

Fishery Management Report No. 06-51

**Kodiak Management Area Commercial Herring
Food/Bait Fishery Harvest Strategy, 2006**

by

Geoff Spalinger

and

Jeff Wadle

October 2006

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.

Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative Code	AAC	fork length	FL
deciliter	dL			mid-eye-to-fork	MEF
gram	g	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	mid-eye-to-tail-fork	METF
hectare	ha			standard length	SL
kilogram	kg	all commonly accepted		total length	TL
kilometer	km	professional titles	e.g., Dr., Ph.D., R.N., etc.		
liter	L	at	@		
meter	m	compass directions:		Mathematics, statistics	
milliliter	mL	east	E	<i>all standard mathematical signs, symbols and abbreviations</i>	
millimeter	mm	north	N	alternate hypothesis	H _A
		south	S	base of natural logarithm	<i>e</i>
		west	W	catch per unit effort	CPUE
		copyright	©	coefficient of variation	CV
Weights and measures (English)		corporate suffixes:		common test statistics	(F, t, χ^2 , etc.)
cubic feet per second	ft ³ /s	Company	Co.	confidence interval	CI
foot	ft	Corporation	Corp.	correlation coefficient (multiple)	R
gallon	gal	Incorporated	Inc.	correlation coefficient (simple)	r
inch	in	Limited	Ltd.	covariance	cov
mile	mi	District of Columbia	D.C.	degree (angular)	°
nautical mile	nmi	et alii (and others)	et al.	degrees of freedom	df
ounce	oz	et cetera (and so forth)	etc.	expected value	<i>E</i>
pound	lb	exempli gratia (for example)	e.g.	greater than	>
quart	qt	Federal Information Code	FIC	greater than or equal to	≥
yard	yd	id est (that is)	i.e.	harvest per unit effort	HPUE
		latitude or longitude	lat. or long.	less than	<
		monetary symbols (U.S.)	\$, ¢	less than or equal to	≤
		months (tables and figures): first three letters	Jan., ..., Dec	logarithm (natural)	ln
Time and temperature		registered trademark	®	logarithm (base 10)	log
day	d	trademark (adjective)	™	logarithm (specify base)	log ₂ , etc.
degrees Celsius	°C	United States	U.S.	minute (angular)	'
degrees Fahrenheit	°F	United States of America (noun)	USA	not significant	NS
degrees kelvin	K	U.S.C.	United States Code	null hypothesis	H ₀
hour	h	U.S. state	use two-letter abbreviations (e.g., AK, WA)	percent	%
hour	h			probability	P
minute	min			probability of a type I error (rejection of the null hypothesis when true)	α
second	s			probability of a type II error (acceptance of the null hypothesis when false)	β
				second (angular)	"
Physics and chemistry				standard deviation	SD
all atomic symbols				standard error	SE
alternating current	AC			variance	
ampere	A			population	Var
calorie	cal			sample	var
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. 06-51

**KODIAK MANAGEMENT AREA COMMERCIAL HERRING
FOOD/BAIT FISHERY HARVEST STRATEGY, 2006**

by

Geoff Spalinger

and

Jeff Wadle

Division of Commercial Fisheries, Kodiak

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

October 2006

The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: <http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm>. This publication has undergone regional peer review.

*Geoff Spalinger
and
Jeff Wadle,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
211 Mission Road, Kodiak, Alaska 99615, USA*

This document should be cited as:

Spalinger G. and J. Wadle. 2006. Kodiak management area commercial herring food/bait fishery harvest strategy, 2006. Alaska Department of Fish and Game, Fishery Management Report No. 06-51, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

ADF&G ADA Coordinator, P.O. Box 115526, Juneau AK 99811-5526

U.S. Fish and Wildlife Service, 4040 N. Fairfax Drive, Suite 300 Webb, Arlington VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:

(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648, (Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:

ADF&G, Sport Fish Division, Research and Technical Services, 333 Raspberry Road, Anchorage AK 99518 (907)267-2375.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ii
ABSTRACT.....	1
INTRODUCTION.....	1
2006 FISHERY.....	2
OPEN DISTRICTS AND GUIDELINE HARVEST LEVELS.....	2
MARKET CONCERNS.....	2
COMBINE FISHERY.....	3
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

Tables	Page
1. 2006 herring food/ bait guideline harvest levels by district	2

LIST OF FIGURES

Figures	Page
1. Herring food/bait fishery harvests 1960 – 2005.....	6
2. Map of southwestern Alaska emphasizing the Kodiak Management Area and its relationship to surrounding management areas.....	7
3. Map of the North Shelikof Strait and the Uganik Food/Bait District (F/B 4) showing that portion south of the latitude of Miners Point that is open to herring food/bait fishing for the 2006 season.....	8
4. Map showing the Eastside Food/Bait District (F/B 8) and management sections.	9
5. Map showing the Uyak Food/Bait District (F/B 5) and management sections.	10
6. Map showing the Alitak Food/Bait District (F/B 7) and management sections.....	11

ABSTRACT

The 2006 Kodiak Pacific herring *Clupea pallasii* food/bait fishery may open, by regulation, on October 1, 2006. 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 Eastside District with a 98 ton GHL, Uyak District with a 40 ton GHL, and the Alitak District with a 45 ton GHL. The remaining districts are either closed due to the low Kamishak herring biomass estimates, or are areas where the food/bait GHL would be less than 10 tons and, therefore, not manageable. The Alaska Department of Fish and Game is concerned that a competitive fishery, with all nine permit holders participating, could result in an excessive harvest 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, harvest, food/bait fishery, Kamishak, combine fishery.

INTRODUCTION

The Kodiak Management Area (KMA) commercial Pacific herring *Clupea pallasii* food/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 harvest was 31,600 tons (short). Since the early 1960s the harvest has 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/bait fishery occurred in the northeast Shelikof Strait of the KMA (Figure 2) with the fishery targeting a mix of Kodiak and Kamishak herring stocks (Johnson et al. *unpublished*). 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/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/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/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 reduced the GHL in 1998 and, due to the department's concern for manageability of a competitive fishery with small GHLs on highly aggregated stocks, the KMA herring food/bait fishery was closed for the 1999 and 2000 seasons.

In 2001, the Commercial Fisheries Entry Commission (CFEC) designated the KMA herring food/bait fishery a limited entry fishery. In July 2002, the CFEC issued limited entry permits to nine individuals based primarily on fishery participation in the 1994 to 1998 seasons. Five combination purse seine/gillnet and four trawl permits were issued.

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

periods. Combine fisheries have occurred during the 2001 through 2005 herring food/bait seasons.

The KMA food/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 2006 season and specify stipulations for potential competitive or combine fisheries.

2006 FISHERY

Due to the small GHLS available for the Kodiak food/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 would be difficult to manage. The season for this fishery extends from October 1, 2006 through February 28, 2007. The fishery will be opened by emergency orders, by district, in order to slow and control the harvests. At least 24 hours advance notice will be given prior to any herring food/bait fishing period. Individual CFEC permit holders must be registered with the department management staff in Kodiak before participating in this fishery.

OPEN DISTRICTS AND GUIDELINE HARVEST LEVELS

The herring food/bait fishery GHLS are based on the preceding herring sac roe fishery season GHLS, with 10% of the 2006 sac roe GHLS, by district, allocated to the 2006 food/bait fishery. The overall guideline harvest level for the 2006 Kodiak herring food/bait fishery is 342 tons (Table 1).

Table 1.-2006 herring food/bait guideline harvest levels by district.

Management District	GHL (tons)
F/B 4 - Uganik	159
F/B 5 - Uyak	40
F/B 7 - Alitak	45
F/B 8 - Eastside	98
Total	342

The 2006 KMA herring food/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 Eastside District with a 98 ton GHL (Figure 4), the Uyak District with a 40 ton GHL (Figure 5), and the Alitak District with a 45 ton GHL (Figure 6). The remaining districts will remain closed due to either low Kamishak Bay herring stock abundance or because the GHL for an area would be less than 10 tons and therefore unmanageable.

MARKET CONCERNS

The Kodiak herring food/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 2006. Any permit holder that intends to participate in the 2006 Kodiak herring food/bait fishery must have a market for any herring they catch during a food/bait fishery.

COMBINE FISHERY

In order to facilitate a fishery, several permit holders have begun discussions concerning a combine fishery for the 2006 season. Alaska Department of Fish and Game 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 2006 fishery. The department would require that only one catcher vessel be used and that a department management biologist be allowed 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 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 2006-2007 Statewide Commercial Herring Fishing Regulations (ADF&G 2006) for a complete listing of applicable regulations.

REGISTRATION

Permit holders must be registered with the ADF&G managers in Kodiak before participating in the food/bait fishery (5 AAC 27.510. (3)(b)). 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 October 1, 2006 and February 28, 2007. The duration of fishing periods and areas opened to fishing will be determined by Alaska Department of Fish and Game management biologists 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/bait fishing period. The fishery will be closed when the GHL has been harvested for each district. News Releases 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 2006 food/bait fishery, the fishery may open without restrictions on the duration of fishing periods.

CLOSED WATERS

To protect salmon that may be holding near the head of Kodiak bays, through October 31 herring may not be taken in the closed waters described in the Chignik and Kodiak Commercial Salmon Fishing Regulations, 2005-2008 (5 AAC 18.350; pages 82-86; ADF&G 2006). Closed waters may be reduced by department management staff, 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/bait fishery. Only one gear type may be fished at a time for the combination permit holders.

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: Jeff Wadle
211 Mission Road
Kodiak, Alaska 99615

REFERENCES CITED

- ADF&G (Alaska Department of Fish and Game). 2006. Regulations of the Alaska Board of Fisheries for Statewide Commercial Herring Fishing in Alaska, 2006-2007. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
- Johnson, B. A., C. Burkey, and D. Gaudet. (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.
- 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 4-K02-25, 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, pp. 25.

FIGURES

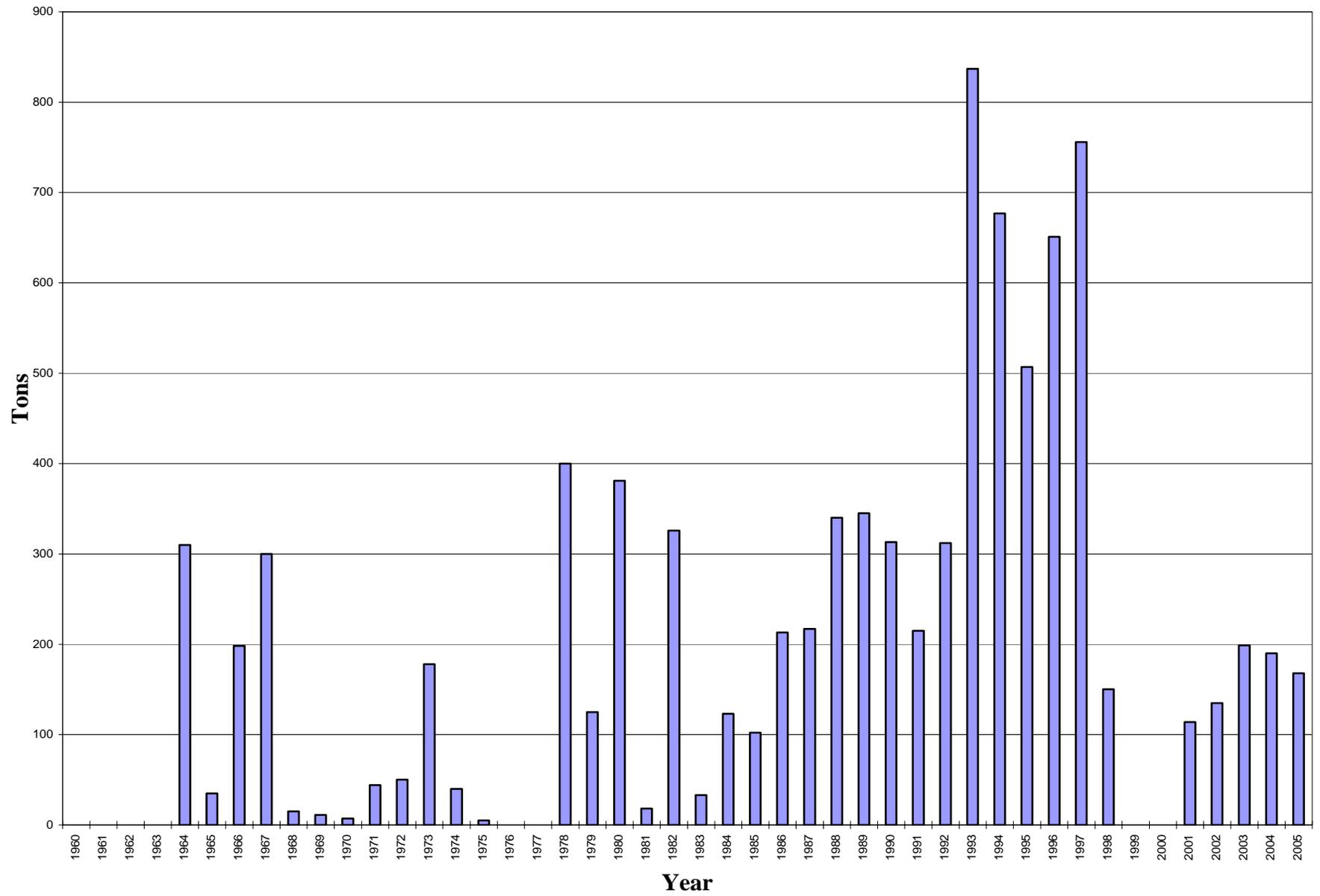


Figure 1.-Herring food/bait fishery harvests 1960 – 2005.

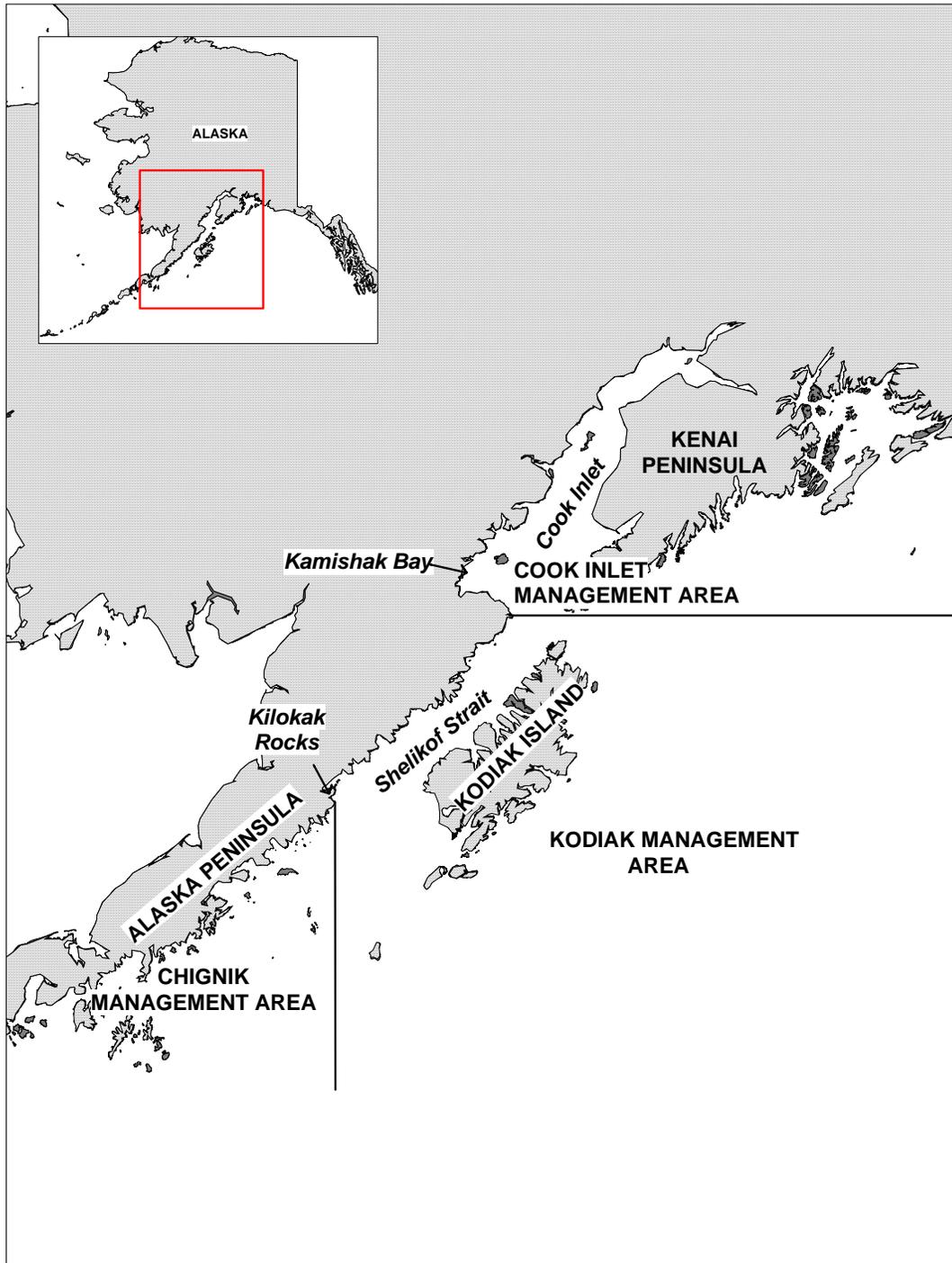


Figure 2.-Map of southwestern Alaska emphasizing the Kodiak Management Area and its relationship to surrounding management areas.

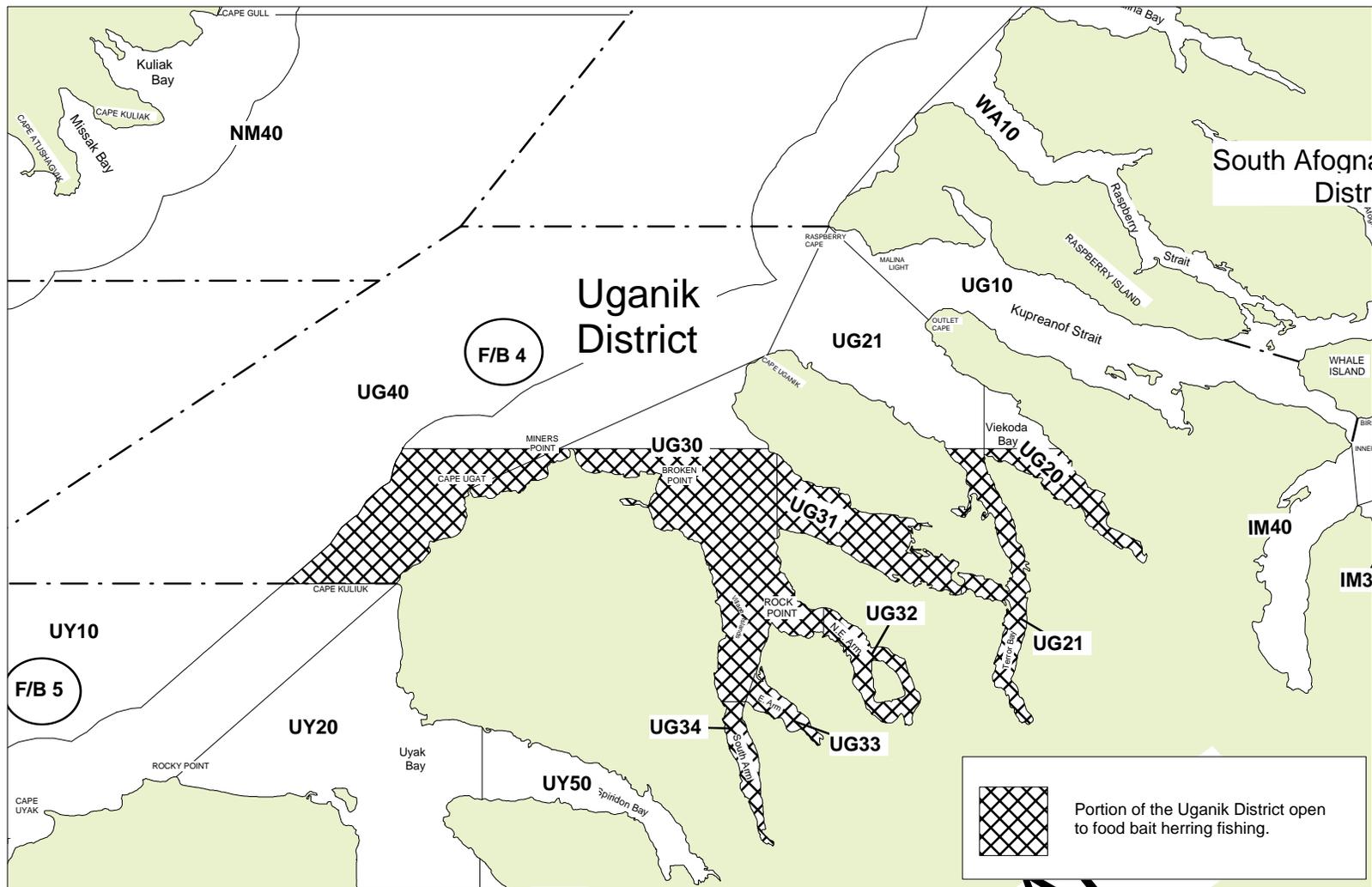


Figure 3.-Map of the North Shelikof Strait and the Uganik Food/Bait District (F/B 4) showing that portion south of the latitude of Miners Point that is open to herring food/bait fishing for the 2006 season.

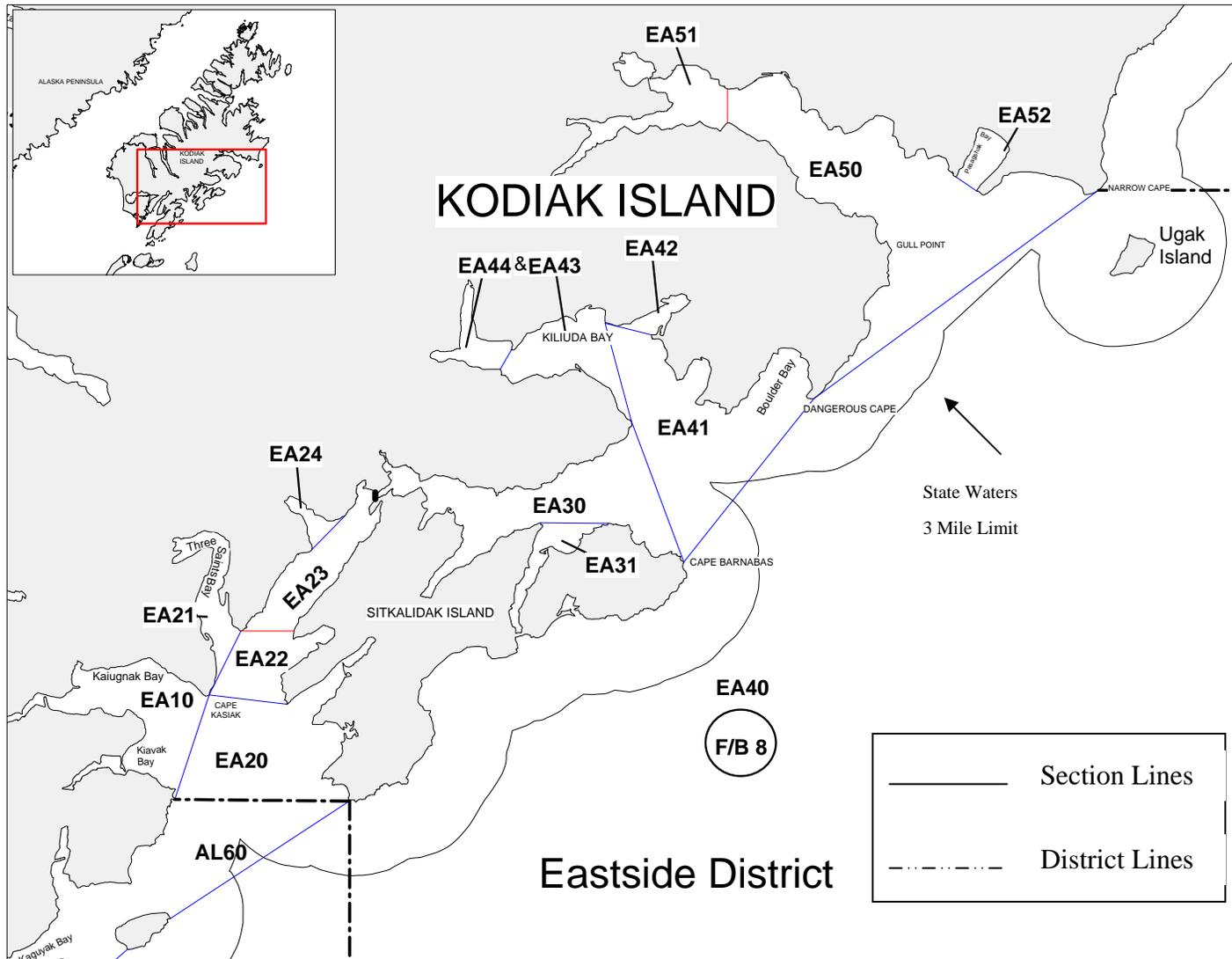


Figure 4.-Map showing the Eastside Food/Bait District (F/B 8) and management sections.

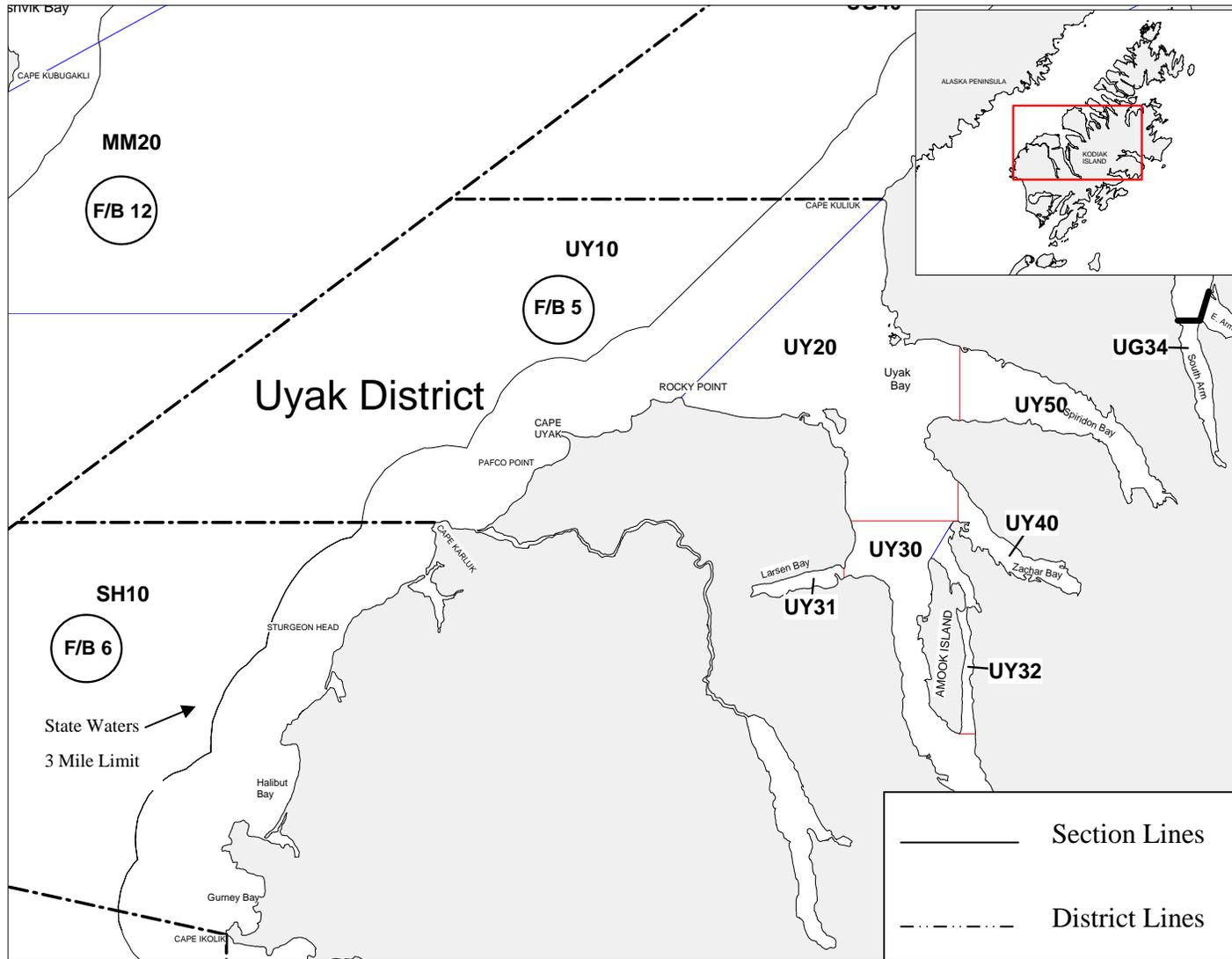


Figure 5.-Map showing the Uyak Food/Bait District (F/B 5) and management sections.

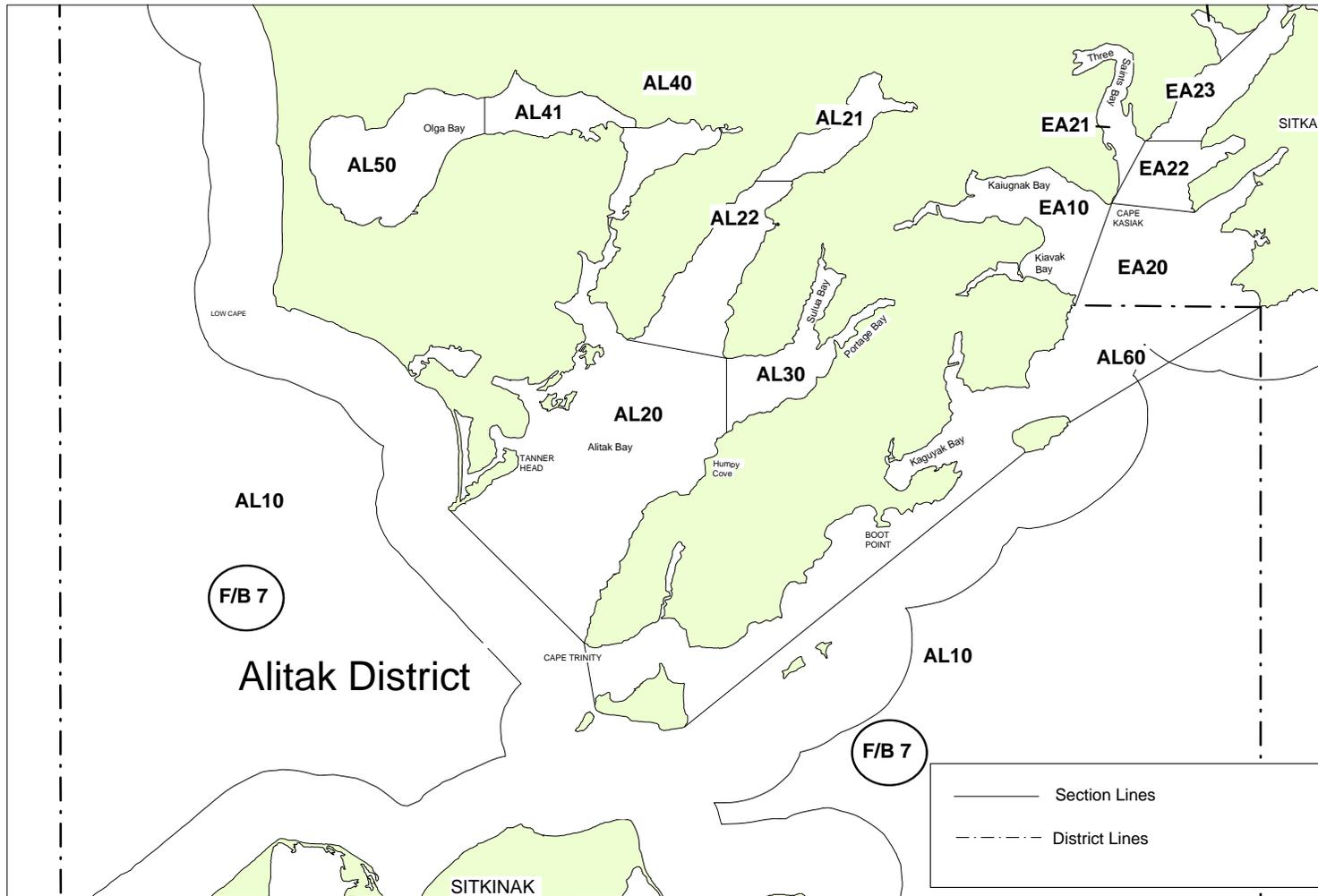


Figure 6.-Map showing the Alitak Food/Bait District (F/B 7) and management sections.