

**Fishery Management Report No. 14-48**

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**Kodiak Management Area Commercial Herring Food  
and Bait Fishery Harvest Strategy, 2014**

by

**Geoff Spalinger**

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November 2014

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	
milliliter	mL	west	W	(multiple)	R
millimeter	mm	copyright	©	correlation coefficient (simple)	r
		corporate suffixes:		covariance	cov
<b>Weights and measures (English)</b>		Company	Co.	degree (angular)	$^\circ$
cubic feet per second	ft <sup>3</sup> /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	≥
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	≤
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 <sub>2</sub> , etc.
		latitude or longitude	lat or long	minute (angular)	'
<b>Time and temperature</b>		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)	$\alpha$
hour	h	United States of America (noun)	USA	probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
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
<b>Physics and chemistry</b>				standard error	SE
all atomic symbols				variance	
alternating current	AC			population	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				

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by

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# TABLE OF CONTENTS

	<b>Page</b>
LIST OF TABLES.....	i
LIST OF FIGURES.....	i
ABSTRACT.....	1
INTRODUCTION.....	1
2014 FISHERY.....	2
Open Districts and Guideline Harvest Levels.....	2
Market Concerns.....	2
Combine Fishery.....	2
REGULATIONS.....	3
Registration.....	3
Season Dates.....	3
Closed Waters.....	3
Gear Restrictions.....	3
Gear Code.....	3
Fish Tickets.....	4
REFERENCES CITED.....	4
FIGURES.....	5

## LIST OF TABLES

1. 2014 herring food and bait guideline harvest levels by district.....2

## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
1. Herring food and bait fishery harvests, 1960–2013.....	6
2. Map of southwestern Alaska emphasizing the Kodiak Management Area and its relationship to surrounding management areas.....	7
3. Map showing the Eastside District of the herring food and bait fishery.....	8
4. Map showing the South Afognak District of the herring food and bait fishery.....	9



## ABSTRACT

The 2014 Kodiak Pacific herring *Clupea pallasii* food and bait fishery may open, by regulation, on September 1, 2014. The fishery may occur on Kodiak herring stocks in the Eastside District with a 193-ton (short) guideline harvest level (GHL) and in the South Afognak District with a 117-ton GHL. The remaining districts are closed due to low GHLs. The Alaska Department of Fish and Game (ADF&G) is concerned that a competitive fishery, with all nine permit holders participating, could result in overharvesting because of the low GHLs of the Kodiak Management Area. Therefore, in addition to current regulations, stipulations for a potential combine fishery are specified in the harvest strategy.

Key words: Kodiak, herring, *Clupea pallasii*, harvest, food and bait fishery, Kamishak, combine, GHL, KMA

## INTRODUCTION

The Kodiak Management Area (KMA) commercial Pacific herring *Clupea pallasii* food and bait fishery has a long history dating back to 1912 (Gretsch 2001). Early harvests were primarily utilized for food and reduction products (Reid 1971). During the peak years of the reduction fishery (1934 to 1950), the average annual harvest was 31,600 tons. Since the early 1960s, these harvests have been utilized mainly as bait for crab and longline fisheries (Figure 1).

During the 1980s and 1990s, the majority of the harvest from the food and bait fishery occurred in the northeast portion of the Shelikof Strait (Figure 2) with the fishery targeting a mix of Kodiak and Kamishak herring stocks.<sup>1</sup> The Kamishak Bay District Herring Management Plan (5 AAC 27.465), which serves the Cook Inlet Management Area, outlines criteria for the management of the Kamishak Bay sac roe fishery and provides for a harvest allocation for the Kodiak food and bait fishery, based on the Kamishak spawning biomass. The Kamishak management plan stipulates that when the Kamishak herring stock biomass is below threshold (6,000 tons), then the Kamishak Bay sac roe fishery and the Kodiak food and bait fishery in the northern portion of Shelikof Strait will remain closed. For the remainder of the KMA, the Kodiak herring food and bait fishery is allowed to occur in districts that have strong spawning stocks.

In the mid-1990s, market demands for fresh herring bait were strong, stocks were large enough to allow fairly large Guideline Harvest Levels (GHLs), and up to 8 to 10 vessels participated in the fishery annually. Kodiak and Kamishak stock declines led to a reduction of the GHL in 1998. Due to concern from the Alaska Department of Fish and Game (ADF&G) for manageability of a competitive fishery with small GHLs on highly aggregated stocks, the KMA herring food and bait fishery was closed for the 1999 and 2000 seasons (Figure 1).

In 2001, the Commercial Fisheries Entry Commission (CFEC) designated the KMA herring food and bait fishery a limited entry fishery. Due to ADF&G concerns of controlling the harvests in areas with relatively small GHLs, permit holders agreed to conduct a combine fishery that year, with fewer boats participating and the proceeds divided among all permit holders. This allowed ADF&G to provide more liberal fishing time and area during fishing periods. Combine fisheries have occurred during the 2001 through 2013 herring food and bait seasons.

In July 2002, the CFEC issued limited entry permits to nine individuals based on fishery participation in the 1994 to 1998 seasons. Five combination purse seine/gillnet and four trawl permits were issued.

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<sup>1</sup> Johnson, B. A., C. Burkey, and D. Gaudet. *Unpublished draft manuscript 1988*. Stock identification of Pacific herring in the bait fishery in Shelikof Strait, Alaska, 1985/86. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

The KMA food and bait fishery is guided by a regulatory management plan (5 AAC 27.535). This harvest strategy will summarize current regulations and the management of the fishery for the 2014 season and specify stipulations for potential competitive or combine fisheries.

## **2014 FISHERY**

Due to the small GHLS available for the Kodiak food and bait fishery and the harvest capabilities of five purse seine vessels and four trawlers competing for the fish, ADF&G is concerned that a competitive fishery with all permit holders participating would be difficult to manage, leading to excessive harvests.

The food and bait season extends from September 1, 2014 through February 28, 2015. The fishery will be opened by emergency order by district in order to slow and control the harvests. At least 24 hours advance notice will be given prior to any herring food and bait fishing period. Individual CFEC permit holders must be registered with ADF&G management staff in Kodiak before participating in this fishery.

### **OPEN DISTRICTS AND GUIDELINE HARVEST LEVELS**

The herring food and bait fishery GHLS are based on the preceding herring sac roe fishery season GHLS, with 10% of the 2014 sac roe GHLS, by district, allocated to the 2014 food and bait fishery. The overall GHL for the 2014 Kodiak herring food and bait fishery is 310 tons (Table 1). The 2014 KMA herring food and bait fishery may occur on Kodiak herring stocks in the Eastside District with a 193-ton GHL (Figure 3) and in the South Afognak District with a 117-ton GHL (Figure 4). Despite the Kamishak herring stock biomass being above threshold for 2014, no fishery will occur along the northern portion of the Shelikof Strait due to the low Kodiak stock abundance.

Table 1.–2014 herring food and bait guideline harvest levels (GHLS) by district.

Management District	GHL (tons)
F/B 3 - South Afognak	117
F/B 8 - Eastside	193
Total	310

### **MARKET CONCERNS**

The Kodiak herring food and bait fishery harvest has been utilized mainly as bait for crab and longline fisheries. In recent years, only Kodiak-based processing companies have participated in this fishery. From initial discussions with Kodiak Area processors, it appears that there is a very limited market for bait in 2014. Any permit holders who intend to participate in the 2014 Kodiak herring food and bait fishery must have a market for any herring they catch during a food and bait fishery.

### **COMBINE FISHERY**

ADF&G will consider a combine fishery under the same guidelines required during previous seasons. All nine permit holders must notify the department either that they support a combine fishery or that they will not participate in the 2014 fishery. ADF&G will require that only one catcher vessel be used and that a management biologist be permitted onboard the fishing vessel



during any fishery. The management biologist would monitor the harvest, close the fishery if the GHL is reached, and collect commercial catch samples for age composition data. Permit holders would be fully responsible for the choice of vessel conducting the harvest, all marketing aspects, and all costs associated with harvesting and tendering the herring.

## **REGULATIONS**

Consult the 2013–2014 Statewide Commercial Herring Fishing Regulations (ADF&G 2013) for a complete listing of applicable regulations.

### **REGISTRATION**

Permit holders must be registered with ADF&G in Kodiak before participating in the food and bait fishery (5 AAC 27.510). Buyers and tender operators must also be registered prior to taking KMA herring (5 AAC 27.540).

### **SEASON DATES**

The fishery may open by emergency order between September 1, 2014, and February 28, 2015. The duration of fishing periods and areas opened to fishing will be determined by ADF&G and will be based on effort and availability of the herring. At least 24 hours advance notice will be given prior to any herring food and bait fishing period. The fishery will be closed when the GHL has been harvested for each district. Emergency orders will also be issued that announce the closure of each district.

In the event that CFEC permit holders agree to form a combine for the 2014 food and bait fishery, the fishery may open without restrictions on the duration of fishing periods.

### **CLOSED WATERS**

To protect late-season salmon near the head of Kodiak bays, herring may not be taken in the closed waters described in the Chignik and Kodiak Commercial Salmon Fishing Regulations through October 31 (5 AAC 18.350). Closed waters may be reduced by emergency order prior to October 31 if needed to access the herring.

### **GEAR RESTRICTIONS**

Only one gear type may be fished at a time for the combination permit holders (5 AAC 27.515). The following are the gear restrictions for purse seine/gillnet and trawl permit holders for the Kodiak food and bait fishery:

#### **GEAR CODE**

- 01 - Purse Seine
  - Maximum length: 150 fathoms
  - Maximum depth: 1,625 meshes. For Area K, there are no web size restrictions.
- 34 - Gillnet
  - Maximum length: 150 fathoms; mesh size: 2-1/8" to 2-1/2".
  - No depth restrictions.
- 07 - Trawl
  - No restrictions

## **FISH TICKETS**

All fish tickets must be completed and sent to the Kodiak Fish and Game office within a week of each landing.

Send to: Alaska Department of Fish and Game  
ATTN: James Jackson  
351 Research Court  
Kodiak, Alaska 99615

## **REFERENCES CITED**

Gretsch, D. R. 2001. Kodiak Management Area annual herring fisheries management report, 2001. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K02-25, Kodiak.

Reid, G. M. 1971. Age composition, weight, length, and sex of herring, *Clupea pallasii*, used for reduction in Alaska, 1929-66. NOAA Technical Report, NMFS, SSRF 634.

## **FIGURES**

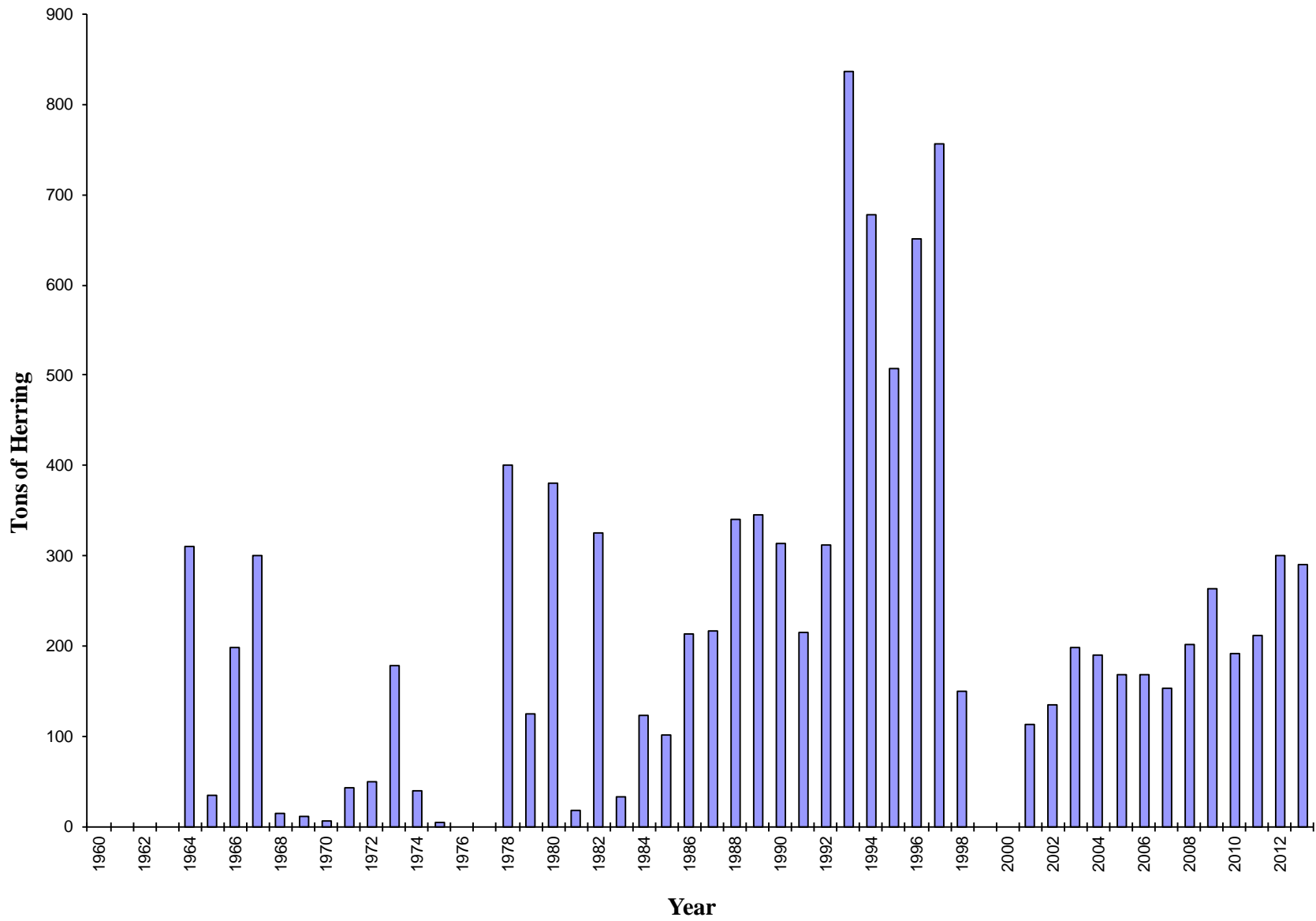


Figure 1.—Herring food and bait fishery harvests, 1960–2013.

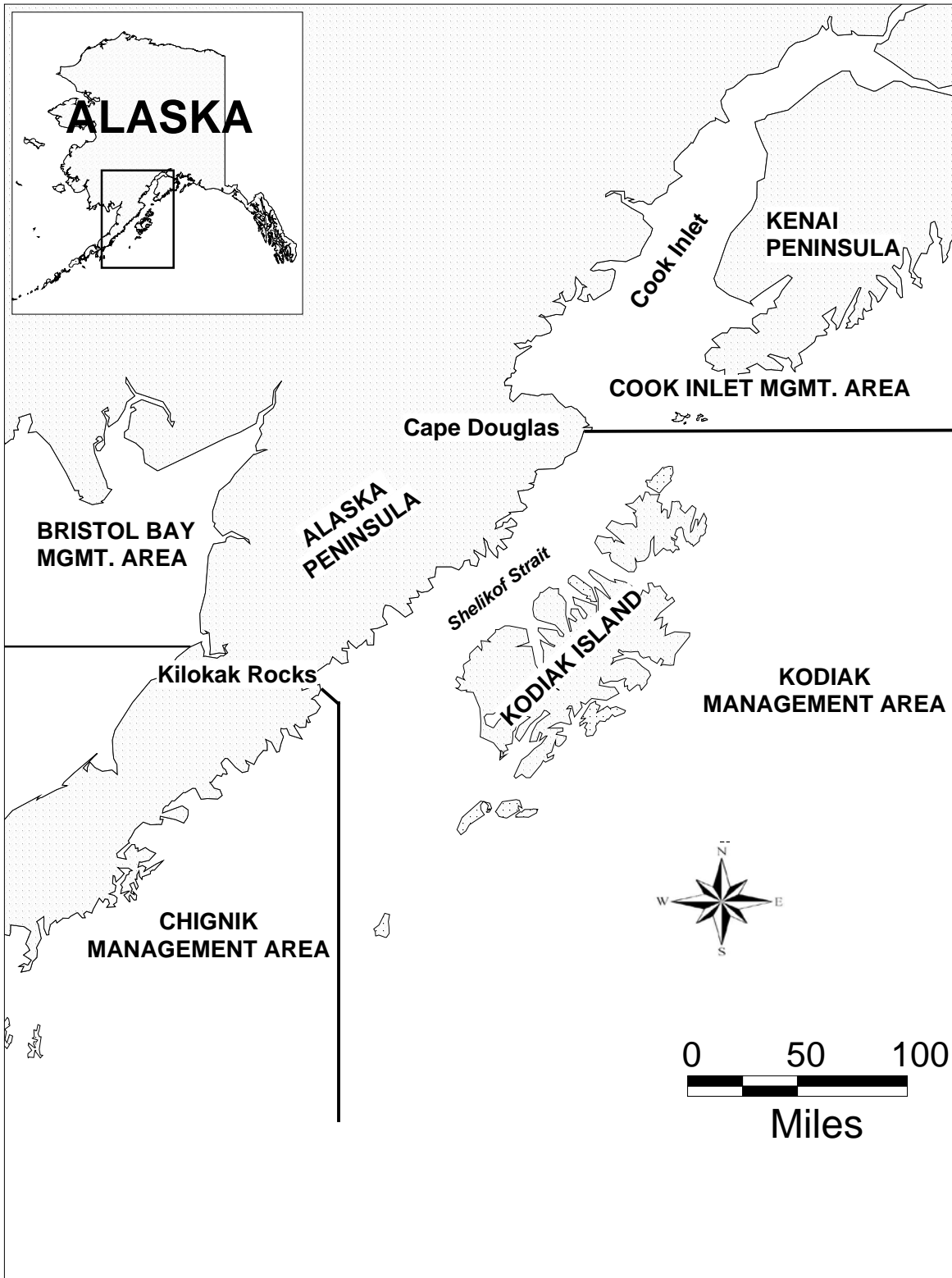


Figure 2.—Map of southwestern Alaska emphasizing the Kodiak Management Area (Area K) and its relationship to surrounding management areas.

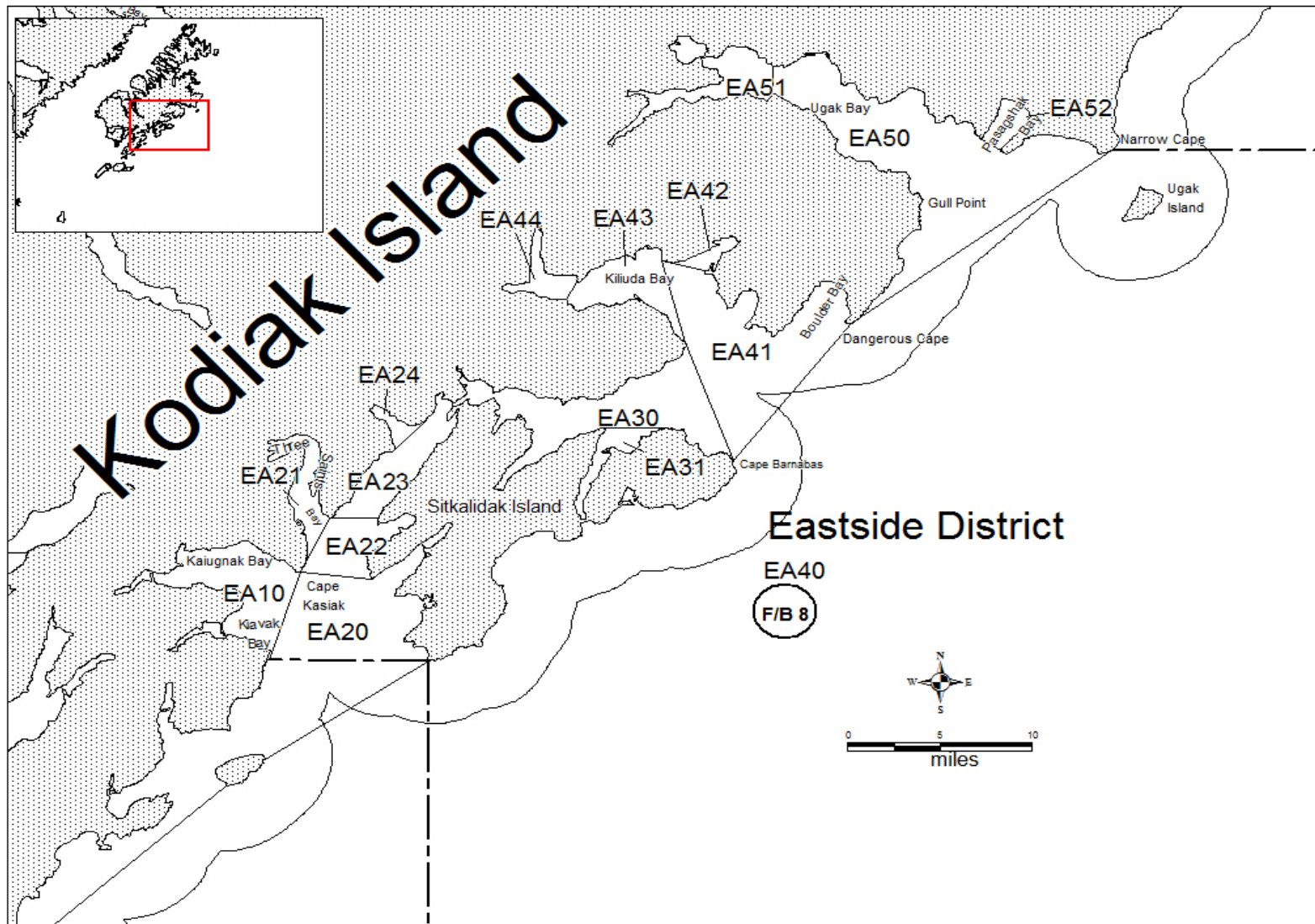


Figure 3.—Map showing the Eastside District (F/B 8) of the herring food and bait fishery.

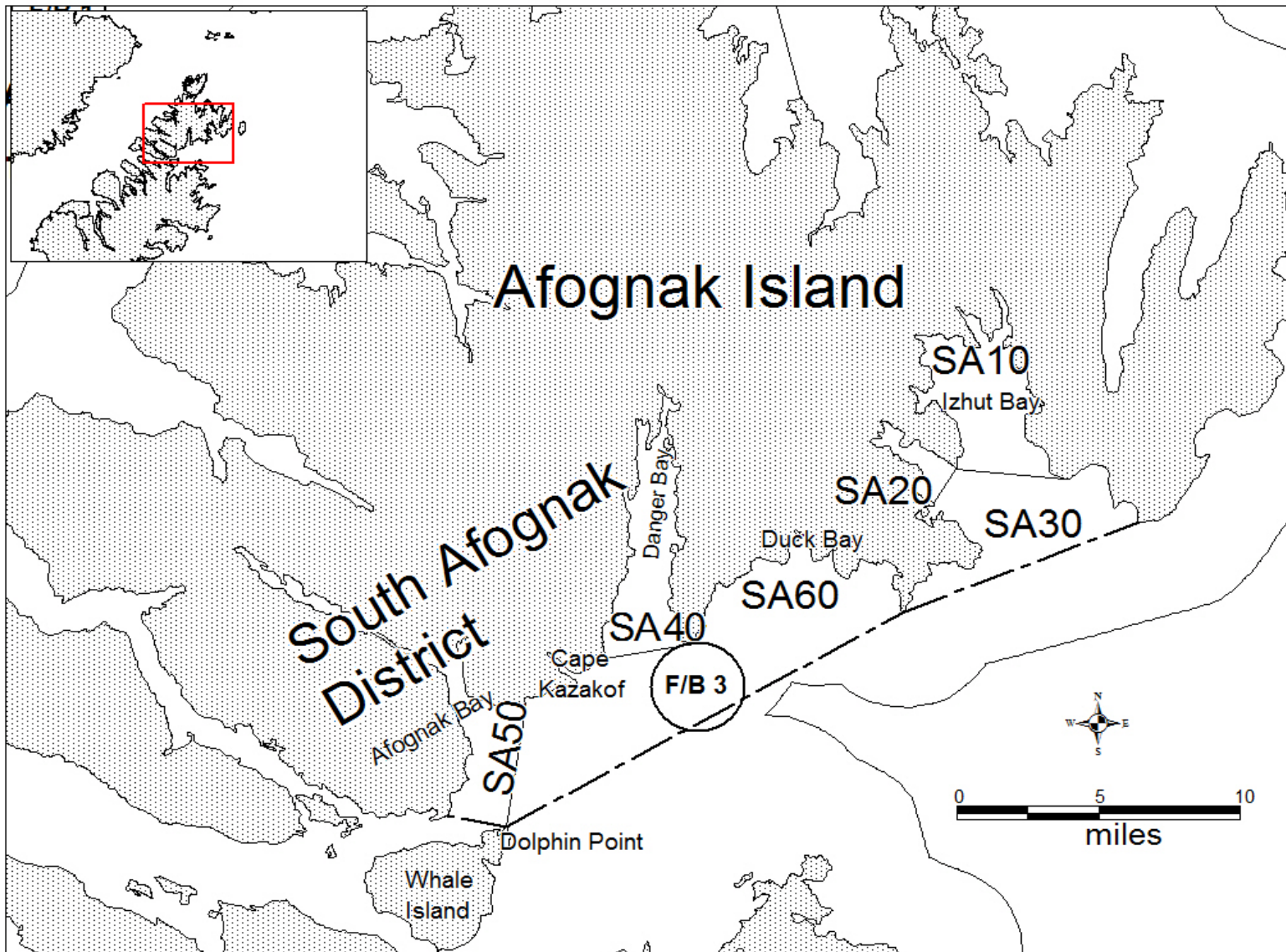


Figure 4.–Map showing the South Afognak District (F/B 3) of the herring food and bait fishery.