

**Regional Operational Plan CF.4K.2015.14**

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**Kodiak Management Area Sockeye Salmon Test  
Fishery Operational Plan, 2015–2017**

by

**Michelle L. Wattum**

April 2015

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

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

***REGIONAL OPERATIONAL PLAN CF.4K.2015.14***

**KODIAK MANAGEMENT AREA SOCKEYE SALMON TEST FISHERY  
OPERATIONAL PLAN, 2015–2017**

by

Michelle L. Wattum

Alaska Department of Fish and Game, Division of Commercial Fisheries, Kodiak

Alaska Department of Fish and Game  
Division of Commercial Fisheries

April 2015

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**SIGNATURE PAGE**

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## PURPOSE

The purpose of the Kodiak sockeye salmon test fishery is to provide data to aid in the management of the Kodiak Management Area (KMA) Westside commercial salmon fishery by establishing an index useful for assessing the relative abundance of Karluk River early-run sockeye salmon (*Oncorhynchus nerka*) prior to commercial fishing periods.

Key words: Kodiak, Karluk, *Oncorhynchus nerka*, sampling, test fish, age, catch, operational plan

## BACKGROUND

An Alitak Bay salmon gillnet test fishery operated from 1986 to 2006, but no salmon test fishery was ever prosecuted elsewhere in the Kodiak Management Area (KMA) until 2010. On June 7–8 2010, a purse seine test fishery pilot study was conducted to gauge the abundance of early-run sockeye salmon returning to the Karluk River in advance of entering the lagoon. A standardized purse seine set was developed at Cape Uyak, where a southbound hook was held for 30 minutes. Cape Uyak is approximately 9 km from the mouth of Karluk Lagoon and within the primary migratory pathway for Karluk River sockeye salmon (Figures 1 and 2). Given the success of the pilot study, increased test fish authority was requested and granted for fiscal year 2011. With minor changes and the exception of one year because of inclement weather, the test fishery has been successfully conducted from 2010–2014. Scale samples are collected to assess age composition and qualitative information (including the presence of a freshwater-age-3 scale pattern found in Karluk River sockeye salmon). All harvested salmon are sold to fund the test fishery.

The Karluk Lake sockeye salmon run has historically provided the largest source of harvestable surplus for the Kodiak commercial salmon fishery (Witteveen et al. 2005). Karluk Lake early-run sockeye salmon is the dominant local stock migrating through Westside Kodiak prior to mid-June (Barrett and Nelson 1995). Westside Kodiak is defined as commercial salmon fishing areas between Low Cape in the south and Cape Paramanof in the north, to Termination Point in the east (Figure 3). Beginning in June and extending into early July, most of the Westside Kodiak fishery management is based on Karluk early-run sockeye salmon escapement, the buildup of sockeye salmon in Karluk Lagoon, and commercial catches (Jackson 2015). A weir operated by Alaska Department of Fish and Game (ADF&G) provides the primary mode of enumeration for sockeye salmon escapement into the Karluk River (Figure 1; Jackson and Keyse 2013). Over the past 20 years Karluk sockeye salmon have shown an increasing tendency to hold for long periods in Karluk Lagoon, prior to escaping in large pulses, making timely management problematic.

The main emphasis of the ADF&G salmon management program is to promote maximum sustainable yield for future KMA salmon returns by supporting salmon escapement of sufficient magnitude and temporal and geographic distribution (Jackson 2015). Simultaneously, the goal is to provide for orderly fisheries, maximize harvest opportunities and product quality, and adhere to management plans adopted by the Alaska Board of Fisheries (BOF). The Kodiak sockeye salmon test fishery is a useful tool in pursuit of the above.

# OBJECTIVES

## BIOLOGICAL OBJECTIVES

- Provide management staff with an index of the migratory abundance of sockeye salmon in the Outer Karluk Section prior to the commercial fishery or during fishery closures.
- Collect scale samples to estimate the age of sockeye salmon caught in the test fishery.

## FISCAL OBJECTIVE

- Secure revenue to meet the needs for the test fishery project: the sale of the fish caught during the test fishery is expected to cover the costs for the charter, ADF&G personnel costs, and equipment necessary for the collection and processing of test fishery samples.

# METHODS

## Request for Quotation

Distribute the Request for Quotation (RFQ) bid package in early May (An example of this can be found in Appendix A.).

## Notification of Test Fishing Activity

The United States Coast Guard (USCG) should be informed of test fishing activity. Directions to do this are found in Appendix B.

## Test Fishery Protocol

The preferred location for test fishing is Cape Uyak in the Outer Karluk Section of the Southwest Kodiak District (Figures 1–2). A hook for southbound fish will typically be held at Cape Uyak for 30 minutes. Fish will be seined using a 2–3 strips deep 250-fathom net with a 50 fathom lead. The strategy is to seine in a standardized manner during the daylight hours while recording geographic coordinates, tidal cycle, seas, and weather conditions. The 2014 test fishery results provided in Table 1 show an example of some data that will need to be recorded. While the preferred and typical set location is Cape Uyak, it is possible that sets will be conducted anywhere between Rocky Point and Cape Karluk (Figure 2).

When the set is complete, all fish captured will be enumerated by species. Scale samples will be collected from harvested sockeye salmon. A minimum of 40 sockeye salmon will be sampled from each set. If less than 40 sockeye salmon are caught in a set, then the number of fish caught will be the sample size for that set. Fishing days include a minimum of 6 sets; if 40 sockeye salmon are caught in each set, the minimum sample size per day is 240 fish. The KMA Salmon Catch and Escapement Sampling Operational Plan (*Wattum In Prep*) provides details on collecting scales from sockeye salmon. All salmon will be transferred into the boat's fish hold containing refrigerated seawater (RSW) after sampling is complete. The number and species of marine mammals in the vicinity of the set will be noted. Test fisheries are required to record bycatch; all species captured will be enumerated and logged. All Chinook salmon (*Oncorhynchus tshawytscha*) will be released immediately; Chinook salmon will not be allowed to flounder on deck.

If test fishery catches are extremely high and the test fish's allowable authority is or will be surpassed, all salmon will be enumerated in the seine and released without being brought aboard.

Test fishery salmon harvested will be sold to a processing facility. Fish tickets will be issued to the State of Alaska, Department of Fish and Game, Division of Commercial Fisheries, Kodiak. Date, pounds, number of fish, and price will be double checked, and a copy of all fish tickets will be retained by the ADF&G employee(s).

**Safety**

United States Coast Guard approved personal flotation devices must be worn at all times while on the water. Safety is the highest priority of this project. State safety regulations and Standard Operating Procedures (SOPs) will be followed at all times. Employees are required to review and sign the following SOPs before beginning work:

- 111-700 Safety Policies and Standards
- 111-730 Aircraft Safety for Passengers
- 111-740 Boating Safety

**SCHEDULE AND DELIVERABLES**

Date	Activity
May	Distribute RFQ and award bid
May–June	Conduct test fishery-communicate with management biologists
early-June	Age sockeye scales, enter into database
January	Final data published in Kodiak Management Area Catch and Escapement Sampling Results report

**RESPONSIBILITIES**

Fisheries Biologist II – Michelle Wattum	Department representative aboard test fishing vessel, sample and age scales, and write final report
Fisheries Biologist III – M. Birch Foster	Department representative aboard test fishing vessel

## REFERENCES CITED

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- Witteveen, M., N. Sagalkin, M. Foster, K. Bouwens, S. Honnold, S. Schrof, and R. Baer. 2005. Westward Region salmon run reconstruction for the 2003 season and forecasting for the 2004 season. Alaska Department of Fish and Game, Division of Commercial Fisheries Regional Information Report 4K05-02, Kodiak.

## **TABLES AND FIGURES**

Table 1.–Kodiak salmon test fishery conditions and results, 2014.

Set #	Date	Start Time	Area	Weather	Wind	Seas	Duration	Tide Status	Catch		
									sockeye	chum	Chinook
1	6/3/2014	5:47 AM	Cape Uyak	Clear	V10	1 ft	30 minutes	flood	489	3	0
2	6/3/2014	6:45 AM	Cape Uyak	Clear	V10	1 ft	30 minutes	ebb	432	1	0
3	6/3/2014	7:41 AM	Cape Uyak	Clear	V10	1 ft	30 minutes	ebb	174	1	0
4	6/3/2014	8:32 AM	Cape Uyak	Clear	V10	1 ft	30 minutes	ebb	532	0	0
5	6/3/2014	11:05 AM	Cape Uyak	Clear	V10	1 ft	30 minutes	ebb	157	3	0
6	6/3/2014	1:27 PM	Cape Uyak	Clear	V10	1 ft	30 minutes	flood	375	0	0
7	6/3/2014	2:27 PM	Cape Uyak	Clear	V10	1 ft	30 minutes	flood	500	0	0
8	6/4/2014	4:15 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	flood	140	1	0
9	6/4/2014	5:04 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	flood	900	0	0
10	6/4/2014	5:55 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	flood	450	0	0
11	6/4/2014	6:47 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	flood-high	700	0	0
12	6/4/2014	7:35 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	ebb	1,100	0	0
13	6/4/2014	8:32 AM	Cape Uyak	Clear	W15	1 ft	30 minutes	ebb	437	1	0
14	6/4/2014	9:31 AM	Cape Uyak	Clear	W15	1 ft	23 minutes	ebb	502	0	1
15	6/4/2014	10:22 AM	Cape Uyak	Clear	W15	1 ft	24 minutes	ebb	497	0	0
Total:									7,385	10	1

9

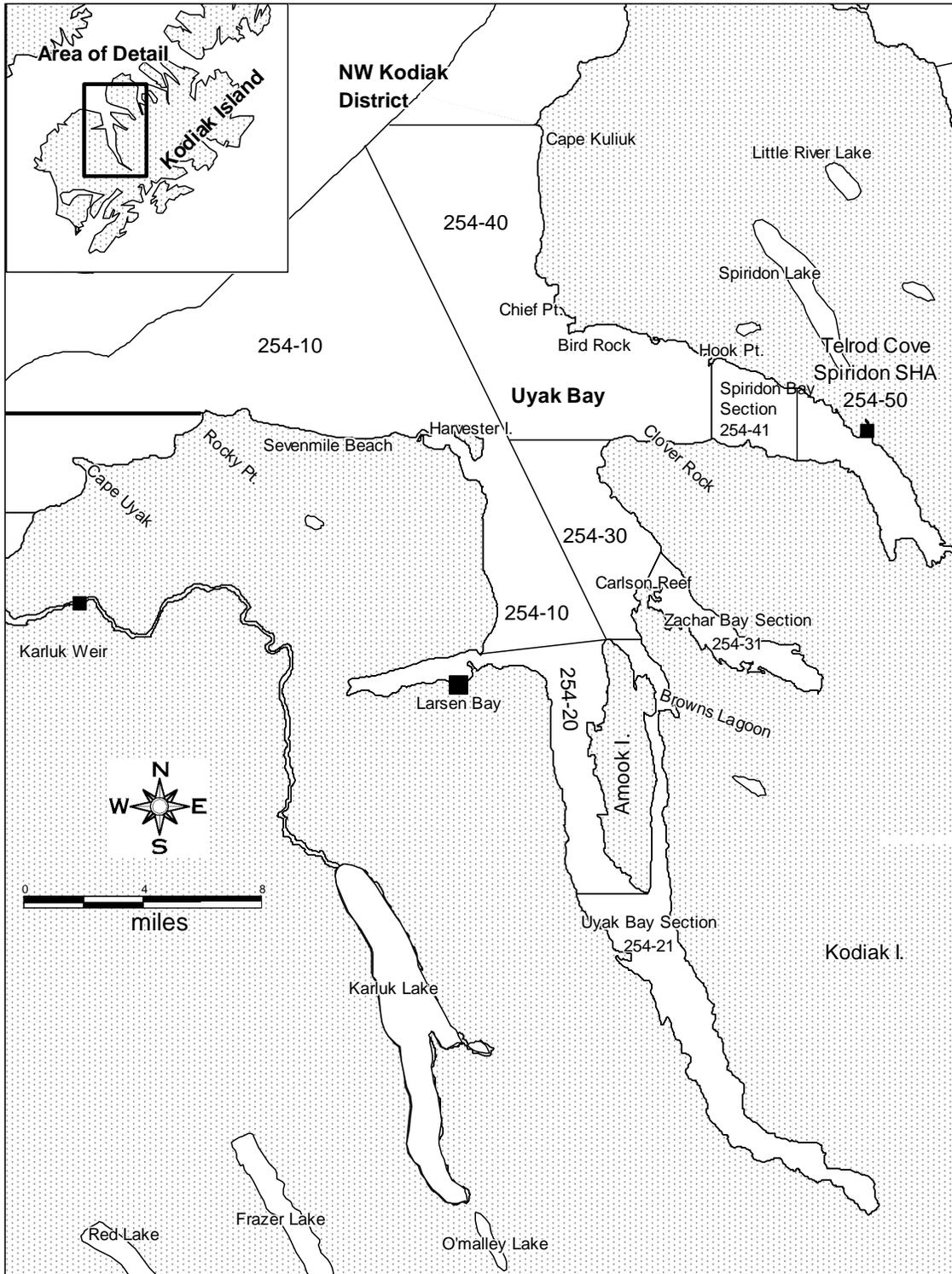


Figure 1.—Karluk Lake and the Kodiak Management Area commercial salmon statistical areas in the Larsen Bay area of the Northwest Kodiak District.

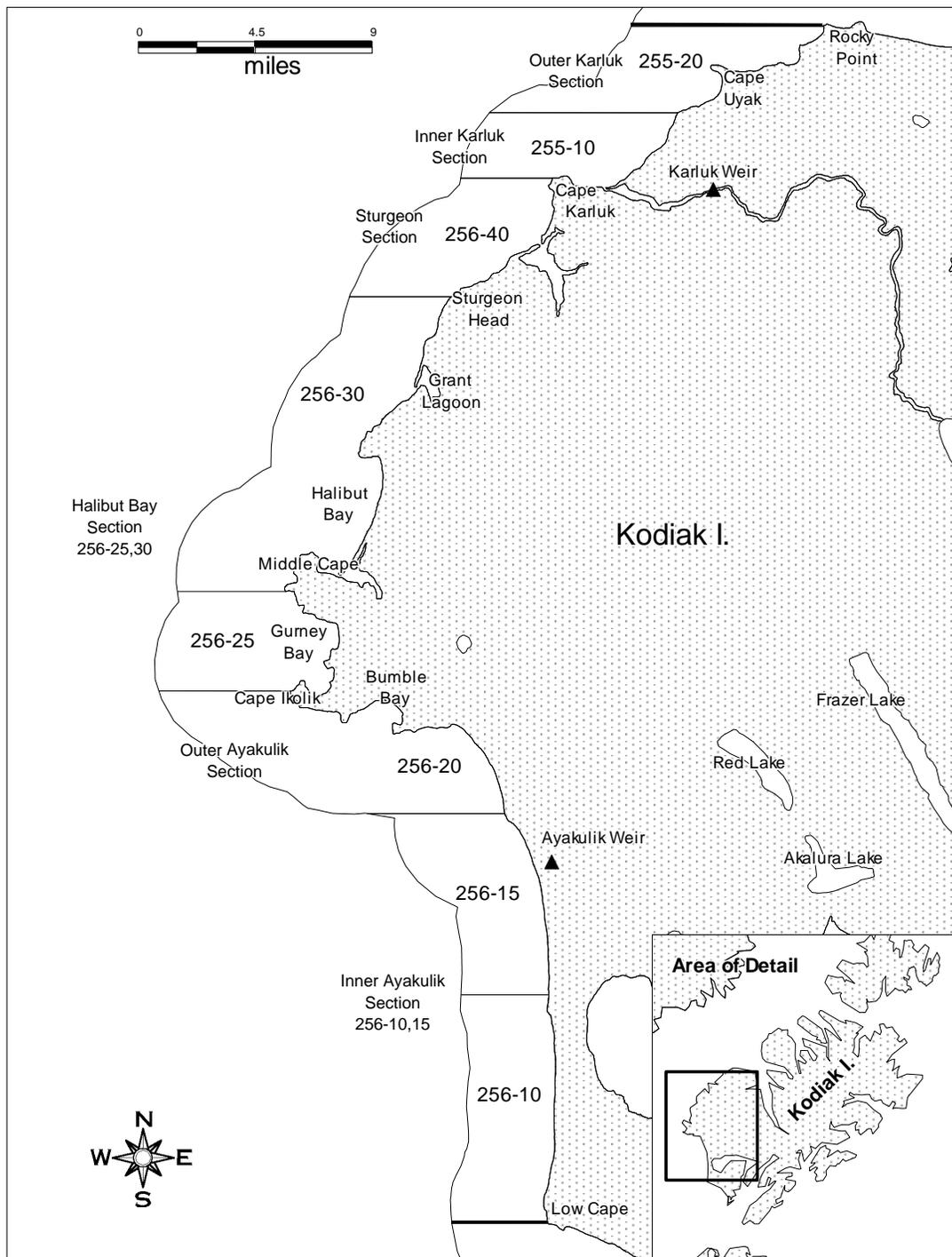


Figure 2.—Kodiak Management Area commercial salmon statistical areas in the Southwest Kodiak District (Karluk/Sturgeon, Halibut/Gurney bays, and Ayakulik areas) harvests.

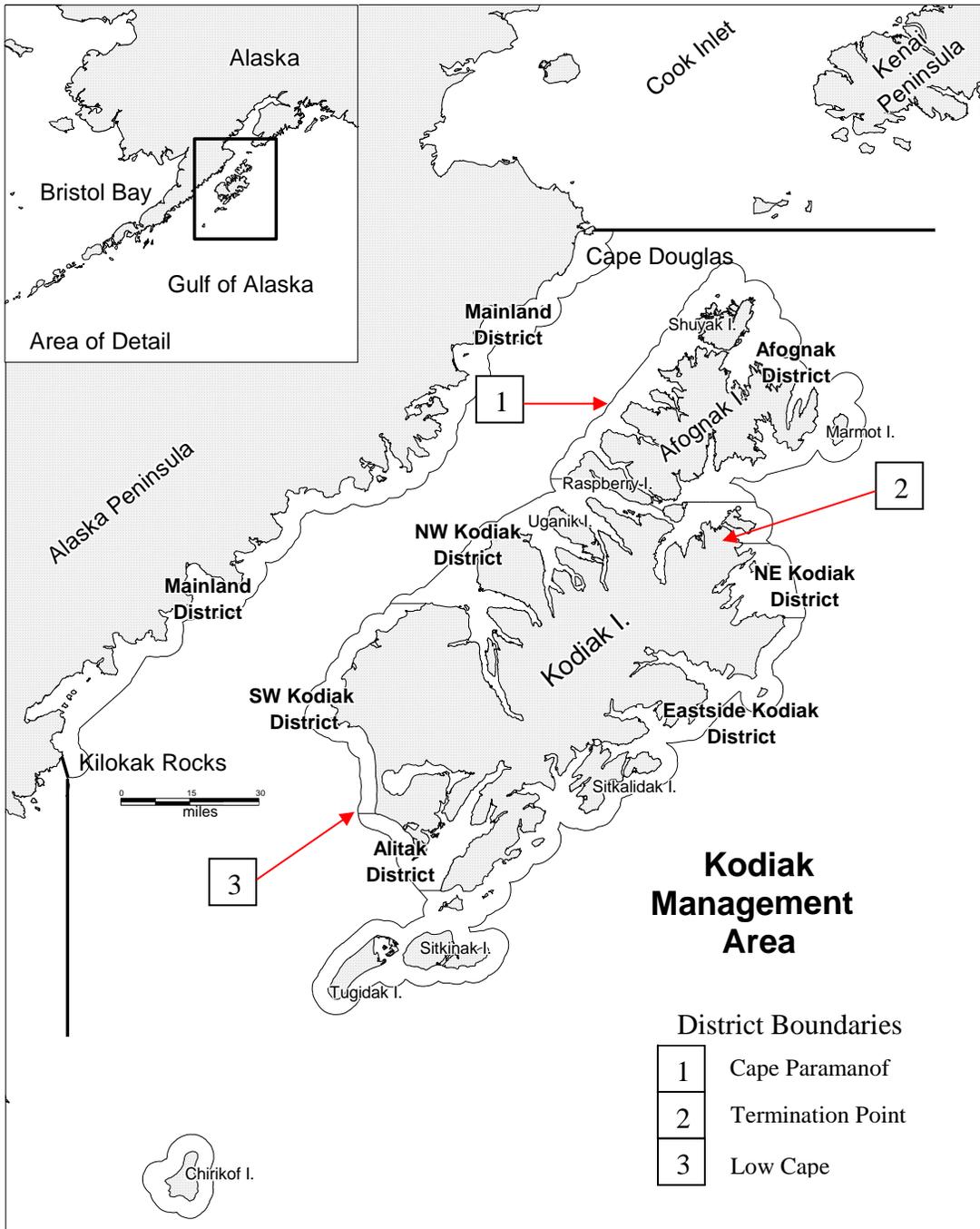


Figure 3.—Kodiak Management Area commercial salmon fishing districts with Westside Kodiak boundaries.



**APPENDIX A. 2015 KODIAK SOCKEYE SALMON TEST  
FISHERY BID SPECIFICATIONS**

**ALASKA DEPARTMENT OF FISH AND GAME**  
**2015 KODIAK SALMON TEST FISHERY CHARTER VESSEL BID**

The Alaska Department of Fish and Game (ADF&G) is soliciting bids to charter one (1) purse seine fishing vessel to conduct test fishing primarily in the Outer Karluk Section of the Kodiak Management Area for approximately 2–3 days between May 26–30, 2015. At ADF&G’s discretion, and desire from the test fishery vessel, it may be possible to extend the test fishery beyond these dates if the allowable test fish authority is not caught in the desired test fishery period and the commercial fishery has not opened, or during a fishery closure.

The test fishery will be used to gauge the early season abundance of Karluk sockeye salmon. Each fishing day will include a minimum of six standardized 30-minute sets. Additional purse seining may be conducted at the discretion of the ADF&G employee(s). Test fishing will normally be conducted at Cape Uyak, but may occur from Cape Karluk to Rocky Point. Up to two ADF&G employees may be aboard the charter vessel while fishing to monitor and collect biological samples from the test fish catch. The start date and actual numbers of charter days may vary depending on weather. The charter will originate in Kodiak or Larsen Bay and will terminate in Larsen Bay where the test fish catch will be sold (to ensure the highest quality product).

Purse seining will take place during daylight hours, but exact times will be governed by on-grounds weather and tidal conditions. Sockeye salmon caught during standardized sets will be sampled for age by collecting scale samples (conducted by ADF&G employee(s) onboard). The vessel must provide 3 meals/day for up to two ADF&G personnel for the duration of the charter. ADF&G staff may overnight aboard the vessel. ADF&G will have general direction over the activity of the vessel, but the contractor will be responsible for the safe operation of the vessel. All Chinook salmon caught will be released immediately. Retained fish and revenue generated from the sale of fish caught in the test fishery, will become the property of the State of Alaska.

Skippers participating in the test fishery must have 5-years of experience commercial purse seining in the area. The vessel must be at least 48 feet in overall length with a raised enclosed wheelhouse, an operational down-sounding sonar, GPS, and operational communications equipment (VHF radio plus satellite phone system). The charter vessel must be equipped with refrigerated seawater (RSW), and be capable of operating under weather and sea conditions common to the cape and season. Additionally, first aid and fire-fighting equipment, and a Coast Guard approved life raft with capacity for the entire crew (including ADF&G staff) must be aboard the chartered vessel at all times while under contract. The vessel must meet safety standards outlined by the USCG and be available for vessel inspection if requested by the State. The chartered vessel will provide all supplies and equipment necessary for vessel operation including fuel and equipment lubricants.

The successful bidder must show current insurance information. Protection and indemnity insurance, including crew exposure, in the amount of at least \$300,000 is required. The State will provide insurance coverage for State employees only. The contractor will hold the State harmless from any liability caused by loss of vessel or damage caused to or by the vessel.

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The 2015 bid should be based on a percentage of the dock value, not to exceed 80%. Bids exceeding 80% of the dock value will be rejected. The contract will be awarded to the bidder with the lowest percentage of the total value of the catch. A minimum of \$1,750 dollars per fishing day is guaranteed to the awarded bidder upon completion of test fishery obligations. The total value of the test fishery catch is not to exceed \$25,000–35,000, the allowable test fish authority. Delays or interruptions in the charter due to equipment failure will be the responsibility of the skipper and lost time will be deducted from the charter costs or can be made up by extending the charter duration at the discretion of the ADF&G employee(s). The bid will be awarded on Friday, May 15, 2015 to the lowest bidder meeting the vessel requirements. ADF&G reserves the right to reject any or all quotes.

**Written or verbal bids must be received by the Alaska Department of Fish and Game in Kodiak by 4:30 PM Friday, May 15, 2015.**



**APPENDIX B. UNITED STATES COAST GUARD  
NOTIFICATION OF TEST FISHING**

Appendix B1.–United States Coast Guard notification of test fishing.

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In order to comply with Federal Department of Homeland Security requirements, a notification protocol has been implemented to inform the United States Coast Guard (USCG) of ADF&G test fishing operations on a chartered vessel. This is intended to reduce confusion over apparent fishing activity in closed waters or during closed seasons, and also in the possible proximity of sensitive areas such as around marine mammals.

The following information will be made available to the USCG Command Center prior to test fishing:

- The name of the vessel and registration numbers
- The call sign / captain's name
- The area of operations
- The date of operations
- The type of work being done

The information will be provided by Kodiak ADF&G personnel to a procurement specialist at ADF&G headquarters in Juneau, who will coordinate and forward the information to the USCG Command Center prior to any test fishing activity. The intent to test fish information will be sent to:

Dave Mitchell, Procurement Specialist III  
Alaska Department of Fish and Game  
1255 W 8th St.  
Juneau, AK 99801  
(907) 465-4131 phone  
(907) 465-6181 fax  
dave.mitchell@alaska.gov