

Fishery Management Report No. 22-17

2021 Lower Cook Inlet Area Salmon Annual Management Report

by

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Mathematics, statistics		
centimeter	cm	Alaska Administrative Code	AAC	all standard mathematical signs, symbols and abbreviations		
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H _A	
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	<i>e</i>	
hectare	ha			catch per unit effort	CPUE	
kilogram	kg			coefficient of variation	CV	
kilometer	km	at	@	common test statistics	(F, t, χ^2 , etc.)	
liter	L			confidence interval	CI	
meter	m			correlation coefficient		
milliliter	mL	compass directions:		(multiple)	R	
millimeter	mm	east	E	correlation coefficient		
Weights and measures (English)		north	N	(simple)	r	
	cubic feet per second	ft ³ /s	south	S	covariance	cov
	foot	ft	west	W	degree (angular)	°
	gallon	gal	copyright	©	degrees of freedom	df
	inch	in	corporate suffixes:		expected value	<i>E</i>
	mile	mi	Company	Co.	greater than	>
	nautical mile	nmi	Corporation	Corp.	greater than or equal to	≥
	ounce	oz	Incorporated	Inc.	harvest per unit effort	HPUE
	pound	lb	Limited	Ltd.	less than	<
	quart	qt	District of Columbia	D.C.	less than or equal to	≤
yard	yd	et alii (and others)	et al.	logarithm (natural)	ln	
Time and temperature		et cetera (and so forth)	etc.	logarithm (base 10)	log	
		exempli gratia		logarithm (specify base)	log ₂ etc.	
	day	d	(for example)	e.g.	minute (angular)	'
	degrees Celsius	°C	Federal Information Code	FIC	not significant	NS
	degrees Fahrenheit	°F	id est (that is)	i.e.	null hypothesis	H ₀
	degrees kelvin	K	latitude or longitude	lat or long	percent	%
	hour	h	monetary symbols		probability	P
	minute	min	(U.S.)	\$, ¢	probability of a type I error	
	second	s	months (tables and figures): first three		(rejection of the null hypothesis when true)	α
	Physics and chemistry		letters	Jan,...,Dec	probability of a type II error	
all atomic symbols			registered trademark	®	(acceptance of the null hypothesis when false)	β
alternating current		AC	trademark	™	second (angular)	"
ampere		A	United States		standard deviation	SD
calorie		cal	(adjective)	U.S.	standard error	SE
direct current		DC	United States of America (noun)	USA	variance	
hertz		Hz	U.S.C.	United States Code	population sample	Var var
horsepower		hp				
hydrogen ion activity (negative log of)		pH				
parts per million		ppm	U.S. state	use two-letter abbreviations (e.g., AK, WA)		
parts per thousand	ppt, ‰					
volts	V					
watts	W					

FISHERY MANAGEMENT REPORT NO. 22-17

**2021 LOWER COOK INLET AREA SALMON ANNUAL MANAGEMENT
REPORT**

by

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ABSTRACT

The Lower Cook Inlet consists of all coastal waters and inland drainages entering waters north of Cape Douglas, west of Cape Fairfield, and south of Anchor Point. In 2021, commercial harvest was approximately 2.3 million salmon and was composed of 2.0 million pink *Oncorhynchus gorbuscha*, 269,415 sockeye *O. nerka*, 27,431 chum *O. keta*, 3,412 coho *O. kisutch*, and 300 Chinook salmon *O. tshawytscha*. Approximately 82.0% of the harvest (1.9 million salmon) was sold as common property harvest, and 408,257 salmon were sold for hatchery cost recovery, including carcass sales. Homepack and donated fish (3,537 salmon) accounted for less than 1% of the harvest. Based on fish ticket reporting of prices, the preliminary value of the commercial salmon harvest was \$5.0 million, including hatchery sales. This amount does not include postseason adjustments, bonuses, etc. During the 2021 season, 16 set gillnet and 15 purse seine permit holders reported deliveries. Set gillnet harvest value was an estimated \$193,494, with average permit earnings of \$12,093. Purse seine fishery exvessel harvest value was an estimated \$3.2 million, with average permit earnings of \$212,047. Revenue generated by cost recovery for hatchery operations was approximately \$1.7 million. A total of 1,259 salmon were harvested in the Kachemak Bay personal use set gillnet fishery. Approximately 1,878 coho salmon were landed by sport fish permit holders in a derby in Seward. Although these fish were subsequently sold commercially, they were not included in the total commercial harvest.

Keywords: Sockeye salmon, *Oncorhynchus nerka*, pink salmon, *O. gorbuscha*, chum salmon, *O. keta*, Chinook salmon, *O. tshawytscha*, coho salmon, *O. kisutch*, Annual Management Report

INTRODUCTION

LOWER COOK INLET MANAGEMENT AREA COMMERCIAL SALMON AND FISHERIES

The Lower Cook Inlet (LCI) Management Area consists of waters of the Cook Inlet Management Area (Area H) south of the latitude of Anchor Point, including the western shore of Cook Inlet south to Cape Douglas, and the eastern shore of Cook Inlet along the Kenai Peninsula to Cape Fairfield (Figures 1 and 2).

LCI is divided into 5 districts that correspond to local geography and distribution of the 5 species of Pacific salmon (*Oncorhynchus* spp.) harvested by commercial fisheries (Figure 1). These districts are further divided into subdistricts and sections for management and harvest reporting purposes (Figure 2). The primary management objective for all districts is to achieve spawning escapement goals for major salmon stocks and allow orderly fisheries to harvest fish surplus to spawning requirements.

Four hatcheries currently contribute to the LCI salmon fisheries. These facilities and their annual production are presented in detail in Alaska Salmon Fisheries Enhancement Annual Report 2021 (Wilson 2022).

Gear utilized in commercial salmon fisheries includes purse seine and set gillnet. Purse seine gear is permitted to fish in the Southern, Outer, Eastern, and Kamishak Bay Districts (Figure 1). Set gillnet gear is permitted to fish in designated portions of the Southern District. The Barren Islands District is closed by regulation to salmon harvest.

OVERVIEW OF AREAWIDE SALMON FISHERIES

In 2021, the LCI commercial harvest of 2.3 million salmon included 300 Chinook *O. tshawytscha*, 269,415 sockeye *O. nerka*, 3,412 coho *O. kisutch*, 2.0 million pink *O. gorbuscha*, and 27,431 chum salmon *O. keta* (Table 1). Approximately 82% of the harvest (1,860,112 fish) was attributed to the common property fishery, and 18% (408,257 fish) came from hatchery cost recovery. Homepack harvest (958 fish) accounted for less than 1% of the harvest from LCI (Table 1). The 2021

preliminary exvessel value estimates by gear group from the common property fishery for both wild and enhanced salmon were \$3.2 million (94.3%) for purse seine and \$193,494 (5.7%) for set gillnet (Table 2). The average price per pound paid to fishermen was above the 10-year average for all salmon species except Chinook salmon (Table 3). Hatchery harvest in 2021 was estimated at \$1.7 million (Table 2), which was lower than the recent 10-year average for hatchery sales (Table 4). Approximately \$1.2 million (75%) of the 2021 hatchery harvest was from sockeye salmon sales and most of the remainder was from pink salmon sales.

SALMON SEASON SUMMARY BY DISTRICT

SOUTHERN DISTRICT

The Southern District includes the waters of eastern Cook Inlet south of Anchor Point and north of a line from Cape Elizabeth to Cape Douglas, excluding waters east of a line from Point Adam to the tip of Cape Elizabeth (Figure 1). Commercial fishing in this district is restricted by regulation to waters primarily along the south shore of Kachemak Bay from Chugachik Island near the terminus of Kachemak Bay to Point Bede approximately 4 miles south of the village of Nanwalek (English Bay; Figures 1 and 2). Purse seine gear is permitted in all open waters of this district during periods established by emergency order (EO). Commercial set gillnet harvest is restricted to approximately 15 miles of shoreline in 5 subdistricts within the Southern District: the east shore of Ismailof Island near Halibut Cove; waters surrounding McDonald Spit extending to Jakolof Bay; waters east of Barabara Point extending approximately 1.4 miles; waters along the west shore of outer Seldovia Bay; and waters of a portion of the south shore of Port Graham and English Bay (Figure 1). An Area H Commercial Fisheries Entry Commission (CFEC) permit is required in all areas of Cook Inlet for commercial set gillnet fishing, but the area fished must be registered at the onset of fishing each year. Although any Area H commercial set gillnet permit holder may register to fish in the Southern District areas as part of the “Greater Cook Inlet” registration area, registering a permit there precludes that permit holder from fishing in the Northern District of UCI, or in the Upper Subdistrict of the Central District of UCI, for the remainder of that calendar year, as defined in 5 AAC 21.345. Other areas in the Greater Cook Inlet Area, may be fished in a given year by set gillnet permit holders registered to fish in the Southern District. The primary salmon species harvested in the Southern District for both purse seine and set gillnet permit holders are sockeye and pink salmon, although modest numbers of chum and coho salmon are also harvested. The major producer of wild sockeye salmon in this district is the English Bay Lakes system. Pink salmon historically have returned in large numbers to Humpy Creek and Seldovia River, as well as numerous smaller streams in the Southern District.

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 2021 commercial wild stock salmon harvest forecast for the Southern District was 80,200 pink and 74,700 sockeye salmon (Appendix F1). The enhanced sockeye salmon run to hatchery release sites in the Southern District was forecast to be 122,700 fish. A total of 1.0 million hatchery-produced pink salmon were forecast to return to the LCI Area in 2021 (Appendix F1).

As specified in regulation (5 AAC 21.310(b)(4)(B)), the set gillnet fishing season in the Southern District opens on or after June 1 with two 48-hour periods per week unless modified by EO. The seine fishing season and fishing periods are opened and closed by EO, depending on the availability of the harvestable surplus of salmon.

SEASON SUMMARY

The Southern District set gillnet commercial fishing season was opened by EO at 6:00 AM on Tuesday, June 1 (Table 5). Although this fishing period was only 24 hours in length, all following commercial set gillnet fishing periods were 48 hours in length. The English Bay River has the only sockeye salmon sustainable escapement goal (SEG) in the Southern District. The SEG for this system is 6,000–13,500 fish (Table 6), which was assessed this year by aerial survey.

The commercial set gillnet salmon season in the Southern District was closed by regulation on October 1. The Southern District commercial purse seine season was opened by EO on Monday, June 14, with a fishing schedule of 3 weekly 16-hour periods (6:00 AM to 10:00 PM) on Mondays, Wednesdays, and Fridays in portions of the district east of McDonald Spit (Table 5).

The seine fishery in the early portion of the season prior to mid-July targets enhanced sockeye salmon returns to hatchery release sites in the Southern District. Pink salmon runs to wild systems in the Southern District were lower relative to the strong runs in the Outer District where much of the fleet fished from late July through August.

The 2021 Southern District total sockeye salmon commercial common property harvest, excluding homepack, was 87,539 fish, including 13,004 (14.9%) harvested by the set gillnet fleet and 74,535 harvested by seine permit holders (Appendices A1–A3). Total common property pink salmon harvest was 45,111 fish, including 41,650 (92.3%) harvested by the seine fleet and 3,461 harvested by set gillnet permit holders. A total of 263 Chinook salmon were harvested by the common property fishery in the Southern District, including 231 harvested by set gillnet permit holders and the remaining by seine permit holders. A total of 2,605 chum salmon were harvested, with 2,231 (85.6%) by set gillnet and 374 by seine permit holders. In addition, 2,706 coho salmon were harvested, including 981 by set gillnet and 1,725 by seine permit holders (Appendices A1 and A2, Table 1). The total 2021 Southern District commercial harvest of 87,539 sockeye salmon was well above the 10-year average harvest of 65,651 (Appendix A3) and above the forecasted harvest of 74,700 (Appendix F1). The pink salmon commercial harvest of 45,111 was below the forecasted natural production harvest of 80,200 (Appendix F1), and the 10-year average harvest of 164,212 (Appendix A3).

Of the 6 pink salmon index streams in the Southern District, only Tutka Creek had a final escapement estimate that was above the SEG range. Three index streams were within SEG ranges, (Barabara Creek, Seldovia Creek, and Port Graham River), and 2 fell below the lower bound of the SEG range (China Poot and Humpy creeks; Table 6). The only chum salmon SEG in the Southern District is for the Port Graham River. The final chum salmon escapement in this system was 1,029 fish which was below the SEG range of 1,200–2,700 fish (Table 6) and was below the previous 10-year average escapement of 2,600 chum salmon (Appendix A4). The final spawning escapement for the English Bay River as measured by aerial survey was 6,328 sockeye salmon, which was within the weir-based SEG range of 6,000–13,500 (Table 6). The 10-year average spawning escapement (based on weir counts) was 13,968 sockeye salmon for this system (Appendix A4). The village of Nanwalek did not install the English Bay River weir in 2021, so ADF&G used aerial survey to assess escapement.

OUTER DISTRICT

The Outer District includes the waters of LCI along the Kenai Peninsula south and east of a line from Point Adam to Cape Elizabeth, and east of the longitude of Cape Elizabeth to the longitude

of Alio Point, which is 35 miles southwest of Seward (Figures 1 and 2). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary target species have been sockeye and pink salmon. The major producers of wild sockeye salmon in this district are Delight, Desire, and Delusion Lakes in East Nuka Bay (Figure 2). Pink salmon return in large numbers to Rocky, Port Dick, and Windy Bays, as well as several smaller systems (Figure 2). In addition, chum salmon are regularly harvested from Dogfish Lagoon and Port Dick (Figure 2).

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 2021 commercial wild stock harvest forecast for the Outer District was 4,000 sockeye and 1.7 million pink salmon (Appendix F1). As specified in regulation, the seine fishing season and periods are opened and closed by EO depending on the available harvestable surplus of wild stock salmon returning to spawning systems in the Outer District.

Historically, management of commercial sockeye, pink, and chum salmon fisheries in this district have relied heavily on aerial and ground surveys of major spawning systems for those species. From 1997 to 2014, daily monitoring of sockeye salmon returning to Delight Lake was conducted using a picket weir staffed by ADF&G field personnel. Funding for the weir was discontinued in 2015, and escapement monitoring through 2017 was conducted using aerial surveys. However, since 2018, Cook Inlet Aquaculture Association (CIAA) has staffed the weir and provided daily inseason escapement counts to ADF&G fishery managers in Homer. Typically, sockeye salmon runs to this lake, as well as to Desire and Delusion Lakes, peak in late July. Escapement pulses into these lakes are frequently driven by rain events, with weeks of limited passage followed by a significant spike in escapement as the result of increased water volume in the lake outflow. By early August, chum and pink salmon run timing to this district may result in harvestable levels of fish.

SEASON SUMMARY

In 2021, the western portions of the Outer District opened on Monday, July 26, on a schedule of Monday, Wednesday, and Friday 6:00 AM to 10:00 PM fishing periods (Table 5) and remained on this schedule until August 21. On that date, the fishery was expanded to a 7 day per week schedule of 6:00 AM to 10:00 PM fishing periods. Total harvest from the Outer District was 22 Chinook, 225 sockeye, 313 coho, 1.6 million pink, and 20,334 chum salmon (Table 1, Appendices B1 and B2). The total 2021 Outer District commercial harvest of 1.6 million pink salmon was above the previous 10-year average harvest of 1.1 million fish (Appendix B2) and below the forecast harvest of 1.7 million fish (Appendix F1). The chum salmon commercial harvest of 20,334 was similar to the forecasted wild-only harvest of 23,600 (Appendix F1) and was below the 10-year average harvest of 56,147 (Appendix B2).

In 2021, the weir at Delight Lake was installed on July 8. An aerial survey of the lake prior to weir installation (June 7) counted 460 sockeye salmon. The current SEG for this system of 5,100–10,600 fish was established at the 2016 Alaska Board of Fisheries (BOF) meeting using the 3-tier Percentile Approach (Clark et al. 2014; Otis et al. 2016a) and was calibrated to aerial surveys. The SEG previously used when the weir was in place was 7,550–17,650 fish. That goal was calibrated to weir counts and it is a more appropriate escapement goal during years when the weir is used to monitor escapement (Otis et al. 2010), so the weir-based goal was used to manage the Delight Lake fishery in 2021. If the weir continues to be operated, this weir-based goal may need to be

updated using the 3-tier Percentile Approach (Clark et al. 2014) to be consistent with other LCI goals (Otis et al. 2016a). Two days following weir installation, sockeye salmon began to pass daily and continued through July. The weir was removed on August 5. At that time, 400 sockeye salmon were counted below the weir site. Total weir passage through August 5 was 6,636 fish. Adding the fish counted prior to weir installation, and the fish below the weir when it was removed, equals 7,496 sockeye salmon. This is similar to but below the weir-based SEG of 7,550–17,650 fish (Table 6, Appendices B3 and B4). The peak aerial survey count for Delight Lake in 2021 was 1,640 sockeye salmon (Appendix B5), which is well below the aerial survey calibrated SEG of 5,100–10,600 fish (Otis et al. 2016a).

Of the 9 pink salmon index streams in the Outer District monitored for escapement, 4 were within SEG ranges (Windy Creek Left, Rocky River, South Nuka, and Desire Creeks), the remaining 5 systems all exceeded their goals (Dogfish Lagoon, Port Chatham, Windy Creek Right, Port Dick, and Island Creeks), while supporting regular fishing effort. There are 4 chum salmon index streams with SEGs in the Outer District. Of these, 2 were within SEG ranges (Dogfish Lagoon and Port Dick Creek), 1 was below its chum salmon SEG goal (Island Creek), and the other, Rocky River, was above it (Appendix B6, Table 6). Both Delight and Desire Lakes were below their sockeye salmon SEG ranges (Table 6, Appendices B3 and B5).

EASTERN DISTRICT

The Eastern District includes all state waters of the Gulf of Alaska between the longitudes of Alio Point and Cape Fairfield (Figures 1 and 2). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary target species have been sockeye and pink salmon with commercial harvests of the latter occurring irregularly. Harvests of chum salmon were larger in this district during the 1980s (Hollowell et al. 2019). The largest producers of wild sockeye salmon in this district have historically been Bear and Aialik Lakes.

Since the early 1960s, coho salmon production in Resurrection Bay has been supplemented by enhancement efforts. Starting in 1966, commercial harvest of coho salmon north of a line from Cape Resurrection to Callisto Head was prohibited, and in 1968, this regulatory line was moved south to its current position at Aialik Cape. Beginning in 1985, commercial harvest of coho salmon north of a line from Cape Resurrection to Aialik Cape was prohibited. In addition, since 1989, the *Resurrection Bay Salmon Management Plan* (5 AAC 21.376) directed commercial fishery managers to conduct those fisheries in a manner that does not interfere with recreational fisheries targeting enhanced Chinook and coho salmon runs in Resurrection Bay. Consequently, the majority of coho salmon in this area have been harvested by sport fishermen, as runs of pink and chum salmon have generally been insufficient to target for commercial harvest. Since 1956, the Seward Chamber of Commerce has conducted a fishing derby that focuses on enhanced and wild coho salmon runs returning to local spawning systems at the head of Resurrection Bay. Beginning in 1990, coho salmon harvested by participants in the derby have been sold commercially by the Chamber of Commerce to a local processor as a fundraiser for that organization (Hollowell et al. 2019).

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 2021 enhanced sockeye salmon run to Resurrection Bay was forecast to be 211,700 fish (Appendix F1). As specified in regulation, the seine fishing season and fishing periods are opened and closed by EO, depending on the available harvestable surplus of salmon returning to the

Eastern District. Early season management of the Eastern District is based on hatchery cost recovery progress toward a stated goal as well as passage at the Bear Creek weir, which is located 8 km (5 miles) from salt water at the outlet of Bear Lake (Figure 1). Beginning in July, management is based on aerial surveys of sockeye salmon runs to Aialik Lake. Historically, runs of pink and chum salmon to this district have been below the level required to support consistent and sustainable commercial harvests.

SEASON SUMMARY

On June 22, waters of Resurrection Bay north of Caines Head opened 16-hour fishing periods, Monday through Friday, beginning at 6:00 AM on those days. This schedule ended on Friday, July 16 at 10:00 PM (Table 5).

The total 2021 Eastern District sockeye salmon commercial common property harvest is confidential due to fewer than 3 permit holders reporting deliveries (Appendix C1). The most recent 10-year average sockeye salmon harvest is 13,858 fish (Appendix C2).

Final passage into Bear Lake was 14,818 sockeye salmon with 3,500 fish subsequently harvested for broodstock (Appendix C3). The remaining 11,318 fish, which exceeded the sockeye salmon SEG range (700–8,300), were allowed to spawn naturally in the lake. In addition, a total of 1,735 coho salmon were passed through the weir into Bear Lake (Appendix C4). Passage for both species into this lake is above the previous 10-year average (Appendix C5).

In 2021, there were 2 aerial surveys of Aialik Lake with a peak count of 2,352 sockeye salmon on September 15 (Appendix C6). This was below the current SEG range of 3,200–5,400 for this system (Table 6). Aialik Lake had failed to meet the current minimum SEG of 3,200 sockeye salmon in 5 of the previous 10 years (Appendix C7), but high turbidity often hinders visibility making it difficult for aerial observers to accurately assess escapement.

A total of 1,878 coho salmon were donated to the Seward Chamber of Commerce by sport fishery participants in the annual silver salmon derby; these fish were sold to local processors to benefit the Chamber (Appendix C2).

KAMISHAK BAY DISTRICT

The Kamishak Bay District includes all state waters on the west side of Cook Inlet south of the latitude of Anchor Point and north of a line from Cape Douglas to Elizabeth Island (Figures 1 and 2). Purse seine gear is permitted in all open waters of this district during periods established by EO. Historically, the primary naturally occurring target species have been chum, sockeye, and pink salmon.

The major natural producers of pink salmon in this district have been the Bruin River, Sunday Creek, and Brown's Peak Creek. Major chum salmon producers have been the Big Kamishak and Little Kamishak Rivers, as well as Cottonwood Creek and the McNeil River (Appendix D7). In addition, numerous other rivers and streams have periodically produced respectable pink and chum salmon runs. The major wild producer of sockeye salmon is Chenik Lake.

PRESEASON OUTLOOK AND HARVEST STRATEGY

The 2021 commercial wild stock harvest forecast for the Kamishak Bay District was 54,000 sockeye, 7,600 chum, 63,200 pink, and 1,900 coho salmon (Appendix F1). The enhanced CIAA sockeye salmon run to Kirschner Lake was forecast to be 30,000 fish (Appendix F1). In

most years, the fishing season in the Kamishak Bay District opens from June 1 until closed by EO. Historically, the Kamishak Bay District has been opened for extended 7-day periods, with specific areas closed as needed by EO to address anticipated escapement shortfalls (e.g., McNeil River chum salmon). Aerial surveys are flown, weather permitting, to monitor sockeye and chum salmon escapement to index streams and to recover recording media from video monitoring sites for inseason review in the Homer Area office. Beginning in July, management is also based on aerial surveys of pink and chum salmon runs to spawning systems in this district. Aerial surveys continued into late August to monitor late-run chum salmon and early progress of coho salmon runs to select streams in this district.

SEASON SUMMARY

The total 2021 Kamishak Bay District commercial common property harvest was 71,883 sockeye, 4,443 chum, 24 coho, and 62,598 pink salmon harvested by 5 seine permit holders (Table 1, Appendices D1 and D2).

Waters of the Kamishak Bay District opened to commercial common property harvest on Tuesday, June 1. Fishing was permitted 24 hours per day and remained opened every day. On June 14, waters of the Paint River and McNeil River subdistricts were closed to commercial harvest to prevent interception of chum salmon returning to the McNeil River (Table 5), which were designated as a *stock of concern* at the 2016 BOF meeting (Otis et al. 2016b). On June 14, ADF&G opened the waters of Chenik Lagoon up to 154° 08.33' N latitude. In many recent years, this system had sockeye salmon escapements near the upper end or above the SEG range (Table 6, Appendix D7). Sockeye escapement past the video monitoring station and into Chenik Lake was similar in numbers and timing to that seen in recent years (Appendix D3). The Chenik Subdistrict was later closed to commercial harvest on July 9. The closure was in response a cumulative video count of only 665 sockeye salmon in the lake on that date versus an anticipated passage target of 486–2,294 fish to meet the minimum SEG of 2,900 fish by the end of August (Appendix D3). The Chenik Subdistrict reopened to commercial harvest on July 17 with 10,101 fish passed into the lake versus an anticipated goal for that date of 1,112–5,255 fish (Table 5, Appendix D3).

Other fishing areas of the Kamishak Bay District had consistent fishing openers and closures relative to the inseason assessment of Chenik sockeye salmon run strength. The Kirschner Lake special harvest area (SHA) was closed to common property harvest on June 14 and reopened on August 2 (Table 5).

Given the difficulty of fishing in the Kamishak Bay District, combined with the good pink salmon returns to the Outer District, there was modest effort in this area in 2021; deliveries occurred weekly from late June until mid-August (Table 1, Appendix D1).

Salmon escapement to index streams in the Kamishak Bay District was fair with all index streams except the McNeil River meeting minimum SEG levels for both pink and chum salmon (Table 6). Anadromous waters restrictions (closed waters around the mouths of streams) were removed from several systems to facilitate harvest and reduce the possibility of exceeding the upper end of the SEG (Tables 5 and 6). Despite these inseason management actions, harvest and effort was modest with only 5 permit holders reporting deliveries.

A total of 2,346 sockeye salmon were counted from video at Mikfik Lake through late August (Appendix D4). This is below the SEG range (3,400–11,000 fish) and the previous 10-year average escapement for this system (Appendices D4 and D5). The peak sockeye count in the Amakdedori

Creek was 4,370 (Appendix D6) and above both the SEG for this system (1,200-2,600) as well as the previous 10-year average escapement of 2,700 fish (Table 6; Appendix D7).

All 3 pink salmon SEGs in the Kamishak Bay District were achieved in 2021. Of the 7 chum salmon index streams, all but the McNeil River had final escapements above the minimum SEG (Table 6, Appendix D7).

There were 71,883 sockeye salmon harvested by the commercial common property fleet from the Kamishak District in 2021 (Appendix D1). The preseason harvest forecast was 54,000 wild sockeye salmon (Appendix F1), which was above the 10-year average harvest of 45,790 (Appendix D2). A total of 24 coho salmon were harvested from this district (Appendix D1), which was below the anticipated harvest of 1,900 and below the 10-year average of 1,319. The total pink salmon harvest was 62,598 fish (Appendix D1), which was very close to the anticipated harvest of 63,200 (Appendix F1). The 10-year average harvest was 40,725 pink salmon (Appendix D2). The total chum salmon harvest of 4,443 (Appendix D1) was below the anticipated harvest of 7,600 as well as the 10-year average of 10,111 (Appendix D2). CIAA harvested 16,439 sockeye salmon for cost-recovery purposes from the Kirschner Lake SHA (Table 1); this was below the anticipated harvest of 30,000 (Appendix F1).

LOWER COOK INLET PERSONAL USE AND HOMEPACK COMMERCIAL FISHERIES

There were 130 personal use set gillnet permits issued in 2021, and as of this writing, 90 permits had been returned. This year was the second year where permits for this fishery were available online and online reporting was an option. A total of 1,252 salmon, of which 1,085 were coho salmon, were reported as harvest (Appendix E1). This season was noteworthy in that it was open for the full regulatory season until the last Wednesday or Saturday before September 16. In 2021, the actual closure date was Wednesday, September 15, after a total of nine 48-hour fishing periods. Additional information regarding personal use salmon fisheries in LCI may be found in the most recent Alaska Subsistence and Personal Use Salmon Fisheries Annual Report (Fall et al. *In prep*).

Homepack from commercial deliveries was similar to recent years with 8 seine permit holders reporting 472 salmon retained, and 8 set gillnet permit holders reporting 493 salmon retained (Appendix E2).

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REFERENCES CITED

- Clark, R. A., D. M. Eggers, A. R. Munro, S. J. Fleischman, B. G. Bue, and J. J. Hasbrouck. 2014. An evaluation of the percentile approach for establishing sustainable escapement goals in lieu of stock productivity information. Alaska Department of Fish and Game, Fishery Manuscript No. 14-06, Anchorage.
- Fall, J. A., A. Goduhn, G. Halas, L. Hutchinson-Scarborough, B. Jones, B. McDavid, E. Mikow, L. A. Sill, and T. Lemons. *In prep.* Alaska subsistence and personal use salmon fisheries 2021 annual report. Alaska Department of Fish and Game, Division of Subsistence, Technical Paper, Anchorage.
- Hollowell, G. J., E. O. Otis, and E. Ford. 2019. 2018 Lower Cook Inlet Area Finfish Management Report. Alaska Department of Fish and Game, Fishery Management Report No. 19-23, Anchorage.
- Otis, E. O., N. J. Szarzi, L. F. Fair, and J. W. Erickson. 2010. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-07, Anchorage.
- Otis, E. O., J. W. Erickson, C. Kerkvliet, and T. McKinley. 2016a. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2016. Alaska Department of Fish and Game, Fishery Manuscript Series No. 16-08, Anchorage.
- Otis, E. O., G. J. Hollowell, and J. W. Erickson. 2016b. McNeil River chum salmon stock status and action plan, 2016. Alaska Department of Fish and Game, Special Publication No. 16-12, Anchorage.
- Wilson, L. 2022. Alaska salmon fisheries enhancement annual report 2021. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 5J22-02, Juneau.

FIGURES AND TABLES

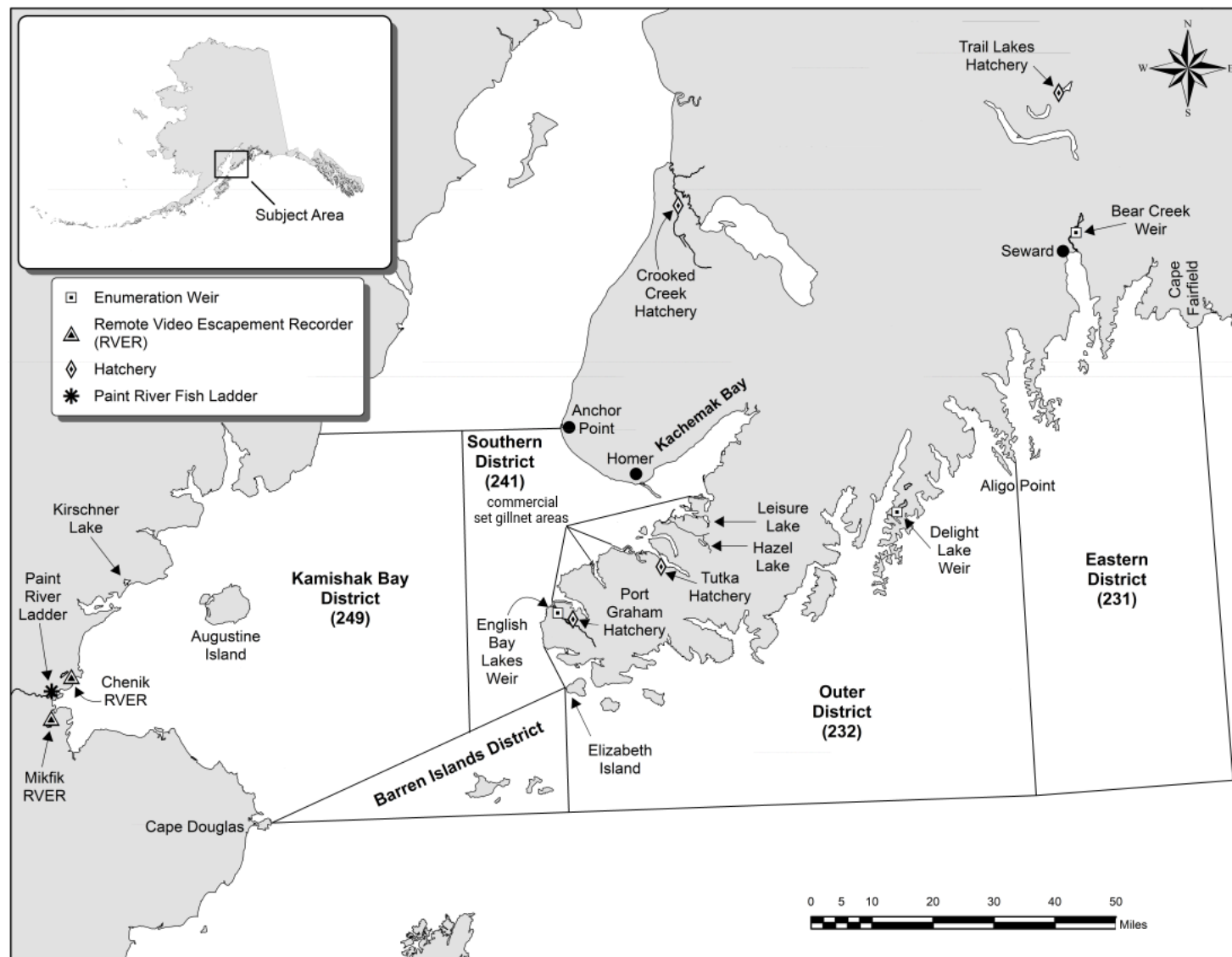


Figure 1.—Lower Cook Inlet Management Area showing commercial fishing districts, commercial set gillnet areas, salmon hatcheries, weir and fish ladder locations, and remote video salmon monitoring sites.

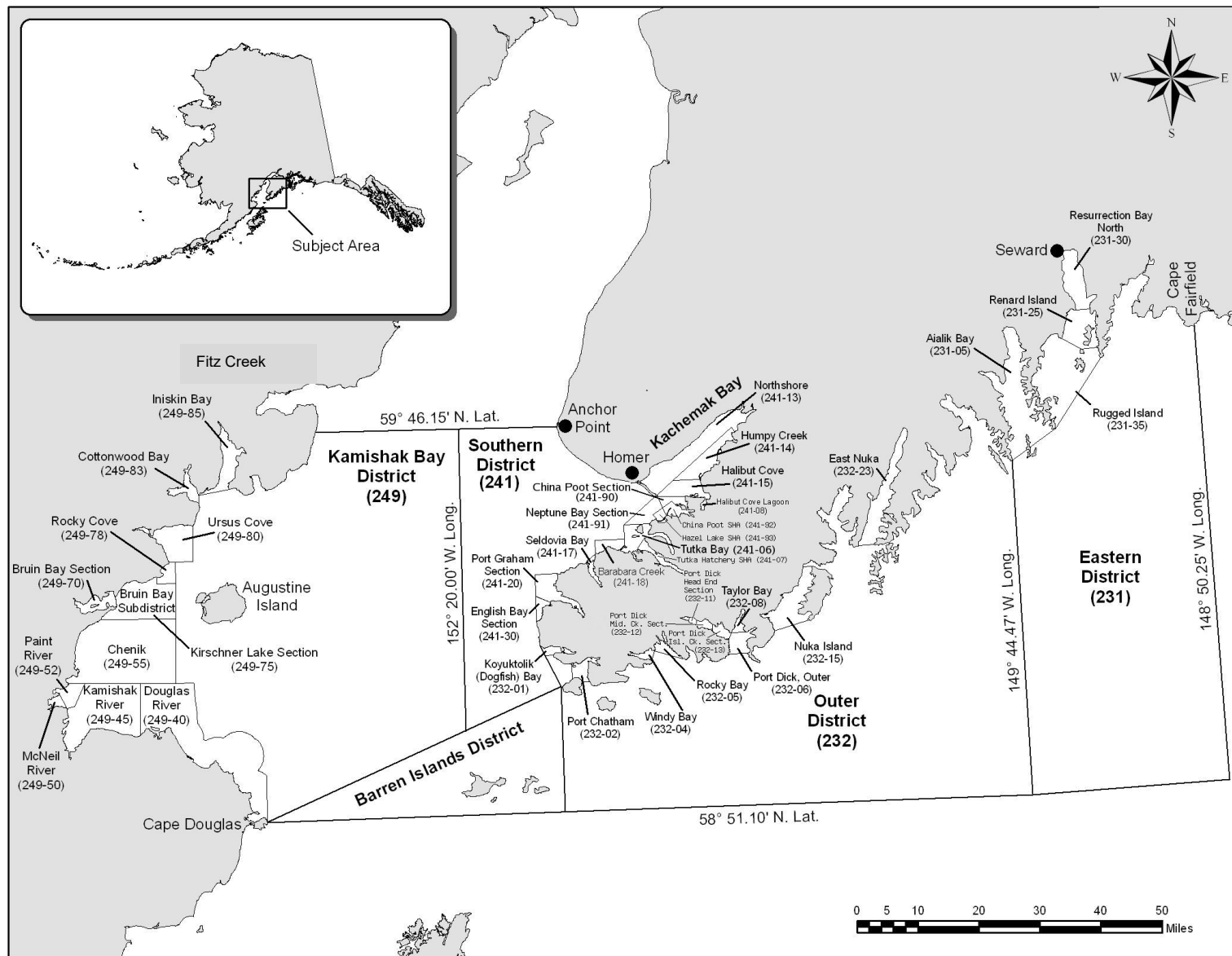


Figure 2.—Lower Cook Inlet Management Area showing commercial fishing districts and reporting subdistricts.

Table 1.–Lower Cook Inlet Management Area commercial salmon harvest by gear and district, 2021.

District	Permit holders ^a	Chinook ^a	Sockeye ^a	Coho ^{a,b}	Pink ^a	Chum ^a	Total
Southern District	14	32	74,535	1,725	41,650	374	118,316
Outer District	13	22	225	313	1,559,174	20,334	1,580,068
Eastern District	<3	^c	^c	^c	^c	^c	^c
Kamishak Bay District	5	0	71,883	24	62,598	4,443	138,948
Purse seine total	15	54	149,515	2,062	1,663,422	25,151	1,840,204
Southern District	16 ^d	231	13,004	981	3,461	2,231	19,908
Set gillnet total	16	231	13,004	981	3,461	2,231	19,908
Commercial common property total		285	162,519	3,043	1,666,883	27,382	1,860,112
Tutka Lagoon SHA		1	35,069	17	303,169	20	338,276
Resurrection Bay SHA		0	52,437	0		0	52,437
Kirschner Lake SHA		0	16,439	0	1,103	2	17,544
Hatchery cost recovery total ^e		1	103,945	17	304,272	22	408,257
Commercially sold total		286	266,464	3,060	1,971,155	27,404	2,268,369
Homepack		14	395	329	193	27	958
Hatchery donated fish ^e			2,556	23	0	0	2,579
Miscellaneous total		14	2,951	352	193	27	3,537
Lower Cook Inlet total		300	269,415	3,412	1,971,348	27,431	2,271,906

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

^b There were 1,878 coho salmon harvested in the Seward Salmon Derby and sold by the sponsor to commercial processors. These fish were caught by sport permit holders using rod and reel (troll gear). This harvest is not included in the commercial harvest total catch.

^c Harvest confidential (fewer than 3 permit holders delivered).

^d Of the 16 permit holders that delivered, 6 were dual permits.

^e Hatchery sales for hatchery operating costs. Includes incidentally harvested wild salmon.

Table 2.—Average price and estimated exvessel value of the total hatchery and commercial salmon harvest (excluding homepack) by gear type, Lower Cook Inlet, 2021.

PURSE SEINE			Average		
Species	Number ^a	Pounds ^a	weight	Price ^a	Value
Chinook	66	1,015	15.76	\$2.88	\$2,923
Sockeye	149,791	598,210	4.00	\$2.14	\$1,280,169
Coho	2,090	10,825	5.25	\$0.88	\$9,526
Pink	1,663,576	5,540,538	3.33	\$0.32	\$1,772,972
Chum	25,157	174,423	6.94	\$0.66	\$115,119
	1,840,680	6,325,011			\$3,180,710
SET GILLNET			Average		
Species	Number ^a	Pounds ^a	weight	Price ^a	Value
Chinook	233	2,877	12.35	\$3.75	\$10,789
Sockeye	13,123	65,678	5.05	\$2.50	\$164,195
Coho	1,282	5,394	5.44	\$1.06	\$5,718
Pink	3,500	13,563	3.92	\$0.25	\$3,391
Chum	2,252	14,924	6.69	\$0.63	\$9,402
	20,390	102,436			\$193,494
HATCHERY SALES			Average		
Species	Number ^a	Pounds ^a	weight	Price ^a	Value
Chinook	1	7	7.00	\$0.00	\$0
Sockeye	106,501	450,968	4.22	\$2.76	\$1,244,672
Coho	40	80	4.71	\$1.00	\$80
Pink	304,272	859,982	2.83	\$0.48	\$412,791
Chum	22	146	6.64	\$0.87	\$127
	410,836	1,311,183			\$1,657,670
TOTAL HARVEST			Average		
Species	Number ^a	Pounds ^a	weight	Price ^a	Value
Chinook	300	3,899	13.07	\$3.52	13,712
Sockeye	269,415	1,114,856	4.14	\$2.41	2,689,036
Coho	3,412	16,299	5.84	\$0.94	15,324
Pink	1,971,348	6,414,083	3.25	\$0.34	2,189,154
Chum	27,431	189,493	6.92	\$0.66	124,648
	2,271,906	7,738,630			\$5,031,874
Gear Type		Value of catch		No. of permit holders ^b	Average earnings
Purse Seine		\$3,180,710		15	\$212,047
Set Gillnet		\$193,494		16	\$12,093
subtotal-					
Value of CPF catch		\$3,374,204			
Hatchery		\$1,657,670			
GRAND TOTAL		\$5,031,874			

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

^b In 2021, 6 set gillnet permit holders fished dual permits. Permit stacking has been permitted by the Alaska Board of Fisheries since 2014.

Table 3.—Average price per pound paid to permit holders for salmon, Lower Cook Inlet, 2011–2021.

Year	Chinook salmon			Sockeye salmon			Coho salmon			Pink salmon			Chum salmon		
	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined	Seine	Set gillnet	Combined
2011	\$1.93	\$4.19	\$3.85	\$1.56	\$1.56	\$1.56	\$0.52	\$0.79	\$0.70	\$0.41	\$0.30	\$0.37	\$0.83	\$0.61	\$0.81
2012	\$2.08	\$4.53	\$4.09	\$1.59	\$1.80	\$1.63	\$0.75	\$1.06	\$0.80	\$0.39	\$0.25	\$0.38	\$0.70	\$0.37	\$0.70
2013	\$1.02	\$5.14	\$4.53	\$2.00	\$2.21	\$2.11	\$0.83	\$1.01	\$0.95	\$0.38	\$0.33	\$0.38	\$0.53	\$0.35	\$0.52
2014	\$2.67	\$3.92	\$3.89	\$1.94	\$2.23	\$2.15	\$0.75	\$1.24	\$1.11	\$0.28	\$0.26	\$0.28	\$0.59	\$0.47	\$0.57
2015	\$1.70	\$3.16	\$3.11	\$1.45	\$1.86	\$1.62	\$0.42	\$0.73	\$0.64	\$0.20	\$0.18	\$0.20	\$0.45	\$0.34	\$0.43
2016	\$1.43	\$3.14	\$2.92	\$1.45	\$1.78	\$1.60	\$0.63	\$1.01	\$0.97	\$0.21	\$0.15	\$0.19	\$0.50	\$0.36	\$0.45
2017	\$4.34	\$3.79	\$3.86	\$1.41	\$2.16	\$1.97	\$0.95	\$0.77	\$0.80	\$0.30	\$0.15	\$0.24	\$0.75	\$0.50	\$0.63
2018	\$2.95	\$4.79	\$4.17	\$2.14	\$2.56	\$2.20	\$1.23	\$1.41	\$1.27	\$0.39	\$0.19	\$0.37	\$0.78	\$0.71	\$0.78
2019	\$3.60	\$4.79	\$4.07	\$2.32	\$2.19	\$2.29	\$0.97	\$0.90	\$0.95	\$0.30	\$0.25	\$0.30	\$0.50	\$0.39	\$0.49
2020	\$2.52	\$3.75	\$3.52	\$1.79	\$2.07	\$1.83	\$0.80	\$0.62	\$0.66	\$0.29	\$0.21	\$0.29	\$0.50	\$0.43	\$0.49
2021	\$2.88	\$3.75	\$3.52	\$2.14	\$2.50	\$2.17	\$0.88	\$1.06	\$0.94	\$0.32	\$0.25	\$0.32	\$0.66	\$0.63	\$0.66
Previous 10-year Average	\$2.42	\$4.12	\$3.80	\$1.76	\$2.04	\$1.90	\$0.78	\$0.95	\$0.88	\$0.31	\$0.23	\$0.30	\$0.61	\$0.45	\$0.59

Source: These prices are based on weighted average prices from the ADF&G statewide electronic fish ticket database [Internet]. 1985–current. Juneau, AK. [URL not available as some information is confidential] and do not reflect postseason adjustments and bonuses. Caution should be used when estimating value from these prices.

Table 4.—Estimated exvessel value (in US \$) of commercial salmon harvest by gear type with 10-year average, Lower Cook Inlet, 2011–2021.

Purse seine											Prev. 10-yr	
Species	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	average	2021
Chinook	648	483	689	411	624	1,966	10,485	3,115	19,229	3,725	4,138	2,923
Sockeye	1,485,538	461,300	644,508	618,967	424,498	478,989	1,062,723	1,066,657	1,232,374	801,127	827,668	1,280,169
Coho	157	706	9,366	1,314	2,892	3,140	23,363	117,622	71,361	3,129	25,547	9,526
Pink	423,068	300,992	2,403,739	264,127	2,788,824	49,958	1,955,477	775,003	1,680,547	1,829,796	1,182,415	1,772,972
Chum	166,691	323,923	205,517	294,110	287,699	243,999	1,117,301	293,259	187,464	61,474	346,662	115,119
Total value	\$2,076,101	\$1,087,404	\$3,263,819	\$1,178,929	\$3,504,537	\$778,052	\$4,169,350	\$2,255,656	\$3,190,974	\$2,699,249	2,389,425	\$3,180,710
Set gillnet												
Species												
Chinook	8,032	4,847	15,135	11,533	24,510	23,757	29,001	9,992	16,828	17,479	16,111	10,789
Sockeye	218,700	109,526	502,583	433,220	359,009	190,984	455,125	203,034	357,204	131,267	296,065	164,195
Coho	488	200	20,959	3,220	13,635	4,735	44,430	28,897	14,960	9,888	14,614	5,718
Pink	2,606	10,074	2,217	3,351	18,010	13,896	25,531	40,586	5,687	30,350	13,551	3,391
Chum	7,975	2,528	6,842	18,062	25,534	4,905	28,931	22,787	10,418	6,218	14,220	9,402
Total value	\$237,801	\$127,176	\$547,736	\$469,385	\$440,698	\$238,277	\$583,018	\$305,295	\$405,098	\$195,202	372,720	\$193,494
Hatchery sales												
Species												
Chinook	0	0	0	245	0	0	0	68	0	0	31	0
Sockeye	1,625,199	1,021,125	910,285	1,799,731	821,739	1,642,913	862,685	3,070,644	1,475,610	1,130,740	1,436,067	1,244,672
Coho	0	44	0	0	554	0	2,909	2,598	1,695	4,571	867	80
Pink	487	1,074	57,622	130	1,383,195	24,290	94,108	1,570,933	223,393	1,242,991	372,803	412,791
Chum	16	1,034	83	628	4,444	422	1,055	398	515	584	955	127
Total value	\$1,625,702	\$1,023,277	\$967,990	\$1,800,733	\$2,209,932	\$1,667,624	\$960,758	\$4,644,642	\$1,701,212	\$2,378,886	1,844,652	\$1,657,670
Average earnings												
Purse seine	\$90,265	\$67,963	\$296,711	\$58,946	\$184,449	\$40,950	\$231,631	\$112,783	\$145,044	\$168,703	139,745	\$212,047
Set gillnet	\$11,324	\$8,478	\$28,828	\$24,704	\$18,362	\$11,347	\$29,151	\$16,068	\$20,255	\$11,482	18,000	\$12,093
Number of permit holders fishing												
Purse seine	23	16	11	20	19	19	18	20	22	16	18	15
Set gillnet	21	15	19	19	24	21	20	19	20	17	20	16

Table 5.—Emergency orders issued for the commercial, personal use, and subsistence salmon fisheries in Lower Cook Inlet, 2021.

EO number ¹ / issue date	Description
2-F-LCI-001-21/ Friday, May 28	Southern and Kamishak districts, purse seine and set gillnet. Opens waters of the Southern District to commercial salmon harvest and establishes 2 weekly 48-hour set gillnet fishing periods in the Southern District beginning at 6:00 AM on Mondays and Thursdays effective Monday, June 1. Establishes 7-day per week purse seine fishing periods in the Kamishak District beginning June 1 and closing September 30. Closes McNeil and Paint River subdistricts to salmon fishing effective June 14. Opens portions of Chenik Lagoon on June 14.
2-F-LCI-002-21/ Friday, June 11	Southern, Outer, Eastern districts, purse seine. Opens the commercial purse seine salmon fishing season on Monday, June 14 in the Southern, Outer, and Eastern districts and establishes a Monday, Wednesday, and Friday fishing schedule in portions of the former. Establishes a season closure for this gear of September 30. Allows commercial seine harvest up to the fresh water of the Wosnesenski River. Moves the closed waters boundaries in the China Poot SHA eastward approximately 1/2 mile.
2-F-LCI-003-21/ Friday, June 11	Southern, Outer, Eastern districts, purse seine. Update to justification portion of emergency order.
2-F-LCI-004-21/ Friday, June 18	Eastern District, purse seine. Closes Resurrection Bay to cost-recovery harvest on June 19, opens this area to commercial common property harvest on June 22.
2-F-LCI-005-21/ Friday, July 2	Eastern District, purse seine. Closes Resurrection Bay to commercial salmon fishing on Monday, July 5 for the July 4 holiday which occurred on Sunday. In years where July 4 occurs on Saturday, typically commercial fishing is suspended on the Friday preceding the holiday.
2-F-LCI-006-21/ Friday, July 9	Eastern and Kamishak districts, purse seine. End commercial fishing periods in Resurrection Bay on July 16. End commercial fishing periods in the Chenik Subdistrict on July 9.
2-F-LCI-007-21/ Friday, July 16	Kamishak District, purse seine. Re-establishes commercial fishing periods in the Chenik Subdistrict on July 17.
2-F-LCI-008-21/ Friday, July 23	Outer District, purse seine. Opens portions (Dogfish Bay, Port Chatham, Windy Bay, and Port Dick) of the Outer District to commercial salmon harvest and expands the regulatory closed waters in the Island Creek Section of Port Dick.
2-F-LCI-009-21/ Thursday, July 29	Southern, Outer, Kamishak districts, purse seine. Opens the Taylor Bay Section, a portion of the Nuka Island Subdistrict, and the Rocky Bay, Humpy Creek, and Chenik subdistricts, as well as the Kirschner Lake SHA to commercial purse seine harvest. Closes the China Poot and Hazel Lake special harvest areas to commercial purse seine harvest.
2-F-LCI-010-21/ Wednesday, August 4	Kamishak District, purse seine. Opens intertidal waters of the Bruin River seaward of the “Pothole” at 59° 22.82’ N lat, 154° 09.03’ W long to commercial purse seine salmon harvest.
2-F-LCI-011-21/ Thursday, August 5	Outer District, purse seine. Closed the Island Creek Section of the Port Dick Subdistrict and reduced the size of the regulatory closed waters area at the head of Port Dick.
2-F-LCI-012-21/ Friday, August 13	Southern and Outer districts, purse seine. Reestablish regulatory closed waters in the Head End Section of Port Dick, open the East Nuka Subdistrict to commercial purse seine harvest, and reduce the size of the Tutka Hatchery special harvest area.

-continued-

Table 5.—Page 2 of 2.

EO number ¹ / Issue date	Description
2-F-LCI-013-21/ Thursday, August 19	Outer District, purse seine. Changes the schedule from MWF to 7 days per week in the Outer and Southern Districts. Reduces the size of the regulatory closed waters area in the Taylor Bay Section and closes the Humpy Creek Subdistrict to commercial salmon harvest.
2-F-LCI-014-21/ Tuesday, August 24	Outer District, purse seine. Opens the southern portion of the Island Creek Section, and the Outer Section of the Port Dick Subdistrict.
2-F-LCI-015-21/ Friday, August 27	Outer District, purse seine. Re-establishes regulatory closed waters in the Island Creek Section of the Port Dick Subdistrict.

¹ Effective 2019, emergency order enumeration format changed from 2-F-H-000-YY to 2-F-LCI-000-YY to avoid confusion with Upper Cook Inlet emergency orders.

Table 6.—Escapements relative to escapement goals and methods used to monitor escapements in 2021 for chum, pink, and sockeye salmon stocks in Lower Cook Inlet, Alaska.

Stock	2021 escapement	Escapement goal range			Monitoring method				Comments
		Lower	Mid-point	Upper	Aeria	Ground	Video	Weir	
CHUM SALMON (12 with goals)									
Port Graham River	1,029	1,200	1,950	2,700		X			used ground index
Dogfish Lagoon	4,030	3,500	6,050	8,600	X	X			
Rocky River	6,542	1,500	2,950	4,400	X				
Port Dick Creek	3,261	1,900	3,100	4,300	X	X			used ground index
Island Creek	3,112	5,100	8,500	11,900	X	X			used ground index
Big Kamishak River	15,987	6,800	11,200	15,600	X				
Little Kamishak River	35,046	8,000	12,400	16,800	X				
McNeil River	15,219	24,000	36,000	48,000	X				
Bruin River	29,655	5,200	7,600	10,000	X				
Ursus Cove	7,500	5,900	8,000	10,100	X				
Cottonwood Creek	5,690	5,200	8,700	12,200	X				
Iniskin Bay	15,024	5,900	9,750	13,600	X				
PINK SALMON (18 with goals)									
Humpy Creek	3,125	17,500	34,450	51,400		X			
China Poot Creek	79	2,500	4,400	6,300		X			
Tutka Creek	50,911	6,500	11,750	17,000		X			
Barabara Creek	5,451	2,000	3,800	5,600		X			
Seldovia Creek	21,849	21,800	29,600	37,400		X			
Port Graham River	12,824	7,700	13,700	19,700		X			
Dogfish Lagoon	29,205	800	3,950	7,100	X	X			used ground index
Port Chatham	20,673	7,800	12,950	18,100	X	X			used ground index
Windy Creek Right	12,400	3,400	7,300	11,200	X				
Windy Creek Left	16,133	5,400	16,250	27,100	X				
Rocky River	41,446	11,700	33,250	54,800	X				
Port Dick Creek	115,740	17,900	33,850	49,800	X	X			used ground index
Island Creek	99,199	9,600	21,050	32,500	X	X			used ground index
S. Nuka Island Creek	6,567	2,800	7,000	11,200	X				
Desire Lake	13,705	1,500	9,750	18,000	X				
Bruin River	78,374	17,800	60,400	103,000	X				
Sunday Creek	38,976	4,400	14,650	24,900	X				
Brown’s Peak Creek	74,967	2,600	10,050	17,500	X				
SOCKEYE SALMON (8 with goals)									
English Bay	6,328	6,000	9,750	13,500	X				no weir in 2021
Delight Lake ^a	7,496	7,550	12,575	17,650	X	X		X	weir count primarily
Desire Lake	3,744	4,800	8,350	11,900	X		-		
Bear Lake	11,318	700	4,500	8,300				X	
Aialik Lake	2,352	3,200	4,300	5,400	X				
Mikfik Lake	2,346	3,400	7,200	11,000			X		
Chenik Lake	17,134	2,900	8,300	13,700			X		
Amakdedori Creek	4,370	1,200	1,900	2,600	X				

^a Used weir-based goal because CIAA operated a weir at Delight Lake in 2021. See Appendix B5 for 2021 aerial survey counts.

APPENDIX A: SOUTHERN DISTRICT

Appendix A1.—Southern District commercial set gillnet salmon harvest (excluding homepack) by fishing period, 2021.

Period	Stat week	Date	Hours	Permit holders fishing	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	23	06/01–06/02	48	7	12	163	202	983	0	0	0	0	20	153
2	23	06/03–06/05	48	7	29	370	440	2,093	0	0	0	0	23	154
3	24	06/07–06/09	48	7	18	166	828	4,337	0	0	0	0	60	374
4	24	06/10–06/12	48	8	23	277	941	4,764	0	0	0	0	38	270
5	25	06/14–06/16	48	10	34	392	1,217	6,328	0	0	1	3	88	573
6	25	06/17–06/19	48	9	35	401	551	2,867	0	0	0	0	30	168
7	26	06/21–06/23	48	10	18	204	1,056	5,416	0	0	3	12	95	704
8	26	06/24–06/26	48	7	11	127	863	4,261	0	0	0	0	57	399
9	27	06/28–06/30	48	10	10	130	1,603	7,842	0	0	11	47	278	2,053
10	27	07/01–07/03	48	9	4	54	1,325	6,525	0	0	254	785	424	2,883
11	28	07/05–07/07	48	8	9	81	979	4,726	2	8	233	785	257	1,644
12	28	07/08–07/10	48	6	4	59	366	1,825	19	108	124	393	93	626
13	29	07/12–07/14	48	6	3	47	354	1,785	55	291	809	3,289	230	1,516
14	29	07/15–07/17	48	7	5	90	546	2,732	176	973	1,128	4,535	267	1,754
15	30	07/19–07/21	48	11	9	179	417	2,143	144	813	624	2,599	142	890
16	30	07/22–07/24	48	7	4	83	302	1,592	159	900	197	817	91	524
17	31	07/26–07/28	48	6	2	39	580	3,038	198	1,071	76	295	37	234
18 ^a	31	07/29–07/31	48	<3	a	a	a	a	a	a	a	a	a	a
19	32	08/02–08/04	48	3	0	0	219	1,332	150	796	1	3	1	6
20 ^a	32	08/05–08/07	48	<3	a	a	a	a	a	a	a	a	a	a
21	33	08/09–08/11	48	0	0	0	0	0	0	0	0	0	0	0
22	33	08/12–08/14	48	0	0	0	0	0	0	0	0	0	0	0
23	34	08/16–08/18	48	0	0	0	0	0	0	0	0	0	0	0
35	40	09/27–09/29	48	0	0	0	0	0	0	0	0	0	0	0
Total				16 ^b	231	2,877	13,004	65,678	981	5,394	3,461	13,563	2,231	14,924
Average weight						12.35		5.05		5.44		3.92		6.69

Note: No deliveries during Periods 21–35, from August 9 through September 29.

^a Confidential data. Fewer than 3 permits reporting.

^b Sixteen permit holders fished in 2021, of those, 6 individuals were dual permit holders.

Appendix A2.—Southern District commercial purse seine salmon harvest (excluding homepack) by period, 2021.

Period	Stat week	Date	Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
					Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 ^a	26	6/14	16	0	0	0	0	0	0	0	0	0	0	0
2 ^a	26	6/16	16	0	0	0	0	0	0	0	0	0	0	0
3 ^a	26	6/18	16	0	0	0	0	0	0	0	0	0	0	0
4 ^{a,b}	27	6/21	16	<3	b	b	b	b	b	b	b	b	b	b
5 ^{a,b}	27	6/23	16	<3	b	b	b	b	b	b	b	b	b	b
6 ^a	27	6/25	16	6	0	0	1,033	5,733	1	1	8	20	3	30
7 ^a	28	6/28	16	9	5	56	2,235	11,696	0	0	4	13	6	39
8 ^a	28	6/30	16	10	0	0	3,919	19,774	0	0	4	15	8	44
9 ^a	28	7/2	16	10	5	65	4,819	23,062	0	0	43	142	52	546
10 ^a	29	7/5	16	13	0	0	6,159	30,415	1	3	24	79	16	120
11 ^a	29	7/7	16	13	3	57	8,251	36,724	23	141	298	862	11	98
12 ^a	29	7/9	16	11	0	0	7,704	35,239	0	0	43	119	25	269
13 ^a	30	7/12	16	13	2	42	6,746	27,998	12	64	710	1,976	47	499
14 ^a	30	7/14	16	13	1	27	10,423	42,858	57	294	1,044	3,475	26	243
15 ^a	30	7/16	16	11	0	0	7,352	29,587	126	687	3,474	5,897	78	669
16 ^a	31	7/19	16	11	4	58	6,668	27,126	117	520	5,525	15,204	12	83
17 ^a	31	7/21	16	12	2	31	3,415	15,399	149	871	6,453	18,811	17	79
18 ^a	31	7/23	16	13	2	29	1,295	5,197	118	690	6,508	18,815	66	377
19 ^a	32	7/26	16	4	5	99	784	2,835	122	665	4,854	12,960	0	0
20 ^a	32	7/28	16	5	0	0	1,016	4,023	279	1,288	9,031	20,318	0	0
21 ^a	32	7/30	16	4	0	0	1,185	4,380	298	1,545	2,441	5,464	1	6
22 ^{a,c,d}	33	8/2	16	3	3	48	694	2,394	152	693	659	1,777	6	65
23 ^{a,c,d}	33	8/4	16	4	0	0	552	2,328	260	1,266	505	1,454	0	0
24 ^{a,b,c,d}	33	8/6	16	<3	b	b	b	b	b	b	b	b	b	b
25 ^{a,c,d}	34	8/9	16	0	0	0	0	0	0	0	0	0	0	0
Total				14	32	512	74,535	328,180	1,725	8,793	41,650	107,483	374	3,167
Average weight						14.86		4.17		5.09		2.80		8.36

Note: No deliveries after August 6.

^a Waters of the Tutka Bay, China Poot, and Halibut Cove subdistricts, excluding waters of the special harvest area (SHA) in the Tutka Subdistrict is open to commercial salmon seine harvest for regular 16-hour periods. Waters of the Neptune Bay Section up to the freshwater of the Wosnesenski River are open for these periods. Waters of the south arm of China Poot Bay west of 151° 15.53' W long, and waters of the north arm of China Poot Bay west of 151° 14.65' W long are also open for these periods.

^b Confidential data. Fewer than 3 permits reporting.

^c All waters of the China Poot and Hazel Lake SHAs are closed.

^d Waters of the Humpy Creek Subdistrict up to the freshwater boundary of Humpy Creek are open to commercial seine harvest.

Appendix A3.—Total commercial common property salmon harvest (excluding homepack) in the Southern District, 2011–2021.

Set gillnet						
Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
2011	21	100	22,782	103	2,643	1,946
2012	15	86	10,260	33	10,305	928
2013	18	234	38,238	3,466	1,804	2,685
2014	19	320	32,910	393	3,231	5,355
2015	24	752	36,061	3,102	27,726	11,539
2016	23	731	19,427	687	21,872	2,124
2017	24	435	36,689	9,353	43,904	7,852
2018	24	185	15,157	3,067	56,638	4,232
2019	22	350	29,274	2,817	6,411	3,908
2020	17	405	12,463	2,680	35,133	1,918
2021	16	231	13,004	981	3,461	2,231
Previous 10-yr avg.	21	360	25,326	2,570	20,967	4,249

Purse seine						
Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
2011	5	26	9,945	24	512	16
2012	11	39	6,396	44	175,770	439
2013	11	140	28,032	1,902	33,288	265
2014	16	18	23,188	269	58,890	3,360
2015	19	52	54,783	997	141,604	1,450
2016	19	112	47,235	169	44,637	165
2017	17	166	62,715	3,493	361,751	3,892
2018	20	131	55,246	1,747	472,204	1,166
2019	21	140	47,006	3,065	22,934	298
2020	15	109	68,698	526	120,861	1,074
2021	14	32	74,535	1,725	41,650	374
Previous 10-yr avg.	15	93	40,324	1,224	143,245	1,213

Purse seine and set gillnet combined						
Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
2011	ND	126	32,727	127	3,155	1,962
2012	ND	125	16,656	77	186,075	1,367
2013	ND	374	66,270	5,368	35,092	2,950
2014	ND	338	56,098	662	62,121	8,715
2015	ND	804	90,844	4,099	169,330	12,989
2016	ND	601	99,404	12,846	405,655	11,744
2017	ND	316	70,403	4,814	528,842	5,398
2018	ND	381	62,393	3,215	178,419	5,388
2019	ND	490	76,280	5,882	29,345	4,206
2020	ND	514	81,161	3,206	155,994	2,992
2021	ND	263	87,539	2,706	45,111	2,605
Previous 10-yr avg.	ND	453	65,651	3,794	164,212	5,461

Source: ADF&G statewide electronic fish ticket database [Internet]. 2011–current. Juneau, AK. [URL not available as some information is confidential].

Note: ND = no data.

Appendix A4.—Estimated sockeye, pink, and chum salmon escapements, in thousands of fish, for the major spawning systems in the Southern District of the Lower Cook Inlet Area, 2011–2021.

Year	Pink salmon							Chum salmon	Sockeye salmon
	Humpy Creek	China Poot Creek	Tutka Lagoon Creek	Barabara Creek	Seldovia River	Port Graham River	Total pink salmon escapement	Port Graham River	English Bay River
2011	1.7	3.5	22.0	8.2	46.2	20.9	102.4	1.8	9.9
2012	67.9	8.4	10.4	1.4	44.7	34.5	167.3	0.7	3.4
2013	6.7	7.1	9.5	17.4	36.8	11.9	89.5	1.9	10.9
2014	44.4	1.4	10.2	3.6	35.9	32.3	127.7	3.7	7.0
2015	38.0	7.4	81.6	25.2	108.8	82.4	343.3	4.0	6.3
2016	89.7	0.7	33.2	2.8	15.7	14.6	156.7	2.4	7.6
2017	71.1	2.4	61.4	25.0	27.0	20.6	207.5	5.8	20.3
2018	54.8	2.3	60.7	7.2	50.8	33.4	209.3	3.7	18.8
2019	25.7	1.6	53.7	9.5	18.3	29.6	138.4	1.1	24.0
2020	0.2	0.2	115.0	6.6	39.3	34.8	196.2	0.7	31.5
Previous 10-yr average	40.0	3.5	45.8	10.7	42.4	31.5	173.8	2.6	14.0
2021	3.1	0.1	50.9	5.5	21.8	12.8	94.2	1.0	6.3

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

APPENDIX B: OUTER DISTRICT

Appendix B1.—Outer District commercial purse seine salmon harvest (excluding homepack) by period, 2021.

Period	Statistical		Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
	week	Date			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 ^a	31	7/26	16	10	5	92	4	21	0	0	45,463	156,799	6,817	44,708
2 ^a	31	7/28	16	8	0	0	35	173	1	8	25,543	85,457	3,931	29,308
3 ^{a,b}	31	7/30	16	7	0	0	71	266	0	0	60,180	196,051	2,121	13,952
4 ^{a,b}	32	8/2	16	9	16	268	12	53	111	498	38,224	124,241	3,602	27,364
5 ^{a,b}	32	8/4	16	8	1	22	20	115	5	49	40,384	134,841	688	4,272
6 ^{a,b,c}	32	8/6	16	10	0	0	0	0	0	0	178,800	603,204	782	5,645
7 ^{a,b,c}	33	8/9	16	12	0	0	1	5	0	0	78,795	254,779	465	3,098
8 ^{a,b,c}	33	8/11	16	11	0	0	1	6	1	8	70,503	262,066	299	2,775
9 ^{a,b,c}	33	8/13	16	12	0	0	3	14	0	0	133,909	451,573	493	3,209
10 ^{a,b,d}	34	8/16	16	12	0	0	10	65	5	41	168,007	535,342	454	3,137
11 ^{a,b,d}	34	8/18	16	13	0	0	2	11	0	0	182,611	621,006	270	1,849
12 ^{a,b,d,e,f}	34	8/20	16	10	0	0	23	109	13	93	106,576	376,813	68	489
13 ^{a,b,d,e,f}	34	8/21	16	8	0	0	6	32	12	82	94,842	332,209	15	116
14 ^{a,b,d,e,f}	35	8/22	16	11	0	0	0	0	48	213	107,212	321,281	187	1,204
15 ^{a,b,d,e,f}	35	8/23	16	9	0	0	4	29	15	134	109,110	398,034	28	176
16 ^{a,b,d,e,f}	35	8/24	16	6	0	0	13	58	51	396	42,622	132,524	15	106
17 ^{a,b,e,f,g}	35	8/25	16	6	0	0	0	0	32	223	36,137	115,635	59	378
18 ^{a,b,e,f,g}	35	8/26	16	5	0	0	16	72	11	77	20,062	69,564	9	50
19 ^{a,b,e,f,g,h}	35	8/27	16	<3	0	0	0	0	0	0	0	0	0	0
20 ^{a,b,e,f,g}	35	8/28	16	0	0	0	0	0	0	0	0	0	0	0
21 ^{a,b,e,f,g,h}	36	8/29	16	<3	0	0	0	0	0	0	0	0	0	0
22 ^{a,b,e,f,g,h}	36	8/30	16	<3	0	0	0	0	0	0	0	0	0	0
Total				13	22	383	225	1,052	313	1,876	1,559,174	5,238,001	20,334	142,064
Average weight						17.40		4.68		5.99		3.36		6.99

Note: No deliveries after August 30.

^a Waters of the Dogfish Bay, the Port Chatham, and Windy Bay subdistricts, as well as the Headend and Middle Creek sections of the Port Dick Subdistrict, and the Island Creek Section of the Port Dick Subdistrict south of a line between a point at 59° 17.03' N lat, 151° 10.50' W long, and another point at 59° 15.97' N. lat., 151° 05.48' W. longitude are open to commercial salmon harvest.

^b Waters of the Rocky Bay Subdistrict, the Taylor Bay Section of the Port Dick Subdistrict, and waters of the Nuka Island Subdistrict in the Petrof area north and west of a point at 59° 20.00' N lat, 150° 48.00' W long are open.

^c The regulatory closed waters area associated with the head end of Port Dick (5AAC 21.350(f)(8)) is reduced to waters that are either north or west of a point at 59° 18.70' N lat, 150° 19.00' W long.

^d Waters of the Island Creek Section of the Port Dick Subdistrict are closed.

^e Waters of the Outer District are open 7 days per week on a schedule of daily 6:00 AM to 10:00 PM fishing periods.

^f Waters of Taylor Bay south of 59° 18.70' N lat are open.

^g Waters of Port Dick Outer Section is opened.

^h The Port Dick Island Creek Section is open including waters north of the line specified for the 7/26 fishing period with all regulatory closed waters in effect.

Appendix B2.—Total commercial common property salmon harvest (excluding homepack) in Outer District, 2011–2021.

Year	Permits fished	Chinook	Sockeye	Coho	Pink	Chum
2011	13	10	46,356	25	357,472	25,763
2012	15	8	77	98	69,359	51,313
2013	11	1	119	53	2,015,105	49,062
2014	15	0	24,264	0	163,938	59,702
2015	19	0	613	41	4,096,578	97,974
2016	13	1	7	2	5,369	60,800
2017	17	1	260	389	1,244,172	151,356
2018	11	2	1,409	5	32,326	34,857
2019	21	184	15,482	2,889	1,710,012	19,460
2020	14	3	219	108	1,563,893	11,181
2021	13	22	225	313	1,559,174	20,334
Prev. 10-yr avg.	15	21	8,881	361	1,125,822	56,147

Source: ADF&G statewide electronic fish ticket database [Internet]. 2011–current. Juneau, AK. [URL not available as some information is confidential].

Appendix B3.–Daily and cumulative sockeye salmon escapement objectives derived from weir-based SEG (7,550–17,650) apportioned using historical run timing versus actual escapement through the Delight Lake weir, 2021.

				Apportioned SEG (7,500 - 17,650)				
Actual passage			Antic. percent	Projected minimum		Projected maximum		Comments
Date	Daily	Cumulative		Daily	Cumulative	Daily	Cumulative	
7/1	0	0	0.0%	0	0	0	0	460 sockeye counted on July 7 aerial survey
7/2	0	0	0.0%	3	3	6	6	
7/3	0	0	0.2%	13	16	32	38	
7/4	0	0	1.7%	109	125	255	293	
7/5	0	0	4.3%	199	324	469	763	
7/6	0	0	5.8%	110	434	258	1,021	
7/7	0	0	7.3%	117	551	275	1,296	
7/8	0	0	8.3%	70	620	164	1,460	Weir installed July 8
7/9	0	0	10.4%	160	780	377	1,837	
7/10	196	196	12.5%	160	940	375	2,212	
7/11	162	358	15.6%	232	1,172	546	2,758	
7/12	21	379	18.2%	197	1,369	463	3,221	
7/13	163	542	21.5%	240	1,609	565	3,786	
7/14	210	752	24.5%	231	1,839	543	4,329	
7/15	16	768	27.3%	207	2,046	487	4,816	
7/16	260	1,028	31.0%	276	2,323	650	5,466	
7/17	60	1,088	34.7%	283	2,606	666	6,132	
7/18	115	1,203	37.8%	227	2,832	533	6,665	
7/19	107	1,310	43.2%	410	3,243	966	7,631	
7/20	111	1,421	54.1%	818	4,061	1,926	9,557	
7/21	183	1,604	58.2%	304	4,366	716	10,274	
7/22	1,532	3,136	63.2%	373	4,738	877	11,150	
7/23	710	3,846	65.1%	146	4,884	343	11,494	
7/24	708	4,554	70.4%	399	5,283	938	12,432	
7/25	243	4,797	78.2%	581	5,864	1,368	13,800	
7/26	605	5,402	82.2%	301	6,165	708	14,508	
7/27	428	5,830	87.6%	406	6,571	955	15,463	
7/28	166	5,996	93.9%	473	7,044	1,113	16,576	
7/29	40	6,036	96.1%	164	7,208	386	16,962	
7/30	198	6,234	97.6%	114	7,322	268	17,231	
7/31	71	6,305	98.9%	95	7,417	223	17,454	
8/1	11	6,316	99.4%	41	7,458	96	17,550	Weir removed on August 5.
8/2	0	6,316	100.0%	42	7,500	100	17,650	Survey below the weir site
8/3	0	6,316	100.0%	0	7,500	0	17,650	counted 400 sockeye salmon.
8/4	30	6,346	100.0%	0	7,500	0	17,650	Total including these and 460
8/5	290	6,636	100.0%	0	7,500	0	17,650	counted on July 7 aerial survey is 7,496 fish.

Appendix B4.—Sockeye salmon escapement past Delight Lake weir, 2011–2021.

Year	Delight Lake sockeye salmon
2011 ^{a,b}	16,280
2012 ^{a,c}	10,887
2013 ^a	5,961
2014 ^a	22,289
2018 ^a	13,428
2019 ^a	17,410
2020 ^a	12,299
2021 ^d	7,496
Previous 8-year average	15,168

Note: Weir not operated at Delight Lake in 2015, 2016, and 2017.

^a Weir operated for the month of July.

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

^c An additional 430 fish were observed in the lake during an aerial survey prior to weir installation but does not include 147 fish observed below the weir site after the weir was removed for the season.

^d Weir operated from July 8–August 5. An additional 460 fish were observed in the lake on an aerial survey prior to weir installation, and 400 were observed below the weir site by a ground survey after the weir was removed for the season. Counts from both surveys were added to the weir total.

Appendix B5.—Sockeye salmon aerial survey counts from the Outer District, 2021.

Location	Survey number	Survey date	Survey count	Peak count
Delusion Lake	1	7/29	600	
	2	8/4	1,360	1,360
Desire Lake	1	7/7	1,510	
	2	7/24	3,744	
	3	7/29	730	
	4	8/4	1,910	
	5	9/15	3,423	3,744
Delight Lake	1	7/7	460	
	2	7/24	1,640	
	3	7/29	1,120	
	4	8/4	500	
	5	9/15	522	1,640

Appendix B6.—Estimated pink, chum, and sockeye salmon escapements in thousands of fish for the major spawning systems in the Outer District of the Lower Cook Inlet Area, 2011–2021.

Year	Pink salmon											Chum salmon					Sockeye salmon			
	Dogfish Lagoon	Port Chatham	Windy Right Creek	Windy Left Creek	Rocky River	Port Dick Creek	Island Creek	South Nuka Creek	Desire Lake Creek	James Lagoon ^a	Total index count	Dogfish Lagoon	Rocky River	Port Dick Creek	Island Creek	Total index count	Delusion Lake ^a	Delight Lake	Desire Lake	Total index count
2011	3.9	15.8	1.7	12.2	22.7	16.9	10.2	–	0.6	0.3	84.0	12.9	4.5	7.1	11.8	36.3	1.8	20.2 ^b	9.6	29.8
2012	11.4	5.4	5.8	11.7	15.7	18.1	20.1	1.3	2.3	0.0	91.7	8.8	3.2	8.4	14.9	35.2	–	10.9 ^b	8.8	19.7
2013	26.4	57.4	11.7	47.8	75.8	55.8	26.0	8.4	56.9	24.4	366.4	9.3	8.1	4.1	8.8	30.4	1.7	6.0 ^b	8.4	14.4
2014	8.8	10.3	5.7	10.1	17.1	48.7	50.4	11.0	0.4	1.0	162.7	11.2	6.9	1.8	2.7	22.6	0.0	22.3 ^b	11.5	33.8
2015	50.1	42.6	17.0	33.6	107.9	98.0	50.4	8.9	46.3	30.3	454.8	13.3	3.1	13.2	18.5	48.2	0.1	3.2 ^c	2.8	6.1
2016	2.3	1.1	1.4	0.5	4.3	4.8	1.7	0.0	0.2	0.1	16.4	11.3	4.6	9.3	8.5	33.7	0.1	5.1 ^c	6.7	11.9
2017	13.3	44.3	5.1	17.4	31.2	62.1	22.6	0.5	4.4	2.7	200.8	13.2	6.9	2.6	5.5	28.3	1.0	5.4 ^c	9.5	14.8
2018	8.0	18.1	8.9	14.0	2.1	94.6	5.6	0.5	2.5	0.1	154.4	7.6	5.6	0.7	1.4	15.3	1.1	13.4 ^b	9.8	23.3
2019	22.0	39.6	13.7	25.6	75.4	93.2	63.7	2.5	2.5	1.1	338.2	3.6	6.6	2.0	5.5	17.7	1.5	17.4 ^b	9.0	25.7
2020	18.4	17.3	16.7	74.9	8.3	108.2	9.9	3.9	1.4	0.3	259.1	1.2	5.0	1.0	1.4	8.7	1.6	12.3 ^b	4.7	17.0
2021	29.2	20.7	12.4	16.1	41.4	115.7	99.2	6.6	13.7	–	355.1	4.0	6.5	3.3	3.1	16.9	1.4	7.5 ^c	3.7	11.2
Prev. 10-yr avg.	16.5	25.2	8.8	24.8	36.1	60.0	26.1	4.1	11.7	5.9	213.3	9.3	5.5	5.0	7.9	27.6	1.0	11.5	8.1	19.6

Note: En dash (–) = no data were collected.

^a Nonindex stream.

^b Escapement derived from weir counts.

^c Escapement derived from a combination of weir, video counts, and aerial counts.

APPENDIX C: EASTERN DISTRICT

Appendix C1.—Eastern District common property commercial purse seine salmon harvest (excluding homepack) by period, 2021.

Period ^a	Statistical		Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
	week	Date			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1 ^a	26	6/22	16	<3	a	a	a	a	a	a	a	a	a	a
2 ^a	26	6/23	16	<3	a	a	a	a	a	a	a	a	a	a
3	26	6/24	16	0	0	0	0	0	0	0	0	0	0	0
4	26	6/25	16	0	0	0	0	0	0	0	0	0	0	0
5 ^a	27	6/28	16	<3	a	a	a	a	a	a	a	a	a	a
6 ^a	27	6/29	16	<3	a	a	a	a	a	a	a	a	a	a
7	27	6/30	16	0	0	0	0	0	0	0	0	0	0	0
8 ^a	27	7/1	16	<3	a	a	a	a	a	a	a	a	a	a
9 ^a	27	7/2	16	<3	a	a	a	a	a	a	a	a	a	a
10	28	7/6	16	0	0	0	0	0	0	0	0	0	0	0
11	28	7/7	16	0	0	0	0	0	0	0	0	0	0	0
12	28	7/8	16	0	0	0	0	0	0	0	0	0	0	0
13	28	7/9	16	0	0	0	0	0	0	0	0	0	0	0
14	29	7/12	16	0	0	0	0	0	0	0	0	0	0	0
15	29	7/13	16	0	0	0	0	0	0	0	0	0	0	0
16	29	7/14	16	0	0	0	0	0	0	0	0	0	0	0
17	29	7/15	16	0	0	0	0	0	0	0	0	0	0	0
18	29	7/16	16	0	0	0	0	0	0	0	0	0	0	0
Total				<3	0	0	0	0						
Average weight								4.3						

Note: No deliveries during Periods 3, 4 and 7, on June 24, June 25, June 30, and from July 6 through July 16.

^a Confidential data. Fewer than 3 permits reporting.

Appendix C2.—Historical commercial common property and derby commercial sales harvest (excluding homepack) by species in the Eastern District, 2011–2021.

Year	Permits	Commercial common property harvest					Derby sales
		Chinook	Sockeye	Coho	Pink	Chum	Coho
2011	0	0	56,111	0	24	112	1,207
2012	0	0	0	0	0	0	1,400
2013	0	0	0	0	0	0	1,380
2014	<3	—	—	—	—	—	606
2015	3	0	4,633	0	155	115	1,408
2016	<3	—	—	—	—	—	200
2017	0	0	0	0	0	0	1,577
2018	5	0	22,310	0	0	66	1,956
2019	4	0	4,307	2	112	19	1,561
2020	<3	—	—	—	—	—	748
2021	<3	—	—	—	—	—	1,878
Prev. 10-yr avg.	5	0	13,858	2	210	116	1,204

Source: ADF&G statewide electronic fish ticket database [Internet]. 2011–current. Juneau, AK. [URL not available as some information is confidential].

Note: En-dash (—) = fewer than 3 permit holders reported deliveries in 2014, 2016, 2020, and 2021. Harvest information for those years is confidential.

Appendix C3.—Daily and cumulative sockeye salmon escapement objectives compared to actual escapement through the Bear Creek weir, 2021.

Date	Actual escapement to Bear Lake		Anticipated percent	Anticipated SEG plus CIAA brood goal ^a				Actual weir lonations ^b		Actual weir cost recovery		Actual total sockeye at Bear Creek weir	
	Daily	Total		Minimum		Maximum		Daily	Total	Daily	Total	Daily	Total
				Daily	Total	Daily	Total						
5/24	4	4	0.5	16	36	36	79	0	0	0	0	4	4
5/25	3	7	0.7	15	51	33	112	0	0	0	0	3	7
5/26	4	11	1.1	24	75	53	165	0	0	0	0	4	11
5/27	7	18	1.6	34	109	76	240	0	0	0	0	7	18
5/28	9	27	2.2	35	145	77	317	0	0	0	0	9	27
5/29	45	72	3.2	67	212	147	464	0	0	0	0	45	72
5/30	10	82	4.7	96	308	211	675	0	0	0	0	10	82
5/31	17	99	6.3	101	408	221	895	0	0	0	0	17	99
6/1	14	113	8.1	118	527	259	1,155	0	0	0	0	14	113
6/2	43	156	10.1	127	653	278	1,433	0	0	0	0	43	156
6/3	6	162	12.9	177	830	387	1,820	0	0	0	0	6	162
6/4	79	241	16.5	227	1,056	497	2,317	0	0	0	0	79	241
6/5	548	789	20.6	261	1,317	572	2,889	0	0	0	0	548	789
6/6	883	1,672	25.1	289	1,606	634	3,523	0	0	0	0	883	1,672
6/7	738	2,410	30.4	337	1,944	740	4,263	0	0	0	0	738	2,410
6/8	1,253	3,663	35.4	317	2,260	694	4,957	0	0	0	0	1,253	3,663
6/9	1,410	5,073	41.1	366	2,626	803	5,760	0	0	0	0	1,410	5,073
6/10	1,216	6,289	46.7	356	2,982	780	6,540	0	0	0	0	1,216	6,289
6/11	315	6,604	51.6	314	3,296	688	7,228	0	0	316	316	631	6,920
6/12	788	7,392	56.2	291	3,586	638	7,865	0	0	0	316	788	7,708
6/13	1,024	8,416	60.2	255	3,842	560	8,425	0	0	391	707	1,415	9,123
6/14	1,171	9,587	63.4	206	4,048	452	8,878	0	0	0	707	1,171	10,294
6/15	1,232	10,819	65.3	122	4,170	268	9,146	0	0	0	707	1,232	11,526
6/16	881	11,700	67.9	163	4,333	357	9,502	0	0	0	707	881	12,407
6/17	664	12,364	70.1	141	4,474	309	9,811	0	0	0	707	664	13,071
6/18	410	12,774	71.9	113	4,587	248	10,059	0	0	541	1,248	951	14,022
6/19	47	12,821	73.8	123	4,710	271	10,330	0	0	0	1,248	47	14,069
6/20	104	12,925	75.9	131	4,841	287	10,616	0	0	903	2,151	1,007	15,076
6/21	36	12,961	78.4	158	4,999	347	10,964	0	0	1,521	3,672	1,557	16,633
6/22	17	12,978	80.6	140	5,139	306	11,270	0	0	1,632	5,304	1,649	18,282
6/23	7	12,985	82.3	111	5,250	244	11,514	0	0	2,667	7,971	2,674	20,956
6/24	33	13,018	84.0	110	5,361	242	11,756	0	0	2,056	10,027	2,089	23,045
6/25	73	13,091	86.0	126	5,487	277	12,033	0	0	1,566	11,593	1,639	24,684
6/26	25	13,116	87.5	96	5,582	210	12,243	0	0	1,641	13,234	1,666	26,350
6/27	13	13,129	89.2	106	5,689	233	12,476	0	0	1,447	14,681	1,460	27,810
6/28	24	13,153	90.4	77	5,766	169	12,645	0	0	0	14,681	24	27,834
6/29	9	13,162	91.6	77	5,843	169	12,814	0	0	1,529	16,210	1,538	29,372
6/30	6	13,168	92.9	84	5,927	184	12,997	0	0	1,620	17,830	1,626	30,998
7/1	9	13,177	94.1	77	6,004	169	13,167	0	0	1,241	19,071	1,250	32,248
7/2	12	13,189	95.5	88	6,092	194	13,360	0	0	1,382	20,453	1,394	33,642
7/3	0	13,189	96.1	35	6,127	76	13,436	0	0	1,328	21,781	1,328	34,970
7/4	5	13,194	96.8	44	6,171	97	13,533	0	0	1,195	22,976	1,200	36,170
7/5	15	13,209	97.5	45	6,216	98	13,631	0	0	508	23,484	523	36,693
7/6	25	13,234	98.2	47	6,262	102	13,734	209	209	0	23,484	234	36,927
7/7	160	13,394	98.5	23	6,285	49	13,783	0	209	0	23,484	160	37,087
7/8	103	13,497	98.7	11	6,295	23	13,806	205	414	0	23,484	308	37,395
7/9	216	13,713	98.8	5	6,300	11	13,817	500	914	0	23,484	716	38,111
7/10	434	14,147	98.8	4	6,304	8	13,825	0	914	0	23,484	434	38,545

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Date	Actual escapement to Bear Lake		Anticipated percent	Anticipated SEG plus CIAA brood goal ^a				Actual weir donations ^b		Actual weir cost recovery		Actual total sockeye at Bear Creek weir	
	Daily	Total		Minimum		Maximum		Daily	Total	Daily	Total	Daily	Total
				Daily	Total	Daily	Total						
7/11	133	14,280	98.9	3	6,307	7	13,832	200	1,114	0	23,484	333	38,878
7/12	60	14,340	99.0	5	6,312	11	13,843	273	1,387	0	23,484	333	39,211
7/13	102	14,442	99.0	4	6,316	9	13,852	299	1,686	0	23,484	401	39,612
7/14	331	14,773	99.1	3	6,320	7	13,859	0	1,686	0	23,484	331	39,943
7/15	15	14,788	99.1	2	6,321	4	13,863	119	1,805	0	23,484	134	40,077
7/16	11	14,799	99.2	2	6,323	5	13,868	200	2,005	0	23,484	211	40,288
7/17	0	14,799	99.2	0	6,323	0	13,868	42	2,047	0	23,484	42	40,330
7/18	0	14,799	99.2	0	6,323	0	13,868	0	2,047	0	23,484	0	40,330
7/19	19	14,818	99.2	0	6,323	0	13,868	234	2,281	0	23,484	253	40,583
7/20	0	14,818	99.2	0	6,323	0	13,868	70	2,351	0	23,484	70	40,653
7/21	0	14,818	99.2	0	6,323	0	13,868	100	2,451	0	23,484	100	40,753
7/22	0	14,818	99.6	26	6,349	56	13,924	105	2,556	0	23,484	105	40,858
7/23	0	14,818	99.6	5	6,354	11	13,935	0	2,556	0	23,484	0	40,858
7/24	0	14,818	99.7	4	6,358	8	13,943	0	2,556	0	23,484	0	40,858
7/25	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/26	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/27	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/28	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/29	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/30	0	14,818	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858
7/31	0	14,818 ^c	99.7	0	6,358	0	13,943	0	2,556	0	23,484	0	40,858

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

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

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

^c A total of 3,500 sockeye salmon were beach seined from the lake for use as broodstock.

Appendix C4.–Coho salmon escapement through the Bear Creek weir, 2021.

Date	Escapement to Bear Lake		Anticipated percent	Daily	Broodstock harvest		Weir donations	Cumulative coho at Bear Creek weir	
	Daily	Total			Total	Daily		Daily	Total
9/1	0	0	5.2	0	0	0	0	0	0
9/2	0	0	5.2	0	0	0	0	0	0
9/3	0	0	6.2	0	0	0	0	0	0
9/4	0	0	8.6	0	0	0	0	0	0
9/5	0	0	12.7	0	0	0	0	0	0
9/6	0	0	13.5	0	0	0	0	0	0
9/7	0	0	14.1	0	0	0	0	0	0
9/8	4	4	15.2	0	0	0	0	4	4
9/9	3	7	17.2	0	0	0	0	3	7
9/10	4	11	18.6	0	0	0	0	4	11
9/11	4	15	21.8	0	0	0	0	4	15
9/12	8	23	23.5	0	0	0	0	8	23
9/13	6	29	32.3	0	0	0	0	6	29
9/14	23	52	35.0	0	0	0	0	23	52
9/15	143	195	41.1	0	0	0	0	143	195
9/16	108	303	44.6	0	0	0	0	108	303
9/17	107	410	48.7	5	5	0	0	112	415
9/18	56	466	51.1	33	38	0	0	89	504
9/19	13	479	54.4	48	86	0	0	61	565
9/20	12	491	57.0	53	139	0	0	65	630
9/21	5	496	57.1	33	172	0	0	38	668
9/22	3	499	57.7	27	199	0	0	30	698
9/23	2	501	58.3	24	223	0	0	26	724
9/24	51	552	59.5	69	292	0	0	120	844
9/25	77	629	60.7	9	301	23	23	86	930
9/26	7	636	61.9	54	355	0	23	61	991
9/27	64	700	63.2	6	361	0	23	70	1,061
9/28	87	787	64.6	23	384	0	23	110	1,171
9/29	67	854	65.5	24	408	0	23	91	1,262
9/30	43	897	67.7	14	422	0	23	57	1,319
10/1	25	922	69.0	9	431	0	23	34	1,353
10/2	35	957	69.4	4	435	0	23	39	1,392
10/3	33	990	70.1	2	437	0	23	35	1,427
10/4	10	1,000	72.3	1	438	0	23	11	1,438
10/5	47	1,047	73.9	11	449	0	23	58	1,496
10/6	44	1,091	75.5	12	461	0	23	56	1,552
10/7	45	1,136	76.9	20	481	0	23	65	1,617
10/8	34	1,170	78.8	18	499	0	23	52	1,669
10/9	40	1,210	79.2	11	510	0	23	51	1,720
10/10	52	1,262	86.1	9	519	0	23	61	1,781
10/11	59	1,321	87.9	30	549	0	23	89	1,870
10/12	22	1,343	91.6	3	552	0	23	25	1,895
10/13	54	1,397	95.5	5	557	0	23	59	1,954
10/14	19	1,416	95.8	0	557	0	23	19	1,973
10/15	34	1,450	96.6	5	562	0	23	39	2,012
10/16	9	1,459	97.1	2	564	0	23	11	2,023
10/17	2	1,461	97.6	0	564	0	23	2	2,025
10/18	30	1,491	97.8	31	595	0	23	61	2,086
10/19	11	1,502	98.0	1	596	0	23	12	2,098
10/20	104	1,606	100.0	8	604	0	23	112	2,210
10/21	20	1,626	100.0	0	604	0	23	20	2,230
10/22	109	1,735	100.0	0	604	0	23	109	2,339

Appendix C5.—Adult sockeye and coho salmon escapement, and Dolly Varden char and smolt outmigration past Bear Creek weir, 2011–2021.

Year	Upstream migration to Bear Lake								Downstream migration to Resurrection Bay			Comments
	Sockeye				Coho				Sockeye (smolt)	Coho (smolt)	Dolly Varden (adult)	
	Weir harvest, (sold or donated)	Brood stock harvest	Spawning escapement	Total return at weir	Weir harvest, (sold or donated)	Brood stock harvest	Spawning escapement	Total return at weir				
2011	4,894	3,612	9,608	18,114	0	491	359	850	477,844	40,433	2,681	4,000 pink salmon below weir.
2012	1,802	4,428	8,031	14,381	31	578	315	924	466,990	45,936	1,425	
2013	3,162	3,606	9,004	15,772	1,997	1,074	300	3,371	791,705	36,219	759	
2014	15,569	3,857	9,233	28,659	671	567	534	1,772	393,553	21,113	191	
2015	37,821	3,945	9,560	51,326	1,013	705	261	1,979	728,764	91,657	263	
2016	62,915	3,764	9,011	75,690	0	250	150	400	904,494	71,199	181	
2017	4,701	3,746	9,202	17,649	864	764	858	2,486	1,196,158	98,192	1,784	
2018	31,907	2,211	10,568	44,686	434	456	300	1,190	836,851	72,932	881	
2019	42,278	3,575	9,185	55,038	421	1,572	1,300	3,293	972,810	67,129	268	
2020	3,428	4,538	8,222	16,188	701	383	617	1,870	1,226,961	112,460	695	
2021	26,040	3,500	11,318	40,858	23	604	1,735	2,362	NA	NA	NA	
Previous 10-year average	20,847	3,728	9,163	33,749	774	618	511	1,838	799,613	65,727	913	

Source: Data from CIAA and ADF&G statewide electronic fish ticket database [Internet]. 2011–2021. Juneau, AK. [URL not available as some information is confidential].

Appendix C6.—Sockeye salmon aerial survey counts from the Eastern District, 2021.

Location	Survey number	Survey date	Live count	Peak count
Aialik Lake and Creek	1	7/7/21	271	2,352
	2	9/15/21	2,352	2,352

Appendix C7.—Estimated sockeye and pink salmon escapements in thousands of fish for the major spawning systems in the Eastern District of the Lower Cook Inlet area, 2011–2021.

Year	Pink salmon							Sockeye salmon		
	Aialik Lagoon	Bear Creek	Salmon Creek	Tonsina Creek	Thumb Cove	Humpy Cove	Total	Aialik Lake	Bear Lake ^{a,b}	Total
2011	—	—	—	—	—	—	—	3.5	9.6	13.1
2012	—	4.1	—	—	—	—	—	2.1	8.0	10.1
2013	—	8.1	—	5.3	0.6	1.8	15.8	3.5	9.0	12.5
2014	—	—	—	—	—	—	—	0.5	9.2	9.7
2015	0.8	—	—	—	—	—	0.8	3.2	9.6	12.7
2016	—	—	—	—	—	—	0.0	0.4	9.2	9.6
2017	1.8	—	—	—	—	—	1.8	4.9	9.2	13.9
2018	0.0	—	—	—	—	—	0.0	2.6	10.6	13.2
2019	3.8	—	—	—	—	—	3.8	5.0	9.2	14.2
2020	0.0	—	—	—	—	—	0.0	4.0	8.2	12.2
2021	3.2	—	—	—	—	—	3.2	2.4	11.3	13.7
Previous 10-year average	1.1	6.1	—	5.3	0.6	1.8	3.2	3.1	9.2	12.3

Note: En dash (—) = no data collected.

^a Weir counts.

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

APPENDIX D: KAMISHAK BAY DISTRICT

Appendix D1.–Kamishak Bay District commercial salmon harvest (excluding homepack) by period, 2021.

Period	Statistical		Hours	Permits fished	Chinook		Sockeye		Coho		Pink		Chum	
	week	Date			Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1	23	06/01–06/05	120	0	0	0	0	0	0	0	0	0	0	0
2	24	06/06–06/12	160	0	0	0	0	0	0	0	0	0	0	0
3 ^{a,b}	25	06/13–06/19	160	0	0	0	0	0	0	0	0	0	0	0
4 ^{a,b}	26	06/20–06/26	160	0	0	0	0	0	0	0	0	0	0	0
5 ^{a,b,c}	27	06/27–07/03	160	<3	c	c	c	c	c	c	c	c	c	c
6 ^{a,b,c,d}	28	07/04–07/10	160	<3	c	c	c	c	c	c	c	c	c	c
7 ^{a,b,d}	29	07/11–07/17	160	3	0	0	2,068	6,832	0	0	36	84	0	0
8 ^{a,b,c}	30	07/18–07/24	160	<3	c	c	c	c	c	c	c	c	c	c
9 ^{a,b,e}	31	07/25–07/31	160	<3	c	c	c	c	c	c	c	c	c	c
10 ^{a,b,c,f,g}	32	08/01–08/07	160	3	0	0	12,480	57,221	0	0	19,122	60,417	1,772	11,605
11 ^{a,b,c,e,f,g}	33	08/08–08/14	160	<3	c	c	c	c	c	c	c	c	c	c
12 ^{a,b,c,f,g}	34	08/15–08/21	160	0	0	0	0	0	0	0	0	0	0	0
13 ^{a,b,c,f,g}	35	08/22–08/28	160	0	0	0	0	0	0	0	0	0	0	0
14 ^{a,b,c,f,g}	36	08/29–09/04	160	0	0	0	0	0	0	0	0	0	0	0
15 ^{a,b,c,f,g}	36	09/05–09/11	160	0	0	0	0	0	0	0	0	0	0	0
Total				5	0	0	71,883	256,152	24	150	62,598	194,664	4,443	29,201
Average weight								3.74		6.25		3.11		6.57

Note: En dash (–) = no deliveries after August 14.

^a Waters of McNeil Subdistrict, Paint River Subdistrict and Kirschner Lake SHA closed beginning June 14.

^b Portions of regulatory closed waters associated with Chenik Lagoon open to commercial salmon harvest beginning June 14.

^c Confidential data. Fewer than 3 permits reporting.

^d Chenik Subdistrict closed from 10:00 PM July 9 until 6:00 AM July 17.

^e Waters of Chenik Lagoon open to the freshwater of the Chenik River effective at 6:00 AM on July 30.

^f Kirschner Lake SHA open beginning August 2.

^g Anadromous waters closures for the Bruin River downstream of and including the “Pothole” located at 59° 22.82’ N lat, 154° 09.03’ W long are rescinded

Appendix D2.—Total commercial common property harvest (excluding homepack) by species in the Kamishak Bay District, 2011–2021.

Year	Permits	Chinook	Sockeye	Coho	Pink	Chum
2011	5	0	99,288	0	1,050	3,850
2012	6	0	55,255	0	61	2,425
2013	5	0	33,154	0	314	2,357
2014	8	0	12,137	0	44,227	4,449
2015	<3	—	—	—	—	—
2016	5	0	18,218	578	350	10,984
2017	5	0	102,810	185	254,440	34,275
2018	7	0	33,699	9,077	5,226	8,298
2019	7	0	59,069	3,349	59,008	31,629
2020	<3	—	—	—	—	—
2021	5	0	71,883	24	62,598	4,443
Previous 10-year avg.	5	0	45,790	1,319	40,725	10,111

Source: ADF&G statewide electronic fish ticket database [Internet]. 2010–current. Juneau, AK. [URL not available as some information is confidential].

Note: En dash (—) = confidential data. Fewer than 3 permit holders reported deliveries in 2015 and 2020. Harvest information for those years is confidential.

Appendix D3.—Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring site at Chenik Lake, 2021.

Date	Actual		Anticipated percent	Apportioned sustainable escapement goals			
				Projected minimum		Projected maximum	
	Daily	Cumulative		Daily	Cumulative	Daily	Cumulative
6/1	0	0	0.0	0	0	0	0
6/2	0	0	0.0	0	0	0	0
6/3	0	0	0.0	0	0	0	0
6/4	0	0	0.0	0	0	0	0
6/5	0	0	0.0	0	0	0	0
6/6	0	0	0.0	0	0	0	0
6/7	0	0	0.0	0	0	0	0
6/8	0	0	0.0	0	0	0	0
6/9	0	0	0.0	0	0	0	0
6/10	0	0	0.0	0	0	0	0
6/11	0	0	0.0	0	0	0	0
6/12	0	0	0.0	0	0	0	0
6/13	0	0	0.0	0	0	1	1
6/14	0	0	0.0	0	0	0	1
6/15	0	0	0.1	1	1	6	7
6/16	0	0	0.1	1	2	1	8
6/17	0	0	0.1	0	2	1	9
6/18	0	0	0.1	0	2	1	10
6/19	0	0	0.2	3	5	16	26
6/20	0	0	0.2	1	6	2	28
6/21	0	0	0.2	0	6	1	29
6/22	0	0	0.3	2	8	8	37
6/23	0	0	0.5	7	15	34	71
6/24	0	0	0.5	0	15	0	71
6/25	0	0	0.8	7	22	33	104
6/26	0	0	2.0	36	58	171	275
6/27	0	0	3.5	42	100	198	473
6/28	664	664	3.6	3	103	14	487
6/29	0	664	4.3	21	124	97	584
6/30	0	664	5.5	36	160	172	756
7/1	0	664	8.6	88	248	416	1,172
7/2	0	664	9.8	36	284	168	1,340
7/3	0	664	11.9	60	344	286	1,626
7/4	0	664	13.3	42	386	196	1,822
7/5	0	664	14.8	44	430	209	2,031
7/6	1	665	14.9	3	433	14	2,045
7/7	0	665	16.3	39	472	187	2,232
7/8	-1	664	16.3	2	474	7	2,239
7/9	1	665	16.7	12	486	55	2,294
7/10	37	702	18.2	43	529	204	2,498
7/11	514	1,216	21.7	101	630	479	2,977
7/12	1,969	3,185	22.3	17	647	77	3,054
7/13	2,145	5,330	22.5	5	652	28	3,082
7/14	948	6,278	27.5	145	797	683	3,765
7/15	1,676	7,954	33.9	185	982	873	4,638

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Date	Actual		Anticipated percent	Apportioned sustainable escapement goals			
	Daily	Cumulative		Projected minimum		Projected maximum	
				Daily	Cumulative	Daily	Cumulative
7/16	560	8,514	36.0	61	1,043	292	4,930
7/17	1,587	10,101	38.4	69	1,112	325	5,255
7/18	2,598	12,699	50.6	354	1,466	1,671	6,926
7/19	34	12,733	54.5	113	1,579	534	7,460
7/20	6	12,739	56.6	61	1,640	290	7,750
7/21	287	13,026	59.2	77	1,717	359	8,109
7/22	1,141	14,167	64.6	156	1,873	741	8,850
7/23	351	14,518	66.8	65	1,938	304	9,154
7/24	716	15,234	68.6	51	1,989	241	9,395
7/25	90	15,324	71.0	70	2,059	333	9,728
7/26	135	15,459	76.3	153	2,212	722	10,450
7/27	24	15,483	78.0	51	2,263	239	10,689
7/28	408	15,891	80.3	67	2,330	319	11,008
7/29	24	15,915	80.8	13	2,343	62	11,070
7/30	11	15,926	81.4	17	2,360	79	11,149
7/31	6	15,932	82.2	24	2,384	114	11,263
8/1	8	15,940	83.6	42	2,426	196	11,459
8/2	13	15,953	84.4	21	2,447	103	11,562
8/3	317	16,270	87.7	97	2,544	454	12,016
8/4	6	16,276	90.6	84	2,628	399	12,415
8/5	55	16,331	94.0	99	2,727	470	12,885
8/6	143	16,474	96.0	57	2,784	268	13,153
8/7	15	16,489	97.9	54	2,838	256	13,409
8/8	164	16,653	98.5	18	2,856	82	13,491
8/9	171	16,824	98.9	13	2,869	63	13,554
8/10	41	16,865	99.1	5	2,874	25	13,579
8/11	26	16,891	99.3	7	2,881	30	13,609
8/12	52	16,943	99.5	4	2,885	22	13,631
8/13	8	16,951	99.6	2	2,887	8	13,639
8/14	10	16,961	99.6	2	2,889	11	13,650
8/15	18	16,979	99.8	4	2,893	18	13,668
8/16	29	17,008	99.9	3	2,896	12	13,680
8/17	20	17,028	99.9	0	2,896	3	13,683
8/18	15	17,043	99.9	2	2,898	5	13,688
8/19	28	17,071	99.9	0	2,898	1	13,689
8/20	20	17,091	99.9	0	2,898	1	13,690
8/21	4	17,095	99.9	0	2,898	1	13,691
8/22	9	17,104	99.9	1	2,899	2	13,693
8/23	3	17,107	100.0	0	2,899	2	13,695
8/24	2	17,109	100.0	0	2,899	1	13,696
8/25	2	17,111	100.0	1	2,900	4	13,700
8/26	3	17,114	100.0	0	2,900	0	13,700
8/27	6	17,120	100.0	0	2,900	0	13,700
8/28	4	17,124	100.0	0	2,900	0	13,700
8/29	2	17,126	100.0	0	2,900	0	13,700
8/30	4	17,130	100.0	0	2,900	0	13,700
8/31	4	17,134	100.0	0	2,900	0	13,700 ^a

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

^a Counting ended.

Appendix D4.–Daily and cumulative sockeye salmon escapement objectives compared to actual escapement past the video monitoring site at Mikfik Lake, 2021.

Date	Actual		Anticipated percent	Apportioned sustainable escapement goal			
	Daily	Cumulative		Projected minimum		Projected maximum	
				Daily	Cumulative	Daily	Cumulative
6/1	0	0	0.4	10	13	35	43
6/2	0	0	1.0	20	33	62	105
6/3	0	0	2.1	37	70	121	226
6/4	0	0	2.5	13	83	44	270
6/5	0	0	4.1	57	140	182	452
6/6	0	0	7.0	98	238	317	769
6/7	0	0	8.6	55	293	178	947
6/8	0	0	9.6	33	326	107	1,054
6/9	0	0	11.9	79	405	257	1,311
6/10	0	0	15.7	130	535	421	1,732
6/11	0	0	19.8	140	675	451	2,183
6/12	0	0	23.0	105	780	342	2,525
6/13	0	0	29.9	237	1,017	765	3,290
6/14	0	0	34.4	151	1,168	490	3,780
6/15	0	0	38.0	125	1,293	403	4,183
6/16	52	52	42.2	141	1,434	456	4,639
6/17	726	778	46.1	134	1,568	433	5,072
6/18	170	948	50.7	155	1,723	502	5,574
6/19	272	1,220	56.4	194	1,917	627	6,201
6/20	390	1,610	60.3	135	2,052	436	6,637
6/21	232	1,842	64.2	131	2,183	426	7,063
6/22	0	1,842	69.0	163	2,346	528	7,591
6/23	0	1,842	71.4	83	2,429	267	7,858
6/24	0	1,842	74.5	103	2,532	333	8,191
6/25	4	1,846	76.4	65	2,597	211	8,402
6/26	0	1,846	78.9	84	2,681	273	8,675
6/27	0	1,846	81.8	100	2,781	321	8,996
6/28	59	1,905	83.5	59	2,840	192	9,188
6/29	2	1,907	84.3	27	2,867	87	9,275
6/30	0	1,907	87.1	95	2,962	309	9,584
7/1	0	1,907	88.7	53	3,015	170	9,754
7/2	0	1,907	89.6	30	3,045	98	9,852
7/3	12	1,919	90.4	27	3,072	88	9,940
7/4	0	1,919	90.6	9	3,081	28	9,968
7/5	0	1,919	91.0	12	3,093	40	10,008
7/6	0	1,919	92.6	55	3,148	176	10,184
7/7	0	1,919	93.8	41	3,189	133	10,317
7/8	0	1,919	94.6	29	3,218	94	10,411
7/9	0	1,919	94.7	3	3,221	10	10,421
7/10	0	1,919	94.9	6	3,227	18	10,439
7/11	0	1,919	95.0	2	3,229	9	10,448
7/12	0	1,919	95.1	3	3,232	10	10,458
7/13	101	2,020	95.3	9	3,241	29	10,487
7/14	1	2,021	95.5	5	3,246	16	10,503
7/15	0	2,021	95.7	6	3,252	19	10,522

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Date	Actual		Anticipated percent	Apportioned sustainable escapement goal			
	Daily	Cumulative		Projected minimum		Projected maximum	
				Daily	Cumulative	Daily	Cumulative
7/16	0	2,021	95.7	1	3,253	3	10,525
7/17	1	2,022	96.5	29	3,282	93	10,618
7/18	7	2,029	97.2	24	3,306	77	10,695
7/19	14	2,043	97.4	4	3,310	15	10,710
7/20	3	2,046	97.6	7	3,317	21	10,731
7/21	11	2,057	97.6	3	3,320	10	10,741
7/22	213	2,270	97.8	6	3,326	19	10,760
7/23	0	2,270	98.0	6	3,332	21	10,781
7/24	0	2,270	98.2	7	3,339	21	10,802
7/25	0	2,270	98.3	3	3,342	11	10,813
7/26	0	2,270	98.5	7	3,349	23	10,836
7/27	0	2,270	98.9	14	3,363	44	10,880
7/28	0	2,270	99.1	7	3,370	21	10,901
7/29	0	2,270	99.2	3	3,373	11	10,912
7/30	0	2,270	99.3	4	3,377	14	10,926
7/31	0	2,270	99.4	2	3,379	6	10,932
8/1	0	2,270	99.4	1	3,380	3	10,935
8/2	1	2,271	99.5	3	3,383	10	10,945
8/3	17	2,288	99.5	0	3,383	0	10,945
8/4	7	2,295	99.5	1	3,384	3	10,948
8/5	12	2,307	99.7	5	3,389	15	10,963
8/6	1	2,308	99.7	0	3,389	1	10,964
8/7	4	2,312	99.7	1	3,390	2	10,966
8/8	15	2,327	99.7	0	3,390	0	10,966
8/9	18	2,345	99.7	0	3,390	0	10,966
8/10	1	2,346	99.7	0	3,390	1	10,967
8/11	0	2,346	99.7	1	3,391	3	10,970
8/12	0	2,346	99.7	0	3,391	0	10,970
8/13	0	2,346	99.7	0	3,391	0	10,970
8/14	0	2,346	99.8	2	3,393	8	10,978
8/15	0	2,346	99.8	0	3,393	0	10,978
8/16	0	2,346	99.8	1	3,394	2	10,980
8/17	0	2,346	99.8	0	3,394	0	10,980
8/18	0	2,346	99.8	1	3,395	3	10,983
8/19	0	2,346	99.8	0	3,395	0	10,983
8/20	0	2,346	99.8	0	3,395	0	10,983
8/21	0	2,346	99.8	0	3,395	0	10,983
8/22	0	2,346	99.8	0	3,395	0	10,983
8/23	0	2,346	99.8	0	3,395	0	10,983
8/24	0	2,346	99.8	0	3,395	0	10,983
8/25	0	2,346	99.8	0	3,395	0	10,983
8/26	0	2,346	99.8	0	3,395	0	10,983
8/27	0	2,346	100.0	5	3,400	17	11,000
8/28	0	2,346	100.0	0	3,400	0	11,000
8/29	0	2,346	100.0	0	3,400	0	11,000
8/30	0	2,346	100.0	0	3,400	0	11,000
8/31	0	2,346	100.0	0	3,400	0	11,000

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

Appendix D5.–Sockeye salmon escapement into
Chenik Lake and Mikfik Lake, 2011–2021.

Year	Chenik	Mikfik
2011	10,330 ^a	345 ^b
2012	16,505 ^a	3,131 ^a
2013	11,333 ^a	4,042 ^a
2014	17,774 ^a	17,802 ^{b,a}
2015	19,073 ^a	3,502 ^a
2016	19,510 ^a	10,180 ^a
2017	21,468 ^a	7,495 ^a
2018	6,651 ^a	4,966 ^a
2019	12,079 ^a	2,901 ^a
2020	11,686 ^a	314 ^a
2021	17,134 ^a	2,346 ^a
Previous 10-year average	14,641	5,468

^a Escapement derived from video counts.

^b Escapement derived from aerial surveys.

Appendix D6.–Sockeye salmon aerial survey counts from the Kamishak Bay District, 2021.

Location	Survey number	Survey date	Live count	Peak count
Amakdedori Creek	1	7/15	2,440	
	2	7/26	2,130	
	3	8/3	4,370	
	4	8/9	1,930	
	5	8/16	1,640	
	6	8/30	320	4,370
Big Kamishak	1	7/8	2,140	
	2	7/26	820	
	3	8/3	2	
	4	8/9	150	
	5	8/16	50	2,140
Douglas River	1	7/26	0	
	2	8/3	50	
	3	8/9	2,221	
	4	8/16	1,430	
	5	8/30	2,220	2,221

Appendix D7.—Estimated pink, chum, and sockeye salmon escapements in thousands of fish for the major spawning systems in the Kamishak Bay District of the Lower Cook Inlet Area, 2011–2021.

Year	Pink salmon							Chum salmon							Sockeye salmon					
	Big Kamishak River	Little Kamishak River	Amakdedori Creek	Bruin Bay River	Sunday Creek	Brown's Peak Creek	Total of index streams	Big Kamishak River	Little Kamishak River	McNeil River	Bruin Bay	Ursus Cove ^a	Cottonwood Creek	Iniskin Bay	Total of index streams	Mikfik Lake	Chenik Lake	Amakdedori Creek	Kamishak Rivers	Total of index streams
2011	9.3	13.1	4.2	4.5	0.8	2.0	7.4	5.5	19.3	31.0	3.5	10.6	4.7	16.5	91.2	0.3 ^b	10.3 ^b	3.4	1.6	14.1
2012	2.7	9.3	3.0	31.8	1.3	2.8	35.9	12.4	30.3	10.4	16.8	2.8	4.1	3.0	79.8	3.1 ^b	16.5 ^b	0.8	1.1	20.4
2013	^c	0.5	8.0	15.0	6.1	4.1	25.2	3.3	6.7	9.5	8.9	10.3	5.2	5.9	49.9	4.0 ^b	11.3 ^b	1.5	0.1	16.9
2014	^c	4.8	2.4	121.6	7.7	4.0	133.3	5.7	15.1	17.5	3.6	5.3	7.1	13.0	67.2	17.8 ^b	17.8 ^b	4.3	0.2	39.9
2015	0.7	1.5	24.9	40.8	60.4	29.1	130.3	7.0	14.4	20.5	11.0	14.8	17.0	7.5	92.1	3.5 ^b	19.1 ^b	2.9	1.2	25.5
2016	0.7	0.0	2.2	86.6	2.2	1.4	118.9	9.6	12.0	26.3	26.6	7.0	1.6	1.1	84.2	10.2 ^b	19.5 ^b	2.2	0.1	31.9
2017	3.8	1.4	43.8	71.1	22.2	39.2	132.5	32.3	19.3	38.7	38.5	22.0	6.2	15.6	172.5	7.5 ^b	21.5 ^b	1.7	3.7	30.6
2018	0.0	0.0	4.9	94.7	3.4	1.3	99.5	7.7	14.4	37.3	28.5	3.7	1.3	9.1	102.1	5.0 ^b	6.7 ^b	1.9	1.7	13.5
2019	0.0	1.0	9.1	43.8	21.8	43.4	110.0	51.0	22.6	9.2	25.3	13.4	3.9	15.3	140.7	2.9 ^b	12.1 ^b	1.6	2.8	16.6
2020	0.0	0.0	10.2	57.3	4.7	21.0	83.1	19.4	38.6	8.9	22.2	4.4	0.7	8.8	102.9	0.3 ^b	11.7 ^b	7.0	3.4	19.0
2021	0.0	0.0	10.3	78.4	39.0	75.0	192.3	16.0	35.0	15.2	29.7	7.5	5.7	15.0	124.1	2.3 ^b	17.1 ^b	4.4	2.1	23.9
Prev. 10-yr avg.	2.1	3.2	11.2	56.7	13.1	14.8	84.6	15.4	19.3	20.9	18.5	9.4	5.2	9.6	98.3	5.5	14.6	2.7	1.6	22.8

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

^a “Ursus Cove” is the sum of Ursus Lagoon RH Creek and Ursus Lagoon Creek.

^b Escapement derived from video counts.

^c No data were collected

APPENDIX E: SUBSISTENCE, PERSONAL USE, AND HOMEPACK HARVEST

Appendix E1.—Personal use set gillnet salmon harvest in numbers of fish by species and effort, Southern District Lower Cook Inlet, 2011–2021.

Year	Permits				Reported harvest						
	Issued	Returned	Fished	Not fished	Chinook	Sockeye	Coho	Pink	Chum	Other	Total
2011	119	112	81	31	15	223	806	145	5	3	1,197
2012	98	95	69	26	5	137	1,471	275	6	0	1,894
2013	123	118	89	29	9	122	1,732	135	3	0	2,001
2014	160	154	115	39	13	310	2,273	198	4	0	2,794
2015	136	131	91	40	10	509	1,373	152	22	6	2,072
2016	170	169	118	50	18	166	2,033	335	8	0	2,560
2017	148	145	108	37	6	298	2,388	212	11	0	2,915
2018	192	187	132	55	6	259	1,947	161	11	0	2,384
2019	156	151	109	43	9	147	1,287	162	27	0	1,632
2020	194	153	118	35	7	112	1,050	250	11	8	1,438
2021	130	90	73	17	4	131	1,085	29	3	7	1,259
Previous 10-year avg.	150	142	103	39	10	228	1,636	132	81	2	2,089

Appendix E2.—Salmon retained from the commercial harvest for personal use (homepack) by species and gear type from Lower Cook Inlet districts, 2011–2021.

Year	Permits deliv.		Chinook salmon		Sockeye salmon		Coho salmon		Pink salmon		Chum salmon	
	Set	Purse	Set	Purse	Set	Purse	Set	Purse	Set	Purse	Set	Purse
	<u>gillnet</u>	<u>seine</u>	<u>gillnet</u>	<u>seine</u>	<u>gillnet</u>	<u>seine</u>	<u>gillnet</u>	<u>seine</u>	<u>gillnet</u>	<u>seine</u>	<u>gillnet</u>	<u>seine</u>
2011	3	1	2	3	62	0	3	0	487	0	27	0
2012	7	0	4	0	63	0	61	0	323	0	31	0
2013	7	0	16	0	155	0	150	0	157	0	13	0
2014	8	1	10	0	180	3	128	0	318	0	17	0
2015	16	4	60	7	158	120	417	62	99	302	28	0
2016	12	11	35	40	115	269	171	25	205	79	41	5
2017	13	6	36	23	513	140	189	12	121	71	110	0
2018	10	12	11	50	102	671	108	27	71	1	26	2
2019	7	10	12	53	107	204	143	23	12	50	22	10
2020	8	7	15	49	44	153	133	11	27	25	0	1
2021	8	8	2	12	119	276	301	28	39	154	32	2
Previous 10-year average	9	6	20	25	150	173	150	18	182	59	32	2

APPENDIX F: 2021 OUTLOOK

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Advisory Announcement

For Immediate Release: March 5, 2021

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2021 Lower Cook Inlet Commercial Salmon Fishery Outlook

This outlook is provided to assist the commercial salmon industry in planning for the 2021 season in the Lower Cook Inlet (LCI) Management Area. Information regarding the forecasts used to create this document will soon be available on the Alaska Department of Fish and Game (ADF&G) web site:

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

Cook Inlet Aquaculture Association (CIAA) manages the Trail Lakes Hatchery (TLH), Port Graham Hatchery (PGH), and Tutka Bay Lagoon Hatchery (TBLH). Hatchery forecasts can be found by contacting CIAA directly.

Inseason modifications to harvest projections, season opening dates, and strategies for weekly fishing periods may occur as fisheries develop. Management of LCI commercial salmon fisheries is based in the Homer ADF&G office. Fishery announcements from the Homer office will routinely occur on Fridays at 2:00 p.m., and at other times as required. [Interested individuals may sign up to receive email announcements here: http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main](http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main). Recorded commercial fisheries announcements will be available at 907-235-7307. Advisory announcement information is also transmitted by email to all interested members of the public. Harvest information and fisheries announcements are located on the ADF&G web site: <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon>. The first advisory announcement is expected to be released at 2:00 p.m., Friday, April 23.

CIAA forecasts a total of 364,400 hatchery-produced sockeye and 1.0 million pink salmon to return to LCI release sites in 2021. CIAA projects to harvest 276,000 sockeye (75%) and 1.0 million pink salmon (100%) for cost recovery and broodstock. All returning hatchery pink salmon will be used for cost recovery and broodstock at both Port Graham and Tutka Bay hatcheries. The overall commercial common property harvest from LCI is forecast to be 2.1 million salmon, of which, 4% are anticipated to be of hatchery origin harvested from special harvest areas (SHAs). Additional hatchery-origin fish are harvested incidentally with wild fish outside of SHAs (Table 1).

Set Gillnet Fishery

The **Southern District** is expected to open for the 2021 season on Tuesday, June 1 at 6:00 a.m. for a 24-hour period. Subsequent commercial fishing periods will probably be 48 hours in length beginning at 6:00 a.m. on Mondays and Thursdays, as specified in regulation. The harvest projections for this district and gear are 400 Chinook, 2,800 coho, 1,700 chum, 26,300 sockeye, and 15,100 pink salmon (Table 1). The Port Graham Subdistrict is anticipated to open to commercial set gillnet harvest on June 1 and remain on a schedule concurrent with other areas in the Southern District for this gear. Fishing time in the Port Graham Subdistrict will be closely linked to escapement levels in English Bay and Port Graham rivers. Further information may be found in Annual Management Reports for this area at: <http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon#management>.

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Purse Seine Fishery

Portions of the **Southern District** will open to commercial purse seine harvest in mid-June, coinciding with enhanced runs to Leisure and Hazel Lakes. Historically, this run peaks from July 12–18. CIAA forecasts a return of 76,400 sockeye salmon to Leisure and Hazel Lakes combined, as well as 46,300 sockeye salmon to Tutka Bay. Commercial fishing time after mid-July will be based on pink salmon escapement at Humpy Creek, Seldovia Bay, Port Graham, and other locations in this district. No hatchery pink salmon are expected to be available for commercial harvest from SHAs.

Hatchery sockeye salmon runs to the **Eastern District** are forecasted by CIAA to be 211,700 fish (Table 1) of which CIAA has identified 201,800 (95%) for cost recovery and broodstock purposes. Wild stock harvest opportunity in the Eastern District will be linked to aerial survey observations of wild sockeye and pink salmon escapements to Aialik Lake and other spawning systems in this district. Surveys of chum salmon stocks in Resurrection Bay and Day Harbor may be flown, weather, time, and budget permitting.

Portions of the **Outer District** may open to commercial harvest in mid-July focusing on sockeye salmon runs to McCarty Fjord lakes. In recent years, escapement to McCarty Fjord systems (Delight, Desire, and Delusion Lakes) have been monitored by aerial survey and weir at Delight Lake. Sockeye salmon escapement into Delight Lake will be monitored again by CIAA using a weir in 2021.

Waters in the western portion of the Outer District may be open by mid-July, focusing on pink and chum salmon runs to Port Dick, as well as Windy and Rocky bays. There are numerous other smaller systems in the Nuka Passage area that are also monitored for chum and pink salmon. Dogfish Bay, Chugach Bay, and Port Chatham in the western portion of the district will be evaluated for chum and pink salmon harvest potential from August to early September. The harvest projections for the Outer District are 4,000 sockeye, 23,600 chum, and 1.7 million pink salmon (Table°1).

Portions of the **Kamishak Bay District** typically open by regulation to commercial harvest on June 1. Commercial harvest projections for this district are 54,000 sockeye, 7,600 chum, and 63,200 pink salmon (Table 1). The majority of sockeye salmon harvest is expected to come from the Chenik Lake run though the chum salmon harvest has historically been spread throughout the district. The department expects to open Chenik Lagoon in mid-June and remain open throughout much of the season. Hatchery-released sockeye salmon returns to the Kirschner Lake outfall remote release site are forecast to be 30,000 fish, all of which are expected to be required for hatchery cost recovery (Table 1). The department tracks salmon escapement in this district using remote video monitoring sites at Chenik and Mikfik lakes, as well as regular aerial survey observations of pink and chum salmon index streams.

Under Alaska’s Health Advisories 1, 2, 3, and 4, commercial fishing is an Essential Business and is part of Alaska’s Essential Services and Critical Infrastructure. Commercial fishermen should ensure that all travel and other activities in support of commercial fishing operations follow protocols in Alaska COVID-19 Health Advisories. COVID-19 Health Advisories may be found here: <https://covid19.alaska.gov/health-advisories/>

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Table 1.–Projected salmon harvests for Lower Cook Inlet, 2021.

SOCKEYE SALMON				Total projected harvest =	221,100
Natural stocks, (area-wide commercial harvest)^a					132,700
Southern District, (purse seine, excluding hatchery SHAs)					48,400
Southern District, (set gillnet)					26,300
Eastern District, (Aialik Bay)					0
Outer District					4,000
Kamishak Bay District, (excluding Kirschner Lake Subdistrict)					54,000
	Hatchery return	Broodstock harvest	Cost-recovery harvest	Commercial common property	
Sockeye salmon hatchery programs^b					
Resurrection Bay	211,700	12,800	189,000		9,900
China Poot and Hazel Lakes	76,400	0	0		76,400
Tutka Bay Lagoon	46,300	5,000	39,200		2,100
Kirschner Lake	30,000	0	30,000		0
Port Graham Bay	0	0	0		0
English Bay Lakes	0	0	0		0
Hatchery stocks (area-wide totals)	364,400	17,800	258,200		88,400
PINK SALMON				Total projected harvest =	2,575,700
Natural stocks, (area-wide commercial harvest)^a					1,851,500
Southern District (purse seine, excluding hatchery SHAs)					65,100
Southern District (set gillnet)					15,100
Eastern District					100
Outer District					1,708,100
Kamishak Bay District					63,200
	Hatchery return	Broodstock harvest	Cost-recovery harvest	Commercial common property	
Pink salmon hatchery programs^b					
Tutka Bay Lagoon	830,500	176,800	653,700		0
Port Graham Bay	178,400	108,000	70,400		0
Hatchery stocks (area-wide totals)	1,008,900	284,800	724,100		0
CHUM SALMON - Natural production^a				Total projected harvest =	33,500
Southern District (purse seine)					600
Southern District (set gillnet)					1,700
Eastern District					0
Outer District					23,600
Kamishak Bay District					7,600
COHO SALMON - Natural production^a				Total projected harvest =	6,400
Southern District (purse seine)					1,300
Southern District (set gillnet)					2,800
Eastern District					0
Outer District					500
Kamishak Bay District					1,900
CHINOOK SALMON – Natural production^a				Total projected harvest =	600
Southern District (purse seine)					100
Southern District (set gillnet)					400
Eastern District					0
Outer District					0
Kamishak Bay District					0
Total LCI projected commercial - all salmon species =					2,113,200

^a Area-wide harvest forecasts for wild production were produced by ADF&G using trend forecast models based on historical harvests (<http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyarealci.salmon#forecasts>).

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