

Fishery Management Report No. 16-15

**Chignik Management Area Commercial Salmon
Fishery Harvest Strategy, 2016**

by

Dawn M. Wilburn

April 2016

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

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Weights and measures (metric)		General		Mathematics, statistics	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
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	e
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, χ^2 , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient (simple)	r
		corporate suffixes:		covariance	cov
Weights and measures (English)		Company	Co.	degree (angular)	$^\circ$
cubic feet per second	ft ³ /s	Corporation	Corp.	degrees of freedom	df
foot	ft	Incorporated	Inc.	expected value	E
gallon	gal	Limited	Ltd.	greater than	>
inch	in	District of Columbia	D.C.	greater than or equal to	\geq
mile	mi	et alii (and others)	et al.	harvest per unit effort	HPUE
nautical mile	nmi	et cetera (and so forth)	etc.	less than	<
ounce	oz	exempli gratia	e.g.	less than or equal to	\leq
pound	lb	(for example)		logarithm (natural)	ln
quart	qt	Federal Information Code	FIC	logarithm (base 10)	log
yard	yd	id est (that is)	i.e.	logarithm (specify base)	log ₂ , etc.
		latitude or longitude	lat or long	minute (angular)	'
Time and temperature		monetary symbols (U.S.)	\$, ¢	not significant	NS
day	d	months (tables and figures): first three letters	Jan, ..., Dec	null hypothesis	H_0
degrees Celsius	°C	registered trademark	®	percent	%
degrees Fahrenheit	°F	trademark	™	probability	P
degrees kelvin	K	United States (adjective)	U.S.	probability of a type I error (rejection of the null hypothesis when true)	α
hour	h	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	β
minute	min	U.S.C.	United States Code	second (angular)	"
second	s	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard deviation	SD
Physics and chemistry				standard error	SE
all atomic symbols				variance	
alternating current	AC			population sample	Var
ampere	A			sample	var
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

FISHERY MANAGEMENT REPORT NO. 16-15

**CHIGNIK MANAGEMENT AREA COMMERCIAL SALMON FISHERY
HARVEST STRATEGY, 2016**

by

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April 2016

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This document should be cited as:

Wilburn, D. M. 2016. Chignik Management Area commercial salmon fishery harvest strategy, 2016. Alaska Department of Fish and Game, Fishery Management Report No. 16-15, Anchorage.

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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 2016 Chignik Management Area (CMA) commercial salmon fishery. The 2016 total sockeye salmon *Oncorhynchus nerka* forecasted run for the Chignik River watershed is approximately 2,910,000 fish. Approximately 2,190,000 sockeye salmon are expected to be harvested in CMA. In June, the first commercial fishing period in the Chignik Bay, Central, and Eastern districts and the Inner Castle Cape Subsection of the Western District may occur after approximately 20,000 sockeye salmon have escaped or are expected to escape into the Chignik River. Two fishing periods of up to 48 hours in length, separated by at least 48 hours, may occur in the Western District concurrent with the Chignik Bay and Central districts during June and early July. All subsequent Western District fishing periods and the first commercial fishing period in the Perryville District may occur on July 6. Fishing periods in the outer portions of these 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 CMA based on its evaluation of the local pink *O. gorbuscha*, chum *O. keta*, and coho *O. kisutch* salmon runs, as well as the Chignik watershed late-run sockeye salmon escapement.

Key words: Chignik, sockeye salmon, *Oncorhynchus nerka*, Chinook, *O. tshawytscha*, pink, *O. gorbuscha*, chum, *O. keta*, coho, *O. kisutch*, Chignik Management Area, CMA, 2016 management plan, subsistence fishing, commercial fishery, SEG, FMR.

INTRODUCTION

This document provides stakeholders with the basic framework of how the Alaska Department of Fish and Game (ADF&G) will manage the 2016 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 (Figure 2).

The 2016 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 early-run (Black Lake) and late-run (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 2016–2019 *Alaska Peninsula, Atka-Amlia Islands, Aleutian Islands and Chignik Areas Commercial Salmon Fishing Regulations* booklet (ADF&G 2016) 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 streamward 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 (dawn.wilburn@alaska.gov) and Chignik Assistant Area Management Biologist (lucas.stumpf@alaska.gov). It is the responsibility of the processor to contact ADF&G for proper catch-reporting protocols. Failure to report daily catch information in a timely manner is a violation of commercial fishing regulations (5 AAC 15.355). Timely and accurate catch information from all CMA fishing districts allows for informed and consistent management actions. Information needs, reporting formats, and timetables will be discussed in detail at the preseason stakeholders meeting held during early June and/or may be obtained by contacting the management staff at the Chignik weir.

All salmon caught must be reported on an ADF&G 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 of their catch before harvesting fish. Discarding commercially caught salmon is prohibited by Alaska Statute (AS 16.05.831), and this rule will be strictly enforced.

The CMA statistical areas have been restructured beginning in 2016. Due to the creation of new statistical areas and reassignment of numbers, new statistical charts should be used when filling out fish tickets. 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.

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 availability of a harvestable surplus of fish. News releases 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. News releases will be broadcast over VHF channel 6. If you wish to receive news releases by e-mail or fax, please access the centralized ADF&G News Release System at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main> (accessed April 2016) and subscribe to the Chignik salmon seine fishery. Detailed instructions are located in Appendix A of this

document. Catch, escapement, and other fishery information will be broadcast over VHF channel 6 at 9:15 AM and 6:15 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 (dawn.wilburn@alaska.gov) or by phone (845-2243 or 486-1830) to be placed on the e-mail distribution list.

Beginning on June 1 an automated information line (907-845-2235) will be activated at the Chignik weir. This line will provide callers with recent escapement and harvest information as well as any current news releases.

2016 SALMON FORECASTS

SOCKEYE SALMON

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 inseason indicators of actual run strength as they become available. The Chignik River sockeye salmon runs are monitored in-season through the Chignik River weir. Run strength, as well as characteristics contributing to the quality of the run, is monitored daily through the weir and through commercial fisheries information. ADF&G will aim to achieve escapement within the range of the escapement goals; however, in season adjustments may be made to management objectives if there is concern over quality of the run.

Total Run

The 2016 total sockeye salmon run for the Chignik River watershed is forecasted to be 2,909,000 fish (range 1,173,000 fish to 4,660,000 fish; Appendix B1; Brenner and Munro 2016). The total projected commercial harvest for 2016 is 2,190,000 sockeye salmon, of which 1,767,000 are expected to be harvested in CMA.

Early Run (Black Lake)

The total early-run forecast is approximately 1,800,000 sockeye salmon (range 740,000 fish to 2,880,000 fish; Appendix B1; Brenner and Munro 2016). The Chignik early-run harvest is projected to be approximately 1,410,000 fish. The early-run biological escapement goal (BEG) range is 350,000–450,000 sockeye salmon (Table 1; Schaberg et al. 2015). 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 forecast is approximately 1,110,000 sockeye salmon (range 440,000 fish to 1,780,000 fish; Appendix B1; Brenner and Munro 2016). The Chignik late-run harvest is projected to be approximately 780,000 fish. The late-run sustainable escapement goal (SEG) range is 200,000–400,000 sockeye salmon. To increase the opportunity for inriver subsistence harvest, an additional 75,000 sockeye salmon (25,000 sockeye salmon in August and 50,000 in September) are added to the lower bound of the late-run goal, resulting in a total late-run escapement goal range of 275,000–400,000 sockeye salmon (Table 1; Schaberg et al. 2015). It should be noted that the 2016 season late-run forecast was developed prior to the 2016 Board of Fisheries meeting during which the September inriver run goal was increased by 25,000 fish (from 50,000 fish to the current 75,000 fish). Therefore the lower bound of the escapement goal

forecast range would be adjusted to 275,000 fish. The late run typically peaks in late July and returns primarily to Chignik Lake and its tributaries.

OTHER SALMON SPECIES

Chinook Salmon

The 2016 CMA projected Chinook salmon commercial harvest is 5,000 fish, based on the most recent 10-year average harvest. 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. 2015).

Coho Salmon

The 2016 CMA projected coho salmon commercial harvest is 90,000 fish and is also based on the most recent 10-year average. 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.

Pink Salmon

The 2016 CMA projected pink salmon commercial harvest is 327,000 fish based on the average even-year harvest from 2010–2014. Historically, the Western District has provided the largest proportion of the annual commercial harvest.

In January of 2015, an escapement goal review team met to review the CMA salmon stocks with escapement goals. From that review, the team recommended changing the areawide even-year and odd-year pink salmon SEG ranges. The new CMA even-year escapement goal for pink salmon is an areawide SEG range of 170,000–280,000 fish (Schaberg et al. 2015). This SEG range was developed based on 8 index systems distributed throughout 4 of the 5 fishing districts in the CMA. These 8 systems have represented approximately 53% of the annual pink salmon indexed escapement over the last 35 years. During past seasons, ADF&G has surveyed 49 index streams in order to monitor CMA pink salmon runs and to calculate an escapement estimate based on peak aerial surveys. In 2016, 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

The 2016 CMA projected chum salmon commercial harvest is 194,000 fish. Historically, the Central and Western districts have provided the largest proportion of the annual commercial harvest.

In January of 2015, an escapement goal review team met to review CMA salmon stocks with escapement goals. From that review, the team recommended changing the lower bound SEG threshold of 57,400 chum salmon. The new CMA escapement goal for chum salmon is an areawide SEG range of 45,000–110,000 fish (Schaberg et al. 2015). This SEG range was developed based on 6 index systems distributed throughout 4 of the 5 fishing districts in the CMA. These 6 systems have represented approximately 57% of the annual chum salmon indexed escapement over the last 35 years. During past seasons, ADF&G has surveyed 42 index streams

in order to monitor the CMA chum salmon runs and to calculate an escapement estimate based on peak aerial surveys. In 2016, 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.

2016 CHIGNIK SALMON MANAGEMENT

2016 BOARD OF FISHERIES REGULATORY CHANGES

The Alaska Peninsula/Aleutian Islands/Chignik Finfish Board of Fisheries (BOF) meeting was held in February 2016. During this meeting, the board adopted a proposal that changed the number of sockeye salmon required for the September component of the Chignik River sockeye salmon inriver run goal. Previously from September 1–15, ADF&G managed for an additional 25,000 sockeye salmon to provide for late season subsistence needs. Under the new regulation, ADF&G will manage for 50,000 sockeye salmon from September 1–30 to provide for subsistence needs (5 AAC 15.357 (B)).

JUNE

By regulation, 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, commercial salmon fishing may occur in the Chignik Bay, Central, and Eastern districts, and the Inner Castle Cape Subsection of the Western District (Figure 2). Through approximately June 26, the Chignik Bay, Central, and Eastern districts and the Inner Castle Cape Subsection (273-93) of the Western District (Figure 3) open and close concurrently by regulation (5 AAC 15.357 (c)(1)) and are based upon achieving early-run interim escapement objectives (Table 1). In addition, the entire Western District may open for 2 fishing periods of up to 48 hours in length separated by a minimum closure of 48 hours. Both fishing periods in the Western District shall be opened concurrently with fishing periods in the Chignik Bay, Central, and Eastern districts (5 AAC 15.357 (e)).

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 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 will likely 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 (Wilburn 2015). 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 in the CMA may also occur

in other locations if necessary to generate revenue to fund management operations in the CMA. Details of these test fish will be released via the Fish and Game news release system.

TRANSITION PERIOD

Prior to 2004, scale pattern analysis (SPA) was used to differentiate stock composition during the transition from the early- to late-run sockeye salmon, and the fishery was managed based on the results of this analysis (Witteveen and Botz 2004). Although the program was discontinued in 2004 due to funding constraints, ADF&G staff determined that July 4 was the best average approximation of a separation date between the early and late runs, based on historical SPA data. From 2005 to 2013 the fishery was managed so that through July 4, fishing periods were based on achieving the early-run interim escapement objectives, and beginning July 5 cumulative escapement was reset to zero and subsequent fishing periods were based on achieving the late-run interim escapement objectives.

Since 2010, ADF&G has collected genetic samples from sockeye salmon escapement at the Chignik weir during the period of transition between the 2 sockeye salmon runs. Stock composition information was available inseason in both 2012 and 2013, which assisted in managing the escapement estimates simultaneously for both sockeye salmon runs, although escapement was reset to zero on July 4. In 2014 and 2015, inseason genetic sampling during the peak of the overlap period was used to define the run transition and management decisions were based on this information instead of a set cut-off date between runs. Multiple years of early- and late-run stock proportions highlight the variable nature of the timing of entry into the Chignik River and demonstrate how a set separation date (e.g., July 4) can often underestimate or overestimate respective stock-specific escapement (Foster 2013).

In 2016, genetic samples will be collected at the weir every 3 or 4 days from approximately June 25 to July 15, and estimated escapement will be apportioned to both runs. Adjustments may be made to the sampling schedule by the Area Management Biologist in response to variable run timing in an attempt to obtain the best representation of the run transition. The transition between runs will be estimated by fitting the stock proportion data to the common logistic equation adapted from Quinn and Deriso (1999). Because sample size is large, the normal approximation of the multinomial distribution and a nonlinear weighted least squares optimizing scheme will be used to estimate the transition. The model assumes the late run is 0% on June 1 and 100% by August 1. After the first 2 genetics sample results are analyzed, ADF&G will fit the model and attribute the escapement between early and late run on approximately July 3 or 4, after which additional samples will build on and refine the transition and escapement apportionment.

The Eastern District will likely be closed until the strength of the Chignik River watershed sockeye salmon late run can be determined. With the exception of the Inner Castle Cape Subsection of the Western District, the remainder of the Western and Perryville districts will likely remain closed during the June portion of the transition period.

JULY

During July, the Chignik Bay and Central districts (Figure 2) will be managed primarily based on 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. 2015). 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 9 and is likely to be at least 48 hours in duration. Extensions to this fishing period will depend on pink and chum salmon fishery harvest as compared to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels. The entire 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 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 escapements are not sufficient in those areas or closed waters may be reduced if escapement is sufficient and there is a large harvestable surplus of fish.

With the exception of the Inner Castle Cape Subsection (Figure 3), which opens concurrently with the Chignik Bay and Central districts, commercial fishing periods in the Western and Perryville districts (Figure 2) may be allowed beginning July 6 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). The first commercial salmon fishing period in these districts is likely to be 48 hours in duration. Extensions will depend on pink and chum salmon fishery harvest as compared to historical catch records, local pink and chum salmon escapements, and Chignik River watershed sockeye salmon escapement levels.

Beginning in the 2016 season, several new inner bay statistical areas have been 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 intends to conduct at least one 48-hour inner bay fishery as early as July 6, in the new statistical areas of the Western and Perryville districts as well as the Kujulik Bay 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 48-hour fishing periods may occur; however, management will be primarily escapement based for pink and chum salmon, and may also consider the amount of fishing time already occurring in the districts.

If surplus Chignik River sockeye salmon are not expected to be available for harvest, the commercial fisheries in the Western and Perryville districts will likely occur north of the Cape

Itki line beginning in mid-July to target local pink and chum salmon while avoiding 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 escapements are not sufficient. 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 September 15 for the 2016 season. In addition, 2 Dual Frequency Identification Sonars (DIDSON) will be operated concurrently from August 15 through September 15 in order to obtain a direct comparison of the 2 enumeration methods. This will allow ADF&G to develop correction factors for the 2 methods specifically for the Chignik River. The purpose of this project is to develop a means for a more accurate assessment of the Chignik River late-season sockeye salmon run through the use of DIDSON after the weir has been removed. This project is funded by an Alaska Sustainable Salmon Fund (AKSSF) proposal through 2018.

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 1, 2, 3, or 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; and
- a complete closure.

During August and September, the Eastern District (Figure 2) will be managed based on local pink, chum, and coho salmon abundance (5 AAC 15.357(c)(3)). 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, district-wide openings will not be allowed unless Chignik River sockeye salmon interim escapement objectives are expected to be met and overall pink and chum salmon abundance is sufficient to meet Eastern District escapement objectives.

Until approximately August 20, fishing periods in the Western and Perryville districts (Figure 2) will be based on the evaluation of pink and chum salmon run strength (5 AAC 15.357(d)(2)). After August 20, fishing time in the Western and Perryville districts will be based on Chignik River sockeye salmon escapement and local pink, chum, and coho salmon abundance. 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. District-wide openings will not be allowed unless Chignik River sockeye salmon interim escapement objectives are expected to be met and overall pink and chum salmon abundance is sufficient to meet Western and Perryville escapement objectives.

2016 SUBSISTENCE SALMON FISHERY

All subsistence salmon fishermen must obtain a Chignik Area subsistence salmon permit issued by the ADF&G for the 2016 season (5 AAC 01.015; Appendix C1). The permits will be available at the Chignik Weir Field Office and from several local vendors. Catch information obtained from subsistence permits is compiled annually and used to assess regional subsistence salmon fisheries. Subsistence fishing regulations are available online at http://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2015-2016subsistence_pu.pdf (accessed April 2016). This document briefly covers state subsistence regulations only. For more information on federal subsistence fishing regulations please contact the U.S. Department of the Interior.

An Alaskan 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. 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. The Chignik River, beginning 100 yards below the weir, is open to subsistence salmon fishing year round. 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 one mile, are open to subsistence salmon fishing (5 AAC 01.475(2)). The BOF 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 gillnet that is fixed, anchored, or otherwise held in place 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)). Subsistence users must carry their subsistence fishing permit with them while fishing. The adipose fin must be removed from all subsistence-caught salmon immediately after harvest.

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- Witteveen, M. J., and J. C. Botz. 2004. Chignik lakes scale pattern analysis, run assessment, and sockeye salmon catch sampling results, 2003. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K04-30, Kodiak.

TABLES AND FIGURES

Table 2.–Chignik Management Area statistical areas prior to 2016 and new statistical areas in 2016.

Area	Statistical area	
	Prior to 2016	2016
<u>Perryville District</u>		
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
<u>Western District</u>		
Mitrofanina Section		
Coal Cape Area	273-70	273-70
Ivan Bay	N/A	273-71
Fishrack Bay	N/A	273-73
Mitrofanina Island	273-74	273-74
Mitrofanina 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
<u>Chignik Bay District</u>		
Chignik Lagoon	271-10	271-10
<u>Central District</u>		
Outer Chignik Bay Section		
Chignik Bay	272-20	272-20
Hook Bay	272-30	272-30
Nakchamik Island	272-40	272-40

-continued-

Table 2.–page 2 of 2.

Area	Statistical area	
	Prior to 2016	2016
<u>Central District (continued)</u>		
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
<u>Eastern District</u>		
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

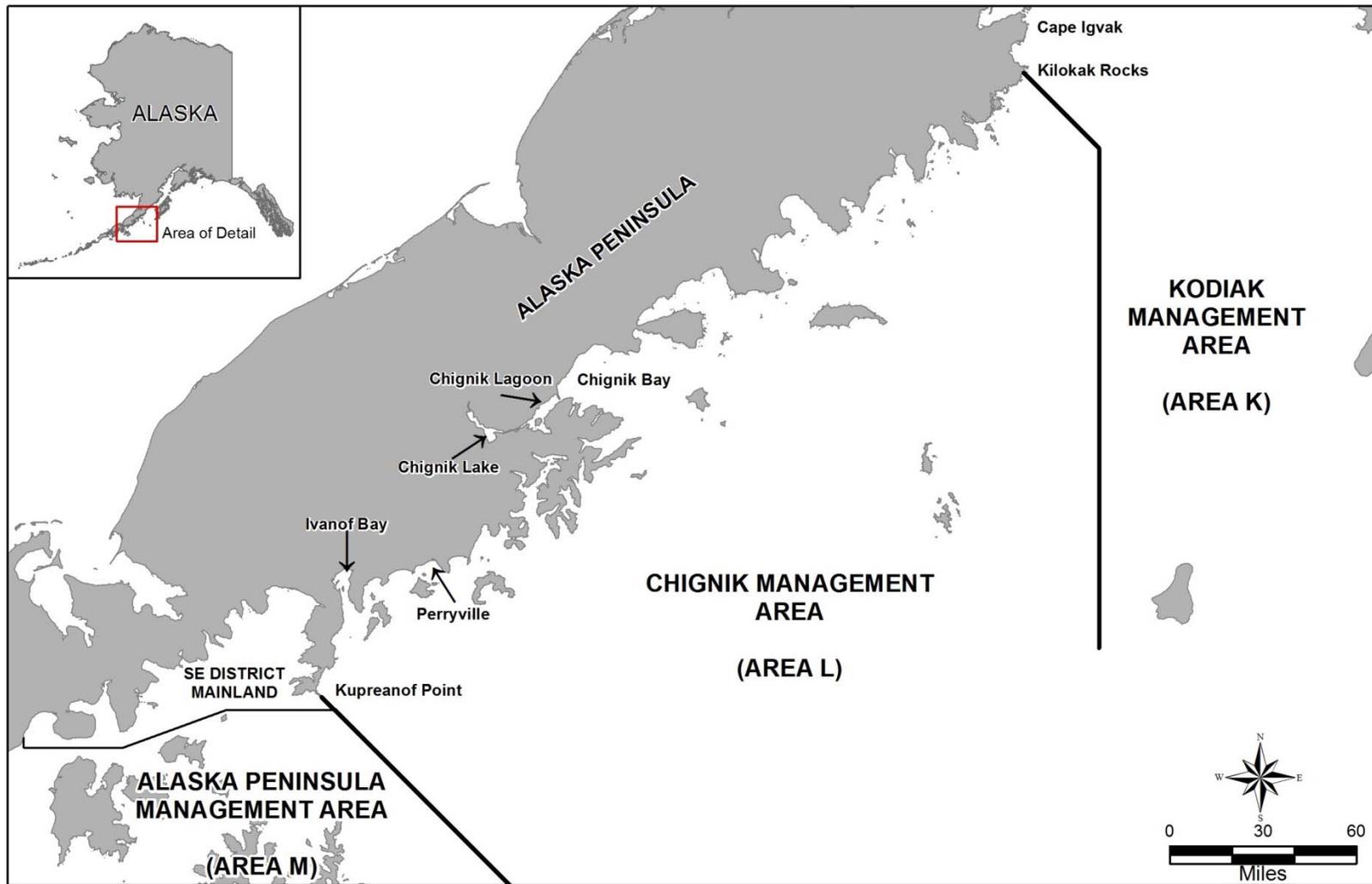


Figure 1.—Map of the Alaska Peninsula and the relative locations of the Chignik, Kodiak, and Alaska Peninsula Management Areas.

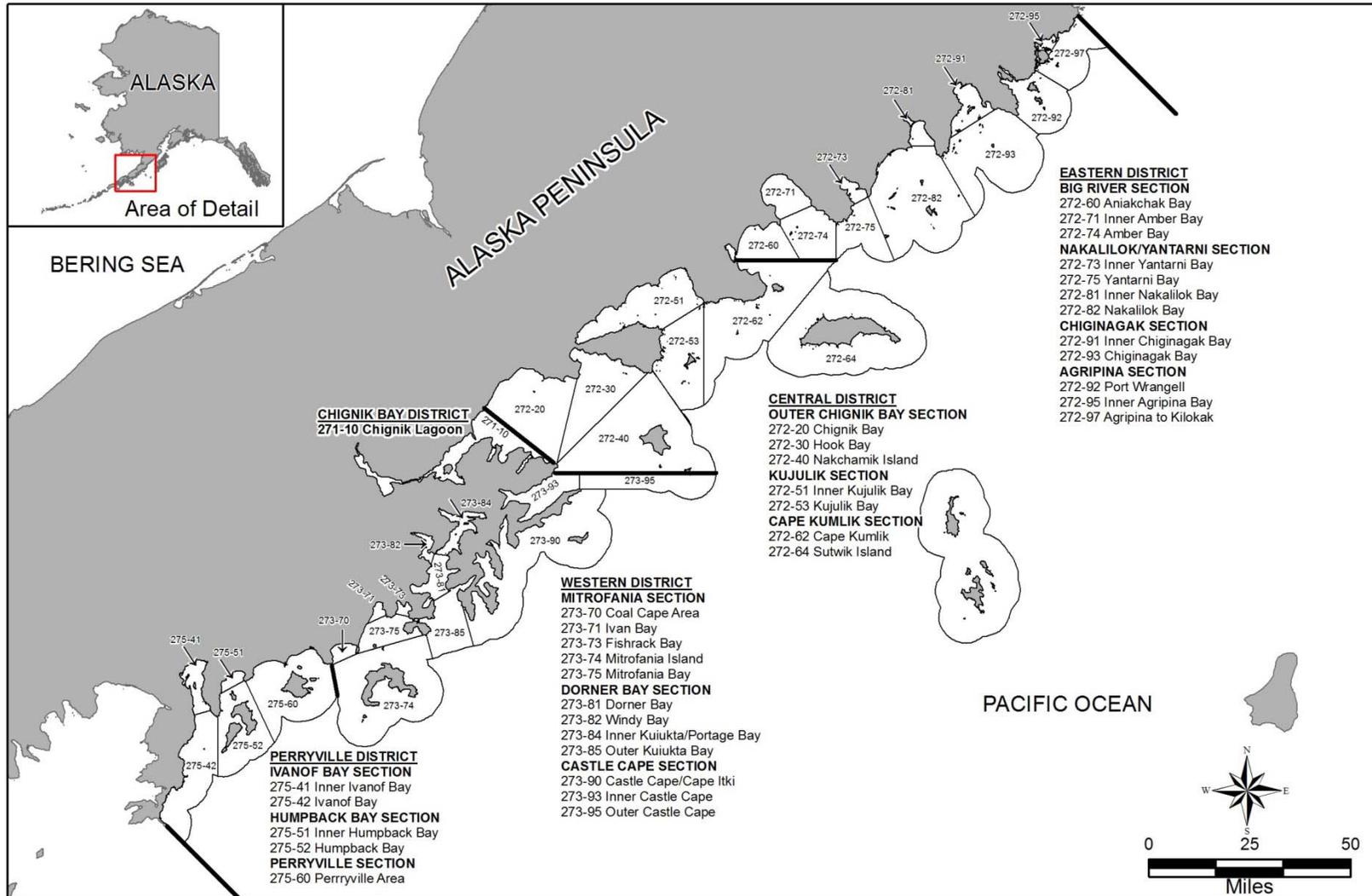


Figure 2.-Map of the Chignik Management Area commercial fishing district boundaries and statistical areas.

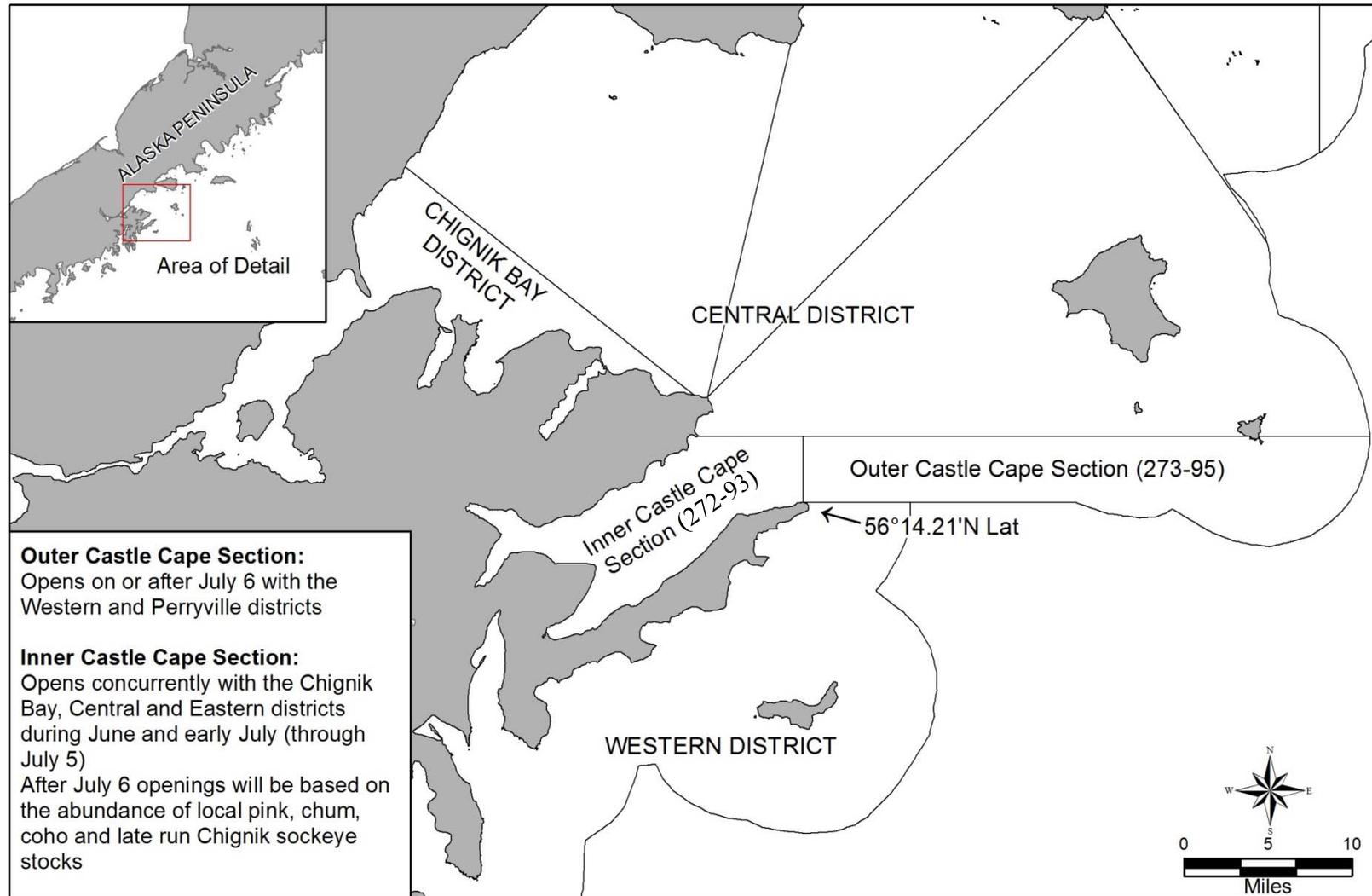


Figure 3.—Map of the Inner (273-93) and Outer Castle Cape (273-95) subsections of the Western District.

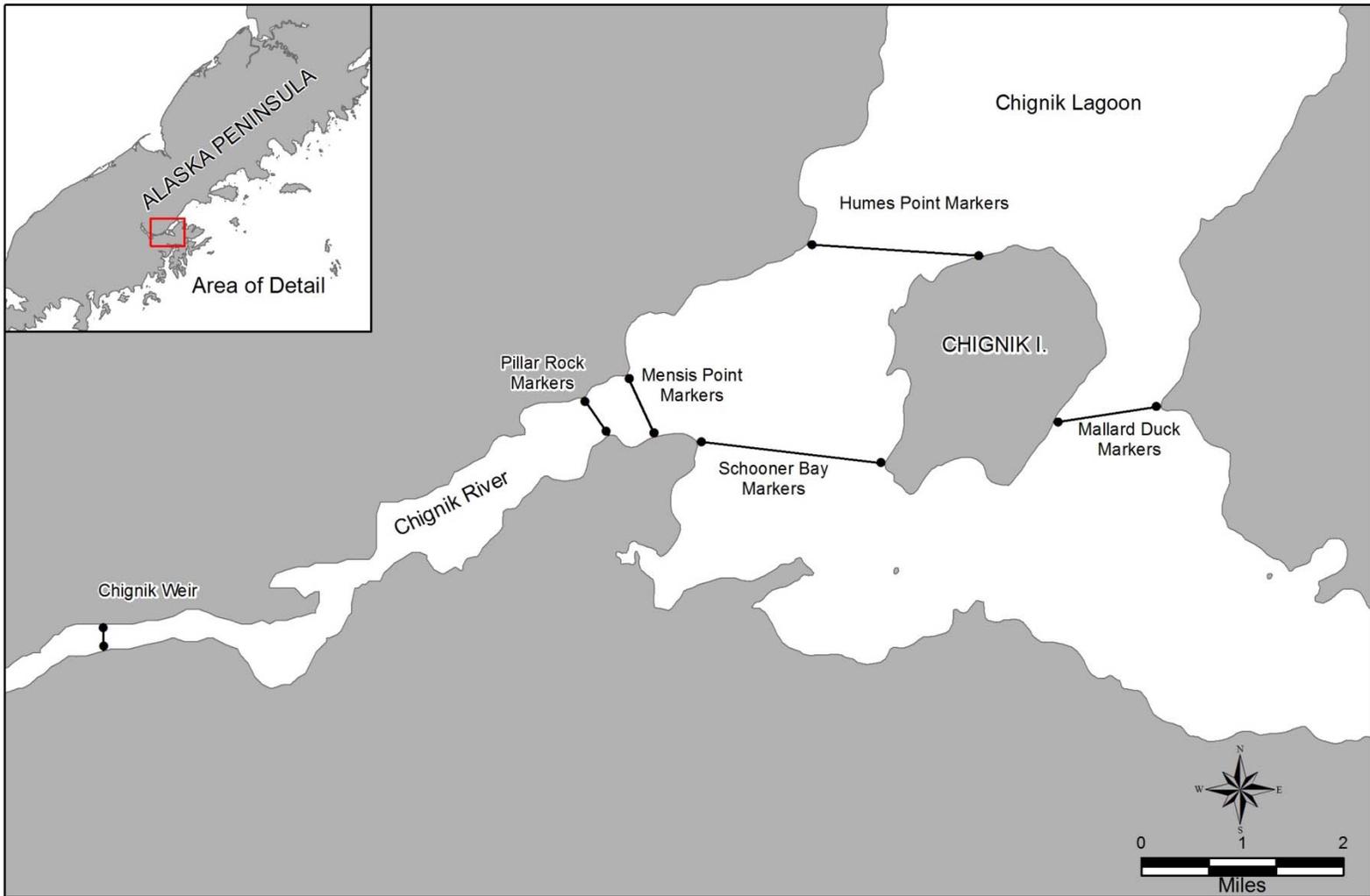


Figure 4.—Map of upper Chignik Lagoon and the location of Pillar Rock, Mensis Point, Humes Point, Mallard Duck, and Schooner Bay marker locations and the location of the Chignik weir.

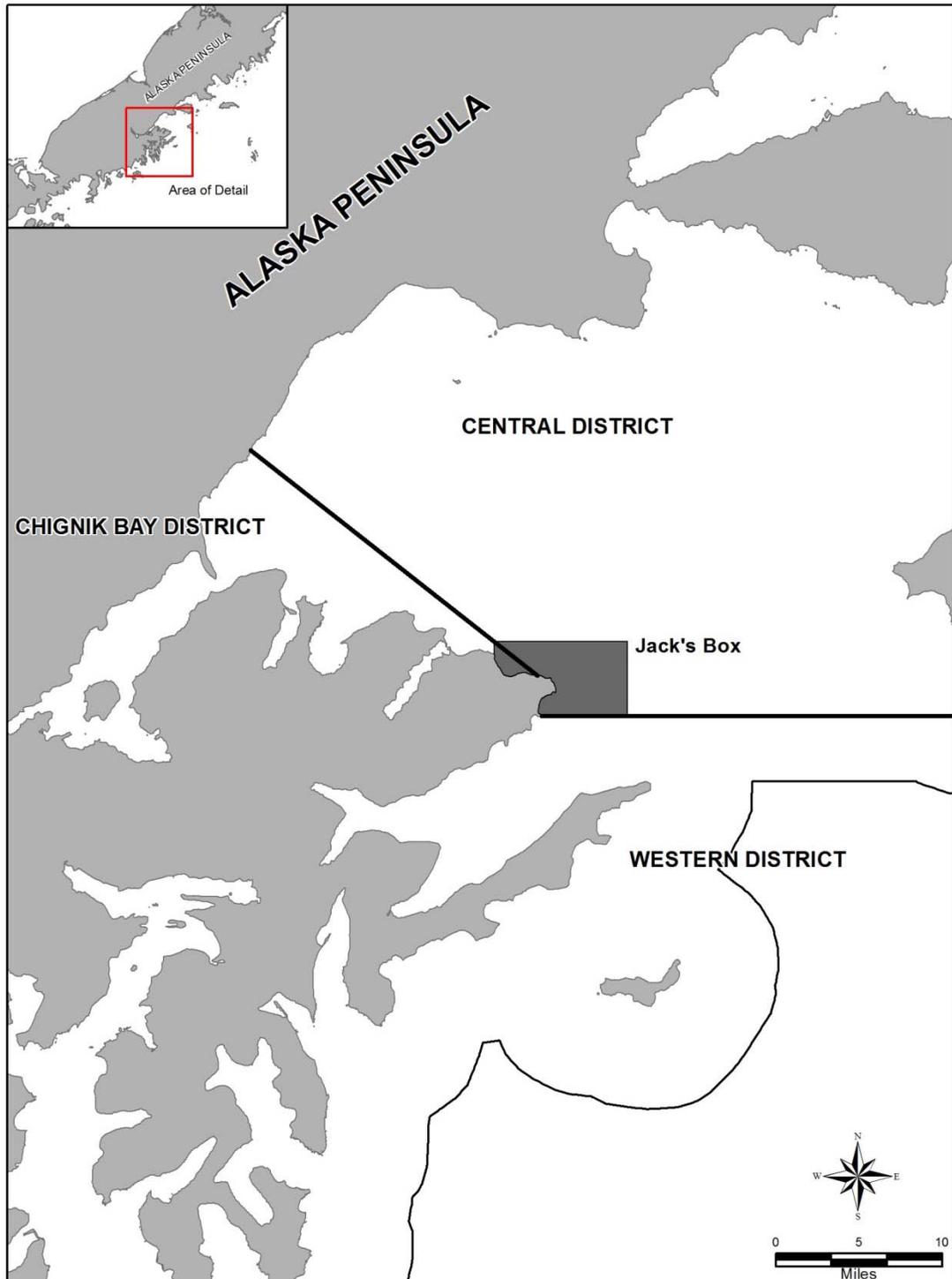


Figure 5.—Map of “Jack’s Box” in the Chignik Bay and Central districts.

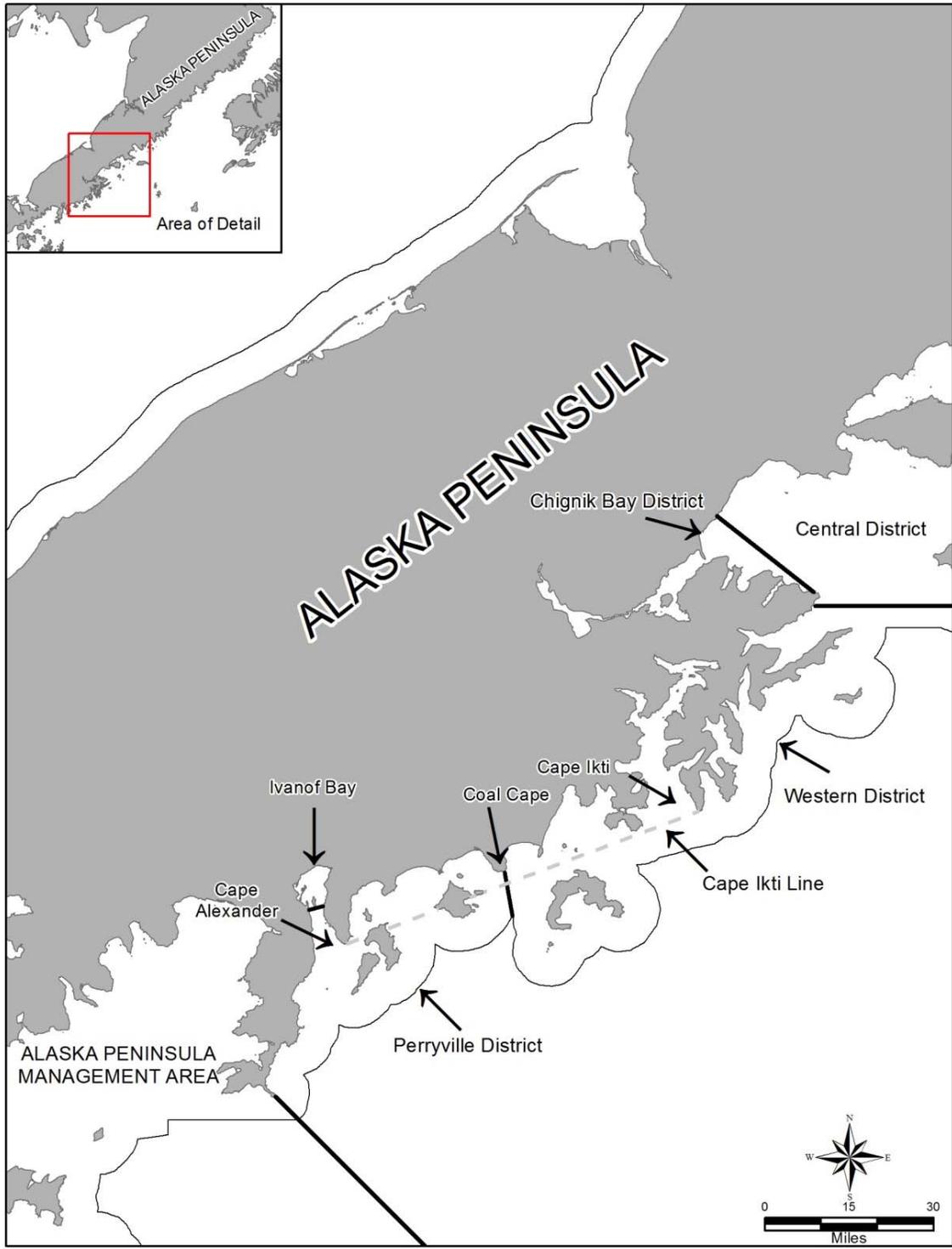


Figure 6.—Map of the “Cape Ikti Line” in the Western and Perryville districts.

APPENDIX A. NEWS RELEASE INSTRUCTIONS

Appendix A1.–User instructions for new Division of Commercial Fisheries fishery announcements news release system.

**USER INSTRUCTIONS FOR NEW DIVISION OF COMMERCIAL FISHERIES
FISHERY ANNOUNCEMENTS NEWS RELEASE SYSTEM**

May 23, 2011



-continued-

On May 23, 2011, a new system for publishing news releases announcing commercial fishery openings, closings, fishing areas, times, etc. became available on the Alaska Department of Fish and Game website. This system also publishes non-regulatory fishery updates that convey information about specific fisheries, and allows users to find announcements about subsistence fishing and those personal use fisheries managed by the Division of Commercial Fisheries.

The new system replaces several older systems used by the division to publish fishing announcements and fishery updates to the web and allows a single entry portal for state-wide searching and the creation of e-mail subscriptions.

As of May 31, 2011, all news releases are not issued through this single system. The public may now subscribe to electronic notification via e-mail for specific fisheries that may be of interest. All fishery news releases and announcements from that date forward will appear in the system as they are issued. If the public has subscribed to any news those news releases are delivered to the user's e-mail inbox as they are issued.

This system can be located on the Alaska Department of Fish and Game website, a visitor to the site should look for the "News and Events" icon which can be found by clicking on the "Home" or "Fishing" menus at the top of any webpage on the site. A "News and Events" icon is located on these pages and clicking on this icon takes the user to the "News and Events" page. By clicking "Regulation Announcements, News Releases, Emergency Orders" and then the "Commercial Fishing" icon, the user can also go directly to this application by copying the following link into their browser. It might be a good idea to bookmark this link for ease of returning to the site for subsequent visits.

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

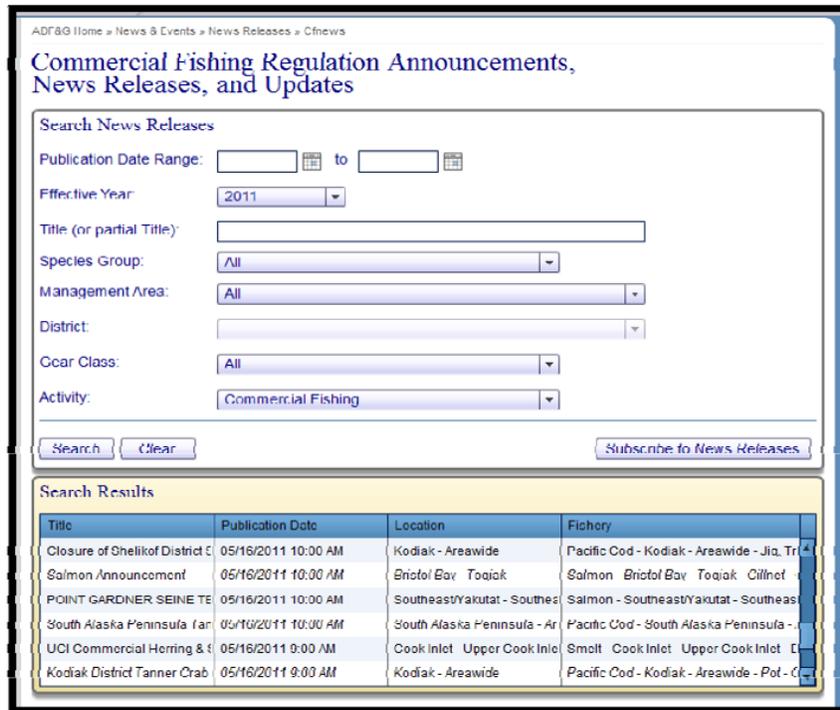
The screenshot shows the Alaska Department of Fish and Game website. The main header includes the state logo and navigation links for Home, Fishing, Hunting, Viewing, Education, Species, Lands & Waters, and Regulations. The current page is titled "Commercial Fishing Regulation Announcements, News Releases, and Updates". A search form is present with the following fields: "Publication Date Range" (with date pickers), "Effective Year" (dropdown menu), "Title (or partial Title)" (text input), "Species Group" (dropdown menu), "Management Area" (dropdown menu), "District" (dropdown menu), "Gear Class" (dropdown menu), and "Activity" (dropdown menu). There are "Search" and "Clear" buttons at the bottom of the form, and a "Subscribe to News Releases" button to the right.

-continued-

USING THE NEW SYSTEM – Searching for News Releases:

The new Commercial Fishing Regulation Announcements, News Release, and Updates web page allows you to select the news releases of interest by using the search screen. Drop down menus are available for all selection categories, to assist in filtering the search of News Releases. Using the drop down menus, you can narrow your search and the results of that search.

It is possible to view a list of all releases issued by the commercial fisheries division in an entire year or, as is usually the case, search for a specific fishery, like the Bristol Bay salmon fishery or Kodiak black rockfish fishery. To select the entire set of releases, every drop down menu should have “all” selected, except for year, which should be set for the current year, 2011. Press the “Search” button and the results will be displayed within the “Search Results” box. The following screen shot shows the selection criteria and search results for all news releases and updates.



To search for news releases specific to the Bristol Bay salmon fishery, the user selects 2011 as the year, salmon as the species, Bristol Bay as the management area, all for district, and activity as commercial fishing. Then push the “Search” button and the results are displayed in the “Search Results.” A screen print of this selection is provided below. It would also be possible to search for a specific district in Bristol Bay by also selecting one of the “District” options within a specific management area.

To view a particular news release that is displayed in the Search Results section, the user will double click on that item in the list and it will open as a PDF document. The user will need to have Acrobat Reader installed on your computer to display and print the document.

ADF&G Home » News & Events » News Releases » C/news

Commercial Fishing Regulation Announcements, News Releases, and Updates

Search News Releases

Publication Date Range: to

Effective Year:

Title (or partial Title):

Species Group:

Management Area:

District:

Gear Class:

Activity:

Search Results

Title	Publication Date	Location	Fishery
Bristol Bay Eastside # 1	05/17/2011 9:30 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t
BB TEST 8	05/17/2011 8:40 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t
BB eastside	05/17/2011 7:35 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t
BB east side test	05/17/2011 7:32 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t
BB east side # 2	05/17/2011 7:24 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t
BB eastside # Xx	05/17/2011 7:12 AM	Bristol Bay - Egegik	Salmon - Bristol Bay - Egegik - Gillnet - t

-continued-

Subscribing to News Releases:

After making a news release selection, it is possible to subscribe and receive, via e-mail, future news releases for the specific fishery selected, by pushing the “Subscribe to News Releases” button at the right lower corner of the search screen. The subscription web page will display, as shown below.

The screenshot shows a web form titled "Subscribe to News Releases Via Email". At the top, there is a breadcrumb trail: "ADF&G Home > News & Events > News Releases > CNews". Below this is a blue header with the text "Commercial Fishing Regulation Announcements, News Releases, and Updates". The form itself is enclosed in a box and contains the following elements:

- A red asterisk followed by the text "* Indicates a required field".
- Species Group: A dropdown menu with "Salmon" selected.
- Gear Class: A dropdown menu with "All" selected.
- Activity: A dropdown menu with "Commercial Fishing" selected.
- Management Area: A dropdown menu with "Bristol Bay" selected.
- District: A dropdown menu with "All" selected.
- Email Format: A dropdown menu with "HTML with PDF" selected.
- Email Address: A text input field with a red asterisk to its left.
- Confirm Email Address: A text input field with a red asterisk to its left.
- At the bottom left, there are two buttons: "Subscribe" and "Clear".
- At the bottom right, there is a button labeled "Search for News Releases".

Simply type in an e-mail address in the box provided and then confirm this e-mail address in the box provided for confirming e-mail addresses, push the “Subscribe” button, and the subscription process is finished. News releases for the fisheries selected by the user will begin to appear in the user’s mailbox as they are published by ADF&G staff.

The user may return to the search screen by pushing the “Search for News Releases” button in the lower right hand corner of the subscription screen. When you subscribe to all News Releases for a specific category, as defined by the drop down menu, this subscription is limited to the selection you created. If you wish to subscribe to news releases for other fisheries you will need to repeat the process described above for each subscription desired.

A user may unsubscribe to any subscription by clicking on the link “Unsubscribe” that is included within each e-mail sent to a subscriber.

**APPENDIX B. 2016 CHIGNIK SOCKEYE
SALMON FORECAST**

Forecast Area: Chignik
Species: Sockeye Salmon

Preliminary Forecast of the 2016 Run

		Forecast Estimate (thousands)	Forecast Range (thousands)
Total Production			
Early Run (Black Lake)	Total Run Estimate	1,801	737–2,877
	Escapement Goal ^a	400	350–450
	Harvest Estimate ^b	1,407	
Late Run (Chignik Lake)	Total Run Estimate	1,108	436–1,781
	Escapement Goal ^a	325	250–400
	Harvest Estimate ^b	783	
Total Chignik System	Total Run Estimate	2,909	1,173–4,658
	Harvest Estimate ^b	2,190	
	Chignik Area	1,767	
	SEDM Area	139	
	Cape Igvak Section	284	

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

^a Harvest represents the midpoint of the escapement goal. An inriver run goal of 50,000 sockeye salmon is added to the lower bound of the late-run escapement goal.

^b Includes anticipated harvests of Chignik-bound fish in Southeastern District Mainland and Cape Igvak fisheries.

Forecast Methods

Simple and multiple linear regressions models using age-class relationships and parent escapement data were used to forecast the 2016 early- and late- Chignik sockeye salmon runs. Each regression model was assessed with standard regression diagnostic procedures. Prediction intervals (80%) for the regression estimates were calculated using the variances of the regression models. Age classes that could not be estimated with one of these models were estimated using pooled medians and the 10th and 90th percentiles of the data were used to calculate the prediction interval of the median estimates.

For the early run, simple linear regression was used to predict ocean-age-3 sockeye salmon from prior year ocean-age-2 returns using data from the 1998 outmigration year to the present. Remaining age-class components of the run were predicted by calculating median returns since the 1998 outmigration year (8% of the run).

The late run was predicted using ocean-age-class and sibling relationships. Age-1.3 sockeye salmon were predicted by simple linear regression from prior year age-1.2 returns from 1991 to the present. Age-2.3 sockeye salmon were predicted by simple linear regression from prior year age-2.2 returns from 1992 to the present. Remaining age-class components of the run (ocean-age-1,-2, 0.3, 3.3 and ocean-age-4 sockeye salmon) were predicted by calculating median returns since the 1991 outmigration year (<15% of the run).

-continued-

The early- and late-run regression and median estimates were summed to estimate the total Chignik River sockeye salmon run for 2016. The range was estimated as the overall 80% prediction intervals and calculated as the square root of the sum of the squared 80% prediction intervals for each age class forecasted. The combined early- and late-run 80% prediction interval was calculated by summing the lower prediction bounds and upper prediction bounds of the two runs.

Forecast Discussion

The 2016 Chignik sockeye salmon early run is forecasted to be 1.80 million fish, which is 548,000 fish more than the 10-year average run of 1.26 million and 645,000 fish more than the 2015 early run of 1,161,915 fish. The early run is predicted to comprise 92% ocean-age-3 fish, 7.8% ocean-age-2 fish, and <1% of remaining age-class components. The late run is forecasted to be 1.11 million fish, which is 9,000 fish more than the 10-year average run of 1.12 million fish and 511,000 fish less than the 2015 late run of 1,618,886 fish. The 2016 late run is predicted to comprise 86% ocean-age-3 (31% age-1.3 and 54% age-2.3), 13% ocean-age-2, and <1% ocean-age-1 and -4 fish. The total Chignik sockeye salmon run is expected to be 2.91 million fish, which is approximately 539,000 fish more than the 10-year average of 2.38 million and 135,000 fish more than the 2015 total run of 2.78 million.

Inseason genetic estimates of each run were used to manage the fishery in 2015, and will continue to be used in 2016. Inseason genetics proved particularly important in 2015, as both runs came in strong, but late. The projected 2016 early-run total harvest estimate of 1.41 million fish is based on achievement of the mid-point of the early-run escapement goal range of 350,000–450,000 fish. The projected late-run harvest estimate of 783,000 fish is based on achieving the mid-point of the late-run goal of 200,000–400,000 sockeye salmon plus the inriver run goal of 50,000 fish which is added to the lower bound of the escapement goal. Therefore, the midpoint is the escapement objectives, or 325,000 fish. Sockeye salmon harvest estimates for both runs include fish harvested in the Chignik Management Area, Chignik-bound fish harvested in the Cape Igvak Section of the Kodiak Management Area, and in the Southeastern District Mainland of the Alaska Peninsula Management Area.

The 2016 forecast for the early run is larger the most recent ten-year average run size, while the late-run forecast approximates the most recent ten-year average run size. Predicting future runs of salmon is always difficult, and the wide confidence interval around the point estimate of the 2016 forecasts is due to the substantial uncertainty included within each of forecast models. The magnitude of the early run is typically more variable than the late run, resulting in wider confidence intervals for early run. Exploratory analysis using other sibling relationships, smolt outmigration data, and environmental variables yielded results similar to this formal forecast. Similar methods have been used for forecasting the early and late runs since 2004. Due to the range of variation in the relationships used in these forecasts and their historical accuracy, our confidence in them is good.

Mary Beth Loewen Finfish Research Biologist, Alaska Peninsula

APPENDIX C. CHIGNIK SALMON SUBSISTENCE PERMIT

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.
2. 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.
4. 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, 2016 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.