21,050	32,500	X	X			used aerial index
S. Nuka Island Creek	2,453	SEG	2,800	7,000	11,200	X				
Desire Lake	12,070	SEG	1,500	9,750	18,000	X				
Bruin River	43,800	SEG	17,800	60,400	103,000	X				
Sunday Creek	20,801	SEG	4,400	14,650	24,900	X				
Brown's Peak Creek	43,420	SEG	2,600	10,050	17,500	X				

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Table 7.–Page 2 of 2.

Stock	2019 Escapement	Type[a] (BEG, SEG)	Escapement goal Range Lower	Midpoint	Upper	Monitoring method Aerial	Ground	Video	Weir	Comments
SOCKEYE SALMON (8 with goals)										
English Bay	24,044	SEG	6,000	9,750	13,500	X			X	used weir count
Delight Lake	17,410[b]	SEG	7,500	12,575	17,650	X			X	used weir count
Desire Lake	9,040	SEG	4,800	8,350	11,900	X				
Bear Lake	9,185	SEG	700	4,500	8,300				X	
Aialik Lake	5,000	SEG	3,200	4,300	5,400	X				
Mikfik Lake	2,901	SEG	3,400	7,200	11,000			X		
Chenik Lake	12,079	SEG	2,900	8,300	13,700			X		
Amakdedori Creek	1,620	SEG	1,200	1,900	2,600	X				

[a] SEG = sustainable escapement goal; BEG = biological escapement goal.

[b] Used weir-based goal because CIAA operated a weir at Delight Lake in 2019. See Appendix B8 for 2019 aerial survey counts.

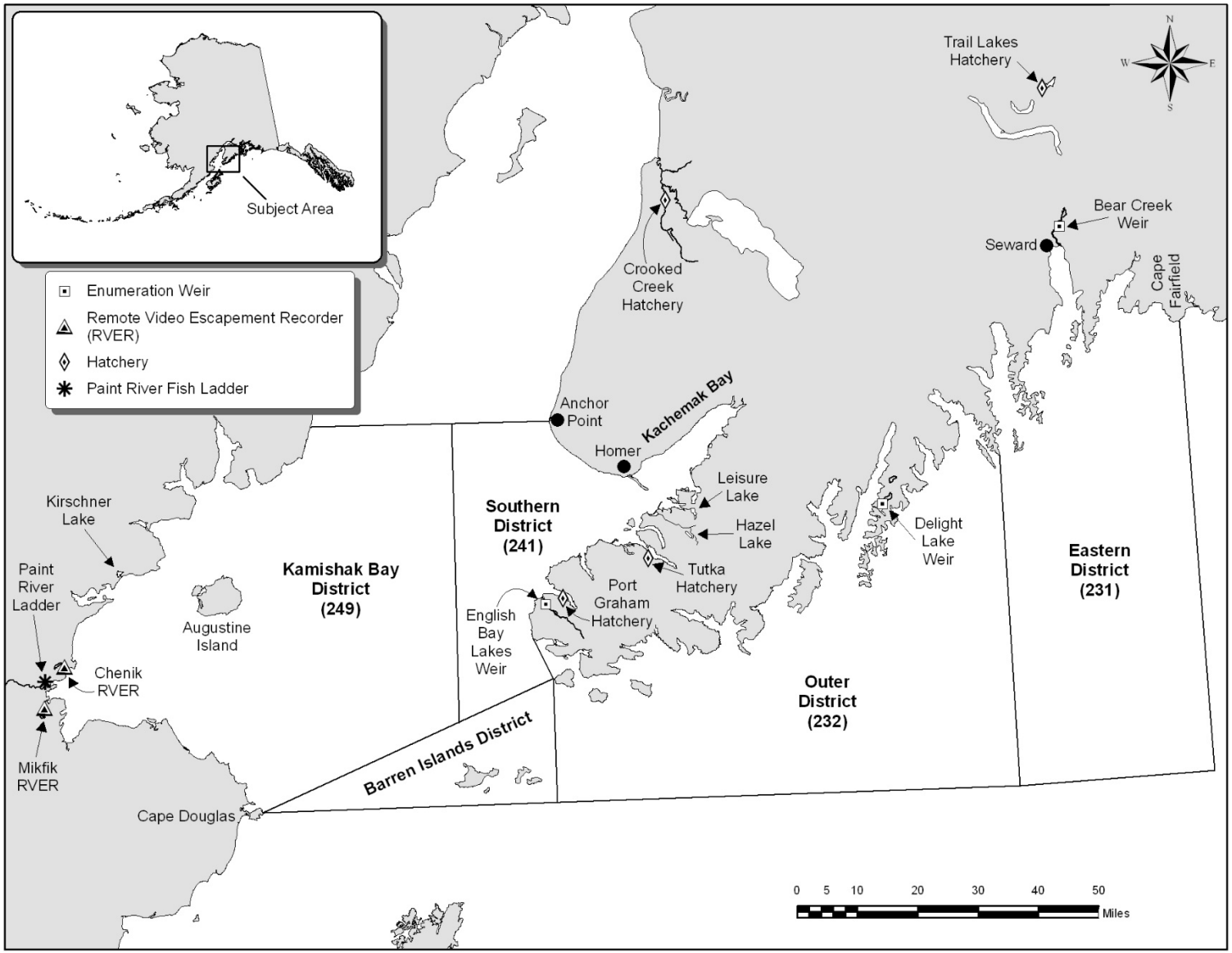

Figure 1.–Lower Cook Inlet Management Area showing commercial fishing districts, salmon hatcheries, weir and fish ladder locations, and remote video salmon monitoring sites.

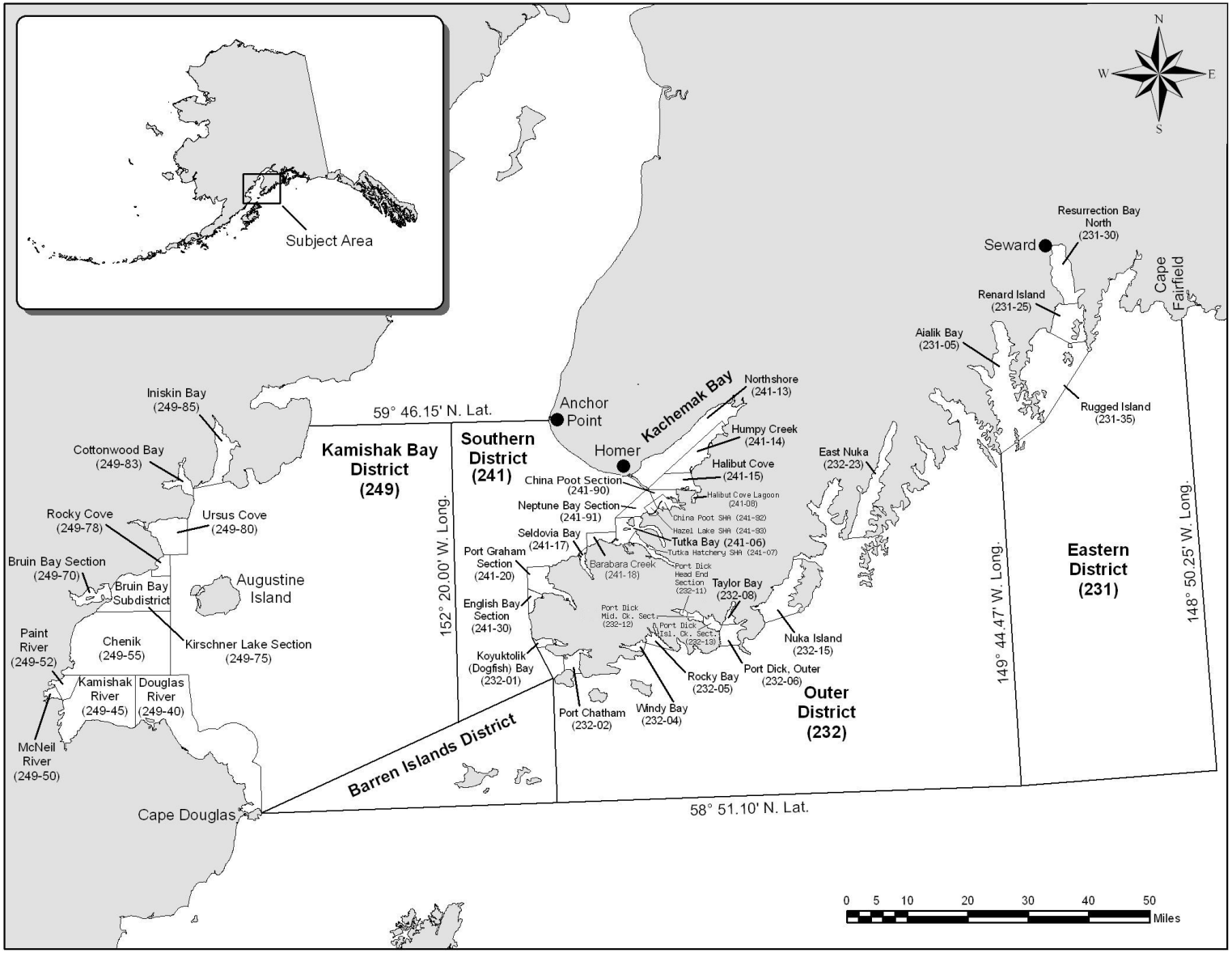

Figure 2.–Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts.

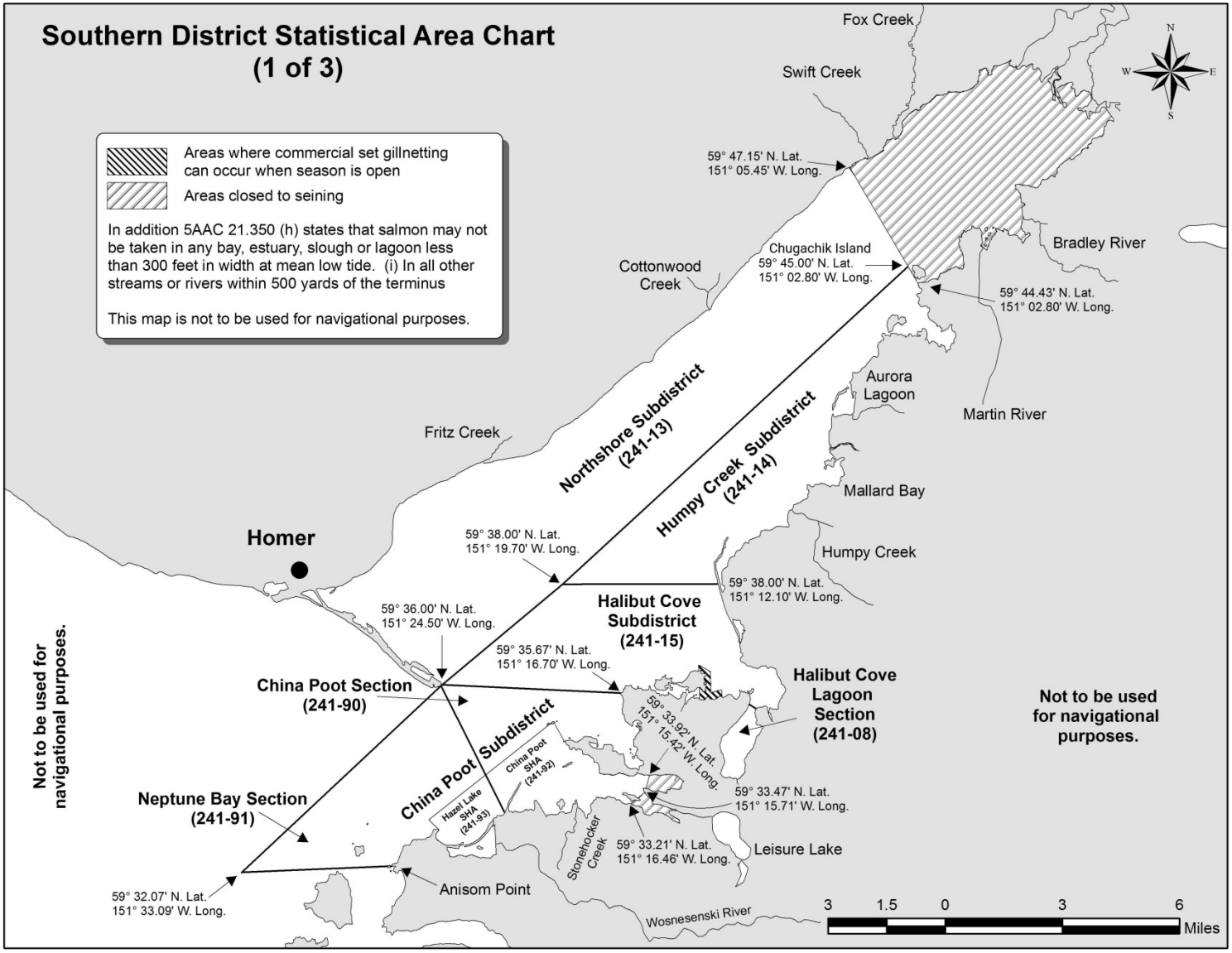

Figure 3.–Southern District of Lower Cook Inlet Management Area showing commercial fishing and reporting subdistricts, Chugachik Island to Anisom Point.

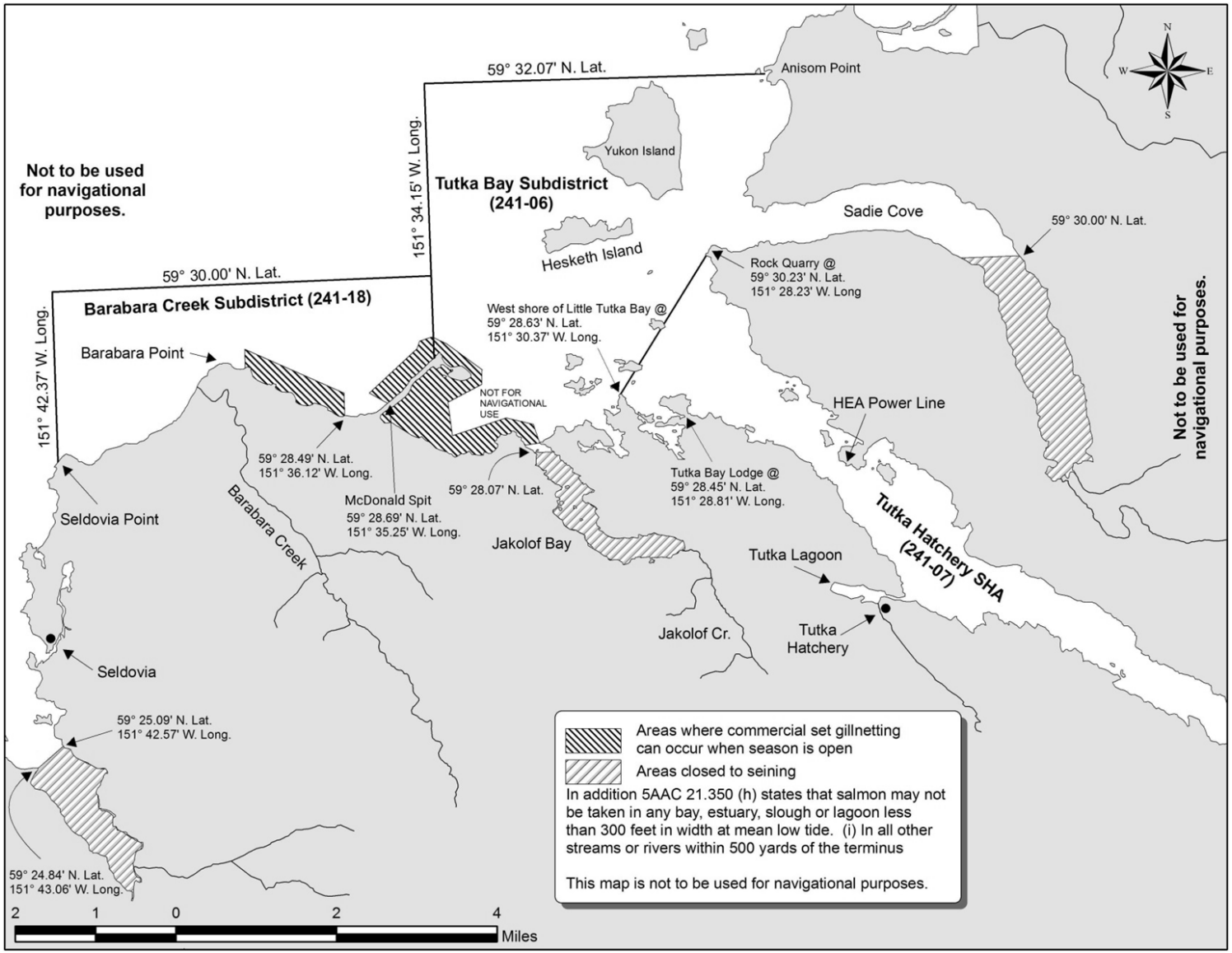

Figure 4.–Southern District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Anisom Point to Seldovia Point.

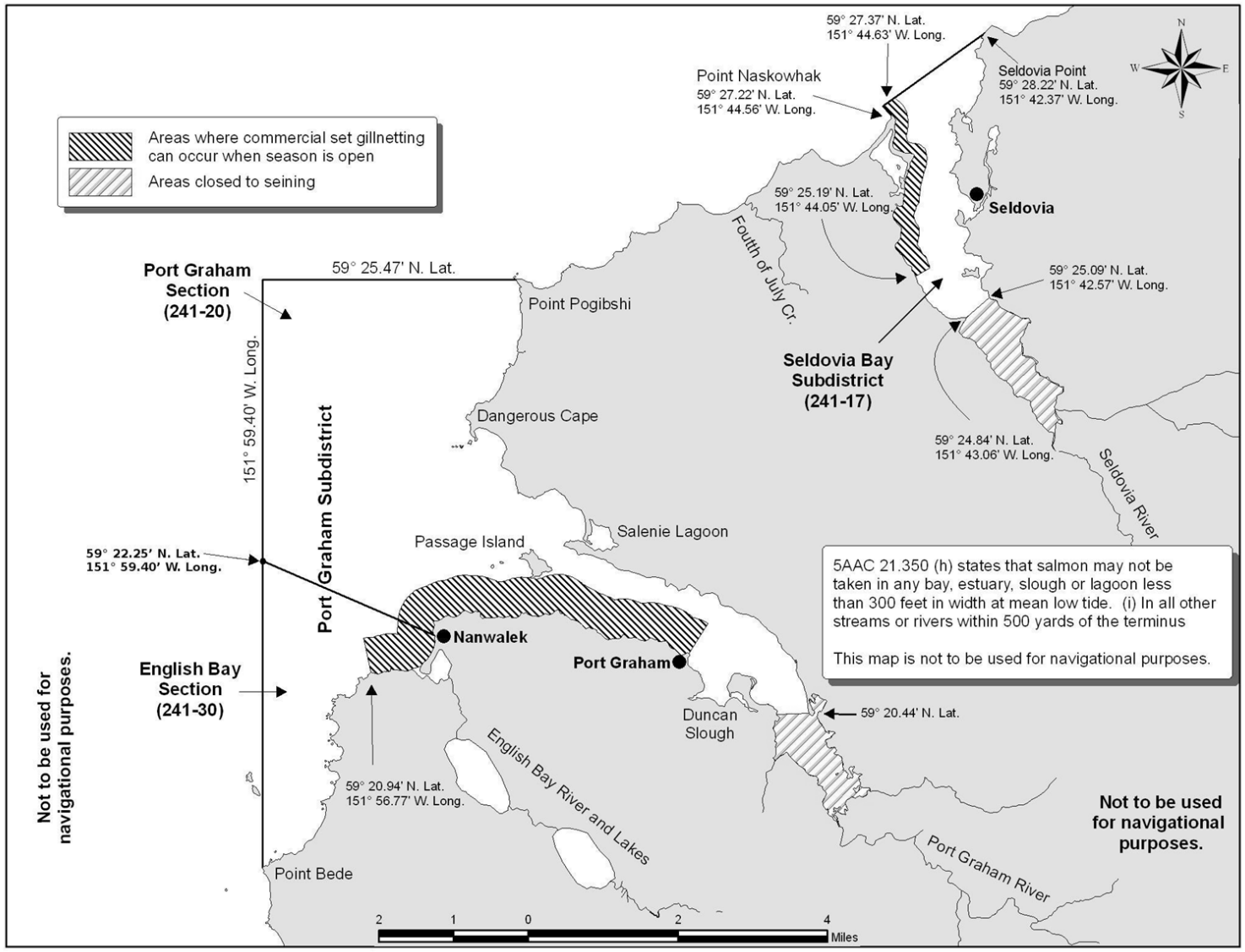

Figure 5.–Southern District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Seldovia Point to Point Bede.

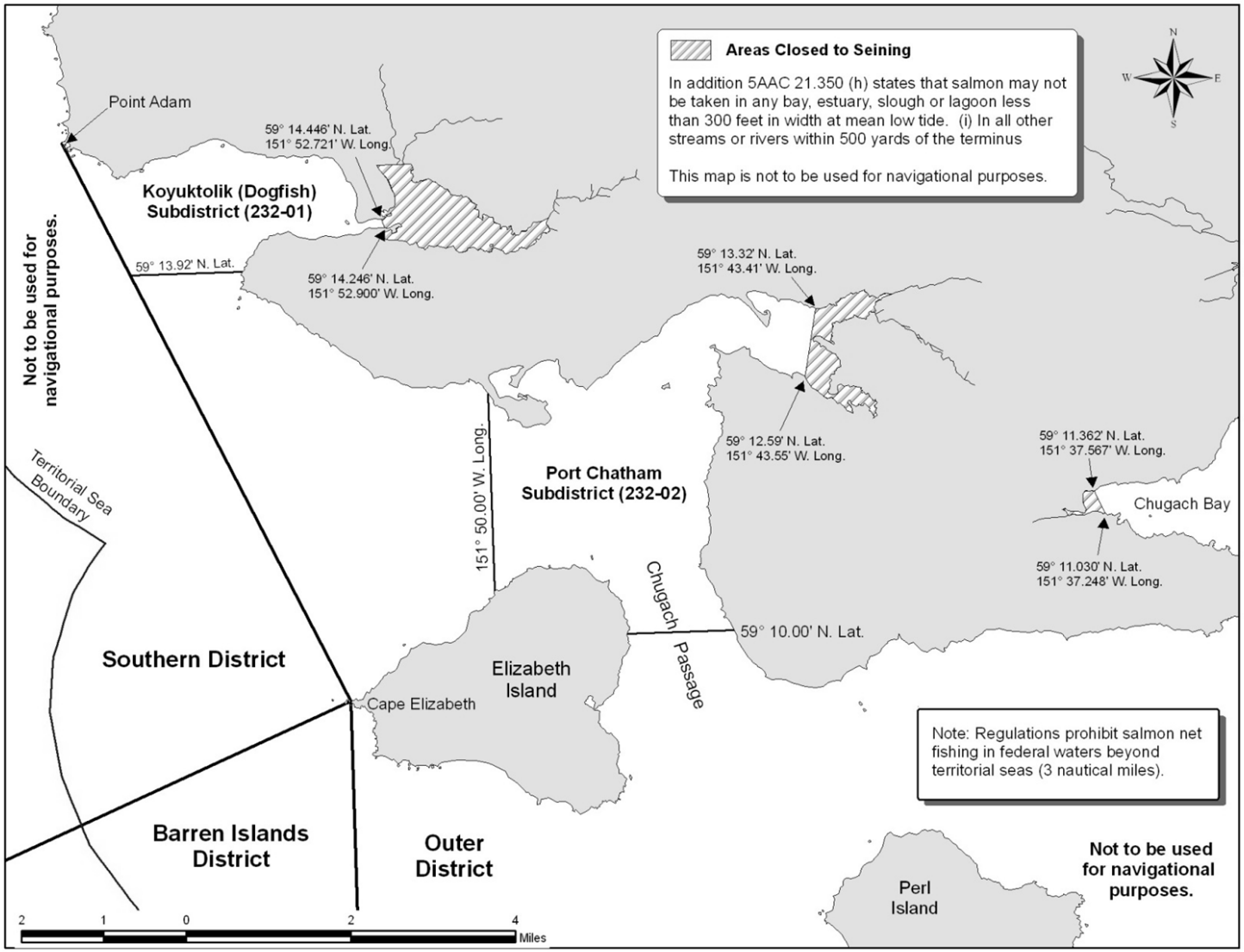

Figure 6.–Outer District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Point Adam to Chugach Bay.

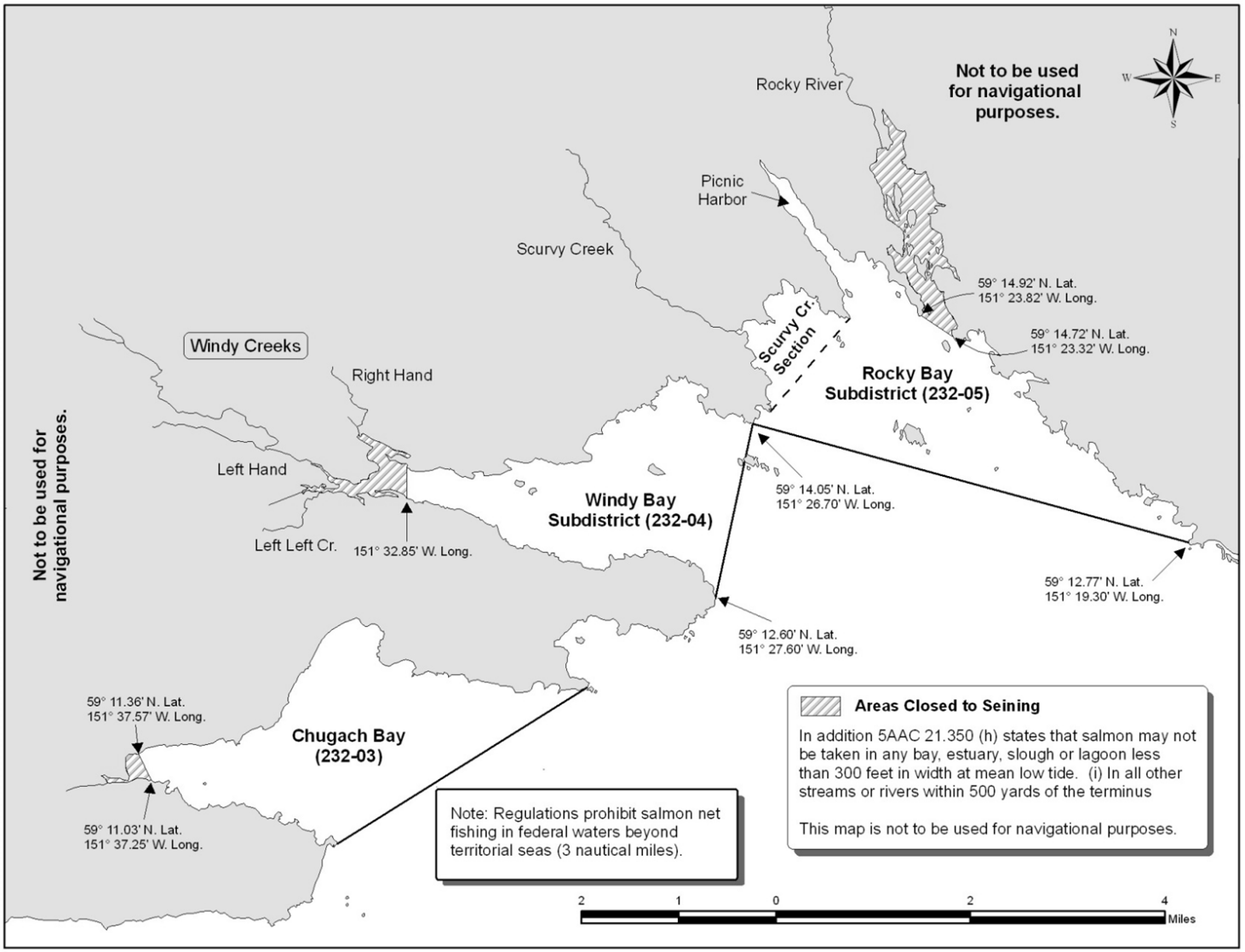

Figure 7.–Outer District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Chugach Bay to Rocky Bay.

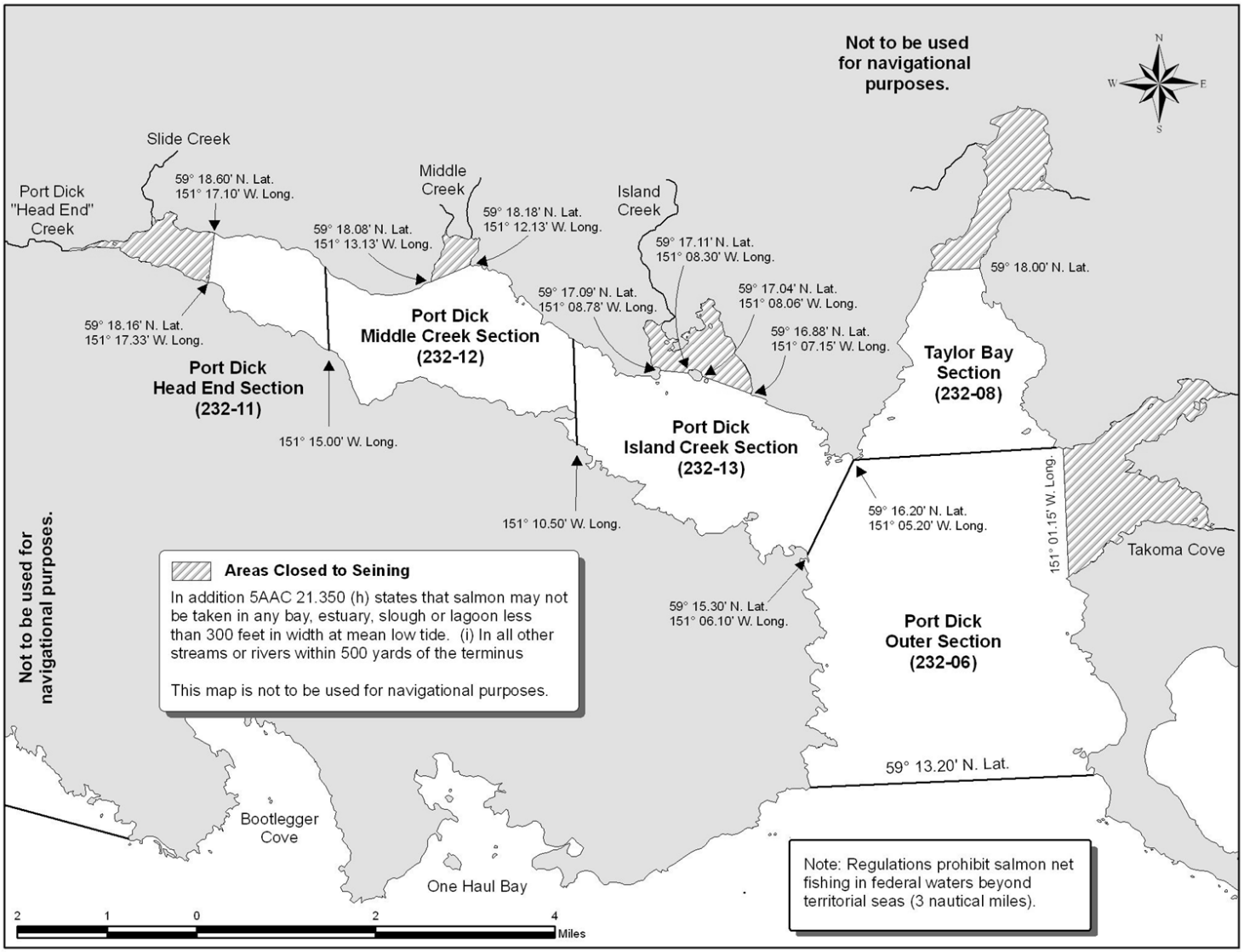

Figure 8.–Outer District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Port Dick area.

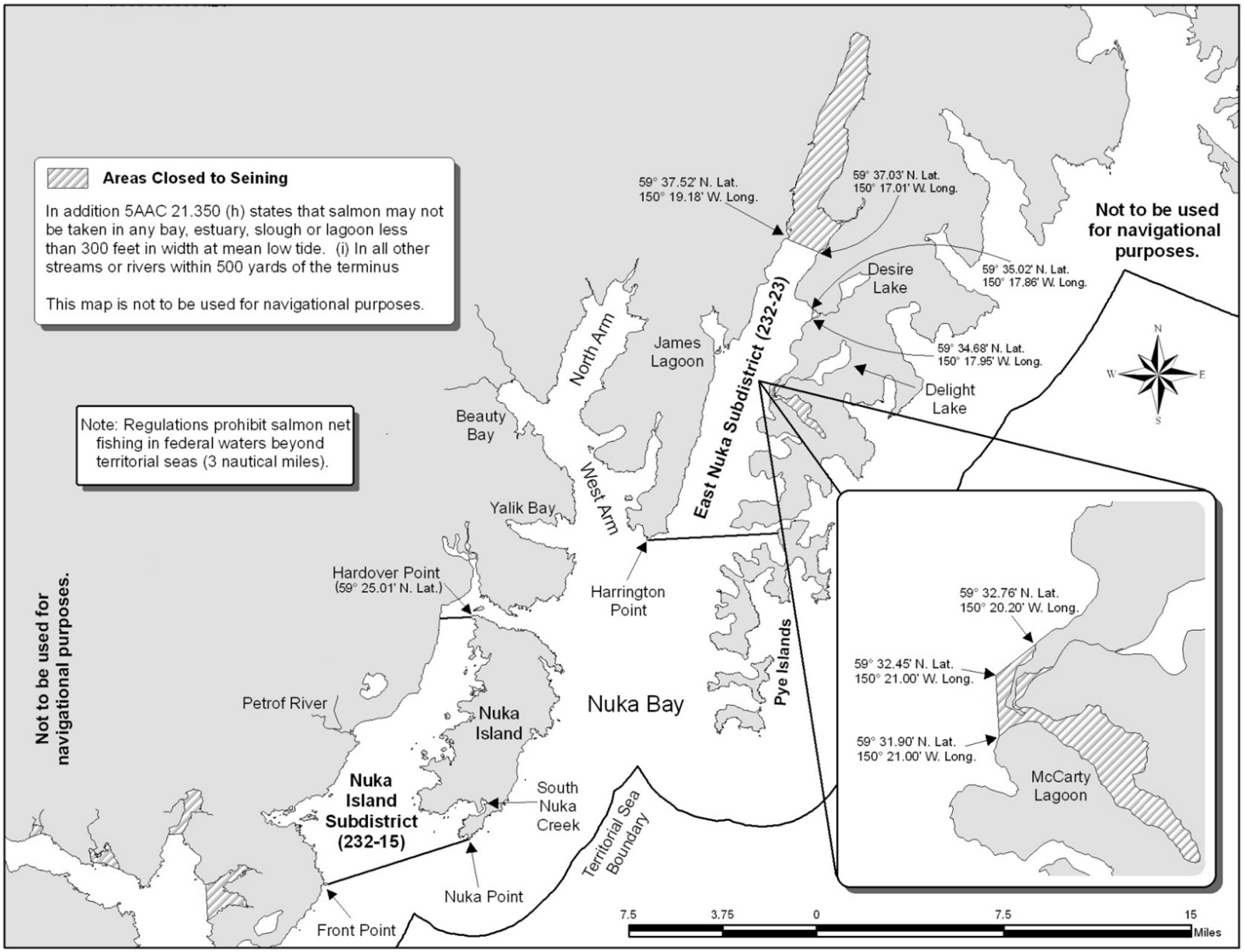

Figure 9.–Outer District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Nuka Bay area.

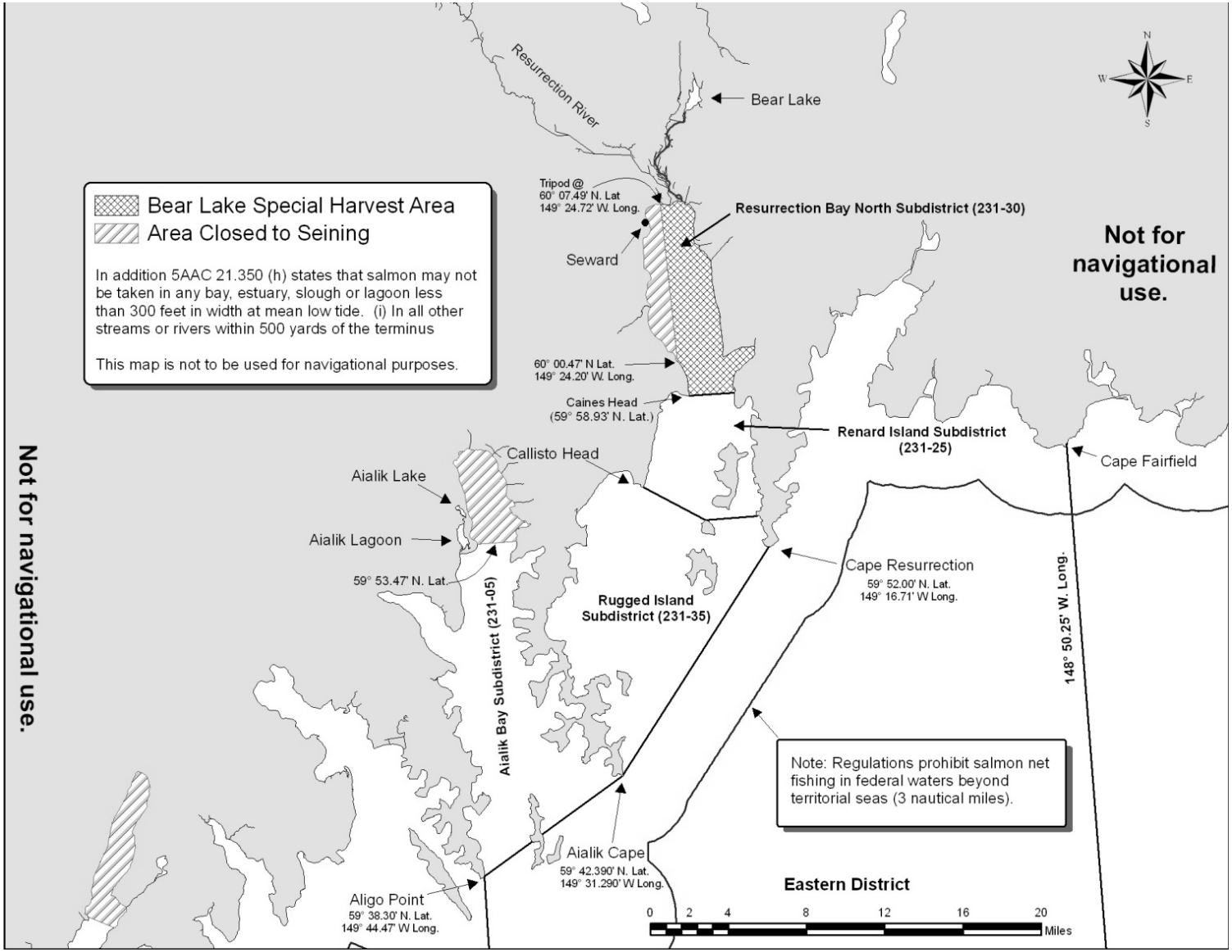

Figure 10.–Eastern District of Lower Cook Inlet Management Area showing commercial fishing districts, reporting subdistricts, and hatchery special harvest area, Aligo Point to Cape Fairfield.

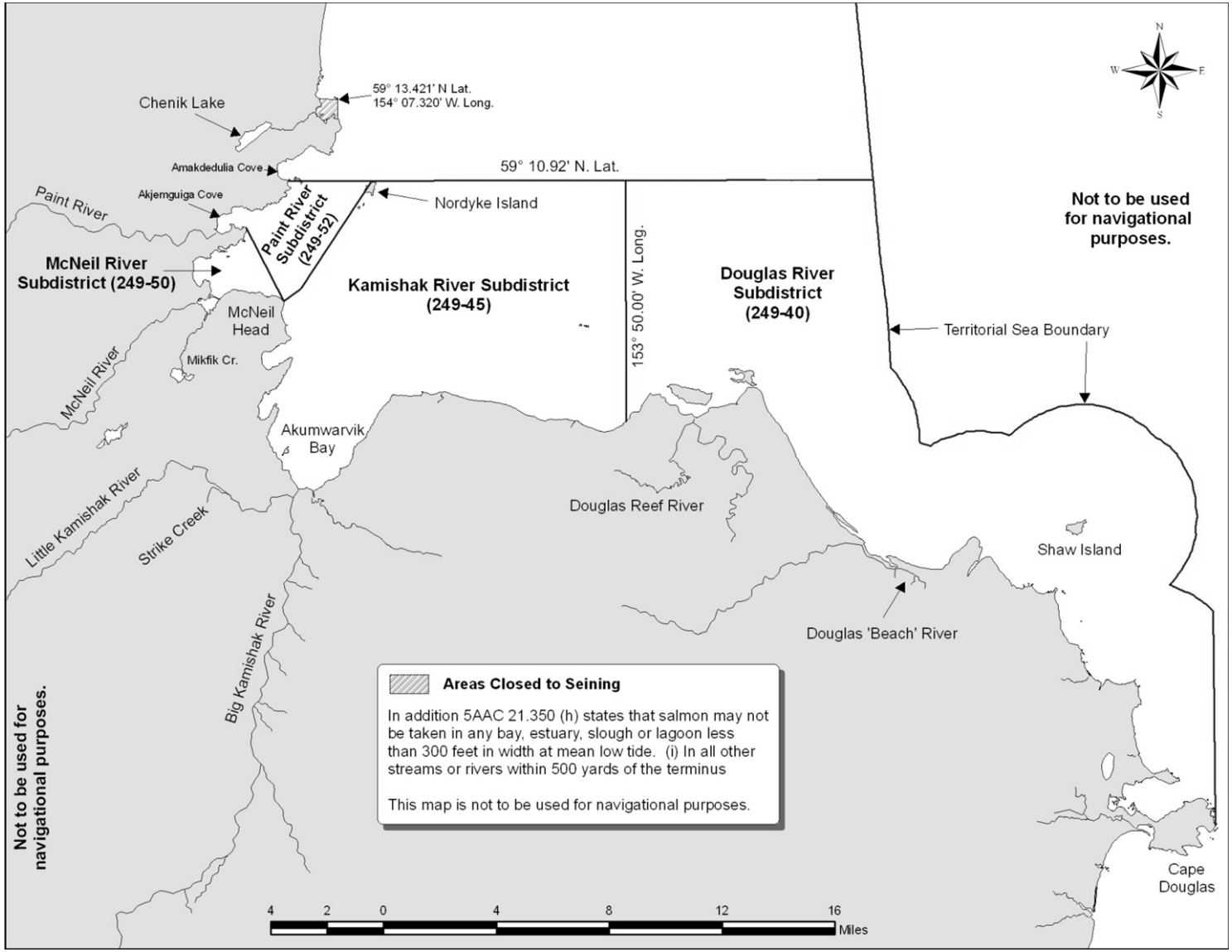

Figure 11.–Kamishak Bay District of Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts, Chenik Lake to Cape Douglas.

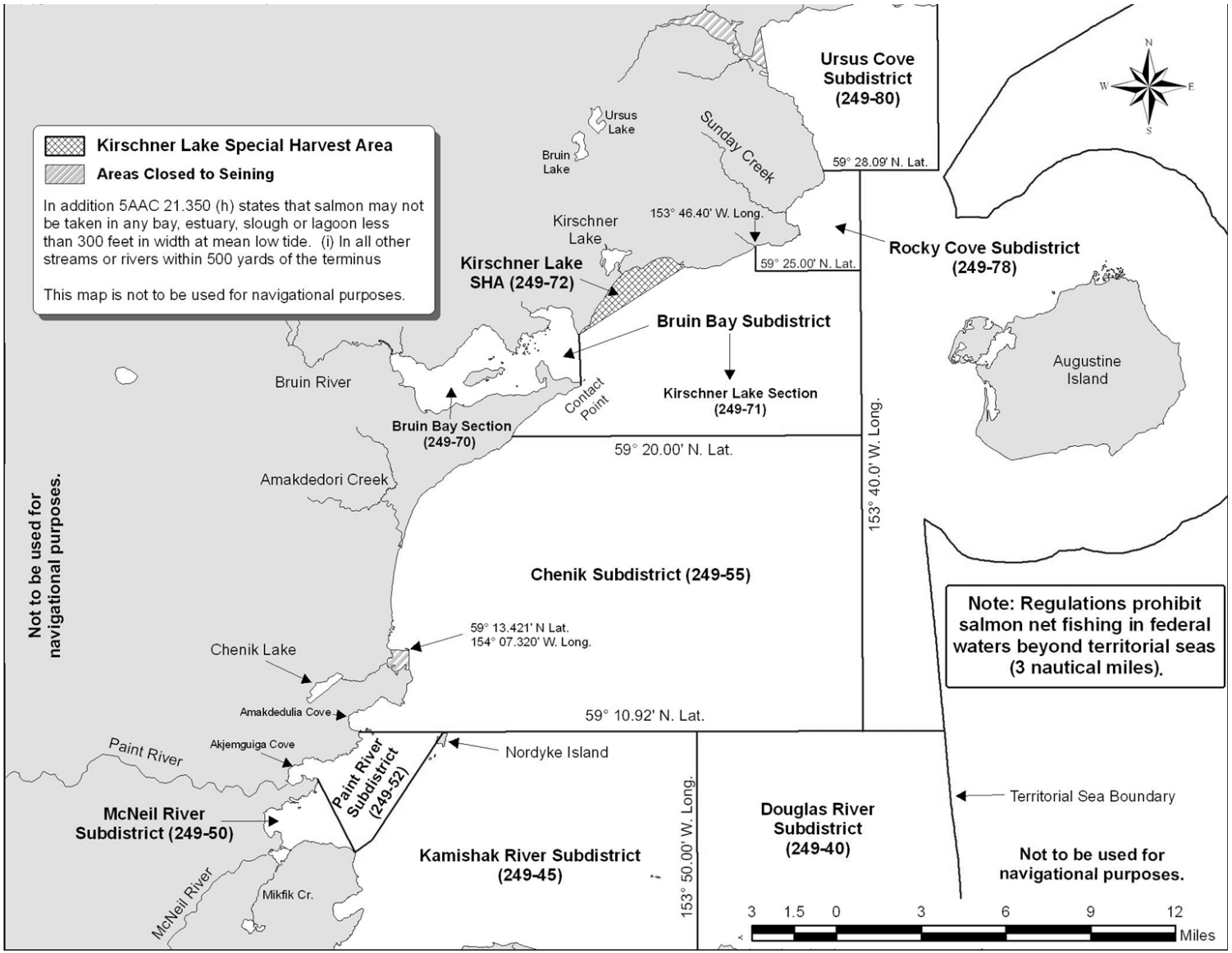

Figure 12.–Kamishak Bay District of Lower Cook Inlet Management Area showing commercial fishing districts, reporting subdistricts, and hatchery special harvest area, McNeil River to Ursus Cove.

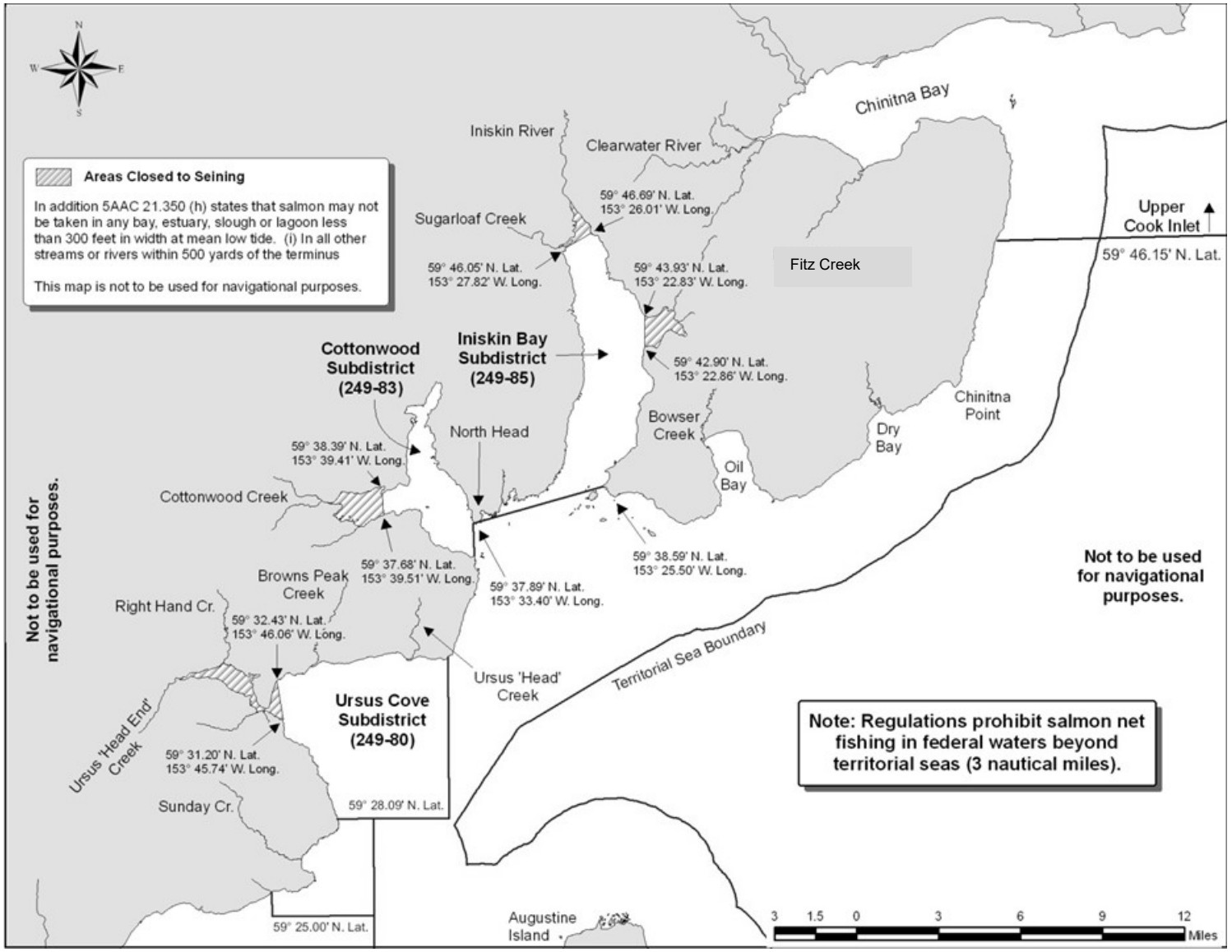

Figure 13.–Kamishak Bay District of Lower Cook Inlet Management Area showing commercial fishing districts, Ursus Cove to Chinitna Bay.

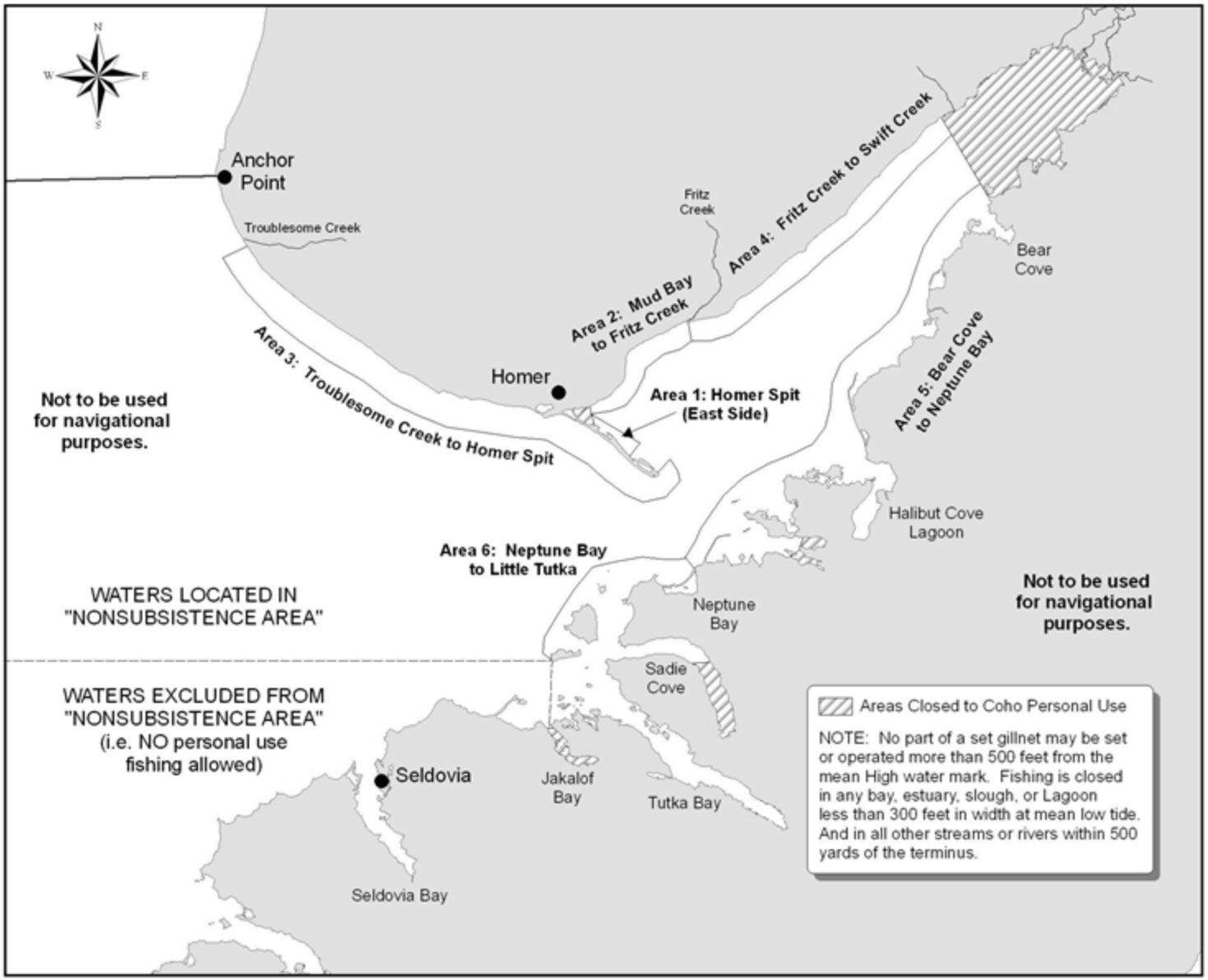

Figure 14.–Kachemak Bay personal use coho salmon fishery registration areas.

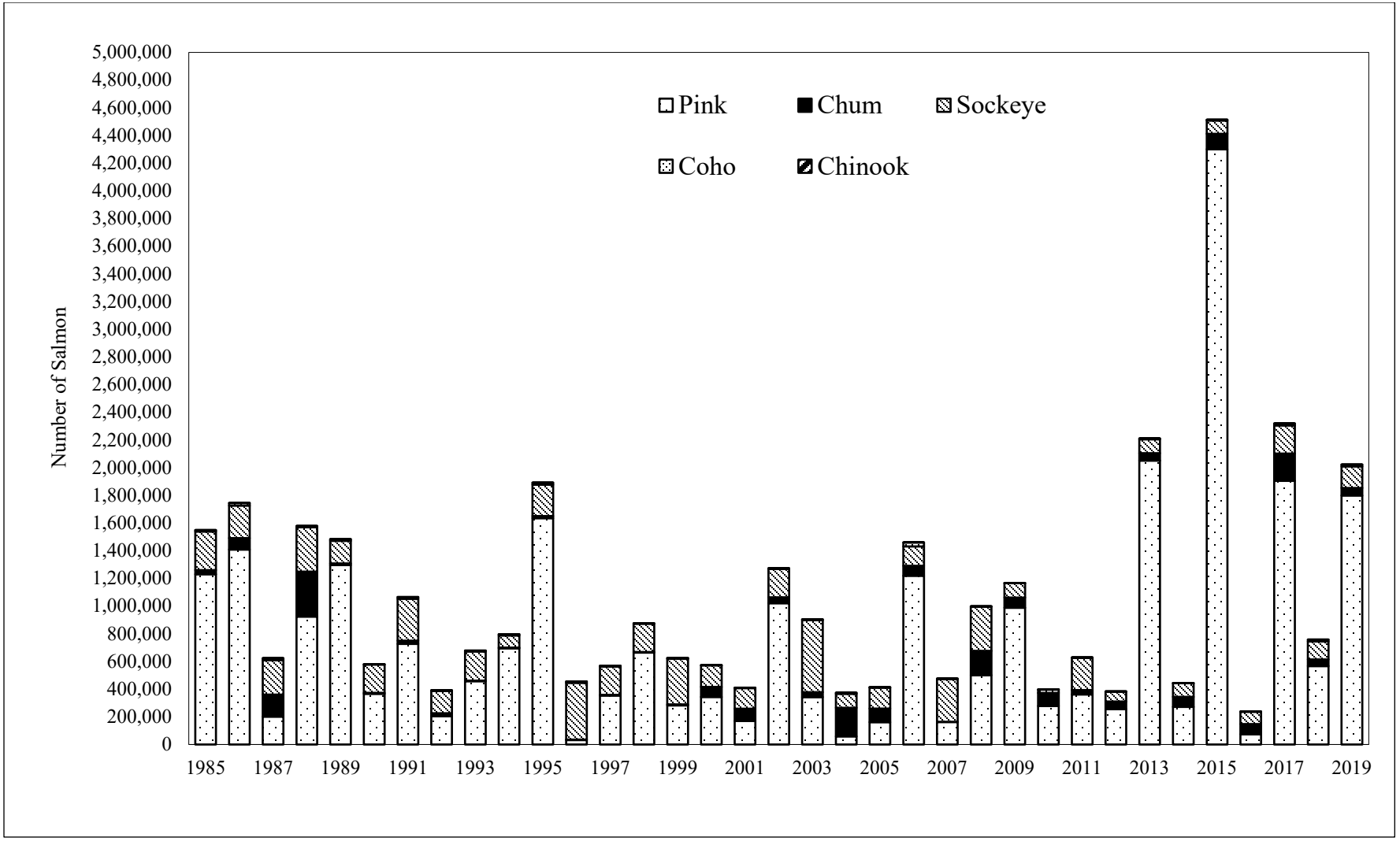

Figure 15.–Commercial common property salmon harvests in Lower Cook Inlet, 1985–2019.

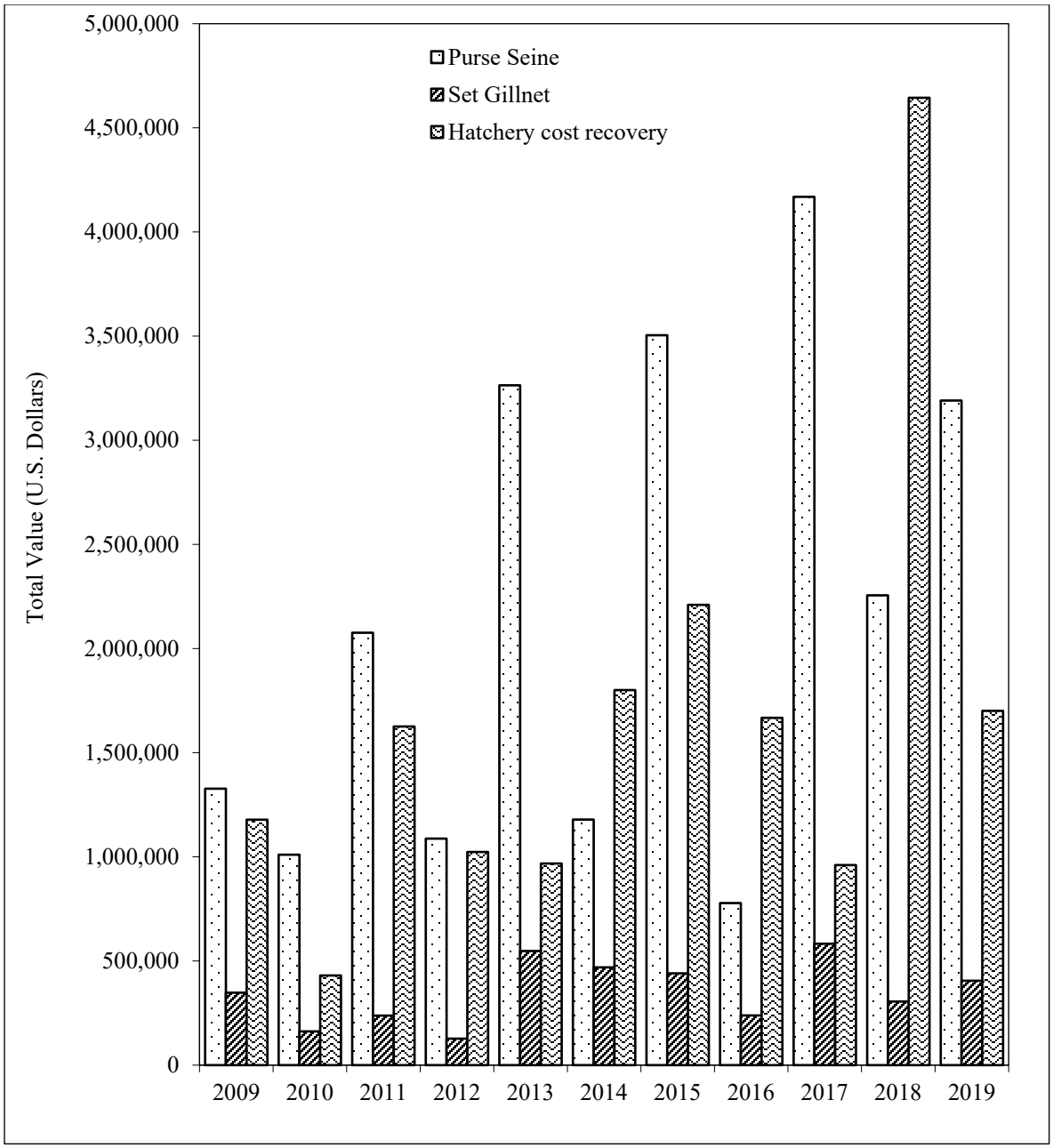

Figure 16.–Exvessel value of Lower Cook Inlet commercial salmon harvest, 2009–2019.

APPENDIX A: SOUTHERN DISTRICT

Appendix A1.–Southern District commercial set gillnet salmon harvest (excluding homepacks) by fishing period, 2019.

Period[a]	Stat week	Date	Hours	Permit holders fishing	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1[a]	22	06/03–06/05	24	9	33	388	675	3,589	0	0	0	0	15	104
2[a]	23	06/06–06/08	48	10	25	255	601	3,267	0	0	0	0	16	106
3[a]	23	06/10–06/12	48	10	37	380	832	4,447	0	0	0	0	13	77
4[a]	24	06/13–06/15	48	10	33	382	798	4,389	0	0	0	0	11	67
5[a]	24	06/17–06/18	48	11	33	344	1,352	7,221	0	0	1	3	48	339
6[a]	25	06/20–06/21	48	10	26	249	1,451	7,951	0	0	7	20	81	584
7[a]	25	06/24–06/26	48	11	34	304	1,602	8,609	0	0	170	573	176	1,145
8[a]	26	06/27–06/29	48	10	29	249	1,469	8,117	0	0	301	1,002	243	1,745
9[a]	26	07/01–07/03	48	9	16	135	1,892	10,166	0	0	415	1,469	143	955
10[a]	27	07/04–07/06	48	12	10	86	1,589	8,358	16	82	255	880	255	1,692
11[a]	27	07/08–07/09	48	13	19	215	1,732	9,521	254	1,412	691	2,440	271	1,794
12[a]	28	07/11–07/13	48	12	11	95	2,042	11,314	653	3,784	766	2,832	565	3,692
13[a]	28	07/15–07/17	48	8	11	97	1,382	7,730	125	693	228	814	181	1,255
14[a]	29	07/18–07/20	48	11	12	128	1,528	8,665	201	1,091	248	858	317	2,133
15[a]	29	07/22–07/23	48	11	5	56	1,752	10,016	220	1,242	301	1,084	230	1,555
16[a]	30	07/25–07/26	48	11	6	68	2,967	17,448	283	1,659	589	2,218	398	2,751
17[a]	30	07/29–07/31	48	10	5	36	2,078	11,890	274	1,603	697	2,469	380	2,673
18[a]	31	08/01–08/03	48	6	3	37	1,092	6,252	139	843	273	998	129	887
19[a]	31	08/05–08/07	48	7	2	11	1,481	8,665	93	578	478	1,694	134	903
20[a]	32	08/08–08/10	48	3	0	0	640	3,695	113	658	181	716	87	617
21[a,b]	32	08/12–08/13	48	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
22[a]	33	08/15–08/17	48	3	0	0	148	849	304	2,100	515	1,633	61	491
23[a,b]	33	08/19–08/21	48	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
24[a,c]	34	08/22–08/24	48	0	No deliveries period 24–35									
35[a,c]	39	09/30–10/01	18	0										
Total				20[d]	350	3,513	29,274	163,114	2,817	16,698	6,411	22,811	3,908	26,539
Average weight						10.03		5.56		5.91		3.55		6.77

Note: No deliveries during Periods 24–35, from August 22 through October 1.

[a] All set gillnet sections in LCI open to commercial harvest in 48-hour periods.

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

[c] No permits fished.

[d] Twenty permit holders fished in 2019; of those, 2 individuals were dual permit holders.

Appendix A2.–Southern District commercial purse seine salmon harvest (excluding homepacks) by period, 2019.

Period	Statistical week	Date	Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1[a]	25	6/17	16	4	6	81	39	187	0	0	0	0	0	0
2[a,b]	25	6/19	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
3[a]	25	6/21	16	3	0	0	150	689	0	0	1	4	0	0
4[a]	26	6/24	16	12	28	417	1,267	5,992	4	22	68	232	11	65
5[a,c]	26	6/26	16	12	9	61	1,545	7,724	3	17	341	1,042	12	91
6[a,c]	26	6/28	16	10	13	182	1,774	8,178	2	14	346	896	4	33
7[a,c]	27	7/1	16	15	7	82	3,595	17,689	15	71	1,323	3,996	7	45
8[a,c]	27	7/3	16	15	1	13	2,834	13,756	5	27	805	2,482	5	41
9[a,c]	27	7/5	16	15	2	46	4,261	20,732	29	154	757	2,330	13	110
10[a,c]	28	7/8	16	18	29	332	4,696	23,493	229	1,334	1,856	5,650	14	119
11[a,c]	28	7/10	16	18	8	135	3,538	15,657	270	1,586	3,000	9,116	43	397
12[a,c]	28	7/12	16	20	5	45	2,864	13,571	560	2,692	2,618	7,728	39	312
13[a,c]	29	7/15	16	11	0	0	3,008	15,255	281	948	1,221	3,527	7	41
14[a,c]	29	7/17	16	16	7	171	2,500	14,120	199	1,096	1,135	3,348	20	157
15[a,c]	29	7/19	16	15	2	40	1,742	9,302	169	715	1,957	6,098	27	167
16[a,c,d]	30	7/22	16	9	1	20	1,550	7,875	169	791	847	2,592	18	102
17[a,c,d]	30	7/24	16	8	15	77	2,161	11,447	182	804	749	2,269	7	54
18[a,c,d]	30	7/26	16	9	1	12	3,536	20,346	274	1,443	2,783	5,403	18	115
19[a,c,d]	31	7/29	16	13	1	28	2,142	11,705	210	1,203	682	2,063	16	141
20[a,d]	31	7/31	16	10	2	35	1,127	6,211	188	1,052	406	1,231	16	115
21[a,d]	31	8/2	16	5	0	0	567	3,402	79	362	356	1,069	2	15
22[a,c,d]	32	8/5	16	5	1	23	1,033	5,893	49	325	799	2,155	17	75
23[a,c,d]	32	8/7	16	8	0	0	1,025	5,713	148	651	884	2,425	2	12
24[a,b,c,d]	32	8/9	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
25[a,c,d]	33	8/12	16	0	No deliveries period 25–43									
43[a,c,d]	39	9/23	16	0										
Total				21	140	1,809	47,006	239,204	3,065	15,306	22,934	65,656	298	2,207
Average weight						12.80		5.11		4.99		2.95		7.01

Note: No deliveries after August 9.

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

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

[c] Waters of the China Poot SHA closed to commercial salmon harvest.

[d] Humpy Creek Subdistrict open to commercial seine harvest.

Appendix A3.–Total commercial common property salmon harvest (excluding homepacks) in the Southern District, 2000–2019.

Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
			Set gillnet			
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	19	320	32,910	393	3,231	5,355
2015	24	752	36,061	3,102	27,726	11,539
2016	23	731	19,427	687	21,872	2,124
2017	24	435	36,689	9,353	43,904	7,852
2018	24	185	15,157	3,067	56,638	4,232
10-yr avg.	21	296	26,451	2,134	17,337	4,044
2019	22	350	29,274	2,817	6,411	3,908
			Purse seine			
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
2015	19	52	54,783	997	141,604	1,450
2016	19	112	47,235	169	44,637	165
2017	17	166	62,715	3,493	361,751	3,892
2018	20	131	55,246	1,747	472,204	1,166
10-yr avg.	15	86	35,943	1,081	161,082	1,344
2019	21	140	47,006	3,065	22,934	298

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Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
			Purse seine and set gillnet combined			
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
2015		804	90,844	4,099	169,330	12,989
2016		601	99,404	12,846	405,655	11,744
2017		316	70,403	4,814	528,842	5,398
2018		381	62,393	3,215	178,419	5,388
10-yr avg.		318	54,778	3,235	157,393	5,429
2019		490	76,280	5,882	29,345	4,206

Source: ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

Note: ND = no data.

[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 to the English Bay weir, 2019.

	Actual		Anticipated	Apportioned SEG				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
6/1	0	0	0.4%	5	24	12	54	
6/2	0	0	0.5%	7	31	15	69	
6/3	0	0	0.6%	3	34	7	76	
6/4	0	0	1.7%	67	101	152	228	
6/5	0	0	2.1%	25	126	56	284	
6/6	0	0	2.6%	29	155	65	349	Weir installed
6/7	181	181	3.4%	49	204	111	460	
6/8	171	352	4.4%	58	262	131	591	
6/9	172	524	5.4%	59	322	133	724	
6/10	38	562	6.9%	90	411	202	925	
6/11	18	580	8.3%	89	500	200	1,125	
6/12	144	724	9.4%	63	563	141	1,266	
6/13	19	743	10.1%	44	607	99	1,366	
6/14	33	776	11.7%	95	702	213	1,579	
6/15	21	797	12.6%	54	755	121	1,700	
6/16	7	804	14.3%	103	859	232	1,932	
6/17	4	808	15.8%	92	950	206	2,138	
6/18	3	811	17.4%	96	1,046	216	2,354	
6/19	151	962	19.9%	145	1,191	326	2,680	
6/20	408	1,370	22.3%	148	1,340	334	3,014	
6/21	468	1,838	24.2%	113	1,452	254	3,268	
6/22	802	2,640	26.5%	136	1,589	307	3,574	
6/23	418	3,058	28.3%	109	1,698	246	3,820	
6/24	445	3,503	31.6%	196	1,894	441	4,262	
6/25	549	4,052	33.3%	104	1,998	235	4,496	
6/26	1,058	5,110	35.8%	152	2,151	342	4,839	
6/27	328	5,438	38.3%	146	2,296	328	5,167	
6/28	410	5,848	43.0%	281	2,578	633	5,800	
6/29	516	6,364	47.3%	259	2,836	582	6,382	
6/30	606	6,970	50.2%	177	3,013	398	6,780	
7/1	690	7,660	52.8%	157	3,170	353	7,133	
7/2	130	7,790	56.4%	213	3,383	479	7,611	
7/3	194	7,984	59.3%	172	3,555	388	7,999	
7/4	84	8,068	61.4%	126	3,681	283	8,283	
7/5	111	8,179	64.7%	198	3,879	445	8,728	
7/6	254	8,433	67.4%	167	4,046	375	9,103	
7/7	181	8,614	69.8%	144	4,189	323	9,426	
7/8	747	9,361	71.9%	122	4,311	275	9,701	
7/9	160	9,521	73.2%	78	4,389	175	9,876	
7/10	365	9,886	75.2%	120	4,509	270	10,146	
7/11	594	10,480	77.5%	142	4,651	319	10,465	
7/12	1,443	11,923	80.2%	163	4,814	366	10,831	
7/13	1,520	13,443	82.1%	113	4,927	254	11,085	
7/14	2,064	15,507	84.9%	168	5,095	379	11,464	
7/15	489	15,996	86.9%	119	5,214	268	11,731	

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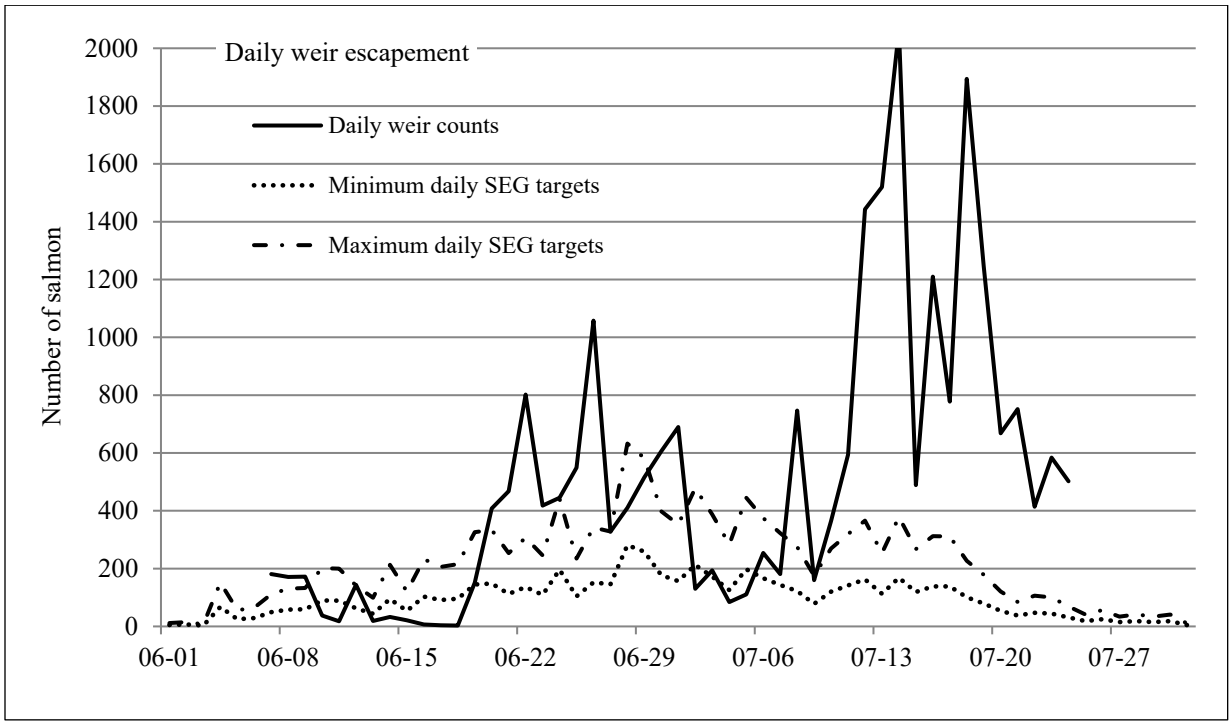
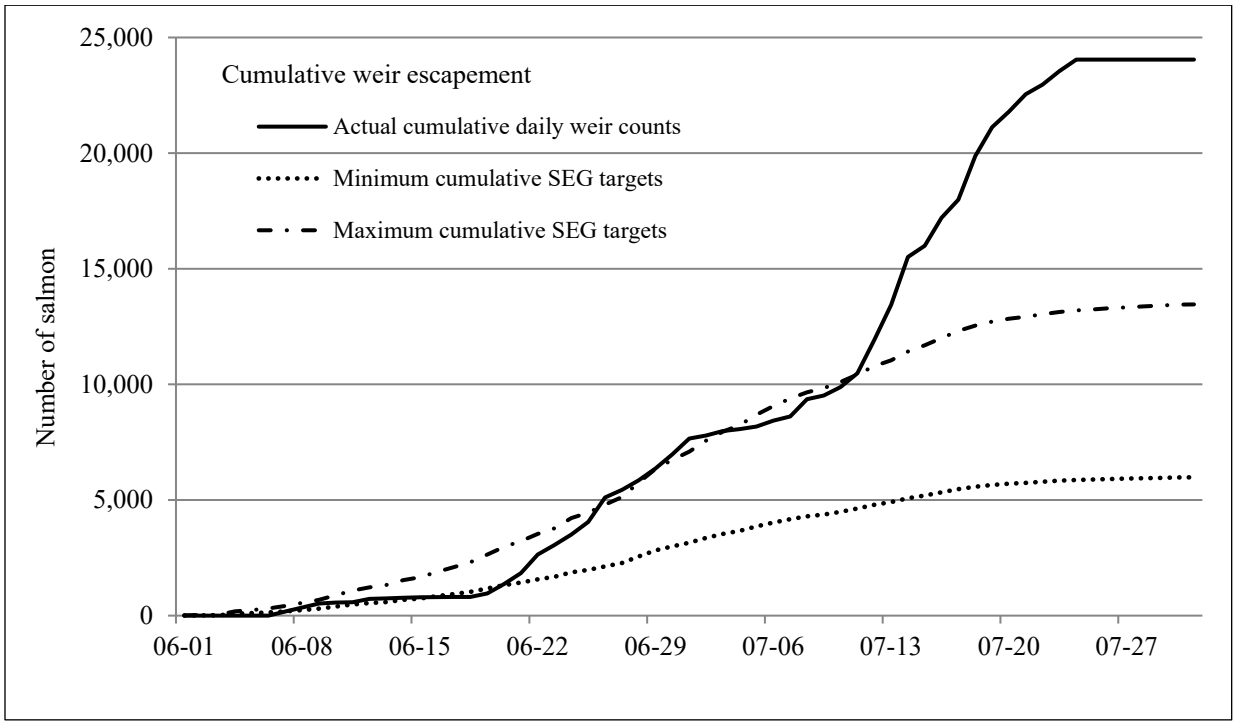
	Actual		Anticipated	Apportioned SEG				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/16	1,210	17,206	89.2%	139	5,353	312	12,043	
7/17	778	17,984	91.5%	138	5,491	311	12,355	
7/18	1,894	19,878	93.2%	101	5,592	227	12,582	
7/19	1,246	21,124	94.5%	79	5,671	179	12,760	
7/20	668	21,792	95.4%	54	5,725	121	12,881	
7/21	752	22,544	96.0%	38	5,763	85	12,966	
7/22	414	22,958	96.8%	47	5,810	106	13,073	
7/23	584	23,542	97.6%	44	5,854	100	13,173	
7/24	502	24,044	98.1%	31	5,885	69	13,242	Last report from weir crew.
7/25	0	24,044	98.4%	18	5,904	41	13,283	
7/26	0	24,044	98.8%	25	5,929	57	13,340	
7/27	0	24,044	99.1%	15	5,944	34	13,374	
7/28	0	24,044	99.4%	18	5,962	42	13,415	
7/29	0	24,044	99.6%	15	5,977	34	13,449	
7/30	0	24,044	99.9%	18	5,996	41	13,490	
7/31	0	24,044	100.0%	4	6,000	10	13,500	

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

Appendix A5.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement through the English Bay weir, 2019. Minimum and maximum SEG targets are Alaska Board of Fisheries-assigned SEGs apportioned using recent run timing for this stock.





Appendix A6.–Sockeye salmon escapement past English Bay weir, 1927–1941 and 1993–2019.

Year	Sustainable escapement goal[a]	Total weir count	Broodstock harvested	Harvested for otoliths[b]	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			(No weir 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
2015	6,000–13,500	6,416	0	126	6,290
2016	6,000–13,500	7,673	0	123	7,550
2017	6,000–13,500	20,751	0	470	20,281
2018	6,000–13,500	18,804	0	0	18,804
10-yr avg.		12,113	541	189	11,458
2019	6,000–13,500	24,044	0	0	24,044

[b] No SEG in place until 1993.

[a] Otoliths were not collected until 2013.

Appendix A7.–Pink and chum salmon escapements, as measured by ground survey, using area-under-the-curve (AUC) estimation (and peak live plus carcass counts as noted) in the Southern District, 2019.

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[a] (A_b)	Accum. fish days	Escape. index[b]	Accum. escape. index[c]	Accum. percent escape.	Carcass count	Live plus carcass
Barabara	Pink	[t]start	6/27												
Creek		1	7/15	6/27	17.5	1,231	0	1,231	10,771	10,771	616	616	7%	2	1,233
index		2	7/24	7/15	9	2,000	1,231	3,231	14,540	25,311	831	1,446	15%	18	2,018
system		3	8/7	7/24	14	1,823	2,000	3,823	26,761	52,072	1,529	2,976	31%	683	2,506
		4	8/15	8/7	8	1,643	1,823	3,466	13,864	65,936	792	3,768	40%	845	2,488
		5	9/3	8/15	19	4,605	1,643	6,248	59,356	125,292	3,392	7,160	76%	1,747	6,352
		[t]end	9/20		17.5				40,294	165,586	2,303	9,462[d]	100%		
China	Pink	[t]start	8/2												
Poot Creek		1	8/2	8/2	0	0	0	0	0	0	0	0	0%	0	
index		2	8/20	8/2	18	799	0	799	7,191	7,191	411	411	26%	0	799
system		3	8/30	8/20	10	785	799	1,584	7,920	15,111	453	863	55%	19	804
		4	9/9	8/30	10	711	785	1,496	7,480	22,591	427	1,291	82%	210	921
		5	9/23	9/9	14	0	711	711	4,977	27,568	284	1,575	100%	134	134
		[t]end	9/23		0				0	27,568	0	1,575[d]	100%		
Humpy	Pink	[t]start	7/1												
Creek		1	7/19	7/1	17.5	4,048	0	4,048	35,420	35,420	2,024	2,024	8%	1	4,049
index		2	8/1	7/19	13	4,625	4,048	8,673	56,375	91,795	3,221	5,245	20%	15	4,640
system		3	8/22	8/1	21	11,716	4,625	16,341	171,581	263,375	9,805	15,050	59%	495	12,211
		5	9/6	8/22	15	6,026	11,716	17,742	133,065	396,440	7,604	22,654	88%	1,190	7,216
		[t]end	9/23		17.5				52,728	449,168	3,013	25,667[d]	100%		
Humpy	Chum	[t]start	7/1												
Creek		1	7/19	7/1	17.5	815	0	815	7,131	7,131	408	408	22%	2	817
not an		2	8/1	7/19	13	1,158	815	1,973	12,825	19,956	733	1,140	62%	0	1,158
index		3	8/22	8/1	21	6	1,158	1,164	12,222	32,178	698	1,839	100%	432	438
system		4	9/6	8/22	15	0	6	6	45	32,223	3	1,841	100%	67	67
		[t]end	9/6		0				0	32,223	0	1,841	100%		
Port	Pink	[t]start	6/23												
Graham		1	7/11	6/23	17.5	231	0	231	2,021	2,021	116	116	0%	0	231
River		2	7/23	7/11	12	10,188	231	10,419	62,514	64,535	3,572	3,688	12%	2	10,190
index		3	8/5	7/23	13	13,699	10,188	23,887	155,266	219,801	8,872	12,560	42%	35	13,734
system		4	8/19	8/5	14	10,175	13,699	23,874	167,118	386,919	9,550	22,110	75%	1,668	11,843
		5	9/13	8/19	25	173	10,175	10,348	129,350	516,269	7,391	29,501	100%	124	297
		[t]end	9/30		17.5				1,514	517,783	87	29,588[d]	100%		

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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[a] (A_b)	Accum. fish days	Escape. index[b]	Accum. escape. index[c]	Accum. percent escape.	Carcass count	Live plus carcass
Port	Chum	[t]start	6/23												
Graham		1	7/11	6/23	17.5	37	0	37	324	324	19	19	2%	0	37
River		2	7/23	7/11	12	351	37	388	2,328	2,652	133	152	14%	2	353
index		3	8/5	7/23	13	583	351	934	6,071	8,723	347	498	46%	154	737
system		4	8/19	8/5	14	307	583	890	6,230	14,953	356	854	80%	322	629
		5	9/13	8/19	25	0	307	307	3,838	18,790	219	1,074	100%	4	4
		[t]end	9/13		0				0	18,790	0	1,074[d]	100%		
Seldovia	Pink	[t]start	6/30												
River		1	7/18	6/30	17.5	948	0	948	8,295	8,295	474	474	3%	0	948
index		2	7/29	7/18	11	6,207	948	7,155	39,353	47,648	2,249	2,723	15%	14	6,221
system		3	8/21	7/29	23	5,985	6,207	12,192	140,208	187,856	8,012	10,735	59%	2,456	8,441
		4	9/4	8/21	14	4,639	5,985	10,624	74,368	262,224	4,250	14,984	82%	2,428	7,067
		5	9/10	9/4	6	3,809	4,639	8,448	25,344	287,568	1,448	16,432	90%	4,793	8,602
		[t]end	9/27		17.5				33,329	320,896	1,905	18,337[d]	100%		
Seldovia	Chum	[t]start	6/30												
River		1	7/18	6/30	17.5	44	0	44	385	385	22	22	4%	0	44
not an		2	7/29	7/18	11	366	44	410	2,255	2,640	129	151	29%	21	387
index		3	8/21	7/29	23	107	366	473	5,440	8,080	311	462	89%	262	369
system		4	9/4	8/21	14	15	107	122	854	8,934	49	510	99%	19	34
		[t]end	9/21		17.5				131	9,065	8	518	100%		
Tutka	Pink	[t]start	6/24												
Bay		1	7/12	6/24	17.5	1,060	0	1,060	9,275	9,275	530	530	1%	0	1,060
Lagoon		2	7/25	7/12	13	27,138	1,060	28,198	183,287	192,562	10,474	11,004	20%	13	27,151
Creek		3	8/12	7/25	18	17,245	27,138	44,383	399,447	592,009	22,826	33,829	63%	5,720	22,965
index		4	8/26	8/12	14	12,551	17,245	29,796	208,572	800,581	11,918	45,747	85%	7,086	19,637
system		5	9/9	8/26	14	3,293	12,551	15,844	110,908	911,489	6,338	52,085	97%	3,485	6,778
		[t]end	9/26		17.5				28,814	940,303	1,647	53,732[d]	100%		

Note: The value used for the final escapement index for each stock is in parentheses at the top of the column. Final counts include fish observed in bays on the last survey of the season if no further harvest occurred.

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

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

[c] Area-under-the-curve (AUC) estimate equals the cumulative escapement index.

[d] Final escapement index.

Appendix A8.–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, 1975–2019.

	Pink salmon							Chum salmon
Year	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
2015	38.0	7.4	81.6	25.2	108.8	82.4	343.3	4.0
2016	89.7	0.7	33.2	2.8	15.7	14.6	156.7	2.4
2017	71.1	2.4	61.4	25.0	27.0	20.6	207.5	5.8
2018	54.8	2.3	60.7	7.2	50.8	33.4	209.3	3.7
10-yr avg.	45.0	3.6	29.5	10.7	40.6	28.1	157.6	2.6
2019	25.7	1.6	53.7	9.5	18.3	29.6	138.4	1.1

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, 2019.

Period	Statistical week	Date	Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1[a]	29	7/15	16	9	21	428	94	541	3	17	12,254	42,810	1,427	12,067
2[a]	29	7/17	16	4	51	1,045	3	14	0	0	2,830	8,449	593	5,000
3[a,b]	29	7/19	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
4[a,c]	30	7/22	16	4	18	356	412	2,075	0	0	10,002	30,011	450	3,794
5[a,c,d]	30	7/24	16	7	40	441	602	3,021	0	0	23,549	78,581	4,229	35,558
6[a,c,d]	30	7/26	16	7	11	234	3,532	15,437	0	0	14,107	42,359	729	5,752
7[a,c,d]	31	7/29	16	6	4	76	1,072	5,370	2	19	19,949	72,522	968	7,525
8[a,c,d]	31	7/31	16	7	8	150	544	2,711	0	0	22,847	84,431	1,925	14,603
9[a,c,d]	31	8/2	16	8	0	0	1,303	6,525	1	12	17,746	71,879	397	2,935
10[a,c,d]	32	8/5	16	10	0	0	2,169	10,963	14	120	45,514	145,274	481	3,744
11[a,c,d]	32	8/7	16	9	0	0	2,391	11,970	0	0	53,443	167,840	144	971
12[a,c,d]	32	8/9	16	14	0	0	1,777	8,901	6	36	102,452	326,255	288	1,949
13[a,c,d,e]	33	8/12	16	14	0	0	1,100	5,520	30	180	126,597	397,532	374	2,656
14[a,c,d]	33	8/13	16	18	1	14	9	49	18	156	82,694	261,791	78	595
15[a,c,d,f]	33	8/14	16	19	0	0	172	753	48	471	78,999	248,446	124	908
16[a,c,d]	33	8/15	16	17	0	0	17	87	27	164	43,219	178,446	44	277
17[a,c,d,e,f]	33	8/16	16	19	1	13	15	73	15	121	261,299	842,083	1,544	10,820
18[a,c,d,f]	34	8/19	16	15	0	0	44	248	180	1,592	76,731	241,067	246	2,010
19[a,c,d,g]	34	8/20	16	18	0	0	32	210	941	7,424	80,471	251,083	1,995	13,848
20[a,c,d,g]	34	8/21	16	13	0	0	15	82	190	1,529	76,311	237,315	190	1,395
21[a,c,d,g]	34	8/22	16	14	1	24	36	205	155	1,608	102,338	307,614	138	1,007
22[a,c,d,g]	34	8/23	16	11	0	0	31	174	156	1,494	71,557	214,507	432	2,919
23[a,c,d,g]	34	8/24	16	6	0	0	13	68	59	560	38,298	126,015	440	2,924
24[a,c,d,g]	35	8/25	16	9	14	160	15	62	144	1,153	42,515	143,374	282	2,486
25[a,c,d,g]	35	8/26	16	10	0	0	26	184	143	1,152	95,778	211,950	689	5,142
26[a,c,d,g]	35	8/27	16	9	0	0	11	68	162	1,385	58,020	178,636	159	1,240
27[a,c,d,g]	35	8/28	16	7	0	0	13	63	256	2,512	47,940	148,279	104	937
28[a,c,d,g]	35	8/29	16	5	0	0	18	86	269	2,796	30,189	94,825	53	467
29[a,b,c,d,g]	35	8/30	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
30[a,b,c,d,g]	35	8/31	16	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
53[a,c,d,g]	39	8/22	16	0	No deliveries period 31–53									
Total				21	184	3,192	15,482	75,532	2,889	24,936	1,710,012	5,354,724	19,460	151,146
Average weight						17.87		4.88		8.63		3.13		7.77

Note: No deliveries after August 31.

[a] Waters of Dogfish Bay, Windy Bay, and Rocky Bay subdistricts are open to commercial salmon seine harvest for regular 16-hour periods.

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

[c] Waters of East Nuka Subdistrict open daily to commercial salmon harvest.

[d] Waters of Nuka Island Subdistrict in the Petrof area open daily to commercial salmon harvest.

[e] Waters of Taylor Bay Section and waters along the south shore of Port Dick open to commercial salmon harvest.

[f] Waters of Taylor Bay Section and Port Dick Outer Section open to commercial salmon harvest.

[g] Port Dick Subdistrict open to commercial salmon harvest.

Appendix B2.–Total commercial common property salmon harvest (excluding homepacks) in Outer District, 2000–2019.

Year	Fished	Chinook	Sockeye	Coho	Pink	Chum
2000	11	2	21,623	20	306,555	302
2001	5	0	7,339	5	48,559	408
2002	11	0	21,154	74	569,955	3,810
2003	6	1	26,615	4	281,663	137
2004	9	2	11,082	13	42,636	27,911
2005	5	0	1	3	110,195	12,524
2006	11	3	3,198	1,139	1,121,892	12,883
2007	5	1	32,461	113	147,409	49
2008	16	0	1,704	0	467,592	100,819
2009	11	1	8	9	853,037	35,126
2010	10	0	3,003	16	272,427	22,463
2011	13	10	46,356	25	357,472	25,763
2012	15	8	77	98	69,359	51,313
2013	11	1	119	53	2,015,105	49,062
2014	15	0	24,264	0	163,938	59,702
2015	19	0	613	41	4,096,578	97,974
2016	13	1	7	2	5,369	60,800
2017	17	1	260	389	1,244,172	151,356
2018	11	2	1,409	5	32,326	34,857
10-yr avg.	14	2	7,612	64	910,978	58,842
2019	21	184	15,482	2,889	1,710,012	19,460

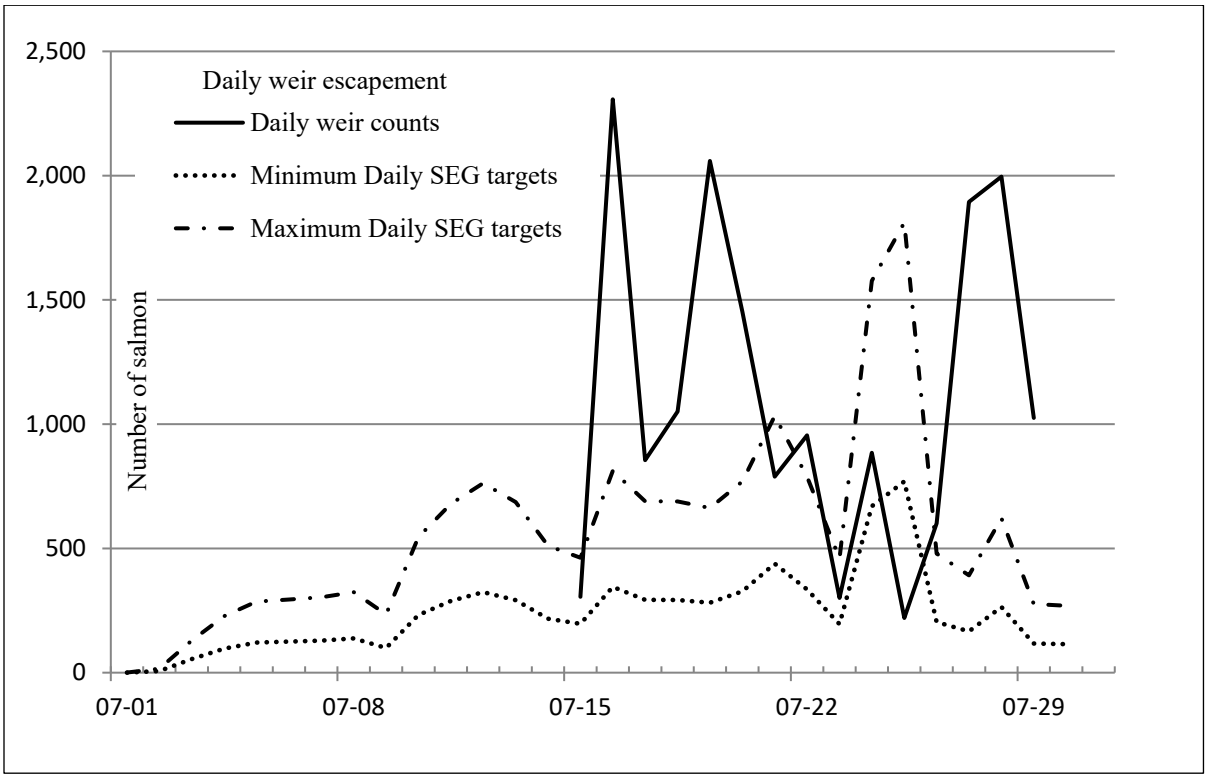
Source: ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

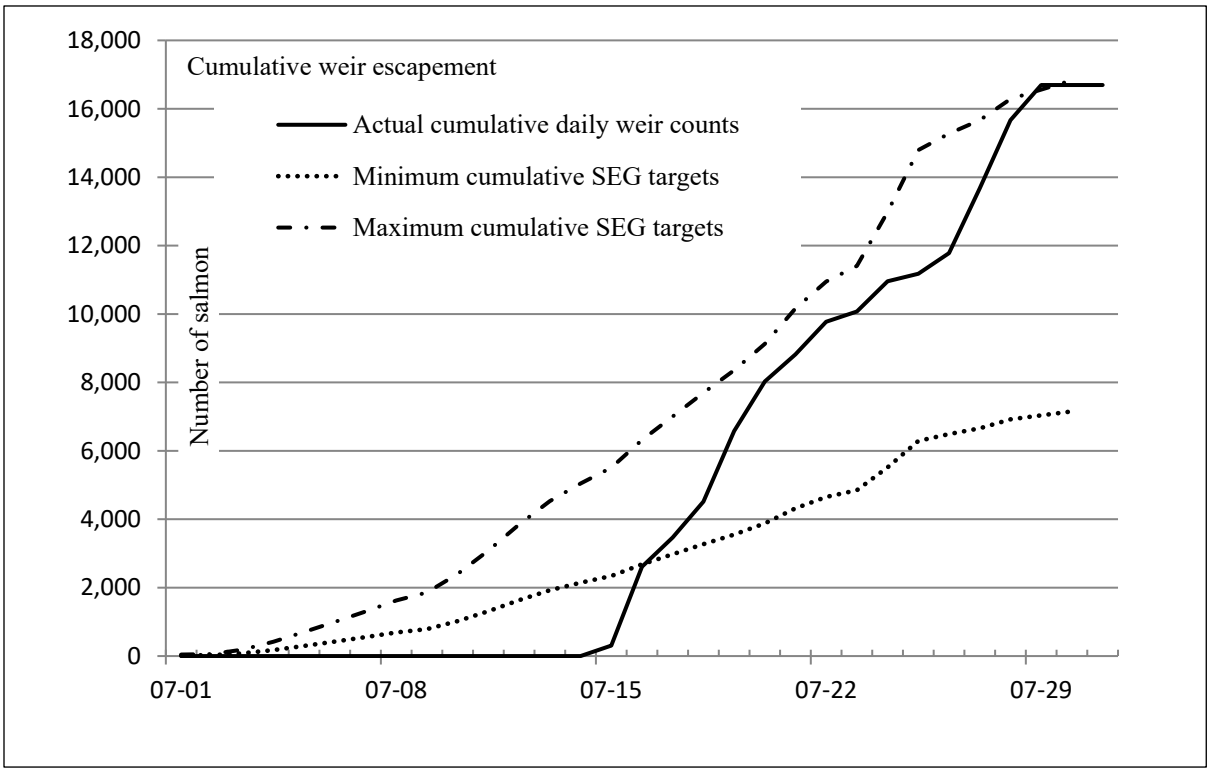
Appendix B3.–Daily and cumulative sockeye salmon escapement objectives derived from weir-based SEG (7,500–17,650) apportioned using historical run timing versus actual escapement through the Delight Lake weir, 2019.

				Apportioned SEG (7,500–17,650)				
	Actual passage		Antic.	Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/1	0	0	0.3%	0	19	0	44	
7/2	0	0	0.3%	7	26	16	60	
7/3	0	0	1.1%	55	81	129	190	
7/4	0	0	2.4%	97	177	227	417	
7/5	0	0	4.0%	121	298	286	702	
7/6	0	0	5.6%	125	424	294	997	
7/7	0	0	7.4%	129	553	303	1,300	
7/8	0	0	9.2%	138	690	324	1,624	
7/9	0	0	10.5%	99	790	234	1,858	
7/10	0	0	13.6%	232	1,021	546	2,404	
7/11	0	0	17.5%	289	1,310	679	3,083	
7/12	0	0	21.8%	324	1,634	763	3,846	
7/13	0	0	25.7%	292	1,926	686	4,532	
7/14	0	0	28.6%	217	2,143	511	5,043	
7/15	305	305	31.2%	197	2,339	462	5,505	
7/16	2,307	2,612	35.8%	345	2,684	812	6,317	
7/17	855	3,467	39.7%	293	2,977	689	7,007	
7/18	1,051	4,518	43.6%	293	3,270	689	7,695	
7/19	2,059	6,577	47.4%	281	3,551	662	8,358	
7/20	1,452	8,029	51.7%	327	3,878	770	9,127	
7/21	789	8,818	57.6%	439	4,317	1,033	10,160	
7/22	955	9,773	62.0%	335	4,652	789	10,949	
7/23	301	10,074	64.6%	195	4,847	459	11,408	
7/24	885	10,959	73.6%	670	5,517	1,577	12,984	
7/25	220	11,179	83.8%	770	6,287	1,811	14,795	
7/26	601	11,780	86.5%	204	6,491	479	15,275	
7/27	1,894	13,674	88.8%	166	6,657	391	15,666	
7/28	1,996	15,670	92.3%	264	6,921	621	16,287	
7/29	1,025	16,695	93.8%	117	7,038	276	16,564	
7/30	715	17,410	95.4%	115	7,153	270	16,833	
7/31	0	17,410	95.7%	22	7,175	52	16,885	
8/1	0	17,410	96.0%	24	7,199	56	16,940	
8/2	0	17,410	96.1%	10	7,208	23	16,964	
8/3–14	—	—	—	—	—	—	—	
8/15	0	17,410	100%		7,500		17,650	

Note: Dashes indicate no fish were passed through the weir (August 3–14).

Appendix B4.–Cumulative and daily sockeye salmon escapement objectives compared to actual escapement through the Delight Lake weir, 2019. Minimum and maximum SEG targets are Alaska Board of Fisheries-assigned SEGs apportioned using recent run timing for this stock.





Appendix B5.–Sockeye salmon escapement past Desire and Delight Lake weirs, 1997–2019.

Year	Desire Lake sockeye salmon	Delight Lake sockeye salmon
1997[a]	14,665	27,820
1998[a,b]	7,880	9,154
1999[c]	–	13,431
2000[d]	–	ND
2001[e]	–	12,635
2002[e]	–	17,655
2003[e]	–	6,708
2004[e]	–	3,842
2005[e]	–	13,700
2006[e]	–	10,879
2007[e]	–	40,403
2008[e]	–	21,333
2009[e]	–	5,232
2010[e]	–	23,505
2011[e,f]	–	16,280
2012[e,g]	–	10,887
2013[e]	–	5,961
2014[e]	–	22,289
2018[e]	–	13,428
10-yr average		17,020
2019[e]		17,410

Note: ND = no data. Weir not operated at Delight Lake in 2000 and 2015–2017.

[a] Weir present for only 2 years at Desire Lake.

[b] Weir operated from June 7 to August 26.

[c] Weir operated from June 20 to August 18.

[d] Weir operated from June 26 to August 27.

[e] Weir operated for the month of July.

[f] An additional 400 fish were observed in the lake during an aerial survey prior to weir installation, and 2,310 were observed below the weir site after the weir was removed for the season. These 2,710 fish are not included in the 2011 weir total.

[g] An additional 430 fish were observed in the lake during an aerial survey prior to weir installation; this does not include the 147 fish that were observed below the weir site after the weir was removed for the season.

Appendix B6.–Pink and chum salmon escapements measured by aerial survey using area-under-the-curve (AUC) estimation (and peak aerial survey counts as noted) in Outer District, 2019.

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	7/12											
not an index		1	7/30	7/12	17.5	20	0	20	175	175	10	10	4%	
system		2	8/28	7/30	29	150	20	170	2,465	2,640	141	151	67%	
		[t]end	9/14		17.5				1,313	3,953	75	226	100%	150
Desire Lake	Pink	[t]start	7/19											
index system		1	7/19	7/19	0	0	0	0	0	0	0	0	0%	
		2	7/30	7/19	11	570	0	570	3,135	3,135	179	179	1%	
		3	8/9	7/30	10	4,800	570	5,370	26,850	29,985	1,534	1,713	14%	
		4	8/15	8/9	6	2,500	4,800	7,300	21,900	51,885	1,251	2,965	25%	
		5	8/19	8/15	4	8,000	2,500	10,500	21,000	72,885	1,200	4,165	35%	
		6	8/28	8/19	9	8,110	8,000	16,110	72,495	145,380	4,143	8,307	69%	
		7	9/5	8/28	8	2,620	8,110	10,730	42,920	188,300	2,453	10,760	89%	
		[t]end	9/22		17.5				22,925	211,225	1,310	12,070[d]	100%	8,110
Dogfish Lagoon	Chum	[t]start	6/25											
Creeks		1	7/13	6/25	17.5	300	0	300	2,625	2,625	150	150	5%	
index system		2	7/17	7/13	4	20	300	320	640	3,265	37	187	6%	
		3	7/30	7/17	13	240	20	260	1,690	4,955	97	283	9%	
		4	8/9	7/30	10	1,680	240	1,920	9,600	14,555	549	832	26%	
		5	8/15	8/9	6	300	1,680	1,980	5,940	20,495	339	1,171	37%	
		6	8/19	8/15	4	3,640	300	3,940	7,880	28,375	450	1,621	51%	
		7	8/28	8/19	9	1,000	3,640	4,640	20,880	49,255	1,193	2,815	88%	
		8	9/5	8/28	8	200	1,000	1,200	4,800	54,055	274	3,089	97%	
		[t]end	9/22		17.5				1,750	55,805	100	3,189	100%	3,640[d]
Dogfish Lagoon	Pink	[t]start	7/13											
Creeks		1	7/13	7/13	0	0	0	0	0	0	0	0	0%	
not an index		2	7/17	7/13	4	100	0	100	200	200	11	11	0%	
system		3	7/30	7/17	13	930	100	1,030	6,695	6,895	383	394	3%	
		4	8/9	7/30	10	1,000	930	1,930	9,650	16,545	551	945	7%	
		5	8/15	8/9	6	1,200	1,000	2,200	6,600	23,145	377	1,323	9%	
		6	8/19	8/15	4	8,200	1,200	9,400	18,800	41,945	1,074	2,397	17%	
		7	8/28	8/19	9	3,770	8,200	11,970	53,865	95,810	3,078	5,475	39%	
		8	9/5	8/28	8	10,570	3,770	14,340	57,360	153,170	3,278	8,753	62%	
		[t]end	9/22		17.5				92,488	245,658	5,285	14,038	100%	10,570

-continued-

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
James Lagoon	Pink	[t]start	7/22											
Creeks		1	8/9	7/22	17.5	1,100	0	1,100	9,625	9,625	550	550	50%	
not an index system		[t]end	8/26		17.5				9,625	19,250	550	1,100	100%	1,100
Petrof River	Chum	[t]start	7/1											
not an index		1	7/19	7/1	17.5	23	0	23	201	201	12	12	0%	
system		2	7/30	7/19	11	166	23	189	1,040	1,241	59	71	3%	
		3	8/9	7/30	10	2,200	166	2,366	11,830	13,071	676	747	31%	
		4	9/5	8/9	27	0	2,200	2,200	29,700	42,771	1,697	2,444	100%	
		[t]end	9/5		0				0	42,771	0	2,444	100%	2,200
Port Dick–	Chum	[t]start	7/3											
Headend Creek		1	7/3	7/3	0	0	0	0	0	0	0	0	0%	
index system		2	7/17	7/3	14	0	0	0	0	0	0	0	0%	
		3	7/19	7/17	2	200	0	200	200	200	11	11	1%	
		4	7/30	7/19	11	850	200	1,050	5,775	5,975	330	341	20%	
		5	8/9	7/30	10	1,400	850	2,250	11,250	17,225	643	984	58%	
		[t]end	8/26		17.5				12,250	29,475	700	1,684	100%	1,400
Port Dick–	Pink	[t]start	6/25											
Headend Creek		1	7/13	6/25	17.5	2,100	0	2,100	18,375	18,375	1,050	1,050	2%	
index system		2	7/17	7/13	4	8,400	2,100	10,500	21,000	39,375	1,200	2,250	4%	
		3	7/19	7/17	2	3,100	8,400	11,500	11,500	50,875	657	2,907	5%	
		4	7/30	7/19	11	17,900	3,100	21,000	115,500	166,375	6,600	9,507	16%	
		5	8/9	7/30	10	26,000	17,900	43,900	219,500	385,875	12,543	22,050	37%	
		6	8/19	8/9	10	19,600	26,000	45,600	228,000	613,875	13,029	35,079	59%	
		7	8/28	8/19	9	3,850	19,600	23,450	105,525	719,400	6,030	41,109	69%	
		8	9/5	8/28	8	23,800	3,850	27,650	110,600	830,000	6,320	47,429	80%	
		[t]end	9/22		17.5				208,250	1,038,250	11,900	59,329	100%	26,000

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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
Port Dick–	Chum	[t]start	7/3											
Island Creek		1	7/3	7/3	0	0	0	0	0	0	0	0	0%	
index system		2	7/13	7/3	10	20	0	20	100	100	6	6	0%	
		3	7/17	7/13	4	40	20	60	120	220	7	13	0%	
		4	7/19	7/17	2	0	40	40	40	260	2	15	0%	
		5	7/30	7/19	11	20	0	20	110	370	6	21	1%	
		6	8/9	7/30	10	3,070	20	3,090	15,450	15,820	883	904	24%	
		7	8/15	8/9	6	1,610	3,070	4,680	14,040	29,860	802	1,706	45%	
		8	8/19	8/15	4	3,300	1,610	4,910	9,820	39,680	561	2,267	60%	
		9	8/28	8/19	9	300	3,300	3,600	16,200	55,880	926	3,193	85%	
		10	9/5	8/28	8	700	300	1,000	4,000	59,880	229	3,422	91%	
		[t]end	9/22		17.5				6,125	66,005	350	3,772	100%	3,300
Port Dick–	Pink	[t]start	7/19											
Island Creek		1	7/19	7/19	0	0	0	0	0	0	0	0	0%	
index system		2	7/30	7/19	11	1,060	0	1,060	5,830	5,830	333	333	1%	
		3	8/9	7/30	10	3,200	1,060	4,260	21,300	27,130	1,217	1,550	5%	
		4	8/15	8/9	6	3,100	3,200	6,300	18,900	46,030	1,080	2,630	9%	
		5	8/19	8/15	4	5,200	3,100	8,300	16,600	62,630	949	3,579	12%	
		6	8/28	8/19	9	17,700	5,200	22,900	103,050	165,680	5,889	9,467	32%	
		7	9/5	8/28	8	22,400	17,700	40,100	160,400	326,080	9,166	18,633	62%	
		[t]end	9/22		17.5				196,000	522,080	11,200	29,833	100%	22,400
Port Dick–	Chum	[t]start	7/3											
Middle Creek		1	7/3	7/3	0	0	0	0	0	0	0	0	0%	
not an index		2	7/13	7/3	10	30	0	30	150	150	9	9	1%	
system		3	7/17	7/13	4	0	30	30	60	210	3	12	2%	
		4	7/19	7/17	2	0	0	0	0	210	0	12	2%	
		5	7/30	7/19	11	190	0	190	1,045	1,255	60	72	10%	
		6	8/9	7/30	10	550	190	740	3,700	4,955	211	283	38%	
		7	8/15	8/9	6	100	550	650	1,950	6,905	111	395	53%	
		8	8/19	8/15	4	400	100	500	1,000	7,905	57	452	61%	
		9	9/5	8/19	17	100	400	500	4,250	12,155	243	695	93%	
		[t]end	9/22		17.5				875	13,030	50	745	100%	550

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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	tstart	7/13											
Middle Creek		1	7/13	7/13	0	0	0	0	0	0	0	0	0%	
not an index		2	7/17	7/13	4	3,300	0	3,300	6,600	6,600	377	377	11%	
Svstem		3	7/19	7/17	2	600	3,300	3,900	3,900	10,500	223	600	18%	
		4	7/30	7/19	11	1,740	600	2,340	12,870	23,370	735	1,335	40%	
		5	8/9	7/30	10	300	1,740	2,040	10,200	33,570	583	1,918	58%	
		6	8/15	8/9	6	1,100	300	1,400	4,200	37,770	240	2,158	65%	
		7	8/19	8/15	4	30	1,100	1,130	2,260	40,030	129	2,287	69%	
		8	8/28	8/19	9	1,040	30	1,070	4,815	44,845	275	2,563	77%	
		9	9/5	8/28	8	700	1,040	1,740	6,960	51,805	398	2,960	89%	
		tend	9/22		17.5				6,125	57,930	350	3,310	100%	3,300
Port Dick–	Chum	tstart	7/1											
Slide Creek		1	7/19	7/1	17.5	10	0	10	88	88	5	5	1%	
not an index		2	7/30	7/19	11	90	10	100	550	638	31	36	4%	
svstem		3	8/9	7/30	10	630	90	720	3,600	4,238	206	242	25%	
		4	9/5	8/9	27	200	630	830	11,205	15,443	640	882	90%	
		tend	9/22		17.5				1,750	17,193	100	982	100%	630
Port Dick–	Pink	tstart	6/29											
Slide Creek		1	7/17	6/29	17.5	40	0	40	350	350	20	20	0%	
not an index		2	7/30	7/17	13	1,500	40	1,540	10,010	10,360	572	592	4%	
svstem		3	8/9	7/30	10	3,000	1,500	4,500	22,500	32,860	1,286	1,878	14%	
		4	8/19	8/9	10	2,710	3,000	5,710	28,550	61,410	1,631	3,509	26%	
		5	8/28	8/19	9	8,200	2,710	10,910	49,095	110,505	2,805	6,315	46%	
		6	9/5	8/28	8	7,600	8,200	15,800	63,200	173,705	3,611	9,926	72%	
		tend	9/22		17.5				66,500	240,205	3,800	13,726	100%	8,200
Rocky River	Chum	tstart	7/3											
index system		1	7/3	7/3	0	0	0	0	0	0	0	0	0%	
		2	7/13	7/3	10	1,940	0	1,940	9,700	9,700	554	554	9%	
		3	7/17	7/13	4	1,900	1,940	3,840	7,680	17,380	439	993	15%	
		4	7/19	7/17	2	1,604	1,900	3,504	3,504	20,884	200	1,193	18%	
		5	8/9	7/19	21	3,830	1,604	5,434	57,057	77,941	3,260	4,454	69%	
		6	8/15	8/9	6	610	3,830	4,440	13,320	91,261	761	5,215	81%	
		7	8/19	8/15	4	2,000	610	2,610	5,220	96,481	298	5,513	85%	
		8	8/28	8/19	9	10	2,000	2,010	9,045	105,526	517	6,030	93%	
		9	9/5	8/28	8	600	10	610	2,440	107,966	139	6,169	95%	
		tend	9/22		17.5				5,250	113,216	300	6,469[d]	100%	3,830

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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
Rocky River	Pink	[t]start	7/13											
index system		1	7/13	7/13	0	0	0	0	0	0	0	0	0%	
		2	7/17	7/13	4	200	0	200	400	400	23	23	0%	
		3	7/19	7/17	2	210	200	410	410	810	23	46	0%	
		4	7/30	7/19	11	5,470	210	5,680	31,240	32,050	1,785	1,831	2%	
		5	8/9	7/30	10	19,800	5,470	25,270	126,350	158,400	7,220	9,051	12%	
		6	8/15	8/9	6	11,100	19,800	30,900	92,700	251,100	5,297	14,349	20%	
		7	8/19	8/15	4	22,500	11,100	33,600	67,200	318,300	3,840	18,189	25%	
		8	8/28	8/19	9	29,390	22,500	51,890	233,505	551,805	13,343	31,532	43%	
		9	9/5	8/28	8	48,400	29,390	77,790	311,160	862,965	17,781	49,312	67%	
		[t]end	9/22		17.5				423,500	1,286,465	24,200	73,512[d]	100%	48,400
South Nuka	Pink	[t]start	7/19											
Island Creek		1	7/19	7/19	0	0	0	0	0	0	0	0	0%	
index system		2	7/30	7/19	11	300	0	300	1,650	1,650	94	94	4%	
		3	8/9	7/30	10	1,200	300	1,500	7,500	9,150	429	523	21%	
		4	8/15	8/9	6	200	1,200	1,400	4,200	13,350	240	763	31%	
		5	8/19	8/15	4	2,220	200	2,420	4,840	18,190	277	1,039	42%	
		6	9/5	8/19	17	340	2,220	2,560	21,760	39,950	1,243	2,283	93%	
		[t]end	9/22		17.5				2,975	42,925	170	2,453[d]	100%	2,220
Taylor Bay	Pink	[t]start	7/12											
Creek		1	7/30	7/12	17.5	4,500	0	4,500	39,375	39,375	2,250	2,250	16%	
not an index		2	8/9	7/30	10	4,410	4,500	8,910	44,550	83,925	2,546	4,796	34%	
system		3	8/15	8/9	6	200	4,410	4,610	13,830	97,755	790	5,586	40%	
		4	8/19	8/15	4	4,200	200	4,400	8,800	106,555	503	6,089	44%	
		5	8/28	8/19	9	5,500	4,200	9,700	43,650	150,205	2,494	8,583	62%	
		6	9/5	8/28	8	5,600	5,500	11,100	44,400	194,605	2,537	11,120	80%	
		[t]end	9/22		17.5				49,000	243,605	2,800	13,920	100%	5,600
Windy Bay–	Chum	[t]start	6/25											
Left Creek		1	7/13	6/25	17.5	30	0	30	263	263	15	15	12%	
not an index		2	7/17	7/13	4	100	30	130	260	523	15	30	23%	
system		3	8/9	7/17	23	30	100	130	1,495	2,018	85	115	88%	
		[t]end	8/26		17.5				263	2,280	15	130	100%	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.	Peak count
Windy Bay–	Pink	[t]start	6/25											
Left Creek		1	7/13	6/25	17.5	2,500	0	2,500	21,875	21,875	1,250	1,250	5%	
index system		2	7/17	7/13	4	4,400	2,500	6,900	13,800	35,675	789	2,039	8%	
		3	7/19	7/17	2	1,300	4,400	5,700	5,700	41,375	326	2,364	10%	
		4	7/30	7/19	11	9,850	1,300	11,150	61,325	102,700	3,504	5,869	24%	
		5	8/9	7/30	10	8,900	9,850	18,750	93,750	196,450	5,357	11,226	45%	
		6	8/15	8/9	6	5,300	8,900	14,200	42,600	239,050	2,434	13,660	55%	
		7	8/19	8/15	4	4,900	5,300	10,200	20,400	259,450	1,166	14,826	60%	
		8	8/28	8/19	9	1,850	4,900	6,750	30,375	289,825	1,736	16,561	67%	
		9	9/5	8/28	8	10,700	1,850	12,550	50,200	340,025	2,869	19,430	78%	
		[t]end	9/22		17.5				93,625	433,650	5,350	24,780[d]	100%	10,700
Windy Bay–	Chum	[t]start	7/3											
Right Creek		1	7/3	7/3	0	0	0	0	0	0	0	0	0%	
not an index		2	7/13	7/3	10	400	0	400	2,000	2,000	114	114	17%	
system		3	7/17	7/13	4	0	400	400	800	2,800	46	160	24%	
		4	7/19	7/17	2	60	0	60	60	2,860	3	163	24%	
		5	7/30	7/19	11	120	60	180	990	3,850	57	220	33%	
		6	8/9	7/30	10	500	120	620	3,100	6,950	177	397	59%	
		7	8/15	8/9	6	100	500	600	1,800	8,750	103	500	75%	
		8	9/5	8/15	21	100	100	200	2,100	10,850	120	620	93%	
		[t]end	9/22		17.5				875	11,725	50	670	100%	500
Windy Bay–	Pink	[t]start	6/25											
Right Creek		1	7/13	6/25	17.5	1,000	0	1,000	8,750	8,750	500	500	4%	
index system		2	7/17	7/13	4	2,400	1,000	3,400	6,800	15,550	389	889	8%	
		3	7/30	7/17	13	1,520	2,400	3,920	25,480	41,030	1,456	2,345	21%	
		4	8/9	7/30	10	3,300	1,520	4,820	24,100	65,130	1,377	3,722	33%	
		5	8/15	8/9	6	4,300	3,300	7,600	22,800	87,930	1,303	5,025	44%	
		6	8/19	8/15	4	2,600	4,300	6,900	13,800	101,730	789	5,813	51%	
		7	8/28	8/19	9	1,140	2,600	3,740	16,830	118,560	962	6,775	60%	
		8	9/5	8/28	8	5,900	1,140	7,040	28,160	146,720	1,609	8,384	74%	
		[t]end	9/22		17.5				51,625	198,345	2,950	11,334[d]	100%	5,900

Note: The value used for the final escapement index for each stock is in parentheses at the top of the column. AUC equations from Bue et al. 1998. Final counts include fish observed in bays on the last survey of the season if no further harvest occurred.

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

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

[c] Area-under-the-curve (AUC) estimate equals the cumulative escapement index.

[d] Final escapement index.

Appendix B7.–Pink and chum salmon escapements measured by ground survey using area-under-the-curve (AUC) estimation (and peak live plus carcass counts as noted) in the Outer District, 2019.

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	6/28												
Creeks		1	7/16	6/28	17.5	19	0	19	166	166	10	10	0%	0	19
index system		2	7/26	7/16	10	202	19	221	1,105	1,271	63	73	3%	4	206
		3	8/28	7/26	33	1,300	202	1,502	24,783	26,054	1,416	1,489	53%	1,517	2,817
		4	9/11	8/28	14	883	1,300	2,183	15,281	41,335	873	2,362	84%	1,789	2,672
		[t]end	9/28		17.5				7,726	49,062	442	2,804	100%		
Dogfish Lagoon	Pink	[t]start	6/28												
Creeks		1	7/16	6/28	17.5	58	0	58	508	508	29	29	0%	0	58
index system		2	7/26	7/16	10	542	58	600	3,000	3,508	171	200	1%	1	543
		3	8/28	7/26	33	5,748	542	6,290	103,785	107,293	5,931	6,131	29%	3,609	9,357
		4	9/11	8/28	14	14,146	5,748	19,894	139,258	246,551	7,958	14,089	67%	7,897	22,043[d]
		[t]end	9/28		17.5				123,778	370,328	7,073	21,162	100%		
Port Chatham	Chum	[t]start	7/12												
Creeks		1	7/30	7/12	17.5	97	0	97	849	849	49	49	20%	9	106
not *an index*		2	8/13	7/30	14	175	97	272	1,904	2,753	109	157	64%	105	280
system		3	8/29	8/13	16	10	175	185	1,480	4,233	85	242	98%	416	426
		[t]end	9/15		17.5				88	4,320	5	247	100%		
Port Chatham	Pink	[t]start	7/12												
Creeks		1	7/30	7/12	17.5	15,726	0	15,726	137,603	137,603	7,863	7,863	20%	96	15,822
index system			8/13	7/30	14	18,135	15,726	33,861	237,027	374,630	13,544	21,407	54%	2,936	21,071
		2	8/29	8/13	16	10,330	18,135	28,465	227,720	602,350	13,013	34,420	87%	13,097	23,427
		[t]end	9/15		17.5				90,388	692,737	5,165	39,585[d]	100%		
Port Dick-	Chum	[t]start	6/29												
Headend Creek		1	7/17	6/29	17.5	17	0	17	149	149	9	9	1%	0	17
index system		2	8/9	7/17	23	1,228	17	1,245	14,318	14,466	818	827	60%	772	2,000[d]
		3	8/20	8/9	11	239	1,228	1,467	8,069	22,535	461	1,288	93%	404	643
		4	8/27	8/20	7	71	239	310	1,085	23,620	62	1,350	97%	291	362
		[t]end	9/13		17.5				621	24,241	36	1,385	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-	Pink	[t]start	6/29												
Headend Creek		1	7/17	6/29	17.5	21,700	0	21,700	189,875	189,875	10,850	10,850	12%	1	21,701
index system		2	8/9	7/17	23	32,063	21,700	53,763	618,275	808,150	35,330	46,180	50%	1,484	33,547
		3	8/20	8/9	11	38,447	32,063	70,510	387,805	1,195,955	22,160	68,340	73%	7,807	46,254
		4	8/27	8/20	7	24,468	38,447	62,915	220,203	1,416,157	12,583	80,923	87%	11,479	35,947
		[t]end	9/13		17.5				214,095	1,630,252	12,234	93,157[d]	100%		
Port Dick-	Chum	[t]start	7/21												
Island Creek		1	8/8	7/21	17.5	1,377	0	1,377	12,049	12,049	689	689	13%	7	1,384
index system		2	8/14	8/8	6	2,212	1,377	3,589	10,767	22,816	615	1,304	24%	45	2,257
		3	8/23	8/14	9	2,933	2,212	5,145	23,153	45,968	1,323	2,627	48%	616	3,549
		4	8/30	8/23	7	2,522	2,933	5,455	19,093	65,061	1,091	3,718	68%	1,159	3,681
		5	9/5	8/30	6	1,984	2,522	4,506	13,518	78,579	772	4,490	82%	1,161	3,145
		[t]end	9/22		17.5				17,360	95,939	992	5,482[d]	100%		
Port Dick-	Pink	[t]start	7/21												
Island Creek		1	8/8	7/21	17.5	5,071	0	5,071	44,371	44,371	2,536	2,536	4%	46	5,117
index system		2	8/14	8/8	6	18,870	5,071	23,941	71,823	116,194	4,104	6,640	10%	94	18,964
		3	8/23	8/14	9	32,158	18,870	51,028	229,626	345,820	13,121	19,761	31%	351	32,509
		4	8/30	8/23	7	45,850	32,158	78,008	273,028	618,848	15,602	35,363	56%	1,673	47,523
		5	9/5	8/30	6	30,485	45,850	76,335	229,005	847,853	13,086	48,449	76%	2,633	33,118
		[t]end	9/22		17.5				266,744	1,114,597	15,243	63,691[d]	100%		

Note: The value used for the final escapement index for each stock is in parentheses at the top of the column. AUC equations from Bue et al. (1998). Final counts include fish observed in bays on the last survey of the season if no further harvest occurred.

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

[d] Final escapement index.

Appendix B8.–Sockeye salmon aerial survey counts from the Outer District, 2019.

Location	Survey number	Survey date	Live count	Peak count
Delusion Lake	1	6/26	0	
	2	7/3	310	
	3	7/19	10	
	4	7/30	160	
	5	8/9	520	
	6	8/15	1,480	
	7	8/19	440	
	8	8/28	0	
	9	9/5	151	1,480
Desire Lake	1	6/12	0	
	2	6/18	0	
	3	6/28	770	
	4	7/3	620	
	5	7/19	631	
	6	7/30	1,050	
	7	8/9	5,400	
	8	8/15	780	
	9	8/19	4,010	
	10	8/28	560	
	11	9/5	9,040	9,040
Delight Lake	1	6/12	0	
	2	6/18	0	
	3	6/28	80	
	4	7/3	133	
	5	7/19	631	
	6	7/30	1,130	
	7	8/9	430	
	8	8/15	240	
	9	8/19	220	
	10	8/28	210	
	11	9/5	970	1,130

Appendix B9.–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, 1980–2019.

	Pink salmon											Chum salmon					Sockeye salmon			
Year	Dogfish Lagoon	Port Chatham	Windy Right Cr.	Windy Left Creek	Rocky River	Port Dick Creek	Island Creek	South Nuka Cr.	Desire Lake Cr.	James Lagoon[a]	Total index count	Dogfish Lagoon	Rocky River	Port Dick Creek	Island Creek	Total index count	Delusion Lake[a]	Delight Lake	Desire Lake	Total index count
1980	0.3	7.7	3.3	10.9	6.4	56.1	2.2	0.3	16.0	4.6	103.2	4	23	4.2	11	42.1		7.3[b]	17.0	24.3
1981	2.6	11.2	4.7	31.3	25.0	106.0	25.0	16.0	5.0	14	226.8	12	13	4.1	18	45.6			12.0	12.0
1982	2.6	2.0	4.7	4.4	6.6	19.9	15.0	0.4	12.0	6	67.6	8.5	2.8	1.7	8.7	21.7		13.1[b]	18.0	31.1
1983	1.0	3.5	4.3	11.9	16.6	64.1	15.3	22.2	8.5	5.1	147.4	5.3	4	4.5	36	50		5.1[b]	12.0	17.1
1984	0.6	7.8	3.4	2.5	9.0	44.6	35.0	0.6	23.0	4	126.5	8.6	3.5	2.7	26	40.4		5.4[b]	15.0	20.4
1985	0.2	8.9	5.4	8.9	12.1	65.3	27.9	3.6	62.5	9	194.8	4.9	2.5	1	9.1	17.5		16.3[b]	18.0	34.3
1986	0.4	11.5	2.5	2.2	12.0	41.6	16.6	7.0	32.0	6.6	125.8	2.5	2	1.7	8.6	14.8		8.8[b]	10.0	18.8
1987	1.2	10.2	2.0	5.6	4.5	4.5	0.1	2.8	11.0	1.1	41.9	2	0.2	6.1	13	21.5		8.1[b]	13.4	21.5
1988	0.3	21.0	1.3	3.4	5.4	12.0	7.2	1.2	2.5	1.7	54.3	8.6	0.3	9	7.8	25.7		0.8[b]	9.0	9.8
1989	0.2	31.7	6.6	25.2	10.3	55.4	6.7	7.3	47.0	4.9	190.4	1.8	1.2	3.3	4.8	15		4.8[b]	9.0	13.8
1990	7.1	27.8	7.1	7.5	18.0	41.7	25.0	13.3	1.0	3.8	148.5	1	0.8	1.1	2.3	12			9.5	9.5
1991	9.3	23.8	20.7	34.5	26.1	54.2	24.4	16.4	1.3	4.4	210.7	3.1		7.4	17	12		4.1[b]	8.2	12.3
1992		4.3	3.9	8.2	25.4	6.9	12.5	6.1	0.4	0.4	67.7	0.8	1.7	5.4	6.7	2.4		5.9[b]	11.9	17.8
1993	0.3	22.2	13.6	25.9	70.0	37.0	12.1	34.3	19.3	3.3	234.7	5.4	0.1	2.5	3.6	34		5.0[b]	11.0	16.0
1994	1.3	3.3	2.2	3.0	17.1	18.1	28.3	1.4		0.8	74.7	11	1.9	3.5	8.8	16.5		5.6[b]	10.5	16.1
1995	13.3	14.0	11.4	31.6	56.3	6.6	10.6	6.2		0.6	150.0	4.2	5.1	3.3	7.7	21.9		15.8[b]	15.8	31.6
1996	2.3	8.6	9.9	2.5	80.1	23.2	40.1	6.8			173.5	6.7	2	2.3	6.9	24.5		9.4[b]	9.4	18.8
1997	20.0	42.7	13.9	64.6	48.1	36.9	71.1	9.3	6.2		312.8	13	1.1	1.9	5.2	47.2		27.8[c]	14.7	42.5
1998	6.7	22.2	19.5	12.9	165.0	59.1	83.6	14.0	6.2		389.2	9.8	0.7	1.8	3.4	31.2		9.2[c]	7.9	17.1
1999	12.4	10.7	5.2	24.0	17.2	8.5	8.6	2.4	6.8		95.8	19	5.4	2.9	16	28.1		17.0[d]	14.6	31.6
2000	11.1	16.7	23.0	20.1	131.6	124.4	70.8	13.6	21.1	3.9	432.4	20	4.2	3.4	12	13		12.3[d]	4.0	16.3
2001	2.0	17.9	10.3	61.8	73.0	44.7	81.8	20.7	67.5	2.3	379.7	6.1	3	1.8	6.3	17.2	2.8	10.1[d]	5.5	15.6
2002	1.3	18.1	14.4	28.9	112.5	108.0	44.1	14.8	78.4	3.1	420.5	10	5.7	12	15	43.4	3.6	19.6[d]	16.0	35.6
2003	5.2	35.0	23.3	82.8	287.4	107.7	118.6	41.4	34.8		736.2	13	5.5	5.6	16	40.7	2.0	7.5[d]	8.4	15.9
2004	3.2	26.4	12.0	23.3	53.8	13.3	33.6	6.4	24.3		196.3	3.6	17	8.6	15	44.5	1.0	7.3[d]	10.7	18.0
2005	22.3	44.4	22.2	72.0	198.7	122.2	26.4	11.2	46.0		565.4	2.7	6.1	4.8	21	34.3	1.1	15.2[d]	4.8	20.0
2006	8.0	24.2	17.1	65.2	67.8	51.5	107.7	5.1	74.8		421.4	5.4	11	2.8	5.6	25	1.0	10.9[d]	18.6	29.5
2007	4.1	14.5	18.3	37.3	190.0	44.2	87.2	6.6	11.8		414.0	4.9	1.6	2.8	3.1	12.4	2.1	44.0[d]	10.0	54.0
2008	8.0	16.4	12.5	64.1	90.9	34.2	49.7	12.3	9.5		297.6	6.2	3.8	12	13	34.7	1.8	23.9[d]	10.7	34.6
2009	9.2	25.3	15.0	57.3	173.6	41.7	44.5	19.9	73.9		460.4	4.4	2.5	5.6	9.3	21.8	1.3	12.7[d]	16.0	28.7
2010	6.3	3.0	6.4	24.2	27.0	41.1	69.5		3.0		180.6	12.7	1.3	2.4	3.4	19.8	0.6	23.8[d]	6.3	30.1
2011	3.9	15.8	1.7	12.2	22.7	16.9	10.2		0.6	0.3	84.0	12.9	4.5	7.1	11.8	36.3	1.8	20.2[d]	9.6	29.8
2012	11.4	5.4	5.8	11.7	15.7	18.1	20.1	1.3	2.3	0.0	91.7	8.8	3.2	8.4	14.9	35.2		10.9[d]	8.8	19.7
2013	26.4	57.4	11.7	47.8	75.8	55.8	26.0	8.4	56.9	24.4	366.4	9.3	8.1	4.1	8.8	30.4	1.7	6.0[d]	8.4	14.4
2014	8.8	10.3	5.7	10.1	17.1	48.7	50.4	11.0	0.4	1.0	162.7	11.2	6.9	1.8	2.7	22.6	0.0	22.3[d]	11.5	33.8
2015	50.1	42.6	17.0	33.6	107.9	98.0	50.4	8.9	46.3	30.3	454.8	13.3	3.1	13.2	18.5	48.2	0.1	3.2[b]	2.8	6.1
2016	2.3	1.1	1.4	0.5	4.3	4.8	1.7	0.0	0.2	0.1	16.4	11.3	4.6	9.3	8.5	33.7	0.1	5.1[b]	6.7	11.9
2017	13.3	44.3	5.1	17.4	31.2	62.1	22.6	0.5	4.4	2.7	200.8	13.2	6.9	2.6	5.5	28.3	1.0	5.4[b]	9.5	14.8
2018	8.0	18.1	8.9	14.0	2.1	94.6	5.6	0.5	2.5	0.1	154.4	7.6	5.6	0.7	1.4	15.3	1.1	13.4[d]	9.8	23.3
10-yr avg.	14.0	22.3	7.9	22.9	47.7	48.2	30.1	6.3	19.0	7.4	218.5	10.5	4.7	5.5	8.5	29.1	0.8	12.3	9.0	21.2
2019	22.0	39.6	13.7	25.6	75.4	93.2	63.7	2.5	2.5	1.1	338.2	3.6	6.6	2.0	5.5	17.7	1.5	17.4.[d]	9.0	25.7

Note: Blank cells indicate no data was collected.

[a] Nonindex stream.

[b] Escapement derived from aerial survey.

[c] Escapement derived from weir counts.

[d] 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, 2019.

Period[a]	Statistical week	Date	Hours	Permits Fished	Chinook Number	Chinook Pounds	Sockeye Number	Sockeye Pounds	Coho Number	Coho Pounds	Pink Number	Pink Pounds	Chum Number	Chum Pounds
1[a]	26	6/24	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2[a]	26	6/25	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
3[a]	26	6/26	16	4	0	0	1,121	4,800	0	0	4	16	3	19
4[a]	26	6/27	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
5	26	6/28	16	3	0	0	412	1,716	0	0	3	14	3	18
6	27	7/1	16	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
18	29	7/19	16	No deliveries periods 7–18										
Total				4	0	0	4,307	18,118	0	0	112	453	19	134
Average weight						0		4.31		6.00		3.55		6.77

Note: No deliveries during Periods 7–18, July 2–19.

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

Appendix C2.–Historic commercial common property and derby commercial sales harvest (excluding homepacks) by species in the Eastern District, 2000–2019.

		Commercial common property harvest					Derby sales
Year	Permits	Chinook	Sockeye	Coho	Pink	Chum	Coho
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	[a]	[a]	[a]	[a]	[a]	[a]	1,570
2010	[a]	[a]	[a]	[a]	[a]	[a]	1,100
2011	[a]	[a]	[a]	[a]	[a]	[a]	1,207
2012	[a]	[a]	[a]	[a]	[a]	[a]	1,400
2013	[a]	[a]	[a]	[a]	[a]	[a]	1,380
2014	[a]	[a]	[a]	[a]	[a]	[a]	606
2015	3	0	4,633	0	155	115	1,408
2016	[a]	[a]	[a]	[a]	[a]	[a]	200
2017	[a]	[a]	[a]	[a]	[a]	[a]	1,577
2018	5	0	22,310	0	0	66	1,956
Prev. 10-yr avg.	4	0	12,981	0	235	135	1,240
2019	4	0	4,307	2	112	19	1,561

Source: ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

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

Appendix C3.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement through the Bear Creek weir, 2019.

	Escapement to Bear Lake			Escapement objectives SEG plus CIAA brood goal[a] Minimum		Maximum		Actual weir donations[b]		Actual weir cost recovery		Actual total sockeye at Bear Creek weir	
Date	Daily	Total	Antic. percent	Daily	Total	Daily	Total	Daily	Total	Daily	Total	Daily	Total
5/18	3	3	0.0%	0	1	0	1	0	0	0	0	3	3
5/19	3	6	0.0%	1	2	2	3	0	0	0	0	3	6
5/20	23	29	0.0%	2	3	4	7	0	0	0	0	23	29
5/21	29	58	0.0%	1	4	2	10	0	0	0	0	29	58
5/22	26	84	0.0%	2	7	5	15	0	0	0	0	26	84
5/23	27	111	0.1%	6	13	12	27	0	0	0	0	27	111
5/24	52	163	0.3%	11	23	23	51	0	0	0	0	52	163
5/25	36	199	0.5%	11	34	24	75	0	0	0	0	36	199
5/26	44	243	0.8%	20	54	44	119	0	0	0	0	44	243
5/27	87	330	1.1%	21	76	47	166	0	0	0	0	87	330
5/28	63	393	1.5%	25	101	56	222	0	0	0	0	63	393
5/29	168	561	2.4%	54	155	119	340	0	0	0	0	168	561
5/30	343	904	3.5%	75	230	164	504	0	0	0	0	343	904
5/31	535	1,439	4.6%	66	296	144	648	0	0	0	0	535	1,439
6/1	666	2,105	5.7%	75	370	164	812	0	0	0	0	666	2,105
6/2	383	2,488	7.1%	85	455	186	998	0	0	0	0	383	2,488
6/3	972	3,460	8.6%	96	551	210	1,209	0	0	0	0	972	3,460
6/4	604	4,064	11.2%	169	720	370	1,579	0	0	0	0	604	4,064
6/5	971	5,035	13.9%	172	892	378	1,956	20	20	691	691	1,682	5,746
6/6	708	5,743	17.4%	220	1,112	481	2,438	20	40	690	1,381	1,418	7,164
6/7	1,150	6,893	20.9%	226	1,338	497	2,934	6	46	1,021	2,402	2,177	9,341
6/8	895	7,788	24.7%	242	1,580	530	3,464	53	99	480	2,882	1,428	10,769
6/9	693	8,481	29.5%	304	1,884	667	4,131	0	99	1,383	4,265	2,076	12,845
6/10	1,537	10,018	33.4%	251	2,135	551	4,683	0	99	1,481	5,746	3,018	15,863
6/11	1,520	11,538	36.5%	192	2,327	421	5,104	13	112	1,269	7,015	2,802	18,665
6/12	694	12,232	40.1%	231	2,558	506	5,610	0	112	1,085	8,100	1,779	20,444
6/13	528	12,760	43.3%	208	2,766	455	6,065	40	152	523	8,623	1,091	21,535
6/14	0	12,760	46.5%	203	2,969	446	6,511	0	152	1,417	10,040	1,417	22,952
6/15	0	12,760	48.8%	143	3,112	313	6,824	0	152	1,239	11,279	1,239	24,191
6/16	0	12,760	51.5%	172	3,284	378	7,202	0	152	701	11,980	701	24,892
6/17	0	12,760	54.1%	164	3,448	360	7,561	26	178	2,007	13,987	2,033	26,925
6/18	0	12,760	55.9%	116	3,563	253	7,815	20	198	1,341	15,328	1,361	28,286
6/19	0	12,760	58.3%	153	3,716	335	8,149	0	198	1,362	16,690	1,362	29,648
6/20	0	12,760	61.6%	211	3,927	463	8,612	20	218	1,316	18,006	1,336	30,984
6/21	0	12,760	64.3%	173	4,099	379	8,990	0	218	2,049	20,055	2,049	33,033
6/22	0	12,760	67.3%	193	4,293	424	9,414	0	218	1,284	21,339	1,284	34,317
6/23	0	12,760	70.3%	188	4,481	413	9,828	0	218	1,326	22,665	1,326	35,643
6/24	0	12,760	73.1%	179	4,660	392	10,219	20	238	1,298	23,963	1,318	36,961
6/25	0	12,760	76.3%	202	4,862	444	10,663	0	238	1,295	25,258	1,295	38,256
6/26	0	12,760	78.3%	132	4,994	290	10,953	0	238	993	26,251	993	39,249
6/27	0	12,760	81.0%	172	5,166	378	11,330	20	258	303	26,554	323	39,572
6/28	0	12,760	82.8%	113	5,279	248	11,578	0	258	257	26,811	257	39,829
6/29	0	12,760	84.5%	106	5,385	232	11,810	68	326	258	27,069	326	40,155
6/30	0	12,760	86.5%	128	5,513	280	12,090	110	436	0	27,069	110	40,265
7/1	0	12,760	88.1%	101	5,614	221	12,311	76	512	0	27,069	76	40,341
7/2	0	12,760	89.6%	101	5,715	222	12,534	45	557	0	27,069	45	40,386
7/3	0	12,760	90.8%	75	5,790	165	12,699	0	557	1,727	28,796	1,727	42,113

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	Escapement to Bear Lake			Escapement objectives 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
7/4	0	12,760	91.8%	65	5,855	142	12,841	20	577	0	28,796	20	42,133
7/5	0	12,760	92.7%	57	5,913	126	12,967	0	577	1,791	30,587	1,791	43,924
7/6	0	12,760	93.7%	58	5,971	128	13,095	0	577	1,144	31,731	1,144	45,068
7/7	0	12,760	94.5%	53	6,023	115	13,210	0	577	471	32,202	471	45,539
7/8	0	12,760	95.2%	43	6,066	94	13,304	0	577	661	32,863	661	46,200
7/9	0	12,760	96.0%	57	6,123	124	13,428	0	577	633	33,496	633	46,833
7/10	0	12,760	96.4%	24	6,146	52	13,479	37	614	1,190	34,686	1,227	48,060
7/11	0	12,760	96.7%	21	6,167	46	13,525	0	614	1,176	35,862	1,176	49,236
7/12	0	12,760	96.9%	12	6,179	27	13,552	9	623	1,296	37,158	1,305	50,541
7/13	0	12,760	97.1%	11	6,191	25	13,577	0	623	1,150	38,308	1,150	51,691
7/14	0	12,760	97.3%	11	6,202	24	13,600	0	623	383	38,691	383	52,074
7/15	0	12,760	97.4%	8	6,210	18	13,619	0	623	623	39,314	623	52,697
7/16	0	12,760	97.5%	7	6,217	16	13,634	0	623	0	39,314	0	52,697
7/17	0	12,760	97.6%	6	6,222	12	13,646	0	623	180	39,494	180	52,877
7/18	0	12,760	97.7%	6	6,228	13	13,659	20	643	0	39,494	20	52,897
7/19	0	12,760	98.1%	23	6,251	50	13,709	30	673	402	39,896	432	53,329
7/20	0	12,760	98.2%	6	6,257	12	13,721	0	673	591	40,487	591	53,920
7/21	0	12,760	98.2%	6	6,263	13	13,734	7	680	0	40,487	7	53,927
7/22	0	12,760	98.8%	35	6,297	76	13,810	0	680	581	41,068	581	54,508
7/23	0	12,760	98.9%	10	6,307	22	13,832	0	680	0	41,068	0	54,508
7/24	0	12,760	99.1%	8	6,315	18	13,850	0	680	347	41,415	347	54,855
7/25	0	12,760	99.1%	3	6,318	7	13,857	0	680	0	41,415	0	54,855
7/26	0	12,760	99.1%	0	6,318	0	13,857	0	680	0	41,415	0	54,855
7/27	0	12,760	99.2%	7	6,325	15	13,871	183	863	0	41,415	183	55,038
7/28	0	12,760	99.3%	5	6,330	11	13,883	0	863	0	41,415	0	55,038
7/29	0	12,760	99.3%	2	6,332	5	13,887	0	863	0	41,415	0	55,038
7/30	0	12,760	99.4%	1	6,334	3	13,890	0	863	0	41,415	0	55,038
7/31	0	12,760	99.4%	1	6,335	3	13,893	0	863	0	41,415	0	55,038
8/1	0	12,760	99.4%	1	6,336	3	13,896	0	863	0	41,415	0	55,038
8/2	0	12,760	99.4%	3	6,339	6	13,902	0	863	0	41,415	0	55,038
8/3	0	12,760	99.5%	2	6,341	5	13,906	0	863	0	41,415	0	55,038
8/4	0	12,760	99.5%	2	6,342	4	13,910	0	863	0	41,415	0	55,038
8/5	0	12,760	99.7%	12	6,355	27	13,936	0	863	0	41,415	0	55,038
8/6	0	12,760	99.7%	2	6,357	5	13,941	0	863	0	41,415	0	55,038
8/7	0	12,760	99.8%	2	6,359	5	13,947	0	863	0	41,415	0	55,038
8/8	0	12,760	99.8%	2	6,361	4	13,951	0	863	0	41,415	0	55,038
8/9	0	12,760	99.8%	1	6,362	2	13,952	0	863	0	41,415	0	55,038
8/10	0	12,760	99.8%	2	6,364	5	13,957	0	863	0	41,415	0	55,038
8/11	0	12,760	99.9%	1	6,365	2	13,959	0	863	0	41,415	0	55,038
8/12	0	12,760	99.9%	1	6,366	2	13,961	0	863	0	41,415	0	55,038
8/13	0	12,760	99.9%	3	6,369	8	13,968	0	863	0	41,415	0	55,038
8/14	0	12,760	99.9%	1	6,370	2	13,970	0	863	0	41,415	0	55,038
8/15	0	12,760	99.9%	0	6,370	0	13,970	0	863	0	41,415	0	55,038

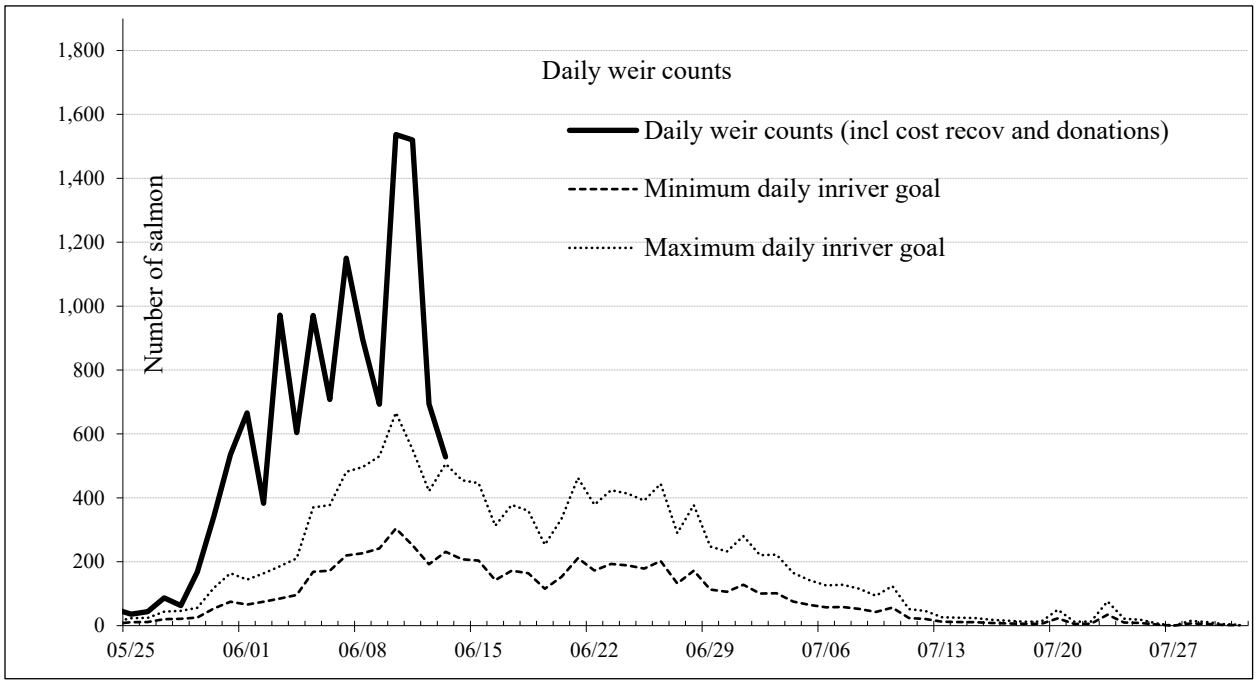
Note: Bear Creek sustainable escapement goal is 700–8,300 sockeye salmon. CIAA broodstock goal is 3,750 for a desired inriver run of 4,450–12,050 fish.

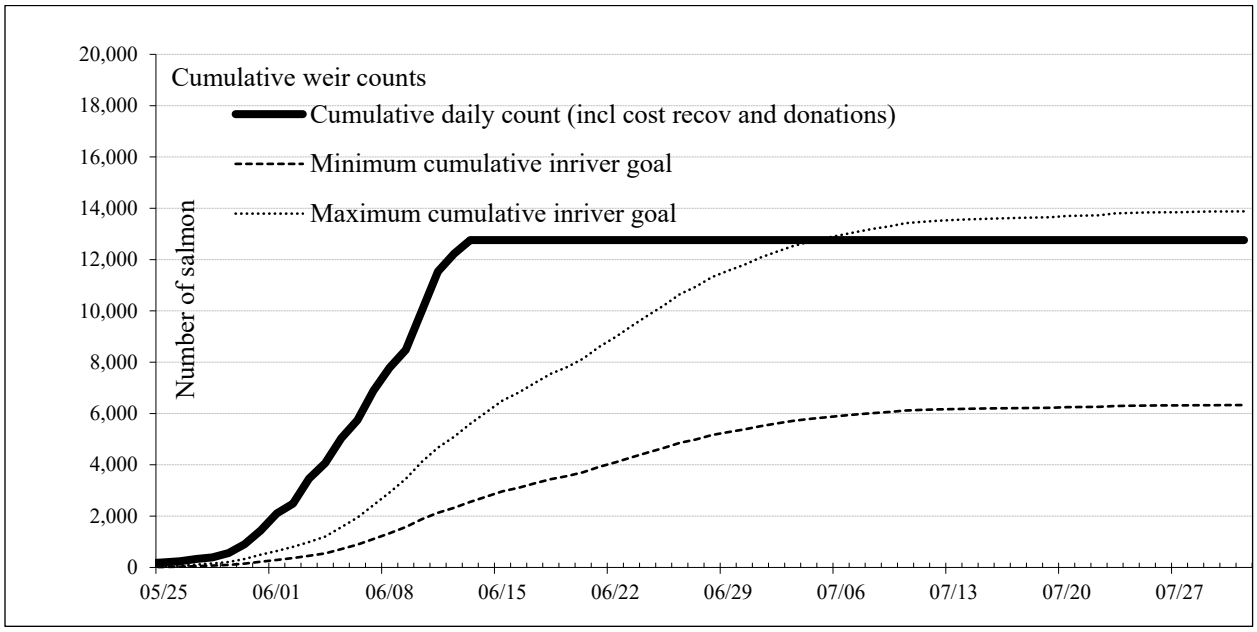
[a] Projected daily goal based on expected run timing applied to minimum and maximum cumulative goals at the end of the run.

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

[c] A total of 3,575 sockeye salmon were beach seined from the lake for use as broodstock.

Appendix C4.–Sockeye salmon counts at the Bear Creek weir compared to minimum and maximum desired inriver run, 2019. Minimum and maximum inriver goal is the Board of Fisheries-assigned Bear Lake sockeye salmon SEG combined with the Trail Lakes Hatchery broodstock goal, then apportioned over time using recent run timing.





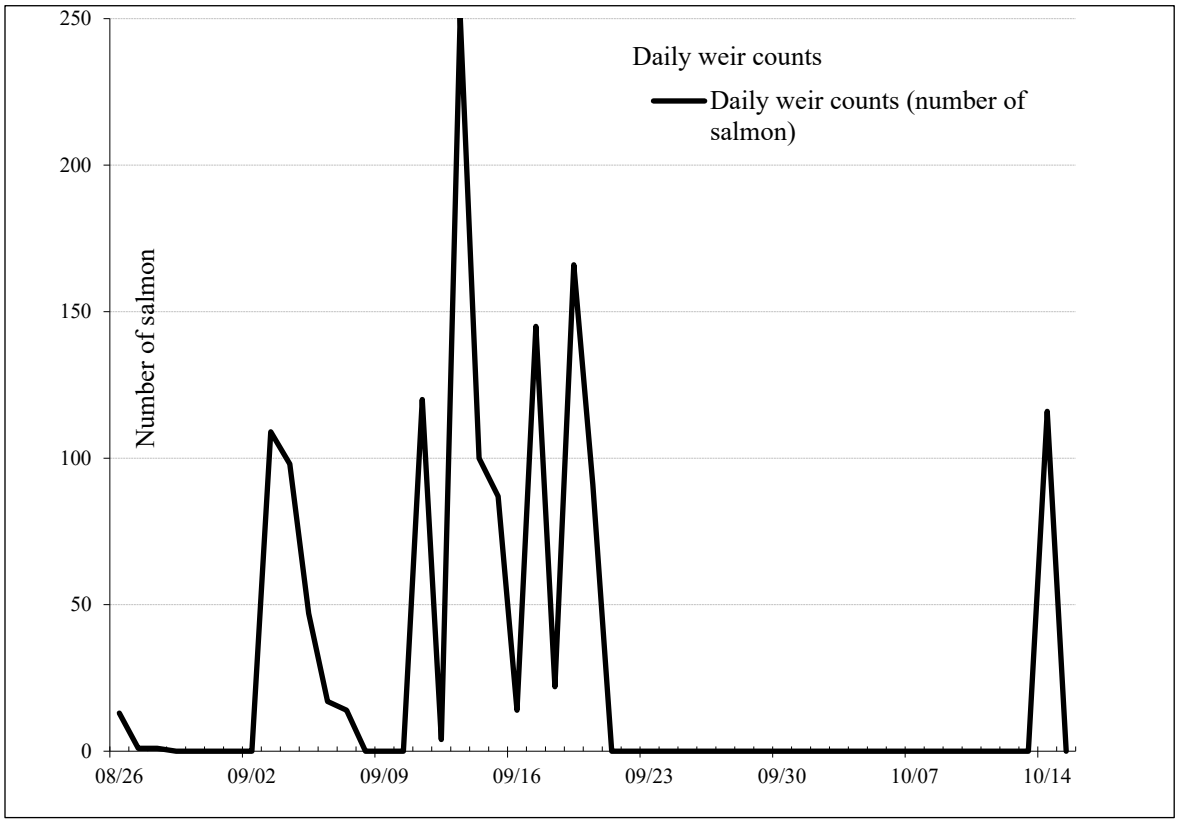
Note: A total of 44,686 sockeye salmon returned to the Bear Creek weir in 2019. Of those, 12,760 were passed through the weir into Bear Lake. An additional 41,415 were harvested at the weir for cost recovery and 863 were donated to the public. A total of 3,575 were harvested from Bear Lake for use as hatchery broodstock. Total estimated wild spawning escapement is estimated at 9,185 fish. The "desired inriver run" is the CIAA hatchery broodstock goal (3,750) added to the sustainable escapement goal range (700–8,300) for this species.

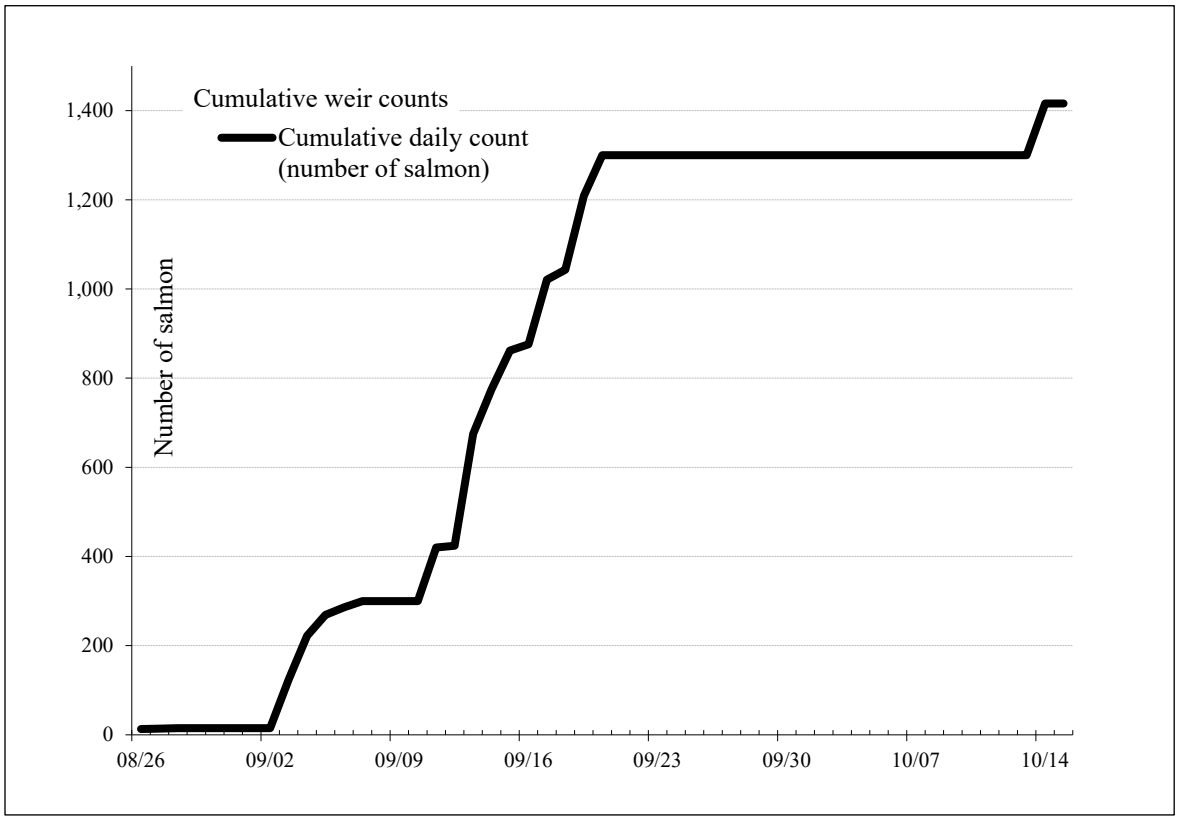
Appendix C5.–Coho salmon escapement through the Bear Creek weir, 2019.

	Escapement to Bear Lake		Antic.	Weir harvest		Cumulative coho at Bear Creek weir	
Date	Daily	Total	Percent	Daily	Total	Daily	Total
8/26	13	13	1.0%	0	0	13	13
8/27	1	14	1.1%	0	0	1	14
8/28	1	15	1.2%	0	0	1	15
8/29	0	15	1.2%	0	0	0	15
8/30	0	15	1.3%	0	0	0	15
8/31	0	15	1.5%	0	0	0	15
9/1	0	15	1.5%	0	0	0	15
9/2	0	15	1.6%	0	0	0	15
9/3	109	124	1.6%	0	0	109	124
9/4	98	222	1.7%	0	0	98	222
9/5	47	269	2.0%	87	87	134	356
9/6	17	286	2.7%	39	126	56	412
9/7	14	300	3.4%	37	163	51	463
9/8	0	300	5.0%	31	194	31	494
9/9	0	300	6.7%	93	287	93	587
9/10	0	300	8.0%	19	306	19	606
9/11	120	420	10.4%	120	426	326	846
9/12	4	424	12.1%	47	473	71	897
9/13	251	675	19.2%	78	551	359	1,226
9/14	100	775	22.0%	289	840	510	1,615
9/15	87	862	24.7%	166	1,006	417	1,868
9/16	14	876	28.1%	44	1,050	102	1,926
9/17	145	1,021	31.5%	122	1,172	393	2,193
9/18	22	1,043	34.3%	50	1,222	98	2,265
9/19	166	1,209	37.5%	78	1,300	322	2,509
9/20	91	1,300	40.4%	70	1,370	211	2,670
9/21	0	1,300	41.2%	0	1,370	0	2,670
9/22	0	1,300	42.3%	13	1,383	27	2,683
9/23	0	1,300	43.1%	0	1,383	0	2,683
9/24	0	1,300	45.4%	0	1,383	0	2,683
9/25	0	1,300	47.3%	161	1,544	304	2,844
9/26	0	1,300	49.0%	42	1,586	84	2,886
9/27	0	1,300	50.4%	0	1,586	0	2,886
9/28	0	1,300	52.0%	122	1,708	213	3,008
9/29	0	1,300	53.1%	12	1,720	12	3,020
9/30	0	1,300	54.0%	90	1,810	175	3,110
10/1	0	1,300	56.4%	0	1,810	0	3,110
10/2	0	1,300	58.8%	6	1,816	6	3,116
10/3	0	1,300	60.4%	0	1,816	0	3,116
10/4	0	1,300	64.1%	70	1,886	133	3,186
10/5	0	1,300	67.1%	4	1,890	4	3,190
10/6	0	1,300	69.2%	1	1,891	1	3,191
10/7	0	1,300	70.5%	1	1,892	1	3,192
10/8	0	1,300	72.5%	5	1,897	5	3,197
10/9	0	1,300	74.1%	16	1,913	16	3,213
10/10	0	1,300	82.4%	21	1,934	21	3,234
10/11–13	—	—	—	—	—	—	—
10/14	116	1,416	95.1%	0	1,934	116	3,350
10/15–19	—	—	—	—	—	—	—
10/20	0	1,416	100%	0	1,934	116	3,350

Note: Dashes indicate no fish were passed through the weir (October 11–13 and 15–19).

Appendix C6.–Daily and cumulative coho salmon counts at the Bear Creek weir, 2019.





Appendix C7.–Adult sockeye and coho salmon escapement, and Dolly Varden char and smolt outmigrations past Bear Creek weir, 1992–2019.

	Upstream migration to Bear Lake								Downstream migration to Resurrection Bay			
	Sockeye				Coho							
Year	Weir harvest (sold or donated)	Brood stock harvest	Spawning escap.	Total return at weir	Weir harvest (sold or donated)	Brood stock harvest	Spawning escap.	Total return at weir	Sockeye (smolt)	Coho (smolt)	Dolly Varden (adult)	Comments
1992	0	0	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	2,711	594	276	3,581	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	0	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	0	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	138	571	535	1,245	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	0	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	1,997	1,074	300	3,371	791,705	36,219	759	
2014	15,569	3,857	9,233	28,659	671	567	534	1,772	393,553	21,113	191	
2015	37,821	3,945	9,560	51,326	1,013	705	261	1,979	728,764	91,657	263	
2016	62,915	3,764	9,011	75,690	0	250	150	400	904,494	71,199	181	
2017	4,701	3,746	9,202	17,649	864	764	858	2,486	1,196,158	98,192	1,784	
2018	31,907	2,211	10,568	44,686	434	456	300	1,190	836,851	72,932	881	
Prev 10-yr avg.	19,823	3,613	9,346	32,794	540	595	410	1,545	663,638	58,138	856	
2019	42,278	3,575	9,185	55,038	421	1,572	1,300	3,293	972,810	67,129	268	

Source: Data from CIAA and ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

Appendix C8.–Sockeye salmon aerial survey counts from the Eastern District, 2019.

Location	Survey number	Survey date	Live count	Peak count
Aialik Lake and Creek	1	6/12/19	0	
	2	6/18/19	0	
	3	7/3/19	335	
	4	7/19/19	540	
	5	8/15/19	5,000	
	6	8/28/19	252	
	7	9/5/19	3,170	5,000

Appendix C9.–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, 1970–2019.

	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
1970									5.8	5.8
1971								3.0	0.4	3.4
1972		0.5					0.5	0.6	0.7	1.3
1973								1.5	0.2	1.7
1974	0.1	4.9		1.4	1.1	0.6	8.1	2.2	0.1	2.3
1975								8.0		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		5.0
1978		7.8	11.0	1.5	2.0	0.9	23.2	3.0		3.0
1979								5.0		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		4.1						2.1	8.0	10.1

-continued-

Appendix C9.–Page 2 of 2.

	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
2013		8.1		5.3	0.6	1.8	15.8	3.5	9.0	12.5
2014								0.5	9.2	9.7
2015	0.8						0.8	3.2	9.6	12.7
2016							0.0	0.4	9.2	9.6
2017	1.8						1.8	4.9	9.2	13.9
2018	0.0						0.0	2.6	10.6	13.2
10-yr avg.	0.7	6.1		5.3	0.6	1.8	3.7	3.1	9.2	12.3
2019	3.8						3.8	5.0	9.2	14.2

Note: Blank cells indicate no data were collected.

[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, 2019.

Period	Statistical week	Date	Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	22	06/01–06/02	160											
2	23	06/03–06/09	160											
3	24	06/10–06/16	160											
4[a,b,c]	25	06/17–06/23	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
5[a,b,c,d]	26	06/24–06/30	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
6[a,b,c,d,e]	27	07/01–07/07	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
7[b,c,d,e,f]	28	07/08–07/14	160											
8[a,b,c,d,g]	29	07/15–07/21	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
9[b,c,d,g]	30	07/22–07/28	160	6			2,903	9,753			10,214	34,461	18,355	118,156
10[b,c,d,g,h,I,j]	31	07/29–08/04	160	3			4,595	18,394	18	120	36,955	113,130	5,804	44,891
11[a,b,c,d,g,h,i,j]	32	08/05–08/11	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
12[b,c,d,g,h,i,j]	33	08/12–08/18	160											
13[b,c,d,g,h,i,j]	34	08/19–08/25	160											
14[a,b,c,d,g,k]	35	08/26–09/01	160	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
17[b,c,d,g,k]	36	09/16–09/22	160					No deliveries period 15–17						
Total				7	0	0	59,069	198,377	3,349	33,414	59,008	183,074	31,629	221,461
Average weight								3.77		9.98		3.10		7.00

Note: No deliveries after September 1.

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

[b] Waters of McNeil Subdistrict, Paint River Subdistrict, and Kirschner Lake SHA closed after June 16.

[c] Portions of Chenik Lagoon open after June 17.

[d] Kirschner SHA closed beginning June 24.

[e] Chenik Lagoon closed beginning July 5.

[f] Chenik Subdistrict closed beginning July 12.

[g] Chenik Subdistrict including eastern portion of the Chenik Lagoon reopened beginning July 18.

[h] Anadromous closed waters rescinded for Chenik Lagoon beginning August 2.

[i] Anadromous closed waters rescinded for Brown's Peak Creek, Sunday Creek beginning August 3.

[j] Kirschner SHA reopened beginning August 3.

[k] Closed waters reestablished for Brown's Peak Creek, Sunday Creek, and Chenik Creek effective August 31.

Appendix D2.–Total commercial common property harvest (excluding homepacks) by species in the Kamishak Bay District, 2000–2019.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum
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
2015	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2016	5	13	0	18,218	578	350	10,984
2017	5	47	0	102,810	185	254,440	34,275
2018	7	47	0	33,699	9,077	5,226	8,298
10-yr avg.	6	35	0	42,594	1,041	47,425	17,462
2019	7	49	0	59,069	3,349	59,008	31,629

Source: ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

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

Appendix D3.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring site at Chenik Lake, 2019.

	Actual		Antic.	Apportioned sustainable escapement goals				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
6/11	0	0	0.0%	0	0	0	0	Video operation began
6/12	0	0	0.0%	0	0	0	0	
6/13	3	3	0.0%	0	0	0	0	
6/14	0	3	0.0%	0	0	0	0	
6/15	0	3	0.1%	0	0	20	20	
6/16	0	3	0.2%	4	4	4	25	
6/17	2	5	0.2%	1	5	2	27	
6/18	0	5	0.2%	0	6	1	27	
6/19	0	5	0.3%	0	6	16	44	
6/20	6	11	0.3%	3	9	1	44	
6/21	0	11	0.3%	0	9	1	45	
6/22	1	12	0.4%	0	10	8	53	
6/23	0	12	0.6%	2	11	34	87	
6/24	0	12	0.6%	7	18	0	87	
6/25	0	12	0.8%	0	18	27	114	
6/26	0	12	2.1%	6	24	168	281	
6/27	0	12	3.5%	35	60	198	479	
6/28	0	12	3.6%	42	101	14	493	
6/29	0	12	5.6%	3	104	280	773	
6/30	0	12	9.1%	59	164	469	1,242	
7/1	0	12	12.9%	99	263	528	1,770	
7/2	0	12	14.2%	112	375	169	1,939	
7/3	8	20	21.5%	36	410	1,010	2,949	
7/4	1	21	25.0%	214	624	479	3,429	
7/5	0	21	26.5%	101	726	208	3,637	
7/6	1	22	27.2%	44	770	92	3,729	
7/7	62	84	28.5%	20	789	173	3,902	
7/8	0	84	28.5%	37	826	7	3,908	
7/9	85	169	28.8%	1	827	38	3,946	
7/10	690	859	30.5%	8	835	239	4,185	
7/11	5	864	37.1%	51	886	904	5,089	
7/12	3	867	40.8%	191	1,077	501	5,589	
7/13	0	867	41.1%	106	1,183	48	5,638	
7/14	1,969	2,836	43.6%	10	1,193	333	5,970	
7/15	2,818	5,654	45.5%	70	1,264	270	6,240	
7/16	124	5,778	47.9%	57	1,321	328	6,568	
7/17	749	6,527	48.0%	69	1,390	2	6,570	
7/18	2,773	9,300	53.0%	0	1,391	696	7,266	
7/19	0	9,300	57.2%	147	1,538	563	7,830	
7/20	0	9,300	59.3%	119	1,657	301	8,131	
7/21	27	9,327	62.1%	64	1,721	382	8,513	
7/22	820	10,147	66.2%	81	1,802	558	9,071	
7/23	70	10,217	68.4%	118	1,920	300	9,371	
7/24	179	10,396	71.0%	63	1,984	351	9,722	
7/25	397	10,793	74.5%	74	2,058	488	10,209	
7/26	280	11,073	76.4%	103	2,161	260	10,469	

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	Actual		Antic.	Apportioned sustainable escapement goals				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/27	34	11,107	79.6%	55	2,216	441	10,910	
7/28	668	11,775	83.9%	93	2,309	580	11,490	
7/29	44	11,819	85.2%	123	2,432	177	11,666	
7/30	47	11,866	85.9%	37	2,470	100	11,766	
7/31	107	11,973	86.4%	21	2,491	68	11,835	
8/1	18	11,991	87.9%	14	2,505	212	12,047	
8/2	37	12,028	88.3%	45	2,550	45	12,092	
8/3	17	12,045	89.9%	9	2,560	220	12,312	
8/4	16	12,061	91.5%	47	2,606	218	12,530	
8/5	2	12,063	94.5%	46	2,652	410	12,941	
8/6	0	12,063	96.6%	87	2,739	288	13,228	
8/7	4	12,067	98.4%	61	2,800	250	13,478	
8/8	0	12,067	98.8%	53	2,853	62	13,540	
8/9	3	12,070	99.3%	13	2,866	59	13,599	
8/10	0	12,070	99.4%	12	2,879	26	13,624	
8/11	0	12,070	99.7%	5	2,884	32	13,656	
8/12	5	12,075	99.8%	7	2,891	21	13,677	
8/13	0	12,075	99.9%	4	2,895	4	13,681	
8/14	0	12,075	99.9%	1	2,896	8	13,689	
8/15	0	12,075	99.9%	2	2,898	0	13,689	
8/16	2	12,077	99.9%	0	2,898	4	13,693	
8/17	0	12,077	99.9%	1	2,899	0	13,693	
8/18	0	12,077	99.9%	0	2,899	0	13,693	
8/19	2	12,079	99.9%	0	2,899	0	13,693	
8/20	0	12,079	99.9%	0	2,899	0	13,693	Video review ended
8/21	0	12,079	99.9%	0	2,899	0	13,693	
8/22	0	12,079	100.0%	0	2,899	1	13,694	
8/23	0	12,079	100.0%	0	2,899	2	13,695	
8/24	0	12,079	100.0%	0	2,899	1	13,696	
8/25	0	12,079	100.0%	0	2,899	4	13,700	
8/26	0	12,079	100.0%	1	2,900	0	13,700	
8/27	0	12,079	100.0%	0	2,900	0	13,700	

Note: Escapement objectives derived from historical run timing and Chenik Lake sockeye salmon sustainable escapement goal (2,900–13,700 fish).

Appendix D4.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring site at Mikfik Lake, 2019.

	Actual		Antic	Apportioned sustainable escapement goal				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
5/29	0	0	0.1%	0	5	0	16	Video operation began 5/29
5/30	0	0	0.1%	0	5	0	16	
5/31	0	0	0.3%	5	10	15	32	
6/1	0	0	1.5%	40	50	130	162	
6/2	0	0	3.6%	74	124	239	400	
6/3	4	4	7.5%	132	256	426	827	
6/4	3	7	9.0%	51	307	166	993	
6/5	2	9	15.3%	213	520	690	1,683	
6/6	1,554	1,563	15.5%	6	526	19	1,702	
6/7	662	2,225	17.1%	54	580	174	1,876	
6/8	66	2,291	20.1%	102	682	330	2,206	
6/9	0	2,291	23.0%	101	783	328	2,534	
6/10	0	2,291	28.0%	169	952	546	3,080	
6/11	0	2,291	40.0%	409	1,361	1,324	4,403	
6/12	486	2,777	43.0%	103	1,464	332	4,735	
6/13	93	2,870	45.6%	87	1,551	282	5,018	
6/14	28	2,898	48.6%	101	1,652	327	5,344	
6/15	0	2,898	51.2%	90	1,742	292	5,636	
6/16	1	2,899	52.1%	31	1,773	100	5,736	
6/17	1	2,900	54.2%	68	1,841	221	5,957	
6/18	1	2,901	55.2%	34	1,875	111	6,068	
6/19	0	2,901	61.3%	208	2,083	673	6,740	
6/20	0	2,901	65.8%	154	2,237	498	7,238	
6/21	0	2,901	68.6%	95	2,332	307	7,545	
6/22	0	2,901	69.9%	44	2,376	144	7,688	
6/23	0	2,901	70.3%	15	2,391	48	7,736	
6/24	0	2,901	75.0%	159	2,550	515	8,251	
6/25	0	2,901	78.2%	108	2,658	350	8,601	
6/26	0	2,901	80.7%	87	2,745	280	8,881	
6/27	0	2,901	80.9%	6	2,751	19	8,900	
6/28	0	2,901	81.0%	3	2,754	8	8,908	
6/29	0	2,901	81.0%	0	2,754	1	8,909	
6/30	0	2,901	81.0%	0	2,754	0	8,909	
7/1	0	2,901	81.2%	6	2,760	20	8,929	
7/2	0	2,901	83.9%	91	2,851	296	9,224	
7/3	0	2,901	86.6%	94	2,945	304	9,528	
7/4	0	2,901	87.5%	31	2,976	102	9,630	
7/5	0	2,901	88.4%	28	3,004	90	9,720	
7/6	0	2,901	90.3%	65	3,069	210	9,930	
7/7	0	2,901	91.3%	36	3,106	117	10,047	
7/8	0	2,901	92.2%	29	3,134	93	10,140	
7/9	0	2,901	92.4%	9	3,143	28	10,169	
7/10	0	2,901	92.8%	13	3,156	43	10,211	
7/11	0	2,901	92.9%	3	3,159	9	10,221	
7/12	0	2,901	93.0%	3	3,162	9	10,230	
7/13	0	2,901	93.0%	1	3,163	4	10,234	
7/14	0	2,901	93.0%	0	3,163	0	10,234	
7/15	0	2,901	93.2%	4	3,167	13	10,247	

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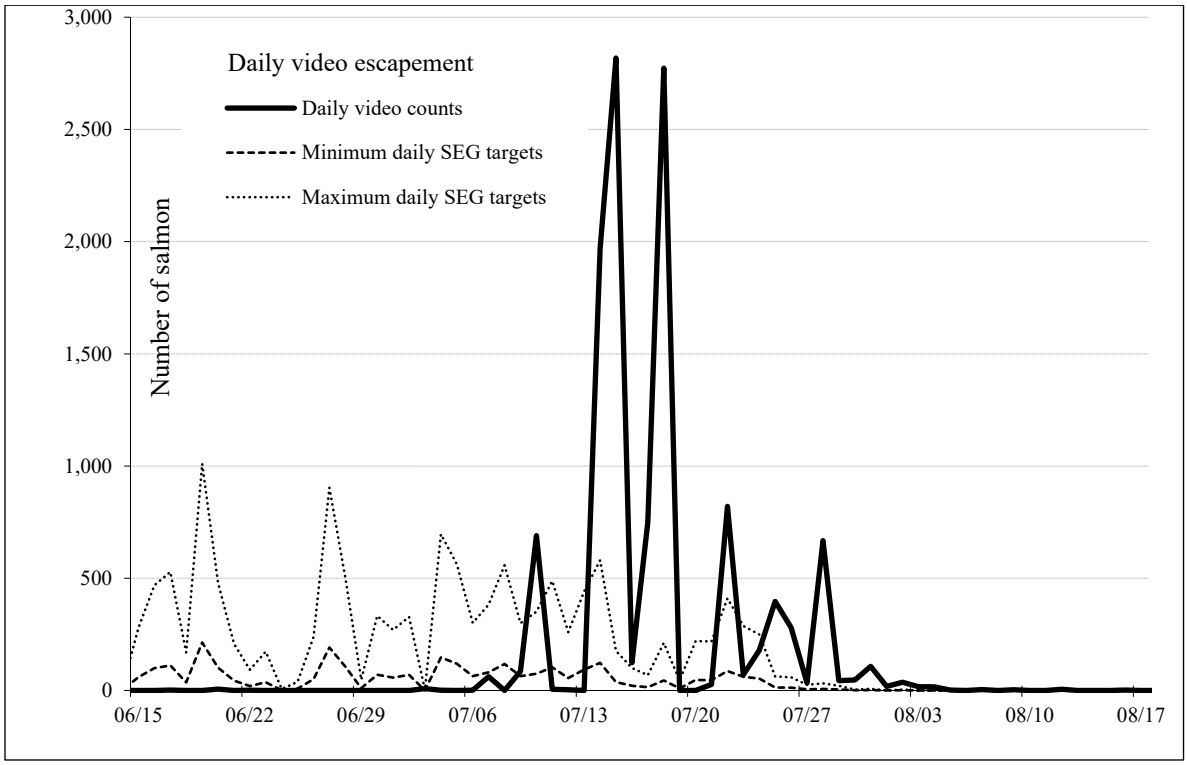
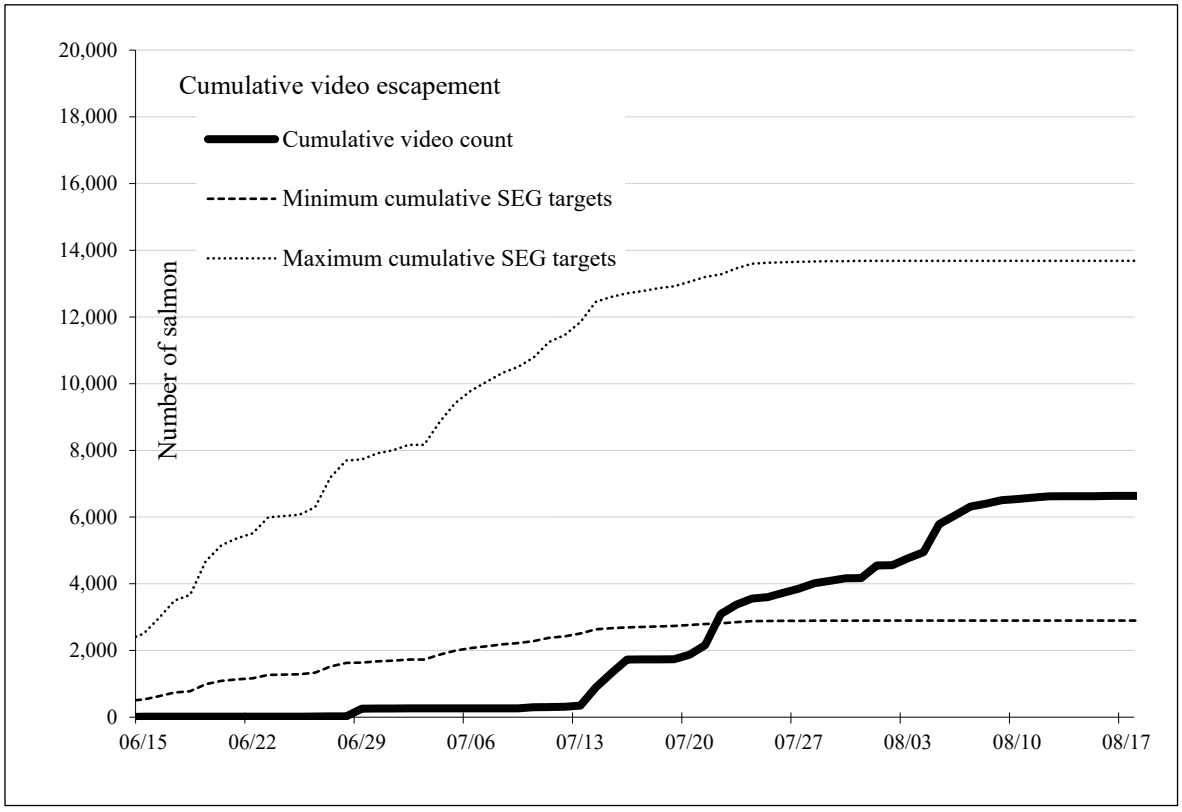
	Actual		Antic	Apportioned sustainable escapement goal				
				Projected minimum		Projected maximum		
Date	Daily	Cumulative	percent	Daily	Cumulative	Daily	Cumulative	Comments
7/16	0	2,901	93.2%	2	3,169	5	10,252	
7/17	0	2,901	93.2%	0	3,169	0	10,253	
7/18	0	2,901	94.4%	40	3,209	128	10,381	
7/19	0	2,901	94.9%	18	3,226	57	10,438	
7/20	0	2,901	95.4%	19	3,245	60	10,498	
7/21	0	2,901	95.8%	12	3,257	38	10,536	
7/22	0	2,901	96.4%	22	3,279	71	10,608	
7/23	0	2,901	96.7%	11	3,289	34	10,642	
7/24	0	2,901	97.2%	14	3,304	46	10,688	
7/25	0	2,901	97.5%	10	3,313	31	10,720	
7/26	0	2,901	98.0%	20	3,333	64	10,783	
7/27	0	2,901	98.7%	22	3,355	71	10,855	
7/28	0	2,901	99.3%	23	3,378	73	10,928	
7/29	0	2,901	99.7%	11	3,389	36	10,964	
7/30	0	2,901	99.9%	6	3,395	20	10,984	
7/31	0	2,901	99.9%	0	3,395	1	10,984	Video review ended
8/1	0	2,901	99.9%	1	3,396	3	10,987	
8/2	0	2,901	100.0%	3	3,398	8	10,995	
8/3	0	2,901	100.0%	1	3,399	3	10,998	
8/4	0	2,901	100.0%	0	3,399	0	10,998	
8/5	0	2,901	100.0%	0	3,399	0	10,998	
8/6	0	2,901	100.0%	1	3,400	2	11,000	
8/7	0	2,901	100.0%	0	3,400	0	11,000	
8/8	0	2,901	100.0%	0	3,400	0	11,000	
8/9	0	2,901	100.0%	0	3,400	0	11,000	
8/10	0	2,901	100.0%	0	3,400	0	11,000	
8/11	0	2,901	100.0%	0	3,400	0	11,000	
8/12	0	2,901	100.0%	0	3,400	0	11,000	
8/13	0	2,901	100.0%	0	3,400	0	11,000	
8/14	0	2,901	100.0%	0	3,400	0	11,000	
8/15	0	2,901	100.0%	0	3,400	0	11,000	
8/16	0	2,901	100.0%	0	3,400	0	11,000	
8/17	0	2,901	100.0%	0	3,400	0	11,000	
8/18	0	2,901	100.0%	0	3,400	0	11,000	
8/19	0	2,901	100.0%	0	3,400	0	11,000	
8/20	0	2,901	100.0%	0	3,400	0	11,000	
8/21	0	2,901	100.0%	0	3,400	0	11,000	

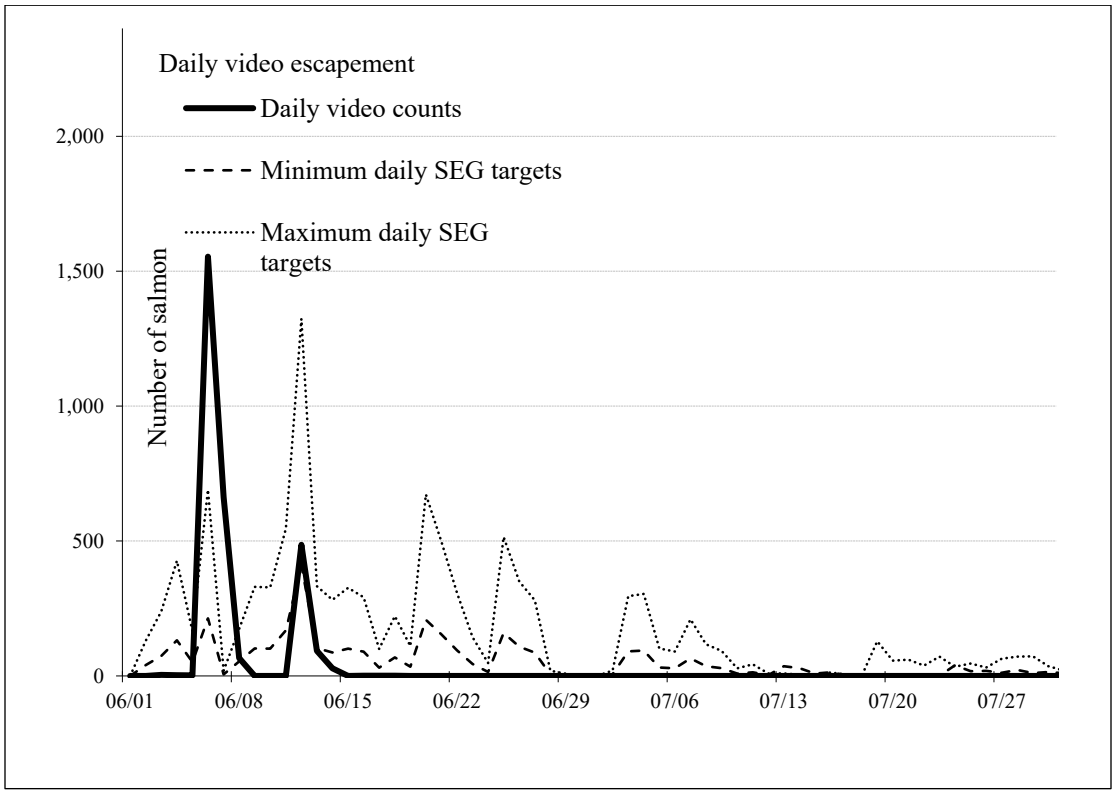
Note: Anticipated escapement derived from run timing and Mikfik Lake sockeye salmon sustainable escapement goal of 3,400–11,000 fish.

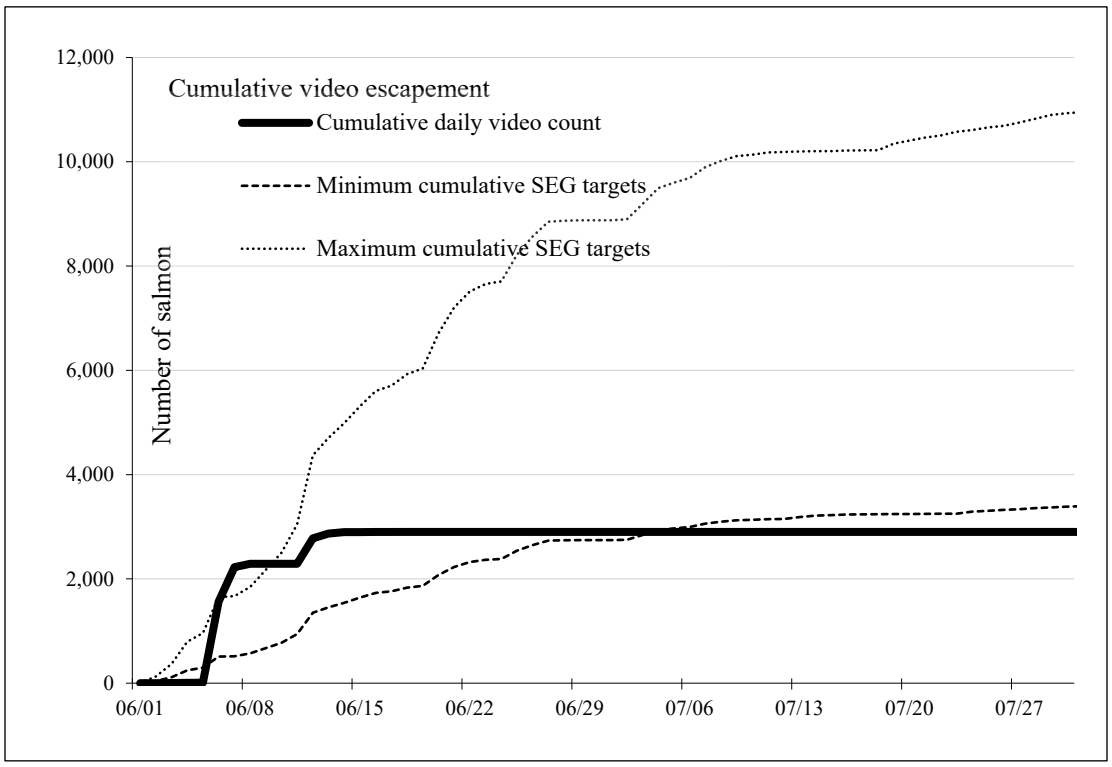
Appendix D5.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring station at Chenik Lake, 2019. Minimum and maximum SEG targets are Alaska Board of Fisheries-assigned SEGs apportioned using recent run timing for this stock.





Appendix D6.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring station at Mikfik Lake, 2019. Minimum and maximum SEG targets are Alaska Board of Fisheries-assigned SEGs apportioned using recent run timing for this stock.





Appendix D7.–Sockeye salmon escapement into Chenik Lake and Mikfik Lake, 1927–2019.

Year	Chenik	Mikfik[a]
1927	7,069[b]	
1928	31,007[b]	
1929	30,440[b]	
1930	23,638[b]	
1931	33,514[b]	
1932	53,012[b]	
1933	39,222[b]	
1934	35,778[b]	
1935	16,041[b]	
1936	19,349[b]	
1937	8,256[b]	
1938	3,804[b]	
1939	4,076[b]	
1940–1991 (No weir from 1940–1991)		
1989	12,000[b]	
1990	17,000[b]	
1991	10,200[b]	
1992	9,269[b]	7,800[c]
1993	4,000[b]	6,400[c]
1994	808[b]	9,500[c]
1995	1,086[b]	10,100[c]
1996	2,990[b]	10,500[c]
1997	2,338[b]	8,500[c]
1998	1,880[c]	12,600[c]
1999	2,850[c]	15,700[c]
2000	4,800[c]	10,386
2001	250[c]	5,400[c]
2002	4,650[c]	16,700[c]
2003	13,825[c]	8,009
2004	17,000[c]	14,829
2005	14,507[d]	6,499
2006	13,868[d]	14,983
2007	18,288[d]	10,975
2008	11,284[d]	9,104
2009	15,264[d]	20,965
2010	17,312[d]	5,221[c]
2011	10,330[d]	345[c]
2012	16,505[d]	3,131[d]
2013	11,333[d]	4,042[d]
2014	17,774[d]	17,802[d]
2015	19,073[d]	3,502[d]
2016	19,510[d]	10,180[d]
2017	21,468[d]	7,495[d]
2018	6,651[d]	4,966[d]
10-yr avg.	15,522	7,765
2019	12,079[d]	2,901[d]

Note: Blank cells indicate no data were collected.

[a] Mikfik count started in 1992.

[b] Escapement derived from weir counts.

[c] Escapement derived from aerial surveys.

[d] Escapement derived from video counts.

Appendix D8.–Pink and chum salmon escapements as measured by aerial survey using area-under-the-curve (AUC) estimation (and peak aerial survey counts as noted) in the Kamishak Bay District, 2019.

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	7/18											
Creek		1	7/18	7/18	0	0	0	0	0	0	0	0	0%	
not an index		2	7/22	7/18	4	200	0	200	400	400	23	23	0%	
system		3	7/31	7/22	9	8,100	200	8,300	37,350	37,750	2,134	2,157	33%	
		4	8/12	7/31	12	200	8,100	8,300	49,800	87,550	2,846	5,003	77%	
		5	8/20	8/12	8	0	200	200	800	88,350	46	5,049	77%	
		6	8/26	8/20	6	2,200	0	2,200	6,600	94,950	377	5,426	83%	
		[t]end	9/12		17.5				19,250	114,200	1,100	6,526	100%	9,100
Big	Chum	[t]start	6/14											
Kamishak		1	7/2	6/14	17.5	2,100	0	2,100	18,375	18,375	1,050	1,050	3%	
River		2	7/18	7/2	16	2,690	2,100	4,790	38,320	56,695	2,190	3,240	8%	
index system		3	7/22	7/18	4	3,077	2,690	5,767	11,534	68,229	659	3,899	10%	
		4	7/31	7/22	9	51,030	3,077	54,107	243,482	311,711	13,913	17,812	45%	
		5	8/12	7/31	12	2,380	51,030	53,410	320,460	632,171	18,312	36,124	91%	
		6	8/20	8/12	8	1,110	2,380	3,490	13,960	646,131	798	36,922	93%	
		7	8/26	8/20	6	3,710	1,110	4,820	14,460	660,591	826	37,748	95%	
		[t]end	9/12		17.5				32,463	693,053	1,855	39,603	100%	51,030[d]
Brown's	Chum	[t]start	7/4											
Peak Creek		1	7/22	7/4	17.5	5	0	5	44	44	3	3	0%	
not an index		2	7/31	7/22	9	600	5	605	2,723	2,766	156	158	26%	
system		3	8/12	7/31	12	70	600	670	4,020	6,786	230	388	63%	
		4	8/20	8/12	8	200	70	270	1,080	7,866	62	450	73%	
		5	8/26	8/20	6	200	200	400	1,200	9,066	69	518	84%	
		[t]end	9/12		17.5				1,750	10,816	100	618	100%	600
Brown's	Pink	[t]start	7/4											
Peak Creek		1	7/22	7/4	17.5	1,030	0	1,030	9,013	9,013	515	515	1%	
index system		2	7/31	7/22	9	14,710	1,030	15,740	70,830	79,843	4,047	4,562	11%	
		3	8/12	7/31	12	19,200	14,710	33,910	203,460	283,303	11,626	16,189	37%	
		4	8/20	8/12	8	32,600	19,200	51,800	207,200	490,503	11,840	28,029	65%	
		5	8/26	8/20	6	14,600	32,600	47,200	141,600	632,103	8,091	36,120	83%	
		[t]end	9/12		17.5				127,750	759,853	7,300	43,420[d]	100%	32,600

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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
Bruin River	Chum	[t]start	6/20											
index system		1	7/8	6/20	17.5	80	0	80	700	700	40	40	0%	
		2	7/18	7/8	10	810	80	890	4,450	5,150	254	294	1%	
		3	7/22	7/18	4	2,070	810	2,880	5,760	10,910	329	623	2%	
		4	7/31	7/22	9	13,520	2,070	15,590	70,155	81,065	4,009	4,632	18%	
		5	8/12	7/31	12	19,540	13,520	33,060	198,360	279,425	11,335	15,967	63%	
		6	8/20	8/12	8	8,380	19,540	27,920	111,680	391,105	6,382	22,349	88%	
		7	8/26	8/20	6	2,230	8,380	10,610	31,830	422,935	1,819	24,168	96%	
		[t]end	9/12		17.5				19,513	442,448	1,115	25,283[d]	100%	19,540
Bruin River	Pink	[t]start	7/18											
index system		1	7/18	7/18	0	0	0	0	0	0	0	0	0%	
		2	7/22	7/18	4	2,570	0	2,570	5,140	5,140	294	294	1%	
		3	7/31	7/22	9	3,500	2,570	6,070	27,315	32,455	1,561	1,855	4%	
		4	8/12	7/31	12	14,500	3,500	18,000	108,000	140,455	6,171	8,026	19%	
		5	8/20	8/12	8	43,800	14,500	58,300	233,200	373,655	13,326	21,352	51%	
		6	8/26	8/20	6	19,600	43,800	63,400	190,200	563,855	10,869	32,220	77%	
		[t]end	9/12		17.5				171,500	735,355	9,800	42,020	100%	43,800[d]
Cottonwood	Chum	[t]start	7/22											
Creek		1	7/22	7/22	0	0	0	0	0	0	0	0	0%	
index system		2	7/31	7/22	9	20	0	20	90	90	5	5	0%	
		3	8/12	7/31	12	1,500	20	1,520	9,120	9,210	521	526	13%	
		4	8/20	8/12	8	3,400	1,500	4,900	19,600	28,810	1,120	1,646	42%	
		5	8/26	8/20	6	2,500	3,400	5,900	17,700	46,510	1,011	2,658	68%	
		[t]end	9/12		17.5				21,875	68,385	1,250	3,908[d]	100%	3,400
Douglas River	Chum	[t]start	7/13											
not an index		1	7/31	7/13	17.5	1,161	0	1,161	10,159	10,159	581	581	14%	
system		2	8/12	7/31	12	2,810	1,161	3,971	23,826	33,985	1,361	1,942	46%	
		3	8/20	8/12	8	2,260	2,810	5,070	20,280	54,265	1,159	3,101	74%	
		4	8/26	8/20	6	1,040	2,260	3,300	9,900	64,165	566	3,667	88%	
		[t]end	9/12		17.5				9,100	73,265	520	4,187	100%	2,810

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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	7/13											
Reef River		1	7/31	7/13	17.5	820	0	820	7,175	7,175	410	410	46%	
not an index		2	8/12	7/31	12	350	820	1,170	7,020	14,195	401	811	91%	
system		3	8/20	8/12	8	0	350	350	1,400	15,595	80	891	100%	
		[t]end	8/20		0				0	15,595	0	891	100%	820
Iniskin River	Chum	[t]start	7/4											
index system		1	7/22	7/4	17.5	975	0	975	8,531	8,531	488	488	3%	
		2	7/31	7/22	9	5,510	975	6,485	29,183	37,714	1,668	2,155	14%	
			8/12	7/31	12	5,050	5,510	10,560	63,360	101,074	3,621	5,776	38%	
		3	8/20	8/12	8	8,320	5,050	13,370	53,480	154,554	3,056	8,832	58%	
		4	8/26	8/20	6	7,500	8,320	15,820	47,460	202,014	2,712	11,544	75%	
		[t]end	9/12		17.5				65,625	267,639	3,750	15,294[d]	100%	8,320
Little	Chum	[t]start	6/14											
Kamishak		1	7/2	6/14	17.5	11	0	11	96	96	6	6	0%	
River		2	7/8	7/2	6	60	11	71	213	309	12	18	0%	
index system		3	7/18	7/8	10	1,622	60	1,682	8,410	8,719	481	498	3%	
		4	7/22	7/18	4	4,002	1,622	5,624	11,248	19,967	643	1,141	7%	
		5	7/31	7/22	9	22,611	4,002	26,613	119,759	139,726	6,843	7,984	47%	
		6	8/12	7/31	12	1,590	22,611	24,201	145,206	284,932	8,297	16,282	95%	
		7	8/20	8/12	8	890	1,590	2,480	9,920	294,852	567	16,849	98%	
		8	8/26	8/20	6	170	890	1,060	3,180	298,032	182	17,030	100%	
		[t]end	9/12		17.5				1,488	299,519	85	17,115	100%	22,611[d]
Little	Pink	[t]start	7/13											
Kamishak		1	7/31	7/13	17.5	1,000	0	1,000	8,750	8,750	500	500	50%	
not index system		[t]end	8/17		17.5				8,750	17,500	500	1,000	100%	1,000

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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	Fish days[a] (A_b)	Accum. fish days (A_b)	Escape. index[b]	Accum. escape. index[c]	Accum. percent scape.	Peak count
McNeil	Chum	[t]start	6/17											
River		1	6/17	6/17	0	0	0	0	0	0	0	0	0%	
index system		2	6/24	6/17	7	131	0	131	459	459	33	33	0%	
		3	7/2	6/24	8	4,411	131	4,542	18,168	18,627	1,317	1,350	19%	
		4	7/8	7/2	6	2,921	4,411	7,332	21,996	40,623	1,594	2,944	40%	
		5	7/18	7/8	10	1,391	2,921	4,312	21,560	62,183	1,562	4,506	62%	
		6	7/22	7/18	4	3,954	1,391	5,345	10,690	72,873	775	5,281	73%	
		7	7/31	7/22	9	850	3,954	4,804	21,618	94,491	1,567	6,847	94%	
		[t]end	8/13		13.8				5,865	100,356	425	7,272	100%	4,411
North Head	Chum	[t]start	7/22											
Creek		1	7/22	7/22	0	0	0	0	0	0	0	0	0	0%
not an		2	7/31	7/22	9	850	0	850	3,825	3,825	219	219	8%	
index system		3	8/12	7/31	12	1,570	850	2,420	14,520	18,345	830	1,048	37%	
		4	8/20	8/12	8	3,240	1,570	4,810	19,240	37,585	1,099	2,148	76%	
		5	8/26	8/20	6	180	3,240	3,420	10,260	47,845	586	2,734	97%	
		[t]end	9/12		17.5				1,575	49,420	90	2,824	100%	3,240
North Head	Pink	[t]start	7/4											
Creek		1	7/22	7/4	17.5	720	0	720	6,300	6,300	360	360	11%	11%
not an		2	7/31	7/22	9	2,500	720	3,220	14,490	20,790	828	1,188	36%	
index system		3	8/12	7/31	12	800	2,500	3,300	19,800	40,590	1,131	2,319	70%	
		4	8/20	8/12	8	1,100	800	1,900	7,600	48,190	434	2,754	83%	
		5	8/26	8/20	6	540	1,100	1,640	4,920	53,110	281	3,035	92%	
		[t]end	9/12		17.5				4,725	57,835	270	3,305	100%	2,500
Sugarloaf	Chum	[t]start	7/4											
Creek		1	7/22	7/4	17.5	270	0	270	2,363	2,363	135	135	11%	
not an index		2	7/31	7/22	9	400	270	670	3,015	5,378	172	307	24%	
system		3	8/12	7/31	12	280	400	680	4,080	9,458	233	540	42%	
		4	8/20	8/12	8	590	280	870	3,480	12,938	199	739	58%	
		5	8/26	8/20	6	650	590	1,240	3,720	16,658	213	952	75%	
		[t]end	9/12		17.5				5,688	22,345	325	1,277	100%	650

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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	Accum. percent escape.	Peak count
Sunday	Chum	[t]start	6/30											
Creek		1	7/18	6/30	17.5	1,490	0	1,490	13,038	13,038	745	745	52%	
not an index		2	7/22	7/18	4	5	1,490	1,495	2,990	16,028	171	916	64%	
system		3	7/31	7/22	9	330	5	335	1,508	17,535	86	1,002	70%	
		4	8/12	7/31	12	400	330	730	4,380	21,915	250	1,252	87%	
		5	8/26	8/12	14	30	400	430	3,010	24,925	172	1,424	99%	
		[t]end	9/12		17.5				263	25,188	15	1,439	100%	1,490
Sunday	Pink	[t]start	6/20											
Creek		1	7/8	6/20	17.5	80	0	80	700	700	40	40	0%	
index system		2	7/22	7/8	14	5,960	80	6,040	42,280	42,980	2,416	2,456	12%	
		3	7/31	7/22	9	4,800	5,960	10,760	48,420	91,400	2,767	5,223	26%	
		4	8/12	7/31	12	8,900	4,800	13,700	82,200	173,600	4,697	9,920	49%	
		5	8/20	8/12	8	9,200	8,900	18,100	72,400	246,000	4,137	14,057	69%	
		6	8/26	8/20	6	7,100	9,200	16,300	48,900	294,900	2,794	16,851	83%	
		[t]end	9/12		17.5				62,125	357,025	3,550	21,801[d]	100%	9,200
Ursus	Chum	[t]start	6/30											
Lagoon		1	7/18	6/30	17.5	40	0	40	350	350	20	20	0%	
Creeks		2	7/22	7/18	4	87	40	127	254	604	15	35	0%	
index system		3	7/31	7/22	9	730	87	817	3,677	4,281	210	245	2%	
		4	8/12	7/31	12	5,480	730	6,210	37,260	41,541	2,129	2,374	18%	
		5	8/20	8/12	8	9,580	5,480	15,060	60,240	101,781	3,442	5,816	43%	
		6	8/26	8/20	6	8,850	9,580	18,430	55,290	157,071	3,159	8,975	67%	
		[t]end	9/12		17.5				77,438	234,508	4,425	13,400[d]	100%	9,580
Ursus Lagoon	Pink	[t]start	7/4											
Creeks		1	7/22	7/4	17.5	40	0	40	350	350	20	20	2%	
not an		2	7/31	7/22	9	1,500	40	1,540	6,930	7,280	396	416	36%	
index system		[t]end	8/17		17.5				13,125	20,405	750	1,166	100%	1,500

Note: *Note*: The value used for the final escapement index for each stock is in parentheses at the top of the column. AUC equations from Bue et al. (1998). The value used as the final escapement index if underlined.

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

[b] Escapement index = A_b / 17.5-day stream-life estimate (except McNeil River chum calculations use a 13.8-day stream-life estimate plus a run-timing adjustment).

[c] The McNeil River chum salmon area-under-the-curve (AUC) index is not the final escapement index. After applying a run-timing expansion factor, the final escapement index was 9,205. For all other stocks, the AUC estimate equals the cumulative escapement index.

[d] Final escapement index.

Appendix D9.–Sockeye salmon aerial survey counts from the Kamishak Bay District, 2019.

Location	Survey number	Survey date	Live count	Peak count
Amakdedori Creek	1	7/2	120	
	2	7/8	193	
	3	7/18	521	
	4	7/22	632	
	5	7/31	950	
	6	8/12	1,620	
	7	8/20	921	
	8	8/26	1,400	1,620
Big Kamishak	1	7/18	632	
	2	7/22	2,795	
	3	7/31	921	
	4	8/12	102	
	5	8/20	22	
	6	8/26	362	2,795

Appendix D10.–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, 1985–2019.

	Pink salmon							Chum salmon								Sockeye salmon				
Year	Big Kamishak River	Little Kamishak River	Amakdedori Creek	Bruin Bay River	Sunday Creek	Brown's Peak Creek	Total of index streams	Big Kamishak River	Little Kamishak River	McNeil River	Bruin Bay	Ursus Cove[d]	Cottonwood Creek	Iniskin Bay	Total of index streams	Mikfik Lake	Chenik Lake	Amakdedori Creek	Kamishak Rivers	Total of index streams
1985		1.6	1.0	3.5	11.4	7.0	21.9	6.0	4.5	10.5	2.0	3.0	3.0	5.0	34.0	20.0[e]	3.5	0.9	0.8	24.4
1986	5.0	2.0	6.0	1,200.0	109.0	28.0	1,337.0	24.0	17.0	31.9	1.0	11.0	11.0	5.9	101.8	7.8[e]	7.0	1.9	5.0	16.7
1987			0.4	24.0	29.7	40.2	93.9	12.0	18.0	40.5	10.0	9.9	17.0	9.1	116.5	9.0[e]	10.0	1.1		20.1
1988	1.0	0.5	1.0	29.0	18.0	17.0	64.0	15.0	13.0	59.8	7.0	9.4	16.0	9.5	129.7	10.1[e]	9.0	0.4	0.5	19.5
1989			2.0	350.0	103.0	120.0	573.0	30.0	12.0	48.9	8.0	6.3	8.0	5.9	119.1	11.5[e]	12.0	1.2	0.5	24.7
1990			0.1	19.0	2.8	1.0	22.8	2.5	7.9	13.9	4.0	3.8	4.3	8.4	44.8	8.8[e]	17.0	1.8	0.2	27.6
1991		0.9	0.7	74.9	20.9	16.7	112.5	8.7	8.4	6.8	6.0	1.3	7.7	8.3	47.2	9.7[e]	10.2[a]	1.9	0.7	21.8
1992			3.2	3.2	2.9	5.0	11.1	4.5	7.1	23.3	8.5	1.7	6.1	3.4	54.6	7.8[e]	9.3[a]	1.9	4.9	19.0
1993			1.7	86.4	57.8	41.6	185.8	9.1	6.3	19.3	6.0	7.7	12.0	8.0	68.4	6.4[e]	4.0[a]	2.0		12.4
1994			0.7	5.9	3.1	1.3	10.3		9.0	15.7	6.1	6.2	10.2	18.9	66.1	9.5[e]	0.8[a]	0.8		11.1
1995			4.5	307.3	95.9	96.7	499.9			12.1	6.6	11.1	15.4	22.7	67.9	10.1[e]	1.1[a]	2.4		13.6
1996	16.7			27.5	2.8	2.4	32.7	11.1	4.4	24.4	14.9	7.6	16.1	7.8	86.3	6.5[e]	3.0[a]	2.9	1.8	12.4
1997			1.7	162.7	52.5	42.3	257.5			32.2	8.8	6.2	5.6	15.4	68.2	8.5[e]	2.3[a]	1.5		12.3
1998	2.0			134.9	24.0	7.9	166.8	7.1	9.7	19.9	9.4	4.6	2.3	18.6	71.6	9.5[b]	1.9[e]	4.1		15.5
1999	5.7	4.2		2.9	5.3	2.6	10.8	11.6	8.9	10.2	10.3	21.0	12.0	23.3	97.3	20.0[b]	2.9[e]	8.8	2.2	31.7
2000	14.9	13.0		176.7	39.8	9.8	226.3	45.3	26.9	17.7	13.6	41.7	24.1	23.6	192.9	10.4[b]	4.8[e]	3.3	1.5	18.5
2001			6.0	18.5	26.2	19.2	63.9	36.3	27.2	16.9	21.8	37.7	15.9	13.8	169.6	3.3[b]	0.3[e]	2.7	2.5	6.3
2002		3.4	0.9	1,598.5	81.9	27.5	1,707.9	17.4	16.4	17.5	9.9	17.1	42.2	28.5	149.1	16.7[e]	4.7[e]	3.2	3.3	24.6
2003				138.7	346.7	285.0	770.4	16.4	22.2	30.1	13.1	30.4	72.8	18.7	203.7	11.0[b]	13.8[e]	11.8	2.6	36.6
2004		3.0		66.5	31.5	18.1	116.1	57.9	45.3	14.6	15.9	16.0	16.3	22.0	188.0	16.0[b]	17.0[e]	7.2	0.8	40.2
2005				98.3	116.2	61.0	275.5	25.7	12.1	22.5	21.2	12.2	17.9	16.5	128.1	6.5[b]	14.5[c]	1.7	3.9	22.7
2006		77.0		515.1	70.0	35.7	620.9	58.2	42.9	19.3	7.0	15.7	13.2	15.6	172.0	15.0[b]	13.5[c]	0.3		28.8
2007		5.1		350.4	394.8	249.4	994.6	14.8	15.6	22.3	3.1	20.9	12.5	5.3	94.5	11.0[b]	18.1[c]	3.8	0.1	32.9
2008		34.3		150.7	20.4	17.4	188.5	4.5	21.3	10.8	17.5	6.5	11.6	20.0	92.2	9.1[b]	10.6[b]	3.2	0.2	23.0
2009	10.4	0.8	9.2	1,067.4	106.3	63.6	1,237.3	15.0	4.2	18.4	10.1	12.9	19.4	30.8	110.9	21.0[b]	15.3[b]	2.2	0.1	38.4
2010			0.7	40.3	6.6	3.1	50.0		18.4	13.8	6.2	11.8	15.8	19.3	85.2	5.2[b]	17.3[b]	1.2	0.1	23.7
2011	9.3	13.1	4.2	4.5	0.8	2.0	7.4	5.5	19.3	31.0	3.5	10.6	4.7	16.5	91.2	0.3[b]	10.3[b]	3.4	1.6	14.1
2012	2.7	9.3	3.0	31.8	1.3	2.8	35.9	12.4	30.3	10.4	16.8	2.8	4.1	3.0	79.8	3.1[b]	16.5[b]	0.8	1.1	20.4
2013		0.5	8.0	15.0	6.1	4.1	25.2	3.3	6.7	9.5	8.9	10.3	5.2	5.9	49.9	4.0[b]	11.3[b]	1.5	0.1	16.9

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	Pink salmon							Chum salmon								Sockeye salmon				
Year	Big Kamishak River	Little Kamishak River	Amakdedori Creek	Bruin Bay River	Sunday Creek	Brown's Peak Creek	Total of index streams	Big Kamishak River	Little Kamishak River	McNeil River	Bruin Bay	Ursus Cove[d]	Cottonwood Creek	Iniskin Bay	Total of index streams	Mikfik Lake	Chenik Lake	Amakdedori Creek	Kamishak Rivers	Total of index streams
2014		4.8	2.4	121.6	7.7	4.0	133.3	5.7	15.1	17.5	3.6	5.3	7.1	13.0	67.2	17.8[b]	17.8[b]	4.3	0.2	39.9
2015	0.7	1.5	24.9	40.8	60.4	29.1	130.3	7.0	14.4	20.5	11.0	14.8	17.0	7.5	92.1	3.5[b]	19.1[b]	2.9	1.2	25.5
2016	0.7	0.0	2.2	86.6	2.2	1.4	118.9	9.6	12.0	26.3	26.6	7.0	1.6	1.1	84.2	10.2[b]	19.5[b]	2.2	0.1	31.9
2017	3.8	1.4	43.8	71.1	22.2	39.2	132.5	32.3	19.3	38.7	38.5	22.0	6.2	15.6	172.5	7.5	21.5[b]	1.7	3.7	30.6
2018	0.0	0.0	4.9	94.7	3.4	1.3	99.5	7.7	14.4	37.3	28.5	3.7	1.3	9.1	102.1	5.0	6.7[b]	1.9	1.7	13.5
10-yr avg.	3.9	3.5	10.3	157.4	21.7	15.1	194.2	10.9	15.4	22.3	15.4	10.1	8.2	12.2	94.6	7.8	15.5	2.2	1.0	25.5
2019	0.0	1.0	9.1	43.8	21.8	43.4	110.0	51.0	22.6	9.2	25.3	13.4	3.9	15.3	140.7	2.9	12.1[b]	1.6	2.8	16.6

Note: Blank cells indicate no data were collected. Unless otherwise noted, estimated escapements are derived from aerial surveys.

[a] Escapement derived from weir counts.

[b] Escapement derived from video counts.

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

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

[e] Escapement is derived from 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, 1979–2019.

		Reported harvest[a]						
Year	Households reporting	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Dolly Varden	Total salmon
1979	ND	222	777	506	1,170	494	0	3,169
1980	0	0	0	0	0	0	0	0
1981	ND	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	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	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	14	959	66	86	33	0	1,158
2014	9	19	1,115	166	944	488	0	2,732
2015	9	40	1,031	108	1,006	539	0	2,724
2016	8	32	505	45	191	62	0	835
2017	3	1	794	7	211	63	0	1,076
2018	[c]	[c]	[c]	[c]	[c]	[c]	[c]	[c]
10-year avg.	10	23	786	78	296	147	6	1,329
2019[a]	3	10	236	61	152	97	0	556

Note: Data on file with ADF&G, Division of Subsistence; gear types include set gillnet, rod/reel, and handline. ND = no data.

[a] Harvest recorded on permits that are received after December 31 will be reported in the following year's annual management report as harvested in the previous year.

[b] ADF&G Division of Subsistence estimate.

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

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, 1978–2019.

		Reported harvest[a]						
Year	Households reporting	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Dolly Varden	Total salmon
1979	ND	137	1,545	2,437	2,186	305	0	6,610
1980	0	0	0	0	0	0	0	0
1981	ND	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	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
1985	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
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	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
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	0	7,199
2001	34	29	909	1,238	1,434	196	0	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	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
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	0	9,269
2012[a]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2013[a]	4	2	3,854	2,619	811	333	500	7,619
2014[a]	3	3	377	0	143	4	0	527
2015[a]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2016[a]	20	15	620	677	199	12	0	1,523
2017[a]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2018[a]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
10-yr avg.	11	6	1,358	680	579	106	148	2,728
2019[a,c]	3	1	480	14	52	0	0	547

Note: Data on file with ADF&G, Division of Subsistence; gear types include set gillnet, rod/reel, and handline. ND = no data.

[a] Limited reporting from Nanwalek residents in 2012–2019 may have resulted in a conservative estimate of harvest.

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

[c] Harvest recorded on permits that are received after December 31 will be reported in the following year's annual management report as harvested in the previous year.

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, 1999–2019.

	Permits				Reported harvest					
Year	Issued	Returned	Fished	Not fished	Chinook	Sockeye	Coho	Pink	Chum	Total
Early Season: April–May										
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	8	6	4	2	1	83	0	0	0	93
2014	12	8	4	4	3	69	0	0	2	74
2015	6	4	4	0	16	70	0	0	4	90
2016	3	3	3	0	7	53	0	1	2	63
2017	8	5	5	0	7	61	0	0	0	68
2018	7	5	3	2	11	9	0	1	0	21
10 yr avg	8	5	3	2	6	48	0	1	0	56
2019	6	5	5	0	6	53	0	0	1	60
Late Season: August[a]										
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	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2003	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2004	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2005	3	2	2	0	0	70	13	93	12	188
2006	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2007	4	4	3	1	0	24	9	80	27	140
2008	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
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	7	4	3	1	1	5	1	45	10	62
2014	7	7	6	1	2	47	0	63	5	117
2015	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2016	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
2017	5	4	1	3	0	0	0	2	0	2
2018	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
10-yr avg.	5	3	2	1	1	19	4	19	18	60
2019	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]

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

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

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

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, 1976–2019.

	Permits				Reported harvest						
Year	Issued	Returned	Fished	Not fished	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
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	198	4	0	2,794
2015	136	131	91	40	10	509	1,373	152	22	6	2,072
2016	170	169	118	50	18	166	2,033	335	8	0	2,560
2017	148	145	108	37	6	298	2,388	212	11	0	2,915
2018	192	187	132	55	6	259	1,947	161	11	0	2,384
10-yr avg.	142	138	98	40	11	245	1,554	126	79	1	2,016
2019	156	151	109	43	9	147	1,287	162	27	0	1,632

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, 1990–2019.

	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
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
2016	139	81.8%	12	7.1%	1	0.6%	10	5.9%	2	1.2%	0	0.0%	6	3.5%	0	0.0%	170
2017	122	82.4%	9	6.1%	0	0.0%	11	7.4%	0	0.0%	0	0.0%	6	4.1%	0	0.0%	148
2018	158	82.3%	9	4.7%	0	0.0%	14	7.3%	0	0.0%	0	0.0%	9	4.7%	2	1.0%	192
10-yr avg.	113	78.9%	10.3	7.3%	1	0.7%	11	7.7%	1	0.8%	0	0.0%	5	4.1%	0	0.2%	141.9
2019	124	79.5%	10	6.4%	0	0.0%	15	9.6%	2	1.3%	0	0.0%	4	2.6%	1	0.6%	156

[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, 1981–2019.

	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 salmon	Permits	Coho salmon	Permits	Coho salmon	Permits	Coho salmon	Permits	Coho salmon	Permits	Coho salmon
1981	0	68	0	419	0	1,239	0	2,382	0	259	0	3
1982	0	118	0	471	0	3,307	0	3,260	0	237	0	5
1983	0	18	0	126	0	944	0	1,319	0	202	0	92
1984	0	25	0	274	0	1,686	0	1,517	0	102	0	35
1985	0	119	0	87	0	1,218	0	1,681	0	261	0	51
1986	0	36	0	490	0	1,415	0	1,651	0	166	0	73
1987	0	101	0	590	0	1,103	0	1,953	0	180	0	52
1988	0	78	0	472	0	1,248	0	2,769	0	384	0	56
1989	0	234	0	1,259	0	1,591	0	3,455	0	616	0	74
1990	0	287	0	2,117	0	1,748	0	3,478	0	465	0	228
1991	0	328	0	1,585	0	798	0	1,873	0	245	0	51
1992	0	37	0	938	0	464	0	719	0	116	0	18
1993	0	86	0	881	0	295	0	627	0	74	0	29
1994	0	211	0	1,413	0	596	0	1,558	0	314	0	5
1995	0	414	0	1,124	0	372	0	769	0	202	0	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	[a]	[a]	23	610	8	131	9	228	15	365	8	145
2005	4	23	27	305	4	43	8	126	16	190	10	146
2006	[a]	[a]	20	388	9	179	9	248	18	375	5	85
2007	0	0	24	179	11	153	32	885	20	170	8	44
2008	[a]	[a]	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
2013	[a]	[a]	11	38	22	137	56	1,252	21	219	11	86
2014	5	52	27	591	22	574	37	780	13	194	10	82
2015	3	34	23	246	19	297	28	647	13	117	4	32
2016	7	115	28	382	30	550	30	780	14	124	9	82
2017	3	58	32	898	29	473	22	672	17	245	5	42
2018	5	40	40	484	30	442	35	777	16	159	6	45
10-yr avg.	4	36	21	292	21	267	36	742	19	168	9	49
2019	5	32	31	267	24	244	23	499	18	189	8	56

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

Appendix E7.–Salmon retained from the commercial harvest for personal use (homepack) by species and gear type from Lower Cook Inlet districts, 1996–2019.

	Permits deliv.		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	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1997	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1998	0	0	0	0	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0
2002	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2003	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2004	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2005	3	1	7	0	79	10	38	0	121	0	8	0
2006	4	3	9	0	58	169	73	17	72	0	13	7
2007	4	0	1	0	204	0	76	0	3	0	0	0
2008	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2009	3	0	1	0	35	0	14	0	23	0	9	0
2010	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
2011	3	1	2	3	62	0	3	0	487	0	27	0
2012	7	0	4	0	63	0	61	0	323	0	31	0
2013	6	0	16	0	155	0	150	0	157	0	13	0
2014	8	1	10	0	180	3	128	0	318	0	17	0
2015	16	4	60	7	158	120	417	62	99	302	28	0
2016	14	11	35	40	115	269	171	25	205	79	41	5
2017	15	6	36	23	513	140	189	12	121	71	110	0
2018	10	12	11	50	102	671	108	27	71	1	26	2
10-year avg.	8	5	18	18	141	172	125	18	180	65	31	1
2019	7	10	12	50	107	204	143	23	12	47	22	9

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 were established in 2008. Asterisks denote confidential harvest information for years with fewer than 3 permits reporting.

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

Appendix E8.–Lower Cook Inlet commercial homepack and personal use harvest by permit holder community of residence, 2019.

Commercial homepack[a]

Community	Permits	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Total salmon
Anchor Point	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Anchorage	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Halibut Cove	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Homer	6	27	131	21	17	10	206
Ninilchik	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Port Graham	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Seldovia	3	3	8	22	12	16	61
USA balance	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Total	17	62	311	166	59	31	629

Southern District personal use set gillnet fishery[c]

Community	Permits Issued	Permits Returned	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Total salmon
Anchorage	10	10	0	12	91	4	0	107
Anchor PT/Ninilchik	15	15	1	5	29	8	0	43
Halibut Cove	0	0	0	0	0	0	0	0
Homer/Fritz Creek	124	120	8	129	1,164	142	25	1,468
Kenai/Soldotna	4	3	0	1	3	8	2	14
Pt Graham/Nanwalek	0	0	0	0	0	0	0	0
Seldovia	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Other	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Total	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]

Port Graham/Nanwalek subsistence fishery[d]

Community	Permits Issued	Permits Returned	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Total salmon
Anchorage area	0	0	0	0	0	0	0	0
Homer	0	0	0	0	0	0	0	0
Nanwalek	8	5	1	480	14	52	0	547
Port Graham	11	3	10	236	61	152	97	556
Seldovia	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Total	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]

Seldovia subsistence fishery[e,f]

Community	Permits Issued	Permits Returned	Chinook salmon	Sockeye salmon	Coho salmon	Pink salmon	Chum salmon	Total salmon
Anchorage area	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]
Homer	0	0	0	0	0	0	0	0
Ninilchik	0	0	0	0	0	0	0	0
Pt. Graham/Nanwalek	0	0	0	0	0	0	0	0
Seldovia	6	4	6	53	0	0	1	60
Total	[b]	[b]	[b]	[b]	[b]	[b]	[b]	[b]

[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] Confidential data. Fewer than 3 permits reporting.

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

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

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

[f] 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 private nonprofit hatchery release sites, 2019.

SOCKEYE SALMON Hatchery or release site (hatchery[a])	BY 2014 release	BY 2015 release	2019 Forecast run	Estimated PU, sport, subs[b] edu. contrib.	Estimated CCPF[c] contrib.	Estimated sales harvest[d] contrib.	Broodstock & unharvested contrib.	Estimated total run	2019 Eggs collected
Bear Lake and Resurrection Bay (TLH)	4,095,165	4,190,000	305,600	NA	4,307	124,963	12,760	142,030	5,176,809
Hidden Lake (TLH)	1,497,000	1,231,000	26,557	3,202	3,145	0	7,777	10,922	1,260,921
Leisure and Hazel Lakes (TLH)	1,672,000	NA	69,400	5,413	15,902	1,990	157	17,949	0
Kirschner Lake (TLH)	237,000	185,000	39,000	NA	4,824	18,698	0	23,522	0
English Bay Lakes (TLH)	200,200	NA	NA	NA	NA	0	24,044	NA	0
Tutka Bay Lagoon (TLH)[e]	531,625	356,000	53,400	NA	2,628	10,596	1,226	14,450	1,793,342
Port Graham Hatchery (TLH)	NA	86,000	4,185	NA	NA	0	0	NA	0
Shell Lake	NA	NA	NA	NA	NA	0	0	NA	0
Total sockeye salmon	8,232,990	6,048,000	498,142	8,615	30,706	156,247	45,964	208,873	8,231,072

COHO SALMON Hatchery or release site (hatchery)	BY 2016 Release	2019 Forecast run	Estimated PU, sport, subs[b] edu. contrib.	Estimated CCPF[c] contrib.	Estimated sales harvest[d] contrib.	Broodstock & unharvested contribution	Estimated total run	Eggs collected
Bear Lake and Resurrection Bay (TLH)	223,000	5,500	NA	NA	1,183	2,167	NA	604,869
Total coho salmon	223,000	5,500	NA	NA	1,183	2,167	NA	604,869

PINK SALMON Hatchery or release site (hatchery)	BY 2017 Release	2019 Forecast run	Estimated PU, sport, subs[b] edu. contrib.	Estimated CCPF[c] contrib.	Estimated sales harvest[d] contrib.	Broodstock & unharvested contribution	Estimated total run	Eggs collected
Tutka Bay Lagoon Hatchery (TBLH)	50,040,000	1,501,200	NA	5,510	179,639	149,208	334,357	39,187,425
Port Graham Hatchery (PGH)	20,850,000	625,500	NA	NA	0	17,469	17,469	8,045,233
Bruin Bay (PGH)	305,000	9,200	NA	NA	0	0	NA	0
Total pink salmon	70,890,000	2,126,700	NA	5,510	179,639	166,677	351,826	47,232,658
Total all salmon			8,615	36,216	337,069	214,808	560,699	56,068,599

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

[b] Hidden Lake personal use, sport, educational fisheries hatchery contribution based on otolith sampling. Leisure and Hazel Lakes based on harvest location.

[c] Commercial Common Property Fisheries (CCPF). Harvest estimate for sockeye salmon based on harvest location, not on otolith sampling

[d] Hatchery cost-recovery sales in number of fish. Also includes donated fish that could not be sold due to quantity or quality available.

[e] 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, donations, and broodstock collection in numbers of fish for Cook Inlet Aquaculture Association, 2019.

			Sales harvest[a]		Donated		Broodstock harvest	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
5/23	Purse seine	Bear Lake SHA	1,391	1,391				
5/24	Purse seine	Bear Lake SHA	4,455	5,846				
5/26	Purse seine	Bear Lake SHA	1,349	7,195				
5/27	Purse seine	Bear Lake SHA	1,417	8,612				
5/28	Purse seine	Bear Lake SHA	7,190	15,802				
5/29	Purse seine	Bear Lake SHA	623	16,425				
5/30	Purse seine	Bear Lake SHA	3,048	19,473				
5/31	Purse seine	Bear Lake SHA	2,856	22,329				
6/2	Purse seine	Bear Lake SHA	10,369	32,698				
6/3	Purse seine	Bear Lake SHA	11,206	43,904				
6/4	Purse seine	Bear Lake SHA	7,147	51,051				
6/5	Purse seine	Bear Lake SHA	3,389	54,440				
6/6	Purse seine	Bear Lake SHA	5,000	59,440				
6/7	Purse seine	Bear Lake SHA	6,650	66,090				
6/8	Purse seine	Bear Lake SHA	2,334	68,424				
6/9	Purse seine	Bear Lake SHA	4,222	72,646				
6/11	Purse seine	Bear Lake SHA	1,637	74,283				
6/12	Purse seine	Bear Lake SHA	1,463	75,746				
6/13	Purse seine	Bear Lake SHA	2,002	77,748				
6/15	Purse seine	Bear Lake SHA	1,350	79,098				
6/17	Purse seine	Bear Lake SHA	2,052	81,150				
6/19	Purse seine	Bear Lake SHA	974	82,124				
6/21	Purse seine	Bear Lake SHA	561	82,685				
6/5	Weir or beach seine	Bear Lake SHA	691	691	20	20		
6/6	Weir or beach seine	Bear Lake SHA	690	1,381	20	40		
6/7	Weir or beach seine	Bear Lake SHA	1,021	2,402	6	46		
6/8	Weir or beach seine	Bear Lake SHA	480	2,882	53	99		
6/9	Weir or beach seine	Bear Lake SHA	1,383	4,265	0	99		
6/10	Weir or beach seine	Bear Lake SHA	1,481	5,746	0	99		
6/11	Weir or beach seine	Bear Lake SHA	1,269	7,015	13	112		
6/12	Weir or beach seine	Bear Lake SHA	1,085	8,100	0	112		
6/13	Weir or beach seine	Bear Lake SHA	523	8,623	40	152		
6/14	Weir or beach seine	Bear Lake SHA	1,417	10,040	0	152		
6/15	Weir or beach seine	Bear Lake SHA	1,239	11,279	0	152		
6/16	Weir or beach seine	Bear Lake SHA	701	11,980	0	152		
6/17	Weir or beach seine	Bear Lake SHA	2,007	13,987	26	178		
6/18	Weir or beach seine	Bear Lake SHA	1,341	15,328	20	198		
6/19	Weir or beach seine	Bear Lake SHA	1,362	16,690	0	198		
6/20	Weir or beach seine	Bear Lake SHA	1,316	18,006	20	218		
6/21	Weir or beach seine	Bear Lake SHA	2,049	20,055	0	218		
6/22	Weir or beach seine	Bear Lake SHA	1,284	21,339	0	218		
6/23	Weir or beach seine	Bear Lake SHA	1,326	22,665	0	218		
6/24	Weir or beach seine	Bear Lake SHA	1,298	23,963	20	238		
6/25	Weir or beach seine	Bear Lake SHA	1,295	25,258	0	238		
6/26	Weir or beach seine	Bear Lake SHA	993	26,251	0	238		
6/27	Weir or beach seine	Bear Lake SHA	303	26,554	20	258		
6/28	Weir or beach seine	Bear Lake SHA	257	26,811	0	258		
6/29	Weir or beach seine	Bear Lake SHA	258	27,069	68	326		
6/30	Weir or beach seine	Bear Lake SHA	0	27,069	110	436		

-continued-

			Sales Harvest		Donated		Broodstock	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/1	Weir or beach seine	Bear Lake SHA	0	27,069	76	512		
7/2	Weir or beach seine	Bear Lake SHA	0	27,069	45	557		
7/3	Weir or beach seine	Bear Lake SHA	1,727	28,796	0	557		
7/4	Weir or beach seine	Bear Lake SHA	0	28,796	20	577		
7/5	Weir or beach seine	Bear Lake SHA	1,791	30,587	0	577		
7/6	Weir or beach seine	Bear Lake SHA	1,144	31,731	0	577		
7/7	Weir or beach seine	Bear Lake SHA	471	32,202	0	577		
7/8	Weir or beach seine	Bear Lake SHA	661	32,863	0	577		
7/9	Weir or beach seine	Bear Lake SHA	633	33,496	0	577		
7/10	Weir or beach seine	Bear Lake SHA	1,190	34,686	37	614		
7/11	Weir or beach seine	Bear Lake SHA	1,176	35,862	0	614		
7/12	Weir or beach seine	Bear Lake SHA	1,296	37,158	0	614		
7/13	Weir or beach seine	Bear Lake SHA	1,150	38,308	9	623		
7/14	Weir or beach seine	Bear Lake SHA	383	38,691	0	623		
7/15	Weir or beach seine	Bear Lake SHA	623	39,314	0	623		
7/17	Weir or beach seine	Bear Lake SHA	180	39,494	0	623		
7/18	Weir or beach seine	Bear Lake SHA	0	39,494	20	643		
7/19	Weir or beach seine	Bear Lake SHA	402	39,896	30	673		
7/20	Weir or beach seine	Bear Lake SHA	591	40,487	0	673		
7/21	Weir or beach seine	Bear Lake SHA	0	40,487	7	680		
7/22	Weir or beach seine	Bear Lake SHA	581	41,068	0	680		
7/24	Weir or beach seine	Bear Lake SHA	347	41,415	0	680		
7/25	Weir or beach seine	Bear Lake SHA			0	680	285	285
7/26	Weir or beach seine	Bear Lake SHA			0	680	276	561
7/27	Weir or beach seine	Bear Lake SHA			183	863	0	561
7/28	Weir or beach seine	Bear Lake SHA					576	1,137
7/30	Weir or beach seine	Bear Lake SHA					407	1,544
7/31	Weir or beach seine	Bear Lake SHA					378	1,922
8/1	Weir or beach seine	Bear Lake SHA					251	2,173
8/2	Weir or beach seine	Bear Lake SHA					357	2,530
8/3	Weir or beach seine	Bear Lake SHA					322	2,852
8/5	Weir or beach seine	Bear Lake SHA					345	3,197
8/6	Weir or beach seine	Bear Lake SHA					378	3,575
7/7	Purse seine	Tutka Bay SHA	1,169	1,169				
7/12	Purse seine	Tutka Bay SHA	4,843	6,012				
7/14	Purse seine	Tutka Bay SHA	2,141	8,153				
7/20	Purse seine	Tutka Bay SHA	1,184	9,337				
7/28	Purse seine	Tutka Bay SHA	693	10,030				
8/7	Purse seine	Tutka Bay SHA	566	10,596				
7/4	Purse seine	China Poot SHA	648	648				
7/13	Purse seine	China Poot SHA	1,220	1,868				
7/17	Purse seine	China Poot SHA	122	1,990				
9/17	Purse seine	Tutka Bay SHA					360	360
9/19	Purse seine	Tutka Bay SHA					326	686
9/22	Purse seine	Tutka Bay SHA					297	983
9/27	Purse seine	Tutka Bay SHA					243	1,226

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			Sales Harvest		Donated		Broodstock	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
6/29	Purse seine	Kirschner SHA	1,611	1,611				
7/5	Purse seine	Kirschner SHA	4,449	6,060				
7/11	Purse seine	Kirschner SHA	3,248	9,308				
7/17	Purse seine	Kirschner SHA	6,882	16,190				
7/21	Purse seine	Kirschner SHA	2,178	18,368				
7/23	Purse seine	Kirschner SHA	330	18,698				
9/17	Beach seine	Hidden Lake[b]					167	167
9/23	Beach seine	Hidden Lake[b]					260	427
9/24	Beach seine	Hidden Lake[b]					148	575

Hatchery escapement summary in numbers of fish[c]	
Donated fish (Harvest code 37)	863
Raceway harvest (Harvest code 22)	0
Viable broodstock (spawned, eggs in incubators)	5,597
Unviable broodstock (green/over-ripe/bad)	309
Unspawned fish (e.g., excess males/females)	0
Holding mortalities (raceway, pen mortalities)	172
Estimated unharvested return	0
Total hatchery harvest	6,941

Sales summary	
Whole fish sales (Harvest code 21)	155,384
Broodstock carcass sales (Harvest code 22)	0
Total sales	155,384

[a] ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

[b] CIAA projects conducted in Upper Cook Inlet.

[c] Data from CIAA and ADF&G fish ticket database (above).

Appendix F3.–Daily pink salmon sales, donations, and broodstock collection in numbers of fish for Cook Inlet Aquaculture Association, 2019.

			Sales harvest[a]		Donated		Broodstock harvest[b]	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/7	Purse seine	Tutka SHA	16,879	16,879				
7/12	Purse seine	Tutka SHA	55,317	72,196				
7/14	Purse seine	Tutka SHA	33,522	105,718				
7/20	Purse seine	Tutka SHA	39,356	145,074				
7/28	Purse seine	Tutka SHA	12,864	157,938				
8/7	Purse seine	Tutka SHA	21,701	179,639				
8/5	Weir	Tutka SHA					739	739
8/6	Weir	Tutka SHA					1,527	2,266
8/7	Weir	Tutka SHA					3,178	5,444
8/8	Weir	Tutka SHA					961	6,405
8/10	Weir	Tutka SHA					2,221	8,626
8/12	Weir	Tutka SHA					4,953	13,579
8/13	Weir	Tutka SHA					2,369	15,948
8/14	Weir	Tutka SHA					4,201	20,149
8/15	Weir	Tutka SHA					5,488	25,637
8/16	Weir	Tutka SHA					4,910	30,547
8/18	Weir	Tutka SHA					3,181	33,728
8/20	Weir	Tutka SHA					2,441	36,169
8/20	Weir	Tutka SHA					248	36,417
8/21	Weir	Tutka SHA					682	37,099
8/22	Weir	Tutka SHA					6,782	43,881
8/25	Weir	Tutka SHA					6,860	50,741
8/26	Weir	Tutka SHA					4,051	54,792
8/27	Weir	Tutka SHA					5,053	59,845
8/28	Weir	Tutka SHA					4,343	64,188
8/29	Weir	Tutka SHA					4,133	68,321
8/30	Weir	Tutka SHA					4,974	73,295
8/31	Weir	Tutka SHA					3,578	76,873
9/1	Weir	Tutka SHA					2,782	79,655
9/2	Weir	Tutka SHA					728	80,383
9/3	Weir	Tutka SHA					2,259	82,642
9/4	Weir	Tutka SHA					1,134	83,776
9/6	Weir	Tutka SHA					1,109	84,885
9/9	Weir	Tutka SHA					367	85,252
8/26	Purse seine	Port Graham SHA					123	123
8/28	Purse seine	Port Graham SHA					953	1,076
9/3	Purse seine	Port Graham SHA					3,341	4,417
9/6	Purse seine	Port Graham SHA					1,007	5,424
9/9	Purse seine	Port Graham SHA					4,620	10,044
9/10	Purse seine	Port Graham SHA					3,893	13,937
9/13	Purse seine	Port Graham SHA					3,120	17,057
9/17	Purse seine	Port Graham SHA					412	17,469

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			Sales Harvest		Donated		Broodstock	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
6/29	Purse seine	Kirschner SHA	41	41				
7/5	Purse seine	Kirschner SHA	222	263				
7/11	Purse seine	Kirschner SHA	591	854				
7/17	Purse seine	Kirschner SHA	367	1,221				
7/21	Purse seine	Kirschner SHA	618	1,839				
7/23	Purse seine	Kirschner SHA	90	1,929				
7/13	Purse seine	China Poot SHA	17	17				
7/17	Purse seine	China Poot SHA	3	20				

Hatchery escapement summary in numbers of fish[b]	
Donated fish (Harvest code 37)	0
Raceway harvest	0
Viable broodstock (spawned, eggs in incubators)	72,309
Unviable broodstock (green/over-ripe/bad)	20,113
Unspawned fish (e.g., excess males/females)	18,526
Holding mortalities (raceway, pen mortalities)	1,997
Estimated unharvested return	53,732
Total hatchery harvest	166,677

Sales summary	
Whole fish sales (Harv code 21)	181,588
Broodstock carcass sales (Harv code 22)	0
Total sales	181,588

[a] ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

[b] Data from CIAA.

Appendix F4.–Daily coho sales, broodstock collection, and donations in numbers of fish for Cook Inlet Aquaculture Association, 2019.

			Sales harvest[a]		Broodstock harvest		Weir donations	
Date	Gear	Location	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/13	Purse seine	China Poot SHA	2	2				
7/14	Purse seine	Tutka SHA	1	3				
9/11	Weir	Bear Lake SHA					86	86
9/12	Weir	Bear Lake SHA					20	106
9/13	Weir	Bear Lake SHA					30	136
9/14	Weir	Bear Lake SHA					121	257
9/15	Weir	Bear Lake SHA					164	421
9/16	Weir	Bear Lake SHA					44	465
9/17	Weir	Bear Lake SHA			370	370	126	591
9/18	Weir	Bear Lake SHA				370	26	617
9/19	Weir	Bear Lake SHA				370	78	695
9/20	Weir	Bear Lake SHA				370	50	745
9/22	Weir	Bear Lake SHA				370	14	759
9/23	Weir	Bear Lake SHA			592	962		
9/24	Weir	Bear Lake SHA			315	1,277		
9/25	Weir	Bear Lake SHA					143	902
9/26	Weir	Bear Lake SHA					42	944
9/28	Weir	Bear Lake SHA					91	1,035
9/30	Weir	Bear Lake SHA					85	1,120
10/4	Weir	Bear Lake SHA					63	1,183
10/7	Weir	Bear Lake SHA						
10/11	Weir	Bear Lake SHA						

Hatchery escapement summary in numbers of fish[b]	
Donated fish (Harvest code 37)	1,183
Raceway harvest (Harvest code 22)	0
Viable broodstock (spawned, eggs in incubators)	240
Unviable broodstock (green/over-ripe/bad)	5
Holding mortalities (raceway, pen mortalities)	220
Escapement for hatchery watershed	1,416
Broodstock for ADF&G “Salmon in the classroom” project	30
Broodstock for ANC ADFG hatchery	173
Unaccounted fish (probably donated)	83
Total hatchery return	3,350

Sales and donation summary	
Whole fish sales (Harv code 21)	3
Carcass sale (Harv code 22)	0
Total sales	3

[a] ADF&G statewide electronic fish ticket database [Internet]. 1985– . Juneau, AK. [URL not available as some information is confidential].

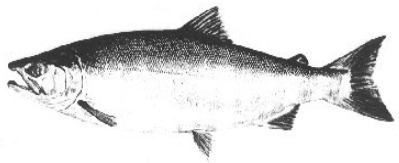
[b] Data from CIAA.

APPENDIX G: 2019 OUTLOOK

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

Doug Vincent-Lang, Commissioner

Sam Rabung, 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: March 4, 2019,
Time: 2:00 PM

2019 LOWER COOK INLET SALMON FISHERY OUTLOOK

General Information

This outlook is provided to assist the commercial salmon industry in planning for the 2019 season in the Lower Cook Inlet (LCI) Management Area. Area-wide preseason forecasts for each species were derived by fitting historical commercial common property harvest data to 4 trend forecast models and selecting the model with the best performance metrics (e.g., bias, mean square error, mean absolute percentage error, etc.). Forecasts for LCI can be found on the Alaska Department of Fish and Game (ADF&G) web site:

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

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 by contacting CIAA directly or 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 LCI management area forecast for commercial common property fishery (CCPF) harvests by species are summarized in Table 1. The wild-stock pink salmon harvest forecast was derived from an exponential-smoothing (ES) model based on historical odd-year harvests (1961–2017). The wild-stock sockeye and Chinook salmon harvest forecasts were derived from ES models based on historical, log-transformed harvests from 1960–2018 (all years). The chum and coho salmon forecasts were derived by ES and 2-year running average models, respectively, using non-transformed historical harvest data from 1960–2018 (all years). Because these models generate area-wide forecasts, we used the recent 5-year average CCPF harvest (by district and gear type) to apportion the area forecast into harvest projections by district and gear type (Table 2). Projected runs of hatchery-origin salmon were provided by CIAA (Tables 1 and 2). Together, 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 run strength used as the season progresses.

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Management of LCI commercial salmon fisheries is based in the Homer ADF&G area office. Fishery announcements from the Homer office will routinely occur on Fridays at 2:00 p.m., 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 p.m., Friday, April 26.

CIAA anticipates a total of 467,400 hatchery-produced sockeye and 2.1 million pink salmon to return to LCI release sites in 2019. CIAA anticipates harvesting 5.2 million dollars of hatchery-produced salmon with the remainder available to common property fisheries. The overall commercial common property harvest from Lower Cook Inlet is anticipated to be 3.7 million salmon, of which 29.0% are anticipated to be of hatchery origin harvested from SHAs. Additional hatchery-origin fish are harvested with wild fish outside of SHAs (Table 2).

Set Gillnet Fishery

The **Southern District** is anticipated to open for the 2019 season on Monday, June 3 at 6:00 a.m. for a 48-hour period. Following periods will likely be 48-hours in length beginning at 6:00 a.m. on Monday and Thursday, as specified in regulation. Harvests for 2019 are anticipated to be similar to the historic average. The harvest projections for this district and gear are 400 Chinook, 6,700 coho, 5,200 chum, 30,300 sockeye, and 20,000 pink salmon (Table 2). The Port Graham Subdistrict is anticipated to open to commercial set gillnet harvest on June 3 and remain on a schedule concurrent with other areas in the Southern District for this gear. Fishing time in the Port Graham Subdistrict will be closely linked to escapement levels in English Bay and Port Graham rivers. Management priority will be to provide for subsistence needs (4,800–7,200 salmon). Further information regarding previous years' 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 runs to Leisure and Hazel lakes. Historically, this run peaks from July 14–20 (week 29). CIAA anticipates a return of 69,400 sockeye salmon to Leisure and Hazel lakes combined, as well as 53,400 sockeye salmon to Tutka Bay.

Commercial fishing time after mid-July will be correlated to pink salmon escapement at Humpy Creek, Seldovia Bay, Port Graham and other locations in this district. A total of 2.1 million hatchery-produced pink salmon are anticipated to return to release sites in the Southern District.

Hatchery sockeye salmon runs to the **Eastern District** are forecasted by CIAA to be 305,600 fish. Of those, 61,900 may be available for CCPF harvest with the balance 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 stocks in Resurrection Bay and Day Harbor may be flown, weather and time permitting.

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Portions of the **Outer District** may open to CCPF harvest in mid-July focusing on sockeye salmon runs to McCarty Fjord lakes. In recent years, escapement to these systems has been monitored by aerial survey (Delight, Desire, and Delusion lakes). Sockeye salmon escapement into Delight Lake may be monitored by CIAA using a weir in 2019. In addition, waters in the western portion of this district may be open by mid-July, focusing on pink and chum salmon runs to Port Dick, as well as Windy and Rocky bays. There are numerous other smaller stocks in the Nuka Passage area that are also monitored for chum and pink salmon. In the far west end of this district, stocks with the latest run timing, i.e., Dogfish Bay, Chugach Bay and Port Chatham, will be evaluated for chum and pink salmon harvest potential from August to early September. The harvest projections for this district are 5,700 sockeye, 68,100 chum, and approximately 2.2 million pink salmon.

Portions of the **Kamishak Bay District** typically open by regulation to commercial harvest on June 1. Commercial common property harvest projections for this district are 39,300 sockeye, 9,800 chum salmon, and 106,900 pink salmon. The majority of the sockeye salmon harvest is expected to come from the Chenik Lake run and the chum salmon harvest has historically been spread throughout the district. Chenik Lagoon is anticipated to open in mid-June and remain open throughout the season. Hatchery-released sockeye salmon to the Kirschner Lake outfall remote release site are anticipated to be 39,000 fish, all of which will likely be required for hatchery cost recovery. 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 pink and chum salmon index streams (e.g., Big and Little Kamishak rivers, Bruin River, Cottonwood Creek). In 2018, CIAA released 305,000 pink salmon into upper Paint Lake; of those, approximately 9,200 are anticipated to return in 2019.

Table 1.–Lower Cook Inlet management area commercial common property fishery (CCPF) harvest forecast summary, 2019 (thousands of fish).

Production Type	Species	Forecast Type	Point Forecast	Forecast Range	% Above/Below Recent 5-yr Average
Wild	Pink Salmon	Harvest	2,403.7	892.2–3,915.3	25% Above
Hatchery	Pink Salmon	Harvest	944.2	233.3–1,663.1	N/A
Wild	Sockeye Salmon	Harvest	125.8	49.2–321.6	3% Above
Hatchery	Sockeye Salmon	Harvest	131.4	62.3–178.2	N/A
Wild	Chum Salmon	Harvest	84.8	6.3–163.4	16% Below
Wild	Coho Salmon	Harvest	13.7	3.7–23.8	104% Above
Wild	Chinook Salmon	Harvest	0.5	0.2–1.1	24% Below
All	All	Harvest	3,704.1	1,247.2–6,266.5	

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Table 2.–Projected commercial common property fishery (CCPF) harvests and hatchery runs for Lower Cook Inlet, 2019. *Note: Rows and columns may not total exactly due to rounding to the nearest hundred fish*.

SOCKEYE SALMON			Total anticipated harvest =	**257,100**
Wild stocks, (area-wide commercial harvest)[a]				**125,800**
Southern District, (purse seine, excluding hatchery SHAs)				50,400
Southern District, (set gillnet)				30,300
Eastern District, (Aialik Bay)				0
Outer District				5,700
Kamishak Bay District, (excluding Kirschner Lake Subdistrict)				39,300
Sockeye salmon hatchery programs[b]	**Hatchery return**	**Broodstock harvest**	**Cost recovery harvest**	**CCPF harvest**
Resurrection Bay	305,600	12,760	230,900	61,900
China Poot and Hazel lakes	69,400	0	0	69,400
Tutka Bay Lagoon	53,400	4,500	48,900	0
Kirschner Lake	39,000	0	39,000	0
Port Graham Bay	0	0	0	0
English Bay Lakes	0	0	0	0
Hatchery stocks (area-wide totals)	**467,400**	**17,260**	**318,800**	**131,300**
PINK SALMON			Total anticipated harvest =	**3,347,900**
Wild stocks, (area-wide commercial harvest)[a]				**2,403,700**
Southern District (purse seine, excluding hatchery SHAs)				106,500
Southern District (set gillnet)				20,000
Eastern District				100
Outer District				2,170,100
Kamishak Bay District				106,900
Pink salmon hatchery programs[b]	**Hatchery return**	**Broodstock harvest**	**Cost recovery harvest**	**CCPF harvest**
Tutka Bay Lagoon	1,501,200	176,800	744,400	580,000
Port Graham Bay	625,500	108,000	162,500	355,000
Paint River fish ladder	9,200	0	0	9,200
Hatchery stocks (area-wide totals)	**2,135,900**	**284,800**	**906,900**	**944,200**
CHUM SALMON – Wild production[a]			Total anticipated harvest =	**84,800**
Southern District (purse seine)				1,700
Southern District (set gillnet)				5,200
Eastern District				100
Outer District				68,100
Kamishak Bay District				9,800
COHO SALMON – Wild production[a]			Total anticipated harvest =	**13,700**
Southern District (purse seine)				2,700
Southern District (set gillnet)				6,700
Eastern District				0
Outer District				200
Kamishak Bay District				4,100
CHINOOK SALMON – Wild production[a]			Total anticipated harvest =	**500**
Southern District (purse seine)				100
Southern District (set gillnet)				400
Eastern District				0
Outer District				0
Kamishak Bay District				0
Total LCI anticipated commercial common property harvest- all salmon species =				**3,704,000**

[a] Area-wide harvest forecasts for wild production were produced by ADF&G using trend forecast models based on historical harvests (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.