# Chignik Management Area Commercial Salmon Fishery Harvest Strategy, 2020

by Ross L. Renick

April 2020

Alaska Department of Fish and Game



**Division of Commercial Fisheries** 

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative		all standard mathematical	
deciliter	dL	Code	AAC	signs, symbols and	
gram	g	all commonly accepted		abbreviations	
hectare	ha	abbreviations	e.g., Mr., Mrs.,	alternate hypothesis	$H_A$
kilogram	kg		AM, PM, etc.	base of natural logarithm	е
kilometer	km	all commonly accepted		catch per unit effort	CPUE
liter	L	professional titles	e.g., Dr., Ph.D.,	coefficient of variation	CV
meter	m		R.N., etc.	common test statistics	$(F, t, \chi^2, etc.)$
milliliter	mL	at	@	confidence interval	CI
millimeter	mm	compass directions:		correlation coefficient	
		east	E	(multiple)	R
Weights and measures (English)		north	Ν	correlation coefficient	
cubic feet per second	ft <sup>3</sup> /s	south	S	(simple)	r
foot	ft	west	W	covariance	cov
gallon	gal	copyright	©	degree (angular)	0
inch	in	corporate suffixes:		degrees of freedom	df
mile	mi	Company	Co.	expected value	Ε
nautical mile	nmi	Corporation	Corp.	greater than	>
ounce	oz	Incorporated	Inc.	greater than or equal to	≥
pound	lb	Limited	Ltd.	harvest per unit effort	HPUE
quart	qt	District of Columbia	D.C.	less than	<
yard	yd	et alii (and others)	et al.	less than or equal to	$\leq$
	•	et cetera (and so forth)	etc.	logarithm (natural)	ln
Time and temperature		exempli gratia		logarithm (base 10)	log
day	d	(for example)	e.g.	logarithm (specify base)	$\log_2$ , etc.
degrees Celsius	°C	Federal Information		minute (angular)	, -
degrees Fahrenheit	°F	Code	FIC	not significant	NS
degrees kelvin	Κ	id est (that is)	i.e.	null hypothesis	Ho
hour	h	latitude or longitude	lat or long	percent	%
minute	min	monetary symbols		probability	Р
second	S	(U.S.)	\$,¢	probability of a type I error	
		months (tables and		(rejection of the null	
Physics and chemistry		figures): first three		hypothesis when true)	α
all atomic symbols		letters	Jan,,Dec	probability of a type II error	
alternating current	AC	registered trademark	®	(acceptance of the null	
ampere	А	trademark	ТМ	hypothesis when false)	β
calorie	cal	United States		second (angular)	
direct current	DC	(adjective)	U.S.	standard deviation	SD
hertz	Hz	United States of		standard error	SE
horsepower	hp	America (noun)	USA	variance	
hydrogen ion activity	pH	U.S.C.	United States	population	Var
(negative log of)			Code	sample	var
parts per million	ppm	U.S. state	use two-letter	-	
parts per thousand	ppt,		abbreviations		
	%		(e.g., AK, WA)		
volts	V				
watts	W				

### **REGIONAL INFORMATION REPORT 4K20-05**

### CHIGNIK MANAGEMENT AREA COMMERCIAL SALMON FISHERY HARVEST STRATEGY, 2020

by

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> > April 2020

The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as area management plans, budgetary information, staff comments and opinions to Alaska Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of CommercialFisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at http://www.adfg.alaska.gov/sf/publications/.

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This document should be cited as follows:

Renick, R. L. 2020. Chignik Management Area commercial salmon fishery harvest strategy, 2020. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K20-05, Kodiak.

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### ABSTRACT

This document provides stakeholders with general information regarding how the Alaska Department of Fish and Game (ADF&G) will manage the 2020 Chignik Management Area (CMA) commercial salmon fishery. The 2020 total sockeye salmon Oncorhynchus nerka forecasted run for the Chignik River watershed is 1,296,000 fish. Approximately 586,000 sockeye salmon are expected to be harvested in the CMA. The first commercial fishing period in the CMA may occur in June after approximately 20,000 sockeye salmon have escaped or are expected to escape into the Chignik River. During the month of June, the Eastern District must open concurrently with the Chignik Bay and Central districts as well as the Inner Castle Cape Subsection of the Western District. Starting in June and continuing into early July, the Western District may open concurrently with fishing periods in the Chignik Bay and Central districts and the Inner Castle Cape Subsection of the Western District. Three fishing periods of up to 48 hours in length, separated by at least 48 hours, may also occur in the Perryville District concurrent with the Chignik Bay and Central districts during June and early July. Fishing periods after early July in the Eastern, Western, and Perryville districts will depend on the Chignik River sockeye salmon interim escapement objectives being met as well as the strength of the local pink and chum salmon runs. Beginning July 6 through August, inner bay fisheries may occur in the Western and Perryville districts to target pink and chum salmon. From the end of the transition period (approximately late June through mid-July) until the end of the fishing season, ADF&G shall manage the CMA based on its evaluation of the local pink O. gorbuscha, chum O. keta, and coho salmon O. kisutch runs, as well as the Chignik watershed late-run sockeye salmon escapement.

Key words: Chignik, sockeye salmon, Oncorhynchus nerka, Chinook, Oncorhynchus tshawytscha, pink, Oncorhynchus gorbuscha, chum, Oncorhynchus keta, coho, Oncorhynchus kisutch, Chignik Management Area, CMA, 2020 management plan, subsistence fishing, commercial fishery, SEG, RIR

### **INTRODUCTION**

This document provides stakeholders with the basic framework of how the Alaska Department of Fish and Game (ADF&G) will manage the 2020 Chignik Management Area (CMA; Area L) commercial salmon fishery. The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). For management purposes, the CMA is divided into 5 fishing districts: Eastern, Central, Chignik Bay, Western, and Perryville. Each district is further divided into statistical reporting areas (Figures 2 and 3).

The 2020 CMA commercial salmon fishery will be managed by ADF&G in accordance with the guidelines established in the *Chignik Salmon Management Plan* (5 AAC 15.357). The goal of this management plan is to allow commercial fisheries on CMA salmon stocks and to achieve escapement goals for Black Lake and Chignik Lake sockeye salmon *Oncorhynchus nerka* as well as local stocks of pink *O. gorbuscha*, chum *O. keta*, coho *O. kisutch*, and Chinook salmon *O. tshawytscha*. Complete details of this plan are found in the 2019–2021 Alaska Peninsula, Atka-Amlia Islands, Aleutian Islands and Chignik Areas Commercial Salmon Fishing Regulations booklet (ADF&G 2019a) available from regional Alaska Department of Fish and Game offices, or online at http://www.adfg.alaska.gov/index.cfm?adfg=fishregulations.commercial.

## **GEAR DESCRIPTION**

Purse and hand purse seines are the only legal commercial salmon fishing gear within the CMA. Legal seine gear must be between 100 and 125 fathoms in length in the Chignik Bay District and between 100 and 225 fathoms in length in all other districts. No seine may be less than 3 fathoms, or more than 375 meshes in depth. Up to 25 meshes of chafing gear with a maximum mesh size of 7 inches may be used. Additionally, no lead may be more than 75 fathoms in length. In the Eastern, Central, Western, and Perryville districts, the aggregate length of seine and lead cannot be more than 225 fathoms in length. Complete seine specifications are listed in 5 AAC 15.332.

### **CLOSED WATERS**

Specific closed water areas within the CMA are described in 5 AAC 15.350 and are determined using the global positioning system (GPS; 5 AAC 15.206). For general regulations on closed waters, please refer to 5 AAC 39.290. Where regulatory markers are posted, it is illegal to take salmon for commercial purposes on the stream ward side of the markers (5 AAC 39.290(b)).

### **REPORTING REQUIREMENTS**

Tender and processor reporting requirements are detailed in the CMA commercial fishing regulations (5 AAC 15.355). Processors are required to report the previous day's commercial harvest information to ADF&G staff by 10:00 AM daily, by e-mail, telephone, or radio (SSB or VHF). Earlier reporting is appreciated and helps to manage an orderly fishery. The preferred method of catch reporting is to e-mail an Excel spreadsheet (template provided by ADF&G) to the Chignik Area Management Biologist (ross.renick@alaska.gov) and Chignik Assistant Area Management Biologist (michelle.stratton@alaska.gov). Reporting daily catch information in a timely manner is required by commercial fishing regulations (5 AAC 15.355). In order to process the harvest information and use it for management decisions, catch reports must include the estimated number and total pounds of salmon harvested by species from each statistical area. Timely and accurate catch information from all CMA fishing districts allows for informed and consistent management actions. Without timely and accurate information, a more conservative management approach may be required in order to guarantee the sustainability of the resource. Information needs, reporting formats, and timetables may be obtained by contacting the Chignik management staff in Kodiak during the winter (907-486-1806) or at the Chignik weir (907-512-6731) from May through September.

It is the responsibility of the commercial fishermen, tenders, processors, and buyers to ensure that fish tickets are complete and accurate. Prior to completing a fish ticket, permit holders, tender operators, and/or processors must make sure that the correct statistical area and harvest information has been entered and that all information on the fish ticket is complete, legible, and accurate. If multiple statistical areas were fished, fishermen must ensure that they have assigned and recorded the correct percentage of fish delivered from each of those statistical areas on the fish ticket. Fishermen may retain finfish from lawfully taken commercial catch for personal use (home pack), including for use as bait in a commercial fishery (5 AAC 39.010). However, commercially caught salmon retained for personal use must be recorded on the fish ticket and may not be sold or bartered. It is the fishermen's responsibility to secure a market for all catch before harvesting fish. The waste of salmon is prohibited by Alaska Statute (AS 16.05.831 and 5 AAC 93.310), and this rule will be strictly enforced.

The CMA statistical areas were restructured in 2016. Due to the creation of new statistical areas and reassignment of numbers, it is imperative that the most recently updated statistical charts be used when filling out fish tickets (March 2016). These statistical charts will be available at the ADF&G offices in Chignik and Kodiak. Industry personnel can also obtain a chart by contacting the Chignik Area Management Biologist (ross.renick@alaska.gov).

### **EMERGENCY ORDERS AND NEWS RELEASES**

Fishing periods will be established by emergency order (EO) based on both ADF&G's assessment of the strength and health of the salmon runs and the availability of a harvestable surplus of fish.

Advisory announcements will be issued prior to fishery openings to notify the fishermen and processors. When possible, a 24-hour notice will be given before opening or closing commercial fishing periods. Advisory announcements will be broadcast over VHF channel 6. If you wish to receive advisory announcements by e-mail or fax, please access the centralized ADF&G Advisory Announcement System at <u>http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.search</u> (accessed March 2020) and subscribe to the Chignik salmon seine fishery. Catch, escapement, and other fishery information will be broadcast over VHF channel 6 at 9:15 AM and 5:15 PM daily. The Chignik Weir Report e-mail (catch, escapement, and other fishery data) will be sent out daily during the commercial salmon fishing season. Please contact ADF&G staff by e-mail (ross.renick@alaska.gov) or by phone (907-512-6731 or 907-486-1830) to be placed on the e-mail distribution list.

Beginning approximately June 1, an automated information line (907-486-1839) will be activated to provide callers with recent escapement and harvest information as well as any current news releases.

## **2020 SALMON FORECAST AND ESCAPEMENT GOALS**

Preseason salmon forecasts provide fishermen and processors with the expected run strength of Chignik River watershed sockeye salmon for planning purposes. ADF&G also uses these forecasts to formulate a preseason management strategy; however, the fishery is primarily managed based on harvest and escapement data that is collected and evaluated daily. This data provides inseason indicators of actual run strength and overall health. This also includes information from weir counts/sampling, aerial surveys, test fisheries, and total catch and fishery performance trends over time. ADF&G will aim to achieve escapement within the range of the established escapement goals; however, inseason adjustments may be made to management objectives if there is concern over the quality of the run.

#### Total Run

The 2020 total sockeye salmon run forecasted for the Chignik River watershed is 1,296,000 fish (range 507,000–2,591,000 fish; Appendix A1; Brenner et al. 2020). The total projected commercial harvest for 2020 is 586,000 fish.

#### Early Run (Black Lake)

The total sockeye salmon early-run forecast is approximately 501,000 fish (range 226,000–1,110,000 fish; Appendix A1; Brenner et al. 2020). The Chignik early-run harvest is projected to be approximately 101,000 fish. The early run biological escapement goal (BEG) range is 350,000–450,000 fish (Table 1; Schaberg et al. 2019). The early run typically peaks in late June and returns primarily to Black Lake and its tributaries.

#### Late Run (Chignik Lake)

The total late-run sockeye salmon forecast is approximately 795,000 fish (range 281,000–1,482,000 fish; Appendix A1; Brenner et al. 2020). The late run sustainable escapement goal (SEG) range is 200,000–400,000 fish. To increase the opportunity for late-season subsistence harvest, an additional inriver run goal (IRRG) of 20,000 fish is added to the lower bound of the late-run goal (220,000–400,000; Table 1; Schaberg et al. 2019). The 2020 Chignik late-run harvest is projected to be approximately 485,000 fish.

### **OTHER SALMON SPECIES**

There are no forecasts produced for other salmon species in the CMA. For historical harvest information, please refer to the *Chignik Management Area Salmon Annual Management Report*, 2019 (Renick *In prep*).

#### Chinook Salmon

Chinook salmon harvest in the CMA is mostly dependent upon the amount of commercial fishing time for sockeye salmon in July. There is no targeted Chinook salmon harvest in the CMA. The Chignik River Chinook salmon escapement goal is 1,300–2,700 fish (Schaberg et. al. 2019).

#### **Coho Salmon**

The coho salmon commercial harvest may vary depending on the commercial fishing effort directed on local pink salmon and chum salmon runs in the Eastern, Central, Western, and Perryville districts. Market conditions late in the season may also limit commercial salmon fishing effort when coho salmon are prevalent in Chignik Lagoon. There is no established escapement goal for coho salmon in the CMA.

#### **Pink Salmon**

Historically, the Western District has provided the largest proportion of the annual pink salmon commercial harvest.

The CMA even-year escapement goal for pink salmon is an areawide SEG range of 170,000–280,000 fish (Schaberg et al. 2019). This SEG range was developed based on 8 index systems distributed throughout the CMA. Prior to 2016, ADF&G surveyed 49 index streams in order to monitor CMA pink salmon runs and to calculate an escapement estimate based on peak aerial surveys. While the 8 index systems will be monitored in order to provide an escapement index, the other 41 previously monitored streams will continue to be monitored to assess quality and spatial distribution of the runs.

#### **Chum Salmon**

Historically, the Central and Western districts have provided the largest proportion of the annual chum salmon commercial harvest.

The CMA escapement goal for chum salmon is an areawide SEG range of 45,000–110,000 fish (Schaberg et al. 2019). This SEG range was developed based on 6 index systems distributed throughout the CMA. Prior to 2016, ADF&G surveyed 42 index streams in order to monitor the CMA chum salmon runs and to calculate an escapement estimate based on peak aerial surveys. While the 6 streams will be monitored in order to provide an escapement index, the other 36 previously monitored streams will continue to be monitored to assess quality and spatial distribution of the runs.

## **2020 CHIGNIK SALMON MANAGEMENT**

### **2019 BOARD OF FISHERIES REGULATORY CHANGES**

At the February 2019 Alaska Peninsula/Aleutian Islands/Chignik Finfish Board of Fisheries meeting, regulations were adopted that altered the *Chignik Area Salmon Management Plan* (5AAC 15.357). The changes that occurred are listed on the following page.

- 1. The number of sockeye salmon required to meet the IRRG for the late sockeye salmon run was reduced from 75,000 fish to 20,000 fish. Of the 20,000 IRRG sockeye salmon, 10,000 fish are required to pass the weir in August in addition to minimum escapement objectives, and the remainder are required to escape during the month of September.
- 2. The Western District, excluding the Inner Castle Cape Subsection, may open concurrently with the Chignik Bay and Central districts and Inner Castle Cape Subsection of the Western District from June 1 through July 5. Previously, the Western District, excluding the Inner Castle Cape Subsection, was limited to two 48-hour fishing periods during this time frame.
- 3. The Perryville District may open concurrently with the Chignik Bay and Central districts and Inner Castle Cape Subsection of the Western District from June 1 through July 5 for up to three 48-hour fishing periods with a minimum closure of at least 48 hours between each fishing period. Previously, the Perryville District could not open to commercial fishing prior to July 6.
- 4. Management of the Eastern, Western, and Perryville districts after July 31 is based on the evaluation of local pink, chum, and coho salmon runs, or the strength of the Chignik Lake sockeye salmon run. This amendment changed the word "and" to "or" prior to "the strength of the Chignik Lake sockeye salmon run."

### JUNE AND EARLY JULY

By regulation, beginning June 1, the first commercial salmon fishing period may occur when 20,000 sockeye salmon have escaped into the Chignik River, or if it is determined that a strong buildup of sockeye salmon exists in Chignik Lagoon and 20,000 sockeye salmon are expected to escape into the Chignik River (5 AAC 15.357(b)(1)). The purpose of this regulation is to allow subsistence fishing opportunity prior to the commercial fishing season and to avoid a large buildup of salmon in the lagoon.

During June and early July, commercial salmon fishing may occur in all 5 districts of the CMA (Figure 2). The Chignik Bay, Central, and Eastern districts and the Inner Castle Cape subsection of the Western District must open and close concurrently by regulation during June (5 AAC 15.357(c)(1)). The Western District may also open concurrently with the Chignik Bay and Central districts as well as the Inner Castle Cape Subsection of the Western District in June and early July. The Perryville District may also open concurrently with these areas; however, fishing time will be limited to a maximum of three 48-hour fishing periods from June 1 through July 5. Additionally, each fishing period in the Perryville District must be separated by a 48-hour closure. Fishing periods in June are based upon achieving the Black Lake sockeye salmon management objectives—except during the period of transition from the predominance of Black Lake to Chignik Lake sockeye salmon (usually late June through mid-July), management decisions will consider opportunity to harvest surplus early-run fish without jeopardizing the late-run escapement (Table 1).

Within Chignik Lagoon, ADF&G will primarily use the Humes Point and the Mensis Point markers to designate closed waters (Figure 4). Alternating between Humes Point and Mensis Point allows ADF&G to control escapement of sockeye salmon entering the Chignik River. The Pillar Rock and Chignik River weir markers may be used during periods of high escapement and/or limited harvest capacity by the fleet (Figure 4). If estimated cumulative sockeye salmon escapement is projected to exceed the upper bound of the early-run escapement goal, closed waters

may be reduced in the Mallard Duck Bay and Schooner Bay areas of Chignik Lagoon during the month of June to provide additional opportunities to target sockeye salmon.

ADF&G test fishing may begin in early June to assess salmon buildup in Chignik Lagoon. Test fishing may occur on several days in early June depending on test fish vessel catch rates and escapement levels (Renick and Stratton 2020). Subsequent commercial fishing periods during June will be based on the evaluation of interim escapement objectives (Table 1), commercial and subsistence catches, and additional test fishing results. Additional test fisheries may also occur in the Chignik Lagoon or other areas of the CMA, if necessary, to generate revenue to fund management operations in the CMA. Details of these test fisheries will be released via the Fish and Game advisory announcement system.

### **TRANSITION PERIOD**

Several methods have been used over the years to differentiate stock composition during the transition from predominately Black Lake to Chignik Lake sockeye salmon. During the 2020 transition period, the Black and Chignik lakes daily stock composition will be estimated in season by applying an average stock proportion curve developed from genetics data collected during the 2010–2019 seasons.

In season, management will monitor variables of the runs such as age and sex composition, genetic analysis of run composition (when available), escapement, and harvest vs. effort, over the entire run. All these variables are important indicators of run transition timing. The Chignik sockeye salmon runs are predominantly made up of freshwater age-1 fish in the early run and freshwater age-2 fish in the late run. The proportional shift in ages and the timing of that shift can give indication to the transition timing. Monitoring run strength through escapement and harvest and comparing that to historical run timing can also provide valuable indications of run timing and strength. Typically, management will aim for the midpoint of the escapement objectives during a normal run with normal run transition timing. If these variables indicate that run transition timing may be abnormal, management action may be taken to aim for the lower or upper end of the objectives to avoid over- or underescaping either run. Management actions may include restricting or liberalizing fishing time and/or area.

Commercial fishing in the Western District may open concurrently with the Eastern, Chignik Bay, and Central districts in June. During this time period, Perryville District may open for no more than three 48-hour fishing periods with a minimum of 48-hour closures between fishing periods.

### JULY

During July, the Chignik Bay and Central districts (Figure 2) will be managed primarily based on the Chignik River watershed sockeye salmon run strength. ADF&G may, however, adjust closed waters in Chignik Lagoon based on Chignik River watershed Chinook salmon escapement goals (1,300–2,700 fish; Schaberg et al. 2019). If Chinook salmon escapement during early July is weak and the escapement goal is unlikely to be met, waters upstream of the Humes Point markers may be closed to improve escapement by removing commercial fishing pressure from areas where Chinook salmon hold before entering the Chignik River (5 AAC 15.357(C); Figure 4). If necessary, the commercial salmon fleet may be required to return Chinook salmon greater than 28 inches in length to the water quickly and with minimal handling in the Chignik Bay District.

The Eastern District (Figure 2) will be primarily managed for pink and chum salmon during July. The first commercial salmon fishing period after the transition period in the Eastern District can occur as early as July 12 (post-transition period) and is likely to be at least 48 hours in duration. Extensions to this fishing period will depend on how pink and chum salmon fishery harvest compare to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels. The Eastern District will be opened to commercial salmon fishing only if Chignik River watershed sockeye salmon interim escapement objectives are expected to be met and a harvestable surplus of sockeye salmon is anticipated.

If the Chignik late-run sockeye salmon escapement is lower than expected, fishing periods in terminal areas in the Eastern District may be announced via emergency order (EO) to target pink and chum salmon. In these cases, the commercial salmon fishery in the Eastern District may close on short notice if substantial numbers of sockeye salmon are harvested. Closed waters may be expanded around individual streams if pink and chum salmon escapement is too low in those areas, or closed waters may be reduced if escapement is sufficient and there is a large harvestable surplus of fish.

Beginning July 6, commercial fishing periods in the Western and Perryville districts (Figure 2) may be allowed if Chignik River interim escapement objectives are expected to be met and surplus Chignik River sockeye salmon are available for harvest. Depending on expected Chignik River sockeye salmon run strength, those portions of the Chignik Bay and Central districts known as *Jack's Box* may also be opened concurrently with the Western and Perryville districts (Figure 5). Fishing periods beginning around mid-July will depend on how pink and chum salmon fishery harvest compare to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels.

Before the 2016 season, several new inner bay statistical areas were created in the Eastern, Central, Western, and Perryville districts (Table 2; Figure 2). One purpose of these new statistical areas is to provide more detailed harvest and effort information from the selected bays. In an attempt to provide more early harvest opportunity on pink and chum salmon, ADF&G may conduct a 48-hour inner bay fishery as early as July 6 in the new statistical areas of the Western and Perryville districts, as well as in the Kujulik Bay Section of the Central District. If a sockeye salmon fishery is already occurring at this time (which would also mean that the bays are already open), the date of the inner bay fishery may be pushed back to as late as July 15. Areas may not open if the CMA is experiencing low water and dry river mouths. After July 15, other inner bay fishing periods may occur; however, management will be primarily escapement based for pink and chum salmon.

If surplus Chignik River sockeye salmon are not expected to be available for harvest, the commercial fisheries in the Western and Perryville districts may occur north of the Cape Itki line beginning in mid-July to target local pink and chum salmon and avoid Chignik River-bound sockeye salmon (Figure 6). If escapement is adequate in Ivanof Bay, the Inner Ivanof Bay statistical area will likely be open as well (Figure 2). In the case of substantial numbers of sockeye salmon being harvested while fishing north of the Cape Itki line, ADF&G will restrict fishing further into the remaining inner bay statistical areas if pink and chum salmon harvest and escapement appear adequate. Specific areas may be closed if pink and chum salmon escapement is too low. If there is a large harvestable surplus of fish available and escapement is adequate, closed waters in these areas may also be reduced.

#### **AUGUST AND SEPTEMBER**

In August and September, the Chignik Bay and Central districts, and the Inner Castle Cape Subsection of the Western District (Figure 2) will be managed based on Chignik River watershed sockeye salmon run strength. ADF&G plans to operate the Chignik River weir through August 10 for the 2020 commercial salmon season. In addition, Dual Frequency Identification Sonars (DIDSON) may be used in order to estimate the number of fish escaping into the Chignik watershed once the weir is removed.

Beginning September 15, commercial fishing periods in the Chignik Bay and Central districts are limited to a maximum of 48 hours per week and will be based on the evaluation of the sockeye salmon run strength and the Chignik Lake late-season sockeye salmon subsistence needs (5 AAC 15.357(b)(4)). Management options beginning September 15 include the following:

- allowing the maximum fishing time of 48 hours per week to be divided into as many as 4 commercial fishing periods, depending upon estimated sockeye and/or coho salmon escapements (for example, the fishing time could be distributed over 4 days with 12-hour fishing periods per day within a floating 7-day period);
- a weekly fishing schedule of less than 48 hours if the sockeye and/or coho salmon run strength is determined to be weak or the September IRRG is not being met; or
- a complete closure.

During August and September, the Eastern District (Figure 2) will be managed based on local pink, chum, and coho salmon runs or the strength of the Chignik Lake sockeye salmon run (5 AAC 15.357(c)(4)). Fishing times and areas will be based on ADF&G's inseason assessment of the local salmon stocks run strength. During the month of August, inner bay fisheries may occur concurrently with the Western and Perryville districts in areas with adequate pink and chum salmon abundance to warrant fisheries, with the possibility of extended fishing time. However, districtwide openings will not be allowed unless Chignik River sockeye salmon interim escapement objectives (including the IRRG) are expected to be met, and overall pink and chum salmon abundance is sufficient to meet Eastern District escapement objectives.

Until approximately July 31, fishing periods in the Western and Perryville districts (Figure 2) will be based on the evaluation of pink and chum salmon run strength, as well as the Chignik late-run sockeye salmon strength (5 AAC 15.357(d)(2)). After July 31, fishing time in the Western and Perryville districts will be based on Chignik River sockeye salmon escapement or local pink, chum, and coho salmon abundance (5 AAC 15.357 (d)(3)). Inner bay fisheries, or fishing north of the Cape Itki line, may occur during August in areas with adequate pink and chum salmon abundance to warrant fisheries, with the possibility of extended fishing time. Districtwide openings will not be allowed unless Chignik River sockeye salmon interim escapement objectives (including the IRRG) are expected to be met and overall pink and chum salmon abundance is sufficient to meet Western and Perryville districts escapement objectives.

### **2020 SUBSISTENCE SALMON FISHERY**

This section of the document briefly covers state subsistence regulations only. For more information on federal subsistence fishing regulations, contact the Federal Office of Subsistence Management.

All state subsistence salmon fishermen must obtain a Chignik Area subsistence salmon permit issued by the ADF&G for the 2020 season (5 AAC 01.015; Appendix B1). ADF&G will not be distributing subsistence permits to local vendors during the 2020 salmon season. Due to the recent progression of Covid-19, ADF&G staff in Chignik will distribute subsistence permits by mail and email only. Prior to May 1, individuals seeking a subsistence permit should contact the Chignik Assistant Area Management Biologist Michelle Stratton at michelle.stratton@alaska.gov or 907-486-1815. After May 1, please contact the Chignik weir at 907-512-6731. Catch information obtained from subsistence permits is compiled annually and used to assess regional subsistence salmon fisheries. Subsistence fishing regulations can be found in the 2019–2020 Statewide Subsistence and Personal Use Fishing Regulations (ADF&G 2019b) which is available online at https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2019\_2020\_subs istence\_pu\_regs.pdf

An Alaska resident who obtains a state subsistence permit and who does not hold a commercial salmon fishing license (CFEC permit) may subsistence fish for salmon at any time. Commercial salmon license holders may subsistence fish for salmon during the commercial fishing season at any time except for 12 hours preceding and 12 hours following a commercial salmon fishing period (5 AAC 01.485).

Subsistence salmon fishing is permitted in the Chignik River. The Chignik River, beginning 100 yards below the weir, is open to subsistence salmon fishing year round. However, salmon may not be taken upstream from the weir to the outlet of Chignik Lake from July 1 to August 31 (5 AAC 01.475(1)). Subsistence fishing in this area is prohibited to protect spawning Chinook salmon. All fishing is prohibited 100 yards upstream and downstream of the weir while it is operational.

The Chignik Lake tributaries of Clark River and Home Creek, starting from their confluence with Chignik Lake upstream 1 mile, are open to subsistence salmon fishing (5 AAC 01.475(2)). The Board of Fisheries amended the subsistence regulations to include these tributaries for the purposes of providing additional harvest opportunities for subsistence users.

Subsistence users are reminded that purse seine gear is not allowed for taking of subsistence salmon in Chignik Lake (5 AAC 01.470(a)). Additionally, any set gillnet may not obstruct more than one-half of the width of any stream open to subsistence fishing. All subsistence salmon fishing gear must be marked with a buoy listing the first initial, last name, and address of the person operating the gear (5 AAC 01.010(h)). Due to the potential delay in issuing subsistence permits by mail, subsistence users in the Chignik area are permitted to subsistence fish without a permit as long as they have contacted the Area Management Biologist, Ross Renick, or the Assistant Area Management Biologist, Michelle Stratton, prior to subsistence fishing. Subsistence users will still be required to record all fish harvested for the entirety of the season and return permits to the address listed on the permit by December 31, 2020. The adipose fin must be removed from all subsistence-caught salmon immediately after harvest.

### **REFERENCES CITED**

- ADF&G. 2019a. 2019–2021 Alaska Peninsula, Atka-Amlia Island, Aleutian Islands and Chignik areas commercial salmon fishing regulations. Alaska Department of Fish and Game, Juneau. <u>https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/akpen aleutians 2019 2021.pdf</u> (Accessed April 2020).
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   <a href="https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2019/2020/subsistence/pu/regs">https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2019/2020/subsistence/pu/regs</a>.
   <a href="https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2019/2020/subsistence/pu/regs">https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2019/2020/subsistence/pu/regs</a>.
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- Renick, R. L. *In prep*. Chignik Management Area salmon annual management report, 2019. Alaska Department of Fish and Game, Fishery Management Report, Anchorage.
- Renick, R. L., and M. E. Stratton. In prep. Chignik Management Area sockeye salmon test fishery operational plan, 2020–2022. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Operational Plan, Kodiak.
- Schaberg, K. L., M. B. Foster, and A. St. Saviour. 2019. Review of salmon escapement goals in the Chignik Management Area, 2018. Alaska Department of Fish and Game, Fishery Manuscript Series No. 19-02, Anchorage.

# **TABLES AND FIGURES**

	Black Lake	Chignik Lake	Combined	
Date	Lower Upper	Lower Upper	Lower Upper	
5-Jun	12,000 - 17,000		12,000 - 17,000	
10-Jun	45,000 - 55,000		45,000 - 55,000	
15-Jun	95,000 - 125,000		95,000 - 125,000	
20-Jun	150,000 - 230,000	1,000 – 2,000	151,000 - 232,000	
25-Jun	215,000 - 320,000	3,000 – 5,000	218,000 - 325,000	
30-Jun	270,000 - 360,000	6,000 – 12,000	276,000 - 372,000	
5-Jul	300,000 - 390,000	12,000 - 30,000	312,000 - 420,000	
10-Jul	330,000 - 410,000	20,000 - 50,000	350,000 - 460,000	
15-Jul	340,000 - 430,000	40,000 - 85,000	380,000 - 515,000	
20-Jul	350,000 - 440,000	70,000 - 140,000	420,000 - 580,000	
25-Jul	350,000 - 448,000	110,000 - 200,000	460,000 - 648,000	
30-Jul	350,000 - 450,000	140,000 - 250,000	490,000 - 700,000	
4-Aug		160,000 - 290,000	510,000 - 740,000	
9-Aug		170,000 - 320,000	520,000 - 770,000	
14-Aug		180,000 - 335,000	530,000 - 785,000	
19-Aug		190,000 - 350,000	540,000 - 800,000	
24-Aug		200,000 - 360,000	550,000 - 810,000	
29-Aug		208,000 - 375,000	558,000 - 825,000	
31-Aug		210,000 - 380,000	560,000 - 830,000	
September		220,000 - 400,000	570,000 - 850,000	
Escapement goals				
Black Lake	350,000 - 450,000			
Chignik Lake <sup>a</sup>	220,000 - 400,000			

Table 1.-Chignik River sockeye salmon interim escapement objectives, in numbers of fish, 2020.

<sup>a</sup> The late-run escapement objective includes the late-run sockeye salmon sustainable escapement goal (SEG; 200,000–400,000) plus an additional 20,000 sockeye salmon inriver run goal (10,000 in August and 10,000 in September) to meet late-season subsistence needs.

	Statistical	area	
Area	Prior to 2016	2016	
Perryville District			
Ivanof Bay Section			
Inner Ivanof Bay	N/A	275-41	
Ivanof Bay	275-40	275-42	
Humpback Bay Section			
Inner Humpback Bay	N/A	275-51	
Humpback Bay	275-50	275-52	
Perryville Section			
Perryville Area	275-60	275-60	
Western District			
Mitrofania Section			
Coal Cape Area	273-70	273-70	
Ivan Bay	N/A	273-71	
Fishrack Bay	N/A	273-73	
Mitrofania Island	273-74	273-74	
Mitrofania Bay	273-72	273-75	
Dorner Bay Section			
Dorner Bay	N/A	273-81	
Outer Kuiukta Bay	273-80	273-85	
Windy Bay	273-82	273-82	
Inner Kuiukta/Portage Bay	273-84	273-84	
Castle Cape Section			
Castle Cape/Cape Itki	273-90	273-90	
Inner Castle Cape	273-93	273-93	
Outer Castle Cape	273-95	273-95	
Chignik Bay District			
Chignik Lagoon	271-10	271-10	
Central District			
Outer Chignik Bay Section			
Chignik Bay	272-20	272-20	
Hook Bay	272-30	272-30	
Nakchamik Island	272-40	272-40	
Kujulik Section			
Inner Kujulik Bay	N/A	272-51	
Kujulik Bay	272-50	272-53	
Kumlik Section			
Cape Kumlik	272-62	272-62	
Sutwik Island	272-64	272-64	

Table 2.-Chignik Management Area statistical areas prior to 2016 and current statistical areas.

-continued-

Table 2.–Page 2 of 2.

	Statistical	area	
Area	Prior to 2016	2016	
Eastern District			
Big River Section			
Aniakchak Bay	272-60	272-60	
Inner Amber Bay	N/A	272-71	
Amber Bay	272-70	272-74	
Nakalilok/ Yantarni Bay Section			
Inner Yantarni Bay	N/A	272-73	
Yantarni Bay	272-72	272-75	
Inner Nakalilok Bay	N/A	272-82	
Nakalilok Bay	272-80	272-81	
Chiganagak Section			
Inner Chiganagak Bay	N/A	272-91	
Chiganagak Bay	272-90	272-93	
Agripina Section			
Port Wrangell	272-92	272-92	
Inner Agripina Bay	N/A	272-95	
Agripina to Kilokak	272-96	272-97	

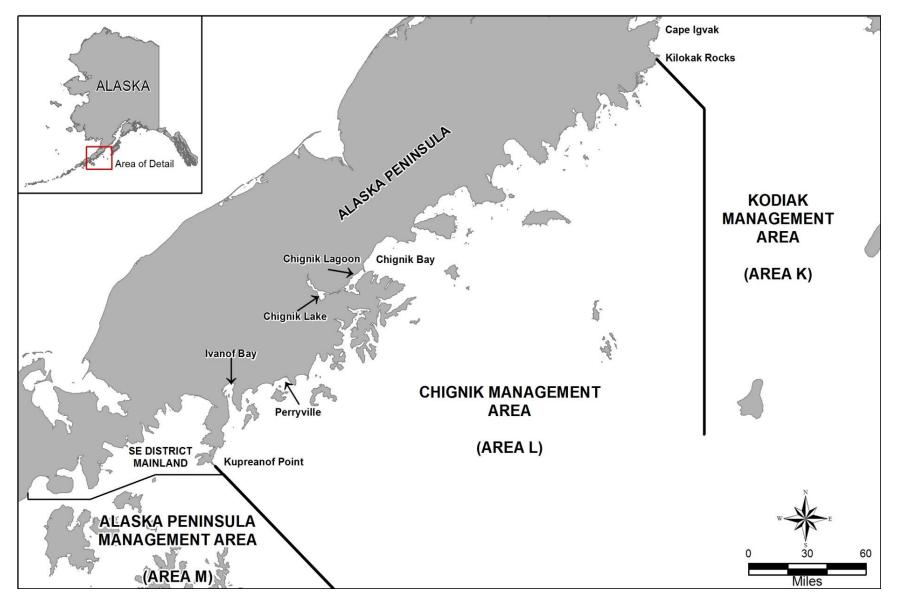


Figure 1.–Map of the Alaska Peninsula and the relative locations of the Chignik, Kodiak, and Alaska Peninsula management areas.

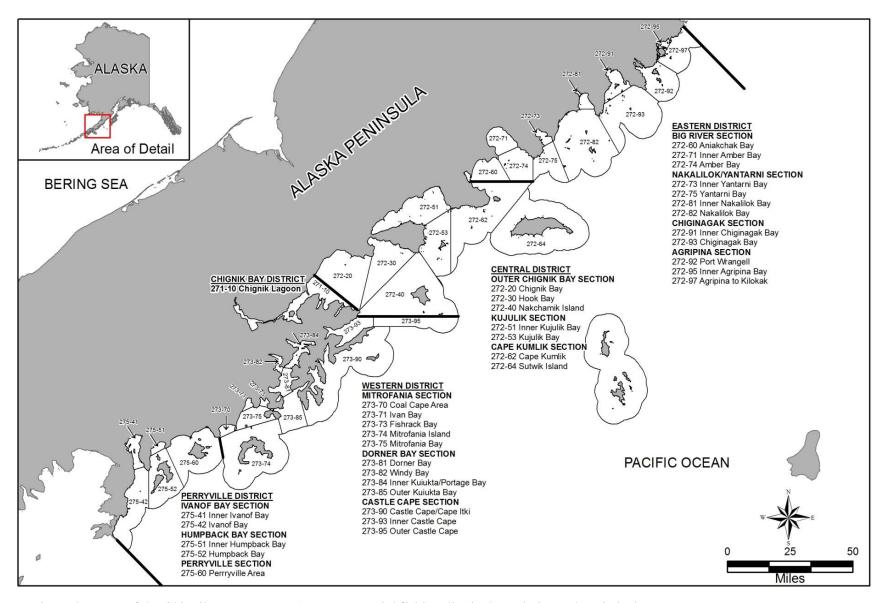


Figure 2.–Map of the Chignik Management Area commercial fishing district boundaries and statistical areas.

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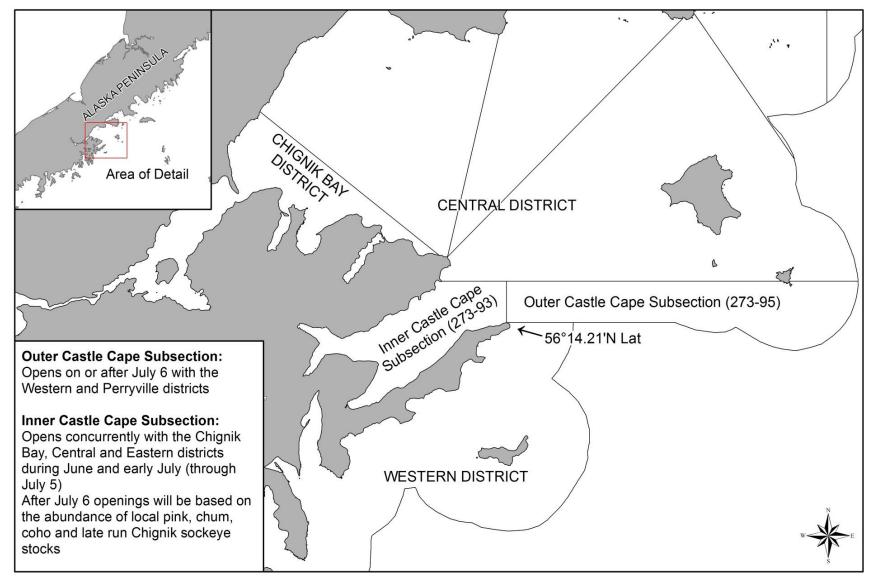


Figure 3.–Map of the Inner (273-93) and Outer Castle Cape (273-95) subsections of the Western District.

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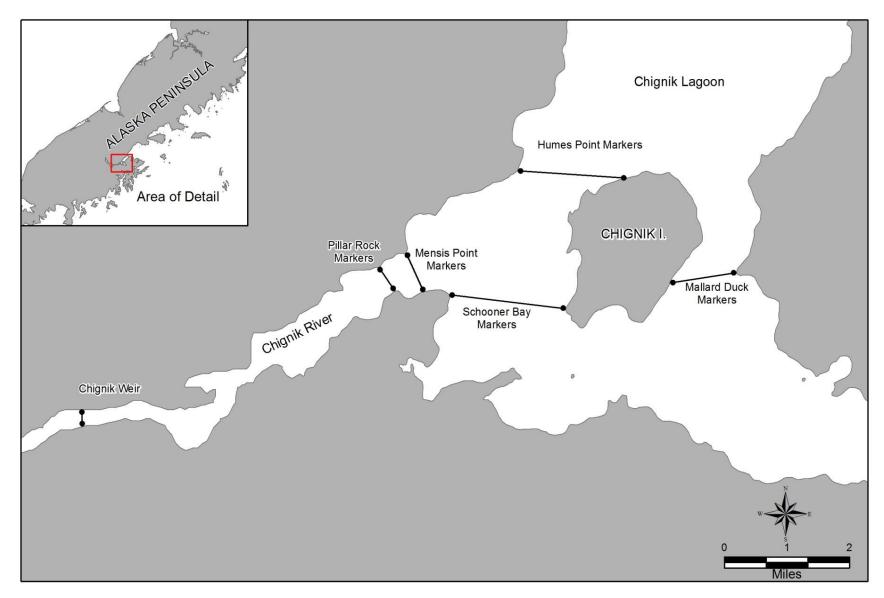


Figure 4.–Map of upper Chignik Lagoon and the location of Pillar Rock, Mensis Point, Humes Point, Mallard Duck, and Schooner Bay marker locations and the location of the Chignik weir.

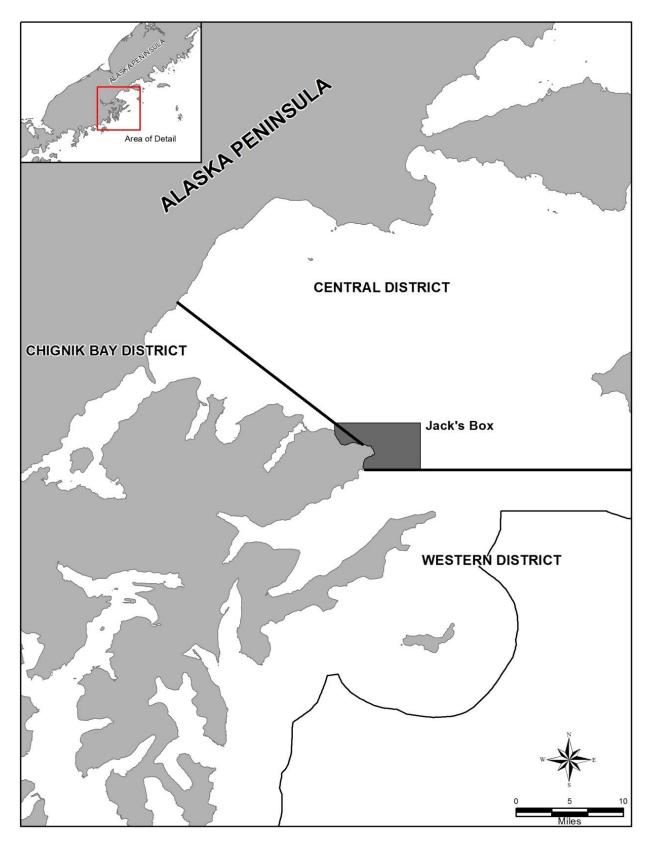


Figure 5.–Map of *Jack's Box* in the Chignik Bay and Central districts.

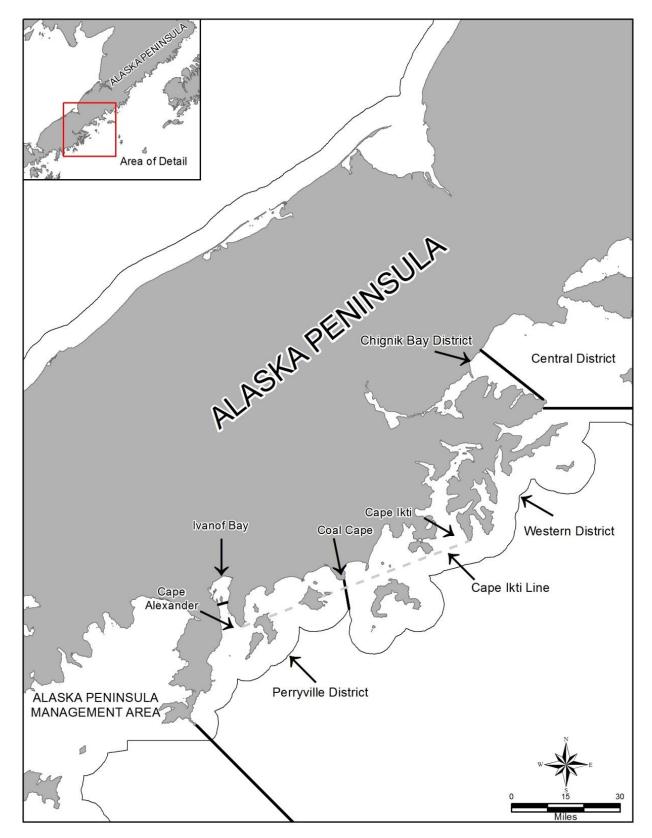


Figure 6.-Map of the Cape Ikti Line in the Western and Perryville districts.

## APPENDIX A. 2020 CHIGNIK SOCKEYE SALMON FORECAST

#### Forecast Area: Chignik Species: Sockeye Salmon

Total Production		Forecast Estimate (thousands)	Forecast Range (thousands)
Early Run (Black Lake)	Total Run Estimate	501	226-1,110
	Escapement Goal <sup>a</sup>	400	350-450
	Harvest Estimate	101	
Late Run (Chignik Lake)	Total Run Estimate	795	281-1,482
	Escapement Goal <sup>a</sup>	310	220-400
	Harvest Estimate	485	
Total Chignik System	Total Run Estimate	1,296	507-2,591
	Harvest Estimate <sup>b</sup>	586	
	Chignik Area	586	
	SEDM Area	0	
	Cape Igvak Section	0	

#### Preliminary Forecast of the 2020 Run

Note: Column numbers may not total or correspond exactly with numbers in text due to rounding.

<sup>a</sup> Harvest represents the midpoint of the escapement goal. An inriver run goal of 20,000 sockeye salmon is added to the lower bound of the late-run escapement goal.

<sup>b</sup> A harvestable surplus of Chignik River system sockeye salmon is forecast to be below 600,000 fish in the Chignik Area, therefore, as outlined in regulations 5 AAC 09.360 and 5 AAC 18.360, no commercial fisheries are anticipated in the Southeastern District Mainland and Cape Igvak during the regulatory timeframe thru July 25, thus the harvest of Chignik-bound sockeye salmon in those areas is expected to be zero.

*Forecast Methods:* Simple linear regressions models using age class relationships were used to forecast the 2020 early and late Chignik sockeye salmon runs. transformed to address nonnormality or unequal variance. Prediction intervals (80%) for the regression estimates were calculated using the variances of the regression models. Age class returns not estimated with statistical models utilized pooled medians with data from 1995 to the present; median prediction intervals were calculated from the 10th and 90th percentiles of the data.

For the early run, prior year log-transformed age-.2 returns predicted log-transformed age-.3 returns using data from the 1995 outmigration year to the present. Prior year early-run age-.1 returns predicted log-transformed age-.2 returns (outmigration years 1998 to present). For the late run, prior year age-.2 returns predicted age-.3 returns using data from the 2000 outmigration year to the present. Prior year log-transformed age-.1 early- and late-run returns were combined to predict log-transformed late-run age-.2 returns (outmigration years 1988 to present).

The early- and late-run regression and median estimates were summed to estimate the total Chignik River sockeye salmon run for 2020. The combined early- and late-run 80% prediction interval was calculated by summing the lower and upper prediction bounds of the 2 runs.

Appendix A1.–Page 2 of 2.

*Forecast Discussion:* The 2020 Chignik sockeye salmon early run is forecasted to be 501,000 fish, which is 790,000 fewer fish than the 10-year average run of 1.29 million and almost 140,000 fish more than the 2019 early run of 361,000. The early run is predicted to be composed of approximately 72% age-.3 and 27% age-.2 fish. The late run is forecasted to be 795,000 fish, which is approximately 216,000 fewer fish than the 10-year average run of 1.01 million fish and 165,000 fewer fish than the 2019 late run of 960,000 fish (Table 27). The 2020 late run is predicted to be composed of approximately 65% age-.3, 34% age-.2, and 1% age-.1 and age-.4 fish. The 2020 total Chignik sockeye salmon run is expected to be 1.30 million fish, which is approximately 1.01 million fewer fish than the 10-year average of 2.30 million fish, and roughly 25,000 fewer fish than the 2019 total run of 1.32 million fish.

The projected 2020 early-run total harvest estimate of 101,000 fish is based on achievement of the midpoint of the early-run escapement goal range. The projected late-run harvest estimate of 485,000 fish is based on achieving the midpoint (310,000 fish) of the late-run goal, which includes the inriver run goal of 20,000 fish added to the lower bound (200,000 fish) of the escapement goal. For 2020, it is projected that sockeye salmon harvests for both early and late runs in the Chignik Management Area will not exceed a 600,000 fish surplus beyond escapement goals and, by regulation, preclude commercial fisheries from harvesting Chignik-bound fish in the Cape Igvak Section of the KMA and in the SEDM of the Alaska Peninsula Management Area during the regulatory period through July 25.

The wide confidence intervals around the point estimate of the 2020 forecasts reflect the uncertainty inherent in the forecast models. Given the sibling relationships used for forecasting both runs and the poor 2019 age-.3 returns, the 2019 forecast may overestimate returns if environmental variables, which are unknown at this time, remain spurious. Due to the range of variation in the relationships used in these forecasts and their historical accuracy, our confidence in them is fair.

Forecast by Heather Finkle, Finfish Research Biologist, Westward Region.

# APPENDIX B. CHIGNIK SALMON SUBSISTENCE PERMIT

Appendix B1.-Chignik salmon subsistence permit.

2020 CHIGNIK AREA SUBSISTENCE SALMON FISHING PERMIT							
	Permit expires December 31, 2020						
Name: Address:	t I am an Alaska resident, and a	ny fish taken will			gnik Managment only.	Area Only.	
Permittee signature	2					Date	
Email address: _				Renew permit	for next year:	ב	
	ble below must be filled out (eve December 31, 2020. Failure to					nent of Fish and	
		TENCE SALM					
		Number of salm					
DATE	SPECIFIC LOCATION	KING	SOCKEYE	соно	PINK	СНИМ	
<b>├───┼</b>							
$\vdash$							
ALL PERSONS MUST HAVE A VALID SUBSISTENCE PERMIT IN POSSESSION WHILE TAKING OR ATTEMPTING TO TAKE SUBSISTENCE							
SALMON.  COMPLETE THE SUBSISTENCE HARVEST REPORTS IMMEDIATELY UPON LANDING SALMON. UNSUCCESSFUL TRIPS SHOULD ALSO BE RECORDED.							
SUBSISTENCE.	50 SALMON PER PERMIT. ADDITI					FOR	
REFER TO THE CURRENT SUBSISTENCE REGULATION BOOK FOR COMPLETE REGULATIONS Return permit to: Chignik Salmon Management, ADF&G, 351 Research Court, Kodiak, AK 99615 by December 31, 2020.							
Department represe	entative					Date	
	(SEE OPPOSITE SIDE FOR SUBSISTENCE REGULATIONS)						

-continued-

#### SELECTED SUBSISTENCE REGULATIONS

These listed regulations are not inclusive of all the regulations that apply to subsistence salmon fishing in the Chignik Area.

5 AAC 01.015. SUBSISTENCE FISHING PERMITS AND REPORTS. (b)(3) Permits must be retained in the possession of the permittee and be readily available for inspection while taking fish. A person who transports subsistence-taken fish shall have a subsistence fishing permit in their possession.

5 AAC 01.460. FISHING SEASONS. Fish, other than rainbow trout and steelhead trout, may be taken at any time, except as may be specified by a subsistence fishing permit. Rainbow trout and steelhead trout, taken incidental in other subsistence finfish net fisheries, are lawfully taken and may be retained for subsistence purposes.

5 AAC 01.470. LAWFUL GEAR AND GEAR SPECIFICATIONS. (a) Salmon may be taken by seines and gillnets, or with gear specified by a subsistence fishing permit, except that salmon in Chignik Lake may not be taken with purse seines. A gillnet may not be set while staked, anchored, or otherwise fixed in a stream while it obstructs more than one-half of the width of the waterway.

5 AAC 01.475. WATERS CLOSED TO SUBSISTENCE FISHING. Salmon may not be taken (1) from July 1 through August 31, in the Chignik River from a point 300 feet upstream from the Chignik weir to Chignik Lake; (2) in Black Lake or any tributary to Black Lake or tributary to Chignik Lake except in the Clark River and Home Creek from their confluence with Chignik Lake upstream one mile.

#### AAC 01.480. SUBSISTENCE FISHING PERMITS.

- a. Salmon, trout and char may only be taken under the authority of a subsistence fishing permit.
- b. Not more than 250 salmon may be taken for subsistence purposes unless otherwise specified on the subsistence fishing permit.
- c. A record of subsistence-caught fish must be kept on this permit. The record must be completed immediately upon taking subsistence-caught fish and must be returned to the local representative of the department no later than December 31 of the year issued.

5 AAC 01.485. RESTRICTIONS ON COMMERCIAL FISHERMAN. (a) In the Chignik Area, a commercial salmon fishing license holder may not subsistence fish for salmon during the 12 hours before the first commercial salmon fishing period and the 12 hours following the closure of a commercial salmon fishing period. However, a commercial salmon fishing license holder may subsistence fish for salmon during a commercial salmon fishing period.

#### SPECIAL PERMIT PROVISIONS

- 1. The adipose fin must be removed from all subsistence-caught salmon immediately upon capture.
- A commercial license holder may not fish for both subsistence and commercial salmon at the same time. Further, a commercial salmon vessel may not carry both the subsistence and commercially caught salmon at the same time.
- 3. A commercial fishing vessel may not simultaneously carry both commercial seine and subsistence gillnet gear.
- Commercial fisherman may always remove salmon from their commercial catch for home pack. Record the number of salmon taken by species for home pack use on your fish ticket.
- 5. This permit can be withdrawn at any time.

#### NOTICE TO FISHERMAN:

Before you fish, be sure you know whose land you are on and check the regulations. State regulations apply on all state, private, and federal lands where authorized. Private landowners may restrict entry on their land. Federal lands may be closed to fishing except by certain rural residents. Persons standing on state or private lands should be sure their fishing activities are legal under state regulations. If you have questions regarding the federal subsistence fisheries, please contact the Federal Office of Subsistence Management at 1-800 478-1456.

Return permit by December 31, 2020 to: Alaska Department of Fish and Game, Chignik Salmon Management, 351 Research Court, Kodiak AK 99615. Questions or concerns please contact your local Fish and Game Office: Chignik (907) 845-2243 (May 15 to September 15) or Kodiak (907) 486-1830.