Fishery Management Report No. 21-26

Upper Cook Inlet Commercial Fisheries Annual Management Report, 2019

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

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ABSTRACT

The 2019 Upper Cook Inlet (UCI) management report describes commercial fishing in UCI of Southcentral Alaska. The UCI management area includes the waters north of Anchor Point and consists of the Central and Northern Districts. In the south, the Central District includes 6 subdistricts, and to the north, the Northern District includes 2 subdistricts. All 5 species of Pacific salmon (*Oncorhynchus* spp.) species found in Alaska (Chinook *O. tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta*), razor clams (*Siliqua patula*), Pacific herring (*Clupea pallasii*), and eulachon (*Thaleichthys pacificus*) are commercially harvested. All species of salmon are harvested from both districts, but herring and clams are only fished in the Central District, and eulachon are only harvested in the Northern District. The total sockeye salmon run estimate to UCI in 2019 of 5.2 million fish was 14% below the preseason forecast of 6.0 million fish. The commercial harvest of 2.1 million salmon was approximately 48% less than the 1966–2018 average annual harvest of 4 million fish, and the commercial sockeye salmon harvest of 1.7 million fish was 39% less than the 1966–2018 average annual harvest of 2.8 million fish. The 2019 estimated exvessel value of the commercial harvest of all salmon was $18.3 million, which was 38% less than the 2009–2018 average annual exvessel value of $29 million and approximately 22% less than the 1960–2018 long-term average annual exvessel value of $23 million. Sockeye salmon accounted for 93% of the total exvessel value, which was slightly more than the 2009–2018 average. For the 2019 season, 2 of 7 sockeye salmon drainage escapement estimates fell within established goal ranges, 3 of 7 exceeded goal ranges, 1 system failed to reach the lower end of its goal range, and 1 could not be determined.

Keywords: sockeye salmon *Oncorhynchus nerka*, Chinook salmon *O. tshawytscha*, chum salmon *O. keta*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, Pacific herring *Clupea pallasii*, smelt, eulachon *Thaleichthys pacificus*, razor clam *Siliqua patula*, commercial fishery, personal use fishery, gillnet, escapement, Annual Management Report AMR, Upper Cook Inlet.

INTRODUCTION

The Upper Cook Inlet (UCI) commercial fisheries management area, located in Southcentral Alaska, consists of that portion of Cook Inlet north of the latitude of the Anchor Point Light (lat. 59°46.15′N) and is divided into the Central and Northern Districts (Figures 1 and 2). The Central District is approximately 75 miles long, averages 32 miles in width, and is divided into 6 subdistricts. The Northern District is 50 miles long, averages 20 miles in width, and is divided into 2 subdistricts. Harvest statistics are gathered and reported by statistical areas (Figures 3 and 4) that have a 5-digit numerical code or are by defined subareas (sections) within the subdistricts relative to management plans (Figures 5 and 6). UCI commercial fisheries harvest 5 species of Pacific salmon (*Oncorhynchus* spp.), as well as razor clams (*Siliqua patula*), Pacific herring (*Clupea pallasii*), and eulachon (*Thaleichthys pacificus*).

SALMON

Over its 140-year history since 1878,[1] the commercial salmon fishery in UCI waters has included many gear types with varying degrees of success, including fish traps, gillnets, and seines. Currently, set gillnets are the only gear permitted in the Northern District, whereas both set and drift gillnets are used in the Central District. The use of seine gear is restricted to the Chinitna Bay Subdistrict, where it may be operated via emergency order (EO) only; however, seine gear has not been fished in Chinitna Bay since 1982. Salmon are found in drainages throughout the UCI management area, and the run timing and migration routes used by all species overlap to such a degree that the commercial fishery is mostly mixed-stock and mixed-species in nature.

[1] See Alaska State Library–Historical Collections, Robert N. DeArmond papers, ca. 1945–1969, The Cook Inlet Fishing Industry, available at http://library.alaska.gov/hist/hist_docs/docs/asl_ms39_4_4.pdf (accessed January 3, 2020).

Detailed commercial salmon harvest statistics specific to gear type and location are available since 1966 (Appendices B1–B6). Since 1966, drift gillnets in the Central District have accounted for approximately 7% of the average annual harvest of Chinook salmon *O. tshawytscha* (colloquially known as king salmon), 55% of sockeye *O. nerka*, 49% of coho *O. kisutch*, 46% of pink *O. gorbuscha*, and 89% of chum salmon *O. keta* (Appendices B1–B5); set gillnets used in both districts have harvested virtually all of the remainder. Sockeye salmon are the most economically important species of the UCI commercial salmon harvest, followed by coho, chum, Chinook, and pink salmon (Appendix B7). In addition to commercial fishery harvests, sockeye salmon are also highly utilized and economically important in other fisheries of UCI (Appendix A22).

HERRING

Commercial herring fishing began in UCI in 1973 (Flagg 1974), when a modest harvest of bait-quality fish along the east side of the Central District was harvested. In the late 1970s, harvest expanded to include small-scale sac roe fisheries in Chinitna and Tuxedni Bays (Figure 1; Appendix B8). Large decreases in herring abundance and a shift towards older herring were observed in Tuxedni Bay beginning in 1988, which subsequently led to the closure of commercial herring fishing in Tuxedni Bay before the 1992 season. In Chinitna Bay and along the eastside beaches of Cook Inlet, similar declines began to materialize after the 1990 season. As a result of these widespread declines, the Alaska Department of Fish and Game (ADF&G) submitted a proposal to the Alaska Board of Fisheries (BOF) to open the UCI herring fishery by EO only. This proposal became regulation in 1993, ending a long period of fixed opening dates of April 15 on the east side and April 22 on the west side of Cook Inlet. This action effectively closed these fisheries to provide time for herring stocks to recover.

By 1997, some improvement in herring stock biomass was observed in Chinitna Bay (Shields 2005). In 1998, the Upper Subdistrict of the Central District and the Eastern Subdistrict of the Northern District (Figure 2) were opened to commercial herring fishing to assess the status of the herring population. Herring fisheries on the west side of Cook Inlet remained closed until the status of the east side stocks was determined. In 1999, ADF&G again submitted proposals to the BOF, seeking to restructure the herring fishery to two 30-hour periods per week on Mondays and Thursdays. These proposals included a requirement that fishery participants register their intent to participate in the fishery prior to April 10 and report harvests within 12 hours of the closure of a fishing period. These proposals became a specified management plan, 5 AAC 27.409, the *Central District Herring Recovery Management Plan*, before the 1999 season. This plan limited herring fishing in UCI to the waters of the Upper, Western, and Chinitna Bay Subdistricts. In the Upper Subdistrict, fishing for herring is not allowed closer than 600 feet of shore to reduce the incidental harvest of salmon. The BOF amended the management plan in 2002 to extend the closing date for the fishery from May 20 to May 31.

Herring population sampling has also occurred in conjunction with recent BOF management plan changes. In 2001, samples of herring were collected in Chinitna and Tuxedni Bays. The age, sex, and size distribution of the samples revealed that the years of closed fishing in these areas increased younger-aged fish recruiting into the population. As a result of these analyses and in accordance with the herring recovery management plan, the commercial fishery reopened in 2002 in the Chinitna Bay and Western Subdistricts. The management plan allows a very conservative harvest

quota, not to exceed 40 short tons[2] in Chinitna Bay and 50 short tons in the Western Subdistrict. There has been very little participation in either fishery since they reopened (Appendix B8).

The herring management plan was further modified by the BOF in 2005 and 2008. In 2005, the plan was no longer referred to as a recovery management plan, the Kalgin Island Subdistrict was included in legal waters, and fishing periods in the Upper Subdistrict were expanded to 108 hours per week, or from Monday at 6:00 AM until Friday at 6:00 PM. Additionally, in 2005, the mesh size for herring gillnets was modified to no smaller than 2.0 inches and no greater than 2.5 inches. In 2008, the 108-hour weekly fishing period went into effect for all UCI areas open to herring fishing, and the registration deadline of April 10 was amended to state that fishery participants must register any time prior to fishing.

Because the glacial waters of UCI preclude the use of aerial surveys to estimate the biomass of herring stocks, management of these fisheries follows a limited and precautionary approach that restricts harvest strategies. In the Central District, herring may be taken only by set or drift gillnets, except in the Chinitna Bay and Kalgin Island Subdistricts where only set gillnets may be used. Gillnets are much less efficient at capturing herring than purse seines. Moreover, conservative guideline harvest levels have been set to provide a low-level commercial fishery on these stocks. In the Upper Subdistrict, harvests are generally concentrated in the Clam Gulch area, including very little or no participation in the Western Subdistrict (Tuxedni Bay), Chinitna Bay, or Kalgin Island Subdistricts.

SMELT

Smelt return to many of the larger river systems in UCI, including particularly large runs to the Susitna and Kenai Rivers. Both longfin smelt *Spirinchus thaleichthys* and eulachon *Thaleichthys pacificus* (referred to as *smelt* in this report, although often identified in local vernacular as *hooligan*) are documented in Cook Inlet. Smelt begin returning to spawning areas in Cook Inlet from mid-May to mid-June and return in quantities large enough to support a limited commercial fishery. Longfin smelt return to Cook Inlet in the fall but are not harvested because of the small run size.

Before 1999 and the subsequent adoption of 5 AAC 39.212, the *Forage Fish Management Plan*, the entire UCI area was open to smelt fishing from October 1 to June 1 (Shields 2005). The only documented commercial harvest of smelt occurred in 1978 (300 pounds), 1980 (4,000 pounds), 1998 (18,900 pounds), and 1999 (100,000 pounds). All harvests occurred in saltwater near the Susitna River.

Fisheries for smelt in UCI were closed after the 1999 season due to concerns about the role of forage fish in the ecosystem, and beginning in 2000, the BOF began drafting a *Forage Fish Management Plan*. From 1998 to 2004, no fisheries occurred in UCI for smelt. At the 2005 BOF meeting, proposals were submitted to reopen the fishery, which the BOF accepted, authorizing a commercial smelt fishery beginning with the 2005 season. The fishery is conducted under 5 AAC 21.505, the *Cook Inlet Smelt Fishery Management Plan*. This fishery is allowed only in salt water from May 1 to June 30, specifically in that area of Cook Inlet from the Chuitna River to the Little Susitna River and in the Susitna River south of lat. 61°21.50′ N lat. Legal gear for the fishery is limited to a hand-operated dipnet, as defined in 5 AAC 39.105, and the total harvest may not

[2] The Alaska Board of Fisheries requires that inseason catch and aerial survey biomass estimates be calculated and reported in short tons. The English short ton equals 2,000 lb or 907.2 kg.

exceed 200 short tons of smelt. The harvest cap was increased from 100 short tons to 200 short tons at the 2017 BOF meeting, based in part on a 2016 total biomass estimate of 48,000 tonnes (Willette and DeCino 2016). Any salmon caught during the fishery should be immediately returned to the water unharmed. A miscellaneous finfish permit (M99B) and a commissioner's permit is required to participate in this fishery, which can be obtained from the ADF&G office in Soldotna.

Minimal quantitative data are available about Susitna River smelt. The Alaska Energy Authority contracted HDR Alaska, Inc. and LGL Alaska Research Associates, Inc. to evaluate the life history, run timing, abundance, distribution, and habitat of eulachon as part of the Susitna-Watana Hydro feasibility studies (Alaska Energy Authority 2014). In 2016, ADF&G conducted the first year of an anticipated 3-year study to estimate the run timing, age, sex, size composition, and biomass of smelt spawning in the Susitna River watershed (Willette and DeCino 2016). Before this study, the total biomass of the smelt run in the Susitna River had not been estimated. The biomass estimate made during the 2016 run was calculated indirectly from estimates of larval densities and stream discharge data. Adult eulachon biomass was then calculated using a similar method that Moffitt et al. (2002) employed for estimating Copper River smelt abundance. This methodology back-calculates the adult eulachon biomass using the total number of larvae, then applies survival from egg to larvae, mean fecundity of female eulachon, mean female body weight, the sex ratio of males to females, and mean male body weight. Using this method, the total smelt biomass in 2016 was 48,000 metric tons (tonnes; Willett and DeCino 2016). The second and third years of this study were not funded.

RAZOR CLAMS

Commercial harvest of razor clams from UCI beaches dates back to 1919 (Appendix B9). Harvest levels have fluctuated from no fishery to harvests in excess of 500,000 pounds. The sporadic nature of the fishery was more a function of limited market opportunities than the limited availability of the resource. Razor clams are present in many areas of Cook Inlet, and particularly dense concentrations occur near Polly Creek on the western shore and from Clam Gulch south to Ninilchik on the eastern shore (Nickerson 1975). The eastern shoreline has been set aside for sport harvest exclusively since 1959, and all commercial harvests since that time have come from the west shore, principally from the Polly Creek and Crescent River sandbar areas (Figure 1). A large portion of the Polly Creek beach is approved by the Alaska Department of Environmental Conservation for the harvest of clams for the human food market. ADF&G permit stipulations include that a limit of 10% shell breakage is allowed and broken-shelled clams are required to be dyed before sale as bait clams. No overall commercial harvest limits are in place for any area in regulation; however, ADF&G manages the commercial razor clam fishery to achieve a harvest of no more than 350,000–400,000 pounds (in the shell) annually, and no clams with a shell size less than 4.5 inches may be harvested. Virtually all the commercial harvest has come by hand-digging, although regulations prior to 1990 allowed the use of mechanical harvesters (dredges) south of Spring Point or within a 1-mile section of the Polly Creek beach. Numerous attempts to develop feasible dredging operations were largely unsuccessful due to excessive shell breakage or the limited availability of clams in the area open to this gear. As such, mechanical means of harvest are no longer permitted in any area of Cook Inlet.

2019 COMMERCIAL SALMON FISHERIES

The overall harvest and value of the 2019 UCI commercial salmon fishery was below the 2009–2018 average but did show an increase over the 2018 season. The 2019 harvest of approximately

2.09 million salmon was 35% less than the 2009–2018 average annual harvest of 3.21 million fish (Appendices A9 and B6). Although all 5 species of Pacific salmon found in Alaska are present in UCI, sockeye salmon are the most valuable, accounting for nearly 92% of the total exvessel value during the past 20 years. The 2019 estimated exvessel value for all commercially harvested salmon species was approximately $18 million and 38% less than the 2009–2018 average annual exvessel value of $29.4 million. All species-specific exvessel values were below average in 2019, except for pink salmon. The 2019 pink salmon exvessel value of $45.7,000 was 19% above the 2009–2018 odd-year average of $38.2,000 (Appendix B7).

Currently, there are 7 sockeye salmon systems monitored in UCI (Figure 1) with escapement goals, inriver goals, or both (Table 1; Appendices A2 and B10). In 2019, 2 of 7 sockeye salmon assessment counts fell within established goal ranges, 3 exceeded goal ranges, 1 stream failed to reach its goal range, and 1 was not determined. After the 2019 harvest of sockeye salmon above the sonar site is accounted for in the Kenai River, the escapement in this drainage will probably exceed the sustainable escapement goal (SEG) for this system; the 2019 inriver goal was widely exceeded. This year marked the 11th year where sockeye salmon escapement in the Susitna River (Figure 1) drainage was monitored at Chelatna and Judd Lakes (in the Yentna River) and at Larson Lake in the mainstem Susitna River. These lakes are the primary producers of sockeye salmon in the Susitna River watershed. Sockeye salmon escapement was also monitored at Fish Creek, which drains Big Lake, and Packers Lake on Kalgin Island of the Central District.

The Upper Subdistrict of the Central District contains the East Side Setnet (ESSN) fishery (Figure 3), the most highly regulated fishery in UCI. The ESSN fishery includes the Kasilof, Kenai, and East Foreland sections and primarily harvests sockeye salmon, although Chinook, coho, pink, and chum salmon are also harvested. In July 2019, the Kasilof Section set gillnet fishery was open 13 days, the Kenai Section was open 11 days, and the East Foreland Section was open 9 days (Figure 7). The Kenai and East Foreland sections' season opens 1 week later than the other sections by regulation, which results in fewer days being available for these sections of the ESSN fishery to fish in July. The ESSN openings in July varied in the number of hours open and the legal area open due to restrictions required by the *Kenai River Late-Run King Salmon Management Plan* (KRLKSMP). In August 2019, openings in the ESSN fishery occurred on August 2 and August 3. The fishery was closed for the remainder of the season due to low Chinook salmon abundance in the Kenai River. Excluding the Kasilof River Special Harvest Area (KRSHA), the ESSN fishery has fished an average of 4 out of 15 total days available in August in the last decade. In 2019, no fishery openings in the KRSHA occurred.

Estimating the average annual price paid per pound of UCI salmon (Appendix B11) is challenging because an increasing number of fishery participants sell some or all their harvest to niche markets where they often receive higher prices. In addition, the early-season price of Chinook and sockeye salmon is often much higher than what is paid later in the season. Average prices reported here are generated from inseason prices paid to fishery participants on the fishing grounds and do not reflect any postseason adjustments (Appendix B11). Based on these estimated prices, the total exvessel value of the 2019 salmon fishery was approximately $18.4 million (Appendix B7). The average price for sockeye salmon in 2019 was estimated to be $1.80 per pound and was near the 2009–2018 average price of $1.74 per pound. Using the average price per pound (Appendix B11), the exvessel value for sockeye salmon was an estimated $17.1 million, which was 47% less than the 2009–2018 average annual value of $27.1 million. In addition, sockeye salmon made up 93% of the 2019 total exvessel value, or 2% more than the 2009–2018 average proportion (Appendix B7).

CHINOOK SALMON

The 2019 UCI commercial harvest of 3,148 Chinook salmon was the second smallest since 1966 (53 years) and was approximately 58% less than the 2009–2018 average annual harvest of 7,437 fish (Appendices A3, B1, and B6). Exvessel value for UCI Chinook salmon in 2019 was estimated at $172,900, which represented approximately 1% of the total exvessel value for all salmon (Appendix B7).

Chinook salmon harvests are concentrated in 2 different set gillnet fisheries in UCI, occurring in the Northern District and the Upper Subdistrict of the Central District. The age of Chinook salmon harvested in UCI are primarily of the 1.4, 1.3, and 1.2 age classes (Appendix A15). The recent pattern of below-average Chinook salmon harvests resulted from a lower abundance of this species throughout Cook Inlet, which has resulted in restrictions and closures placed upon commercial fisheries for the conservation of this species originating from the Kenai River and Susitna River drainages.

Northern District

In the Northern District, the directed Chinook salmon set gillnet fishery was closed for the entire 2019 season to reduce the harvest of Northern Cook Inlet Chinook salmon (Table 2). The estimated harvest of Chinook salmon in the subsequent Northern District salmon fishery was 202 fish, which was 87% less than the 2009–2018 average annual Chinook salmon harvest of 1,602 fish for the entire season (Appendix B1).

The *Northern District King Salmon Management Plan* (5 AAC 21.366) was created by the BOF in 1986 and was most recently modified in 2011. This plan provides direction to ADF&G regarding the management of the Northern District for the commercial harvest of Chinook salmon. The fishing season opens on the first Monday on or after May 25 and is limited to one 12-hour fishing period per week every Monday through June 24. The most productive waters for harvesting Chinook salmon, which occur from 1 mile south of the Theodore River to the mouth of the Susitna River, are open to fishing only 1 day per year, on the second regulatory Monday period. However, if the Theodore, Ivan, or Lewis Rivers are closed to sport fishing, the area from 1 mile south of the Theodore River to the Susitna River will be closed to commercial fishing. The plan further specifies that if the Chuitna River is closed to sport fishing, commercial fishing shall close for the remainder of the directed Chinook salmon fishery in that portion of the Northern District from a point at the wood chip dock (located approximately 2 miles south of Tyonek) to the Susitna River. Finally, if the Deshka River is closed to sport fishing, the Chinook salmon commercial fishery in the entire Northern District will close for all fishing periods provided for under this plan.

The management plan further stipulates that each permit holder can fish only one 35-fathom set gillnet, with a minimum separation of 1,200 feet between nets, which was twice the normal separation between nets in other UCI setnet fisheries. The commercial fishery is also limited to an annual harvest not to exceed 12,500 Chinook salmon.

At the 2011 BOF meeting, Chuitna River Chinook salmon were designated as a stock of management concern, which resulted in the closure of the sport fishery on this river beginning with the 2011 season. In compliance with the *Northern District King Salmon Management Plan* and continued low Chinook salmon abundance, the Northern District set gillnet fishery has remained closed from the wood chip dock to the Susitna River since 2011. Beginning in 2012, ADF&G began taking even more restrictive actions by reducing some 12-hour commercial fishing

periods to 6-hour periods. From 2013 to 2015, the first fishing period of the year was also closed. All of these actions were taken in response to below-average Chinook salmon runs throughout NCI. Because Chinook salmon escapements had improved modestly in some NCI watersheds in recent years, sport fish restrictions had been relaxed in the Susitna River drainage. However, abundance levels again declined in 2018, which resulted in further restrictions to sport fisheries and complete closure of the Northern District directed-Chinook salmon setnet fishery.

The majority of the NCI Chinook salmon escapement is monitored inseason through a weir on the Deshka River. The SEG for this system is 13,000–28,000 Chinook salmon. At the 2017 BOF meeting, a new Chinook salmon SEG of 2,100–4,300 fish in the Little Susitna River was adopted. The 2019 preseason run forecast for Deshka River Chinook salmon was approximately 8,446 age 1.2–1.4 fish[3]. Based on this forecast, the 2019 run to the Deshka River would not be large enough to achieve the SEG, even with no harvest. Thus, the Deshka River Chinook salmon sport fishery and Northern District commercial set gillnet fishery were closed for the 2019 season. The preseason outlook for all other NCI Chinook salmon stocks in 2019 was also well below average. The estimated final 2019 escapement of Chinook salmon in the Deshka River was 9,711 fish, which was an improvement from 2018 but below the lower end of the SEG. The Little Susitna River weir count in 2019 was 3,666 Chinook salmon, which was within the escapement goal range and resulted in sport fishery restrictions being removed in this river late in the season.

Upper Subdistrict (ESSN)

Following the 2012 season, a new SEG of 15,000–30,000 late-run Kenai River Chinook salmon was recommended by ADF&G (Fleischman and McKinley 2013), to be counted using Dual Frequency Identification Sonar (DIDSON). To better assess early and late-run Chinook salmon abundance on the Kenai River, ADF&G transitioned from the sonar site at river mile (RM) 9 to a new site upstream at RM 14 beginning in 2013. During the 2013 season, 5 abundance indices were used to corroborate the DIDSON estimates of Chinook salmon passage (Eskelin and Miller 2010). At the 2014 BOF meeting, the Kenai River late-run Chinook salmon SEG was reviewed, but no changes were made. However, the BOF did implement numerous changes to the *Kenai River Late-Run King Salmon Management Plan* (KRLKSMP) in 2014 (Shields and Dupuis 2015). Furthermore, at the 2017 BOF meeting, a substantial change in management of Kenai River's late-run Chinook salmon was adopted. The late-run Chinook salmon SEG was changed to 13,500–27,000 large (>75 cm mid-eye to tail fork [METF]) fish and counted using Adaptive Resolution Imaging Sonar (ARIS) units.

The 2019 preseason forecast for Kenai River late-run Chinook salmon was for a total run of approximately 21,750 large fish[4]. Based on the average harvest rates of large fish in both commercial and sport fisheries, if the Chinook salmon run returned at forecasted levels, the new large fish SEG (13,500–27,000 Chinook salmon) could be achieved. However, due to the below-average forecast and recent lackluster Chinook salmon abundances throughout UCI, the Kenai River sport fishery was restricted to no bait beginning July 1. This restriction remained in place for all of July. Following the management plan, the no-bait restriction in the sport fishery resulted in paired restrictive actions in the ESSN fishery (excluding the East Foreland Section). For the ESSN fishery, a maximum of 48 hours of fishing time per week throughout July was allowed, including a 36-hour Friday no-fishing window. All fishing time was granted by EO only, and

[3] http://www.adfg.alaska.gov/static-sf/fishing_reports/PDFs/2019_deshka_outlook.pdf
[4] http://www.adfg.alaska.gov/static/fishing/pdfs/sport/byarea/southcentral/2019KenaiLateRunOutlook.pdf

regulatory Monday/Thursday fishing periods were eliminated. Optional provisions for gear restrictions that reduced the legal net mesh depth (45 meshes) allowed a full complement of shallow (29 mesh depth) gear, or both, and were implemented throughout July. Using mean run timing and projected sport fishery mortality of 931 large fish, the projected final escapement of Kenai River late-run Chinook salmon was approximately 11,671 large fish (Robert Begich, Division of Sport Fish Biologist, ADF&G, Soldotna; personal communication), which was below the minimum SEG of 13,500 fish. The total run of large Chinook salmon was estimated to be 14,020 fish, which was 36% less than the preseason forecast.

Approximately 71% of the UCI Chinook salmon commercial harvest in 2019 occurred in the ESSN fishery (Appendix B1). The 2019 ESSN estimated harvest of 2,245 Chinook salmon of all sizes and stocks was 53% less than the 2009–2018 average annual harvest and was approximately 76% less than the 1966–2018 average annual harvest of 9,141 fish. In 2019, the peak daily harvest of 411 Chinook salmon of all stocks and all sizes occurred on July 18, and the peak harvest week was from July 15 to July 21. The average daily harvest of Chinook salmon in the ESSN fishery of all stocks and sizes was 125 fish (range 4 to 411), and the daily average percentage of the total harvest of all stocks per day equaled 6% (range 0.18% to 18%; Appendix A3). Based on commercial catch sampling, an estimated 613 (27%) of the 2,245 total Chinook salmon harvested in the ESSN fishery were large Kenai River mainstem (late run) stock (Tony Eskelin ADF&G Sport Fish Research Biologist, Soldotna Alaska; personal communication). Applying 27% to daily harvests, the 2019 estimated daily harvest of large Chinook salmon of the Kenai River mainstem stock in the 2019 ESSN fishery ranged from 1 to 112 fish.

SOCKEYE SALMON

Management of the UCI sockeye salmon fishery integrates information from various programs, which together provide an inseason model of the annual run. These programs include the following: an offshore test fishery (OTF) that creates an index of run strength and timing of sockeye salmon entering UCI; passage and escapement counts by sonar, weir, remote camera, and various mark–recapture studies; comparative analyses of historical commercial harvest and effort levels; genetic stock identification (GSI); and age composition studies (Shields and Dupuis 2015). Inseason analyses of the age composition of sockeye salmon escapement into the principal watersheds of UCI provide information necessary to estimate the stock contribution in various commercial fisheries by comparing age and size data in the escapement with that in the commercial harvest (Tobias and Tarbox 1999). In 2005, a comprehensive sampling program was initiated to estimate the stock composition of sockeye salmon harvested in UCI commercial fisheries using improved GSI analyses. Publications of GSI data describing the UCI sockeye salmon catch allocation are available for 2005–2018 (Barclay 2019).

The OTF assessments in UCI have been conducted since 1979 (Waltemyer 1983). Beginning in 2016, the State of Alaska research vessel R/V *Solstice* has conducted the daily fishing operations of the UCI OTF project (Dupuis et al. 2016). Since 1992, 6 fixed stations have been fished along a transect across southern Cook Inlet from Anchor Point to the Red River delta (Frothingham and Willette 2018). Data from the 2019 OTF program was used to provide an inseason estimate of sockeye salmon run strength by determining the passage rate, which is an estimate of the number of sockeye salmon that enter the district per index point or catch per unit of effort statistic (CPUE) (Appendix A1). The cumulative CPUE curve was then compared to historical run timing profiles to make an estimate of the final CPUE during the season. This, in turn, provided an inseason

estimate of the total run of sockeye salmon to UCI. Based on these OTF data, the timing of the 2019 sockeye salmon run was estimated to be approximately 2 days late and slightly below forecast (Robert DeCino, Division of Commercial Fisheries Area Research Biologist, ADF&G, Soldotna; personal communication).

Both sonar and weirs are used to estimate the inseason abundance of sockeye salmon. Sonar technology was first employed to quantify sockeye salmon escapement into glacial rivers in UCI in the Kenai and Kasilof Rivers in 1968, then expanded to the Susitna River in 1978, and the Crescent River in 1979. In 2011, ADF&G transitioned from older Bendix sonar systems to DIDSON in Kenai and Kasilof Rivers (Westerman and Willette 2011). The sonar project on the Kasilof River transitioned to ARIS in 2018 (Glick and Faulkner 2019). The sockeye salmon sonar project in the Yentna River ended after the 2009 season when a comprehensive mark–recapture study in the Susitna River drainage verified that sockeye salmon passage estimates in the Yentna River were biased low due to fish wheel selectivity bias (Appendix A12; Yanusz et al. 2007). Based on this information, beginning in 2009, the Yentna River sockeye salmon SEG was replaced with 3 weir-based SEGs at Chelatna and Judd Lakes in the Yentna River drainage and at Larson Lake in the Susitna River drainage (Fair et al. 2009). At the 2017 BOF meeting, these 3 SEGs were modified (Erickson et al. 2017) after incorporating 7 years of additional escapement data using a new 3-tier percentile approach (Clark et al. 2014). The new SEGs are 20,000–45,000 fish at Chelatna Lake, 15,000–40,000 at Judd Lake, and 15,000–35,000 at Larson Lake. Age composition data of adult sockeye salmon returning to these lakes were also collected at the weir sites (Appendix A13). A sonar project on the Crescent River, operational since 1979, was discontinued in 2013 due to a lack of funding.

In addition to the weirs in the Susitna River drainage, an adult salmon weir was operated by the Division of Sport Fish at Fish Creek (Knik Arm) and provided daily sockeye salmon escapement counts. Historically, a counting weir has also been employed at the outlet of Packers Lake (on Kalgin Island), but when Cook Inlet Aquaculture Association (CIAA) terminated stocking activities at the lake, they no longer staffed the weir. To monitor sockeye salmon escapement into Packers Lake, ADF&G installed a remote video camera system (Appendix B10; Shields and Dupuis 2012) from 2005 to 2006 and 2009 through 2019. However, in 2006, an electronic malfunction did not allow for a complete index of the escapement. From 2010 to 2013 and 2016–2019, technical difficulties prevented retrieval of some data, but minimum counts were obtained. A complete count of the escapement into Packers Lake was obtained in 2014 and 2015 (Shields and Frothingham 2018).

In 2019, approximately 6.0 million sockeye salmon were forecast to return to UCI (Table 3). The actual 2019 run estimate totaled 5.5 million fish, which was 13% less than the preseason forecast. Estimates of the 2019 personal use and sport sockeye salmon harvests were made by comparing previous years' catches from similar size runs. Of the expected run of 6.0 million sockeye salmon, approximately 2.0 million fish were expected to escape all fisheries, leaving 4.0 million sockeye salmon available for harvest to all users. If sport and personal use harvests in 2019 were similar in proportion to previous runs of this size, the commercial catch in 2019 was projected to be approximately 3.0 million sockeye salmon. The actual 2019 commercial sockeye salmon harvest of 1.7 million fish (Appendices A4, B2, and B14) was well below preseason expectations. Drift gillnet fishery participants accounted for approximately 44% of the 2019 commercial sockeye salmon harvest or 749,101 fish and set gillnet fishery participants caught 56% of the commercial harvest, or 971,174 sockeye salmon (Appendix B2). The 2019 run was apportioned to individual

river systems inseason using a weighted age composition catch allocation method (Tobias and Tarbox 1999). GSI samples were collected from the 2019 commercial for later analysis. The last reported commercial delivery of sockeye salmon in any area of UCI in 2019 was September 19.

Big River

The first commercial salmon fishery to open in UCI in 2019 was the Big River fishery, which is managed under the *Big River Sockeye Salmon Management Plan* (5 AAC 21.368). This plan was adopted in 1989 and allowed a small set gillnet fishery in the northwest corner of the Central District (Big River Statistical Area 244-55; Figure 3). At the 2005 BOF meeting, the plan was modified to expand the area open to fishing to include the waters along the western and northern sides of Kalgin Island (Statistical Area 246-10; Figure 3). Between June 1 and June 24, fishing is allowed each Monday, Wednesday, and Friday from 7:00 AM to 7:00 PM. Permit holders are limited to a single 35-fathom set gillnet, and the minimum distance between nets is 1,800 feet, which is 3 times the normal separation of gear. Although primarily harvesting an early run of sockeye salmon returning to Big River, this fishery also harvests Chinook salmon migrating through the area. The management plan limits the harvest of Chinook salmon to no more than 1,000 fish per year. Since 2005, when the management plan was changed, the average annual Chinook salmon harvest has been 450 fish, which is well below the 1,000-fish cap. Since 2005, the average annual sockeye salmon harvest has been 15,254 fish. The 2019 fishery began on Monday, June 3, and harvests were reported from 10 different days, yielding a total harvest of 8,491 sockeye and 422 Chinook salmon (Appendices A3 and A4). Of the total 2019 harvest, 52% of the Chinook and 80% of the sockeye salmon were caught in the Kalgin Island west side waters. There were 15 permit holders participating in the fishery on its peak day of June 5, which was less than half the historical highest peak number of participating permit holders for this fishery.

Western Subdistrict

The second commercial fishery to open in 2019 was the set gillnet fishery in the Western Subdistrict of the Central District. This fishery opens on the first Monday or Thursday on or after June 16, and the regulatory fishing schedule consists of two 12-hour weekly fishing periods (Mondays and Thursdays) throughout the season unless modified by EO. The fishery primarily harvests sockeye salmon bound for Crescent Lake.

The Crescent River sockeye salmon sonar project has not been in operation since 2012. When it was operational, the set gillnet fishery in this area was often expanded to fishing 24 hours per day, 7 days per week in an attempt to keep escapement into Crescent Lake from exceeding the escapement goal range of 30,000–70,000 fish. In 2019, the Western Subdistrict set gillnet fishery opened for the season on Monday, June 17, and remained open for regulatory Monday and Thursday fishing periods through Thursday, July 5. An examination of sockeye salmon harvest near the Crescent River was similar to harvest in years when escapements fell within or exceeded the escapement goal range. Therefore, EO No. 9 (Appendix A10) was issued on July 9, opening that portion of the Western Subdistrict south of the latitude of Redoubt Point from 6:00 AM until 10:00 PM on Monday, Thursday, and Saturday, beginning on Thursday, July 11. This fishing schedule remained in place until EO No. 26 was issued on August 9, returning the fishery to the regulatory schedule of 2 fishing periods per week beginning Monday, August 12. In 2019, approximately 58,389 sockeye salmon were harvested by 20 permit holders fishing in the Western Subdistrict set gillnet fishery, which was 33% greater than the 2009–2018 average annual harvest of approximately 44,000 fish (Appendix A8).

Northern District

The set gillnet fishery in the Northern District opens by regulation on or after June 25 for regulatory Monday and Thursday 12-hour periods. This fishery is managed primarily by 5 AAC 21.358, the *Northern District Salmon Management Plan* (NDSMP), and the *Susitna River Sockeye Salmon Action Plan* (SSSAP). These plans intend to allow a mixed-stock commercial fishery while minimizing the harvest of NCI coho salmon and conserving Susitna River sockeye salmon.

At the 2008 BOF meeting, Susitna River sockeye salmon were designated as a stock of yield concern. No change was made to this assessment during the 2011 UCI BOF meeting. At the 2013 BOF work session, ADF&G recommended Susitna River sockeye salmon remain classified as a stock of yield concern because 1) 5 of the lake escapement goals (out of 15 total)[5] were consistently below the minimum goal, and 2) harvests in Central and Northern Districts from 2008 through 2013 were generally less than long-term averages. According to the *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222), a stock of yield concern is defined as "a concern arising from a chronic inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs; a yield concern is less severe than a management concern, which is less severe than a conservation concern." As a result of this finding, an action plan was developed by ADF&G and the BOF to identify conservative management measures in both the sport and commercial fisheries harvesting Susitna River sockeye salmon stocks.

In 2019, management of the Northern District set gillnet fishery was guided by provisions within the NDSMP and the SSSAP. These plans allowed ADF&G to reduce the total allowable gear in the Northern District from July 20 through August 6 to aid in achieving the escapement goals at Judd, Chelatna, and Larson Lakes. EO No. 15 (Appendix A10) was issued on July 21, reducing legal gear in the General Subdistrict of the Northern District to 1 set gillnet per permit, and gear was reduced in the Eastern Subdistrict to no more than 2 set gillnets per permit. On July 31, EO No. 21 was released, which modified EO No. 15 and changed legal gear for that portion of the General Subdistrict of the Northern District, south of the Susitna River, and all of the Eastern Subdistrict to no more than 2 set gillnets per permit. That portion of the General Subdistrict east of the Susitna River remained limited to no more than 1 set gillnet per permit. On Tuesday, August 6, gear restrictions imposed by the NDSMP and the SSSAP expired, and a full complement of gear became legal for the remainder of the season. In 2019, approximately 73,220 sockeye salmon were harvested by 75 permit holders in the Northern District set gillnet fishery (Appendices A4, A8, and B2). This harvest was approximately 77% greater than the 2009–2018 average annual harvest of 41,254 fish and the highest sockeye salmon harvest in the Northern District since 1997 (Appendix B2). Decreased fishing hours in the Central District drift gillnet fishery probably increased sockeye salmon abundance and harvest in the Northern District. However, decreased fishing in the Central District can also increase the escapement of sockeye salmon into the Kenai and Kasilof Rivers, where escapement objectives were exceeded in both rivers in 2019.

ESSN and Central District Drift Gillnet

At the 2014 BOF meeting, numerous changes to the management of the ESSN fishery during years of low Kenai River Chinook salmon abundance were adopted, which can have a significant effect on sockeye salmon harvest (Shields and Dupuis 2017). Management of this fishery is guided by

[5] https://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2013-2014/worksession/rc8_worksession_2013.pdf

5 AAC 21.365, the *Kasilof River Salmon Management Plan* (KRSMP); 5 AAC 21.360, the *Kenai River Late-Run Sockeye Salmon Management Plan* (KRLSSMP); and 5 AAC 21.359, the KRLKSMP. In addition, the BOF also made substantive changes to 5 AAC 21.353, the *Central District Drift Gillnet Fishery Management Plan* (CDDGFMP), in an attempt to pass more coho salmon to streams in NCI, resulting in less fishing time for the drift fleet in areas where the largest harvests of sockeye salmon have historically taken place.

Within the KRSMP and KRLSSMP, there are 2 principal restrictions to the ESSN fishery that must be met each management week: (1) a limit on the number of additional hours fished beyond the 2 regulatory 12-hour fishing periods, and (2) implementation of weekly closed fishing periods (or "windows"). By regulation, a week is defined as beginning at 12:01 AM Sunday and ending at 12:00 midnight the following Saturday (5 AAC 21.360 (i)). Weekly hour limitations vary according to the time of year and the size of the sockeye salmon run returning to the Kenai River. Restrictions to these fisheries must be balanced with meeting escapement goals, as provided for in 5 AAC 21.363, the *Upper Cook Inlet Salmon Management Plan* (UCISMP), which states that although in most circumstances ADF&G should adhere to the management plans in the chapter, no provision within a specific management plan was intended to limit the commissioner's use of EO authority, under AS 16.06.060, to achieve established escapement goals in the management plans.

The Kasilof Section set gillnet fishery is open from June 25 through August 15. However, if 50,000 sockeye salmon are in the Kasilof River before June 25, the season may begin as early as June 20. The Kenai and East Foreland sections are open from July 8 through August 15. Beginning July 8, the Kasilof Section is managed in concert with the Kenai and East Foreland sections per the KRLSSMP. Drift gillnet fishing in the Central District of UCI opens on the third Monday in June, or June 19, whichever is later.

The drift gillnet fishery opened by regulation for the 2019 season on Thursday, June 20 (Figure 4; Appendix A11). Only 1 regulatory fishing period was available June 16–22, producing a harvest of 1,961 sockeye salmon (Appendix A4); no Eos were issued for additional fishing time. The CPUE for the June 20 opener was 26 fish per permit and well below average. Sockeye salmon abundance in the Kasilof River did not approach 50,000 during the week (Appendix A2), so the Kasilof Section set gillnet fishery was not opened early. The sonar count into the Kasilof River was 19,679 fish by the end of the week, whereas the 2009–2018 average cumulative passage for that date was 47,600 fish. On average, 13% of the Kasilof River sockeye salmon sonar passage is complete by the end of this management week.

During the management week of June 23 to 29, the drift gillnet fleet fished the 2 regulatory periods on Monday and Thursday, and the set gillnet fishery was fished on Thursday, June 27, for its opening day of the 2019 season (Figures 3–5; Appendix A11). The Kasilof Section setnet fishery was also open on Saturday, June 29, by EO using 8 hours of the available 48 hours of additional fishing time provided for in the KRSMP (Table 4; Figure 7; Appendices A10 and A11). The drift fleet was not allowed to fish on June 29 over concerns about the potential to harvest Kenai River late-run Chinook salmon. All other fishery openings were 12 hours. The drift fleet caught 2,182 sockeye salmon on Monday and 2,491 fish on Thursday. Set gillnet gear in the Kasilof Section harvested 11,967 sockeye salmon on Thursday and 12,191 on Saturday (Appendix A4). Cumulative sockeye salmon passage into the Kasilof River ended the week at 42,000 fish (Appendix A2); the 2009–2018 average cumulative passage was 83,000 fish, and average run timing was 23% complete. Based on average run timing and the 2019 passage to date, the final

sockeye salmon passage for 2019 was projected to be 186,000 fish, which was within the BEG for the Kasilof River of 160,000–340,000 fish.

During the management week of June 30 to July 6, the provisions of the *Kenai River Late Run King Salmon Management Plan* (KRLKSMP) were enacted for the Kasilof Section (Figure 3) of the ESSN fishery. This plan contains provisions for paired restrictions between the ESSN and the Kenai River sport fisheries if Kenai River late-run Chinook salmon sonar counts of large fish project that the SEG will not be met. The Kenai River late-run Chinook salmon sport fishery started July 1 without bait (EO 2-KS-1-23-19), and as a paired restriction, the ESSN fishery was restricted to no more than 48 hours of fishing time by EO per week, including optional setnet gear restrictions. The gear reduction option restricted setnet gear to only 70 fathoms (in length) of nets per permit with a maximum limit of 45 meshes in depth or to a full-length complement of gear (105 fathoms) per permit, but with a maximum depth of only 29 meshes deep. The Kasilof Section (Figure 6) set gillnet fishery opened with gear restrictions on Monday, July 1, for 12 hours, and Thursday, July 4, for 14 hours (Appendices A10 and A11). A total of 26 gear-restricted hours of the available 48 hours were utilized this management week (Table 4; Figure 7) in the Kasilof Section set gillnet fishery. The drift gillnet fishery was also open on Monday and Thursday for 12-hour districtwide fishing periods (Appendix A11; Figure 4). In order to reduce the harvest of Kenai and Kasilof Rivers sockeye salmon, the drift gillnet fishery was not extended with time in the Kasilof Section, also termed the "Kasilof corridor"[6] (Figures 4 and 5), in this management week. The Kasilof Section setnet fishery caught 17,862 fish on Monday and 14,911 fish on Thursday (Appendix A4). The drift gillnet fishery caught 7,962 fish on Monday and 12,017 fish on Thursday. At the week's end, the cumulative passage estimate at the Kasilof River sockeye salmon sonar site was 74,000 fish (Appendix A2). The average cumulative count for that date was 118,000 fish, with average run timing at 32% complete. The season-end escapement projection for Kasilof River sockeye salmon, based on July 6 passage, was 229,000 fish and was within the BEG of 160,000–340,000 sockeye salmon. The Kenai River sockeye salmon sonar project began operation on July 1 and counted 46,000 sockeye salmon through July 6. The cumulative count of the Kenai River Chinook salmon sonar was 890 large fish through July 6.

During the management week of July 7 to July 13, the Kenai and East Foreland sections (Figure 3) set gillnet fishery had their opening day for the 2019 season (Appendix A11), which along with the Kasilof Section, meant the entire ESSN fishery was now open. Although the East Foreland Section set gillnet fishery was exempt from the paired restrictive hour and gear provisions found in the KRLKMP, this area was only opened when the full Kenai Section was fished. The entire ESSN fishery was opened on Monday and Thursday for 12-hour fishing periods and was also fished on Saturday, July 13, but only within a half-mile of mean high tide in the Kasilof Section. The set gillnet fishery in the North Kalifornsky Beach (NKB) statistical area was also open on July 13, but only within 600 feet of mean high tide. This management week, 43 hours of the available 48 hours in the ESSN fishery were fished (Table 4; Figure 7).

The drift gillnet fishery was open for both Monday and Thursday regulatory periods, 1 period districtwide (Figures 8 and 9) and 1 in Drift Area 1 (Figure 8), including the expanded Kenai and Kasilof corridors (Figure 4). The Thursday drift period was the first period of 2019 that corresponded to the CDDGFMP provision that required the fishery to be restricted to Drift Area 1 and the regular Kenai and Kasilof corridor areas between July 9 and July 15. The drift fleet was

[6] Corridor is a synonymous term for Section in this context.

also opened on Saturday but was limited to the Kasilof Section, concurrent with the Kasilof and NKB set gillnet opening. During the week, the ESSN fishery harvested 98,199 sockeye salmon, and the drift fleet harvested 75,741 sockeye salmon. The Kasilof River sockeye salmon sonar estimate was 159,261 fish on July 13, projecting a final escapement of 371,825 (Appendix A2), which exceeded the BEG for this system. Kasilof River sockeye salmon run timing was 43% complete, on average, through July 13. The Kenai River sockeye salmon sonar estimate was 162,236 fish through July 13, projecting 1.4 million fish inriver by year's end. This indicated that the inriver goal (goal range) would be exceeded. Kenai River sockeye salmon run timing was 11% complete, on average, through July 13. The Kenai River Chinook salmon assessment was 2,657 large fish, and the average run timing was 17% complete through July 13.

During the management week of July 14 to 20, the ESSN fishery was open on Monday for 14 hours and Thursday for 15 hours with gear restrictions still in place (Appendix A11). This utilized 29 of the available 48 hours (Table 4; Figure 7) of fishing time for the ESSN fishery. The drift gillnet fishery was opened for its 2 regulatory scheduled Monday and Thursday fishing periods in Drift Area 1 and the expanded corridors (Figure 4). No more EO time was provided for either the set gillnet or drift gillnet fisheries this week. Sockeye salmon escapement into the Kasilof River slowed somewhat but projected final escapements at the upper end of the BEG range by July 20. The ESSN fishery harvested 113,863 sockeye salmon, and the drift fleet captured 178,652 sockeye salmon for the week. Sonar estimates through week's end for the Kasilof River was 220,776 sockeye salmon (Appendix A2), with the season final escapement projection at 339,487 fish. On average, this week should have produced peak counts for Kenai River sockeye salmon, but this did not materialize at the sonar. The total sonar estimate in the Kenai River at the end of the management week was 374,146 fish, which projected a year-end inriver passage estimate of 967,000 fish. Kenai River Chinook salmon abundance increased during the week, producing a cumulative sonar passage estimate through July 20 of 5,424 large fish. Average run timing through this date was 32% complete and projected a total late-run escapement estimate of 16,834 large Chinook salmon, which was within the SEG range of 13,500–27,000 large fish.

During the management week of July 21–27, ADF&G commercial fisheries staff finalized the inseason assessment of the sockeye salmon run size to UCI and to the Kenai River. The assessment predicted that the Kenai River sockeye salmon run would be 2–4 days late and would probably result in a run of 2.3 to 4.6 million fish. This assessment meant that the management of the ESSN fishery would continue with the inriver goal of 1.0 million to 1.3 million for Kenai River sockeye salmon. However, continued restrictions against using bait in the Kenai River Chinook salmon sport fishery required that the ESSN fishery be held to a maximum of 48 hours per week by EO. On Sunday, July 21, the Kasilof Section setnet fishery was fished within one-half mile of mean high tide, but the NKB statistical area was opened only within the 600 feet of mean high tide (Appendix A11) for 14 hours. The Salamatof statistical area (244-42; Figure 3) and the East Foreland Section setnet fisheries were not opened on July 21. The entire ESSN fishery was opened for Monday and Thursday fishing periods for 16 and 17 hours, respectively. As such, in total, the ESSN fishery fished 47 of the available 48 hours during this week, with gear restrictions in place (Table 4; Figure 7). The drift gillnet fishery was open in Drift Area 1 and the expanded corridors (Figure 8) on Monday but was restricted to the Expanded Corridors and the Anchor Point Section on Thursday. No extra time beyond the regulatory fishing periods was allowed in the drift gillnet fishery this week. The ESSN fishery harvested 193,243 sockeye salmon, and the drift fleet harvested 185,600 sockeye salmon for the week (Appendix A4). By week's end, the Kasilof River sockeye salmon sonar count reached 292,616 fish, and the average run timing for this stock was

81% complete; the escapement projection was for 361,000 fish, which would exceed the upper end of the BEG. The Kenai River sockeye salmon sonar count at week's end was 873,371 fish, which projected a year-end inriver abundance of 1.4 million fish and would exceed the inriver goal for middle-tier run sizes. The Kenai River peak daily sockeye salmon sonar passage for the season occurred on July 27 at 98,201 fish. The Kenai River large Chinook salmon final escapement projection peaked this week at 17,750 fish on July 22; however, by the end of the week, the Kenai River Chinook salmon cumulative sonar count was at 8,118 fish, average run timing was 50% complete, and the final escapement projection was similar to that of the preceding week at 16,097 large fish.

During the week of July 28 to August 3, management of the ESSN fishery per provisions in the KRLKSMP ended on July 31. ESSN fisheries were open on 6 different days during this management week (Appendix A11); 48 hours of fishing time during 3 different days were used in July, and 39 hours were used during the first 3 days in August (Table 4; Figure 7). Gear restrictions implemented in the ESSN fishery beginning July 1 were rescinded beginning July 28 (EO No. 19; Appendix A10). Of the 6 days during the week that the ESSN fishery was open, 5 days were open in all 6 statistical areas in the ESSN fishery. The drift gillnet fishery was open 5 days this management week. Drift Area 1 and the expanded corridors (Figure 4) were open Monday, July 29, and 4 additional hours were included for the expanded corridors that day. The remaining 4 days of drift gillnet openings were restricted to the expanded corridors and the Anchor Point Section. The ESSN fishery harvested 339,116 sockeye salmon, and the drift fleet harvested 209,363 sockeye salmon (Appendix A4). The Kasilof River sockeye salmon sonar count reached 335,810 fish, the average run timing was 91% complete, and final season escapement was projected at 369,000 sockeye salmon. By week's end, the Kenai River sockeye salmon sonar count had reached 1,260,492 fish, average run timing was 77% complete, and the final inriver projection was for 1.6 million fish. The Kenai River Chinook salmon sonar count was 9,586 large fish, the average run timing was 69% complete, and the escapement projection had fallen to 13,726 large fish, just above the minimum SEG.

The last full management week of the 2019 season was August 4–10; the ESSN fishery was not open due to concerns about Kenai River Chinook salmon, even though sockeye salmon passage in both the Kenai and Kasilof Rivers was above escapement objectives. The drift gillnet fleet was opened 1 day districtwide, and that period was extended for 3 hours into the expanded corridors and Anchor Point Section (Appendix A11; Figure 4). The drift gillnet fleet fished 5 other days this week, but they were restricted to the expanded corridors and the Anchor Point Section only. During the week, the drift fleet harvested 66,640 sockeye salmon (Appendix A4). The Kasilof River sockeye salmon sonar count had reached 373,520 fish at the week's end, and the average run timing was 98% complete, projecting a final escapement of 390,000 fish. The Kenai River sockeye salmon sonar passage estimate was 1,651,396 fish, average run timing was 89% complete, and the year-end inriver run projection was for 1.9 million sockeye salmon, which would exceed the inriver goal by approximately 600,000 fish. The Kenai River Chinook salmon sonar count was 10,753 large fish by week's end, average run timing was 86% complete, and the year-end escapement projection was 11,969 large fish.

The final management week of 2019 for the ESSN and the drift gillnet fisheries in the larger inlet areas was August 11 to 15. Similar to the previous week, concerns for low escapement of Kenai River Chinook salmon kept the ESSN fishery closed. The drift gillnet fleet was open on 3 days (Appendix A11): August 11 in the expanded corridors and the Anchor Point Section, districtwide

on August 12, and Drift Areas 3 and 4 on August 15. By regulation, the drift gillnet fishing period on August 15 is a districtwide opener, but concerns for lagging Little Susitna River coho salmon escapement resulted in the drift restriction to Areas 3 and 4 for this fishing period. After August 15, the CDDGFMP limits the drift fleet to Drift Areas 3 and 4 only. For the shortened management week, the drift fleet harvested 5,102 sockeye salmon (Appendix A4). For the remainder of the season, the drift fleet was restricted during regulatory Monday and Thursday 12-hour fishing periods to Drift Areas 3 and 4 on the west side of UCI, where they harvested 468 sockeye salmon and on Tuesdays and Fridays in Chinitna Bay, where 654 sockeye salmon were harvested.

The 2019 total sockeye salmon harvest for the drift gillnet fleet was approximately 749,000 fish, approximately 43% of the UCI total harvest (Appendix B2). This was the seventh-lowest harvest by the drift gillnet fleet since 1975 and 51% less than the 2009–2018 average of nearly 1.5 million fish. The ESSN fishery total sockeye salmon harvest was approximately 784,000 fish or 46% of the UCI total harvest of sockeye salmon. This harvest was about 15% less than the 2009–2018 average of 921,000 fish.

In 2019, sockeye salmon passage was monitored in the Kasilof River through August 12, producing a final estimate of 378,416 fish (Appendix A2), more than 38,000 fish above the upper end of the BEG range. In the previous 10 years, only 4 years were higher than this value, and 6 were lower (Appendix B10). The Kenai River sockeye salmon sonar project was operational through August 19, producing a final passage estimate of 1,849,054 fish, which exceeded the inriver goal of 1,000,000 to 1,300,000 fish by nearly 550,000 fish. Once sport fishing harvest above the sonar is subtracted, the SEG of 700,000–1,200,000 fish was probably exceeded as well.

The midpoint of the 2019 sockeye salmon run measured at the Anchor Point OTF transect occurred on July 18, which was 2 days later than the historical average date of July 16. The cumulative sockeye salmon catch from the 2019 OTF (Appendix A1) was the fourth lowest since 1992, and the cumulative OTF CPUE was fifth-lowest since 1992. At the Kasilof River sonar site, 50% of the 2019 sockeye salmon passage was reached on July 17 (Appendix A2), which was 1 day later than the 2009–2018 average date of July 16. In the Kenai River, 50% of the total 2019 sockeye salmon count had passed the sonar on July 28, which was 4 days later than the 2009–2018 average 50% date of July 24.

Kalgin Island Subdistrict

The total sockeye salmon harvest in the Kalgin Island Subdistrict in 2019 was estimated to be 51,585 fish (Appendix A4). Approximately 6,750 fish, or 13% of the season total, was harvested on the west side of the island (Statistical Area 246-10) during the Big River sockeye salmon fishery, which occurs from June 1 to June 24 (Figure 3; Appendix A4). In 2019, a remote video system was once again used to estimate sockeye salmon escapement into Packers Lake. The video recording system operated from June 15 through mid-August. Based on escapement through August 10, the escapement goal of 15,000–30,000 fish was projected to be met. As specified in 5 AAC 21.370, the *Packers Lake Sockeye Salmon Management Plan*, an extra fishing period was added on August 10 in the Kalgin Island Subdistrict. Final escapement numbers were undetermined due to equipment failure on August 13.

COHO SALMON

The 2019 UCI commercial coho salmon harvest of 164,000 fish was approximately 12% less than the 2009–2018 average annual harvest of approximately 186,000 fish and was 43% less than the 1966–2018 average annual harvest of 288,000 coho salmon (Appendix B3).

The largest harvest of UCI coho salmon occurred in the UCI drift gillnet fishery, where 88,618 fish were harvested (Appendix A5). The 2019 harvest was 19% below the 2009–2018 average annual harvest of 109,000 fish and 39% fewer than the 1966–2018 average annual harvest of 145,000 fish. However, the Northern District set gillnet harvest of 52,000 coho salmon was the second-largest harvest since 2000 (Appendix B3) and was approximately 41% more than the 37,000 fish 2009–2018 average annual harvest. The increase in Northern District setnet coho salmon harvest may be due to less overall fishing time in the drift gillnet fishery, including less time in the expanded corridors, and not a reflection of the strength of the coho salmon run to UCI. Further indications of an average to below-average run were detected in the OTF catches, where the coho salmon CPUE of 287 was the lowest observed since 2015.

Coho salmon run assessments produced variable results in UCI in 2019. Estimates of coho salmon escapement at the Fish Creek weir occurred July 16–September 22 and produced a final estimate of 3,158 fish, which was within the SEG of 1,200–4,400 fish[7]. During the 2019 season, the sport fishing bag and possession limit for Fish Creek coho salmon was not increased. However, sport fishing was allowed 7 days per week, from 5:00 AM to 10:00 PM at the Deshka River, where a total of 10,445 fish were counted through the weir by September 8, meeting the SEG of 10,200–24,100 fish[7]. Coho salmon escapement was counted at the Little Susitna weir from July 7 through September 3. Due to the combination of very warm weather and low river conditions, fish passage was slow. After much-needed rain and cooler temperatures from August 4 to August 9, nearly a third of the total coho salmon passage occurred in the Little Susitna. On August 12, the Division of Sport Fish released EO No. 2-SS-2-48-19 prohibiting the use of bait on the Little Susitna River. On August 19, commercial fishing was reduced in that portion of the General Subdistrict of the Northern District east of the Susitna River, including Fire Island, by 6 hours in an attempt to reduce the harvest of coho salmon returning to the Little Susitna River (Appendix A10). Beginning on August 22, this area was subsequently closed for the remainder of the 2019 season to conserve Little Susitna River coho salmon (EO No. 35). The last push of 253 coho salmon on September 2 was still not enough to meet the minimum SEG (10,100–17,700), and the final coho salmon count in the Little Susitna River was 4,226 fish. Finally, the postseason foot survey at Jim Creek of 162 fish fell below the SEG of 450–700 fish for this system.[7]

Chinitna Bay was opened to drift gillnet fishing on Tuesdays and Fridays, beginning on Friday, August 16 (Appendices A10 and A11). The estimated coho salmon harvest by drift gillnets in Chinitna Bay was approximately 4,745 fish (Appendix A5).

Based on an estimated average price of $0.74 per pound paid for coho salmon (Appendix B11), the exvessel value of coho salmon from the 2019 UCI commercial fishery was $685,000, or 4% of the total exvessel value (Appendix B7). Typically, the price paid for coho salmon in August and September is higher than July prices.

[7] http://www.adfg.alaska.gov/static-sf/fishing_reports/PDFs/2019CookInletSummary.pdf

PINK SALMON

Pink salmon runs in UCI are even-year dominant, with odd-year harvests averaging 85% less than even-year harvests. The 2019 UCI commercial pink salmon harvest of 70,741 fish was 16% lower than the average annual harvest of nearly 84,573 fish from the 2009–2018 odd-year average harvests. Based on an average weight of 3.07 pounds per fish (Appendix B12) and an average price of $0.21 a pound (Appendix B11), the estimated exvessel value for the 2019 pink salmon harvest was $45,700, or 0.2% of the total exvessel value (Appendix B7). Most pink salmon were harvested by the ESSN fishery in 2019 (Appendix A6).

CHUM SALMON

A total of 129,176 chum salmon were harvested by UCI commercial fishery participants in 2019, which was 25% less than the 2009–2018 average annual harvest of 172,500 fish (Appendix B5). The drift gillnet fleet harvested most of the chum salmon in 2019 and has averaged 93% of the total chum salmon harvest in the past 10 years (Appendices A7 and B5). An aerial survey of Chinitna River/Clearwater Creek was conducted on August 13, 2019, and produced an estimate of approximately 9,600 chum salmon (Glenn Hollowell, Division of Commercial Fisheries Area Management Biologist, ADF&G, Homer; personal communication), which was approximately 1,600 fish above the SEG of 3,500–8,000 fish. Therefore, Chinitna Bay opened to set and drift gillnet fishing on Tuesdays and Fridays beginning on August 16. The 2019 exvessel value for chum salmon was $321,909, or 1.8% of the overall exvessel value of the 2019 fishery (Appendix B7). The average price paid for chum salmon in 2019 was estimated to be $0.37 per pound (Appendix B11), which was about $0.24 a pound less the 2009–2018 average price.

PRICE, AVERAGE WEIGHT, AND PARTICIPATION

The estimated price per pound paid to UCI commercial fishery participants for their overall harvest in 2019 was higher than the 2009–2018 average for all species (Appendix B11). However, except for Chinook salmon, the price per pound paid for all species in 2019 was lower than what fishery participants received in 2018. The estimated $1.80 per pound for sockeye salmon was $0.24 less than the $2.04 a pound paid in 2018 and $0.06 more than the 2009–2018 average annual price of $1.74. Calculating the average price for what fishery participants receive for their harvest is difficult (Shields and Dupuis 2013). Average prices reported here are generated from inseason grounds prices and do not reflect any postseason adjustments. Harvest statistics showed that salmon size was variable in 2019 (Appendix A14). The weights of salmon in the 2019 Upper Subdistrict commercial harvest showed a 16.0-pound average weight of Chinook salmon (Figure 10), which was higher than the 2018 average weight of 13.9 pounds but still smaller than the 2009–2018 average weight of 17.7 pounds. The sockeye salmon average weight was 5.5 pounds, which was higher than the 2018 average weight of 5.2 pounds, the lowest yearly average ever recorded (Appendix B12), but less than the 2009–2018 average of 6.0 pounds. The average size of 5.6 pounds for coho salmon was the lowest recorded weight on record and was 0.6 pounds smaller than the 2009–2018 average. The average pink salmon size of 3.1 pounds was approximately 0.5 pounds smaller than the 2009–2018 average. Chum salmon weighed approximately 1.6 pounds less than chum salmon harvested in 2018 and 0.8 pounds less than the 2009–2018 average.

The Commercial Fisheries Entry Commission (CFEC) reported that 567 active drift gillnet permits were issued in 2019, of which 418 (74%) were issued to Alaska residents (Appendix B13). In the

setnet fishery, CFEC reported that 733 permits were issued, with 616 (84%) issued to Alaskan residents. In 2019, 422 drift gillnet permit holders and 499 set gillnet permit holders reported harvest in UCI (Appendix A8).

Out of a total of 17 registered shore-based processors, 13 major fish processors (Appendix A16) purchased UCI fish in 2019, as well as 15 direct marketing vessels, 1 catcher–exporter, 2 buyer-exporters, and 41 catcher–sellers. A catcher–seller is defined in 5 AAC 39.130(k) as a "commercial fisherman who sells or attempts to sell unprocessed fish that were legally harvested by the catcher–seller." These fish may be sold (1) to the general public for use for noncommercial purposes; (2) for use as bait for commercial or noncommercial purposes; (3) to restaurants, grocery stores, and established fish markets; or (4) by shipping the fish to a licensed buyer, processor, or exporter within the state.

Direct marketing means selling a product directly to a user at a higher point on the distribution chain than the primary processor (http://www.adfg.alaska.gov/index.cfm?adfg=fishlicense.marketers).

SALMON ENHANCEMENT

Salmon enhancement through hatchery stocking has been a part of UCI salmon production since the early 1970s. Currently, there is a single private hatchery fully operational in UCI, the Trail Lakes facility operated by CIAA. The Trail Lakes hatchery is located in the upper Kenai River drainage near Moose Pass. This hatchery was initially built and operated by ADF&G's Fisheries Rehabilitation, Enhancement, and Development (FRED) Division but was subsequently leased to CIAA in 1990 because State of Alaska operating budgets declined. The Trail Lakes hatchery primarily produces sockeye salmon, but minor production of coho and Chinook salmon also occurs. Most of the production from this facility benefits fishery participants in the Lower Cook Inlet management area.

From 1975 to 2008, a sockeye salmon enhancement project was conducted at Big Lake, located in the Matanuska-Susitna Valley, approximately 15 miles west of Wasilla. ADF&G directed the stocking program from 1975 through 1992; beginning in 1993, CIAA took over the program and was responsible for gamete collection, incubation, and release activities. As a result of poor fry survival in Big Lake, CIAA ceased salmon enhancement activities after the 2008 season. Because the fry and smolt stocking program was terminated, CIAA also ceased the smolt enumeration project at Fish Creek, the stream that drains Big Lake. After CIAA terminated involvement in the emigrating smolt enumeration project, ADF&G secured funding to operate the project from 2011 to 2015. Unfortunately, the Big Lake sockeye salmon smolt project was discontinued in 2016 due to budget shortfalls (Table 5). CIAA conducts other activities that benefit wild salmon production in Upper Cook Inlet, such as trapping and netting of northern pike *Esox lucius*, removal of beaver dams, installation and monitoring of flow control structures, and other seasonal barrier modifications.

The only lake in UCI currently stocked with sockeye salmon is Hidden Lake, located on the Kenai Peninsula. Production from this enhancement program contributes to UCI commercial, personal use, educational, and recreational fisheries. From May 17 to June 24, 2019, CIAA counted approximately 379,164 sockeye salmon smolt emigrating from Hidden Lake. The estimated hatchery composition was unavailable at the time of this publication. Adult salmon are also sampled and examined for hatchery otolith marks when they swim through the weir at Hidden Creek. In 2019, CIAA counted approximately 5,837 adult sockeye salmon returning to Hidden

Lake. However, the returning adult sockeye estimate to Hidden Lake was incomplete because the weir was evacuated on August 17 due to the Swan Lake wildfire.

STOCK STATUS

Overall, the status of UCI monitored salmon stocks is positive. However, some stocks warrant additional management review, including Susitna River sockeye salmon and 7 NCI Chinook salmon stocks.

SOCKEYE SALMON

Susitna River

From 1976 to 2008, the Susitna River sockeye salmon total annual run estimates ranged from 147,000 to 773,000 fish (Fair et al. 2009). Declining sockeye salmon runs to the Susitna River drainage (Shields 2007) led the BOF to designate this as a stock of yield concern in 2008. As a result of this classification, an action plan was developed by ADF&G and BOF to implement restrictive management measures in those fisheries harvesting Susitna River sockeye salmon stocks. These measures included time and area restrictions to the Central District drift gillnet fleet and gear reduction in the Northern District set gillnet fishery. These restrictive measures have now been codified in both the CDDGFMP and the NDSMP.

Several factors or activities other than harvest have been identified to have potential adverse effects on the production of salmonids in the Matanuska-Susitna (Mat-Su) basin. These effects can be characterized in 2 different categories: natural and anthropogenic. Natural threats include natural loss or alteration of wetland and riparian habitats and changes to water quality and quantity. Anthropogenic effects include urbanization that increases loss or alteration of wetlands and riparian habitats and decreases water quantity and quality; culverts that block or impair fish passage; all-terrain vehicle effects to spawning habitats, stream channels, wetlands and riparian habitats; and introduction of invasive northern pike.

As a result of undercounting bias at the Yentna River sockeye salmon sonar site (Shields and Dupuis 2013), ADF&G initiated an out-of-cycle Susitna River sockeye salmon escapement goal review in late 2008 (Fair et al. 2009). This analysis concluded that the existing method used to assess the escapement goal for the Susitna River drainage was inaccurate. The report from these analyses recommended that the Yentna River sockeye salmon SEG be eliminated and replaced with SEGs at 3 of the most productive lakes in the watershed: Chelatna, Judd, and Larson Lakes. Beginning in 2009, Susitna River sockeye salmon abundance was assessed at weirs on these 3 systems. In 2017, the SEGs at these 3 lakes were re-evaluated using 7 additional years of escapement data and an updated goal-setting methodology (Clark et al. 2014). This analysis produced modified SEGs of 20,000–45,000 fish at Chelatna Lake, 15,000–40,000 fish at Judd Lake, and 15,000–35,000 fish at Larson Lake (Table 1). In the past 5 years of enumeration at these 3 lakes (15 lake-years combined), the SEGs have been achieved or exceeded 12 times (Appendix B10).

The 2019 sockeye salmon run to the Susitna River was an estimated 263,600 fish using the escapement and the mean harvest rate estimated from the genetic stock composition of the commercial harvest in 2007–2010 (Table 6). The 2019 run was about 23% less than the preseason forecast (Table 3). At Chelatna Lake, the SEG of 20,000–45,000 was met, and 26,303 fish were counted past the weir (Table 1). The SEG was exceeded at Judd Lake, and 44,145 fish were

counted (SEG: 15,000–40,000), but escapement fell below the SEG (15,000–35,000) at Larson Lake, where the final weir estimate was 9,699 fish. Sockeye salmon escapement into Larson Lake in 2019 was affected most of the summer by extraordinarily high water temperatures resulting in a few thousand fish found dead in Larson Creek below the weir.

In summary, Susitna River sockeye salmon stocks warrant continued close monitoring. Within the Susitna River drainage, sockeye salmon production from Judd, Chelatna, and Larson Lakes appears stable, but other lakes in the drainage are producing at levels below historical averages (Marston and Frothingham 2019). In the fall of 2019, ADF&G presented the BOF with a 2019 UCI Stock of Concern Memo[8] suggesting that Susitna River sockeye salmon could be removed from the stock of concern status, based in part on data showing that current production is linked to invasive northern pike predation. The BOF is scheduled to review this matter at the 2020 UCI finfish meeting.

PINK SALMON

Pink salmon runs in UCI are even-year dominant, and the odd-year average annual harvests (2000–2019) are about 15% of the even-year average harvests (Appendix B4).

Pink salmon are generally harvested in relatively large quantities in UCI beginning in late July and early August. The 2019 UCI commercial harvest of pink salmon was estimated to be approximately 70,741 fish, which was 16% less than the odd-year average annual harvest of 85,000 fish (Table 7).

Before 2009, a weir on the Deshka River was operated long enough to count most of the pink salmon run (Table 7). Although pink salmon are still counted, the weir is removed before the end of the pink salmon run, and there are no pink salmon escapement goals in UCI. Thus, the only data collected about pink salmon stocks are from commercial fisheries harvests, recreational fishing surveys, and opportunistic data collection at projects designed to count other species (e.g., the Deshka River weir).

In general, pink salmon stocks in UCI have maintained even-year dominance; however, the 2007 and 2009 harvests were above average for odd-year runs. Although pink salmon count data are limited, ADF&G did conduct a marine tagging project designed to estimate total population size, escapement, and harvest rates for coho, pink, and chum salmon returning to UCI in 2002 (Willette et al. 2003). This study estimated that the harvest rate of pink salmon by the UCI commercial fisheries ranged between 1% and 12%, indicating pink salmon were harvested at very low rates in UCI.

CHUM SALMON

Chum salmon runs to UCI are concentrated predominantly in the western and northern watersheds, with the most substantial harvest coming from the Central District drift gillnet fishery. The 2019 harvest of 129,000 chum salmon was approximately 25% less than the 2009–2018 average annual harvest of 172,000 fish (Appendix B5).

Chum salmon abundance and harvests across UCI were mixed in 2019. The 2019 aerial count of chum salmon in Chinitna Bay indicated the escapement goal was exceeded. Harvests of Chum salmon in 2019 (Appendix B5) in 2 areas, the Kalgin West Side setnet Subdistricts and the

[8] https://www.adfg.alaska.gov/static-f/regulations/regprocess/fisheriesboard/pdfs/2019-2020/ws/2019_UCI_SOC_memo.pdf

Northern District, were above the 2009–2018 averages; however, 2019 harvests of chum salmon in the remainder of the areas of UCI, including the drift gillnet harvest, were below the 2009–2018 averages.

An evaluation of UCI chum salmon stocks is challenging due to a lack of information other than commercial harvest data combined with very limited escapement data. Chum salmon are no longer counted at either the Deshka or Little Susitna river weirs. They are captured in the Anchor Point OTF project, but this project was designed temporally and spatially to assess UCI sockeye salmon stocks. An aerial survey of Clearwater Creek/Chinitna River on August 13, 2019, estimated approximately 9,600 chum salmon had escaped the fishery, which was approximately 1,600 fish above the upper end of the SEG. Therefore, Chinitna Bay was opened to set and drift gillnet fishing on Tuesdays and Fridays from 7:00 AM until 7:00 PM, beginning on Friday, August 16.

Although ADF&G lacks long-term quantitative chum salmon escapement information, escapements to streams throughout UCI have benefited from management actions or regulatory changes aimed principally at other species. These actions have included 1) large reductions in the offshore drift gillnet and Northern District set gillnet fisheries to conserve Susitna River sockeye salmon; 2) adoption of the NDSMP, which states that its primary purpose is to minimize the harvest of coho salmon bound for the Northern Cook Inlet; 3) lack of participation in the directed chum salmon fishery in Chinitna Bay; and 4) harvest avoidance by the drift gillnet fishery as a result of lower prices being paid for chum salmon than for sockeye salmon. Other than aerial counts in Chinitna Bay, most sporadic chum salmon data available to assess annual runs can only be used to make very general conclusions (e.g., the run was below average, average, or above average).

COHO SALMON

Commercial coho salmon harvests in UCI during the 1980s and early 1990s were much higher than the long-term average (Appendix B3). This can be attributed to good coho salmon production but also due to additional fishing time on strong UCI sockeye salmon runs. Recent coho salmon harvest data, however, may or may not be a true indication of run strength, largely due to regulatory changes that were made to reduce the commercial harvest of coho salmon. For example, coho salmon runs in 1997 and 1999 were viewed as mediocre to poor, prompting BOF actions in 1997, 1999, and 2000 that placed restrictions on sport and commercial fishery participants in much of UCI. From 2000 to 2004, the commercial ESSN fishery was closed no later than August 7, and no more than 1 EO fishing period, not to exceed 24 hours in duration, was allowed during the month of August. These actions resulted in marked reductions in commercial coho salmon harvests. However, at the same time, coho salmon runs in 2000 and 2001 improved, and the 2002 run was exceptional (Lafferty et al. 2007). Therefore, at the 2005 BOF meeting, restrictions on commercial fishing in August in the ESSN fishery and Central District drift gillnet fishery were relaxed. Both fisheries' closing dates were changed to no later than August 10, and the set gillnet fishery would now be managed under the same set of weekly guidelines in August that were applicable in July. In 2008, the BOF extended the ESSN and districtwide drift gillnet fishing seasons to no later than August 15. These changes were made primarily due to data revealing good coho salmon runs and low Kenai River coho salmon harvest by commercial fishery participants during this extended period. Recent years' coho salmon harvests have undoubtedly been affected by restrictions to the ESSN fishery for Chinook salmon conservation and modifications made to the CDDGFMP at the

2014 BOF meeting to reduce coho salmon harvest by the drift gillnet fishery (Shields and Dupuis 2015).

Northern District

The Division of Sport Fish has used coho salmon weir counts at the Little Susitna River to infer escapement performance for all Knik Arm coho salmon stocks since 2005[9]. The SEG for this system was set in 2000 at 10,100–17,700 fish (Fair et al. 2007). The SEG was met or exceeded in 12 of 20 years from 2000 to 2019 (Table 8).

Although the weir washed out early in 2006, based on the inriver sport fishing performance, the 2006 coho salmon run in the Little Susitna River was categorized as very early and very strong, and the SEG was probably achieved (Sam Ivey, Division of Sport Fish Biologist, ADF&G, Palmer; personal communication). The weir also washed out early in 2005, which means the estimated passage of 16,839 fish was less than the actual escapement (Ivey et al. 2009). In 2012, the Little Susitna River weir was moved downstream approximately 40 miles to its current location at RM 32.5 (Oslund et al. 2013). This provided managers with timelier inseason information of coho salmon passage. In 2019, coho salmon escapement was counted at the Little Susitna weir from July 7 through September 3. Due to the combination of very warm weather and low water-level conditions, fish passage was slow. After much needed rain and cooler temperatures from August 4 to August 9, nearly a third of the total coho passage occurred in the Little Susitna River. The last push of 253 coho salmon on September 2 was still not enough to meet the minimum SEG. The final coho salmon count in the Little Susitna River was 4,228 fish (Table 8).

At the 2017 UCI BOF meeting, ADF&G recommended a new coho salmon SEG of 10,200–24,100 fish for the Deshka River using the Clark et al. (2014) percentile approach. Approximately 10,445 coho salmon were counted at the Deshka River weir in 2019 (Table 8).

When coho salmon run abundances are viewed over a long period in Northern Cook Inlet (Table 8), there are no substantive concerns about the sustainability of these stocks. As noted, Little Susitna River coho salmon escapement objectives are consistently met. In addition, the coho salmon escapement goal at Fish Creek has been achieved or exceeded 21 years out of the 24 years (87%) it has been in existence, including every year for the past 19 years. There is a coho salmon single foot survey escapement goal at Jim Creek; from 1994 to 1999, it was a point goal of 830 fish, and then in 2000, the goal was changed to an SEG of 400–700 fish. Since then, the SEG has been achieved or exceeded 14 times (74%). In 2019, the September 26 foot survey counted 162 fish, which meant the SEG was not achieved for this system.

Kenai River

There is no escapement goal established for Kenai River coho salmon, nor is the run assessed, and there are no known conservation concerns for this stock (Shields and Dupuis 2016). Current sport and commercial fishing regulations for Kenai River coho salmon are believed to provide sustainable harvest (Lipka et al. 2020), and the most recent inriver run size (Massengill and Evans 2007) estimates were stable and near the historical average.

[9] Hasbrouck, J. J., and J. A. Edmundson. Unpublished. Escapement goals for salmon stocks in Upper Cook Inlet, Alaska. Alaska Department of Fish and Game, Report to the Board of Fisheries, 2005, Anchorage.

CHINOOK SALMON

Northern District

The Northern District has approximately 345 streams and rivers where Chinook salmon are present, and its largest drainage, the Susitna River, supports an annual run estimated to range between 100,000 and 200,000 fish[10]. In response to the proposed Susitna-Watana hydroelectric project, recent studies have been completed to document salmon abundance in the Susitna drainage. Based on these investigations, the estimated Chinook salmon abundance in the Susitna River upstream of the Yentna River was approximately 89,463 fish in 2013, 68,225 fish in 2014, and 88,600 fish in 2015 (Alaska Energy Authority 2014, and 2015). Additionally, the estimated Chinook salmon abundance in the Yentna River was approximately 22,267 fish in 2014 and 48,400 in 2015 (Alaska Energy Authority 2015). The 2009–2018 average harvest in the Northern District directed commercial Chinook salmon fishery was approximately 1,588 fish (Table 2); this harvest includes all NCI Chinook salmon stocks, not just the Susitna River.

In an ADF&G memo (RC 6)[11] to the BOF dated October 1, 2010, a summary of results from the stock of concern evaluation for UCI salmon was presented. ADF&G's recommendation stated that despite sport fishery restrictions already in place and recent commercial fishery restrictions and closures on Westside fisheries, the Chuitna, Theodore, and Lewis Rivers' Chinook salmon escapement goals had not been achieved for 5 consecutive years. Escapements were evaluated with a single aerial census flight each year. ADF&G recommended that the BOF consider these systems for stock of management concern status. In addition, ADF&G recommended Alexander Creek Chinook salmon as a stock of management concern because runs to this system had declined drastically over the previous 5 years despite the closure of the sport fishery beginning in 2008. The ADF&G memo also recommended Chinook salmon in Willow and Goose creeks be considered stocks of yield concern because of a failure to meet the SEG over several consecutive years. The BOF reviewed these ADF&G recommendations at the 2011 UCI finfish meeting in Anchorage and agreed with ADF&G staff to list Chinook salmon stocks in Alexander, Willow, and Goose creeks and the Chuitna, Theodore, and Lewis Rivers as stocks of concern. At the 2014 BOF meeting, additional stock status information was presented[12], including repeated failure to meet the SEG at Goose Creek. As a result, this system was elevated to a stock of management concern, and Sheep Creek was also added as a stock of management concern.

As a result of the decision to list the Theodore, Lewis, and Chuitna Rivers as stocks of concern, the sport fisheries have been closed by regulation since 2011. In response to the sport fishing closures, commercial fishing with set gillnets has also been closed in those waters from the wood chip dock to the Susitna River during the directed-Chinook salmon fishery per the NDKSMP. Additional restrictions beyond the area closure have also been implemented in the commercial fishery, including closures of fishing periods and reductions in hours fished (Shields and Dupuis 2016) and a season closure in both 2018 (Marston and Frothingham 2019) and 2019.

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[10] Delaney, K., and D. Vincent-Lang. Unpublished. Current status and recommendations for the future management of the Chinook salmon stocks of Northern Cook Inlet: A report to the Alaska Board of Fisheries, Anchorage, Alaska, November 1992. Alaska Department of Fish and Game, Division of Sport Fish, Anchorage.

[11] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2010_2011/Worksession/2010_uci_soc.pdf

[12] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2013-2014/uci/action_plan_uci_2014.pdf

Deshka River

After experiencing a marked decline in abundance in the early to mid-1990s, Northern District Chinook salmon stocks rebounded, and exceptional runs were measured at the Deshka River weir, which was the only site where total counts of Chinook salmon occurred in the Northern District (Table 9). From 1999 through 2006, the upper end of the Deshka River BEG of 13,000–28,000 fish (Fair et al. 2007) was exceeded. As a result of strong runs during this time, there were numerous liberalizations to the inriver sport fishery through inseason EOs. In 2005, the BOF lengthened fishing periods for the commercial fishery from 6 hours to 12 hours and in 2008 allowed the commercial fishery to remain open through June 24 (Monday periods only). The commercial fishery harvest cap of 12,500 Chinook salmon remained in effect. The 2007 Deshka River run fell within the BEG range. The 2008 and 2009 runs, which were projected to be smaller than average, were both poor runs, and closures were implemented in both sport and commercial fisheries. The lower end of the BEG was not achieved in 2008 and 2009.

The poor runs experienced in 2008, 2009, and 2010 resulted in restrictions to the sport and commercial fisheries that harvest Chinook salmon throughout Northern Cook Inlet (Shields and Dupuis 2012). Although recent forecasts for Deshka River Chinook salmon have projected below-average runs, and the most recent 3 years of weir counts have not achieved the BEG, the BEG was met for 7 of the past 10 years (Table 9).

Kenai River

The early run of Kenai River Chinook salmon migrates through Cook Inlet in May and June and therefore receives very little commercial exploitation (Eskelin and Barclay 2019).

In 1986, Kenai River late-run Chinook salmon estimates of inriver passage were completed via traditional target-strength (TS) sonar by the Division of Sport Fish (Lipka et al. 2020). The original escapement goal was developed in 1989 and set a minimum goal of 15,500 fish and an optimum escapement of 22,300 fish (McBride et al. 1989). In 1999, this goal was revised to a BEG of 17,800–35,700 fish (Fried 1999). In 2011, ADF&G changed the escapement goal from a BEG to an SEG, including no change to the specified range (17,800–35,700 fish). This was the result of uncertainty in escapement estimates and a lack of stock-specific information in the commercial harvest (Lipka et al. 2020). In addition, ADF&G determined that it would discontinue the use of TS-based estimates of inriver run in favor of 5 abundance indices and would also continue development of the new DIDSON-based assessment (Shields and Dupuis 2013). In 2011, ADF&G managed the Kenai River late-run Chinook salmon fishery primarily on these indices of abundance rather than traditional sonar technology. For the 2012 season, the TS-based sonar was replaced with the newer DIDSON technology. Because the escapement goals were not DIDSON-based goals, estimation of late-run Chinook salmon passage was completed using several indices of abundance.

At its annual work session meeting in October 2012, the BOF formed the Cook Inlet Task Force. The mission of the task force was to evaluate the KRLRKSMP and attempt to come to a consensus on a set of recommended adjustments that would allow for both sport and commercial fishing opportunities during times of low Chinook salmon abundance, as experienced in the 2012 season. The 11-member task force (9 members of the public and BOF members Vince Webster and Tom Kluberton) met 3 different times (November 2012, January 2013, and February 2013) to address proposals submitted by task force members suggesting modifications to the management plan. A list of suggested changes was developed, but no consensus was reached on how to proceed.

However, this list of changes formed the basis of a full BOF review at the statewide meeting in March of 2013.

In March 2013, ADF&G released a new DIDSON-based interim escapement goal for Kenai River late-run Chinook salmon (Fleischman and McKinley 2013). The new goal was developed, in part, to facilitate the change in sonar technology and to address the confusion over assessment methods in 2011 and 2012. An age-structured state-space model and Bayesian statistical methods were used to develop the new goal. It was recommended that an interim SEG of 15,000–30,000 fish be adopted for the Kenai River late-run Chinook salmon. The BOF adopted the recommended SEG at the March 2013 meeting but left the rest of the KRLRKSMP intact.

For the 2013 season, DIDSON was the primary method of Chinook salmon assessment. Two DIDSON sites were operational during the 2013 season (at RM 9 and RM 14), but only counts from the RM 9 project were used for inseason management. Because the forecast for late-run Chinook salmon indicated the run would be below average, the ESSN fishery and the sport fishery in the Kenai River were prosecuted conservatively. There were numerous restrictions and closures to both commercial and sport fisheries during the 2013 season, which resulted in an estimated late-run Chinook salmon escapement of approximately 15,400 fish (Shields and Dupuis 2013).

The BOF made numerous changes to the KRLKSMP at their 2014 UCI finfish meeting that affected the prosecution of sport and commercial fisheries from 2014 to 2016 (Shields and Dupuis 2015). During each of these 3 years, restrictive actions to the ESSN fishery were implemented in compliance with the modified KRLKSMP, and the SEG was achieved all 3 years (Lipka et al. 2020).

In 2015, the Division of Sport Fish announced that Chinook salmon sonar operations in the Kenai River at RM 8.6 (RM 9) would be discontinued and replaced with sonar counts from a site at RM 13.7 (RM 14). The SEG of 15,000–30,000 fish remained in place for the 2015 and 2016 seasons. At the 2016 BOF work session, ADF&G published its annual escapement goal memo[13], which stated that a new goal for both early- and late-run Chinook salmon stocks in the Kenai River was being developed. The memo clarified that ADF&G was finalizing run reconstructions and stock-recruit analyses for fish approximately 75 cm (~33.3 inches) in length or greater for both Kenai River Chinook salmon runs. Based on these analyses, recommendations to determine new large-fish SEGs were being developed. At the 2017 UCI BOF meeting, ADF&G presented a written report detailing spawner-recruit analyses used to set the new large fish SEGs for both early- and late-run Kenai River Chinook salmon (Fleischman and Reimer 2017). Both of these new large-fish goals were in place for the 2019 season. A total of 4,186 early-run large Chinook salmon were enumerated at the sonar, meeting the OEG (3,900–6,600). The preliminary 2019 sonar count of large late-run Kenai River Chinook salmon was 14,020 fish, and after accounting for sport fish harvest above the sonar site and spawners below the sonar, the estimated escapement was 11,671 fish. Thus, the large fish SEG of 13,500-27,000 fish for Kenai River late-run Chinook salmon was not achieved.

In summary, the 2019 late-run Chinook salmon escapement goal was not achieved, but the Kenai River Chinook salmon late-run stock had not failed to achieve its minimum escapement objective before 2019 (Lipka et al. 2020). In addition, the upper end of the escapement goal has been exceeded in 15 out of the 31 years escapements have been monitored. However, like other Chinook

[13] http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2016-2017/worksession/rc6.pdf

salmon stocks in Cook Inlet, Kenai River Chinook salmon are currently experiencing a period of low abundance (Lipka et al. 2020).

COMMERCIAL HERRING FISHERY

The 2019 UCI herring fishery harvest was 34.3 tons, the highest total harvest since 2013 (Appendix B8). Although open to both set and drift gillnets, all harvest was taken with set gillnets, and 10 permit holders reported fishing within the Upper Subdistrict. Samples of the harvest have been obtained annually to assess age, weight, size, and sex distribution. In the Upper Subdistrict, 1 age-class dominated the population in 2019, including 85% of the 266 samples collected from 3 sample dates (Appendix A19). The average by age-class was as follows: age-2 (3%), age-3 (85%), age-4 (11%), and age-5 (1%). The older age classes (age 6+) typically seen in past years were noticeably absent from the 3 sampling periods in 2019. The samples used for these analyses are obtained from the set gillnet fishery and may reflect biases in the gear type used to collect the samples.

All of the herring harvested in UCI were used exclusively for personal use or sold as bait. Because Prince William Sound and Kamishak Bay herring fisheries have remained closed for many years, bait herring from UCI has risen in value. Demand by commercial and sport halibut fishery participants has resulted in an average price of at least $1.00 per pound or $2,000 per ton. Based on this price and harvest of 34.3 tons (Appendix B8), the estimated exvessel value of the 2019 commercial herring fishery was approximately $68,500.

COMMERCIAL SMELT FISHERY

From 1978 to 2019, commercial smelt harvests in UCI have ranged from 0.2 tons to 195 tons (Table 10). For more details about the history of smelt fishing in UCI, see Shields (2005). The fishery is prosecuted under 5 AAC 21.505, the *Cook Inlet Smelt Fishery Management Plan*. In 2019, the total smelt harvest in UCI was approximately 194.6 tons, the largest recorded harvest since the harvest cap on the fishery was increased from 100 tons to 200 tons in 2017. The amount of smelt harvested in this fishery has typically been limited by market demand and the logistics of getting the harvest to a location where the smelt can be processed (boxed and frozen) prior to shipment, rather than the abundance of fish.

Estimating the exvessel value of this fishery is difficult. Participants catch and market all of their harvest. Most of the product is transported by boat to the Kenai River, where it is boxed and frozen for shipment to the west coast of the U.S. The harvest is sold as bait and also marketed for human consumption. The final value of the smelt fishery is unknown but probably exceeds $1.00 per pound. Using this price estimate and the harvest of 389,000 pounds (Table 10), the estimated exvessel value was approximately $389,000.

Age composition analyses (determined from otoliths) of samples collected from the 2006 to 2018 harvests show that age-4 smelt was typically the most abundant age class, ranging from 64% to 81% of the sampled fish (Appendix A20). The average fork length from the 2019 samples (Alyssa Frothingham, Division of Commercial Fisheries Assistant Area Management Biologist, ADF&G, Soldotna; personal communication) of 187 mm was smaller than the average fork length of 199 mm from 2009 to 2018. In 2019, of the 479 smelt sampled for age and length data, 358 fish (74%) were females. This was a higher female proportion than the average of 44% females from all previous years (Appendix A20). It should be noted that smelt samples collected for age and size data were taken from a single date of the harvest and may not reflect temporal changes in these parameters or differences between harvested fish and the overall population.

COMMERCIAL RAZOR CLAM FISHERY

The razor clam fishery on the west side of Cook Inlet has historically been confined to the area between Crescent River and Redoubt Creek (Figure 11). All clams harvested in this area are required by regulation to be sold for human consumption (5 AAC 38.314(b)), except for a small percentage (less than 10% of the total harvest) of broken clams, which may be sold for bait. Razor clams are present throughout UCI, and dense concentrations are present in the Polly Creek and Crescent River areas. In the remainder of the UCI Management Area, there are no restrictions on the number of clams sold for bait. Currently, though, there is no directed effort to harvest razor clams for the bait market. The minimum legal size for commercially harvested razor clams is 4.5 inches (114 mm) in shell length (5 AAC 38.075).

In 2016, ADF&G began a study in the Polly Creek/Crescent River area to estimate razor clam abundance and collect data needed to develop an optimal sampling design for a future full-scale survey of this beach (Dupuis and Willette 2016). ADF&G received a grant in 2017 from the North Pacific Research Board that allowed testing of the sampling designs and gear to assess razor clam populations in all of Cook Inlet.

The 2019 commercial razor clam harvest, taken primarily from the Polly Creek/Crescent River area, was approximately 137,530 pounds in the shell (Appendices A23 and B9). A total of 14 permit holders participated in the fishery. However, this number decreased by the end of the season to 11 permit holders. Harvest was reported from 68 different days from May 2 to August 6. Participants were paid an average of $0.66 per pound for their harvest, which resulted in an exvessel value for this fishery of approximately $90,770. The average clam size from the 2019 harvest was 4.8 inches or 123 mm (Figure 12).

SUBSISTENCE AND PERSONAL USE FISHERIES

There is a long history of Alaskans harvesting fish and game for their personal consumptive needs under sport, personal use, subsistence, and commercial fishing regulations in the Cook Inlet area (Braund 1982). Since 1978, when the State of Alaska passed its first subsistence statute (AS 16.05.258), many changes have occurred in the regulations governing the harvest of fish and game for personal consumption in Cook Inlet. In 1981, a new category of fisheries was established. Personal use fishing was created to provide for the personal consumptive needs of state residents not able to meet their needs in other fisheries. Since their creation, numerous changes have occurred in the personal use and subsistence fisheries in Cook Inlet, and many of these changes came as a result of challenges in the State of Alaska court system, the Alaska State Legislature, or the BOF process. The only personal use or subsistence fishery that has occurred consistently in Cook Inlet during this entire period is the Tyonek Subdistrict subsistence fishery. A review of the various personal use and subsistence fisheries that have been conducted in Cook Inlet are reported in Brannian and Fox (1996), Reimer and Sigurdsson (2004), Dunker and Lafferty (2007), Holen and Fall (2011), and Dunker (2018).

TYONEK SUBSISTENCE SALMON FISHERY

The subsistence fishery in the Tyonek Subdistrict was mandated by an Anchorage Superior Court order in May 1980. In March 1981, the BOF adopted permanent regulations for this fishery (Stanek et al. 2007). Initially open only to those individuals living in the community of Tyonek, court decisions ruled that all Alaska residents are eligible to participate. According to 5 AAC 01.560, *Fishing Seasons and Daily Fishing Periods*, subsistence fishing is allowed in the Tyonek

Subdistrict of the Northern District during 2 distinct periods, and a separate permit is required for each period. The early-season permit allows fishing from 4:00 AM to 8:00 PM each Tuesday, Thursday, and Friday from May 15 to June 15. The late-season permit allows fishing from 6:00 AM to 6:00 PM each Saturday after June 15. Both permits allow 25 salmon per permit holder and 10 salmon for each additional member. However, 5 AAC 01.595(a)(3) allows up to 70 Chinook salmon per permit holder in the Tyonek Subdistrict subsistence fishery, which are mostly caught during the early season. At the 2011 BOF meeting in Anchorage, a report was given to BOF members by the Division of Subsistence (Holen and Fall 2011), which the BOF relied upon to specify the amounts necessary for subsistence of Chinook salmon and other salmon in the Tyonek Subdistrict as 700–2,700 Chinook salmon and 150–500 other salmon. Each permit holder is allowed a single 10-fathom gillnet with a mesh size no greater than 6.0 inches. The early-season permit, primarily harvesting the Chinook salmon run, is the most popular fishery. Few late-season permits are issued. To reduce the harvest of Susitna River Chinook salmon, EO No. 2, released on May 1, 2019, closed the early-season Tyonek Subdistrict subsistence fishery on Tuesdays but allowed harvest on Thursdays and Fridays from May 15 to June 15, 2019.

In 2019, the Tyonek subsistence harvest included 1,132 Chinook, 232 sockeye, 75 coho, 6 pink, and 17 chum salmon (Appendix B15).

UPPER YENTNA RIVER SUBSISTENCE SALMON FISHERY

A subsistence salmon fishery (5 AAC 01.593) is allowed in the Yentna River drainage outside the Anchorage-Matsu-Kenai Non-Subsistence Area, which is described in 5 AAC 99.015(a)(3). The BOF has determined that 400–700 salmon, other than Chinook salmon, are reasonably necessary for subsistence uses in the Yentna River (5 AAC 01.566(e)). The provisions of this fishery allow for the harvest of 25 salmon per head of household, plus 10 more for each dependent. All Chinook salmon and rainbow trout must be returned to the water alive. The specific area open for the fishery is in the mainstem Yentna River from its confluence with Martin Creek upstream to its confluence with the Skwentna River. Legal gear consists of fish wheels only. The subsistence fishing season typically occurs from July 15 through July 31 from 4:00 AM to 8:00 PM each Monday, Wednesday, and Friday during this timeframe. To reduce the harvest of Susitna River Chinook salmon, the Division of Sport Fish restricted the Upper Yentna subsistence fishery to Wednesdays and Fridays each week from June 1–30, 2019 (EO No. 2-KS-2-17-19).

The 2019 Yentna River subsistence fishery harvest included 476 sockeye, 107 coho, 40 pink, and 18 chum salmon harvested by 22 permit holders (Appendix B15).

EDUCATIONAL FISHERIES

Educational fisheries first began in UCI in 1989 after a federal court ordered subsistence fishery for the Kenaitze Indian Tribe (Sweet et al. 2004) began. The fishery was labeled as a subsistence fishery due to differences in interpretations of subsistence. The Alaska Superior Court ordered ADF&G to issue educational fishing permits beginning with the 1993 fishing season. The objectives for educational fisheries are specified in 5 AAC 93.235 as "educating persons concerning historical, contemporary, or experimental methods for locating, harvesting, handling, or processing fishery resources." The current standards for educational fisheries are established by the BOF under 5 AAC 93.200 and include the following: (1) instructors must be qualified to teach the subject matter; (2) students must be enrolled in the fishery; (3) there are minimum attendance requirements; (4) procedures for testing a student's knowledge of the subject matter or the

student's proficiency in performing learned tasks must be administered; and (5) standards for successful completion of the program must be set. According to 5 AAC 93.210, the commissioner will issue a nontransferable, no-cost educational fishery permit to an applicant who proposes to operate an educational fishery program that meets the above standards, except in the following cases: (1) the commissioner determines that the educational objective of the program can be accomplished under existing fisheries statutes and regulations; (2) the sustained yield of any fishery resource would be jeopardized, or the fishery resource would be significantly reallocated among existing users; (3) the applicant failed to provide the information required by the permit; (4) the applicant violated a condition or requirement of an educational fishery permit; or (5) the applicant failed to comply with the reporting requirements of the permit.

CENTRAL DISTRICT EDUCATIONAL FISHERIES

In the Central District of UCI, there currently are 8 groups permitted to conduct educational fisheries, including the Kenaitze Tribal Group, Ninilchik Traditional Council (NTC), Ninilchik Native Descendants (NND), Ninilchik Emergency Services, Anchor Point Veterans of Foreign Wars (VFW), Homer Sons of the American Legion Post 16, Kasilof Regional Historical Association, and the Southcentral Foundation.

In 2019 the Kenaitze Tribe harvested 8,572 sockeye, 197 coho, and 24 pink salmon, for a total of 8,793 salmon (Appendix B16). From 1994 through 2018, the average annual harvest of all salmon by the Kenaitze Indian Tribe was 5,156 fish. The total fish harvest quota for this group is 10,000 fish (Appendix B16).

In 1993, NTC applied for and was granted a permit for an educational fishery (Szarzi and Begich 2004). In 1998, a group of NTC members formed a new organization, the NND, and requested a separate permit with similar goals of passing on traditional knowledge and providing food for tribal members. Initially, 1 permit was issued for both groups, but this was not acceptable to the NTC, and both groups were allowed to fish concurrently. There have been several changes to the annual harvest limits allowed under these permits, but the total salmon quota more than tripled in 2007 from 850 to 2,800 fish for both the NTC and NND groups. In 2019, the NTC harvested 7 Chinook, 406 sockeye, 160 coho, and 172 pink salmon. The NND reported a harvest of 7 Chinook, 71 sockeye, 58 coho, and 12 pink salmon (Appendix B16).

The Anchor Point VFW applied for and was granted an educational fishery permit in 2007. They reported the following harvest from their 2019 fishing activities: 75 sockeye, 35 coho, 29 pink, and 5 chum salmon (Appendix B16).

In 2011, the Sons of American Legion applied for and were granted an educational fishery permit. They reported a harvest of 22 sockeye and 16 coho salmon in 2019 (Appendix B16).

The Kasilof Regional Historical Association applied for an educational permit beginning with the 2008 season. In 2019, they reported 31 coho salmon as the total harvest (Appendix B16).

The Southcentral Foundation (SCF) applied for an educational permit beginning in 2010. They are an Alaska Native-owned, nonprofit health care organization serving nearly 60,000 Alaska Native and American Indian people living in Anchorage, the Matanuska-Susitna Valley, and 60 rural villages in the Anchorage Service Unit. This fishery occurs on the west side of Cook Inlet, in the Silver Salmon Creek area. The SCF harvest in 2019 was 8 sockeye and 20 coho salmon (Appendix B16).

NORTHERN DISTRICT EDUCATIONAL FISHERIES

In the Northern District of UCI, 3 groups have received permits for educational fisheries: (1) the Knik Tribal Council, (2) Native Village of Eklutna, and (3) Alaska's Territorial Homestead Lodge, operated by Tim O'Brien (Appendix B16).

The Knik Tribal Council began an educational fishery in 1994 (Sweet et al. 2004). Total harvest in 2019 included 27 sockeye, 2 coho, and 1 pink salmon.

The Native Village of Eklutna was also issued an educational fishery permit beginning in 1994. They reported a harvest in 2019 of 49 sockeye, 72 coho, 4 pink, and 16 chum salmon (Appendix B16).

The Native Village of Tyonek began an educational fishery in 1997. This educational fishery was denied a permit beginning in 2011 as a result of Chuitna, Theodore, and Lewis Rivers Chinook salmon stocks designation as stocks of management concern by the BOF.

Alaska's Territorial Homestead Lodge (Tim O'Brien) applied for and received an educational fishery permit beginning in 2007. This fishery is located near Moose Point in the Eastern Subdistrict of the Northern District. In 2019, the harvest from this fishery was 145 sockeye and 38 coho salmon (Appendix B16).

The Chickaloon Native Village applied for and received its first educational fishery permit in 2016. No fishing activity took place under this permit in 2019.

PERSONAL USE SALMON FISHERY

Operating under the *Upper Cook Inlet Personal Use Salmon Fishery Management Plan* (5 AAC 77.540), personal use fishing is allowed in limited areas in Cook Inlet. The management plan received substantial changes at the BOF meeting in January of 1996. In 1995, personal use fishing was allowed with set gillnets in most areas of Cook Inlet that were normally open to commercial set gillnet fishing. Most of this area was closed in 1996, but to compensate for the lost opportunity, dip net fisheries were expanded to allow for approximately the same level of harvest that had occurred with gillnets in 1995. Personal use fishing using gillnets is now only allowed near the Kasilof River in the waters of UCI normally closed to commercial set gillnet fishing. This area encompasses approximately 1 mile on either side of the Kasilof River terminus, extending out from shore for 1 mile. In addition, personal use fishing with dipnets is allowed at the terminus of the Kenai and Kasilof Rivers, and in some years, at Fish Creek. The personal use management plan was again amended at the 2002 BOF meeting, modifying how the dip net fishery at Fish Creek in Knik Arm was to be managed, as well as making time changes to both the Kenai and Kasilof personal use fisheries. The Fish Creek dip net fishery was continued in regulation, but per 5 AAC 77.540(d)(1), it is open only from July 10 through July 31 and only if ADF&G projects that the escapement of sockeye salmon into Fish Creek will exceed 35,000 fish. All salmon other than Chinook salmon may be retained. The Kasilof River gillnet fishery was also modified by the BOF in 2002, expanding the days and hours that the fishery was open. The fishery now opens on June 15 and takes place from 6:00 AM until 11:00 PM daily. Instead of being managed for a harvest goal of 10,000–20,000 fish, the fishery remains open until 11:00 PM on June 24, regardless of how many fish are harvested. The Kasilof River personal use dip net fishery occurs from June 25 through August 7, 24 hours per day. The BOF amended management plan also changed how the Kenai River dip net fishery was prosecuted. This fishery is open from July 10 through July 31,

7 days per week, but only from 6:00 AM to 11:00 PM daily, subject to the requirement of achieving the lower end of the Kenai River late-run sockeye salmon SEG. If ADF&G determines that the abundance of Kenai River late-run sockeye salmon is greater than 2.3 million fish, this fishery may be extended by EO to 24 hours per day.

In 2008, the BOF authorized a new UCI personal use fishery. Referred to as the *Beluga River Senior Citizen Personal Use Dip Net Fishery* (5 AAC 77.540(g)), salmon may be taken by dipnet only by persons 60 years of age or older (no proxy fishing is allowed). The fishery is open 24 hours per day from July 10 through August 31 from the Beluga River bridge downstream to an ADF&G regulatory marker located approximately 1 mile below the bridge. The annual limit in this fishery is the same as for other personal use fisheries, except that within the total annual limit, 1 Chinook salmon may be retained per household. The fishery will close by EO when 500 salmon, other than Chinook salmon, have been harvested. Permit holders are required to report their harvests weekly to ADF&G as specified in the permit.

A permit issued by ADF&G and an Alaska resident sport fishing license (or an exemption from licensing under AS 16.05.400) is required to participate in any of the personal use fisheries. The annual limits are 25 salmon per head of household and 10 additional salmon for each household member. In the Kasilof River dip net fishery, Chinook salmon may not be retained and must be released immediately to the water unharmed. In the Kenai River dip net fishery, 1 Chinook salmon may be retained per household. There are no Chinook salmon harvest restrictions in the Kasilof River personal use gillnet fishery. Legal gear under the management plan are set gillnets and dipnets. A set gillnet cannot exceed 10 fathoms (60 feet) in length or 45 meshes in depth. Mesh size must be greater than 4.0 inches but may not exceed 6 inches. Gillnets must be set at least 100 feet apart at all times. A legal dipnet has been defined in regulation (5 AAC 39.105) as a bag-shaped net supported on all sides by a rigid frame. The maximum straight-line distance between any 2 points on the net frame, as measured through the net opening, may not exceed 5 feet. The depth of the bag must be at least one-half of the greatest straight-line distance, as measured through the net opening. No portion of the bag may be constructed of webbing that exceeds a stretched measurement of 4.5 inches; the frame must be attached to a single rigid handle and be operated by hand.

KASILOF RIVER GILLNET

In 2019, EO No. 3, issued June 11, reduced the hours of the personal use set gillnet fishery at the mouth of the Kasilof River from 6:00 AM until 11:00 PM to 11:00 AM until 11:00 PM daily, from Saturday, June 15, to Monday, June 24. The reduction in hours was in response to the poor early run of Kasilof River Chinook salmon. For the 2019 season, 131 Chinook, 15,864 sockeye, 19 coho, 84 pink, and 16 chum salmon were harvested in this fishery (Appendices A17 and A18). The 2009–2018 average annual Chinook salmon harvest was 107 fish, and the 1996–2018 average was 176 fish. The 2009–2018 average annual sockeye salmon harvest was 21,842 fish (Appendix B17).

KASILOF RIVER DIP NET FISHERY

The Kasilof River dip net fishery was open 24 hours per day from June 25 through August 7, 2019 (44 days), producing an estimated harvest of 80,730 sockeye salmon (Appendices A17 and A18). The 2009–2018 average annual harvest of sockeye salmon was 75,860 fish (calculated from Appendix B17). On July 24, the Division of Sport Fish expanded the area open to dipnetting in the Kasilof River upstream to the highway bridge for the first time in 3 years. Expansion of the area

open to dipnetting is typically allowed when assessments by ADF&G projects that the sockeye salmon BEG will be exceeded. The final Kasilof River sockeye salmon escapement in 2019 was estimated to be 378,416, exceeding the BEG range of 160,000–340,000 fish.

KENAI RIVER DIP NET FISHERY

The personal use dip net fishery located at the mouth of the Kenai River opened by regulation on July 10. The fishery was from 6:00 AM until 11:00 PM daily. The sockeye salmon dip net harvest in 2019 was approximately 331,408 fish (Appendices A17 and A18), which was the highest harvest since 2015 when 377,532 sockeye salmon were taken (Appendix B17). In 2019, significant passage events took place from July 24 through the end of the month. On July 27 and July 28, a pulse of nearly 200,000 sockeye salmon passed the Kenai River sonar, which was the highest daily passage in 4 years. The 2009–2018 average annual sockeye salmon harvest was approximately 362,001 fish (Appendix B17).

UNKNOWN FISHERY

Households that failed to indicate which fishery they participated in were estimated as "unknown fishery" (Dunker 2018). In 2019, the total sockeye salmon harvest from all personal use fisheries categorized as "unknown" was 3,961. This was approximately 0.9% of the total personal use harvest of 448,015 sockeye salmon (Appendix B17).

FISH CREEK DIP NET FISHERY

According to 5 AAC 77.540 (d), *Upper Cook Inlet Personal Use Salmon Fishery Management Plan*, the Fish Creek dip net fishery may be opened from July 10 through July 31 if ADF&G projects that the escapement of sockeye salmon into Fish Creek will be more than 35,000 fish. During the 2019 season, the Division of Sport Fish issued EO No. 2-RS-2-39-19 opening the Fish Creek personal use dip net fishery from July 26 to July 31. The estimated harvest in 2019 was 15,886 sockeye salmon. The 2019 sockeye salmon escapement into Big Lake was estimated at 76,031 fish (Table 1; Appendix B10).

BELUGA RIVER SENIOR CITIZEN DIP NET FISHERY

During the 2019 season, 13 permit holders participated in the Beluga River senior citizen dip net fishery. The total harvest was 187 salmon (166 sockeye, 17 coho, and 4 pink salmon; Appendix A17).

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TABLES AND FIGURES

Table 1.–Upper Cook Inlet sockeye salmon goals and passage estimates, 2019.

System	Goal type	Goal range		2019 Passage
		Lower	Upper	
Fish Creek	SEG	15,000	45,000	76,031
Kasilof River	BEG	160,000	340,000	378,416
Kenai River	Inriver	1,000,000	1,300,000	1,849,054
Larson Lake	SEG	15,000	35,000	9,699
Chelatna Lake	SEG	20,000	45,000	26,303
Judd Lake	SEG	15,000	40,000	44,145
Packers Creek	SEG	15,000	30,000	Incomplete

Note: Passage estimates do not include harvest above counting sites. BEG = biological escapement goal; SEG = sustainable escapement goal; OEG = optimal escapement goal.

Table 2.–Chinook salmon harvest during the directed fishery in the Northern District, 1986–2019.

Year	Chinook	Permits	Periods	Year	Chinook	Permits	Periods
1986	13,771	135	3	2003	1,185	30	3
1987	11,541	129	4	2004	1,819	44	3
1988	11,122	142	3	2005	3,150	52	3
1989	11,068	137	3	2006	3,887	59	3
1990	8,072	130	3	2007	3,132	62	3
1991	6,305	140	4	2008	3,855	74	4
1992	3,918	137	3	2009	1,266	55	3
1993	3,072	80	4	2010	1,674	51	4
1994	3,014	73	2	2011	2,187	61	4
1995	3,837	65	1	2012	1,030	38	4
1996	1,690	58	1	2013	1,134	38	4
1997	894	45	2	2014	1,377	44	4
1998	2,240	51	2	2015	1,560	40	4
1999	2,259	56	2	2016	2,030	41	4
2000	2,046	47	3	2017	2,031	44	4
2001	1,616	43	3	2018	[a]	[a]	0
2002	1,747	36	3	2019	[a]	[a]	0
				2009–2018 mean = 1,588			

[a] In 2018 and 2019 there was no directed Chinook salmon fishery in the Northern District.

Table 3.–Upper Cook Inlet sockeye salmon forecast versus actual run, by river system, 2019.

System	Forecast	Actual	Difference
Kenai River	3,814,000	3,975,000	4%
Kasilof River	873,000	673,000	-23%
Susitna River	343,000	259,000	-24%
Fish Creek	124,000	91,000	-27%
Minor systems	881,000	522,000	-41%
Overall total	6,035,000	5,520,000	-8%

Table 4.–Upper Subdistrict set gillnet fishing hours allowed beyond regulatory periods and mandatory closures, 2019.

	Kasilof Section				Kenai Section				East Forelands			
	Additional or EO		Closed window		Additional or EO		Window		Additional or EO		Window	
Week	Hours in plans	Hours used	Hours in plan	Hours observed	Hours in plans	Hours used	Hours in plan	Hours observed	Hours in plans	Hours used	Hours in plan	Hours observed
Jun 16–22	Closed season											
June 23–June 29	51	8	36	36	Closed season				Closed season			
June 30–Jul 6[a]	48	26	36	36								
Jul 7–13	48	43	36	36	48	31 [c]	36	36	51	7	36	36
Jul 14–20[b]	48	29	36	36	48	29	36	36	51	5	36	36
Jul 21–27	48	47	36	36	48	47	36	36	51	9	36	36
Jul 28–Aug 3[b]	51	35[c]	36	24	51	43 [c]	36	24	51	28	36	24
Aug 4–11	51	0	36	36	51	0	60	60	51	0	60	60
Aug 12–15	51	0	36	36	51	0	60	60	51	0	60	60
Totals	396	153	288	276	297	119	264	252	306	49	264	252

Note: Regulatory Monday and Thursday fishing period hours not included.

[a] Chinook salmon no bait, total hours allowed.

[b] Paired restrictions no longer in effect August 1.

[c] Does not include hours limited to fishing within 600 feet of shore.

Table 5.–Production of sockeye salmon in Big Lake, 1997–2019.

Year	Total run	Weir	Spawners	Spring fry release	Fall fry release	Smolt release	Smolt emigration Age-1	Smolt emigration Age-2
1997	131,814	54,656	48,513	4,018,000				
1998	45,622	22,859	18,789	5,000,000				
1999	45,714	26,749	25,199		197,000			
2000	37,635	19,533	16,704	846,000				
2001	70,013	43,486	39,093					
2002	133,640	90,483	86,181	4,316,000				
2003	149,586	91,743	86,858	3,589,000			114,654	2,340
2004	42,160	22,157	20,065	5,000,000			251,195	25,632
2005	21,967	14,215	12,140	1,742,300			135,739	22,623
2006	36,567	32,562	26,712	444,200	426,000		205,135	19,307
2007	48,277	27,948	23,845	3,812,400	702,500	315,700	278,351	30,928
2008	26,872	19,339	19,314	3,610,000		433,000	592,919	38,785
2009	121,965	83,477	83,477					
2010	209,000	126,826	126,826					
2011	119,528	66,183	66,183				269,020	23,722
2012	32,460	18,813	18,713				178,081	11,857
2013	25,082	18,912	18,315				422,258	8,241
2014	64,729	43,915	43,824				271,557	7,828
2015	120,085	102,309	102,124				424,112	8,552
2016	63,938	46,202	46,202					
2017	98,281	61,469	61,310					
2018	116,081	72,148	70,840					
2019	92,176	76,264	76,264					

Note: Blank cells mean no data. The smolt emigration project was discontinued before the 2016 season.

Table 6.–Upper Cook Inlet sockeye salmon run, 2019.

System	Commercial harvest	Escapement	Other harvests	Total
Fish Creek	14,465	76,264	51	90,780
Kasilof River	180,452	378,416	114,065	672,933
Kenai River	1,262,003	1,849,054	864,117	3,975,174
Susitna River	60,162	198,932	260	259,354
All others	145,461	375,401	704	521,566
Total	1,662,543	2,878,067	979,197	5,519,807

Table 7.–Upper Cook Inlet pink salmon commercial harvests and Deshka River escapements, 1997–2019.

	UCI Pink salmon			
	Commercial harvest		Deshka River enumeration	
Year	Even-year	Odd-year	Even-year	Odd-year
1997		70,945		1,101
1998	551,737		541,946	
1999		16,176		766
2000	146,482		1,248,498	
2001		72,560		3,845
2002	446,960		946,255	
2003		48,789		9,214
2004	357,939		390,087	
2005		48,419		7,088
2006	404,111		83,454	
2007		147,020		3,954
2008	169,368		12,947	
2009		214,321		26,077
2010	292,706		9,328	
2011		34,123		4,489[a]
2012	469,598		78,853	
2013		48,275		27,926
2014	642,879		78,111	
2015		47,997		6,328
2016	382,436		65,456	
2017		168,042		24,868
2018	126,828		58,630[a]	
2019		70,741		67,772

[a] No counts between August 8 and August 14 due to high water.

Table 8.–Upper Cook Inlet coho salmon escapement and enumeration, 1996–2019.

Year	Fish Creek	Little Susitna River	Jim Creek[a]	Deshka River	OTF CPUE[b]
1996		15,803			534
1997	2,578[c]	9,894			362
1998	5,463	15,159			403
1999	1,766	3,017			294
2000	5,979	14,436	657		766
2001	10,047	30,587	1,019		838
2002	15,187	47,938	2,473	24,612	798
2003	2,142	10,877	1,421	17,305	368
2004	3,255[c]	40,199	4,652	62,940	785
2005	3,836[c]	16,839[d]	1,464	47,887	367
2006	5,723[c]	8,786[d]	2,389	59,419	1,034
2007	9,618[c]	17,573	725	10,575	482
2008	9,603[c]	18,485	1,890	12,724	718
2009	8,666	9,523	1,331	27,348	283
2010	7,034	9,214	242	10,393	454
2011	1,428[c]	4,826	261	7,326	264
2012	1,237	6,770	213	6,825	154
2013	7,593	13,583[d]	663	22,141	494
2014	10,283	24,211	122	11,578	661
2015	7,912	12,756	571	10,775	277
2016	2,483	9,998	106	6,820	396
2017	8,966	17,781	5,646	36,869	527
2018	5,023	7,583	5,515	12,962	952
2019	3,025	4,228	3,736	10,445	291

Note: Blank cells mean no data.

[a] Escapement is a foot index survey of a section of McRoberts Creek, a tributary of the Jim Creek drainage.

[b] Offshore test fishery (OTF) catch per unit effort (CPUE) represents the number of fish caught using 100 fathoms of gillnet in 1 hour in the southern offshore test fishery.

[c] Represents a partial count; the weir was pulled before the coho salmon run was complete.

[d] Weir washed out, count incomplete.

Table 9.–Deshka River Chinook salmon passage, 1995–2019.

Year	Passage	Year	Passage
1995	10,044	2008	7,533
1996	14,349	2009	11,960
1997	35,587	2010	18,594
1998	15,409	2011	19,026
1999	29,649	2012	14,088
2000	35,242	2013	18,532
2001	29,004	2014	16,335
2002	29,427	2015	24,395
2003	40,069	2016	22,774
2004	57,934	2017	11,383
2005	37,725	2018	8,549
2006	31,150	2019	9,711
2007	18,714		

Table 10.–Commercial eulachon harvest, 1978, 1980, 1998–1999, and 2006–2019.

Year	Pounds	Short tons[a]	Permits
1978	300	0.2	NA
1980	4,000	2.0	NA
1998	18,610	9.3	<3
1999	100,000	50.0	NA
2006	90,783	45.4	8
2007	125,044	62.5	11
2008	127,365	63.7	6
2009	78,258	39.1	6
2010	126,135	63.1	3
2011	201,570	100.8	5
2012	195,910	98.0	4
2013	190,830	95.4	4
2014	198,814	99.4	4
2015	213,934	107.0	4
2016	191,536	95.8	4
2017	18,685	9.3	<3
2018	382,967	191.5	4
2019	389,121	194.6	4

[a] Short tons = 2,000 lb or 907.2 kg.

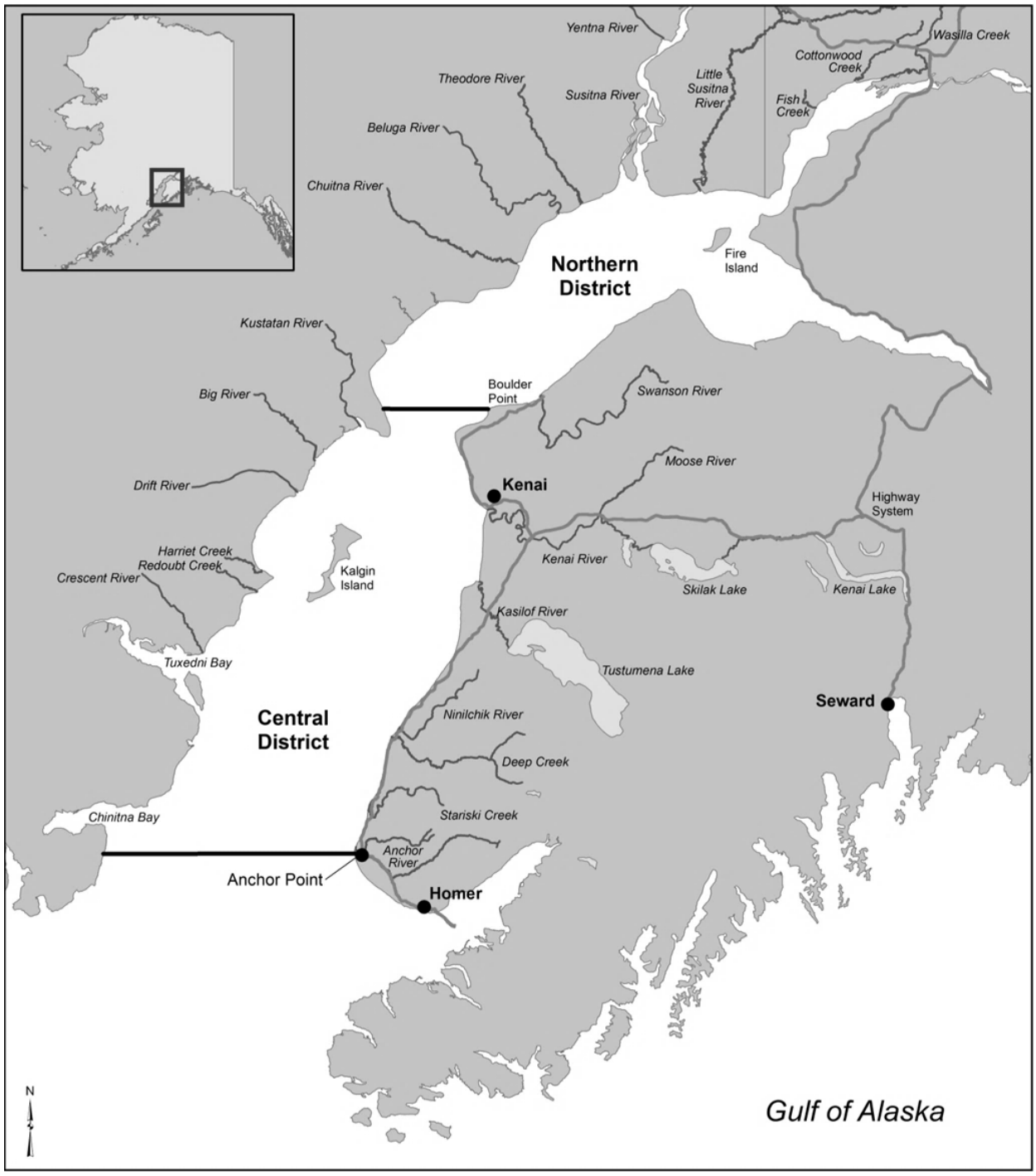

Figure 1.–Major tributaries of the Cook Inlet basin.

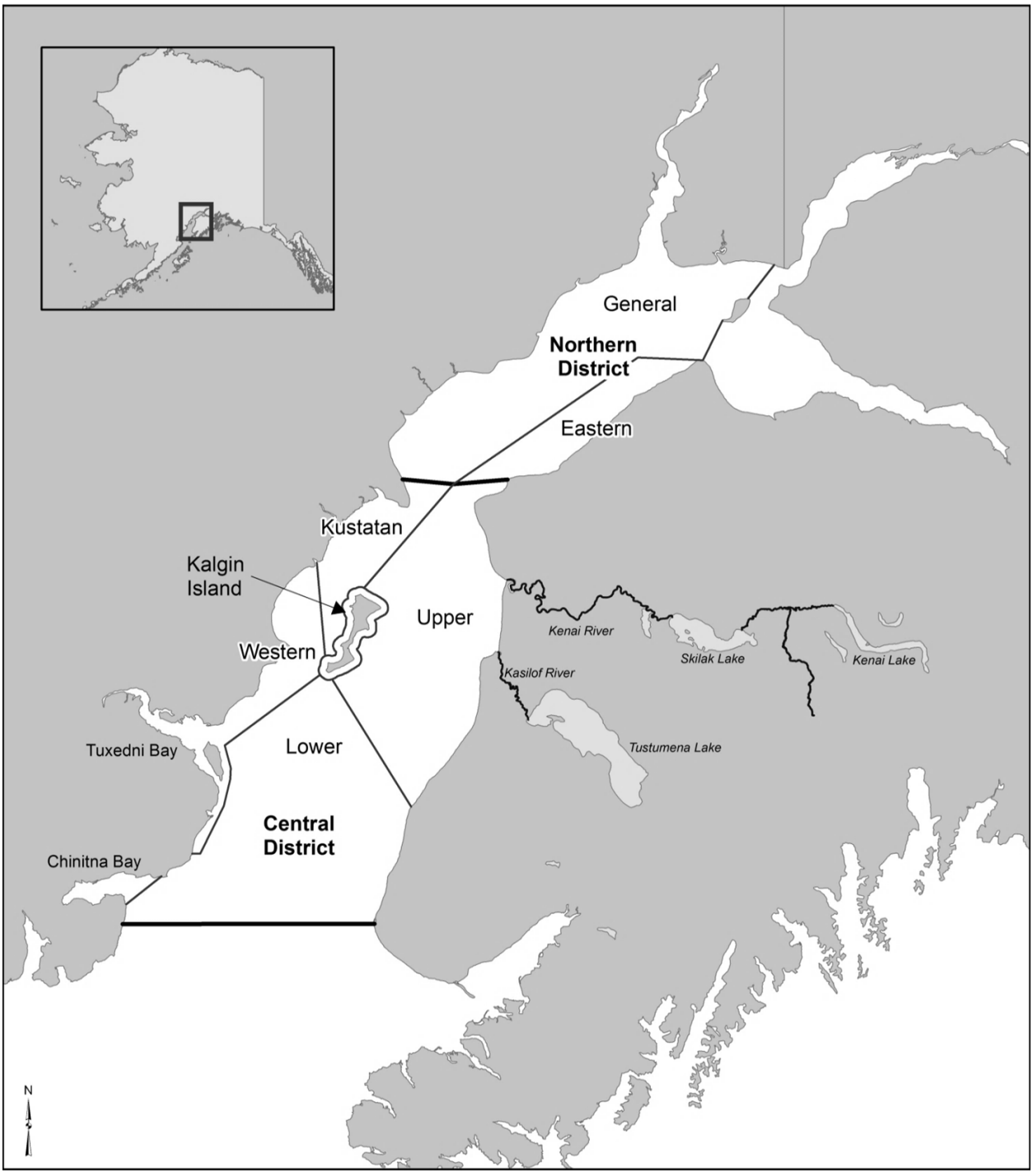

Figure 2.–Upper Cook Inlet commercial fisheries district and subdistrict fishing boundaries.

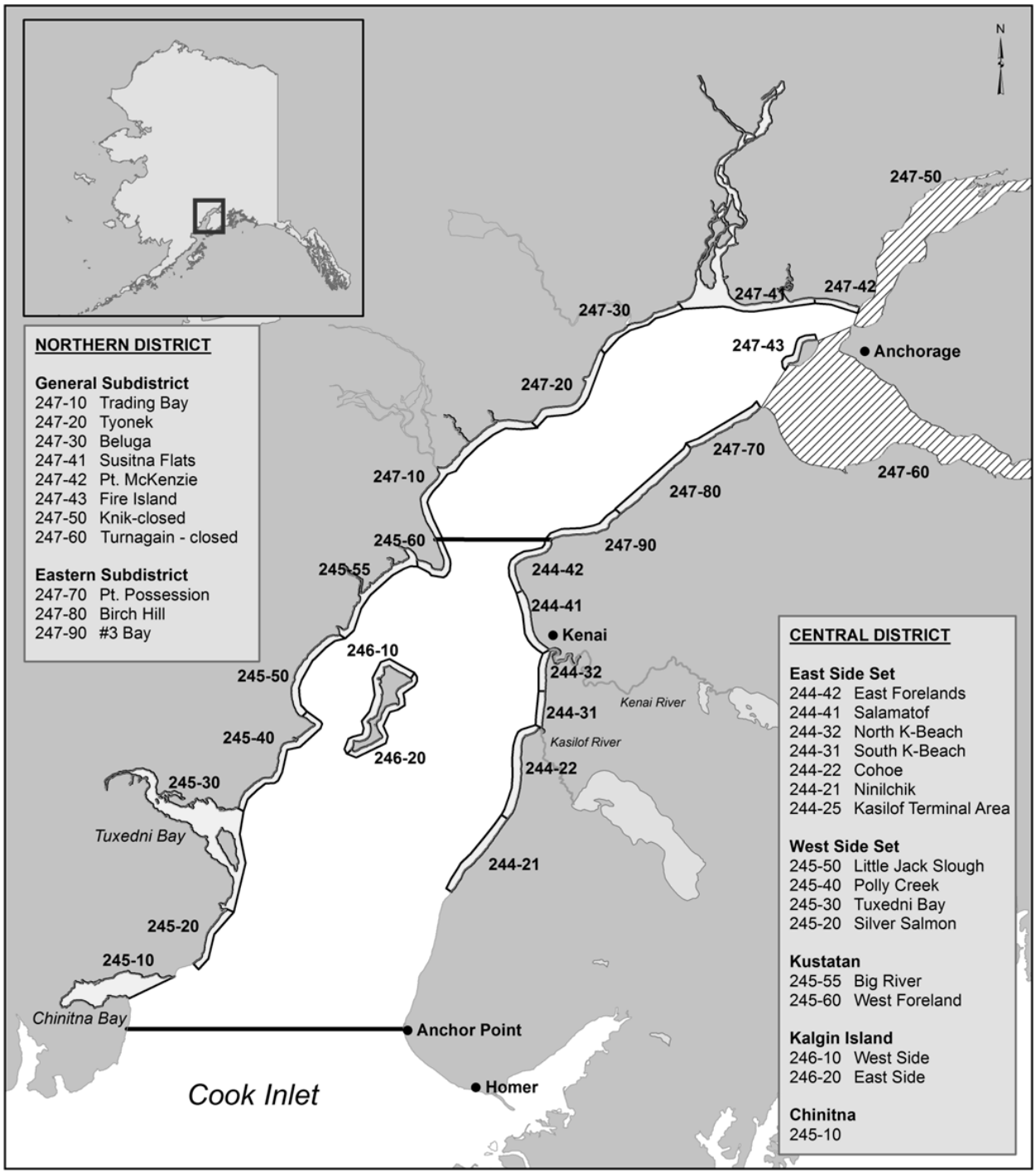

Figure 3.–Upper Cook Inlet commercial set gillnet statistical areas.

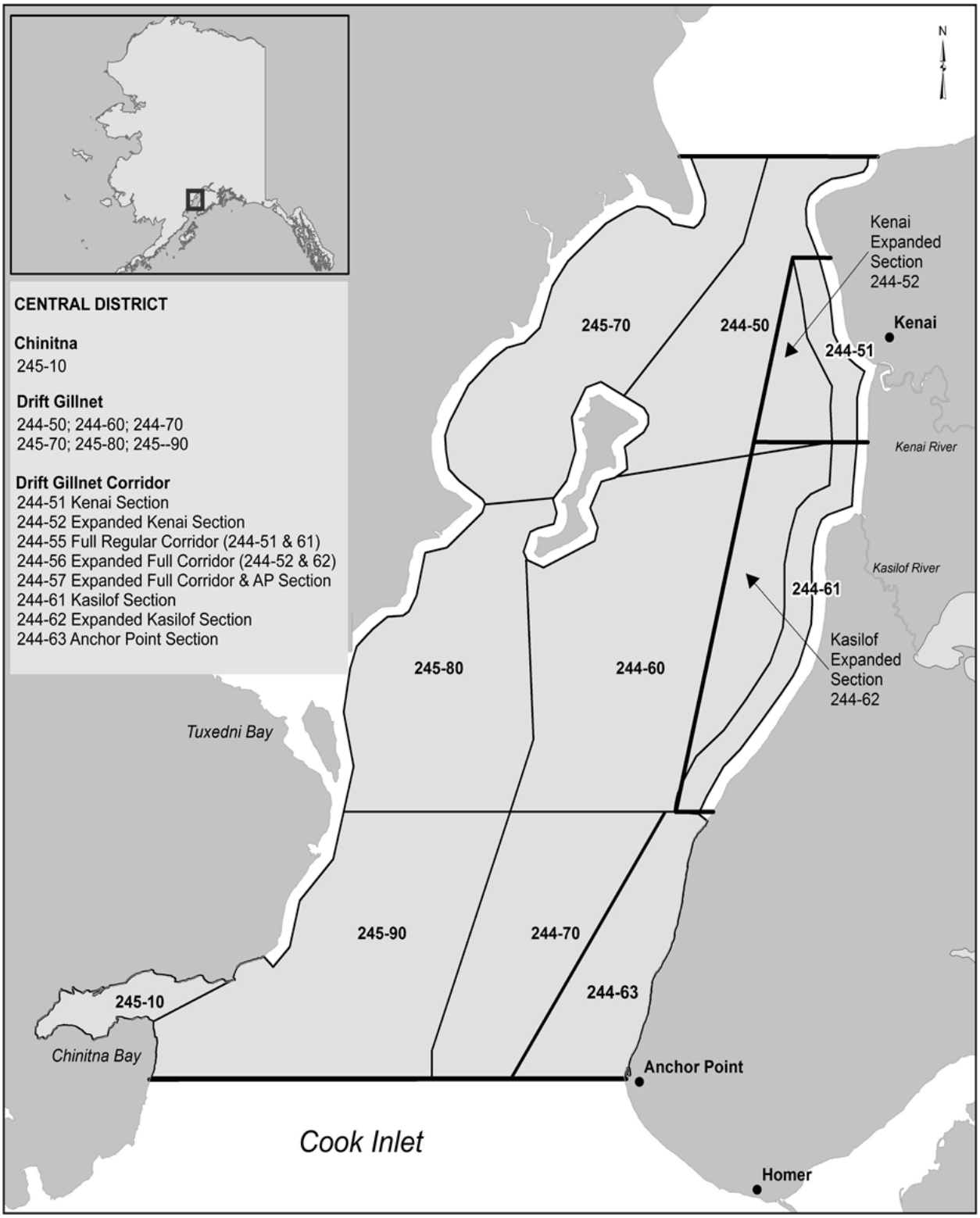

Figure 4.–Upper Cook Inlet commercial drift gillnet statistical areas.

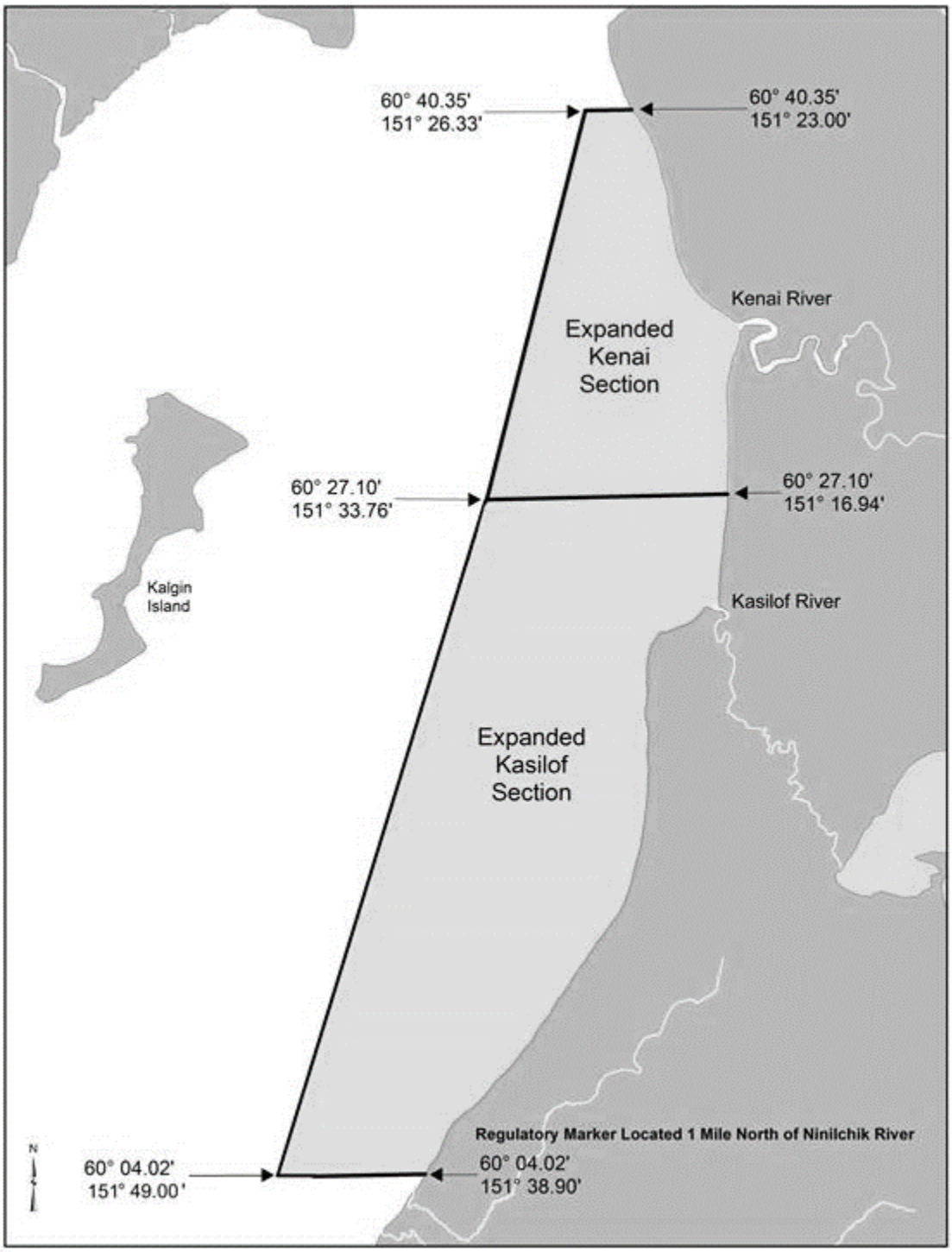

Figure 5.–Map of the Expanded Kenai and Expanded Kasilof Sections with waypoint descriptions.

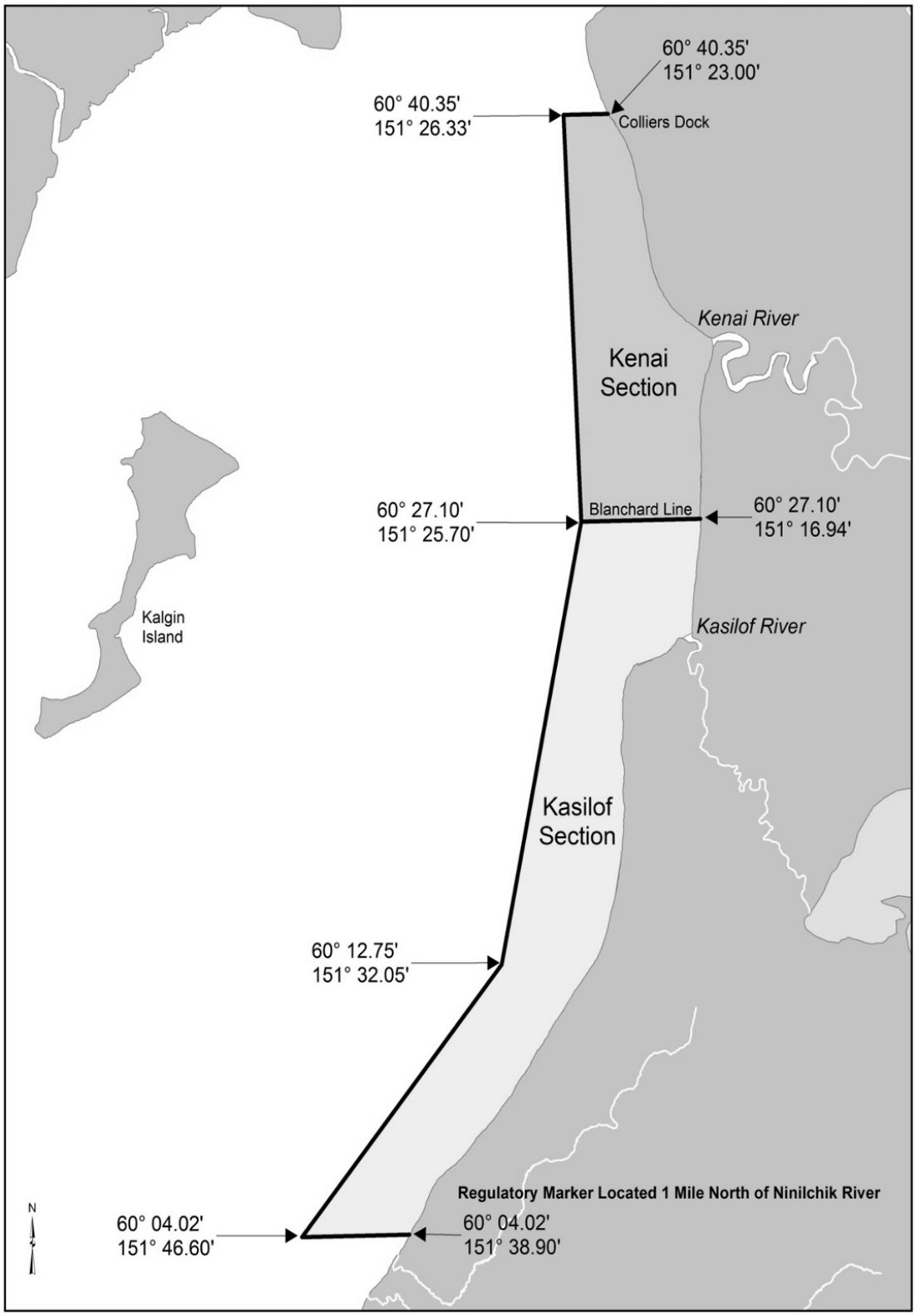

Figure 6.–Map of the Kenai and Kasilof Sections with waypoint descriptions.

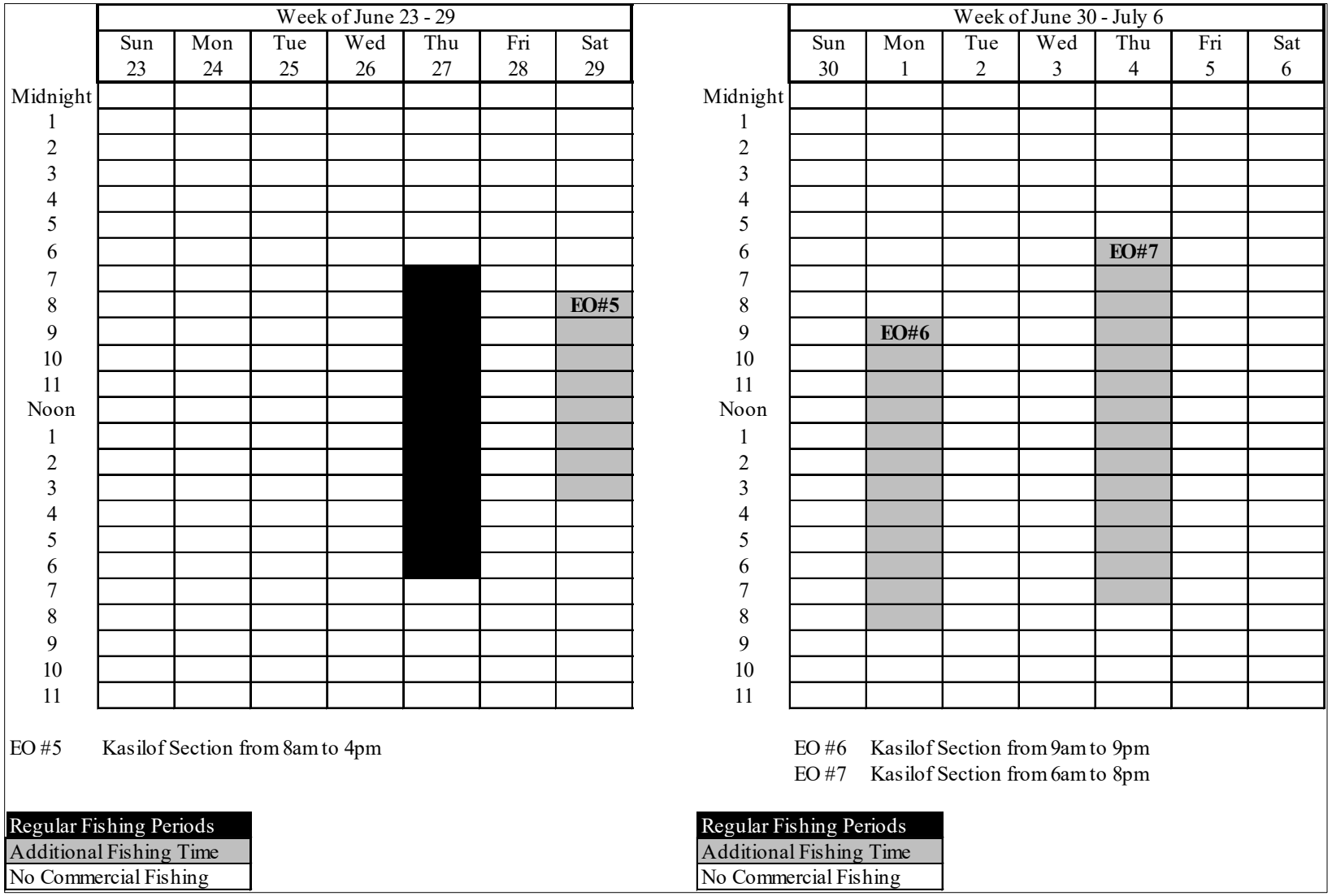

Figure 7.–Hours fished in the Upper Subdistrict set gillnet fishery, 2019.

	Week of July 7 - 13						
	Sun 7	Mon 8	Tue 9	Wed 10	Thu 11	Fri 12	Sat 13
Midnight							
1							
2							
3							
4							
5							
6					**EO #10**		
7							
8		**EO#8**					
9							
10							**EO #11**
11							
Noon							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

	Week of July 14 - 20						
	Sun 14	Mon 15	Tue 16	Wed 17	Thu 18	Fri 19	Sat 20
Midnight							
1							
2							
3							
4							
5							
6		**EO #12**			**EO #13**		
7							
8							
9							
10							
11							
Noon							
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

EO #8 Kenai & Kasilof Section from 8am to midnight
EO #10 Kenai & Kasilof Section from 6am to 9pm
EO #11 Kasilof 1/2 mile and NKB 600ft 10am to 10pm

EO # 12 Kenai & Kasilof Section from 6am to 8pm
EO #13 Kenai & Kasilof Section from 6am to 9pm

Regular Fishing Periods
Additional Fishing Time
No Commercial Fishing

Regular Fishing Periods
Additional Fishing Time
No Commercial Fishing

Figure 7.–Page 2 of 3.

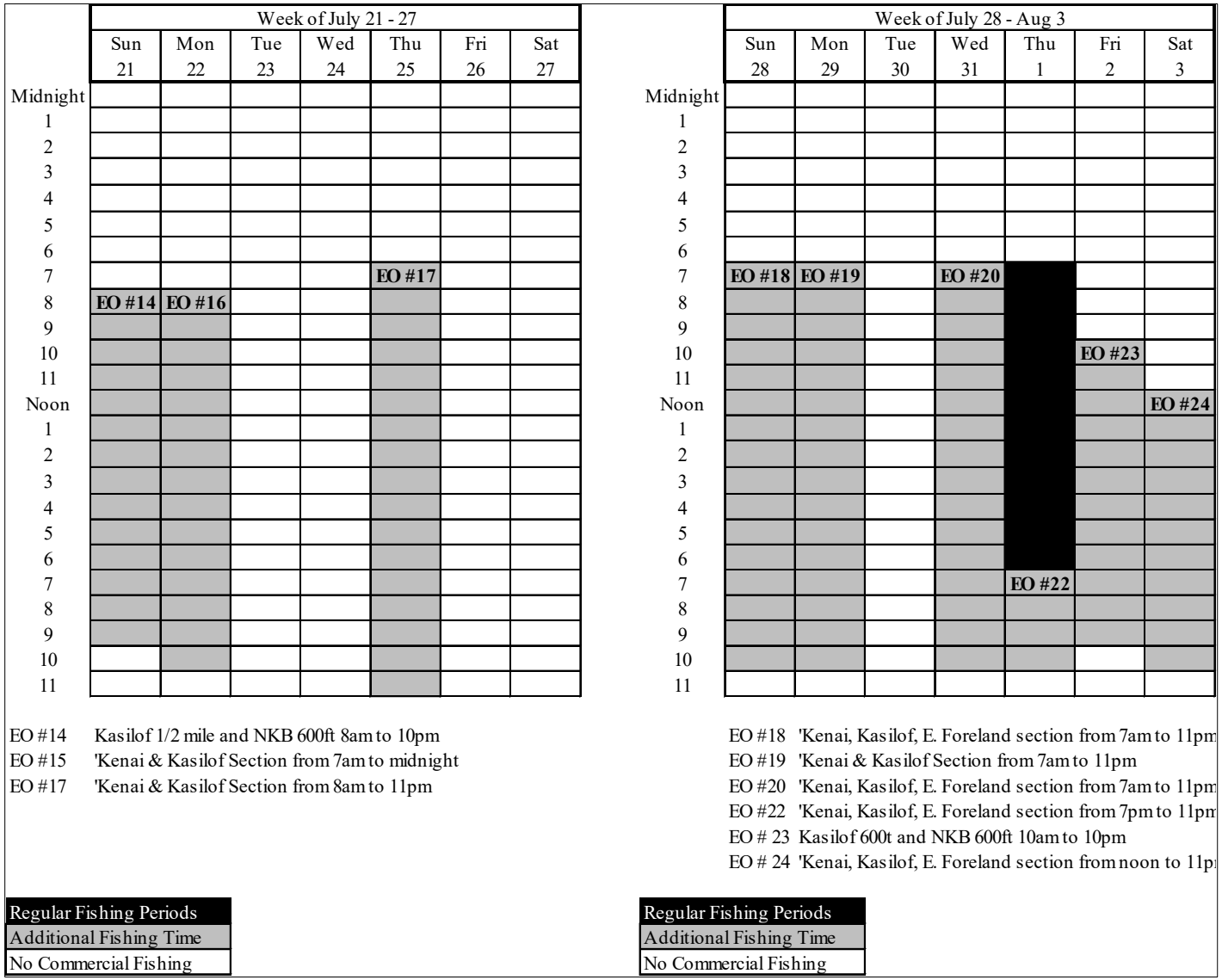

Figure 7.–Page 3 of 3.

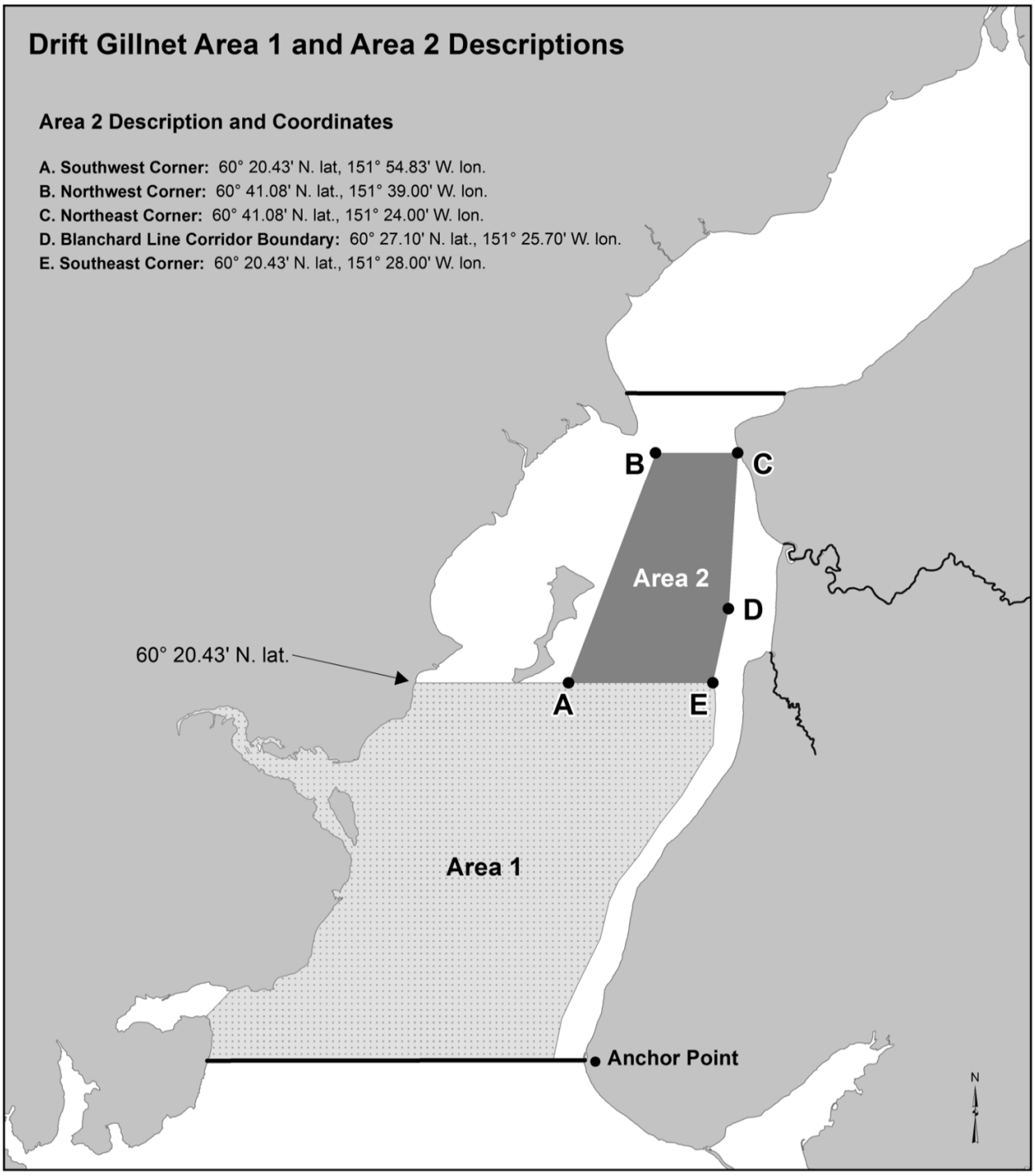

Figure 8.–Drift gillnet boundaries for fishing Areas 1 and 2.

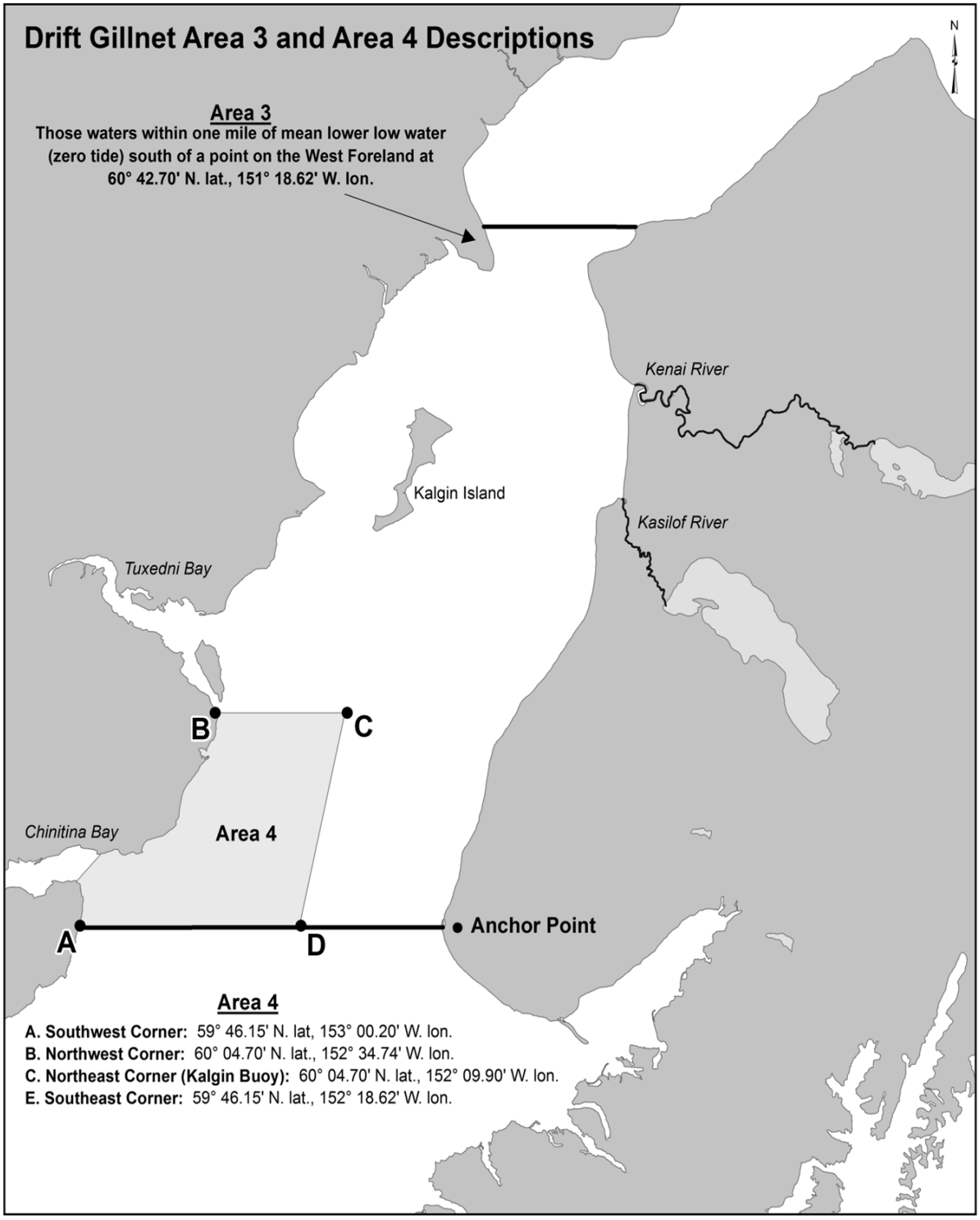

Figure 9.–Drift gillnet boundaries for fishing Areas 3 and 4.

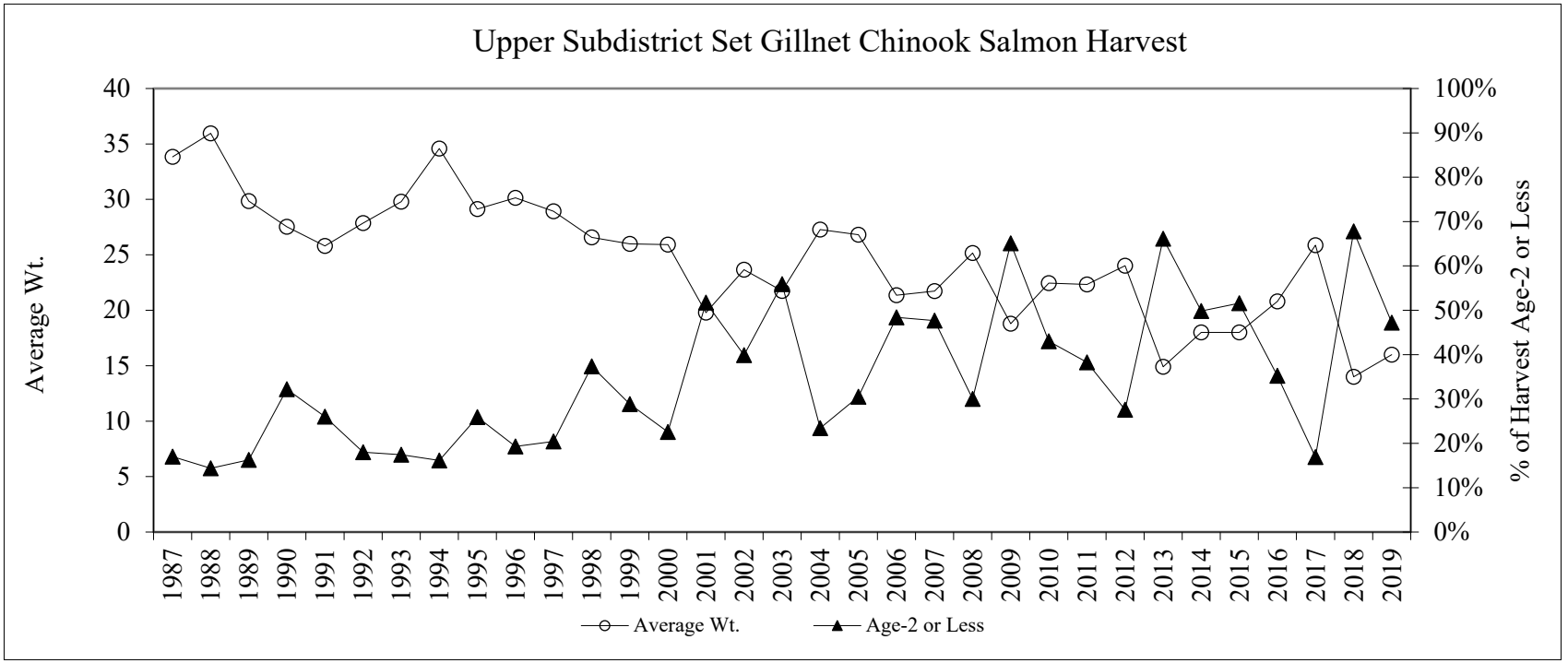

Figure 10.–Chinook salmon average weight (all fish) and percent of the harvest made up of fish age-2 ocean or less in the Upper Subdistrict set gillnet commercial fishery, 1987–2019.

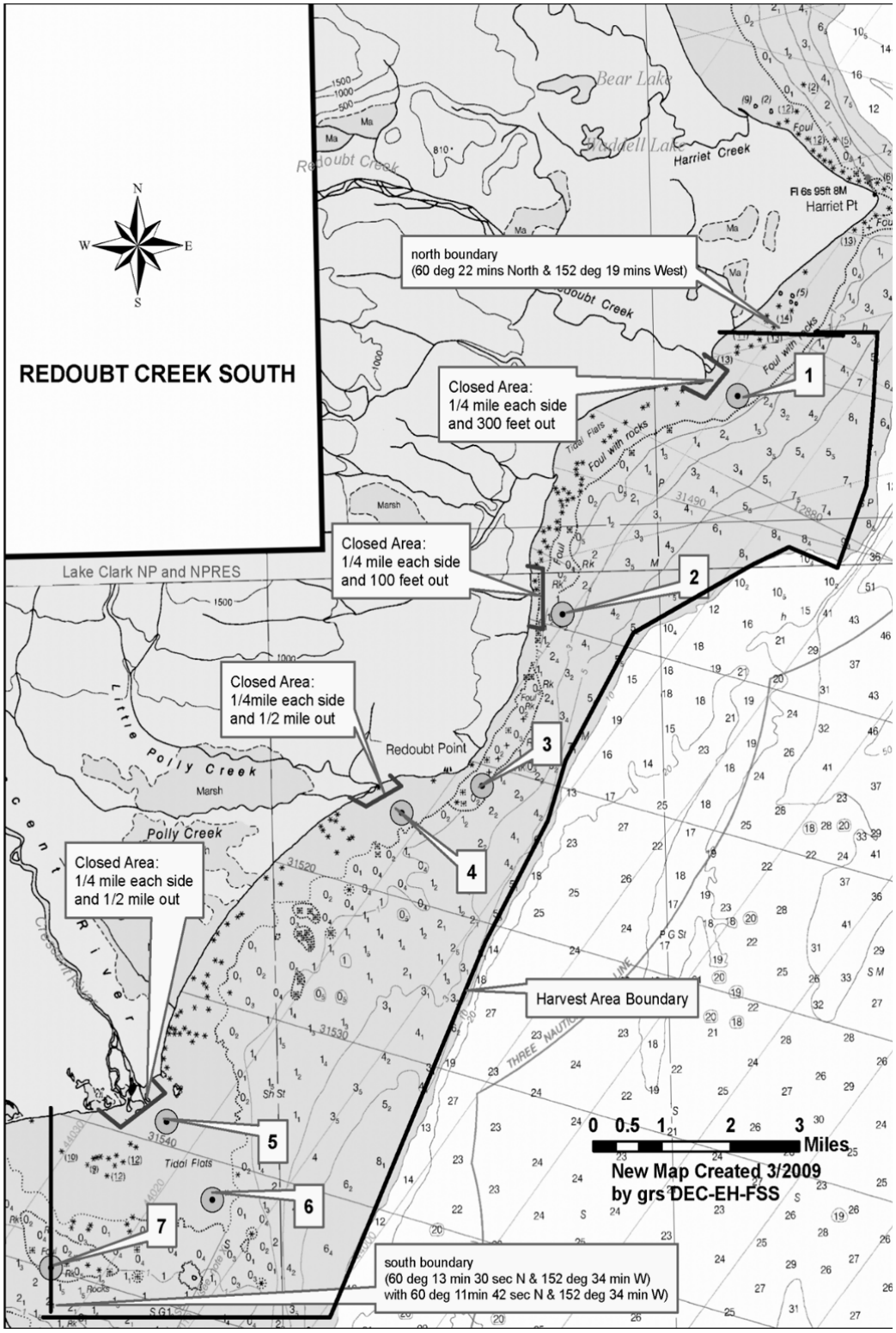

Figure 11.–Area open to the commercial razor clam fishery on the west side of Cook Inlet, Alaska.

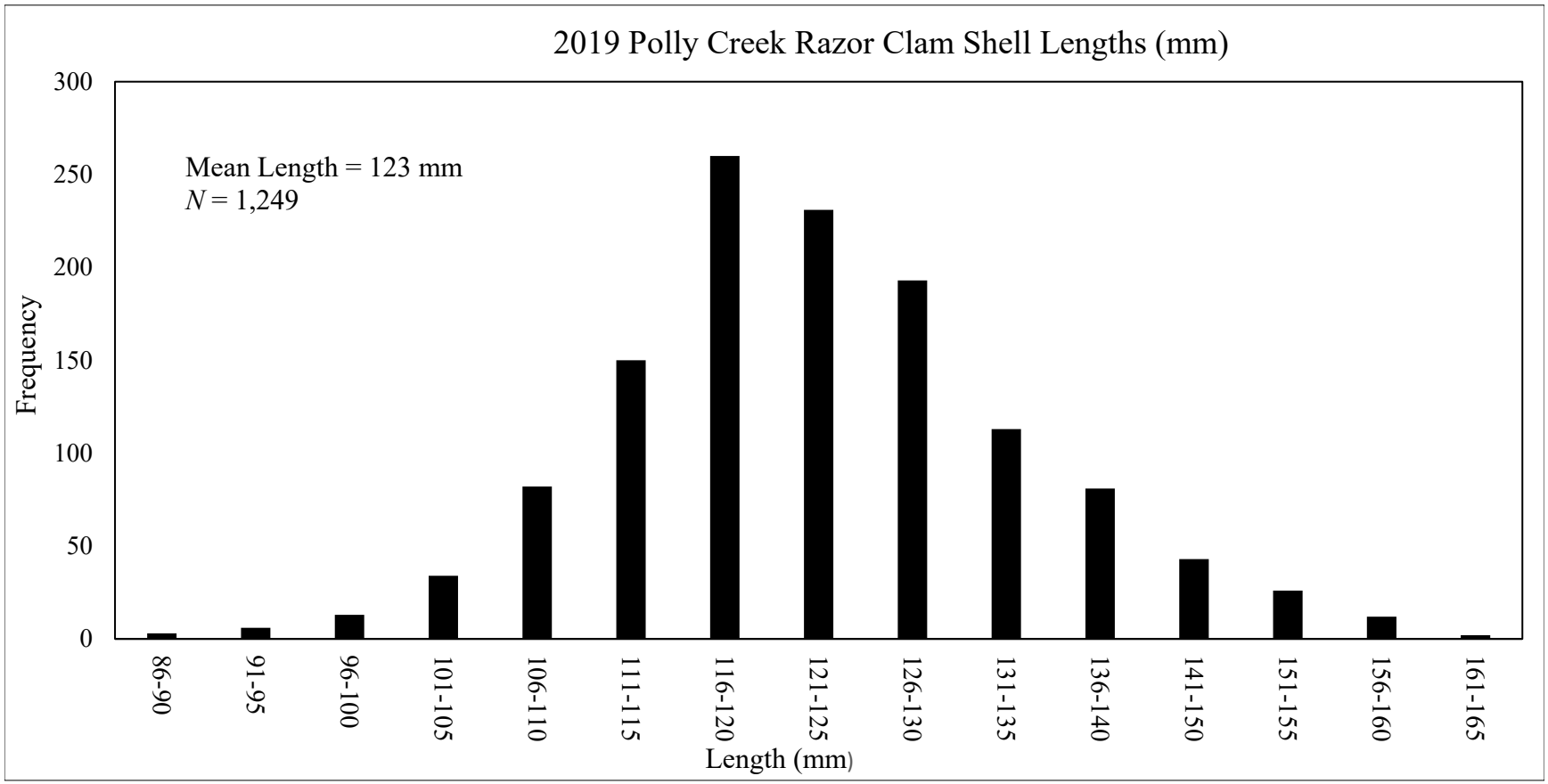

Figure 12.–Length frequency of razor clam shells sampled from the Polly Creek commercial razor clam fishery, 2019.

APPENDIX A: 2019 SEASON DATA

Appendix A1.–Offshore test fish sockeye salmon catch results and environmental data, 2019.

Date	No. of stations	Fishing time (min)	Catch		Index[a]		Mean length (mm)	Water temp (°C)	Air temp (°C)	Salinity (ppm)	Beginning wind		Ending wind	
			Daily	Cum	Daily	Cum					Vel	Dir	Vel	Dir
1 Jul	6	222.5	11	11	9	9	569	10.8	15.5	26.5	10	SW	5	S
2 Jul	6	209.5	3	14	3	12	542	10.8	14.8	27.3	5	S	10	S
3 Jul	5[b]	181.0	16	30	12	24	557	13.9	9.1	23.0	10	S	3	S
4 Jul	6	215.5	11	41	9	33	573	19.0	11.4	27.1	0		10	N
5 Jul	6	227.5	71	112	58	91	534	16.1	11.2	27.5	12	SW	10	SW
6 Jul	6	246.5	65	177	47	138	548	13.9	11.4	27.2	15	SW	1	
7 Jul	6	218.0	62	239	48	186	550	17.4	12.2	26.8	5	SW	5	SW
8 Jul	6	213.5	68	307	44	230	545	17.1	11.3	27.7	5	S	0	
9 Jul	5[b]	172.5	77	384	73	303	573	14.4	10.7	25.5	15	S	0	
10 Jul	6	221.5	75	459	56	359	541	14.0	11.7	26.9	20	SW	5	SW
11 Jul	6	197.0	57	516	75	434	551	13.8	11.7	26.6	5	S	5	S
12 Jul	3[b]	111.5	29	545	22	456	557	10.7	12.7	25.8	25	SW	20	S
13 Jul	6	223.5	53	598	42	498	553	14.8	12.4	26.0	10	W	5	NW
14 Jul	6	211.5	41	639	35	533	544	13.9	11.9	27.0	5	W	10	NW
15 Jul	6	215.0	94	733	75	608	547	14.0	11.1	27.6	10	SE	5	N
16 Jul	6	208.5	46	779	36	644	524	15.4	11.7	27.0	5	NW	10	SW
17 Jul	6	194.5	82	861	59	703	564	18.4	11.6	27.1	0		5	S
18 Jul	6	204.5	55	916	41	744	546	16.5	12.1	26.8	5	SW	0	
19 Jul	5[b]	200.0	262	1,178	181	925	552	16.6	12.5	26.5	15	S	20	SW
20 Jul	6	217.0	64	1,242	52	977	548	14.9	12.0	26.5	15	S	15	SW
21 Jul	6	203.5	33	1,275	25	1,002	552	18.5	14.0	25.2	0		5	SW
22 Jul	6	205.0	54	1,329	47	1,049	530	16.3	12.4	26.8	5	SW	10	SW
23 Jul	5[b]	200.0	69	1,398	50	1,099	551	15.5	13.1	25.1	10	SW	20	SW
24 Jul	4[b]	142.0	194	1,592	167	1,266	541	14.0	13.2	25.1	20	S	20	S
25 Jul	6	211.0	53	1,645	47	1,313	550	15.7	13.7	24.6	5	S	15	SW
26 Jul	0[b]	0.0	0	1,645	0	1,313	0							
27 Jul	6	207.0	73	1,718	58	1,371	551	15.8	13.7	24.8	15	N	10	N
28 Jul	6	196.5	46	1,764	44	1,415	555	15.5	13.5	24.5	5	S	5	SW
29 Jul	6	198.0	62	1,826	60	1,475	553	19.0	13.7	25.0	0		5	SW
30 Jul	6	193.0	33	1,859	31	1,505	550	17.6	12.7	26.1	10	SW	0	

Note: Wind speed (velocity) is measured in knots. Blank cells mean no data available.

[a] Sockeye salmon indices were linearly interpolated for days with missing stations.

[b] Not all stations fished due to weather or mechanical issues.

Appendix A2.–Upper Cook Inlet sockeye salmon enumeration by watershed and date, 2019.

	Kenai River		Kasilof River		Fish Creek		Chelatna Lake		Larson Lake		Judd Lake	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
15 Jun			1,932	1,932								
16 Jun			1,008	2,940								
17 Jun			1139	4,079								
18 Jun			1,722	5,801								
19 Jun			2,528	8,329								
20 Jun			2,254	10,583								
21 Jun			2,790	13,373								
22 Jun			3,516	16,889								
23 Jun			2,790	19,679								
24 Jun			4,518	24,197								
25 Jun			5,550	29,747								
26 Jun			4,584	34,331								
27 Jun			3,048	37,379								
28 Jun			2,070	39,449								
29 Jun			3,030	42,479								
30 Jun			2,508	44,987								
1 Jul	6,810	6,810	6,690	51,677								
2 Jul	7,230	14,040	2,910	54,587								
3 Jul	6,250	20,290	4,716	59,303	0	0						
4 Jul	7,740	28,030	5,432	64,735	0	0						
5 Jul	8,472	36,502	3,000	67,735	0	0						
6 Jul	9,093	45,595	6,570	74,305	0	0			0	0		
7 Jul	12,621	58,216	8,556	82,861	0	0			0	0		
8 Jul	21,444	79,660	15,774	98,635	0	0			0	0		
9 Jul	15,190	94,850	6,726	105,361	1	1			0	0		
10 Jul	10,485	105,335	17,102	122,463	0	1			0	0		
11 Jul	14,098	119,433	16,558	139,021	0	1	0	0	0	0		
12 Jul	22,868	142,301	7,516	146,537	0	1	2	2	0	0		
13 Jul	20,130	162,431	12,724	159,261	0	1	1	3	0	0		
14 Jul	34,054	196,485	7,306	166,567	0	1	0	3	0	0	0	0
15 Jul	30,509	226,994	7,089	173,656	0	1	11	14	0	0	0	0

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	Kenai River		Kasilof River		Fish Creek		Chelatna Lake		Judd Lake		Larson Lake	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
16 Jul	16,420	243,414	5,857	179,513	0	1	0	14	0	0	0	0
17 Jul	23,285	266,699	14,012	193,525	0	1	0	14	0	0	0	0
18 Jul	46,059	312,758	8,709	202,234	0	1	60	74	0	0	0	0
19 Jul	25,963	338,721	6,657	208,891	0	1	273	347	1	1	0	0
20 Jul	35,652	374,373	11,885	220,776	0	1	398	745	1	2	0	0
21 Jul	76,650	451,023	11,124	231,900	1,890	1,891	435	1,180	1	3	0	0
22 Jul	75,542	526,565	6,563	238,463	3,479	5,370	457	1,637	0	3	0	0
23 Jul	36,107	562,672	8,190	246,653	3,798	9,168	630	2,267	198	201	0	0
24 Jul	53,574	616,246	11,102	257,755	11,792	20,960	345	2,612	219	420	194	194
25 Jul	80,928	697,174	12,133	269,888	11,007	31,967	815	3,427	284	704	18	212
26 Jul	77,996	775,170	11,309	281,197	1,269	33,236	650	4,077	417	1,121	0	212
27 Jul	98,201	873,371	11,419	292,616	36	33,272	707	4,784	408	1,529	0	212
28 Jul	99,038	972,409	8,508	301,124	381	33,653	895	5,679	551	2,080	43	255
29 Jul	75,604	1,048,013	5,688	306,812	3,246	36,899	718	6,397	795	2,875	445	700
30 Jul	42,439	1,090,452	6,736	313,548	1,468	38,367	1,643	8,040	1,791	4,666	151	851
31 Jul	34,315	1,124,767	7,961	321,509	66	38,433	2,229	10,269	1,684	6,350	125	976
1 Aug	37,711	1,162,478	4,964	326,473	1,435	39,868	1,429	11,698	923	7,273	161	1,137
2 Aug	42,084	1,204,562	4,658	331,131	980	40,848	1,038	12,736	1,356	8,629	149	1,286
3 Aug	55,930	1,260,492	4,679	335,810	926	41,774	1,658	14,394	2,064	10,693	150	1,436
4 Aug	62,687	1,323,179	6,624	342,434	2,538	44,312	1,640	16,034	2,166	12,859	718	2,154
5 Aug	72,712	1,395,891	7,841	350,275	2,353	46,665	1,803	17,837	2,405	15,264	427	2,581
6 Aug	76,394	1,472,285	7,248	357,523	6,872	53,537	1,568	19,405	2,257	17,521	358	2,939
7 Aug	61,264	1,533,549	5,559	363,082	6,664	60,201	1,166	20,571	2,537	20,058	302	3,241
8 Aug	48,046	1,581,595	4,264	367,346	3,057	63,258	927	21,498	1,156	21,214	675	3,916
9 Aug	37,042	1,618,637	3,156	370,502	1,396	64,654	830	22,328	1,155	22,369	517	4,433
10 Aug	32,759	1,651,396	3,018	373,520	2,068	66,722	604	22,932	1,015	23,384	462	4,895
11 Aug	32,146	1,683,542	2,664	376,184	788	67,510	528	23,460	862	24,246	519	5,414
12 Aug	25,377	1,708,919	2,232	378,416	423	67,933	512	23,972	1,084	25,330	385	5,799
13 Aug	22,158	1,731,077			389	68,322	457	24,429	973	26,303	421	6,220
14 Aug	25,809	1,756,886			1,290	69,612	425	24,854	1,246	27,549	448	6,668
15 Aug	24,908	1,781,794			285	69,897	498	25,352	1,264	28,813	297	6,965

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	Kenai River		Kasilof River		Fish Creek		Chelatna Lake		Judd Lake		Larson Lake	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
16 Aug	22,220	1,804,014			285	70,182	412	25,764	1,078	29,891	122	7,087
17 Aug	18,146	1,822,160			235	70,417	255	26,019	1,017	30,908	275	7,362
18 Aug	16,763	1,838,923			763	71,180	168	26,187	975	31,883	196	7,558
19 Aug	10,131	1,849,054			300	71,480	116	26,303	1,120	33,003	260	7,818
20 Aug					83	71,563			1,696	34,699	350	8,168
21 Aug					39	71,602			1,546	36,245	290	8,458
22 Aug					26	71,628			954	37,199	284	8,742
23 Aug					1,178	72,806			888	38,087	213	8,955
24 Aug					287	73,093			1,193	39,280	213	9,168
25 Aug					498	73,591			820	40,100	184	9,352
26 Aug					935	74,526			767	40,867	74	9,426
27 Aug					207	74,733			788	41,655	134	9,560
28 Aug					99	74,832			875	42,530	129	9,689
29 Aug					34	74,866			497	43,027	10	9,699
30 Aug					85	74,951			311	43,338		
31 Aug					31	74,982			401	43,739		
1 Sep					429	75,411			406	44,145		
2 Sep					106	75,517						
3 Sep					57	75,574						
4 Sep					7	75,581						
5 Sep					8	75,589						
6 Sep					9	75,598						
7 Sep					87	75,685						
8 Sep					177	75,862						
9 Sep					34	75,896						
10 Sep					2	75,898						
11 Sep					3	75,901						
12 Sep					4	75,905						
13 Sep					6	75,911						

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	Kenai River		Kasilof River		Fish Creek		Chelatna Lake		Judd Lake		Larson Lake	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
14 Sep					4	75,915						
15 Sep					33	75,948						
16 Sep					2	75,950						
17 Sep					70	76,020						
18 Sep					4	76,024						
19 Sep					2	76,026						
20 Sep					2	76,028						
21 Sep					3	76,031						

Note: Blank cells mean no data.

Appendix A3.–Commercial Chinook salmon catch by area and date, Upper Cook Inlet, 2019

	Upper Subdistrict set gillnet															
	244-21 Ninilchik		244-22 Cohoe		244-25 KRSHA		244-31 South K-Beach		244-32 North K-Beach		244-41 Salamatof		244-42 E. Forelands		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	21	21	19	19			12	12		0		0		0	52	52
29 Jun	20	41	12	31			12	24		0		0		0	44	96
1 Jul	17	58	19	50			9	33		0		0		0	45	141
4 Jul	22	80	24	74			28	61		0		0		0	74	215
8 Jul	39	119	39	113			49	110	26	26	96	96	6	6	255	470
11 Jul	31	150	43	156			37	147	39	65	90	186	8	14	248	718
13 Jul	24	174	23	179			41	188	4	69					92	810
15 Jul	26	200	45	224			30	218	39	108	80	266	3	17	223	1,033
18 Jul	50	250	53	277			51	269	77	185	170	436	10	27	411	1,444
21 Jul	24	274	26	303			41	310	13	198					104	1,548
22 Jul	24	298	27	330			27	337	37	235	107	543	13	40	235	1,783
25 Jul	19	317	14	344			35	372	26	261	30	573	2	42	126	1,909
28 Jul	7	324	9	353			15	387	12	273	53	626	4	46	100	2,009
29 Jul	7	331	9	362			16	403	16	289	43	669	2	48	93	2,102
31 Jul	7	338	7	369			14	417	15	304	25	694	2	50	70	2,172
1 Aug	4	342	13	382			17	434	11	315	7	701	4	54	56	2,228
2 Aug			1	383			3	437							4	2,232
3 Aug	3	345	3	386			4	441	2	317			1	55	13	2,245

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	Central District west side set gillnet																			
	245-10 Chinitna Bay		245-20 Silv. Salmon		245-30 Tuxedni Bay		245-40 Polly Cr.		245-50 L. J. Slough[a]		245-55 Big River		245-60 W. Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
3 Jun											17	17			61	61			78	78
5 Jun											36	53			29	90			65	143
7 Jun											31	84			12	102			43	186
10 Jun											59	143			29	131			88	274
12 Jun											33	176			40	171			73	347
14 Jun											11	187			21	192			32	379
17 Jun					4	4					14	201			16	208			34	413
19 Jun															6	214			6	419
21 Jun															5	219			5	424
24 Jun					8	12									2	221			10	434
27 Jun					19	31									4	225	1	1	24	458
1 Jul					6	37									3	228			9	467
4 Jul					4	41									1	229			5	472
8 Jul					7	48									1	230			8	480
11 Jul					2	50									3	233			5	485
13 Jul					2	52													2	487
15 Jul					5	57									5	238	3	4	13	500
18 Jul					5	62									2	240			7	507
20 Jul					4	66													4	511
22 Jul					5	71									1	241			6	517
25 Jul					1	72													1	518
29 Jul					2	74													2	520
1 Aug					1	75											1	5	2	522
15 Aug															1	242			1	523

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	Northern District set gillnet																			
	247-10 Trading Bay		247-20 Tyonek		247-30 Beluga		247-41 Su. Flats		247-42 Pt. McKenzie		247-43 Fire Island		247-70 Pt. Possesion		247-80 Birch Hill		247-90 #3 Bay		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	11	11	79	79	10	10			1	1	7	7	5	5	3	3	2	2	118	118
1 Jul	6	17	15	94	5	15						7	6	11	1	4			33	151
4 Jul	2	19	5	99	2	17			3	3		7							12	163
8 Jul	1	20	3	102	1	18	2	2	1	4		7							8	171
11 Jul	1	21	2	104	1	19			3		1	8	1	12	2	6			11	182
15 Jul					3	22	2	4					1	13					6	188
18 Jul	1	22	1	105	1	23			1	6									4	192
22 Jul			1	106	1	24													2	194
25 Jul			1	107	1	25													2	196
29 Jul			1	108									1	14					2	198
5 Aug																	1	3	1	199
8 Aug															1	7			1	200
15 Aug			1	109															1	201
19 Aug																	1	4	1	202

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Central District drift gillnet															
		244-26 Kasilof SHA		244-57[b] Exp. Ken/Kas & A. P.		244-60 Districtwide		244-61 Kas. Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum			Daily	Cum	Daily	Cum
20 Jun	76					16	16							16	16
24 Jun	82					29	45							29	45
27 Jun	124					10	55							10	55
1 Jul	198					7	62							7	62
4 Jul	251					9	71							9	71
8 Jul	309					8	79							8	79
11 Jul	321					22	101							22	101
13 Jul	55							5	5					5	106
15 Jul	331					8	109							8	114
18 Jul	339					7	116							7	121
22 Jul	343					11	127							11	132
25 Jul	340			15	15									15	147
28 Jul	220			7	22									7	154
29 Jul	320					4	131							4	158
31 Jul	268			7	29									7	165
1 Aug	232					3	134							3	168
2 Aug	116			1	30		134							1	169
3 Aug	57			1	31									1	170
5 Aug	199			2	33									2	172
7 Aug	134			2	35									2	174
8 Aug	167					2	136							2	176
12 Aug	73					1	137							1	177
19 Aug	12									1	1			1	178

Note: Blank cells mean no data.

[a] L. J. Slough means Little Jack Slough.

[b] Statistical area 244-57 includes Expanded Kenai (244-52), Expanded Kasilof (244-62), and Anchor Point (244-63) sections.

Appendix A4.–Commercial sockeye salmon catch by area and date, Upper Cook Inlet, 2019.

	Upper Subdistrict set gillnet													
	244-21 Ninilchik		244-22 Cohoe		244-31 South K-Beach		244-32 North K-Beach		244-41 Salamatof		244-42 East Forelands		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	6,811	6,811	3,260	3,260	1,896	1,896							11,967	11,967
29 Jun	6,720	13,531	3,459	6,719	2,012	3,908							12,191	24,158
1 Jul	8,904	22,435	5,382	12,101	3,576	7,484							17,862	42,020
4 Jul	5,519	27,954	5,176	17,277	4,216	11,700							14,911	56,931
8 Jul	10,107	38,061	8,718	25,995	5,867	17,567	4,128	4,128	4,114	4,114	2,352	2,352	35,286	92,217
11 Jul	7,714	45,775	6,212	32,207	4,668	22,235	6,539	10,667	14,373	18,487	6,334	8,686	45,840	138,057
13 Jul	5,227	51,002	4,507	36,714	4,112	26,347	3,227	13,894					17,073	155,130
15 Jul	5,383	56,385	6,571	43,285	4,708	31,055	7,329	21,223	12,254	30,741	5,043	13,729	41,288	196,418
18 Jul	5,481	61,866	8,011	51,296	5,563	36,618	8,938	30,161	19,751	50,492	7,758	21,487	55,502	251,920
21 Jul	6,085	67,951	5,656	56,952	5,524	42,142	8,076	38,237					25,341	277,261
22 Jul	4,214	72,165	4,055	61,007	2,418	44,560	7,266	45,503	34,390	84,882	12,084	33,571	64,427	341,688
25 Jul	8,532	80,697	8,928	69,935	8,699	53,259	13,125	58,628	47,460	132,342	16,731	50,302	103,475	445,163
28 Jul	17,734	98,431	17,378	87,313	9,289	62,548	14,133	72,761	22,625	154,967	9,872	60,174	91,031	536,194
29 Jul	13,064	111,495	8,774	96,087	5,280	67,828	12,666	85,427	20,067	175,034	8,433	68,607	68,284	604,478
31 Jul	14,234	125,729	9,608	105,695	5,064	72,892	8,746	94,173	36,729	211,763	18,308	86,915	92,689	697,167
1 Aug	7,165	132,894	7,136	112,831	2,554	75,446	5,551	99,724	14,923	226,686	13,050	99,965	50,379	747,546
2 Aug	2,099	134,993	1,052	113,883	653	76,099	1,331	101,055					5,135	752,681
3 Aug	5,747	140,740	3,297	117,180	1,381	77,480	2,163	103,218	11,339	238,025	7,671	107,636	31,598	784,279

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Central District west side set gillnet																
	245-10 Chinitna Bay		245-30 Tuxedni Bay		245-50 Little Jack Slough		245-55 Big River		245-60 W. Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
3 Jun							181	181			1,057	1,057			1,238	1,238
5 Jun							230	411			598	1,655			828	2,066
7 Jun							267	678			1,053	2,708			1,320	3,386
10 Jun							295	973			1,022	3,730			1,317	4,703
12 Jun							117	1,090			633	4,363			750	5,453
14 Jun							196	1,286			655	5,018			851	6,304
17 Jun			458	458			234	1,520			694	5,712			1,386	7,690
19 Jun							107	1,627			284	5,996			391	8,081
20 Jun			531	989	70	70									601	8,682
21 Jun							113	1,740			422	6,418			535	9,217
24 Jun			936	1,925	249	319					333	6,751			1,518	10,735
27 Jun			1,361	3,286	125	444			101	101	532	7,283	392	392	2,511	13,246
29 Jun															0	13,246
1 Jul			2,059	5,345	115	559					782	8,065	617	1,009	3,573	16,819
4 Jul			3,362	8,707	83	642					1,342	9,407	363	1,372	5,150	21,969
8 Jul			3,408	12,115	408	1,050					4,330	13,737	750	2,122	8,896	30,865
11 Jul			4,120	16,235	364	1,414					1,260	14,997	780	2,902	6,524	37,389
13 Jul			4,491	20,726											4,491	41,880

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Central District west side set gillnet																
	245-10 Chinitna Bay		245-30 Tuxedni Bay		245-50 Little Jack Slough		245-55 Big River		245-60 W. Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
15 Jul			3,521	24,247							3,185	18,182	2,449	5,351	9,155	51,035
18 Jul			2,163	26,410	703	2,117	97	1,837			3,368	21,550	1,002	6,353	7,333	58,368
20 Jul			3,506	29,916											3,506	61,874
22 Jul			3,802	33,718	711	2,828	126	1,963	239	340	2,947	24,497	1,138	7,491	8,963	70,837
25 Jul			4,611	38,329	1,108	3,936			177	517	830	25,327	933	8,424	7,659	78,496
27 Jul			3,565	41,894											3,565	82,061
29 Jul			3,131	45,025	932	4,868			277	794	1,952	27,279	1,327	9,751	7,619	89,680
1 Aug			1,782	46,807	419	5,287					1,787	29,066	771	10,522	4,759	94,439
3 Aug			993	47,800											993	95,432
5 Aug			2,421	50,221	469	5,756			545	1,339	3,907	32,973	632	11,154	7,974	103,406
8 Aug			1,051	51,272	328	6,084			138	1,477	1,257	34,230	791	11,945	3,565	106,971
10 Aug											517	34,747	423	12,368	940	107,911
12 Aug	10	10	388	51,660	171	6,255			43	1,520	566	35,313	920	13,288	2,098	110,009
15 Aug	6	16	257	51,917	170	6,425					1,108	36,421	1,546	14,834	3,087	113,096
19 Aug					47	6,472			1	1,521	34	36,455	296	15,130	378	113,474
22 Aug													219	15,349	219	113,693
5 Sep													2	15,351	2	113,695

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Appendix A4.–Page 4 of 6.

Northern District set gillnet																				
	247-10 Trading Bay		247-20 Tyonek		247-30 Beluga		247-41 Su. Flats		247-42 Pt. McKenzie		247-43 Fire Island		247-70 Pt. Possesion		247-80 Birch Hill		247-90 #3 Bay		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	43	43	199	199	60	60			9	9	5	5	225	225	188	188	244	244	973	973
1 Jul	216	259	355	554	91	151			15	24	19	24	471	696	244	432	405	649	1,816	2,789
4 Jul	82	341	241	795	110	261			41	65	6	30	294	990	105	537	276	925	1,155	3,944
8 Jul	42	383	1,122	1,917	482	743	112	112	114	179	49	79	569	1,559	736	1,273	590	1,515	3,816	7,760
11 Jul	70	453	2,005	3,922	212	955	140	252	272	451	154	233	388	1,947	1,585	2,858	616	2,131	5,442	13,202
15 Jul	88	541	1,663	5,585	896	1,851	561	813	826	1,277	156	389	931	2,878	1,125	3,983	62	2,193	6,308	19,510
18 Jul	93	634	2,220	7,805	818	2,669	709	1,522	581	1,858	287	676	1,251	4,129	1,004	4,987	341	2,534	7,304	26,814
22 Jul	53	687	2,423	10,228	1,694	4,363	729	2,251	341	2,199	424	1,100	1,262	5,391	1,251	6,238	710	3,244	8,887	35,701
25 Jul	383	1,070	2,378	12,606	743	5,106	418	2,669	336	2,535	279	1,379	2,250	7,641	2,719	8,957	1,244	4,488	#####	46,451
29 Jul	101	1,171	2,475	15,081	1,174	6,280	698	3,367	531	3,066	617	1,996	987	8,628	875	9,832	879	5,367	8,337	54,788
1 Aug	9	1,180	1,166	16,247	369	6,649	167	3,534	455	3,521	129	2,125	257	8,885	562	10,394	1,106	6,473	4,220	59,008
5 Aug	13	1,193	2,042	18,289	433	7,082	150	3,684	260	3,781	87	2,212	559	9,444	1,051	11,445	1,467	7,940	6,062	65,070
8 Aug	375	1,568	956	19,245	319	7,401	63	3,747	161	3,942	96	2,308	322	9,766	354	11,799	498	8,438	3,144	68,214
12 Aug	206	1,774	514	19,759			152	3,899	105	4,047	102	2,410	176	9,942	215	12,014	390	8,828	1,860	70,074
15 Aug	211	1,985	503	20,262					26	4,073	17	2,427	157	10,099	282	12,296	522	9,350	1,718	71,792
19 Aug	163	2,148	169	20,431			10	3,909	23	4,096	43	2,470	35	10,134	57	12,353	176	9,526	676	72,468
22 Aug	73	2,221	56	20,487									99	10,233	140	12,493	141	9,667	509	72,977
26 Aug	57	2,278	3	20,490									16	10,249	30	12,523	51	9,718	157	73,134
29 Aug	18	2,296	1	20,491									7	10,256	3	12,526	33	9,751	62	73,196
2 Sep																	1	9,752	1	73,197
5 Sep			2	20,493									6	10,262	4	12,530	9	9,761	21	73,217
9 Sep															2	12,532			2	73,219

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Appendix A4.–Page 5 of 6.

Central District drift gillnet													
		244-57[a] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kas. Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
20 Jun	76			1,961	1,961							1,961	1,961
24 Jun	82			2,182	4,143							2,182	4,143
27 Jun	124			2,491	6,634							2,491	6,634
1 Jul	198			7,962	14,596							7,962	14,596
4 Jul	251			12,017	26,613							12,017	26,613
8 Jul	309			30,397	57,010							30,397	57,010
11 Jul	321			44,682	101,692							44,682	101,692
13 Jul	55					662	662					662	102,354
15 Jul	331			64,412	166,104							64,412	166,766
18 Jul	339			114,240	280,344							114,240	281,006
22 Jul	343			98,400	378,744							98,400	379,406
25 Jul	340	87,200	87,200									87,200	466,606
28 Jul	220	45,338	132,538									45,338	511,944
29 Jul	320			73,029	451,773							73,029	584,973
31 Jul	268	33,789	166,327									33,789	618,762
1 Aug	232			41,444	493,217							41,444	660,206
2 Aug	116	7,489	173,816									7,489	667,695
3 Aug	57	8,274	182,090									8,274	675,969
5 Aug	199	23,553	205,643									23,553	699,522
6 Aug	151	17,149	222,792									17,149	716,671
7 Aug	134	10,095	232,887									10,095	726,766

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Central District drift gillnet													
		244-57[a] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kasilof Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Cum	Cum	Daily	Cum
8 Aug	167			11,600	504,817							11,600	738,366
9 Aug	52	2,732	235,619									2,732	741,098
10 Aug	35	1,511	237,130									1,511	742,609
11 Aug	10	268	237,398									268	742,877
12 Aug	73			4,238	509,055							4,238	747,115
15 Aug	25							864	864			864	747,979
16 Aug	20									614	614	614	748,593
19 Aug	12							292	1,156			292	748,885
20 Aug	11									24	638	24	748,909
22 Aug	20							131	1,287			131	749,040
23 Aug	10									16	654	16	749,056
26 Aug	10							26	1,313			26	749,082
29 Aug	4							15	1,328			15	749,097
5 Sep	6							2	1,330			2	749,099
9 Sep	5							2	1,332			2	749,101

Note: Blank cells mean no data.

[a] Statistical area 244-57 includes Expanded Kenai (Exp. Ken; 244-52), Expanded Kasilof (Kas; 244-62), and Anchor Point (AP; 244-63) sections.

Appendix A5.–Commercial coho salmon catch by area and date, Upper Cook Inlet, 2019.

	Upper Subdistrict set gillnet													
	244 21 Ninilchik		244 22 Cohoe		244 31 South K Beach		244 32 North K Beach		244 41 Salamatof		244 42 E. Forelands		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
29 Jun	3	3	2	2									5	5
1 Jul	10	13	5	7	2	2							17	22
4 Jul	11	24	5	12									16	38
8 Jul	29	53	27	39	4	6	16	16	57	57	65	65	198	236
11 Jul	60	113	54	93	14	20	28	44	120	177	113	178	389	625
13 Jul	63	176	40	133	16	36	14	58					133	758
15 Jul	103	279	69	202	11	47	20	78	100	277	169	347	472	1,230
18 Jul	49	328	53	255	20	67	42	120	150	427	227	574	541	1,771
21 Jul	77	405	90	345	12	79	6	126					185	1,956
22 Jul	53	458	44	389	11	90	12	138	92	519	194	758	406	2,362
25 Jul	127	585	138	527	16	106	22	160	91	610	100	858	494	2,856
28 Jul	163	748	95	622	38	144	29	189	113	723	289	1,147	727	3,583
29 Jul	104	852	51	673	15	159	21	210	99	822	159	1,306	449	4,032
31 Jul	173	1,025	72	745	22	181	16	226	93	915	219	1,525	595	4,627
1 Aug	284	1,309	146	891	35	216	63	289	119	1,034	336	1,861	983	5,610
2 Aug	89	1,398	41	932	19	235	24	313					173	5,783
3 Aug	213	1,611	84	1,016	22	257	61	374	110	1,144	234	2,095	724	6,507

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Central District west side set gillnet																				
	245-10 Chinitna Bay		245-20 Silv. Salmon		245-30 Tuxedni Bay		245-40 Polly Cr.		245-50 L. J. Slough[a]		245-55 Big River		245-60 W. Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
1 Jul									1	1					8	8	13	13	22	22
4 Jul					16	16			1	2					64	72	6	19	87	109
8 Jul					77	93			5	7					296	368	51	70	429	538
11 Jul					62	155			25	32					497	865	141	211	725	1,263
13 Jul					176	331													176	1,439
15 Jul					193	524									807	1,672	323	534	1,323	2,762
18 Jul					361	885			82	114	215	215			1,267	2,939	200	734	2,125	4,887
20 Jul					254	1,139													254	5,141
22 Jul					280	1,419			136	250	160	375	76	76	1,240	4,179	168	902	2,060	7,201
25 Jul					347	1,766			76	326			207	283	118	4,297	69	971	817	8,018
27 Jul					300	2,066													300	8,318
29 Jul					624	2,690			132	458			149	432	626	4,923	222	1,193	1,753	10,071
1 Aug					403	3,093			205	663					237	5,160	62	1,255	907	10,978
3 Aug					93	3,186													93	11,071
5 Aug					399	3,585			175	838			467	899	562	5,722	27	1,282	1,630	12,701
8 Aug					422	4,007			285	1,123			72	971	792	6,514	155	1,437	1,726	14,427
10 Aug															98	6,612	86	1,523	184	14,611
12 Aug	142	142			69	4,076			184	1,307			121	1,092	284	6,896	152	1,675	952	15,563
15 Aug	88	230			114	4,190			371	1,678					165	7,061	133	1,808	871	16,434
19 Aug									112	1,790			108	1,200	25	7,086	14	1,822	259	16,693
22 Aug																7,086	30	1,852	30	16,723
26 Aug													66	1,266		7,086			66	16,789
5 Sep																7,086				16,789

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Appendix A5.–Page 3 of 5.

	Northern District set gillnet																			
	247-10 Trading Bay		247-20 Tyonek		247-30 Beluga		247-41 Su. Flats		247-42 Pt. McKenzie		247-43 Fire Island		247-70 Pt. Possession		247-80 Birch Hill		247-90 #3 Bay		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	2	2													2	2	1	1	5	5
1 Jul	5	7	15	15	7	7			1	1	1	1	7	7		2	2	3	38	43
4 Jul	6	13	35	50	7	14			5	6		1	1	8	1	3	5	8	60	103
8 Jul	15	28	100	150	101	115	49	49	52	58	26	27	32	40	24	27	11	19	410	513
11 Jul	29	57	507	657	352	467	46	95	63	121	119	146	105	145	97	124	23	42	1,341	1,854
15 Jul	85	142	1,518	2,175	591	1,058	82	177	177	298	129	275	330	475	234	358	1	43	3,147	5,001
18 Jul	52	194	1,992	4,167	1,618	2,676	300	477	306	604	254	529	220	695	118	476	21	64	4,881	9,882
22 Jul	77	271	937	5,104	1,462	4,138	469	946	335	939	476	1,005	373	1,068	298	774	167	231	4,594	14,476
25 Jul	116	387	1,731	6,835	924	5,062	276	1,222	299	1,238	421	1,426	523	1,591	277	1,051	53	284	4,620	19,096
29 Jul	57	444	844	7,679	931	5,993	672	1,894	450	1,688	385	1,811	377	1,968	246	1,297	48	332	4,010	23,106
1 Aug	39	483	1,515	9,194	320	6,313	104	1,998	479	2,167	210	2,021	69	2,037	215	1,512	74	406	3,025	26,131
5 Aug	35	518	1,628	10,822	330	6,643	40	2,038	327	2,494	313	2,334	349	2,386	666	2,178	133	539	3,821	29,952
8 Aug	134	652	1,629	12,451	117	6,760	41	2,079	175	2,669	355	2,689	355	2,741	656	2,834	295	834	3,757	33,709
12 Aug	93	745	1,293	13,744			237	2,316	182	2,851	372	3,061	381	3,122	976	3,810	583	1,417	4,117	37,826
15 Aug	160	905	1,691	15,435					112	2,963	171	3,232	347	3,469	1,531	5,341	662	2,079	4,674	42,500
19 Aug	60	965	685	16,120			25	2,341	61	3,024	110	3,342	52	3,521	147	5,488	571	2,650	1,711	44,211
22 Aug	140	1,105	777	16,897									544	4,065	1,617	7,105	594	3,244	3,672	47,883
26 Aug	91	1,196	231	17,128									147	4,212	634	7,739	455	3,699	1,558	49,441
29 Aug	66	1,262	190	17,318									116	4,328	392	8,131	339	4,038	1,103	50,544
2 Sep	19	1,281	36	17,354											137	8,268	51	4,089	243	50,787
5 Sep	19	1,300	111	17,465									233	4,561	388	8,656	51	4,140	802	51,589
9 Sep													54	4,615	177	8,833			231	51,820
12 Sep															73	8,906			73	51,893
16 Sep															27	8,933			27	51,920
19 Sep															15	8,948			15	51,935

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		Central District drift gillnet											
		244-57[b] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kas. Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
20 Jun	76			1	1							1	1
24 Jun	82			1	2							1	2
27 Jun	124			7	9							7	9
1 Jul	198			151	160							151	160
4 Jul	251			276	436							276	436
8 Jul	309			1,411	1,847							1,411	1,847
11 Jul	321			3,661	5,508							3,661	5,508
13 Jul	55					12	12					12	5,520
15 Jul	331			7,575	13,083							7,575	13,095
18 Jul	339			13,582	26,665							13,582	26,677
22 Jul	343			9,139	35,804							9,139	35,816
25 Jul	340	4,208	4,208									4,208	40,024
28 Jul	220	1,769	5,977									1,769	41,793
29 Jul	320			8,716	44,520							8,716	50,509
31 Jul	268	1,884	7,861		44,520							1,884	52,393
1 Aug	232			8,556	53,076							8,556	60,949
2 Aug	116	569	8,430									569	61,518
3 Aug	57	515	8,945									515	62,033
5 Aug	199	1,289	10,234									1,289	63,322
6 Aug	151	1,393	11,627									1,393	64,715
7 Aug	134	803	12,430									803	65,518

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Central District drift gillnet													
		244-57[b] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kasilof Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
8 Aug	167			4,683	57,759							4,683	70,201
9 Aug	52	317	12,747									317	70,518
10 Aug	35	111	12,858									111	70,629
11 Aug	10	28	12,886									28	70,657
12 Aug	73			3,900	61,659							3,900	74,557
15 Aug	25							2,527	2.527			2,527	77,084
16 Aug	20									2,694	2,694	2,694	79,778
19 Aug	12							2,018	4,545			2,018	81,796
20 Aug	11									568	3,262	568	82,364
22 Aug	20							2,157	6,702			2,157	84,521
23 Aug	10									811	4,073	811	85,332
26 Aug	10							1,147	6,702			1,147	86,479
27 Aug	2									163	4,236	163	86,642
29 Aug	4							355	7,849			355	86,997
30 Aug	4									157	4,393	157	87,154
5 Sep	6							811	8,204			811	87,965
6 Sep	2									254	4,647	254	88,219
9 Sep	5							301	9,015			301	88,520
10 Sep	2									98	4,745	98	88,618

Note: Blank cells mean no data.

[a] L. J. Slough means Little Jack Slough

[b] Statistical area 244-57 includes Expanded Kenai (Exp. Ken; 244-52), Expanded Kasilof (Kas; 244-62), and Anchor Point (AP; 244-63) sections.

Appendix A6.–Commercial pink salmon catch by area and date, Upper Cook Inlet 2019.

	Upper Subdistrict set gillnet													
	244-21 Ninilchik		244-22 Cohoe		244-31 South K-Beach		244-32 North K-Beach		244-41 Salamatof		244-42 E. Forelands		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	118	118	212	212	33	33							363	363
29 Jun	220	338	275	487	44	77							539	902
1 Jul	512	850	702	1,189	48	125							1,262	2,164
4 Jul	607	1,457	574	1,763	226	351							1,407	3,571
8 Jul	1,299	2,756	1,555	3,318	277	628	126	126	230	230	701	701	4,188	7,759
11 Jul	725	3,481	951	4,269	266	894	305	431	306	536	693	1,394	3,246	11,005
13 Jul	1,413	4,894	1,558	5,827	319	1,213	153	584					3,443	14,448
15 Jul	2,557	7,451	1,592	7,419	142	1,355	200	784	155	691	266	1,660	4,912	19,360
18 Jul	1,582	9,033	1,955	9,374	370	1,725	623	1,407	262	953	825	2,485	5,617	24,977
21 Jul	1,141	10,174	577	9,951	65	1,790	83	1,490					1,866	26,843
22 Jul	796	10,970	888	10,839	65	1,855	105	1,595	182	1,135	399	2,884	2,435	29,278
25 Jul	337	11,307	568	11,407	27	1,882	31	1,626	113	1,248	187	3,071	1,263	30,541
28 Jul	168	11,475	271	11,678	24	1,906	30	1,656	118	1,366	272	3,343	883	31,424
29 Jul	153	11,628	187	11,865	9	1,915	30	1,686	70	1,436	135	3,478	584	32,008
31 Jul	118	11,746	106	11,971	8	1,923	20	1,706	35	1,471	110	3,588	397	32,405
1 Aug	60	11,806	62	12,033	13	1,936	11	1,717	10	1,481	45	3,633	201	32,606
2 Aug	16	11,822	2	12,035	1	1,937	2	1,719					21	32,627
3 Aug	11	11,833	5	12,040	2	1,939	1	1,720	1	1,482	13	3,646	33	32,660

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Central District west side set gillnet																				
	245-10 Chinitna Bay		245-20 Silv. Salmon		245-30 Tuxedni Bay		245-40 Polly Cr.		245-50 L. J. Slough[a]		245-55 Big River		245-60 W. Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
17 Jun					1	1													1	1
20 Jun					1	2													1	2
21 Jun															1	1			1	3
24 Jun					3	5									7	8			10	13
27 Jun					31	36							1	1	34	42	27	27	93	106
1 Jul					16	52			6	6					150	192	21	48	193	299
4 Jul					50	102			8	14					247	439	36	84	341	640
8 Jul					203	305			90	104					548	987	26	110	867	1,507
11 Jul					128	433			57	161					315	1,302	101	211	601	2,108
13 Jul					109	542													109	2,217
15 Jul					71	613									216	1,518	86	297	373	2,590
18 Jul					57	670			21	182	12	12			297	1,815	83	380	470	3,060
20 Jul					15	685													15	3,075
22 Jul					60	745			7	189	15	27	21	22	291	2,106			394	3,469
25 Jul					10	755			8	197			7	29	48	2,154	50	430	123	3,592
27 Jul					13	768											9	439	22	3,614
29 Jul					11	779			10	207			8	37	54	2,208	8	447	91	3,705
1 Aug					2	781									10	2,218			12	3,717
5 Aug					5	786			15	222			3	40	15	2,233			38	3,755
8 Aug					6	792			3	225			2	42	2	2,235	2	449	15	3,770
12 Aug	8	8																	8	3,778
15 Aug	2	10							10	235					1	2,236			13	3,791
19 Aug									1	236			2	44	1	2,237			4	3,795

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	Northern District set gillnet																	
	247-10 Trading Bay		247-20 Tyonek		247-30 Beluga		247-41 Su. Flats		247-42 Pt. McKenzie		247-70 Pt. Possesion		247-80 Birch Hill		247-90 #3 Bay		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	4	4							2	2	280	280	173	173	38	38	497	497
1 Jul	16	20							7	9	359	639	51	224	70	108	503	1,000
4 Jul	13	33							4	13	197	836	62	286	32	140	308	1,308
8 Jul	3	36	17	17	5	5			3	16	269	1,105	261	547	158	298	716	2,024
11 Jul	6	42	18	35	47	52	75	75	14	30	231	1,336	355	902	232	530	978	3,002
15 Jul	6	48			221	273	25	100	19	49	166	1,502	106	1,008	13	543	556	3,558
18 Jul	7	55			310	583	57	157	31	80	496	1,998	248	1,256	123	666	1,272	4,830
22 Jul	4	59	15	50	66	649	79	236	40	120	283	2,281	107	1,363	89	755	683	5,513
25 Jul	1	60			45	694			10	130	252	2,533	44	1,407	68	823	420	5,933
29 Jul	2	62			90	784	22	258	30	160	99	2,632	36	1,443	32	855	311	6,244
1 Aug							6	264	31	191	8	2,640	9	1,452	19	874	73	6,317
5 Aug									9	200	19	2,659	4	1,456	13	887	45	6,362
8 Aug			4	54					5	205	5	2,664	2	1,458	6	893	22	6,384
12 Aug	2	64					1	265	1	206	2	2,666			8	901	14	6,398
15 Aug	3	67							1	207	4	2,670	4	1,462	12	913	24	6,422
19 Aug									7	214					1	914	8	6,430
22 Aug	1	68											1	1,463	2	916	4	6,434
26 Aug															1	917	1	6,435
29 Aug															1	918	1	6,436

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Central District drift gillnet													
		244-57[b] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kasilof Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Day	Cum	Daily	Cum	Daily	Cum
20 Jun	76			61	61							61	61
24 Jun	82			93	154							93	154
27 Jun	124			99	253							99	253
1 Jul	198			683	936							683	936
4 Jul	251			1,956	2,892							1,956	2,892
8 Jul	309			4,396	7,288							4,396	7,288
11 Jul	321			2,996	10,284							2,996	10,284
13 Jul	55					126	126					126	10,410
15 Jul	331			4,658	14,942							4,658	15,068
18 Jul	339			3,633	18,575							3,633	18,701
22 Jul	343			3,807	22,382							3,807	22,508
25 Jul	340	2,555	2,555									2,555	25,063
28 Jul	220	514	3,069									514	25,577
29 Jul	320		3,069	1,019	23,401							1,019	26,596
31 Jul	268	279	3,348									279	26,875
1 Aug	232		3,348	297	23,698							297	27,172
2 Aug	116	24	3,372									24	27,196
3 Aug	57	11	3,383									11	27,207
5 Aug	199	59	3,442									59	27,266
6 Aug	151	27	3,469									27	27,293
7 Aug	134	22	3,491									22	27,315
8 Aug	167		3,491	97	23,795							97	27,412

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		Central District drift gillnet											
		244-57[b] Exp. Ken/Kas & A. P.		244-60 Districtwide		244-61 Kasilof Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Day	Day	Cum	Day	Cum	Daily	Cum	Daily	Cum
9 Aug	52	6	3,497									6	27,418
10 Aug	35	4	3,501									4	27,422
11 Aug	10	1	3,502									1	27,423
12 Aug	73			45	23,840							45	27,468
15 Aug	25							27	27			27	27,495
16 Aug	20									45	45	45	27,540
19 Aug	12							7	34			7	27,547
20 Aug	11									10	55	10	27,557
22 Aug	20							40	74			40	27,597
23 Aug	10									3	58	3	27,600
26 Aug	10							3	77			3	27,603
29 Aug	4							4	81			4	27,607

Note: Blank cells mean no data.

[a] L. J. Slough means Little Jack Slough

[b] Statistical area 244-57 includes Expanded Kenai (Exp. Ken; 244-52), Expanded Kasilof (Kas; 244-62), and Anchor Point (AP; 244-63) sections.

Appendix A7.–Commercial chum salmon catch by area and date, Upper Cook Inlet 2019.

	Upper Subdistrict set gillnet													
	244-21 Ninilchik		244-22 Cohoe		244-31 South K-Beach		244-32 North K-Beach		244-41 Salamatof		244-42 East Forelands		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	1	1											1	1
1 Jul	1	2											1	2
4 Jul	2	4	1	1	3	3							6	8
8 Jul	19	23	2	3	2	5	1	1	1	1	2	2	27	35
11 Jul	2	25	3	6	2	7	11	12	3	4	2	4	23	58
13 Jul	2	27			1	8							3	61
15 Jul	3	30	1	7	1	9	2	14	3	7			10	71
18 Jul	9	39	5	12	1	10	1	15	4	11	16	20	36	107
21 Jul	3	42	4	16			5	20				20	12	119
22 Jul	6	48	2	18	3	13			3	14	14	34	28	147
25 Jul	9	57	10	28	2	15	1	21	15	29	10	44	47	194
28 Jul	22	79	8	36	2	17	6	27	21	50	29	73	88	282
29 Jul	27	106	12	48	1	18	1	28	5	55	23	96	69	351
31 Jul	14	120	12	60	1	19			16	71	32	128	75	426
1 Aug	7	127	7	67	1	20			4	75	58	186	77	503
2 Aug	1	128	2	69									3	506
3 Aug	7	135	4	73			1	29			13	199	25	531

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Central District west side set gillnet																
	245-10 Chinitna Bay		245-30 Tuxedni Bay		245-40 Polly Cr.		245-50 Little Jack Slough		245-60 West Forelands		246-10 Kalgin - West		246-20 Kalgin - East		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun			1	1										0	1	1
4 Jul			4	5										0	4	5
8 Jul			26	31			1	1					4	4	31	36
11 Jul			67	98							20	20	3	7	90	126
13 Jul			108	206											108	234
15 Jul			64	270							51	71	54	61	169	403
18 Jul			221	491			17	18			170	241	10	71	418	821
20 Jul			400	891											400	1,221
22 Jul			690	1,581			45	63	2	2	703	944	108	179	1,548	2,769
25 Jul			527	2,108			36	99	2	4	39	983	6	185	610	3,379
27 Jul			461	2,569											461	3,840
29 Jul			699	3,268			62	161	1	5	112	1,095	72	257	946	4,786
1 Aug			227	3,495			19	180			204	1,299	4	261	454	5,240
3 Aug			33	3,528											33	5,273
5 Aug			239	3,767			17	197	13	18	842	2,141			1,111	6,384
8 Aug			395	4,162			24	221	8	26	237	2,378	113	374	777	7,161
10 Aug											99	2,477	51	425	150	7,311
12 Aug	513	513	123	4,285			24	245	3	29	149	2,626	161	586	973	8,284
15 Aug	288	801	45	4,330			16	261			200	2,826	125	711	674	8,958
19 Aug							6	267			1	2,827			7	8,965
22 Aug													18	729	18	8,983
5 Sep													2	731	2	8,985

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Northern District set gillnet																				
	247-10 Trading Bay		247-20 Tyonek		247-30 Beluga		247-41 Su. Flats		247-42 Pt. McKenzie		247-43 Fire Island		247-70 Pt. Possesion		247-80 Birch Hill		247-90 #3 Bay		Total	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
27 Jun	1	1																	1	1
8 Jul					8	8			2	2	1	1	1	1					12	13
11 Jul			18	18	12	20	3	3	6	8	23	24	6	7	4	4			72	85
15 Jul			154	172	134	154	7	10	20	28	17	41	7	14	1	5			340	425
18 Jul	4	5	136	308	180	334	65	75	29	57	44	85	1	15	6	11			465	890
22 Jul	2	7	9	317	266	600	162	237	69	126	128	213	15	30	3	14			654	1,544
25 Jul			3	320	185	785	154	391	27	153	176	389	67	97	21	35	1	1	634	2,178
29 Jul	3	10	71	391	644	1,429	467	858	253	406	90	479	69	166	26	61			1,623	3,801
1 Aug			37	428	67	1,496	73	931	436	842	30	509	6	172	5	66	1	2	655	4,456
5 Aug	1	11	99	527	515	2,011			259	1,101			15	187	21	87	10	12	920	5,376
8 Aug	10	21	161	688	148	2,159	88	1,019	218	1,319	15	524	55	242	18	105	3	15	716	6,092
12 Aug	16	37	114	802			163	1,182	164	1,483	8	532	7	249	3	108	3	18	478	6,570
15 Aug	8	45	227	1,029					66	1,549			4	253	8	116	7	25	320	6,890
19 Aug	9	54	37	1,066			17	1,199	8	1,557	2	534			8	124	1	26	82	6,972
22 Aug	7	61											20	273	21	145	9	35	57	7,029
26 Aug	25	86											17	290	17	162	3	38	62	7,091
29 Aug	10	96											2	292			1	39	13	7,104
2 Sep	1	97													2	164	5	44	8	7,112
5 Sep													5	297			1	45	6	7,118
9 Sep															1	165			1	7,119
12 Sep															5	170			5	7,124

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		Central District drift gillnet											
		244-57[a] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kasilof Section		244-60 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Daily	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
20 Jun	76			66	66							66	66
24 Jun	82			74	140							74	140
27 Jun	124			52	192							52	192
1 Jul	198			185	377							185	377
4 Jul	251			341	718							341	718
8 Jul	309			2,291	3,009							2,291	3,009
11 Jul	321			4,805	7,814							4,805	7,814
13 Jul	55					8	8					8	7,822
15 Jul	331			7,006	14,820							7,006	14,828
18 Jul	339			14,729	29,549							14,729	29,557
22 Jul	343			17,008	46,557							17,008	46,565
25 Jul	340	5,926	5,926									5,926	52,491
28 Jul	220	4,365	10,291									4,365	56,856
29 Jul	320			21,252	67,809							21,252	78,108
31 Jul	268	3,065	13,356									3,065	81,173
1 Aug	232		13,356	10,922	78,731							10,922	92,095
2 Aug	116	1,052	14,408									1,052	93,147
3 Aug	57	600	15,008									600	93,747
5 Aug	199	2,609	17,617									2,609	96,356
6 Aug	151	2,347	19,964									2,347	98,703
7 Aug	134	2,570	22,534									2,570	101,273
8 Aug	167			5,332	84,063							5,332	106,605
9 Aug	52	391	22,925									391	106,996
10 Aug	35	192	23,117									192	107,188
11 Aug	10	31	23,148									31	107,219
12 Aug	73			2,067	86,130							2,067	109,286

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Central District drift gillnet													
		244-57[a] Exp. Ken/Kas & A. P.		244-60 Area 1/Districtwide		244-61 Kasilof Section		244-61 Areas 3 and 4		245-10 Chinitna Bay		Total	
Date	Deliveries	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
15 Aug	25							332	332			332	109,618
16 Aug	20									1,814	1,814	1,814	111,432
19 Aug	12							113	445			113	111,545
20 Aug	11									256	2,070	256	111,801
22 Aug	20							317	762			317	112,118
23 Aug	10									195	2,265	195	112,313
26 Aug	10							36	798			36	112,349
27 Aug	2									47	2,312	47	112,396
29 Aug	4							34	832			34	112,430
30 Aug	4									61	2,373	61	112,491
5 Sep	6							11	843			11	112,502
9 Sep	5							7	850			7	112,509
10 Sep	2									9	2,382	9	112,518

Note: Blank cells mean no data.

[a] Statistical area 244-57 includes Expanded Kenai (Exp Ken; 244-52), Expanded Kasilof (Kas; 244-62), and Anchor Point (AP; 244-63) sections.

Appendix A8.–Commercial catch by gear, statistical area and species, Upper Cook Inlet, 2019.

Gear	District	Subdistrict	Stat area	Permits[a]	Chinook	Sockeye	Coho	Pink	Chum	Total
Drift	Central	All	All	422	178	749,101	88,618	27,607	112,518	978,022
Setnet	Central	Upper	24421	100	345	140,740	1,611	11,833	135	154,664
			24422	83	386	117,180	1,016	12,040	73	130,695
			24431	54	441	77,480	257	1,939	17	80,134
			24432	54	317	103,218	374	1,720	29	105,658
			24441	59	701	238,025	1,144	1,482	75	241,427
			24442	42	55	107,636	2,105	3,646	199	113,641
			All	366	2,245	784,279	6,507	32,660	528	826,219
		Kalgin Is.	24610	22	242	36,455	7,086	2,237	2,827	48,847
			24620	8	5	15,351	1,862	449	752	18,419
			All	24	247	51,806	8,948	2,686	3,579	67,266
		Chinitna	24510	<4	Nd	16	230	10	801	1,057
		Western	24520	0	0	0	0	0	0	0
			24530	15	75	51,917	4,190	792	4,330	61,304
			24540	nd	nd	nd	nd	nd	nd	0
			24550	5	nd	6,472	1,790	236	267	8,765
			All	20	75	58,389	5,980	1,028	4,597	70,069
		Kustatan	24555	10	201	1,963	375	27	0	2,566
			24560	<4	0	1,521	1,266	44	29	2,860
			All	13	201	3,484	1,641	71	29	5,426
Setnet	Central	All		424	2,768	897,974	23,306	36,455	9,534	970,037
Setnet	Northern	General	24710	7	22	2,296	1,300	68	97	3,783
			24720	9	109	20,493	17,465	54	1,066	39,187
			24730	8	25	7,401	6,760	784	2,159	17,129
			24741	8	4	3,909	2,341	265	1,199	7,718
			24742	6	9	4,096	3,024	214	1,557	8,900
			24743	7	8	2,470	3,342	243	534	6,597
			All	42	177	40,665	34,232	1,628	6,612	83,314
Setnet	Northern	Eastern	24770	13	14	10,262	4,615	2,670	297	17,858
			24780	15	7	12,532	8,948	1,463	170	23,120
			24790	6	4	9,761	4,140	918	45	14,868
			All	33	25	32,555	17,703	5,051	512	55,846
Setnet	Northern	All		75	202	73,220	51,935	6,679	7,124	139,160
Setnet		All		499	2,970	971,194	75,241	43,134	16,658	1,109,197
		All UCI		921	3,148	1,720,295	163,859	70,741	129,176	2,087,219

Note: nd = no data.

[a] Permit totals may be less than the sum of individual statistical areas if the same permit was fished in multiple statistical areas.

Appendix A9.–Commercial salmon catch per permit by statistical area, Upper Cook Inlet, 2019.

Gear	District	Subdistrict	Stat Area	Permits[a]	Chinook	Sockeye	Coho	Pink	Chum	Total
Drift	Central	All	All	422	0	1,775	210	65	267	2,318
Set	Central	Upper	24421	100	3	1,407	16	118	1	1,547
			24422	83	5	1,412	12	145	1	1,575
			24431	54	8	1,435	5	36	0	1,484
			24432	54	6	1,911	7	32	1	1,957
			24441	59	12	4,034	19	25	1	4,092
			24442	42	1	2,563	50	87	5	2,706
			All	366	6	2,143	18	89	1	2,257
		Kalgin Is.	24610	22	11	1,657	322	102	129	2,220
			24620	8	1	1,919	233	56	94	2,302
			All		10	2,159	373	112	149	2,803
		Chinitna	24510	<4	0	16	230	10	801	1,057
		Western	24520	0	0	0	0	0	0	0
			24530	15	5	3,461	279	53	289	4,087
			24540	0	0	0	0	0	0	0
			24550	5	0	1,294	358	47	53	1,753
			All	20	4	2,919	299	51	230	3,503
		Kustatan	24555	10	20	196	38	3	0	257
			24560	<4	0	0	0	0	0	0
			All	13	15	268	126	5	2	417
		All	All	424	7	2,118	55	86	22	2,288
	Northern	General	24710	22	1	104	59	3	4	172
			24720	9	12	2,277	1,941	6	118	4,354
			24730	8	3	925	845	98	270	2,141
			24741	8	1	489	293	33	150	965
			24742	6	2	683	504	36	260	1,483
			24743	7	1	353	477	35	76	942
			All	42	4	968	815	39	157	1,984
		Eastern	24770	13	1	789	355	205	23	1,374
			24780	15	0	835	597	98	11	1,541
			24790	6	1	1,627	690	153	8	2,478
			All	33	1	987	536	153	16	1,692
		All	All	75	3	976	692	89	95	1,855
	All	All	All	499	6	1,946	151	86	33	2,223
All	All	All	All	921	3	546	0	0	2	2,266

[a] Permit totals may be less than the sum of individual statistical areas if the same permit was fished in multiple statistical areas.

Appendix A10.–Emergency orders issued during the Upper Cook Inlet season, 2019.

Emergency Order no.	Effective date	Action	Reason
2S-01-19	27 May	Closed the directed-Chinook salmon commercial fishery in all waters of the Northern District of Upper Cook Inlet for the 2019 season. The fishing dates affected by this closure are May 27, and June 3, 10, 17, and 24.	In compliance with 5 AAC 21.366 that states if the Deshka River is closed to sport fishing, the commercial Chinook salmon fishery will close for the remainder of the fishing period during the 2019 season.
2S-02-19	15 May	Closed subsistence salmon fishing in the Tyonek Subdistrict of Upper Cook Inlet from 4:00 a.m. until 8:00 p.m. on Tuesdays from May 15 through June 15, 2019. The subsistence fishery remained open in the Tyonek Subdistrict from 4:00 a.m. until 8:00 p.m. on Thursdays and Fridays from May 15 through June 15, 2019, unless modified by subsequent emergency order. In addition, the Tyonek Subdistrict subsistence fishery will also remain open from June 16 through October 15, 2019, from 6:00 a.m. through 6:00 p.m. on Saturdays, unless modified by subsequent emergency order.	To reduce the harvest of Chinook salmon destined to streams throughout the Northern Cook Inlet watershed.
2S-03-19	15 Jun	Reduced the hours the personal use set gillnet fishery at the mouth of the Kasilof River is open from 6:00 a.m. to 11:00 p.m. to 11:00 a.m. to 11:00 p.m. daily, from Saturday, June 15, 2019 through Monday, June 24, 2019.	To reduce the harvest of Kasilof River Chinook salmon.
2S-04-19	1 Jul	Modified weekly fishing periods in the Upper Subdistrict of the Central District beginning 12:01 a.m. on July 1, 2019.	To reduce the harvest of Kenai bound Chinook salmon and to comply with the Kenai River Late-Run Chinook Salmon Management Plan.
2S-05-19	29 Jun	Opened commercial fishing with set gillnets in the Kasilof Section of the Upper Subdistrict from 8:00 a.m. until 4:00 p.m. on Saturday, June 29, 2019.	To reduce the escapement rate of Kasilof River sockeye salmon.
2S-06-19	1 Jul	Opened commercial fishing with set gillnets in the Kasilof Section of the Upper Subdistrict from 8:00 a.m. until 4:00 p.m. on Monday, July 1, 2019.	To reduce the escapement rate of Kasilof River sockeye salmon.
2S-07-19	4 Jul	Opened commercial fishing with set gillnets in the Kasilof Section of the Upper Subdistrict from 6:00 a.m. until 8:00 p.m. on Thursday, July 4, 2019.	To reduce the escapement rate of Kasilof River sockeye salmon.

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Emergency Order no.	Effective date	Action	Reason
2S-08-19	8 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 8:00 a.m. until 12:00 (midnight) on Monday, July 8, 2019.	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-09-19	11 Jul	Opened commercial salmon fishing with set gillnets in that portion of the Western Subdistrict of the Central District south of the latitude of Redoubt Point from 6:00 a.m. until 10:00 p.m. on Mondays; from 6:00 a.m. until 10:00 p.m. on Thursdays; and from 6:00 a.m. until 10:00 p.m. on Saturdays each week until further notice, effective beginning at 6:00 a.m. on Thursday, July 11, 2018	To reduce the escapement rate of Crescent River sockeye salmon.
2S-10-19	11 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 8:00 a.m. until 12:00 (midnight) on Thursday, July 11, 2019.	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-11-19	13 Jul	Opened set gillnetting in the Kasilof Section of the Upper Subdistrict within one-half mile of the mean high tide mark on the Kenai Peninsula shoreline from 10:00 a.m. until 10:00 p.m. on Saturday, July 13, 2019. Set gillnetting was also opened within 600 feet of the mean high tide mark in that portion of the Kenai Section north of the latitude of the Blanchard Line and south of the latitude of the ADF&G regulatory marker located south of the Kenai River mouth; i.e., the North Kalifornsky Beach statistical area from 10:00 a.m. until 10:00 p.m. on Saturday, July 13, 2019.	To reduce the escapement rate of Kasilof River sockeye salmon.
2S-12-19	15 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 6:00 a.m. until 8:00 p.m. on Monday, July 15, 2019.	'To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-13-19	18 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 6:00 a.m. until 9:00 p.m. on Thursday, July 18, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-14-19	21 Jul	Opened set gillnetting in the Kasilof Section of the Upper Subdistrict within one-half mile of the mean high tide mark on the Kenai Peninsula shoreline from 8:00 a.m. until 10:00 p.m. on Sunday, July 21, 2019. Set gillnetting was also opened within 600 feet of the mean high tide mark in that portion of the Kenai Section north of the latitude of the Blanchard Line and south of the latitude of the ADF&G regulatory marker located south of the Kenai River mouth; i.e., North Kalifornsky Beach statistical area from 8:00 a.m. until 10:00 p.m. on Sunday, July 21, 2019.	To reduce the escapement rate of Kasilof River sockeye salmon.

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Emergency Order no.	Effective date	Action	Reason
2S-15-19	22 Jul	Reduced legal gear to 1 net per permit, measuring no more than 35 fathoms in length in the General Subdistrict of the Northern District and to no more than 2 set gillnets per permit, with each set gillnet measuring no more than 35 fathoms in length, with the aggregate net length not to exceed 70 fathoms per permit in the Eastern Subdistrict of the Northern District from 7:00 a.m. until 7:00 p.m. on Monday, July 22, 2019, from 7:00 a.m. until 7:00 p.m. on Thursday, July 25, 2019, and from 7:00 a.m. until 7:00 p.m. on Monday, July 29, 2019	To comply with the Northern District Salmon Management Plan and the Susitna River Sockeye Action Plan
2S-16-19	25 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 5:00 a.m. until midnight on Thursday, July 25, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-17-19	25 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 7:00 a.m. until 12:00 (midnight) on Thursday, July 25, 2019.	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-18-19	28 Jul	Opened commercial salmon fishing with set gillnets in the Kenai, Kasilof, and East Foreland sections of the Upper Subdistrict from 7:00 a.m. until 11:00 p.m. on Sunday, July 28, 2019. Also opened drift gillnetting was also opened in the Expanded Kenai and Expanded Kasilof sections of the Upper Subdistrict and in the Anchor Point Section of the Lower Subdistrict from 7:00 a.m. until 11:00 p.m. on Sunday, July 28, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-19-19	29 Jul	Opened commercial salmon fishing with set gillnets in the Kenai and Kasilof sections of the Upper Subdistrict from 7:00 a.m. until 11:00 p.m. on Monday, July 29, 2019.	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-20-19	31 Jul	Opened commercial salmon fishing with set gillnets in the Kenai, Kasilof, and East Foreland sections of the Upper Subdistrict from 7:00 a.m. until 11:00 p.m. on Wednesday, July 31, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-21-19	1 Aug	Reduced legal gear to 1 net per permit, measuring no more than 35 fathoms in length in the General Subdistrict of the Northern District and to no more than 2 set gillnets per permit, with each set gillnet measuring no more than 35 fathoms in length, with the aggregate net length not to exceed 70 fathoms per permit in the Eastern Subdistrict of the Northern District from 7:00 a.m. until 7:00 p.m. on Thursday, August 1, 2019, and from 7:00 a.m. until 7:00 p.m. on Monday, August 5, 2019	To comply with the Northern District Salmon Management Plan and the Susitna River Sockeye Action Plan

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Emergency Order no.	Effective date	Action	Reason
2S-22-19	1 Aug	Extended commercial salmon fishing with set gillnets in the Kenai, Kasilof, and East Foreland sections of the Upper Subdistrict from 7:00 p.m. until 11:00 p.m. on Thursday, August 1, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-23-19	2 Aug	Opened commercial salmon fishing with set gillnets in the Kasilof Section of the Upper Subdistrict within 600 feet of the mean high tide mark on the Kenai Peninsula shoreline from 10:00 a.m. until 10:00 p.m. on Friday, August 2, 2019	To reduce the escapement rate of Kasilof River sockeye salmon.
2S-24-19	3 Aug	Opened commercial salmon fishing with set gillnets in the Kenai, Kasilof, and East Foreland sections of the Upper Subdistrict from 12:00 p.m. (noon) until 11:00 p.m. on Saturday, August 3, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-25-19	5 Aug	Closed commercial salmon fishing with set gillnets in the Upper Subdistrict of Upper Cook Inlet from 7:00 a.m. until 7:00 p.m. on Monday, August 5, 2019.	To conserve Kenai River late-run Chinook salmon.
2S-26-19	6 Aug	Opened commercial salmon fishing with drift gillnets in the Expanded Kenai and Expanded Kasilof sections of the Upper Subdistrict and in the Anchor Point Section of the Lower Subdistrict from 7:00 a.m. until 10:00 p.m. on Tuesday, August 6, 2019 and on Wednesday, August 7, 2019.	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-27-19	8 Aug	Closed commercial salmon fishing with set gillnets in the Upper Subdistrict of Upper Cook Inlet from 7:00 a.m. until 7:00 p.m. on Thursday, August 8, 2019	To conserve Kenai River late-run Chinook salmon.
2S-28-19	9 Aug	Opened commercial salmon fishing with drift gillnets in the Expanded Kenai and Expanded Kasilof sections of the Upper Subdistrict and in the Anchor Point Section of the Lower Subdistrict from 7:00 a.m. until 10:00 p.m. on Friday, August 9, 2019, Saturday, August 10, 2019, and on Sunday, August 11, 2019	To reduce the escapement rate of Kenai River and Kasilof River sockeye salmon.
2S-29-19	12 Aug	Rescinded Emergency Order No. 2S-09-19 and closes set gillnetting in that portion of the Western Subdistrict south of the latitude of Redoubt Point, effective immediately. This area then reopens to set gillnetting during regulatory fishing periods only, on Mondays and Thursdays from 7:00 a.m. until 7:00 p.m., beginning on Monday, August 12, 2019, at 7:00 a.m.	To reduce the harvest of Crescent Lake sockeye salmon.

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Emergency Order no.	Effective date	Action	Reason
2S-30-19	10 Aug	Opened commercial salmon fishing with set gillnets in the Kalgin Island Subdistrict of Upper Cook Inlet on Saturday, August 10, 2019, from 9:00 a.m. until 9:00 p.m.	To reduce the escapement rate of Packer's Creek sockeye salmon.
2S-31-19	12 Aug	Closed commercial salmon fishing with set gillnets in the Upper Subdistrict of Upper Cook Inlet from 7:00 a.m. until 7:00 p.m. on Monday, August 12, 2019.	To conserve Kenai River late-run Chinook salmon.
2S-32-19	15 Aug	Closed commercial salmon fishing with set gillnets in the Upper Subdistrict of Upper Cook Inlet from 7:00 a.m. until 7:00 p.m. on Thursday, August 15, 2019.	To conserve Kenai River late-run Chinook salmon.
2S-33-19	16 Aug	Opened set and drift gillnetting in the Chinitna Bay Subdistrict of the Central District on Tuesdays and Fridays from 7:00 a.m. until 7:00 p.m., beginning at 7:00 a.m. on Friday, August 16, 2019.	To provide fishing opportunity in the Chinitna Bay Subdistrict
2S-34-19	19 Aug	Reduced the open fishing time for set gillnets from twelve hours to six hours per day, or from 7:00 a.m. until 1:00 p.m., in that portion of the General Subdistrict of the Northern District east of the Susitna River, including Fire Island, on Monday, August 19, 2019	To conserve coho salmon bound for the Little Susitna River.
2S-35-19	22 Aug	Closed commercial salmon fishing with set gillnets from 7:00 a.m. until 7:00 p.m., in that portion of the General Subdistrict of the Northern District east of the Susitna River, including Fire Island, on Thursday, August 22, 2019	To conserve coho salmon bound for the Little Susitna and Deshka rivers.
2S-36-19	26 Aug	Closed commercial salmon fishing with set gillnets from 7:00 a.m. until 7:00 p.m., in that portion of the General Subdistrict of the Northern District east of the Susitna River, including Fire Island, on Monday, August 26, 2019	To conserve coho salmon bound for the Little Susitna and Deshka rivers.
2S-37-19	29 Aug	Closed commercial salmon fishing with set gillnets in that portion of the General Subdistrict of the Northern District east of the Susitna River, including Fire Island, from 7:00 a.m. on Thursday, August 29, 2019 until further notice	To conserve coho salmon bound for the Little Susitna and Deshka rivers.

Appendix A11.–Commercial salmon fishing periods, Upper Cook Inlet, 2019.

Date	Day	Time	Set gillnet	Drift gillnet
3 Jun	Mon	0700–1900	Kustatan (Big River) - Kalgin Island	None
5 Jun	Wed	0700–1900	Kustatan (Big River) - Kalgin Island	None
7 Jun	Fri	0700–1900	Kustatan (Big River) - Kalgin Island	None
10 Jun	Mon	0700–1900	Kustatan (Big River) - Kalgin Island	None
12 Jun	Wed	0700–1900	Kustatan (Big River) - Kalgin Island	None
14 Jun	Fri	0700–1900	Kustatan (Big River) - Kalgin Island	None
17 Jun	Mon	0700–1900	Kustatan (Big River) - Kalgin Island	None
		0700–1900	Western Subdistrict	None
19 Jun	Wed	0700–1900	Kustatan (Big River) - Kalgin Island	None
20 Jun	Thu	0700–1900	Western Subdistrict	All
21 Jun	Fri	0700–1900	Kustatan (Big River) - Kalgin Island	None
24 Jun	Mon	0700–1900	Kustatan (Big River) - Kalgin Island	All
		0700–1900	Western Subdistrict	None
27 Jun	Thu	0700–1900	Western Subdistrict	All
		0700–1900	All except Kenai & E. Foreland Sections	All
29 Jun	Sat	0800–1600	Kasilof Section	None
1 Jul	Mon	0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	All
		0900–2100	Kasilof Section	None
4 Jul	Thu	0600–2000	Kasilof Section	All
		0700–1900	All except Kenai & E. Foreland Sections	All
8 Jul	Mon	0700–1900	All except Kasilof & Kenai Sections	All
		0800–2400	Kasilof, Kenai, & E. Foreland Sections	None
11 Jul	Thu	0600–2100	Kasilof, Kenai, & E. Foreland Sections	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Area 1, Ex Ken/Kas Sec
13 Jul	Sat	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		1000–2200	1/2 mile Kasilof Section & NKB 600ft	Kasilof Section
15 Jul	Mon	0600–2000	Kasilof, Kenai, & E. Foreland Sections	None
		0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Area 1, Ex Ken/Kas Sec
18 Jul	Thu	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0600–2100	Kasilof, Kenai, & E. Foreland Sections	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Area 1, Ex Ken/Kas Sec
20 Jul	Sat	0600–2200	Western Subdistrict south of Redoubt Pt.	None
21 Jul	Sun	0800–2200	1/2 mile Kasilof Section & NKB 600ft	None
22 Jul	Mon	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Area 1, Ex Ken/Kas Sec
		0700–2300	Kasilof, Kenai, & E. Foreland Sections	None
25 Jul	Thu	0500–2400	Kasilof, Kenai, & E. Foreland Sections	None
		0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Exp. Ken/Kas, & Anchor Pt.

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Date	Day	Time	Set gillnet	Drift gillnet
27 Jul	Sat	0600–2200	Western Subdistrict south of Redoubt Pt.	None
28 Jul	Sun	0700–2300	Kasilof, Kenai, & E. Foreland Sections	Exp. Ken/Kas, & Anchor Pt.
29 Jul	Mon	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Area 1&2, Ex Ken/Kas Sec
		0700–2300	Kasilof, Kenai, & E. Foreland Sections	None
		1900–2300	None	Exp. Ken/Kas, & Anchor Pt.
31 Jul	Wed	0700–2300	Kasilof, Kenai, & E. Foreland Sections	Exp. Ken/Kas, & Anchor Pt.
1 Aug	Thu	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	All
		0700–2300	Kasilof, Kenai, & E. Foreland Sections	Exp. Ken/Kas, & Anchor Pt.
2 Aug	Fri	7000–1900	None	Exp. Ken/Kas, & Anchor Pt.
		1000–2200	Kasilof 600ft & NKB 600ft	None
3 Aug	Sat	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0800–1900	None	Exp. Ken/Kas, & Anchor Pt.
		1200–1900	Kasilof, Kenai, & E. Foreland Sections	None
5 Aug	Mon	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	None
		0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
6 Aug	Tue	0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
7 Aug	Wed	0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
8 Aug	Thu	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	All
		1900–2200	None	Exp. Ken/Kas, & Anchor Pt.
9 Aug	Fri	0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
10 Aug	Sat	0600–2200	Western Subdistrict south of Redoubt Pt.	None
		0900–2100	Kalgin Island Subdistrict	None
		0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
11 Aug	Sun	0700–2200	None	Exp. Ken/Kas, & Anchor Pt.
12 Aug	Mon	0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	All
		1900–2200	None	Exp. Ken/Kas, & Anchor Pt.
15 Aug	Thu	0700–1300	Gen. Sub. E. of Susitna River	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Areas 3 & 4
16 Aug	Fri	0700–1900	Chinitna Bay	Chinitna Bay
19 Aug	Mon	0700–1300	Gen. Sub. E. of Susitna River	None
		0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Areas 3 & 4
20 Aug	Tue	0700–1900	Chinitna Bay	Chinitna Bay
22 Aug	Thu	0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Areas 3 & 4
23 Aug	Fri	0700–1900	Chinitna Bay	Chinitna Bay
26 Aug	Mon	0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Areas 3 & 4
27 Aug	Tue	0700–1900	Chinitna Bay	Chinitna Bay
29 Aug	Thu	0700–1900	Kustatan, Kalgin, Western Subdistricts, & N. District	Drift Areas 3 & 4
30 Aug	Fri	0700–1900	Chinitna Bay	Chinitna Bay

Note: Fishing continued each Monday, Tuesday, Thursday, and Friday as described for August 20, 22, and 23 for the remainder of the year. The last day of recorded fishing was September 26.

Appendix A12.–Susitna River sockeye salmon studies, 2006-2016.

Yentna River passage	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015[a]	2016[a]
Bendix	92,051	79,901	90,146	28,428							
DIDSON-adjusted	166,697	125,146	131,772	43,972–153,910	53,399–144,949	62,231–140,445	30,462–89,957	76,227–212,125	55,759–137,256		

Weir data	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chelatna	18,433	41,290	74,469	17,721	37,784	70,353	36,736	70,555	26,212	69,897	72,657
Judd	40,633	57,392	53,681	44,616	18,446	39,984	18,715	14,088	22,416	47,934	48,218
Larson	57,411	47,924	34,595	40,929	20,324	12,190	16,566	21,821	12,040	23,185	14,313
Weir totals	116,477	146,606	162,745	103,266	76,554	122,527	72,017	106,464	60,668	141,016	135,188

Susitna pop. est.	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Mark–Recapture	418,197	327,732	304,449	219,041	190,460	314,447	141,804	228,536	167,374	373,915	312,068
Mark–recapture : weir ratio	3.6	2.2	1.9	2.1	2.5	2.6	2.0	2.1	2.8		
Mark–recapture : Bendix ratio	4.5	4.1	3.4	9.7							

Note: Blank cells mean no data available.

[a] DIDSON was not operational in 2015 and 2016

Appendix A13.–Age composition (in percent) of sockeye salmon passage, Upper Cook Inlet, 2019.

	Age group												
Stream	0.2	1.1	1.2	2.1	1.3	2.2	1.4	2.3	3.1	2.4	3.2	3.3	Total[a]
Kenai River		0.0	8.3	0.3	83.5	3.0	0.2	4.9					100.0
Kasilof River		1.5	51.7	1.0	32.0	13.3	0.0	0.5					100.0
Fish Creek		5	77.9	0.7	10.7	5.3		0.4					100.0
Hidden Creek			71.8		23.9	4.2							99.9
Larson		0.4	25.8		69.2	0.6		4.0					100.0
Chelatna		0.5	63.6		35.4	0.2	0.2						99.9
Judd			64.9		29.8	1.2		4.1					100.0

[a] May not sum to 100 due to rounding.

Appendix A14.–Upper Cook Inlet salmon average weights, in pounds, by area, 2019.

Fishery	Chinook	Sockeye	Coho	Pink	Chum
Upper Cook Inlet Total	16.0	5.5	5.6	3.1	6.7
A. Northern District Total	12.6	5.2	5.5	2.8	6.2
1. Northern District West	13.0	5.1	5.3	2.5	6.2
a. Trading Bay 247-10	11.9	5.3	5.4	2.9	6.2
b. Tyonek 247-20	14.0	5.2	5.2	3.1	6.0
c. Beluga 247-30	13.6	5.5	5.5	2.9	6.8
d. Susitna Flat 247-41	3.3	4.3	5.0	2.6	5.9
e. Pt. Mackenzie 247-42	8.9	4.7	5.6	2.9	5.7
f. Fire Island 247-43	8.6	4.9	5.1	0.5	6.0
2. Northern District East	10.5	5.2	5.8	2.9	6.1
a. Pt. Possession 247-70	7.5	5.2	5.6	2.8	6.3
b. Birch Hill 247-80	17.7	5.2	5.9	3.0	5.9
c. Number 3 Bay 247-90	8.5	5.3	5.9	2.9	5.5
B. Central District Total	16.2	5.5	5.7	3.1	6.8
1. East Side Set Total					
1. Salamatof 244-41	16.3	5.8	5.2	3.0	5.7
2. East Forelands 244-42	12.4	5.6	5.4	3.0	6.0
1. South K. Beach 244-31	18.6	4.9	5.2	3.1	7.0
2. North K. Beach 244-32	15.0	5.5	4.8	3.0	4.0
1. Cohoe 244-22	15.1	5.2	5.2	3.0	6.0
2. Ninilchik 244-21	16.9	5.3	5.4	2.9	5.7
2. West Side Set Total					
a. Little Jack Slough 245-50	–	5.0	5.5	3.4	6.4
b. Tuxedni Bay 245-30	19.4	5.1	5.4	3.3	6.2
3. Kustatan Total					
a. Big River 245-55	19.9	4.7	4.6	2.3	–
b. West Foreland 245-60	–	5.0	5.1	3.0	6.7
4. Kalgin Island Total					
a. West Side 246-10	16.3	5.2	5.3	3.2	6.2
b. East Side 246-20	31.9	4.9	5.5	3.1	6.7
5. Chinitna Bay Total					
a. Set 245-10	–	–	–	–	–
b. Drift 245-10	–	5.8	6.8	3.2	6.7
6. Central District Set Total	17.0	5.4	5.3	3.0	6.2
7. Central District Drift Total	9.0	5.7	5.8	3.2	6.8
a. Area 1/Districtwide 244-60	7.9	5.8	5.6	3.2	7.0
b. Kasilof Section, narrow 244-61	23.9	5.6	5.2	3.4	6.1
c. Full Ex. Corridor 244-57	10.9	5.7	5.7	3.2	6.7
d. Area 3/4 244-60	5.1	5.5	6.7	3.8	6.3
e. Area 1/2 244-60	8.6	5.6	5.8	3.1	6.5

Note: Average weights determined from total lb of fish divided by numbers of fish reported on fish tickets. Dashes indicate no data.

Appendix A15.–Age composition of Chinook salmon harvested in the Upper Subdistrict commercial set gillnet fishery, Upper Cook Inlet, 1987–2019.

	Sample	Percent composition by age class (%)														
Year	size	0.2	1.1	0.3	1.2	2.1	0.4	1.3	2.2	1.4	2.3	1.5	2.4	2.5	1.6	Total
1987	1212	0.08	2.06	0.08	14.69			33.01	0.17	48.5	0.25	1.07	0.08			100
1988	870		3.22		10.81		0.23	14.25	0.35	68.5	0.12	1.83	0.69			100
1989	854		0.94		15.11			21.08	0.23	53.28		9.37				100
1990	437	0.2	1.1	0.2	29.5	0.9	0.5	29.0	0.5	32.7	0.4	3.4	1.6			100
1991	446	0.2	0.7		24.9	0.2	0.5	32.1	0.0	38.5	0.7	2.0	0.2			100
1992	688		2.5		15.0			27.6	0.6	49.6	0.9	3.8	0.2			100
1993	992		3.3		14.0			20.8	0.1	56.5	0.8	4.0	0.5			100
1994	1,502		3.5		12.3	0.1		14.7	0.3	61.3	0.5	5.8	1.6		0.1	100
1995	1,508		2.7		22.4	0.1		32.9	0.8	35.0	0.1	5.9	0.2	0.1		100
1996	2,186		3.3		15.8	0.1		34.9	0.2	42.3	1.6	1.5	0.5			100
1997	1,691		6.4		13.5	0.3		31.1	0.3	45.6	0.7	0.7	1.4			100
1998	911	0.5	11.8	0.2	23.2	0.3	0.1	21.1	1.6	38.4	0.5	1.9	0.6			100
1999	1,818	0.1	2.3		26.3	0.2		24.5		43.5	0.4	2.8				100
2000	991		9.2	0.1	12.2	0.9		38.7	0.3	37.6	0.3	0.8	0.1			100
2001	989		11.7		40.0			14.5		32.5		1.2				100
2002	1,224		10.6	0.0	29.3			36.7		22.6		0.7	0.1			100
2003	678		3.8		51.8			23.6	0.3	18.7		1.8				100
2004	1,409		3.5		19.8	0.1		48.2		27.6	0.0	0.7				100
2005	482	0.2	2.9		27.0			20.1	0.4	47.5		1.7	0.2			100
2006	560		12.9		35.4			22.0	0.2	27.1		2.5				100
2007	789		4.8		42.7			22.4	0.1	28.5		1.3	0.1			100
2008	380		10.3		19.7			27.6		40.8		1.6				100
2009	487		13.8		51.3			12.3		22.0		0.6				100
2010	743		18.3		24.6			36.0	0.1	20.1	0.2	0.8				100
2011	1,187		4.6		33.7			25.2		35.3	0.1	1.2				100
2012	167		9.6		18.0			36.6		35.8						100
2013	668		22.7		43.4			15.2		18.7						100
2014	459		17.6		32.3			29.1		20.9		0.1				100
2015	610		14.2		37.4			24.3		23.8		0.3				100
2016	809		6.7		28.5			36.2		26.7		1.9				100
2017	881		3.6		13.3			43.0		39.7		0.4				100
2018	300		13.3		54.5			12.0		19.8		0.4				100
2019	600		14.1		33.1			41.5		11.1		0.1				100
Mean (All)	895	0.04	7.63	0.02	26.83	0.09	0.04	27.34	0.19	35.47	0.23	1.88	0.24	0.00	0.00	100

Appendix A16.–Major buyers and processors of Upper Cook Inlet fishery products, 2019.

Buyer/Processor	Code	Plant Site	Contact	Address
Icicle Seafoods Inc	F0135	Seward	Kelly Glidden	842 Fish Dock Rd. Homer, AK 99603
Pacific Star Seafoods Inc.	F11868	Kenai	Todd Nispel	PO Box 190 Kenai Alaska, 99611
Copper River Seafoods	F6426 F12263	Anchorage Kenai	Nicole Holiday Christine Flake	1118 E. 5th Ave. Anchorage, AK 99501
Alaska Salmon Purchasers	F4665	Kenai	Mark Powell	46655 Kenai Spur Hwy. Kenai, AK 99611
Fishhawk Fisheries	F1540	Kenai	Steve Fick	PO Box 715 Astoria Oregon 97103
Peninsula Processing	F6618	Soldotna	Tim Berg Jr.	720 K. Beach Rd. Soldotna, AK 99669
Alaskan Fish Factory LTD	F11872	Homer	Mike McCune	800 Fish Dock Rd. Homer, AK 99603
Favco Inc.	F0398	Anchorage	Bill Buck	PO Box 190968 Anchorage, AK 99519
Alaska Standard Seafoods	F10568	Kenai	Gavin Keohane	P O Box 1141 Soldotna, AK 99669
Tanner's Fresh Fish Processing	F12413	Ninilchik	Rory Tanner	P O Box 39238 Ninilchik, AK 99639
North Pacific Seafoods aka Inlet Fish Inc. Inlet Fish Producers	F10419 F10419 F10420	 Kenai Kasilof	Bobbie Heimgartner Alicia Medina Kim Hansen	P O Box 114 Kenai, AK 99611

Appendix A17.–Number of salmon harvested by gear, area, and species in personal use fisheries, Upper Cook Inlet, 2019.

	Harvest					
Fishery	Chinook	Sockeye	Coho	Pink	Chum	Total
Kasilof gillnet	131	15,864	19	84	16	16,114
Kasilof dip net	3	80,730	553	2,840	326	84,452
Kenai dip net	30	331,408	977	4,631	689	337,735
Fish creek dip net	2	15,886	1,508	1,110	195	18,701
Beluga dip net	0	166	17	4	0	187
No site reported	0	3,961	8	46	45	4,060
Total	166	448,015	3,082	8,715	1,271	461,249

Appendix A18.–Personal use sockeye salmon harvest by day, 2019.

	Kasilof gillnet		Kasilof dip net		Kenai dip net	
Date	Daily	Cum	Daily	Cum	Daily	Cum
15 Jun	1,642	1,642				
16 Jun	1,936	3,578				
17 Jun	1,453	5,031				
18 Jun	1,527	6,558				
19 Jun	1,225	7,783				
20 Jun	1,244	9,027				
21 Jun	1,203	10,230				
22 Jun	1,095	11,325				
23 Jun	1,043	12,368				
24 Jun	739	13,107				
25 Jun			896	896		
26 Jun			730	1,626		
27 Jun			300	1,926		
28 Jun			669	2,595		
29 Jun			536	3,131		
30 Jun			1,022	4,153		
1 Jul			768	4,921		
2 Jul			774	5,695		
3 Jul			1,043	6,738		
4 Jul			1,328	8,066		
5 Jul			1,221	9,287		
6 Jul			1,746	11,033		
7 Jul			1,468	12,501		
8 Jul			992	13,493		
9 Jul			1,166	14,659		

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	Kasilof gillnet		Kasilof dip net		Kenai dip net	
Date	Daily	Cum	Daily	Cum	Daily	Cum
10 Jul			2,136	16,795	3,069	3,069
11 Jul			921	17,716	1,934	5,003
12 Jul			2,347	20,063	3,743	8,746
13 Jul			2,261	22,324	5,931	14,677
14 Jul			1,764	24,088	5,271	19,948
15 Jul			1,648	25,736	6,358	26,306
16 Jul			2,863	28,599	10,957	37,263
17 Jul			2,891	31,490	17,135	54,398
18 Jul			1,551	33,041	12,069	66,467
19 Jul			3,047	36,088	15,714	82,181
20 Jul			3,767	39,855	30,295	112,476
21 Jul			1,364	41,219	20,869	133,345
22 Jul			913	42,132	11,292	144,637
23 Jul			1,791	43,923	13,914	158,551
24 Jul			2,340	46,263	14,377	172,928
25 Jul			1,314	47,577	9,730	182,658
26 Jul			2,138	49,715	13,093	195,751
27 Jul			2,625	52,340	22,568	218,319
28 Jul			897	53,237	8,084	226,403
29 Jul			642	53,879	9,675	236,078
30 Jul			990	54,869	10,486	246,564
31 Jul			556	55,425	9,847	256,411
1 Aug			499	55,924		
2 Aug			549	56,473		
3 Aug			525	56,998		
4 Aug			738	57,736		
5 Aug			641	58,377		
6 Aug			548	58,925		
7 Aug			411	59,336		

Note: Blank cells mean no data.

Appendix A19.–Age, weight, sex, and size distribution of Pacific herring sampled by gillnet in Upper Cook Inlet, 2019.

Sample date = 4/29–5/3

		Number of fish						Percent	Weight			Length		
Sample area	Age	Male	Imm. female	Ripe female	Spawned Female	Unknown	Total	of total	Mean (g)	SD	Number weighed	Mean (mm)	SD	Number measured
ESSN	2	2		1			3	3%	83	11.1	3	198	6.8	3
	3	35		58			93	85%	117	10.9	93	216	12.0	93
	4	5		8			13	12%	127	17.3	13	219	7.9	13
	5	1					1	1%	118		1	218		1
Sample total		43	0	67	0	0	110	100%	111	13	110	213	9	110
Sex composition		39%	0%	61%	0%	0%								

Sample date = 5/6–5/10

		Number of fish						Percent	Weight			Length		
Sample area	Age	Male	Imm. female	Ripe female	Spawned Female	Unknown	Total	of total	Mean (g)	SD	Number weighed	Mean (mm)	SD	Number measured
ESSN	2			1			1	1%	118		1	212		1
	3	27		54			81	90%	120	14.3	81	216	14.0	81
	4	2		4			6	7%	124	12.3	6	220	8.0	6
	5			2			2	2%	127	23.4	2	220	7.8	2
Sample total		29	0	61	0	0	90	100%	122	17	90	217	10	90
Sex composition		32%	0%	68%	0%	0%								

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Sample date = 5/13–17

		Number of fish						Percent	Weight			Length		
Sample area	Age	Male	Imm. female	Ripe female	Spawned female	Unknown	Total	of total	Mean (g)	SD	Number weighed	Mean (mm)	SD	Number measured
ESSN	2			4			4	4%	117	8.6	4	220	6.1	4
	3	33		43			76	84%	114	12.4	76	215	15.9	76
	4	4		7			11	12%	121	14.5	11	217	8.6	11
Sample total		37	0	54	0	0	91	100%	120	27.6	91	185	16.8	91
Sex composition		41%	0%	59%	0%	0%								

Sample date = All 2019

		Number of fish						Percent	Weight			Length		
Sample area	Age	Male	Imm. female	Ripe female	Spawned female	Unknown	Total	of total	Mean (g)	SD	Number weighed	Mean (mm)	SD	Number measured
ESSN	2	2		6			8	3%	104	19.3	8	211	11.8	8
	3	86		141			227	85%	117	12.9	227	216	12.9	227
	4	10		18			28	11%	125	14.8	28	218	8.1	28
	5	1		2			3	1%	124	17.3	3	219	5.6	3
Sample total		99	0	167	0	0	266	100%	118	16	266	216	10	266
Sex composition		37%	0%	63%	0%	0%								

Note: Blank cells mean no data. ESSN means East Side Setnet.

Appendix A20.–Age, sex, and size distribution of eulachon (smelt) from Upper Cook Inlet commercial dipnet fishery, 2006–2019.

2006				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	185	1	1%
	Female			
4	Male	194	46	54%
	Female	186	22	26%
5	Male	200	14	16%
	Female	203	2	2%
Avg	Male	196	61	72%
	Female	187	24	28%
Avg - all		193	85	100%

2007				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	179	10	9%
	Female	174	5	5%
4	Male	188	65	60%
	Female	186	23	21%
5	Male	201	4	4%
	Female	192	1	1%
Avg	Male	188	79	73%
	Female	184	29	27%
Avg - all		187	108	100%

2008				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	194	3	3%
	Female	185	10	10%
4	Male	201	37	37%
	Female	193	36	36%
5	Male	208	12	12%
	Female	206	3	3%
Avg	Male	202	52	51%
	Female	192	49	49%
Avg - all		197	101	100%

2009				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	195	12	7%
	Female	191	18	10%
4	Male	203	74	41%
	Female	194	58	32%
5	Male	203	13	7%
	Female	203	5	3%
Avg	Male	202	99	55%
	Female	194	81	45%
Avg - all		198	180	100%

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2010				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	189	14	7%
	Female	194	10	5%
4	Male	197	61	31%
	Female	204	105	53%
5	Male	204	3	2%
	Female	203	6	3%
Avg	Male	196	78	39%
	Female	203	121	61%
Avg - all		200	199	100%

2011				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	192	25	13%
	Female	185	47	24%
4	Male	205	48	24%
	Female	203	41	21%
5	Male	210	28	14%
	Female	208	11	6%
Avg	Male	203	101	51%
	Female	195	99	50%
Avg - all		199	200	100%

2012				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	191	20	11%
	Female	198	19	10%
4	Male	204	50	27%
	Female	207	88	47%
5	Male	208	2	1%
	Female	215	7	4%
Avg	Male	201	72	39%
	Female	206	114	61%
Avg - all		204	186	100%

2013				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	212	7	4%
	Female	216	7	4%
4	Male	219	78	50%
	Female	212	37	24%
5	Male	224	22	14%
	Female	217	5	3%
Avg	Male	220	107	69%
	Female	213	49	31%
Avg - all		218	156	100%

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2014

Age	Sex	Length (mm)	Number sampled	Percent
3	Male	196	16	12%
	Female	194	22	16%
4	Male	211	51	37%
	Female	209	37	27%
5	Male	219	10	7%
	Female	218	2	1%
Avg	Male	209	77	56%
	Female	202	61	44%
Avg - all		207	138	100%

2015

Age	Sex	Length (mm)	Number sampled	Percent
3	Male	184	73	30%
	Female	179	7	3%
4	Male	198	152	63%
	Female	192	8	3%
5	Male	214	3	1%
	Female	0	0	0%
Avg	Male	193	228	94%
	Female	185	15	6%
Avg - all		194	243	100%

2016

Age	Sex	Length (mm)	Number sampled	Percent
3	Male	183	17	6%
	Female	179	28	10%
4	Male	193	117	43%
	Female	190	102	38%
5	Male	203	6	2%
	Female	0	0	0%
Avg	Male	192	140	52%
	Female	187	130	48%
Avg - all		190	270	100%

2017

		Length (mm)	Number sampled	Percent
3	Female	172	2	1%
	Male	173	69	23%
4	Female	159	1	0%
	Male	187	232	76%
Avg	Male	167	301	99%
	Female	184	3	1%
Avg - all		183	304	100%

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2018				
Age	Sex	Length (mm)	No. Sampled	Percent
3	Male	159	2	2%
	Female	159	29	26%
4	Male	173	28	25%
	Female	168	46	41%
5	Male	188	3	3%
	Female	183	4	4%
Avg	Male	173	33	29%
	Female	165	79	71%
Avg - all		168	112	100%

2019				
Age	Sex	Length (mm)	Number sampled	Percent

All Years (2007–2017)				
Age	Sex	Length (mm)	Number sampled	Percent
3	Male	190	199	11%
	Female	188	202	11%
4	Male	201	761	40%
	Female	198	581	31%
5	Male	209	103	5%
	Female	166	40	2%
Avg	Male	202	354	56%
	Female	196	274	44%
Avg - all		199	629	100%

Note: Blank cells mean no data. 2019 intentionally left blank due to lack of data.

Appendix A21.–Seldovia District tide tables, May through August 2019.

May

		High tides						Low tides			
		AM		PM				AM		PM	
Date	Day	Time	Feet	Time	Feet	Date	Day	Time	Feet	Time	Feet
1	Wed	1:19	16.0	1:30	15.4	1	Wed	7:26	2.5	7:33	2.0
2	Thu	1:48	17.1	2:09	16.5	2	Thu	8:00	0.9	8:06	1.4
3	Fri	2:18	18.1	2:47	17.4	3	Fri	8:33	-0.6	8:39	1.0
4	Sat	2:47	19.0	3:24	18.0	4	Sat	9:06	-1.9	9:13	0.9
5	Sun	3:18	19.6	4:02	18.3	5	Sun	9:40	-2.7	9:48	1.1
6	Mon	3:50	19.8	4:41	18.1	6	Mon	10:16	-3.1	10:24	1.7
7	Tue	4:24	19.7	5:23	17.6	7	Tue	10:54	-3.0	11:03	2.6
8	Wed	5:01	19.1	6:08	16.7	8	Wed	11:36	-2.4	11:47	3.6
9	Thu	5:44	18.2	7:01	15.8	9	Thu	12:23	-1.4		
10	Fri	6:34	16.9	8:04	0:00	10	Fri	12:39	4.7	1:18	-0.2
11	Sat	7:38	15.6	9:17	14.8	11	Sat	1:43	5.6	2:24	0.8
12	Sun	9:00	14.7	10:30	15.3	12	Sun	3:02	5.8	3:39	1.4
13	Mon	10:28	14.7	11:33	16.4	13	Mon	4:26	4.8	4:52	1.4
14	Tue	11:46	15.5			14	Tue	5:40	3.1	5:55	1.1
15	Wed	12:25	17.7	12:50	16.6	15	Wed	6:40	0.9	6:50	0.6
16	Thu	1:10	19.0	1:45	17.6	16	Thu	7:30	-1.1	7:37	0.3
17	Fri	1:52	19.9	2:35	18.4	17	Fri	8:15	-2.8	8:21	0.2
18	Sat	2:32	20.6	3:21	18.9	18	Sat	8:57	-3.8	9:03	0.5
19	Sun	3:10	20.7	4:05	18.9	19	Sun	9:37	-4.2	9:44	1.0
20	Mon	3:47	20.3	4:47	18.4	20	Mon	10:17	-3.9	10:24	1.9
21	Tue	4:25	19.6	5:30	17.6	21	Tue	10:56	-3.0	11:05	2.9
22	Wed	5:02	18.4	6:14	16.5	22	Wed	11:36	-1.8	11:47	4.1
23	Thu	5:41	17.0	7:01	15.4	23	Thu	12:19	-0.2		
24	Fri	6:24	15.5	0.3	14.4	24	Fri	12:34	5.3	1:05	1.3
25	Sat	7:15	14.0	8:54	13.8	25	Sat	1:29	6.3	1:58	2.7
26	Sun	8:20	12.8	9:57	13.7	26	Sun	2:35	6.8	3:00	3.7
27	Mon	9:39	12.2	10:54	14.1	27	Mon	3:53	6.6	4:07	4.2
28	Tue	10:57	12.4	11:42	14.8	28	Tue	5:06	5.6	5:08	4.2
29	Wed	12:02	13.2			29	Wed	6:02	4.1	6:00	3.9
30	Thu	12:21	15.8	12:54	14.2	30	Thu	6:47	2.5	6:44	3.5
31	Fri	12:57	16.8	1:40	15.3	31	Fri	7:26	0.7	7:26	3.0

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June											
High tides						Low tides					
		AM		PM				AM.		PM	
Date	Day	Time	Feet	Time	Feet	Date	Day	Time	Feet	Time	Feet
1	Sat	1:34	17.9	2:23	16.4	1	Sat	8:03	-0.9	8:06	2.5
2	Sun	2:10	18.9	3:05	17.3	2	Sun	8:41	-2.3	8:46	2.2
3	Mon	2:47	19.7	3:47	17.8	3	Mon	9:20	-3.4	9:26	2.1
4	Tue	3:25	20.1	4:30	18.1	4	Tue	9:59	-4.0	10:07	2.2
5	Wed	4:06	20.2	5:15	18.0	5	Wed	10:41	-4.2	10:52	2.6
6	Thu	4:49	19.7	6:02	17.6	6	Thu	11:25	-3.7	11:40	3.1
7	Fri	5:37	18.8	6:53	17.1	7	Fri	12:13	-2.8		
8	Sat	6:31	17.5	7:49	16.6	8	Sat	12:34	3.7	1:05	-1.5
9	Sun	7:34	16.1	8:50	16.4	9	Sun	1:36	4.1	2:04	-0.1
10	Mon	8:49	15.0	9:53	16.5	10	Mon	2:48	4.1	3:09	1.1
11	Tue	10:10	14.5	10:53	16.9	11	Tue	4:04	3.4	4:16	2.0
12	Wed	11:28	14.7	11:49	17.6	12	Wed	5:17	2.1	5:22	2.4
13	Thu	12:36	15.4			13	Thu	6:20	0.5	6:20	2.6
14	Fri	12:39	18.4	1:34	16.2	14	Fri	7:13	-1.0	7:13	2.5
15	Sat	1:25	19.0	2:25	16.9	15	Sat	8:00	-2.1	8:00	2.5
16	Sun	2:07	19.4	3:12	17.4	16	Sun	8:43	-2.9	8:44	2.5
17	Mon	2:48	19.5	3:54	17.7	17	Mon	9:23	-3.3	9:26	2.6
18	Tue	3:27	19.4	4:35	17.6	18	Tue	10:01	-3.2	10:06	2.9
19	Wed	4:05	18.9	5:15	17.3	19	Wed	10:39	-2.7	10:47	3.3
20	Thu	4:43	18.1	5:54	16.8	20	Thu	11:16	-1.9	11:28	3.9
21	Fri	5:22	17.1	6:34	16.1	21	Fri	11:54	-0.8		
22	Sat	6:02	15.9	7:15	15.4	22	Sat	12:11	4.6	12:34	0.5
23	Sun	6:48	14.6	7:59	14.8	23	Sun	12:58	5.2	1:16	1.8
24	Mon	7:40	13.5	8:48	14.4	24	Mon	1:52	5.6	2:03	3.1
25	Tue	8:44	12.6	9:39	14.4	25	Tue	2:53	5.6	2:57	4.1
26	Wed	9:57	12.2	10:31	14.8	26	Wed	4:00	5.2	3:56	4.8
27	Thu	11:11	12.5	11:20	15.5	27	Thu	5:05	4.2	4:58	5.0
28	Fri	12:16	13.3			28	Fri	6:02	2.8	5:55	4.9
29	Sat	12:08	16.4	1:13	14.4	29	Sat	6:51	1.1	6:48	4.5
30	Sun	12:53	17.6	2:03	15.6	30	Sun	7:36	-0.7	7:37	3.8

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July											
High tides						Low tides					
		AM		PM				AM		PM	
Date	Day	Time	Feet	Time	Feet	Date	Day	Time	Feet	Time	Feet
1	Mon	1:38	18.7	2:49	16.8	1	Mon	8:19	-2.3	8:23	3.1
2	Tue	2;23	19.8	3:34	17.8	2	Tue	9:02	-3.7	9:09	2.4
3	Wed	3:08	20.5	4:18	18.6	3	Wed	9:44	-4.7	9:54	1.9
4	Thu	3:54	20.8	5:02	19.0	4	Thu	10:27	-5.0	10:41	1.6
5	Fri	4:42	20.5	5:47	19.0	5	Fri	11:12	-4.6	11:30	1.6
6	Sat	5:31	19.7	6:33	18.7	6	Sat	11:58	-3.6		
7	Sun	6:25	18.4	7:22	18.2	7	Sun	12:22	1.8	12:47	-2.1
8	Mon	7:23	16.9	8:15	17.6	8	Mon	1:20	2.2	1:39	-0.3
9	Tue	8:31	15.3	9:12	17.2	9	Tue	2:24	2.5	2:37	1.5
10	Wed	9:48	14.3	10:13	17.0	10	Wed	3:36	2.4	3:41	3.0
11	Thu	11:09	14.0	11:14	17.1	11	Thu	4:51	1.9	4:48	4.1
12	Fri	12:24	14.3			12	Fri	6:01	1.0	5:55	4.5
13	Sat	12:12	17.4	1:27	15.1	13	Sat	7:00	0.0	6:54	4.5
14	Sun	1:04	17.8	2:19	15.9	14	Sun	7:50	-1.0	7:46	4.2
15	Mon	1:51	18.2	3:04	16.6	15	Mon	8:32	-1.7	8:31	3.7
16	Tue	2:33	18.5	3:43	17.2	16	Tue	9:10	-2.2	9:12	3.3
17	Wed	3:13	18.7	4:19	17.5	17	Wed	9:46	-2.4	9:51	3.0
18	Thu	3:50	18.6	4:53	17.6	18	Thu	10:20	-2.2	10:28	2.9
19	Fri	4:27	18.3	5:26	17.4	19	Fri	10:53	-1.8	11:06	2.9
20	Sat	5:03	17.6	5:59	17.0	20	Sat	11:27	-1.0	11:44	3.2
21	Sun	5:41	16.8	6:32	16.5	21	Sun	12:01	0.1		
22	Mon	6:20	15.7	7:07	15.9	22	Mon	12:24	3.7	12:36	1.3
23	Tue	7:04	14.5	7:45	15.4	23	Tue	1:07	4.1	1:15	2.7
24	Wed	7:56	13.3	8:29	15.0	24	Wed	1:57	4.5	1:59	4.1
25	Thu	9:02	12.4	9:22	14.9	25	Thu	2:56	4.7	2:53	5.2
26	Fri	10:22	12.1	10:21	15.2	26	Fri	4:05	4.3	3:59	6.0
27	Sat	11:43	12.7	11:23	16.0	27	Sat	5:16	3.3	5:11	6.2
28	Sun	12:50	13.9			28	Sun	6:19	1.7	6:17	5.7
29	Mon	12:21	17.2	1:45	15.4	29	Mon	7:13	-0.2	7:15	4.6
30	Tue	1:16	18.5	2:33	17.0	30	Tue	8:00	-2.1	8:06	3.2
31	Wed	2:07	19.9	3:16	18.4	31	Wed	8:45	-3.8	8:54	1.8

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August											
High tides						Low tides					
		AM		PM				AM		PM	
Date	Day	Time	Feet	Time	Feet	Date	Day	Time	Feet	Time	Feet
1	Thu	2:57	21.0	3:59	19.6	1	Thu	9:28	-4.9	9:41	0.6
2	Fri	3:45	21.6	4:40	20.3	2	Fri	10:10	-5.3	10:27	-0.2
3	Sat	4:33	21.5	5:22	20.5	3	Sat	10:53	-4.9	11:14	-0.5
4	Sun	5:21	20.8	6:04	20.2	4	Sun	11:37	-3.7		
5	Mon	6:12	19.4	6:48	19.5	5	Mon	12:03	-0.3	12:22	-2.0
6	Tue	7:07	17.5	7:36	18.5	6	Tue	12:56	0.4	1:10	0.2
7	Wed	8:09	15.6	8:29	17.4	7	Wed	1:55	1.3	2:04	2.4
8	Thu	9:24	14.1	9:32	16.5	8	Thu	3:03	2.1	3:06	4.4
9	Fri	10:52	13.5	10:42	16.0	9	Fri	4:23	2.4	4:20	5.8
10	Sat	12:16	13.8	11:52	16.1	10	Sat	5:44	2.0	5:38	6.2
11	Sun	1:22	14.7			11	Sun	6:50	1.2	6:46	5.8
12	Mon	12:52	16.6	2:11	15.7	12	Mon	7:40	0.3	7:38	5.0
13	Tue	1:42	17.2	2:50	16.6	13	Tue	8:20	-0.5	8:21	4.0
14	Wed	2:23	17.8	3:23	17.3	14	Wed	8:55	-1.1	8:58	3.1
15	Thu	3:01	18.3	3:54	17.8	15	Thu	9:26	-1.5	9:33	2.3
16	Fri	3:35	18.7	4:22	18.1	16	Fri	9:57	-1.6	10:07	1.8
17	Sat	4:09	18.7	4:51	18.2	17	Sat	10:27	-1.4	10:40	1.5
18	Sun	4:43	18.4	5:19	18.0	18	Sun	10:57	-0.8	11:14	1.6
19	Mon	5:18	17.7	5:47	17.5	19	Mon	11:28	0.2	11:49	2.0
20	Tue	5:53	16.7	6:17	17.0	20	Tue	11:59	1.4		
21	Wed	6:32	15.4	6:50	16.3	21	Wed	12:26	2.6	12:33	2.9
22	Thu	7:19	14.1	7:29	15.7	22	Thu	1:09	3.3	1:12	4.4
23	Fri	8:20	12.9	8:21	15.2	23	Fri	2:02	3.9	2:03	5.9
24	Sat	9:44	12.3	9:29	15.0	24	Sat	3:12	4.1	3:14	7.0
25	Sun	11:18	12.7	10:48	15.5	25	Sun	4:34	3.6	4:40	7.2
26	Mon	12:31	14.1			26	Mon	5:50	2.1	5:58	6.3
27	Tue	12:00	16.7	1:26	15.9	27	Tue	6:50	0.2	7:00	4.6
28	Wed	1:02	18.4	2:11	17.7	28	Wed	7:40	-1.7	7:52	2.5
29	Thu	1:56	20.0	2:53	19.4	29	Thu	8:25	-3.3	8:39	0.5
30	Fri	2:46	21.4	3:32	20.7	30	Fri	9:08	-4.4	9:24	-1.1
31	Sat	3:34	22.2	4:12	21.5	31	Sat	9:49	-4.7	10:09	-2.2

Note: Blank cells mean no data.

Appendix A22.–Total sockeye salmon harvest from all sources in Upper Cook Inlet, 1996–2019.

	Commercial				Sport[a,b,c]			Personal use					Sub/Ed		
Year	Drift	Set	Test fishery	All	Kenai River	All other UCI	All	Kas. gillnet	Kas. dipnet	Ken. dipnet	Other[d]	All	Subsist.	Educ.	Total
1996	2,205,067	1,683,855	2,424	3,891,346	205,976	16,863	222,839	9,506	11,197	102,821	22,021	145,545	259	2,405	4,262,394
1997	2,197,961	1,979,034	2,301	4,179,296	190,699	23,591	214,290	17,997	9,737	114,619	6,587	148,940	593	3,076	4,546,195
1998	599,396	620,121	5,456	1,224,973	189,885	23,477	213,362	15,975	45,161	103,847	11,598	176,581	636	3,567	1,619,119
1999	1,413,995	1,266,523	11,766	2,692,284	233,768	26,078	259,846	12,832	37,176	149,504	9,077	208,589	599	3,037	3,164,355
2000	656,427	666,055	9,450	1,331,932	261,779	32,194	293,973	14,774	23,877	98,262	12,354	149,267	442	2,933	1,778,547
2001	846,275	980,576	3,381	1,830,232	219,478	30,953	250,431	17,201	37,612	150,766	13,109	218,688	686	4,633	2,304,670
2002	1,367,251	1,405,867	37,983	2,811,101	259,759	21,770	281,529	17,980	46,769	180,028	14,846	259,623	623	3,722	3,356,598
2003	1,593,638	1,882,523	13,968	3,490,129	314,456	36,076	350,532	15,706	43,870	223,580	15,675	298,831	544	5,993	4,146,029
2004	2,529,642	2,397,442	10,677	4,937,761	317,233	28,823	346,056	25,417	48,315	262,831	13,527	350,090	484	5,237	5,639,628
2005	2,520,327	2,718,372	12,064	5,250,763	312,835	21,826	334,661	26,609	43,151	295,496	4,520	369,776	238	7,134	5,962,572
2006	784,771	1,407,959	10,698	2,203,428	203,602	24,517	228,119	28,867	56,144	127,630	3,406	216,047	408	5,444	2,653,446
2007	1,823,481	1,493,298	10,649	3,327,428	326,325	28,504	354,829	14,943	43,293	291,270	6,729	356,235	567	5,773	4,044,832
2008	983,303	1,396,832	16,957	2,397,092	254,387	30,155	284,542	23,432	54,051	234,109	6,890	318,482	450	4,761	3,005,327
2009	968,075	1,077,719	13,948	2,059,742	287,806	120,650	408,456	26,646	73,035	339,993	18,006	457,680	253	7,190	2,933,321
2010	1,587,657	1,240,685	6,670	2,835,012	316,233	55,831	372,064	21,924	70,774	389,552	32,052	514,302	865	5,652	3,727,895
2011	3,201,035	2,076,960	5,660	5,283,655	410,709	59,498	470,207	26,780	49,766	537,765	16,068	630,379	700	8,048	6,392,989
2012	2,924,144	209,695	11,839	3,145,678	471,096	50,164	521,260	15,638	73,419	526,992	13,304	629,353	441	4,418	4,301,150
2013	1,662,561	1,020,663	5,283	2,688,507	458,522	77,833	536,355	14,439	85,528	347,222	7,126	454,315	333	6,185	3,685,695
2014	1,501,678	842,356	5,648	2,349,682	380,055	89,785	469,840	22,567	88,513	379,823	15,144	506,047	587	7,724	3,333,880
2015	1,012,684	1,636,983	2,378	2,652,045	392,116	73,876	465,992	27,567	89,000	377,532	27,951	522,050	800	9,170	3,650,057
2016	1,266,696	1,130,112	2,096	2,398,904	342,446	53,768	396,214	26,539	58,723	259,057	4,837	349,156	659	7,449	3,152,382
2017	880,279	968,571	2,701	1,851,551	302,441	58,866	361,307	21,927	78,260	297,049	9,654	406,890	911	10,968	2,631,627
2018	400,285	417,610	1,546	819,441	188,715	43,042	231,757	14,390	92,034	165,028	2,085	273,537	622	8,581	1,390,877
2019	749,101	971,194	1,859	1,722,154	300,000	50,000	350,000	15,864	80,730	331,408	3,961	431,963	708	9,372	2,514,197

Note: Sub/Ed means subsistence and education.

[a] Sport harvest in the Kenai River (Ken) includes late-run stock only; early-run Russian River sockeye salmon harvest is excluded.

[b] Sport harvest is estimated from the annual statewide sportfish harvest survey.

[c] Sport harvest in 2019 is unknown and estimates are based on size of 2019 sockeye salmon run.

[d] Area of harvest not identified on returned permits, other than Fish Creek dip net, which was open 1996–2001, 2009–2010, 2014–2015, 2017–2019, and Beluga dip net (2008–2019).

Appendix A23.–Daily commercial harvest of razor clams in Upper Cook Inlet, 2019.

Date	Pounds	Number of diggers	Date	Pounds	Number of diggers
2 May	704	11	20 Jun	1,963	12
3 May	881	12	21 Jun	2,002	13
4 May	1,571	15	22 Jun	2,489	14
5 May	885	11	29 Jun	2,916	14
8 May	1,982	14	30 Jun	1,983	12
9 May	1,833	15	1 Jul	1,895	10
11 May	1,087	12	2 Jul	2,858	11
16 May	1,809	14	3 Jul	2,581	12
17 May	1,882	16	4 Jul	1,442	9
18 May	1,989	11	5 Jul	2,582	12
19 May	836	9	6 Jul	2,634	12
20 May	2,610	15	7 Jul	2,504	12
21 May	1,931	14	8 Jul	1,831	12
22 May	2,980	16	12 Jul	830	7
23 May	970	10	13 Jul	1,760	12
24 May	2,809	15	14 Jul	1,003	8
31 May	1,098	14	15 Jul	967	9
1 Jun	2,142	13	16 Jul	1,608	11
2 Jun	2,959	12	17 Jul	1,617	12
3 Jun	3,948	14	18 Jul	1,747	12
4 Jun	3,701	13	19 Jul	1,404	12
5 Jun	2,979	14	20 Jul	1,484	12
6 Jun	3,687	14	21 Jul	1,658	12
7 Jun	3,570	14	22 Jul	1,583	11
8 Jun	2,883	14	28 Jul	1,012	10
9 Jun	2,630	13	29 Jul	1,543	11
10 Jun	2,133	13	30 Jul	1,753	11
13 Jun	1,751	12	31 Jul	1,817	12
14 Jun	2,006	9	1 Aug	1,004	6
15 Jun	3,097	14	2 Aug	1,955	12
16 Jun	3,009	13	3 Aug	1,948	11
17 Jun	3,052	14	4 Aug	1,694	12
18 Jun	2,851	13	5 Aug	1,655	12
19 Jun	2,724	14	6 Aug	829	11
2019 Total = 137,530 lb					

APPENDIX B: HISTORICAL DATA

Appendix B1.–Upper Cook Inlet commercial Chinook salmon harvest by gear type and area, 1966–2019.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Chinook[a]	Percent	Chinook[a]	Percent	Chinook[a]	Percent	Chinook[a]	Percent	Total
1966	392	4.6	7,329	85.8	401	4.7	422	4.9	8,544
1967	489	6.2	6,686	85.1	500	6.4	184	2.3	7,859
1968	182	4.0	3,304	72.8	579	12.8	471	10.4	4,536
1969	362	2.9	5,834	47.1	3,286	26.5	2,904	23.4	12,386
1970	356	4.3	5,368	64.4	1,152	13.8	1,460	17.5	8,336
1971	237	1.2	7,055	35.7	2,875	14.5	9,598	48.6	19,765
1972	375	2.3	8,599	53.5	2,199	13.7	4,913	30.5	16,086
1973	244	4.7	4,411	84.9	369	7.1	170	3.3	5,194
1974	422	6.4	5,571	84.5	434	6.6	169	2.6	6,596
1975	250	5.2	3,675	76.8	733	15.3	129	2.7	4,787
1976	690	6.4	8,249	75.9	1,469	13.5	457	4.2	10,865
1977	3,411	23.1	9,730	65.8	1,084	7.3	565	3.8	14,790
1978	2,072	12.0	12,468	72.1	2,093	12.1	666	3.8	17,299
1979	1,089	7.9	8,671	63.1	2,264	16.5	1,714	12.5	13,738
1980	889	6.4	9,643	69.9	2,273	16.5	993	7.2	13,798
1981	2,320	19.0	8,358	68.3	837	6.8	725	5.9	12,240
1982	1,293	6.2	13,658	65.4	3,203	15.3	2,716	13.0	20,870
1983	1,125	5.5	15,042	72.9	3,534	17.1	933	4.5	20,634
1984	1,377	13.7	6,165	61.3	1,516	15.1	1,004	10.0	10,062
1985	2,048	8.5	17,723	73.6	2,427	10.1	1,890	7.8	24,088
1986	1,834	4.7	19,826	50.5	2,108	5.4	15,488	39.5	39,256
1987	4,552	11.5	21,159	53.6	1,029	2.6	12,700	32.2	39,440
1988	2,237	7.7	12,859	44.2	1,148	3.9	12,836	44.1	29,080
1989	0	0.0	10,914	40.8	3,092	11.6	12,731	47.6	26,737
1990	621	3.9	4,139	25.7	1,763	10.9	9,582	59.5	16,105
1991	246	1.8	4,893	36.1	1,544	11.4	6,859	50.6	13,542
1992	615	3.6	10,718	62.4	1,284	7.5	4,554	26.5	17,171

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Appendix B1.–Page 2 of 2.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Chinook[a]	Percent	Chinook[a]	Percent	Chinook[a]	Percent	Chinook[a]	Percent	Total
1993	765	4.1	14,079	74.6	720	3.8	3,307	17.5	18,871
1994	464	2.3	15,575	78.0	730	3.7	3,193	16.0	19,962
1995	594	3.3	12,068	67.4	1,101	6.2	4,130	23.1	17,893
1996	389	2.7	11,564	80.8	395	2.8	1,958	13.7	14,306
1997	627	4.7	11,325	85.2	207	1.6	1,133	8.5	13,292
1998	335	4.1	5,087	62.6	155	1.9	2,547	31.4	8,124
1999	575	4.0	9,463	65.8	1,533	10.7	2,812	19.6	14,383
2000	270	3.7	3,684	50.1	1,089	14.8	2,307	31.4	7,350
2001	619	6.7	6,009	64.6	856	9.2	1,811	19.5	9,295
2002	415	3.3	9,478	74.5	926	7.3	1,895	14.9	12,714
2003	1,240	6.7	14,810	80.0	770	4.2	1,683	9.1	18,503
2004	1,104	4.1	21,684	80.5	2,208	8.2	1,926	7.2	26,922
2005	1,958	7.1	21,597	78.1	739	2.7	3,373	12.2	27,667
2006	2,782	15.4	9,956	55.2	1,030	5.7	4,261	23.6	18,029
2007	912	5.2	12,292	69.7	603	3.4	3,818	21.7	17,625
2008	653	4.9	7,573	56.8	1,124	8.4	3,983	29.9	13,333
2009	859	9.8	5,588	63.9	672	7.7	1,631	18.6	8,750
2010	538	5.4	7,059	71.3	553	5.6	1,750	17.7	9,900
2011	593	5.3	7,697	68.4	659	5.9	2,299	20.4	11,248
2012	218	8.6	705	27.9	555	22.0	1,049	41.5	2,527
2013	493	9.1	2,988	55.4	590	10.9	1,327	24.6	5,398
2014	382	8.2	2,301	49.4	507	10.9	1,470	31.5	4,660
2015	556	5.1	7,781	72.1	538	5.0	1,923	17.8	10,798
2016	606	6.0	6,759	67.4	460	4.6	2,202	22.0	10,027
2017	264	3.4	4,779	62.4	387	5.1	2,230	29.1	7,660
2018	503	14.8	2,312	67.9	447	13.1	143	4.2	3,405
2019	178	5.7	2,245	71.3	523	16.6	202	6.4	3,148
1966–2018 Avg[b]	932	6.6	9,141	65.0	1,186	9.2	2,967	19.2	14,225
2009–2018 Avg	501	7.6	4,797	60.6	537	9.1	1,602	22.7	7,437

[a] Harvest data prior to 2019 reflect minor adjustments to historical catch database.

[b] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B2.–Upper Cook Inlet commercial sockeye salmon harvest by gear type and area, 1966-2019.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Sockeye[b]	%	Sockeye[b]	%	Sockeye[b]	%	Sockeye[b]	%	Total
1966	1,103,261	59.6	485,330	26.2	132,443	7.2	131,080	7.1	1,852,114
1967	890,152	64.5	305,431	22.1	66,414	4.8	118,065	8.6	1,380,062
1968	561,737	50.8	317,535	28.7	85,049	7.7	140,575	12.7	1,104,896
1969	371,747	53.7	210,834	30.5	71,184	10.3	38,050	5.5	691,815
1970	460,690	62.9	142,701	19.5	62,723	8.6	66,458	9.1	732,572
1971	423,107	66.5	111,505	17.5	61,144	9.6	40,533	6.4	636,289
1972	506,281	57.5	204,599	23.3	83,176	9.5	85,755	9.7	879,811
1973	375,695	56.1	188,816	28.2	59,973	8.9	45,614	6.8	670,098
1974	265,771	53.5	136,889	27.5	52,962	10.7	41,563	8.4	497,185
1975	368,124	53.8	177,336	25.9	73,765	10.8	65,526	9.6	684,751
1976	1,055,786	63.4	476,376	28.6	62,338	3.7	69,649	4.2	1,664,149
1977	1,073,098	52.3	751,178	36.6	104,265	5.1	123,750	6.0	2,052,291
1978	1,803,479	68.8	660,797	25.2	105,767	4.0	51,378	2.0	2,621,421
1979	454,707	49.2	247,359	26.8	108,422	11.7	113,918	12.3	924,406
1980	770,247	48.9	559,812	35.6	137,882	8.8	105,647	6.7	1,573,588
1981	633,380	44.0	496,003	34.5	60,217	4.2	249,662	17.3	1,439,262
1982	2,103,429	64.5	971,423	29.8	66,952	2.1	118,060	3.6	3,259,864
1983	3,222,428	63.8	1,508,511	29.9	134,575	2.7	184,219	3.6	5,049,733
1984	1,235,337	58.6	490,273	23.3	162,139	7.7	218,965	10.4	2,106,714
1985	2,032,957	50.1	1,561,200	38.4	285,081	7.0	181,191	4.5	4,060,429
1986	2,837,857	59.2	1,658,671	34.6	153,714	3.2	141,830	3.0	4,792,072
1987	5,638,916	59.5	3,457,724	36.5	208,036	2.2	164,572	1.7	9,469,248
1988	4,139,358	60.5	2,428,385	35.5	146,377	2.1	129,713	1.9	6,843,833
1989	5	0.0	4,543,492	90.7	186,828	3.7	280,801	5.6	5,011,126
1990	2,305,742	64.0	1,117,621	31.0	84,949	2.4	96,398	2.7	3,604,710
1991	1,118,138	51.3	844,603	38.8	99,855	4.6	116,201	5.3	2,178,797
1992	6,069,495	66.6	2,838,076	31.2	131,304	1.4	69,478	0.8	9,108,353

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	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Sockeye[a]	%	Sockeye[a]	%	Sockeye[a]	%	Sockeye[a]	%	Total
1993	2,558,732	53.8	1,941,798	40.8	108,181	2.3	146,633	3.1	4,755,344
1994	1,901,475	53.3	1,458,162	40.9	85,830	2.4	120,142	3.4	3,565,609
1995	1,773,873	60.1	961,227	32.6	107,898	3.7	109,098	3.7	2,952,096
1996	2,205,067	56.7	1,483,008	38.1	96,719	2.5	104,128	2.7	3,888,922
1997	2,197,961	52.6	1,832,856	43.9	48,723	1.2	97,455	2.3	4,176,995
1998	599,396	49.2	512,306	42.0	47,165	3.9	60,650	5.0	1,219,517
1999	1,413,995	52.8	1,092,946	40.8	114,454	4.3	59,123	2.2	2,680,518
2000	656,427	49.6	529,747	40.1	92,477	7.0	43,831	3.3	1,322,482
2001	846,275	46.3	870,019	47.6	59,709	3.3	50,848	2.8	1,826,851
2002	1,367,251	49.3	1,303,158	47.0	69,609	2.5	33,100	1.2	2,773,118
2003	1,593,638	45.8	1,746,841	50.3	87,193	2.5	48,489	1.4	3,476,161
2004	2,529,642	51.3	2,235,810	45.4	134,356	2.7	27,276	0.6	4,927,084
2005	2,520,327	48.1	2,534,345	48.4	157,612	3.0	26,415	0.5	5,238,699
2006	784,771	35.8	1,301,275	59.3	94,054	4.3	12,630	0.6	2,192,730
2007	1,823,481	55.0	1,353,407	40.8	122,424	3.7	17,467	0.5	3,316,779
2008	983,303	41.3	1,303,236	54.8	67,366	2.8	26,230	1.1	2,380,135
2009	968,075	47.3	905,853	44.3	131,214	6.4	40,652	2.0	2,045,794
2010	1,587,657	56.1	1,085,789	38.4	114,719	4.1	40,177	1.4	2,828,342
2011	3,201,035	60.6	1,877,939	35.6	163,539	3.1	35,482	0.7	5,277,995
2012	2,924,144	93.3	96,675	3.1	90,440	2.9	22,580	0.7	3,133,839
2013	1,662,561	62.0	921,533	34.3	75,707	2.8	23,423	0.9	2,683,224
2014	1,501,678	64.1	724,398	30.9	80,271	3.4	37,687	1.6	2,344,034
2015	1,012,684	38.2	1,481,336	55.9	99,771	3.8	55,876	2.1	2,649,667
2016	1,266,746	52.8	997,853	41.6	85,194	3.6	47,150	2.0	2,396,943
2017	880,279	47.6	832,220	45.0	79,788	4.3	56,956	3.1	1,849,243
2018	400,269	48.9	289,841	35.4	75,217	9.2	52,552	6.4	817,895
2019	749,101	43.5	784,279	45.6	113,695	6.6	73,220	4.3	1,720,295
1966–2018 Avg [b]	1,595,801	55.3	1,038,896	35.4	101,737	4.9	82,767	4.3	2,819,202
2009–2018 Avg	1,540,513	57.1	921,344	36.5	99,586	4.4	41,254	2.1	2,602,698

[a] Harvest data prior to 2019 reflect minor adjustments to historical catch database.

[b] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B3.–Upper Cook Inlet commercial coho salmon harvest by gear type and area, 1966–2019.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Coho[a]	%	Coho[a]	%	Coho[a]	%	Coho[a]	%	Total
1966	80,901	27.9	68,877	23.8	59,509	20.5	80,550	27.8	289,837
1967	53,071	29.9	40,738	22.9	40,066	22.5	43,854	24.7	177,729
1968	167,383	35.8	80,828	17.3	63,301	13.5	156,648	33.5	468,160
1969	33,053	32.8	18,988	18.9	28,231	28.0	20,412	20.3	100,684
1970	110,070	40.0	30,114	10.9	52,299	19.0	82,722	30.1	275,205
1971	35,491	35.4	16,589	16.5	26,188	26.1	22,094	22.0	100,362
1972	21,577	26.7	24,673	30.5	15,300	18.9	19,346	23.9	80,896
1973	31,784	30.4	23,901	22.9	24,784	23.7	23,951	22.9	104,420
1974	75,640	37.8	36,837	18.4	40,610	20.3	47,038	23.5	200,125
1975	88,579	39.0	46,209	20.3	59,537	26.2	33,051	14.5	227,376
1976	80,712	38.7	47,873	22.9	42,243	20.2	37,835	18.1	208,663
1977	110,184	57.2	23,693	12.3	38,093	19.8	20,623	10.7	192,593
1978	76,259	34.8	34,134	15.6	61,711	28.2	47,089	21.5	219,193
1979	114,496	43.2	29,284	11.0	68,306	25.8	53,078	20.0	265,164
1980	89,510	33.0	40,281	14.8	51,527	19.0	90,098	33.2	271,416
1981	226,366	46.7	36,024	7.4	88,390	18.2	133,625	27.6	484,405
1982	416,274	52.5	108,393	13.7	182,205	23.0	85,352	10.8	792,224
1983	326,965	63.3	37,694	7.3	97,796	18.9	53,867	10.4	516,322
1984	213,423	47.4	37,166	8.3	84,618	18.8	114,786	25.5	449,993
1985	357,388	53.6	70,657	10.6	147,331	22.1	91,837	13.8	667,213
1986	506,818	66.9	76,495	10.1	85,932	11.4	88,108	11.6	757,353
1987	202,506	44.8	74,981	16.6	75,201	16.6	97,062	21.9	449,750
1988	278,828	49.6	54,975	9.9	77,503	13.8	149,742	26.7	561,048
1989	856	0.2	82,333	24.1	81,004	23.9	175,738	51.8	339,931
1990	247,453	49.3	40,351	8.0	73,429	14.6	140,506	28.0	501,739
1991	176,245	41.2	30,436	7.1	87,515	20.6	132,302	31.0	426,498
1992	267,300	57.0	57,078	12.2	53,419	11.4	91,133	19.4	468,930

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	Central District						Northern District		
	Drift Gillnet		Upper Subdistrict Set		Kalgin/West Side Set		Set Gillnet		
Year	Coho[a]	%	Coho[a]	%	Coho[a]	%	Coho[a]	%	Total
1993	121,829	39.7	43,098	14.0	35,661	11.6	106,294	34.6	306,882
1994	310,114	52.7	68,449	11.9	61,166	10.5	144,064	24.8	583,793
1995	241,473	54.0	44,751	10.0	71,606	16.0	89,300	20.0	447,130
1996	171,434	53.3	40,724	12.6	31,405	9.8	78,105	24.3	321,668
1997	78,666	51.6	19,668	12.9	16,705	11.0	37,369	24.5	152,408
1998	83,338	51.9	18,677	11.6	24,286	15.1	34,387	21.4	160,688
1999	64,814	51.5	11,923	9.3	17,725	14.1	31,643	25.1	126,105
2000	131,478	55.5	11,078	4.7	22,840	9.6	71,475	30.2	236,871
2001	39,418	34.8	4,246	3.7	23,719	20.9	45,928	40.5	113,311
2002	125,831	51.1	35,153	14.3	35,005	14.2	50,292	20.4	246,281
2003	52,432	51.5	10,171	10.0	15,138	14.9	24,015	23.6	101,756
2004	199,587	64.2	30,154	9.7	36,498	11.7	44,819	14.4	311,058
2005	144,753	64.4	19,543	8.7	29,502	13.1	30,859	13.7	224,657
2006	98,473	55.4	22,167	12.5	36,845	20.7	20,368	11.5	177,853
2007	108,703	61.3	23,610	13.3	23,495	13.2	21,531	12.1	177,339
2008	89,428	52.0	21,823	12.7	18,441	10.7	42,177	24.5	171,869
2009	82,096	53.6	11,435	7.5	22,050	14.4	37,629	24.6	153,210
2010	110,275	53.2	32,683	15.8	26,281	12.7	38,111	18.4	207,350
2011	40,858	42.9	15,560	16.3	16,760	17.6	22,113	23.2	95,291
2012	74,678	69.9	6,537	6.1	12,354	11.6	13,206	12.4	106,775
2013	184,771	70.8	2,266	0.9	31,513	12.1	42,413	16.3	260,963
2014	76,932	56.0	5,908	4.3	19,379	14.1	35,200	25.6	137,419
2015	130,720	60.5	17,948	8.3	20,748	9.6	46,616	21.6	216,032
2016	90,242	61.2	11,606	7.9	15,171	10.3	30,476	20.7	147,495
2017	191,490	63.1	29,916	9.9	29,535	9.7	52,701	17.4	303,642
2018	108,906	46.9	4,705	2.0	51,581	22.2	67,098	28.9	232,290
2019	88,618	54.1	6,507	4.0	16,799	10.3	51,935	31.7	163,859
1966–2018 Avg[b]	145,020	48.8	33,674	12.3	47,509	16.8	61,825	22.1	288,028
2009–2018 Avg	109,097	57.8	13,856	7.9	24,537	13.4	38,556	20.9	186,047

[a] Harvest data prior to 2019 reflect minor adjustments to historical catch database.

[b] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B4.–Upper Cook Inlet commercial pink salmon harvest by gear type and area, 1966–2019.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Pink[a]	%	Pink[a]	%	Pink[a]	%	Pink[a]	%	Total
1966	593,654	29.6	969,624	48.3	70,507	3.5	371,960	18.5	2,005,745
1967	7,475	23.2	13,038	40.5	3,256	10.1	8,460	26.2	32,229
1968	880,512	38.7	785,887	34.5	75,755	3.3	534,839	23.5	2,276,993
1969	8,233	25.3	10,968	33.7	5,711	17.6	7,587	23.3	32,499
1970	334,737	41.1	281,067	34.5	24,763	3.0	174,193	21.4	814,760
1971	6,433	18.1	18,097	50.8	2,637	7.4	8,423	23.7	35,590
1972	115,117	18.3	403,706	64.2	18,913	3.0	90,830	14.5	628,566
1973	91,901	28.2	80,596	24.7	16,437	5.0	137,250	42.1	326,184
1974	140,432	29.0	291,408	60.2	9,014	1.9	42,876	8.9	483,730
1975	113,868	33.9	112,423	33.4	19,086	5.7	90,953	27.0	336,330
1976	599,594	47.7	479,024	38.1	30,030	2.4	148,080	11.8	1,256,728
1977	286,308	51.7	125,817	22.7	25,212	4.6	116,518	21.0	553,855
1978	934,442	55.3	372,601	22.1	54,785	3.2	326,614	19.3	1,688,442
1979	19,554	26.8	19,983	27.4	7,061	9.7	26,382	36.1	72,980
1980	964,526	54.0	299,444	16.8	47,963	2.7	474,488	26.6	1,786,421
1981	53,888	42.4	15,654	12.3	4,276	3.4	53,325	41.9	127,143
1982	270,380	34.2	432,715	54.7	14,242	1.8	73,307	9.3	790,644
1983	26,629	37.9	18,309	26.0	3,785	5.4	21,604	30.7	70,327
1984	273,565	44.3	220,895	35.8	16,708	2.7	106,284	17.2	617,452
1985	34,228	39.0	17,715	20.2	5,653	6.4	30,232	34.4	87,828
1986	615,522	47.3	530,974	40.8	15,460	1.2	139,002	10.7	1,300,958
1987	38,714	35.4	47,243	43.2	5,229	4.8	18,203	16.6	109,389
1988	227,885	48.4	176,043	37.4	12,942	2.7	54,210	11.5	471,080
1989	2	0.0	37,982	56.3	5,580	8.3	23,878	35.4	67,442
1990	323,955	53.7	225,429	37.3	10,302	1.7	43,944	7.3	603,630
1991	5,791	39.5	2,670	18.2	1,049	7.2	5,153	35.1	14,663
1992	423,738	60.9	244,068	35.1	4,250	0.6	23,805	3.4	695,861

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	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Pink[a]	%	Pink[a]	%	Pink[a]	%	Pink[a]	%	Total
1993	46,463	46.0	41,690	41.3	2,313	2.3	10,468	10.4	100,934
1994	256,248	49.0	234,827	44.9	3,178	0.6	29,181	5.6	523,434
1995	64,632	48.4	53,420	40.0	3,813	2.9	11,713	8.8	133,578
1996	122,728	50.5	95,717	39.4	3,792	1.6	20,674	8.5	242,911
1997	29,920	42.2	32,055	45.2	4,701	6.6	4,269	6.0	70,945
1998	200,382	36.3	332,484	60.3	7,231	1.3	11,640	2.1	551,737
1999	3,552	22.0	9,357	57.8	2,674	16.5	593	3.7	16,176
2000	90,508	61.8	23,746	16.2	11,983	8.2	20,245	13.8	146,482
2001	31,219	43.0	32,998	45.5	3,988	5.5	4,355	6.0	72,560
2002	224,229	50.2	214,771	48.1	1,736	0.4	6,224	1.4	446,960
2003	30,376	62.3	16,474	33.8	375	0.8	1,564	3.2	48,789
2004	235,524	65.8	107,838	30.1	12,560	3.5	2,017	0.6	357,939
2005	31,230	64.5	13,619	28.1	2,747	5.7	823	1.7	48,419
2006	212,808	52.7	184,990	45.8	4,684	1.2	1,629	0.4	404,111
2007	67,398	45.8	69,918	47.6	6,177	4.2	3,527	2.4	147,020
2008	103,867	61.3	59,620	35.2	2,357	1.4	3,524	2.1	169,368
2009	139,676	65.2	55,845	26.1	12,246	5.7	6,554	3.1	214,321
2010	164,005	56.0	121,817	41.6	3,106	1.1	3,778	1.3	292,706
2011	15,333	44.9	15,527	45.5	2,424	7.1	839	2.5	34,123
2012	303,216	64.6	159,003	33.9	3,376	0.7	4,003	0.9	469,598
2013	30,605	63.4	14,671	30.4	1,014	2.1	1,985	4.1	48,275
2014	417,344	64.9	213,616	33.2	4,331	0.7	7,695	1.2	642,986
2015	21,653	45.1	22,983	47.9	1,175	2.4	2,193	4.6	48,004
2016	268,908	70.3	103,503	27.1	2,089	0.5	7,968	2.1	382,468
2017	89,963	53.6	59,995	35.7	7,775	4.6	10,109	6.0	167,842
2018	83,535	65.8	21,822	17.2	8,294	6.5	13,272	10.5	126,923
2019	27,607	39.0	32,660	46.2	3,795	5.4	6,679	9.4	70,741
1966–2018 Avg[b]	205,315	46.1	163,610	36.7	12,022	4.1	63,834	13.0	444,781
2009–2018 Avg	153,424	59.4	78,878	33.9	4,583	3.2	5,840	3.6	242,725

[a] Harvest data prior to 2019 reflect minor adjustments to historical catch database.

[b] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B5.–Upper Cook Inlet commercial chum salmon harvest by gear type and area, 1966–2019.

	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Chum[a]	%	Chum[a]	%	Chum[a]	%	Chum[a]	%	Total
1966	424,972	79.8	7,461	1.4	64,725	12.1	35,598	6.7	532,756
1967	233,041	78.5	399	0.1	25,013	8.4	38,384	12.9	296,837
1968	1,002,900	90.5	1,563	0.1	44,986	4.1	58,454	5.3	1,107,903
1969	238,497	89.1	399	0.1	16,954	6.3	11,836	4.4	267,686
1970	678,448	90.4	1,228	0.2	48,591	6.5	22,507	3.0	750,774
1971	274,567	84.8	128	0.0	32,647	10.1	16,603	5.1	323,945
1972	564,726	90.2	1,727	0.3	40,179	6.4	19,782	3.2	626,414
1973	605,738	90.7	1,965	0.3	29,019	4.3	30,851	4.6	667,573
1974	344,496	86.8	506	0.1	15,346	3.9	36,492	9.2	396,840
1975	886,474	93.2	980	0.1	33,347	3.5	30,787	3.2	951,588
1976	405,769	86.5	1,484	0.3	47,882	10.2	14,045	3.0	469,180
1977	1,153,454	93.5	1,413	0.1	54,708	4.4	23,861	1.9	1,233,436
1978	489,119	85.5	4,563	0.8	40,946	7.2	37,151	6.5	571,779
1979	609,239	93.8	867	0.1	30,342	4.7	9,310	1.4	649,758
1980	339,970	87.7	2,147	0.6	28,970	7.5	16,728	4.3	387,815
1981	756,922	91.0	2,386	0.3	26,461	3.2	46,208	5.6	831,977
1982	1,348,510	94.1	4,777	0.3	36,647	2.6	43,006	3.0	1,432,940
1983	1,044,636	93.7	2,822	0.3	38,079	3.4	29,321	2.6	1,114,858
1984	568,097	83.5	3,695	0.5	34,207	5.0	74,727	11.0	680,726
1985	700,848	90.7	4,133	0.5	31,746	4.1	36,122	4.7	772,849
1986	1,012,669	89.2	7,030	0.6	39,078	3.4	76,040	6.7	1,134,817
1987	211,745	60.6	16,733	4.8	53,771	15.4	66,901	19.2	349,150
1988	582,699	82.0	11,763	1.7	40,425	5.7	75,728	10.7	710,615
1989	72	0.1	12,326	10.1	27,705	22.7	81,948	67.1	122,051
1990	289,521	82.4	4,611	1.3	21,355	6.1	35,710	10.2	351,197
1991	215,476	76.9	2,387	0.9	22,974	8.2	39,393	14.1	280,230
1992	232,955	84.9	2,867	1.0	13,180	4.8	25,301	9.2	274,303

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	Central District						Northern District		
	Drift gillnet		Upper Subdistrict set		Kalgin/West side set		Set gillnet		
Year	Chum[a]	%	Chum[a]	%	Chum[a]	%	Chum[a]	%	Total
1993	88,826	72.4	2,977	2.4	5,566	4.5	25,401	20.7	122,770
1994	249,748	82.4	2,927	1.0	10,443	3.4	40,059	13.2	303,177
1995	468,224	88.4	3,711	0.7	13,826	2.6	43,667	8.2	529,428
1996	140,987	90.1	1,448	0.9	2,314	1.5	11,771	7.5	156,520
1997	92,163	89.4	1,222	1.2	1,770	1.7	7,881	7.6	103,036
1998	88,080	92.0	688	0.7	2,953	3.1	3,983	4.2	95,704
1999	166,612	95.5	373	0.2	3,567	2.0	4,002	2.3	174,554
2000	118,074	92.9	325	0.3	4,386	3.5	4,284	3.4	127,069
2001	75,599	89.5	248	0.3	6,445	7.6	2,202	2.6	84,494
2002	224,587	94.4	1,790	0.8	6,671	2.8	4,901	2.1	237,949
2003	106,468	88.2	1,933	1.6	7,883	6.5	4,483	3.7	120,767
2004	137,041	93.8	2,019	1.4	4,957	3.4	2,148	1.5	146,165
2005	65,671	94.2	710	1.0	2,632	3.8	727	1.0	69,740
2006	59,965	93.6	347	0.5	3,241	5.1	480	0.7	64,033
2007	74,836	96.9	521	0.7	1,275	1.7	608	0.8	77,240
2008	46,010	91.4	433	0.9	2,243	4.5	1,629	3.2	50,315
2009	77,073	93.1	319	0.4	2,339	2.8	3,080	3.7	82,811
2010	216,977	94.8	3,035	1.3	4,947	2.2	3,904	1.7	228,863
2011	111,082	85.8	1,612	1.2	9,995	7.7	6,718	5.2	129,407
2012	264,513	98.1	49	0.0	2,872	1.1	2,299	0.9	269,733
2013	132,172	94.8	102	0.1	4,854	3.5	2,237	1.6	139,365
2014	108,345	93.3	548	0.5	4,828	4.2	2,406	2.1	116,127
2015	252,331	91.4	2,248	0.8	15,312	5.5	6,069	2.2	275,960
2016	113,258	91.6	1,203	1.0	6,050	4.9	3,168	2.6	123,679
2017	232,501	95.4	601	0.2	5,684	2.3	4,814	2.0	243,600
2018	108,216	93.8	78	0.1	2,924	2.5	4,148	3.6	115,366
2019	112,518	87.1	528	0.4	9,006	7.0	7,124	5.5	129,176
1966–2018 Avg[b]	366,055	89.0	2,337	0.7	20,222	4.9	22,075	5.4	410,689
2009–2018 Avg	161,647	93.2	980	0.6	5,981	3.7	3,884	2.5	172,491

[a] Harvest data prior to 2019 reflect minor adjustments to historical catch database.

[b] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B6.–Upper Cook Inlet commercial salmon harvest by species, 1966–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1966	8,544	1,852,114	289,837	2,005,745	532,756	4,688,996
1967	7,859	1,380,062	177,729	32,229	296,837	1,894,716
1968	4,536	1,104,904	469,850	2,278,197	1,119,114	4,976,601
1969	12,397	692,175	100,777	33,383	269,847	1,108,579
1970	8,336	732,605	275,399	814,895	776,229	2,607,464
1971	19,765	636,303	100,636	35,624	327,029	1,119,357
1972	16,086	879,824	80,933	628,574	630,103	2,235,520
1973	5,194	670,098	104,420	326,184	667,573	1,773,469
1974	6,596	497,185	200,125	483,730	396,840	1,584,476
1975	4,787	684,752	227,379	336,333	951,796	2,205,047
1976	10,865	1,664,150	208,695	1,256,728	469,802	3,610,240
1977	14,790	2,052,291	192,599	553,855	1,233,722	4,047,257
1978	17,299	2,621,421	219,193	1,688,442	571,779	5,118,134
1979	13,738	924,415	265,166	72,982	650,357	1,926,658
1980	13,798	1,573,597	271,418	1,786,430	389,675	4,034,918
1981	12,240	1,439,277	484,411	127,164	833,542	2,896,634
1982	20,870	3,259,864	793,937	790,648	1,433,866	6,299,185
1983	20,634	5,049,733	516,322	70,327	1,114,858	6,771,874
1984	10,062	2,106,714	449,993	617,452	680,726	3,864,947
1985	24,088	4,060,429	667,213	87,828	772,849	5,612,407
1986	39,256	4,792,072	757,353	1,300,958	1,134,817	8,024,456
1987	39,440	9,469,248	449,750	109,389	349,150	10,416,977
1988	29,080	6,843,833	561,048	471,080	710,615	8,615,656
1989	26,738	5,011,159	339,931	67,443	122,051	5,567,322
1990	16,105	3,604,710	501,739	603,630	351,197	5,077,381

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Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1991	13,542	2,178,797	426,498	14,663	280,230	2,913,730
1992	17,171	9,108,353	468,930	695,861	274,303	10,564,618
1993	18,871	4,755,344	306,882	100,934	122,770	5,304,801
1994	19,962	3,565,609	583,793	523,434	303,177	4,995,975
1995	17,893	2,952,096	447,130	133,578	529,428	4,080,125
1996	14,306	3,888,922	321,668	242,911	156,520	4,624,327
1997	13,292	4,176,995	152,408	70,945	103,036	4,516,676
1998	8,124	1,219,517	160,688	551,737	95,704	2,035,770
1999	14,383	2,680,518	126,105	16,176	174,554	3,011,736
2000	7,350	1,322,482	236,871	146,482	127,069	1,840,254
2001	9,295	1,826,851	113,311	72,560	84,494	2,106,511
2002	12,714	2,773,118	246,281	446,960	237,949	3,717,022
2003	18,503	3,476,161	101,756	48,789	120,767	3,765,976
2004	26,922	4,927,084	311,058	357,939	146,165	5,769,168
2005	27,667	5,238,699	224,657	48,419	69,740	5,609,182
2006	18,029	2,192,730	177,853	404,111	64,033	2,856,756
2007	17,625	3,316,779	177,339	147,020	77,240	3,736,003
2008	13,333	2,380,135	171,869	169,368	50,315	2,785,020
2009	8,750	2,045,794	153,210	214,321	82,811	2,504,883
2010	9,900	2,828,342	207,350	292,706	228,863	3,567,161
2011	11,248	5,277,995	95,291	34,123	129,407	5,548,064
2012	2,527	3,133,839	106,775	469,598	269,733	3,982,472
2013	5,398	2,683,224	260,963	48,275	139,365	3,137,225
2014	4,660	2,344,034	137,419	642,986	116,127	3,245,226
2015	10,798	2,649,667	216,032	48,004	275,960	3,200,461
2016	10,027	2,396,943	147,495	382,468	123,679	3,060,612
2017	7,660	1,849,243	303,642	167,842	243,600	2,571,987
2018	3,405	817,895	232,290	126,923	115,366	1,295,879
2019	3,148	1,720,295	163,859	70,741	129,176	2,087,219
1966–2018 Avg[a]	14,225	2,819,210	288,106	444,826	411,682	3,978,049
2009–2018 Avg	7,437	2,602,698	186,047	242,725	172,491	3,211,397

Note: Catch statistics prior to 2019 reflect minor adjustments to harvest database.

[a] 1989 was not used in averages, because the drift fleet did not fish due to the Exxon Valdez oil spill and this had an effect on all other fisheries.

Appendix B7.–Approximate exvessel value of Upper Cook Inlet commercial salmon harvest by species, 1960–2019.

Year	Chinook	%	Sockeye	%	Coho	%	Pink	%	Chum	%	Total
1960	$140,000	5.0%	$1,334,000	47.9%	$307,000	11.0%	$663,000	23.8%	$343,000	12.3%	$2,787,000
1961	$100,000	4.7%	$1,687,000	79.4%	$118,000	5.6%	$16,000	0.8%	$204,000	9.6%	$2,125,000
1962	$100,000	2.5%	$1,683,000	42.3%	$342,000	8.6%	$1,274,000	32.0%	$582,000	14.6%	$3,981,000
1963	$89,000	4.6%	$1,388,000	72.3%	$193,000	10.1%	$13,000	0.7%	$236,000	12.3%	$1,919,000
1964	$20,000	0.5%	$1,430,000	38.9%	$451,000	12.3%	$1,131,000	30.8%	$646,000	17.6%	$3,678,000
1965	$50,000	2.0%	$2,099,000	82.1%	$109,000	4.3%	$70,000	2.7%	$230,000	9.0%	$2,558,000
1966	$50,000	1.2%	$2,727,000	64.4%	$295,000	7.0%	$823,000	19.4%	$338,000	8.0%	$4,233,000
1967	$49,000	1.9%	$2,135,000	82.6%	$187,000	7.2%	$13,000	0.5%	$202,000	7.8%	$2,586,000
1968	$30,000	0.7%	$1,758,000	40.4%	$515,000	11.8%	$1,209,000	27.8%	$843,000	19.4%	$4,355,000
1969	$70,000	4.0%	$1,296,697	73.9%	$134,003	7.6%	$18,291	1.0%	$236,404	13.5%	$1,755,394
1970	$89,382	3.0%	$1,190,303	39.9%	$468,179	15.7%	$456,354	15.3%	$780,622	26.2%	$2,984,840
1971	$189,504	9.2%	$1,250,771	61.0%	$137,815	6.7%	$18,402	0.9%	$454,483	22.2%	$2,050,974
1972	$224,396	6.3%	$1,863,177	52.6%	$137,315	3.9%	$478,246	13.5%	$840,057	23.7%	$3,543,192
1973	$121,156	2.0%	$3,225,847	52.3%	$318,950	5.2%	$362,658	5.9%	$2,135,025	34.6%	$6,163,635
1974	$209,712	3.2%	$3,072,221	46.8%	$843,048	12.8%	$919,916	14.0%	$1,517,637	23.1%	$6,562,535
1975	$63,990	1.0%	$2,628,036	39.2%	$838,859	12.5%	$419,173	6.3%	$2,752,555	41.1%	$6,702,612
1976	$274,172	2.0%	$8,668,095	63.4%	$819,006	6.0%	$1,874,915	13.7%	$2,041,225	14.9%	$13,677,413
1977	$523,776	2.4%	$13,318,720	61.8%	$932,540	4.3%	$767,273	3.6%	$5,995,611	27.8%	$21,537,920
1978	$661,375	2.0%	$26,167,741	80.3%	$1,380,312	4.2%	$2,154,176	6.6%	$2,217,510	6.8%	$32,581,114
1979	$616,360	4.2%	$8,093,280	55.3%	$1,640,277	11.2%	$82,339	0.6%	$4,199,765	28.7%	$14,632,021
1980	$414,771	3.2%	$7,937,699	61.7%	$891,098	6.9%	$2,114,283	16.4%	$1,513,960	11.8%	$12,871,810
1981	$424,390	2.3%	$11,080,411	60.1%	$2,623,598	14.2%	$170,038	0.9%	$4,150,158	22.5%	$18,448,596
1982	$763,267	2.4%	$25,154,115	80.0%	$4,080,570	13.0%	$553,635	1.8%	$886,129	2.8%	$31,437,716
1983	$590,730	2.0%	$24,016,294	81.8%	$1,601,976	5.5%	$41,338	0.1%	$3,109,814	10.6%	$29,360,152
1984	$310,899	1.8%	$12,450,532	71.8%	$2,039,681	11.8%	$522,795	3.0%	$2,011,253	11.6%	$17,335,160
1985	$799,318	2.3%	$27,497,929	80.0%	$3,359,824	9.8%	$57,412	0.2%	$2,644,995	7.7%	$34,359,478
1986	$915,189	2.0%	$38,683,950	83.3%	$2,909,043	6.3%	$724,367	1.6%	$3,197,973	6.9%	$46,430,522
1987	$1,609,777	1.6%	$95,915,522	94.9%	$2,373,254	2.3%	$84,439	0.1%	$1,116,165	1.1%	$101,099,156

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Year	Chinook	%	Sockeye	%	Coho	%	Pink	%	Chum	%	Total
1988	$1,120,885	0.9%	$111,537,736	91.3%	$4,738,463	3.9%	$650,931	0.5%	$4,129,002	3.4%	$122,177,017
1989	$803,494	1.4%	$56,194,753	95.0%	$1,674,393	2.8%	$86,012	0.1%	$415,535	0.7%	$59,174,188
1990	$436,822	1.1%	$35,804,485	88.0%	$2,422,214	6.0%	$512,591	1.3%	$1,495,827	3.7%	$40,671,938
1991	$348,522	2.3%	$12,249,200	80.4%	$1,996,049	13.1%	$5,478	0.0%	$643,400	4.2%	$15,242,649
1992	$634,466	0.6%	$96,026,864	96.0%	$2,261,862	2.3%	$404,772	0.4%	$740,294	0.7%	$100,068,258
1993	$617,092	2.1%	$27,969,409	93.1%	$1,081,175	3.6%	$36,935	0.1%	$322,205	1.1%	$30,026,815
1994	$642,291	1.9%	$29,441,442	85.5%	$3,297,865	9.6%	$240,545	0.7%	$831,121	2.4%	$34,453,264
1995	$474,475	2.2%	$19,168,077	87.1%	$1,295,353	5.9%	$53,114	0.2%	$1,023,926	4.7%	$22,014,944
1996	$402,980	1.4%	$28,238,578	95.0%	$800,423	2.7%	$44,386	0.1%	$225,751	0.8%	$29,712,117
1997	$365,316	1.1%	$31,439,536	97.1%	$434,327	1.3%	$12,004	0.0%	$143,244	0.4%	$32,394,427
1998	$181,318	2.1%	$7,686,993	88.5%	$497,050	5.7%	$187,759	2.2%	$132,025	1.5%	$8,685,145
1999	$343,545	1.6%	$20,029,356	95.5%	$331,342	1.6%	$6,011	0.0%	$265,460	1.3%	$20,975,713
2000	$183,400	2.3%	$7,104,456	87.2%	$626,032	7.7%	$47,075	0.6%	$186,344	2.3%	$8,147,307
2001	$169,593	2.2%	$7,134,560	92.3%	$297,387	3.8%	$20,313	0.3%	$111,028	1.4%	$7,732,881
2002	$326,077	2.8%	$10,679,780	91.7%	$329,198	2.8%	$84,859	0.7%	$224,011	1.9%	$11,643,925
2003	$358,886	2.8%	$12,275,919	95.3%	$132,059	1.0%	$8,663	0.1%	$99,783	0.8%	$12,875,310
2004	$673,088	3.3%	$19,416,259	93.8%	$416,071	2.0%	$65,884	0.3%	$129,791	0.6%	$20,701,093
2005	$688,993	2.2%	$30,165,827	95.2%	$708,620	2.2%	$12,796	0.0%	$101,106	0.3%	$31,677,341
2006	$617,278	4.4%	$12,311,850	88.5%	$679,463	4.9%	$174,522	1.3%	$121,265	0.9%	$13,904,377
2007	$629,643	2.7%	$21,916,852	93.6%	$682,747	2.9%	$53,029	0.2%	$141,097	0.6%	$23,423,367
2008	$544,042	3.3%	$15,530,144	93.0%	$482,298	2.9%	$64,466	0.4%	$75,766	0.5%	$16,696,717
2009	$266,548	1.8%	$13,720,051	94.1%	$399,704	2.7%	$71,582	0.5%	$115,969	0.8%	$14,573,854
2010	$359,184	1.1%	$30,556,535	92.1%	$1,090,191	3.3%	$311,199	0.9%	$851,004	2.6%	$33,168,113
2011	$634,836	1.2%	$51,363,720	96.7%	$406,726	0.8%	$27,548	0.1%	$688,878	1.3%	$53,121,708
2012	$121,626	0.3%	$32,008,304	91.6%	$480,119	1.4%	$622,809	1.8%	$1,723,098	4.9%	$34,955,955
2013	$210,638	0.5%	$37,787,069	93.9%	$1,362,395	3.4%	$53,754	0.1%	$828,113	2.1%	$40,241,970
2014	$206,119	0.6%	$32,819,090	93.6%	$778,672	2.2%	$588,409	1.7%	$687,214	2.0%	$35,079,504
2015	$359,903	1.5%	$22,285,338	92.2%	$753,078	3.1%	$39,197	0.2%	$726,696	3.0%	$24,164,211
2016	$491,323	2.2%	$20,853,404	92.3%	$557,531	2.5%	$328,922	1.5%	$351,248	1.6%	$22,582,429
2017	$634,666	2.7%	$19,711,471	82.7%	$2,168,036	9.1%	$89,448	0.4%	$1,234,825	5.2%	$23,838,446
2018	$207,901	1.7%	$10,139,195	81.8%	$1,367,047	11.0%	$115,431	0.9%	$569,659	4.6%	$12,399,234
2019	$172,899	0.9%	$17,131,030	93.3%	$684,442	3.7%	$45,667	0.2%	$321,909	1.8%	$18,355,947
2009–2018 Average	$349,274		$27,124,418		$936,350		$224,830		$777,670		$29,412,542

Appendix B8.–Commercial herring harvest by fishery, Upper Cook Inlet, 1973–2019.

	Harvest (short tons[a])				
Year	Upper Subdistrict	Chinitna Bay	Tuxedni Bay	Kalgin Island	Total
1973	13.8				13.8
1974	36.7				36.7
1975	6.2				6.2
1976	5.8				5.8
1977	17.3				17.3
1978	8.3	55.3			63.6
1979	67.3	96.2	24.8		188.3
1980	37.4	20.0	86.5		143.9
1981	86.2	50.5	84.9		221.6
1982	60.2	91.8	50.2		202.2
1983	165.3	49.2	238.2		452.7
1984	117.5	90.6	159.0		367.1
1985	136.3	46.1	215.9		398.4
1986	142.6	111.1	191.9		445.6
1987	126.5	65.1	152.5		344.1
1988	50.7	23.4	14.1		88.1
1989	55.2	122.3	34.3		211.8
1990	55.4	55.9	16.1		127.5
1991	13.4	15.7	1.6		30.7
1992	24.7	10.4			35.2
1993					
1994					
1995					
1996					
1997					
1998	19.5				19.4
1999	10.4				10.4
2000	14.7				16.3
2001	9.9				10.4
2002	16.2	1.9	0.0		18.1
2003	3.7	0.0	0.0		3.7
2004	6.7	0.1	0.0		6.8
2005	17.1	0.2	0.0	0.0	17.3
2006	14.4	0.0	0.0	0.0	14.4
2007	12.6	0.0	0.0	0.0	12.6
2008	13.5	0.0	0.0	0.0	13.5
2009	9.2	0.0	0.0	0.0	9.2
2010	16.4	0.2	0.0	0.0	16.6
2011	13.7	2.5	0.0	0.0	16.2
2012	16.7	7.0	0.0	0.0	23.8
2013	29.6	6.0	0.0	0.0	35.6
2014	29.0	0.0	0.0	0.0	29.0
2015	24.6	1.6	0.0	0.0	26.2
2016	22.9	0.0	0.0	0.0	22.9
2017	28.2	0.1	0.0	0.0	28.2
2018	17.6	0.0	0.0	0.0	17.6
2019	34.3	0.0	0.0	0.0	34.3

Note: Blank cells mean the fisheries were closed.

[a] Short tons = 2,000 lb or 907.2 kg.

Appendix B9.–Commercial harvest of razor clams in Upper Cook Inlet, 1919–2019.

Year	Pounds	Year	Pounds
1919	76,963	1970	0
1920	11,952	1971	14,755
1921	72,000	1972	31,360
1922	510,432	1973	34,415
1923	470,280	1974	0
1924	156,768	1975	10,020
1925	0	1976	0
1926	0	1977	1,762
1927	25,248	1978	45,931
1928	0	1979	144,358
1929	0	1980	140,420
1930	0	1981	441,949
1931	ND	1982	460,639
1932	93,840	1983	269,618
1933	ND	1984	261,742
1934	ND	1985	319,034
1935	ND	1986	258,632
1936	ND	1987	312,349
1937	8,328	1988	399,376
1938	ND	1989	222,747
1939	ND	1990	323,602
1940	ND	1991	201,320
1941	0	1992	296,727
1942	0	1993	310,481
1943	0	1994	355,165
1944	0	1995	248,358
1945	15,000	1996	355,448
1946	11,424	1997	366,532
1947	11,976	1998	371,877
1948	2,160	1999	352,910
1949	9,672	2000	369,397
1950	304,073	2001	348,917
1951	112,320	2002	338,938
1952	0	2003	411,403
1953	0	2004	419,697
1954	0	2005	371,395
1955	0	2006	368,953
1956	0	2007	283,085
1957	0	2008	390,999
1958	0	2009	361,388
1959	0	2010	379,547
1960	372,872	2011	189,172
1961	277,830	2012	307,409
1962	195,650	2013	380,912
1963	0	2014	348,294
1964	0	2015	318,538
1965	0	2016	284,800
1966	0	2017	177,147
1967	0	2018	199,162
1968	0	2019	137,530
1969	0		

Note: ND means no data.

Appendix B10.–Abundance goals and estimates of sockeye salmon in selected streams, 1988–2019.

	Kenai River		Kasilof River		Fish Creek	
Year	Abundance goal[a]	Abundance estimate [b,c]	Abundance goal	Abundance estimate[b,c]	Abundance goal	Abundance estimate[c]
1988	400,000–700,000	1,021,469	150,000–250,000	204,000	50,000	71,603
1989	400,000–700,000	1,599,959	150,000–250,000	158,206	50,000	67,224
1990	400,000–700,000	659,520	150,000–250,000	144,289	50,000	50,000
1991	400,000–700,000	647,597	150,000–250,000	238,269	50,000	50,500
1992	400,000–700,000	994,798	150,000–250,000	184,178	50,000	71,385
1993	400,000–700,000	813,617	150,000–250,000	149,939	50,000	117,619
1994	400,000–700,000	1,003,446	150,000–250,000	205,117	50,000	95,107
1995	450,000–700,000	630,447	150,000–250,000	204,935	50,000	115,000
1996	550,000–800,000	797,847	150,000–250,000	249,944	50,000	63,160
1997	550,000–825,000	1,064,818	150,000–250,000	266,025	50,000	54,656
1998	550,000–850,000	767,558	150,000–250,000	273,213	50,000	22,853
1999	750,000–950,000	803,379	150,000–250,000	312,587	50,000	26,667
2000	600,000–850,000	624,578	150,000–250,000	256,053	50,000	19,533
2001	600,000–850,000	650,036	150,000–250,000	307,570	50,000	43,469
2002	750,000–950,000	957,924	150,000–250,000	226,682	20,000–70,000	90,483
2003	750,000–950,000	1,181,309	150,000–250,000	359,633	20,000–70,000	92,298
2004	850,000–1,100,000	1,385,981	150,000–250,000	577,581	20,000–70,000	22,157
2005	850,000–1,100,000	1,376,452	150,000–250,000	348,012	20,000–70,000	14,215
2006	750,000–950,000	1,499,692	150,000–250,000	368,092	20,000–70,000	32,566
2007	750,000–950,000	867,572	150,000–250,000	336,866	20,000–70,000	27,948
2008	650,000–850,000	614,946	150,000–250,000	301,469	20,000–70,000	19,339
2009	650,000–850,000	745,170	150,000–250,000	297,125	20,000–70,000	83,477
2010	750,000–950,000	970,662	150,000–250,000	267,013	20,000–70,000	126,829
2011	1,100,000–1,350,000	1,599,217	160,000–390,000	245,721	20,000–70,000	66,678
2012	1,100,000–1,350,000	1,581,555	160,000–390,000	374,523	20,000–70,000	18,813
2013	1,000,000–1,200,000	1,359,893	160,000–390,000	489,654	20,000–70,000	18,912
2014	1,000,000–1,200,000	1,520,340	160,000–340,000	439,977	20,000–70,000	43,915
2015	1,000,000–1,200,000	1,704,767	160,000–340,000	470,677	20,000–70,000	102,296
2016	1,100,000–1,350,000	1,383,692	160,000–340,000	239,981	20,000–70,000	46,202
2017	1,000,000–1,300,000	1,308,498	160,000–340,000	358,724	15,000–45,000	61,469
2018	900,000–1,100,000	1,035,761	160,000–340,000	394,309	15,000–45,000	71,556
2019	1,000,000–1,300,000	1,849,054	160,000–340,000	378,416	15,000–45,000	76,031

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Appendix B10.–Page 2 of 3.

Year	Larson		Chelatna		Judd	
	Abundance goal	Abundance estimate[c]	Abundance goal	Abundance estimate[c]	Abundance goal	Abundance estimate[c]
1988	–	–	–	–	–	–
1989	–	–	–	–	–	12,792
1990	–	–	–	–	–	–
1991	–	–	–	–	–	–
1992	–	–	–	–	–	–
1993	–	–	–	20,235	–	–
1994	–	–	–	28,303	–	–
1995	–	–	–	20,104	–	–
1996	–	–	–	–	–	–
1997	–	40,282	–	–	–	–
1998	–	63,514	–	–	–	34,416
1999	–	18,943	–	–	–	–
2000	–	11,987	–	–	–	–
2001	–	–	–	–	–	–
2002	–	–	–	–	–	–
2003	–	–	–	–	–	–
2004	–	–	–	–	–	–
2005	–	9,955	–	–	–	–
2006	–	57,411	–	–	–	40,633
2007	–	47,924	–	–	–	57,251
2008	–	34,595	–	74,469	–	53,681
2009	15,000–50,000	40,933	20,000–65,000	17,703	25,000–55,000	44,616
2010	15,000–50,000	20,324	20,000–65,000	37,784	25,000–55,000	18,446
2011	15,000–50,000	12,190	20,000–65,000	70,353	25,000–55,000	39,984
2012	15,000–50,000	16,566	20,000–65,000	36,736	25,000–55,000	18,715
2013	15,000–50,000	21,821	20,000–65,000	70,555	25,000–55,000	14,088
2014	15,000–50,000	12,040	20,000–65,000	26,212	25,000–55,000	22,416
2015	15,000–50,000	23,176	20,000–65,000	69,897	25,000–55,000	47,934
2016	15,000–50,000	14,313	20,000–65,000	67,836	25,000–55,000	–
2017	15,000–35,000	31,866	20,000–45,000	26,986	15,000–40,000	35,731
2018	15,000–35,000	23,444	20,000–45,000	20,437	15,000–40,000	30,844
2019	15,000–35,000	9,699	20,000–45,000	26,303	15,000–40,000	44,145

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Appendix B10.–Page 3 of 3.

Year	Yentna River		Crescent River		Packers Creek	
	Abundance goal	Abundance estimate[c]	Abundance goal	Abundance estimate[c]	Abundance goal	Abundance estimate[c,e]
1988	100,000–150,000	52,330	50,000–100,000	57,716	15,000–25,000	18,607
1989	100,000–150,000	96,269	50,000–100,000	71,064	15,000–25,000	22,304
1990	100,000–150,000	140,290	50,000–100,000	52,238	15,000–25,000	31,868
1991	100,000–150,000	109,632	50,000–100,000	44,578	15,000–25,000	41,275
1992	100,000–150,000	66,054	50,000–100,000	58,229	15,000–25,000	28,361
1993	100,000–150,000	141,694	50,000–100,000	37,556	15,000–25,000	40,869
1994	100,000–150,000	128,032	50,000–100,000	30,355	15,000–25,000	30,788
1995	100,000–150,000	121,479	50,000–100,000	52,311	15,000–25,000	29,473
1996	100,000–150,000	90,781	50,000–100,000	28,729	15,000–25,000	19,095
1997	100,000–150,000	157,822	50,000–100,000	70,768	15,000–25,000	33,846
1998	100,000–150,000	119,623	50,000–100,000	62,257	15,000–25,000	17,732
1999	100,000–150,000	99,029	25,000–50,000	66,519	15,000–25,000	25,648
2000	100,000–150,000	133,094	25,000–50,000	56,599	15,000–25,000	20,151
2001	100,000–150,000	83,532	25,000–50,000	78,081	15,000–25,000	–
2002	90,000–160,000	78,591	25,000–50,000	62,833	15,000–30,000	–
2003	90,000–160,000	180,813	25,000–50,000	122,457	15,000–30,000	–
2004	90,000–160,000	71,281	25,000–50,000	103,201	15,000–30,000	–
2005	75,000–180,000	36,921	30,000–70,000	125,623	–	22,000[e]
2006	90,000–160,000	92,896	30,000–70,000	92,533	–	–
2007	90,000–160,000	79,901	30,000–70,000	79,406	15,000–30,000	46,637
2008	90,000–160,000	90,146	30,000–70,000	90,684	15,000–30,000	25,247
2009	–[d]	–[d]	30,000–70,000	–	15,000–30,000	16,473[e]
2010	–[d]	–[d]	30,000–70,000	86,333	15,000–30,000	–
2011	–[d]	–[d]	30,000–70,000	81,952	15,000–30,000	–
2012	–[d]	–[d]	30,000–70,000	58,838	15,000–30,000	–
2013	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	–
2014	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	19,242[e]
2015	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	28,072[e]
2016	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	–
2017	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	17,106[e]
2018	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	16,271[e]
2019	–[d]	–[d]	30,000–70,000	ND	15,000–30,000	7,719[e]

Note: En dash means incomplete counts and ND means no data.

[a] Inriver goal.

[b] From 1978 to 2010, enumeration estimates and goals prior were in Bendix units; 2011 through 2019 are in DIDSON units.

[c] Enumeration estimates prior to 2019 reflect minor adjustments to the escapement database.

[d] Yentna River SEG replaced with lake goals at Judd, Chelatna, and Larson Lakes.

[e] Escapement estimates via remote camera; an unknown number of salmon escaped into the lake after camera malfunction or removal.

Appendix B11.–Average price per pound paid for commercially harvested salmon, Upper Cook Inlet, 1975–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum
1975	0.54	0.63	0.54	0.35	0.41
1976	0.92	0.76	0.61	0.37	0.54
1977	1.26	0.86	0.72	0.38	0.61
1978	1.16	1.32	0.99	0.34	0.51
1979	1.63	1.41	0.98	0.34	0.88
1980	1.15	0.85	0.57	0.34	0.53
1981	1.46	1.20	0.83	0.38	0.65
1982	1.27	1.10	0.72	0.18	0.49
1983	0.97	0.74	0.45	0.18	0.36
1984	1.08	1.00	0.64	0.21	0.39
1985	1.20	1.20	0.70	0.20	0.45
1986	0.90	1.40	0.60	0.15	0.38
1987	1.40	1.50	0.80	0.22	0.45
1988	1.30	2.47	1.20	0.37	0.76
1989	1.25	1.70	0.75	0.40	0.47
1990	1.20	1.55	0.75	0.25	0.60
1991	1.20	1.00	0.77	0.12	0.35
1992	1.50	1.60	0.75	0.15	0.40
1993	1.20	1.00	0.60	0.12	0.45
1994	1.00	1.45	0.80	0.12	0.40
1995	1.00	1.15	0.45	0.12	0.27
1996	1.00	1.15	0.40	0.05	0.19
1997	1.00	1.15	0.45	0.05	0.19
1998	1.00	1.15	0.45	0.09	0.19
1999	1.00	1.30	0.45	0.12	0.19
2000	1.10	0.85	0.40	0.09	0.19
2001	1.00	0.65	0.40	0.08	0.19
2002	1.15	0.60	0.20	0.05	0.12
2003	0.95	0.60	0.20	0.05	0.12
2004	1.00	0.65	0.20	0.05	0.12
2005	1.00	0.95	0.50	0.08	0.20
2006	1.75	1.10	0.60	0.10	0.25
2007	1.75	1.05	0.60	0.10	0.25
2008	1.75	1.10	0.40	0.10	0.20
2009	1.75	1.10	0.40	0.10	0.20
2010	1.75	1.75	0.80	0.25	0.55
2011	2.80	1.50	0.75	0.25	0.80
2012	2.80	1.50	0.75	0.35	0.80
2013	2.80	2.25	0.85	0.35	0.80
2014	2.80	2.25	0.90	0.25	0.80
2015	2.00	1.60	0.60	0.25	0.40
2016	2.50	1.50	0.60	0.20	0.40
2017	3.78	1.86	1.14	0.15	0.62
2018	3.27	2.04	0.94	0.25	0.68
2019	3.43	1.80	0.74	0.21	0.37

Note: Price is expressed as dollars per pound. Data source 1969–1983: Commercial Fisheries Entry Commission; 1984–2012: random fish ticket averages, which do not include bonuses or postseason adjustments.

Appendix B12.–Average weight (in pounds) of commercially harvested salmon, Upper Cook Inlet, 1975–2019.

Year	Chinook	Sockeye	Coho	Pink	Chum
1975	24.8	6.1	6.8	3.6	7.1
1976	27.4	6.9	6.4	4.0	8.1
1977	28.1	7.6	6.7	3.7	8.0
1978	33.0	7.6	6.4	3.8	7.6
1979	27.5	6.2	6.3	3.3	7.3
1980	26.1	5.9	5.8	3.5	7.3
1981	23.8	6.4	6.5	3.5	7.7
1982	28.8	7.0	7.1	3.9	8.2
1983	29.5	6.4	6.9	3.3	7.8
1984	28.6	5.9	7.1	4.0	7.6
1985	27.7	5.6	7.2	3.3	7.6
1986	25.9	5.8	6.4	3.7	7.4
1987	29.0	6.7	6.6	3.5	7.1
1988	29.7	6.6	7.0	3.7	7.7
1989	24.1	6.6	6.6	3.2	7.2
1990	22.6	6.4	6.4	3.4	7.1
1991	21.5	5.6	6.1	3.1	6.6
1992	23.6	6.6	6.4	3.9	6.7
1993	25.8	5.9	5.9	3.0	5.7
1994	31.6	5.7	7.1	3.9	6.9
1995	25.5	5.6	6.4	3.3	7.2
1996	28.3	6.3	6.2	3.7	7.6
1997	27.6	6.5	6.3	3.4	7.3
1998	22.8	5.5	6.9	3.8	7.3
1999	23.9	5.7	5.8	3.1	8.0
2000	22.7	6.3	6.6	3.6	7.7
2001	18.2	6.0	6.6	3.5	6.9
2002	22.3	6.4	6.7	3.8	7.8
2003	20.4	5.9	6.5	3.6	6.9
2004	25.0	6.1	6.7	3.7	7.4
2005	24.9	6.1	6.3	3.3	7.2
2006	19.6	5.1	6.4	4.3	7.6
2007	20.4	6.3	6.4	3.6	7.3
2008	23.3	5.9	7.0	3.8	7.5
2009	17.4	6.1	6.5	3.3	7.0
2010	20.7	6.2	6.6	4.3	6.8
2011	20.2	6.5	5.7	3.2	6.7
2012	17.2	6.8	6.0	3.8	8.0
2013	13.9	6.3	6.1	3.2	7.4
2014	15.8	6.2	6.3	3.7	7.4
2015	16.7	5.3	5.8	3.3	6.6
2016	19.6	5.8	6.3	4.3	7.1
2017	21.9	5.7	6.3	3.6	8.2
2018	13.8	5.2	6.3	3.8	8.3
2019	16.0	5.5	5.6	3.1	6.7
2009–2018 Avg	17.7	6.0	6.2	3.6	7.3
1975–2018 Avg	23.7	6.2	6.5	3.6	7.4

Note: Total pounds divided by numbers of fish from fish ticket totals.

Appendix B13.–Registered active units of gillnet fishing effort by gear type in Cook Inlet, 1970-2019.

	Drift gillnet			Set gillnet			
Year	Resident	Nonresident	Subtotal	Resident	Nonresident	Subtotal	Total
1975	539	245	784	695	63	758	1,542
1976	410	186	596	675	44	719	1,315
1977	387	188	575	690	43	733	1,308
1978	401	190	591	701	46	747	1,338
1979	410	189	599	705	44	749	1,348
1980	407	190	597	699	48	747	1,344
1981	412	186	598	687	60	747	1,345
1982	413	178	591	695	53	748	1,339
1983	415	172	587	684	61	745	1,332
1984	423	165	588	670	74	744	1,332
1985	418	173	591	669	76	745	1,336
1986	412	176	588	665	78	743	1,331
1987	415	171	586	662	81	743	1,329
1988	421	164	585	660	83	743	1,328
1989	415	170	585	645	98	743	1,328
1990	412	173	585	644	99	743	1,328
1991	412	172	584	642	103	745	1,329
1992	404	179	583	636	109	745	1,328
1993	398	185	583	633	112	745	1,328
1994	395	187	582	628	117	745	1,327
1995	393	189	582	622	123	745	1,327
1996	392	190	582	621	124	745	1,327
1997	392	189	581	621	124	745	1,326
1998	393	186	579	621	124	745	1,324
1999	390	185	575	621	124	745	1,320
2000	394	182	576	621	124	745	1,321
2001	395	179	574	625	119	744	1,318
2002	396	176	572	620	123	743	1,315
2003	400	172	572	617	125	742	1,314
2004	402	169	571	616	123	739	1,310
2005	404	167	571	609	128	737	1,308
2006	400	169	570	614	124	738	1,308
2007	400	171	571	609	129	738	1,309
2008	405	166	571	613	125	738	1,309
2009	401	169	570	608	130	738	1,308
2010	407	162	569	604	132	736	1,305
2011	409	160	569	609	127	736	1,305
2012	410	159	569	620	116	736	1,305
2013	409	160	569	624	112	736	1,305
2014	414	155	569	623	112	735	1,304
2015	408	160	568	624	110	734	1,302
2016	409	159	568	613	122	735	1,303
2017	417	152	569	619	116	735	1,304
2018	421	147	568	614	121	735	1,303
2019	418	149	567	616	117	733	1,300

Source: 1960–1974 ADF&G unpublished reports, 1975–2019 Commercial Fisheries Entry Commission. https://www.cfec.state.ak.us/pstatus/14052019.htm

Appendix B14.–Forecast and projected harvests of salmon by species, Upper Cook Inlet, 1990–2019

	Sockeye			Coho			Pink			Chum			Chinook		
Year	Forecast[a]	Actual[b,c]	Error	Projected	Actual[c,d]	Error	Projected	Actual[c,d]	Error	Projected	Actual[c,d]	Error	Projected	Actual[c,d]	Error
1990	4,300,000	3,822,864	-12%	250,000	501,739	50%	600,000	603,630	1%	400,000	351,197	-14%	25,000	16,105	-55%
1991	3,200,000	2,472,589	-29%	400,000	426,498	6%	90,000	14,663	-514%	500,000	280,230	-78%	20,000	13,542	-48%
1992	3,600,000	9,502,392	62%	400,000	468,930	15%	400,000	695,861	43%	350,000	274,303	-28%	20,000	17,171	-16%
1993	2,500,000	5,042,799	50%	450,000	306,882	-47%	25,000	100,934	75%	350,000	122,770	-185%	15,000	18,871	21%
1994	2,000,000	3,826,508	48%	400,000	583,793	31%	600,000	523,434	-15%	250,000	303,177	18%	15,000	19,962	25%
1995	2,700,000	3,224,087	16%	400,000	447,130	11%	100,000	133,578	25%	250,000	529,428	53%	15,000	17,893	16%
1996	3,300,000	4,262,377	23%	400,000	321,668	-24%	600,000	242,911	-147%	350,000	156,520	-124%	15,000	14,306	-5%
1997	5,300,000	4,546,125	-17%	400,000	152,408	-162%	100,000	70,945	-41%	250,000	103,036	-143%	15,000	13,292	-13%
1998	2,500,000	1,619,119	-54%	300,000	160,688	-87%	300,000	551,737	46%	200,000	95,704	-109%	17,000	8,124	-109%
1999	2,000,000	3,164,355	37%	300,000	126,105	-138%	75,000	16,176	-364%	200,000	174,554	-15%	16,000	14,383	-11%
2000	3,000,000	1,778,547	-69%	150,000	236,871	37%	500,000	146,482	-241%	200,000	127,069	-57%	15,000	7,350	-104%
2001	2,700,000	2,304,670	-17%	300,000	113,311	-165%	50,000	72,560	31%	250,000	84,494	-196%	13,000	9,295	-40%
2002	2,200,000	3,356,572	34%	160,000	246,281	35%	170,000	446,960	62%	120,000	237,949	50%	10,000	12,714	21%
2003	2,400,000	4,145,981	42%	170,000	101,756	-67%	80,000	48,789	-64%	140,000	120,767	-16%	10,000	18,503	46%
2004	3,700,000	5,639,628	34%	160,000	311,058	49%	380,000	357,939	-6%	150,000	146,165	-3%	10,000	26,922	63%
2005	4,100,000	5,962,572	31%	200,000	224,657	11%	70,000	48,419	-45%	140,000	69,740	-101%	10,000	27,667	64%
2006	2,100,000	2,653,446	21%	200,000	177,853	-12%	350,000	404,111	13%	140,000	64,033	-119%	20,000	18,029	-11%
2007	3,300,000	4,044,832	18%	210,000	177,339	-18%	50,000	147,020	66%	130,000	77,240	-68%	20,000	17,625	-13%
2008	3,900,000	3,005,299	-30%	200,000	171,869	-16%	380,000	169,368	-124%	100,000	50,315	-99%	20,000	13,333	-50%
2009	3,000,000	2,842,335	-6%	210,000	153,210	-37%	70,000	214,321	67%	80,000	82,808	3%	20,000	8,750	-129%
2010	2,300,000	3,695,633	38%	179,000	207,350	14%	305,000	292,706	-4%	70,000	228,863	69%	17,000	9,900	-72%
2011	4,600,000	6,359,116	28%	178,000	95,291	-87%	106,000	34,123	-211%	101,000	129,407	22%	14,000	11,248	-24%
2012	4,400,000	4,271,018	-3%	159,000	106,775	-49%	334,000	469,598	29%	113,000	269,733	58%	12,000	2,527	-375%
2013	4,900,000	3,639,862	-35%	147,000	260,963	44%	99,000	48,275	-105%	152,000	139,365	-9%	9,000	5,398	-67%
2014	4,300,000	3,329,970	-29%	165,000	137,376	-20%	338,000	642,879	47%	170,000	116,093	-46%	7,600	4,660	-63%
2015	3,700,000	3,685,160	0%	161,000	216,032	25%	98,000	48,004	-104%	176,000	275,960	36%	6,700	10,798	38%
2016	5,300,000	3,342,183	-59%	160,000	147,469	-8%	393,000	382,436	-3%	184,000	123,711	-49%	6,700	10,027	33%
2017	2,600,000	2,622,292	1%	167,000	303,642	45%	98,000	167,842	42%	184,000	243,600	24%	6,300	7,660	18%
2018	2,600,000	1,116,107	-133%	203,000	232,290	13%	389,000	126,923	-206%	177,000	115,366	-53%	7,400	3,405	-117%
2019	3,000,000	1,720,295	-74%	207,000	163,859	-26%	103,000	70,741	-46%	175,000	129,176	-35%	7,300	3,148	-132%
Avg.	3,316,667	3,699,958	0	246,200	242,703	0	241,767	243,112	-1	201,733	174,092	0	13,833	12,754	

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[a] Harvest forecasts have typically been prepared using average return per spawner values, parent-year escapements, and average marine maturity schedules or time series modeling tempered by available juvenile production data, or combinations of these data sets.

[b] Sockeye salmon harvest estimates include commercial, sport, personal use, and educational fisheries.

[c] Actual harvests prior to 2017 reflect minor adjustments to the harvest database.

[d] Commercial fishery harvest projections are prepared using subjective estimates of parent-year escapements, gross trends in harvest, and expected intensity of fishery.

Appendix B15.–Upper Cook Inlet subsistence fishery salmon harvest, 1980–2019.

Tyonek subsistence fishery								
	Number of permits							
Year	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Total
1980	67	67	1,936	262	0	0	0	2,198
1981	70	70	2,002	269	64	32	15	2,382
1982	69	69	1,590	310	113	4	14	2,031
1983	73	73	2,755	251	78	6	0	3,090
1984	70	70	2,364	310	66	23	3	2,766
1985	176	ND	1,967	163	91	10	0	2,231
1986	101	ND	1,674	198	210	44	45	2,171
1987	64	61	1,689	174	156	25	10	2,055
1988	47	42	1,776	102	283	13	9	2,183
1989	49	47	1,303	89	120	1	0	1,513
1990	42	37	886	75	400	14	23	1,397
1991	57	54	925	20	69	0	0	1,014
1992	57	44	1,170	96	294	24	9	1,594
1993	62	54	1,566	68	88	25	23	1,769
1994	58	49	905	101	122	27	0	1,154
1995	70	55	1,632	54	186	18	0	1,891
1996	73	49	1,615	88	177	9	27	1,917
1997	70	42	1,051	200	241	13	0	1,505
1998	74	49	1,430	251	97	3	2	1,783
1999	77	54	1,620	247	175	20	66	2,127
2000	60	47	1,461	78	103	0	8	1,649
2001	84	58	1,450	254	72	9	6	1,790
2002	101	71	1,609	314	162	6	14	2,106
2003	87	74	1,384	136	54	12	9	1,595
2004	97	75	1,751	121	168	0	0	2,040
2005	78	67	1,183	65	159	2	0	1,409
2006	82	55	1,366	32	23	1	0	1,422
2007	84	67	1,526	249	164	3	4	1,946
2008	94	77	1,492	146	227	11	16	1,892
2009	89	69	817	229	320	2	1	1,369
2010	105	77	1,116	281	223	3	3	1,626
2011	114	63	851	202	34	10	10	1,107
2012	89	69	1,102	223	174	3	5	1,507
2013	82	48	1,352	278	311	0	32	1,973
2014	92	73	896	487	575	15	5	1,978
2015	83	72	1,070	505	568	16	6	2,165
2016	74	64	1,030	188	225	8	12	1,462
2017	74	47	1,284	457	265	32	6	2,045
2018	65	22	1,413	217	154	10	11	1,805
2019	67	38	1132	232	75	6	17	1,462

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Yentna Subsistence Fishery								
	Number of permits							
Year	Issued	Returned	Chinook	Sockeye	Coho	Pink	Chum	Total
Personal Use								
1996	17	14	0	242	46	115	51	454
1997	24	21	0	549	83	30	10	672
Subsistence								
1998	21	18	0	495	113	30	15	653
1999	18	16	0	516	48	18	13	595
2000	19	19	0	379	92	4	7	482
2001	16	15	0	545	50	10	4	609
2002	25	22	0	454	133	14	31	632
2003	19	15	0	553	67	2	8	630
2004	21	19	0	441	146	36	3	626
2005	18	17	0	177	42	24	25	268
2006	22	22	0	368	175	14	26	583
2007	22	22	0	367	66	17	18	468
2008	16	16	0	310	57	23	7	397
2009	17	17	0	253	14	0	6	273
2010	32	32	0	642	50	38	18	748
2011	25	25	0	598	90	337	21	1,046
2012	21	21	0	279	24	21	19	343
2013	22	19	0	160	92	128	32	412
2014	20	18	0	328	84	17	32	461
2015	29	27	0	578	151	47	69	845
2016	26	25	0	514	204	36	37	791
2017	26	26	0	454	185	47	10	696
2018	29	29	16	405	167	8	10	606
2019	24	22	0	476	107	40	18	641

Appendix B16.–Upper Cook Inlet educational fisheries salmon harvest, 2019.

Year	Fishery[a]	Chinook	Sockeye	Coho	Pink	Chum	Total
2019	Kenaitze	0	8,572	197	24	0	8,793
	NTC	7	406	160	172	1	739
	NND	7	71	58	12	0	141
	NES	–	–	–	–	–	–
	APVFW	0	75	35	29	5	144
	Sons of American Legion	0	22	16	0	0	38
	Kasilof H.A.	0	0	31	0	0	31
	SCF	0	8	20	9	0	37
	Knik	0	27	2	1	0	30
	Big Lake	–	–	–	–	–	–
	Eklutna	0	49	72	4	16	141
	Territorial Homestead Lodge	0	145	38	0	0	183
	Total	14	9,375	629	251	22	10,277

[a] Kenaitze = Kenaitze Tribal Group; NTC = Ninilchik Traditional Council; NND = Ninilchik Native Descendants; NES = Ninilchik Emergency Services; APVFW = Anchor Point Veterans of Foreign Wars; Sons of American Legion = Homer Sons of the American Legion Post 16; Kasilof Regional HA = Kasilof Regional Historical Association; SCF = Southcentral Foundation; Knik = Knik Tribal Council; Eklutna = Native Village of Eklutna; Territorial Homestead Lodge = Alaska's Territorial Homestead Lodge, operated by Tim O'Brien.

Appendix B17.–Effort and harvest in Upper Cook Inlet personal use salmon fisheries, 1996–2019.

Kasilof River gillnet															
	Days	Days fished		Sockeye		Chinook		Coho		Pink		Chum		Total	
Year	open	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
1996	5	582	16	9,506	156	46	3	0	0	8	0	1	0	9,561	157
1997	5	815	26	17,997	231	65	2	1	0	102	7	3	1	18,168	233
1998	5	1,075	24	15,975	425	126	7	0	0	15	4	12	10	16,128	426
1999	10	1,287	39	12,832	371	442	27	25	2	10	0	10	0	13,319	374
2000	13	1,252	23	14,774	275	514	15	9	0	17	2	10	0	15,324	276
2001	8	1,001	20	17,201	394	174	6	6	0	11	0	7	5	17,399	397
2002	10	1,025	16	17,980	274	192	5	12	0	30	2	13	4	18,227	277
2003	10	1,206	17	15,706	277	400	13	107	0	9	0	4	0	16,226	284
2004	10	1,272	10	25,417	203	163	4	58	13	6	1	0	0	25,644	205
2005	11	1,506	6	26,609	104	87	1	326	5	16	1	1	0	27,039	104
2006	10	1,724	5	28,867	91	287	2	420	16	11	0	6	0	29,591	94
2007	10	1,570	7	14,943	66	343	3	68	4	2	0	0	0	15,356	66
2008	10	1,534	7	23,432	107	151	2	65	3	35	4	23	3	23,706	107
2009	10	1,761	9	26,646	167	127	2	165	0	14	1	11	2	26,963	167
2010	10	1,855	13	21,924	170	136	3	23	5	23	5	1	0	22,106	170
2011	10	1,846	16	26,780	244	167	4	47	10	23	1	3	0	27,020	244
2012	10	1,696	21	15,638	197	103	3	161	19	53	19	15	1	15,969	199
2013	5	1,082	13	14,439	187	46	2	129	32	3	0	5	1	14,621	187
2014	10	1,386	17	22,567	302	50	2	30	10	105	44	18	0	22,770	306
2015	10	1,741	22	27,567	339	61	3	191	41	20	5	2	1	27,841	341
2016	10	1,963	23	26,539	342	141	3	23	0	5	0	23	1	26,731	342
2017	10	1,874	27	21,927	309	118	4	5	1	48	8	43	9	22,141	309
2018	10	1,616	51	14,390	485	120	10	2	0	22	13	5	0	14,539	485
2019	10	1,534	74	15,864	712	131	10	19	0	84	57	16	0	16,114	715
Mean	9	1,425		19,813		175		79		28		10		20,104	
Max.	13	1,963		28,867		514		420		105		43		29,591	

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Kasilof River dip net															
	Days	Days fished		Sockeye		Chinook		Coho		Pink		Chum		Total	
Year	open	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
1996	27	1,300	23	11,197	127	50	1	334	18	103	2	17	0	11,701	130
1997	27	1,091	32	9,737	150	35	2	90	3	19	2	19	1	9,900	153
1998	27	3,421	33	45,161	525	134	3	731	18	610	25	74	32	46,710	528
1999	27	3,611	43	37,176	507	127	5	286	50	264	12	52	8	37,905	511
2000	27	2,622	36	23,877	403	134	7	1,004	16	841	39	34	0	25,890	407
2001	27	3,382	37	37,612	505	138	6	766	25	307	14	23	0	38,846	511
2002	44	4,020	38	46,769	530	106	6	1,197	59	1,862	73	139	7	50,073	553
2003	44	3,874	28	43,870	440	57	4	592	49	286	21	30	1	44,835	447
2004	44	4,432	19	48,315	259	44	3	668	21	396	15	90	5	49,513	263
2005	44	4,500	9	43,151	100	16	1	538	16	658	12	102	2	44,465	103
2006	44	5,763	10	56,144	113	55	1	1,057	15	992	8	105	4	58,353	117
2007	44	4,627	9	43,293	105	35	1	487	8	383	6	136	2	44,334	106
2008	44	5,552	14	54,051	153	46	3	509	11	787	10	143	4	55,536	154
2009	44	7,650	21	73,035	246	34	1	1,441	30	1,274	19	173	3	75,957	248
2010	44	7,588	27	70,774	303	31	2	1,768	45	974	24	279	9	73,826	307
2011	44	6,571	35	49,766	351	24	3	977	39	652	40	144	14	51,562	355
2012	44	6,536	32	73,419	448	16	1	1,170	42	896	38	147	11	75,649	452
2013	44	8,556	36	85,528	473	18	1	1,666	84	683	19	339	15	88,233	481
2014	44	10,236	51	88,513	547	0	0	2,606	106	2,769	66	342	15	94,230	561
2015	44	10,346	52	89,000	566	0	0	2,723	95	1,607	74	597	31	93,927	579
2016	44	9,334	50	58,273	414	26	2	1,255	57	1,733	46	329	23	61,618	421
2017	44	9,458	63	78,260	621	14	2	605	30	2,850	80	969	72	82,698	631
2018	44	9,377	132	92,034	1477	6	0	326	16	3,272	188	326	31	96,311	1,489
2019	44	9,030	166	80,730	1579	3	0	553	64	2,840	214	326	151	84,453	1,602
Mean	40	5,953		55,820		48		973		1,127		206		58,189	
Max.	44	10,346		92,034		138		2,723		3,272		969		96,311	

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Kenai River dip net															
	Days	Days fished		Sockeye		Chinook		Coho		Pink		Chum		Total	
Year	open	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
1996	27	10,503	60	102,821	367	295	5	1,932	29	2,404	33	175	10	107,627	375
1997	22	11,023	87	114,619	439	364	13	559	21	619	14	58	5	116,219	448
1998	18	10,802	59	103,847	716	254	10	1,011	62	1,032	62	85	3	106,229	724
1999	22	13,738	79	149,504	1,084	488	13	1,009	108	1,666	64	102	13	152,769	1,094
2000	22	12,354	69	98,262	752	410	18	1,449	62	1,457	75	193	31	101,771	762
2001	22	14,772	66	150,766	909	638	15	1,555	105	1,326	37	155	19	154,440	926
2002	22	14,840	56	180,028	844	606	11	1,721	64	5,662	102	551	36	188,568	874
2003	22	15,263	50	223,580	891	1,016	18	1,332	68	1,647	98	249	22	227,824	905
2004	22	18,513	35	262,831	583	792	7	2,661	66	2,103	27	387	12	268,774	905
2005	22	20,977	18	295,496	273	997	3	2,512	24	1,806	12	321	2	301,132	275
2006	20	12,685	16	127,630	183	1,034	3	2,235	15	11,127	37	551	9	142,577	203
2007	22	21,908	23	291,270	335	1,509	4	2,111	24	1,939	23	472	17	297,301	337
2008	22	20,772	27	234,109	338	1,362	10	2,609	21	10,631	49	504	8	249,215	343
2009	22	26,171	35	339,993	524	1,189	7	2,401	29	5,482	27	285	7	349,350	525
2010	22	28,342	44	389,552	702	865	7	2,870	56	3,655	28	508	15	397,451	705
2011	22	32,818	60	537,765	1,105	1,243	10	4,745	107	3,914	86	915	47	548,583	1,115
2012	22	34,374	61	526,992	1,109	40	3	4,008	117	3,770	101.8	424.8	15	535,236	1,120
2013	22	33,193	63	347,222	822	11	1	3,169	74	3,625	49	701	29	354,727	827
2014	22	36,380	81	379,823	1,023	0	0	4,710	157	19,140	184	1,194	51	404,866	1,053
2015	22	31,487	75	377,532	1,088	66	2	4,150	130	4,147	99	957	45	386,853	1,101
2016	22	30,745	75	259,057	817	638	8	3,277	106	7,834	90	717	34	271,524	830
2017	22	27,775	87	297,049	1,103	1,194	14	732	41	7,962	117	886	75	307,824	1,112
2018	20	20,170	164	165,028	1,567	7	4	529	35	10,435	351	441	52	176,439	1,607
2019	22	22,419	181	331,408	3,197	30	8	977	209	4,631	157	689	98	337,735	3,209
Mean	22	21,751		261,924		627		2,261		4,917		480		270,210	
Max.	27	36,380		537,765		1,509		4,745		19,140		1,194		548,583	

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Unknown fishery															
	Days	Days fished		Sockeye		Chinook		Coho		Pink		Chum		Total	
Year	open	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
1996	NA	472	33	4,761	463	24	7	131	37	127	37	4	3	5,047	467
1997	NA	1,003	50	3,310	276	0	0	64	14	51	21	4	3	3,429	282
1998	NA	921	39	7,562	287	34	5	294	77	196	19	20	0	8,106	301
1999	NA	684	20	7,994	352	51	5	76	7	126	2	4	0	8,251	353
2000	NA	648	23	5,429	274	44	13	218	60	84	11	24	15	5,799	282
2001	NA	1,339	34	12,673	380	188	17	292	30	175	24	90	34	13,418	394
2002	NA	1,339	26	14,846	353	166	10	341	25	916	81	54	8	16,323	380
2003	NA	1,325	21	15,675	247	238	25	219	14	140	9	88	9	16,360	254
2004	NA	1,143	13	13,527	179	99	3	366	25	210	10	25	4	14,227	185
2005	NA	270	2	4,520	38	32	1	39	1	40	2	4	0	4,635	38
2006	NA	371	2	3,406	34	29	1	47	2	304	16	84	0	3,870	41
2007	NA	534	3	6,729	52	37	1	61	3	28	1	6	0	6,861	52
2008	NA	622	4	6,890	63	41	2	66	3	412	9	58	3	7,467	64
2009	NA	719	7	7,968	84	25	1	144	10	133	4	57	5	8,327	85
2010	NA	760	8	8,300	125	15	1	168	7	109	2	12	1	8,605	125
2011	NA	836	11	10,695	136	17	1	80	5	135	17	72	7	10,962	137
2012	NA	937	14	13,295	219	4	1	173	25	127	9	36	5	13,635	221
2013	NA	867	15	7,126	154	9	2	155	17	113	8	8	2	7,411	154
2014	NA	1,022	14	9,315	131	0	0	129	18	563	22	78	15	10,085	135
2015	NA	820	14	8,626	183	0	0	263	19	153	12	41	3	9,084	184
2016	NA	645	14	4,837	155	15	1	34	7	233	23	81	12	5,200	158
2017	NA	543	16	4,760	147	19	2	41	4	107	9	10	2	4,937	148
2018	NA	352	27	2,085	152	0	0	21	4	209	40	4	0	2,319	157
2019	NA	316	34	3,961	406	0	0	8	0	46	6	45	40	4,060	408
Mean		770		7,845		45		143		197		38		8,267	
Max.		1,339		15,675		238		366		916		90		16,360	

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Fish Creek dip net

Year	Days open	Days fished Est.	Days fished SE	Sockeye Est.	Sockeye SE	Chinook Est.	Chinook SE	Coho Est.	Coho SE	Pink Est.	Pink SE	Chum Est.	Chum SE	Total Est.	Total SE
1996	22	3,749	41	17,260	161	37	8	2,414	25	331	9	153	5	20,195	168
1997	13	991	34	3,277	76	0	0	63	5	53	7	4	1	3,397	84
1998	15	1,141	21	4,036	113	1	0	649	19	80	10	29	2	4,795	117
1999	16	432	16	1,083	138	0	0	17	3	12	7	0	0	1,112	139
2000	16	1,054	25	6,925	211	0	0	958	72	83	12	29	3	7,995	225
2001	3	131	7	436	40	0	0	18	7	2	0	1	0	457	41
2009	7	1,436	8	9,898	73	10	0	53	6	66	3	33	5	10,060	73
2010	8	2,843	14	23,705	161	12	2	3,576	84	1,721	28	290	9	29,303	184
2011	3	1,379	14	5,236	86	2	0	905	29	155	10	72	7	6,371	92
2014	7	1,792	22	5,829	113	0	0	1,895	48	4,218	74	227	8	12,170	144
2015	8	2,303	22	19,260	280	0	0	3,321	87	1,329	48	329	27	24,239	298
2017	6	1,311	20	4,894	125	1	0	281	21	273	22	54	4	5,502	128
2018	8	2,324	62	18,569	683	5	0	1,779	91	880	118	208	59	21,531	702
2019	6	1,556	54	15,886	881	2	0	1,508	187	1,110	97	195	0	18,700	905
Mean	10	1,603		9,735		5		1,246		737		116		11,845	
Max.	22	3,749		23,705		37		3,576		4,218		329		29,303	

Fishery closed 2002–2008, and 2012–2013, 2016

Beluga River dip net

Year	Days open	Days fished Est.	Days fished SE	Sockeye Est.	Sockeye SE	Chinook Est.	Chinook SE	Coho Est.	Coho SE	Pink Est.	Pink SE	Chum Est.	Chum SE	Total Est.	Total SE
2008	43			31		0		35		0		0		66	
2009	43			140		0		78		7		0		225	
2010	43			47		0		1		0		5		53	
2011	43			137		0		17		0		5		159	
2012	43			9		0		7		0		0		16	
2013	43			30		0		55		2		1		88	
2014	43			32		0		12		1		1		46	
2015	43			65		0		17		0		0		82	
2016	43			52		0		45		2		2		102	
2017	43			26		0		36		4		0		66	
2018	43			37		0		17		0		0		54	
2019	43			166		0		44		4		0		214	
Mean	43			64		0		30		2		1		98	
Max.	43			166		0		78		7		5		225	

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Upper Cook Inlet personal use fisheries total

	Days fished		Sockeye		Chinook		Coho		Pink		Chum		Total	
Year	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE	Est.	SE
1996	16,606	85	145,545	644	452	12	4,811	56	2,973	50	350	12	154,131	655
1997	14,923	114	148,940	592	464	13	777	26	844	27	88	6	151,113	604
1998	17,360	84	176,581	1,032	549	14	2,685	102	1,933	70	220	34	181,968	1,043
1999	19,752	101	208,589	1,309	1,108	31	1,413	119	2,078	66	168	15	213,356	1,320
2000	17,930	88	149,267	961	1,102	28	3,638	114	2,482	86	290	35	156,779	976
2001	20,625	86	218,688	1,176	1,138	24	2,637	112	1,821	46	276	39	224,560	1,197
2002	21,224	74	259,623	1,092	1,070	17	3,271	91	8,470	149	757	38	273,191	1,136
2003	21,668	63	298,831	1,061	1,711	34	2,250	85	2,082	101	371	24	305,245	1,079
2004	25,360	43	350,091	678	1,098	9	3,754	75	2,715	32	502	14	358,158	689
2005	27,253	21	369,776	311	1,132	3	3,415	29	2,520	17	428	3	377,271	314
2006	20,543	20	216,047	236	1,405	4	3,759	27	12,434	41	746	10	234,391	242
2007	28,677	29	356,717	386	1,924	5	2,727	26	2,352	24	614	17	364,334	388
2008	28,491	34	318,594	412	1,601	11	3,249	24	11,869	52	727	10	336,040	416
2009	37,754	46	457,539	629	1,384	7	4,204	45	6,969	34	559	13	470,655	631
2010	41,387	56	514,254	808	1,059	8	8,405	113	6,482	47	1,091	20	531,291	818
2011	43,450	72	630,242	1,176	1,453	11	6,754	122	4,880	100	1,169	50	644,498	1,187
2012	43,543	74	629,344	1,232	163	5	5,512	128	4,846	111	623	19	640,489	1,244
2013	43,698	73	454,314	958	83	3	5,119	122	4,423	53	1,052	35	464,993	968
2014	50,819	94	506,047	1,164	50	2	9,370	199	26,795	217	1,859	56	544,121	1,202
2015	46,697	91	521,985	1,256	127	4	10,648	191	7,257	137	1,927	62	541,943	1,279
2016	42,687	90	348,707	958	820	10	4,590	122	9,805	105	1,150	45	365,072	972
2017	40,961	105	406,889	1,247	1,346	15	1,665	55	11,241	144	1,962	105	423,102	665
2018	33,839	199	292,196	2,138	137	12	3,003	99	14,818	435	984	85	311,139	2,186
2019	34,854	228	447,849	3,468	166	13	3,065	289	8,711	287	1,755	198	461,546	3,497
Mean	30,838		351,111		898		4,197		6,700		820		363,724	
Max.	50,819		630,242		1,924		10,648		26,795		1,962		644,498	