

**Fishery Management Report No. 10-34**

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**Kodiak Management Area Commercial Herring Food  
and Bait Fishery Harvest Strategy, 2010**

by

**James Jackson**

October 2010

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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<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 <sub>A</sub>
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)	°
<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 <sub>0</sub>
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
				variance	
<b>Physics and chemistry</b>				population sample	Var var
all atomic symbols					
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				

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BAIT FISHERY HARVEST STRATEGY, 2010**

by

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October 2010

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*This document should be cited as:*

*Jackson, J. 2010. Kodiak management area commercial herring food and bait fishery harvest strategy, 2010. Alaska Department of Fish and Game, Fishery Management Report No. 10-34, Anchorage.*

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## ABSTRACT

The 2010 Kodiak Pacific herring *Clupea pallasii* food and bait fishery may open, by regulation, on September 1, 2010. The fishery may occur on Kodiak herring stocks in that portion of the Uganik District south of the latitude of Miners Point with a 159 ton (short) guideline harvest level (GHL), the Alitak District with a 142 ton GHL, the South Afognak District with a 60 ton GHL, the Uyak district with a 39 ton GHL and the Eastside District with a 155 ton GHL. The remaining districts are either closed due to the low Kamishak herring biomass estimates, or are areas where the food and bait GHL would be less than 10 tons and, therefore, are not manageable. The Alaska Department of Fish and Game (ADF&G) is concerned that a competitive fishery, with all nine permit holders participating, could result in an excessive overharvest given the low GHLs in the entire 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 short tons.<sup>1</sup> 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 Bay herring stocks (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, Juneau). The Kamishak Bay District Herring Management Plan (5 AAC 27.465) 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 Shelikof Strait north of the latitude of Miners Point (57°54.00' N lat.) will remain closed (Figure 3). For the remainder of the KMA, the Kodiak herring food and bait fishery is allowed to occur in districts that have strong spawning stocks. The Kamishak spawning biomass has been below the minimum threshold for a commercial harvest since 1998.

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 Alaska Department of Fish and Game's (ADF&G) concern 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. In 2001, due to department concerns of controlling the harvests in areas with relatively small GHLs, permit holders agreed to conduct a combine fishery, with fewer boats participating and the proceeds divided among all permit holders. This allowed the department to provide more liberal fishing time and area during fishing periods.

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<sup>1</sup> In this document all subsequent reference to weight in tons will be in short tons (2,000 pounds)

Combine fisheries have occurred during the herring food and bait seasons from 2001 through 2009. 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.

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 2010 season and specify stipulations for potential competitive or combine fisheries.

## **2010 FISHERY**

The food and bait season extends from September 1, 2010 through February 28, 2011. The fishery will be opened by emergency order by district in order to control the harvests. At least 24 hours advance notice will be given prior to any herring food and bait fishing period.

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, the department is concerned that a competitive fishery with all permit holders participating has a good probability of overharvesting the resource. To prevent excessive harvests, the department will only allow a combine fishery during the 2010–2011 season.

### **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 2010 sac roe GHLS, by district, allocated to the 2010 food and bait fishery. The overall guideline GHL harvest level for the 2010 Kodiak herring food and bait fishery is 555 tons (Table 1).

Table 1.–2010 herring food and bait guideline harvest levels (GHLs) by district.

Management District	GHL (tons)
F/B 4 - Uganik	159
F/B 7 - Alitak	142
F/B 8 - Eastside	155
F/B 3 - South Afognak	60
F/B 5 - Uyak	39
Total	555

The 2010 KMA herring food and bait fishery may occur on Kodiak herring stocks in that portion of the Uganik District south of the latitude of Miners Point with a 159 ton GHL (Figure 3), the Alitak District with a 142 ton GHL (Figure 4), and the Eastside District with a 155 ton GHL (Figure 5). The remaining districts will remain closed due to either low Kamishak Bay herring stock abundance or because the GHL for an area is small and therefore unmanageable.

### **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 2010. Any permit holder that intends to participate in the 2010 Kodiak herring food and bait fishery must have a market for any herring they catch during a food and bait fishery.

## **COMBINE FISHERY**

The department will consider a combine fishery under the same guidelines required during previous seasons. All nine permit holders must notify the department that either they support a combine fishery or they will not participate in the 2010 fishery. The department may require that only one catcher vessel be used and that a department management biologist be permitted onboard the fishing vessel during any fishery, if deemed necessary. The management biologist may monitor the harvest, close the fishery if the GHL is reached, and collect commercial catch samples for age composition data. Permit holders will be fully responsible for determining which vessel conducts the harvest, all marketing aspects, and all costs associated with harvesting and tendering the herring.

## **REGULATIONS**

Consult the 2009–2010 Statewide Commercial Herring Fishing Regulations (ADF&G 2009) for a complete listing of applicable regulations.

## **REGISTRATION**

Permit holders must be registered with the department 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, 2010 and February 28, 2011. The duration of fishing periods and areas opened to fishing will be determined by department management biologists and will be based on industry interest 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 2010 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 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**

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

## **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  
211 Mission Road  
Kodiak, Alaska 99615

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## **FIGURES**

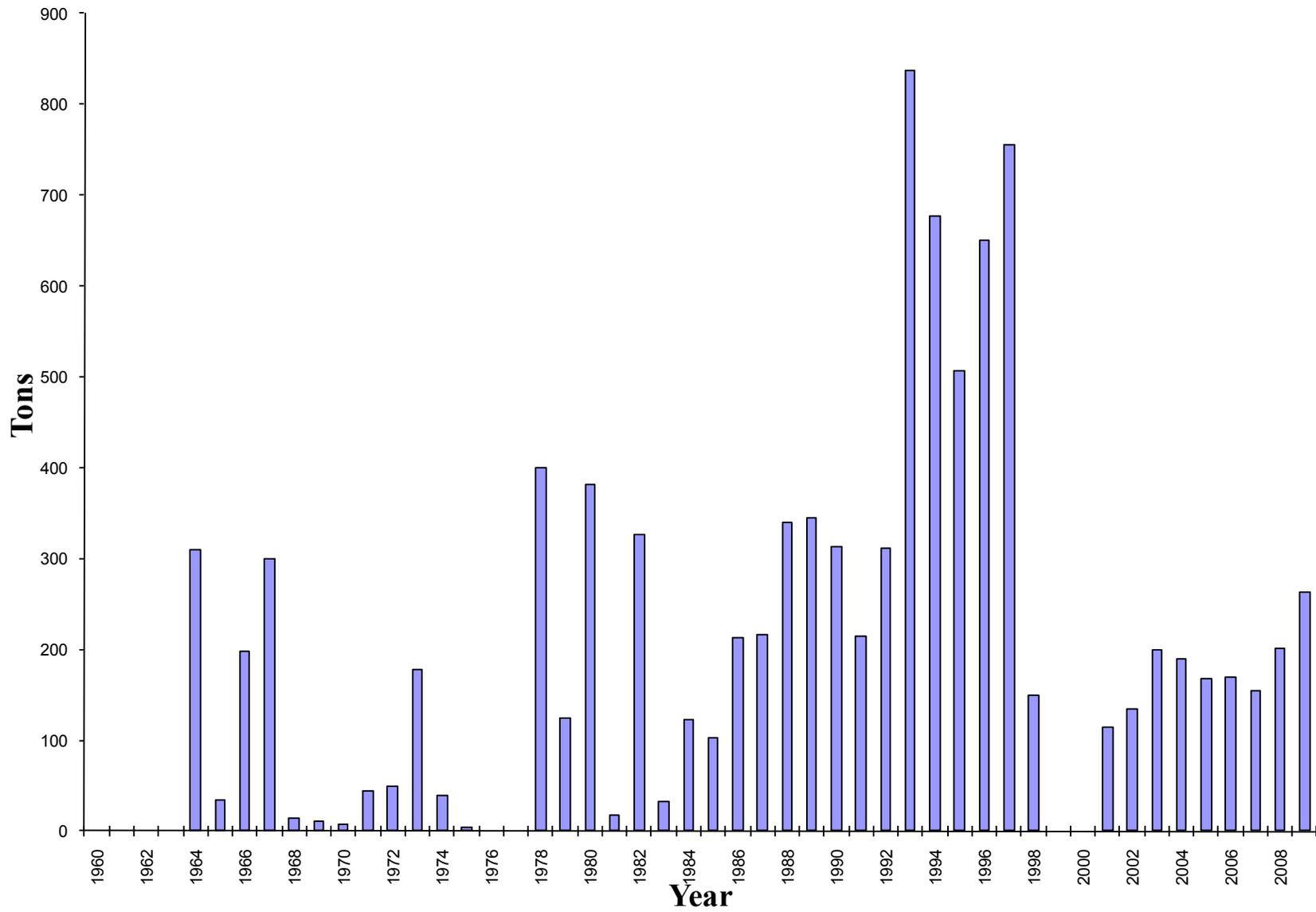


Figure 1.—Herring food and bait fishery harvests in the Kodiak Management Area, 1960–2009.

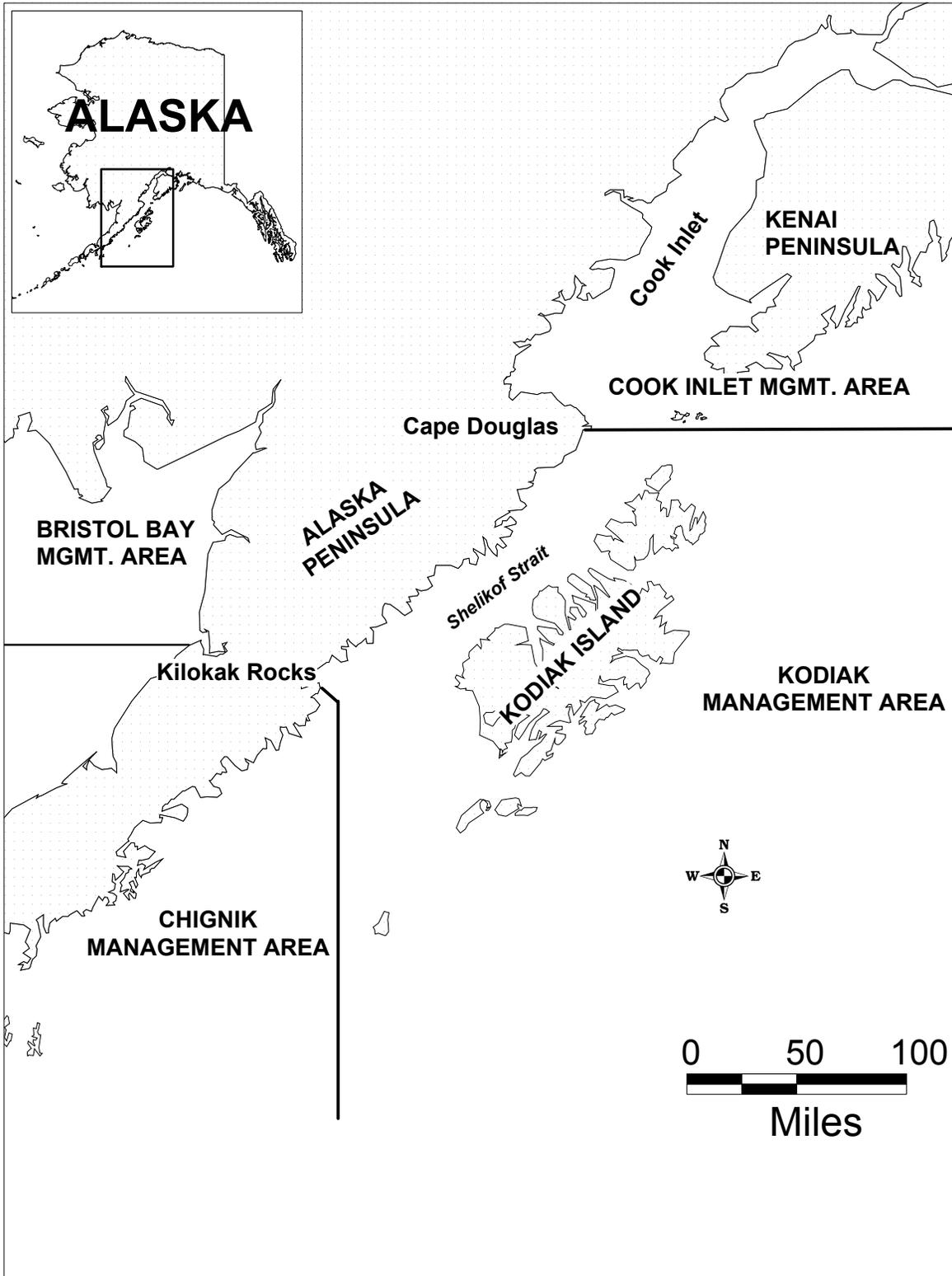


Figure 2.—Map of southwestern Alaska emphasizing the Kodiak Management Area (Area K) and its relationship to surrounding management areas.

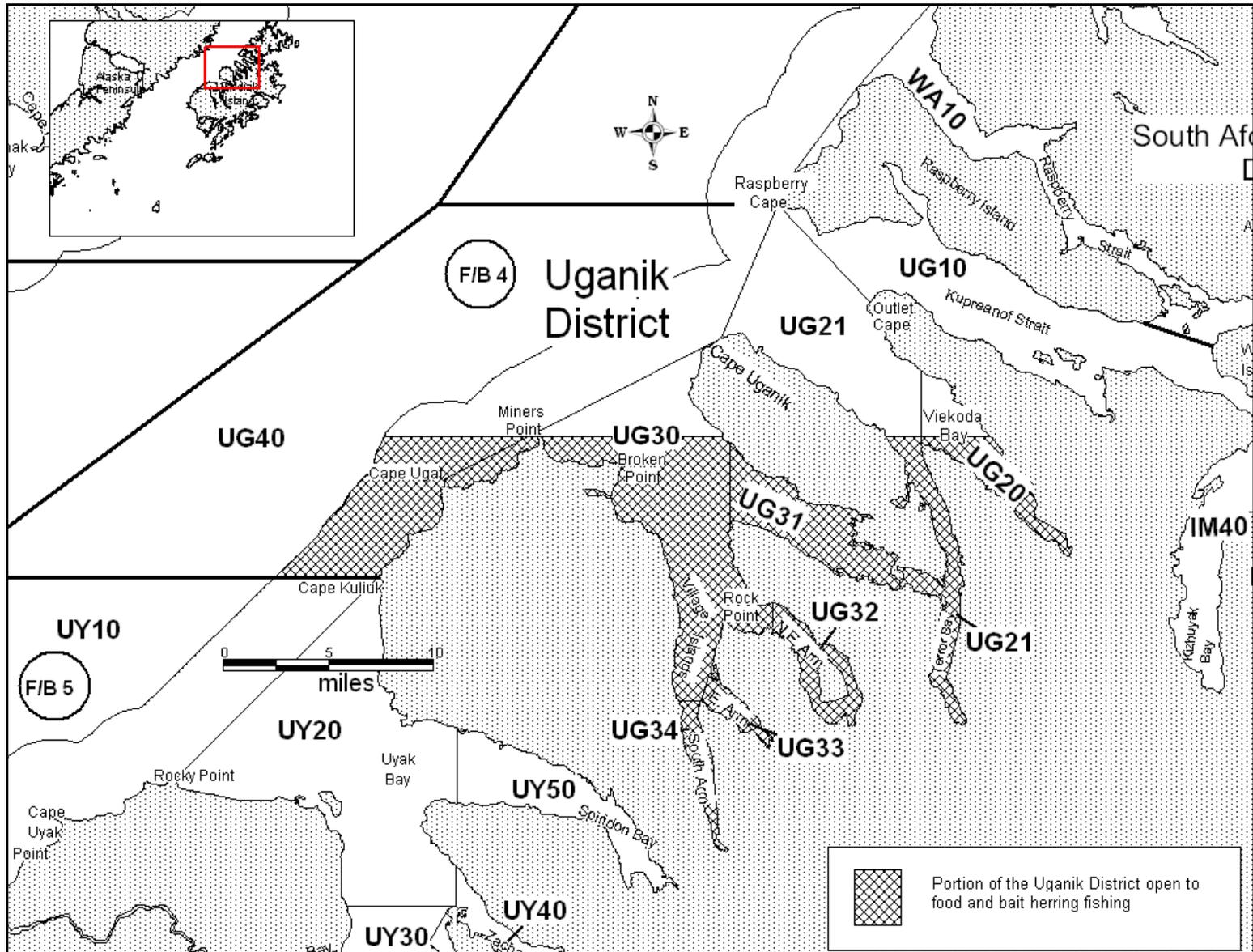


Figure 3.—Map of the North Shelikof Strait and the Uganik District (F/B 4) showing that portion south of the latitude of Miners Point that is open to herring food and bait fishing for the 2010 season.

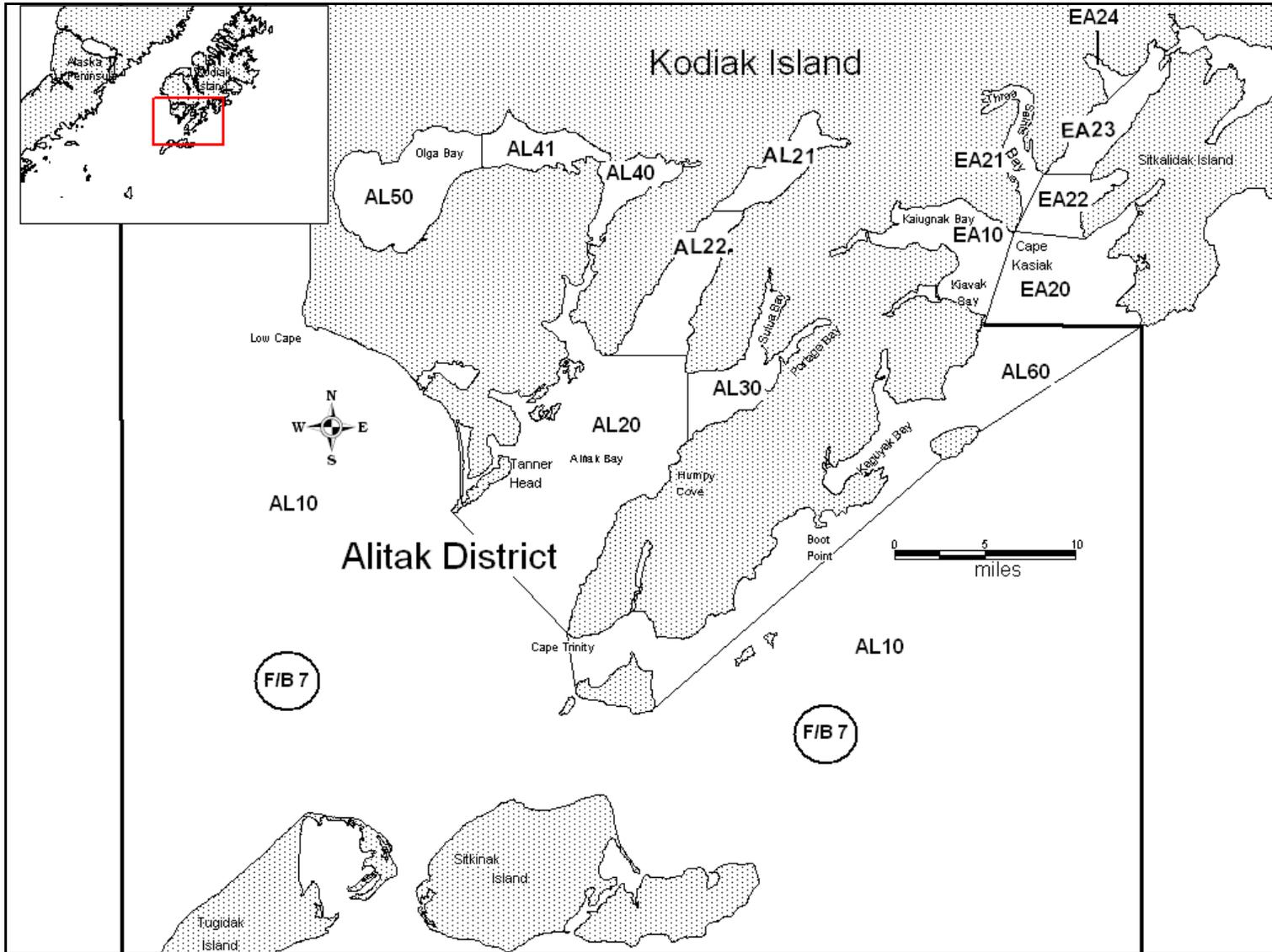


Figure 4.–Map showing the Alitak District (F/B 7) and management sections of the herring food and bait fishery.

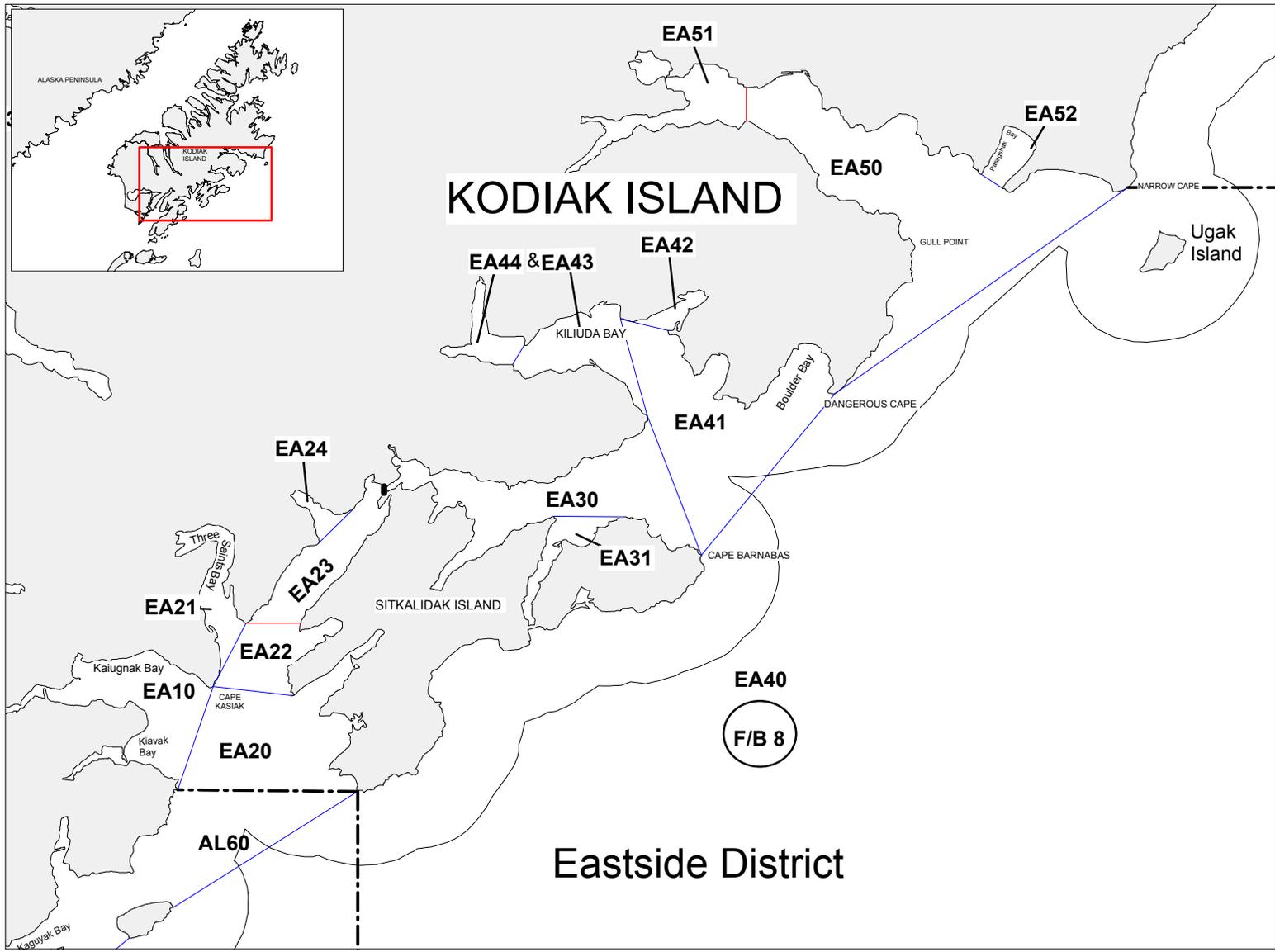


Figure 5.—Map showing the Eastside District (F/B 8) and management sections of the herring food and bait fishery.