

Fishery Management Report No. 11-49

**Kodiak Management Area Commercial Herring Food
and Bait Fishery Harvest Strategy, 2011**

by

Geoff Spalinger

October 2011

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

FISHERY MANAGEMENT REPORT NO. 11-49

**KODIAK MANAGEMENT AREA COMMERCIAL HERRING FOOD AND
BAIT FISHERY HARVEST STRATEGY, 2011**

by

Geoff Spalinger

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

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

October 2011

The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. 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.adfg.alaska.gov/sf/publications/>. This publication has undergone regional peer review.

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

This document should be cited as:

Spalinger, G. 2011. Kodiak management area commercial herring food and bait fishery harvest strategy, 2011. Alaska Department of Fish and Game, Fishery Management Report No. 11-49, 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, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203

Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, 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 Division of Sport Fish, Research and Technical Services, 333 Raspberry Road, Anchorage AK 99518 (907) 267-2375.

TABLE OF CONTENTS

	Page
LIST OF FIGURES	i
ABSTRACT	1
INTRODUCTION	1
2011 FISHERY	2
Combine Fishery.....	2
Open Districts and Guideline Harvest Levels.....	2
Market Concerns.....	3
REGULATIONS	3
Registration.....	3
Season Dates.....	3
Closed Waters.....	3
Gear Restrictions	3
Gear Code.....	4
Fish Tickets	4
REFERENCES CITED	4
FIGURES	5

LIST OF FIGURES

Figure	Page
1. Kodiak Management Area herring food and bait fishery harvests from 1960–2010.....	6
2. Map of southwestern Alaska emphasizing the Kodiak Management Area (Area K) and its relationship to surrounding management areas.....	7
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 2011 season.	8
4. Map showing the Eastside District (F/B 8) of the herring food and bait fishery.....	9
5. Map showing the South Afognak District (F/B 3) of the herring food and bait fishery.....	10

ABSTRACT

The 2011 Kodiak Pacific herring *Clupea pallasii* food and bait fishery may open, by regulation, on September 1, 2011. The fishery may occur on Kodiak herring stocks in that portion of the Uganik District south of the latitude of Miners Point with a 180 ton (short) guideline harvest level (GHL), the Eastside District with a 155 ton GHL, and the South Afognak District with a 70 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 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 commercial food and bait fishery for Pacific herring *Clupea pallasii* in the Kodiak Management Area (KMA) dates 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 (short). 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.¹ 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). The Kamishak spawning biomass has been below the minimum threshold for a commercial harvest since 1998. 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 10 vessels participated in the fishery annually. Stocks began to decline in the late 1990s which led to a reduction of the GHL in 1998. Due to the 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 ADF&G 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 ADF&G to provide more liberal fishing time and area during fishing periods. Combine fisheries occurred for the 2001 through 2010 herring food and bait seasons.

¹ 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.

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 summarizes current regulations and the management of the fishery for the 2011 season and specifies stipulations for potential combine fisheries.

2011 FISHERY

The food and bait season extends from September 1, 2011 through February 28, 2012. 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. Individual CFEC permit holders must be registered with ADF&G management staff in Kodiak before participating in this fishery.

COMBINE 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. ADF&G will consider a combine fishery under the same guidelines required during previous seasons. All nine permit holders must notify ADF&G that either they support a combine fishery or they will not participate in the 2011 fishery. ADF&G would require that only one catcher vessel be used and that an ADF&G 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 determining which vessel conducts the harvest, all marketing aspects, and all costs associated with harvesting and tendering the herring.

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 2011 sac roe GHLS, by district, allocated to the 2011 food and bait fishery. The overall GHL for the 2011 Kodiak herring food and bait fishery is 405 tons (Table 1).

Table 1.–2011 herring food and bait GHLS by district.

Management District	GHL (tons)
F/B 3 - South Afognak	70
F/B 4 - Uganik	180
F/B 8 - Eastside	155
Total	405

The 2011 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 180 ton GHL (Figure 3), the Eastside District with a 155 ton GHL (Figure 4), and the South Afognak District with a 70 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 would be less than 10 tons 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 2011. Any permit holder that intends to participate in the 2011 Kodiak herring food and bait fishery must have a market for any herring they catch during a food and bait fishery.

REGULATIONS

Consult the 2011–2012 Statewide Commercial Herring Fishing Regulations (ADF&G 2011) 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, 2011 and February 28, 2012. The duration of fishing periods and areas opened to fishing will be determined by ADF&G 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 and bait fishing period. The fishery will be closed when the GHL has been harvested for each district. Each district will also be closed by emergency order.

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

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 (5 AAC 27.525)
 - Maximum length: 150 fathoms
 - Maximum depth: 1,625 meshes. For Area K there are no web size restrictions.
- 34 - Gillnet (5 AAC 27.525)
 - 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

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, pp. 25.

FIGURES

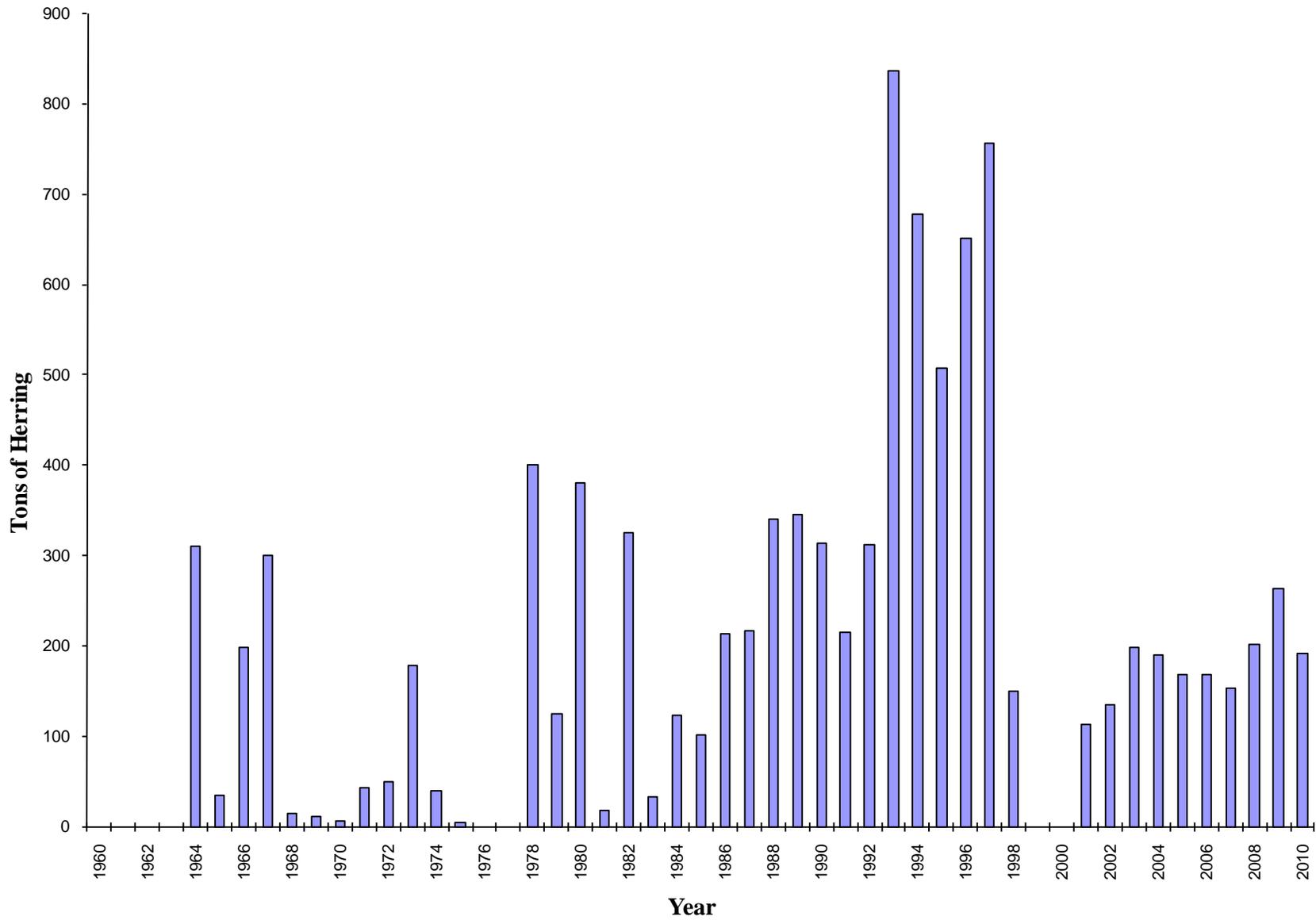


Figure 1.—Kodiak Management Area herring food and bait fishery harvests from 1960–2010.

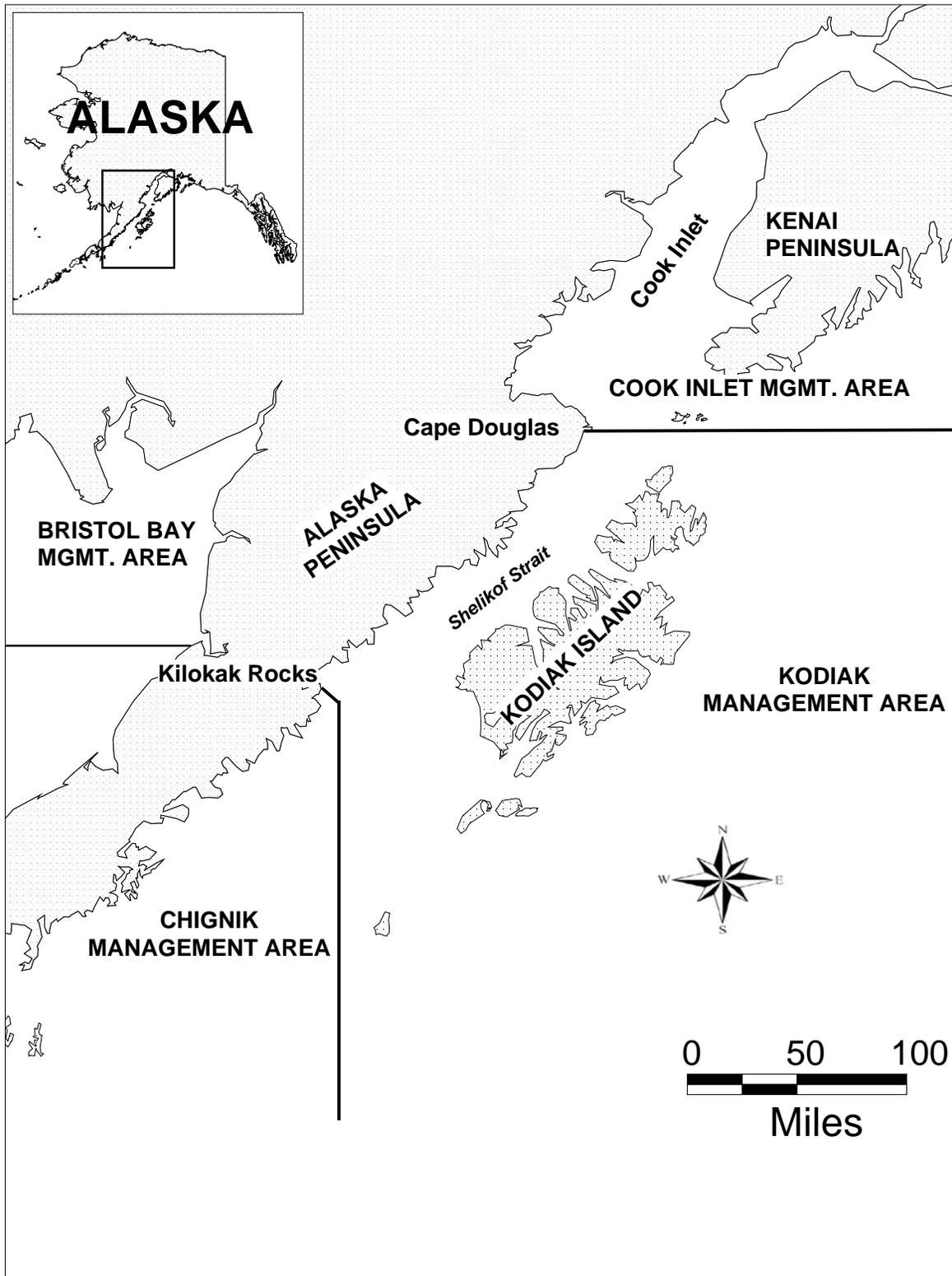


Figure 2.—Map of southwestern Alaska emphasizing the Kodiak Management Area (Area K) and its relationship to surrounding management areas.

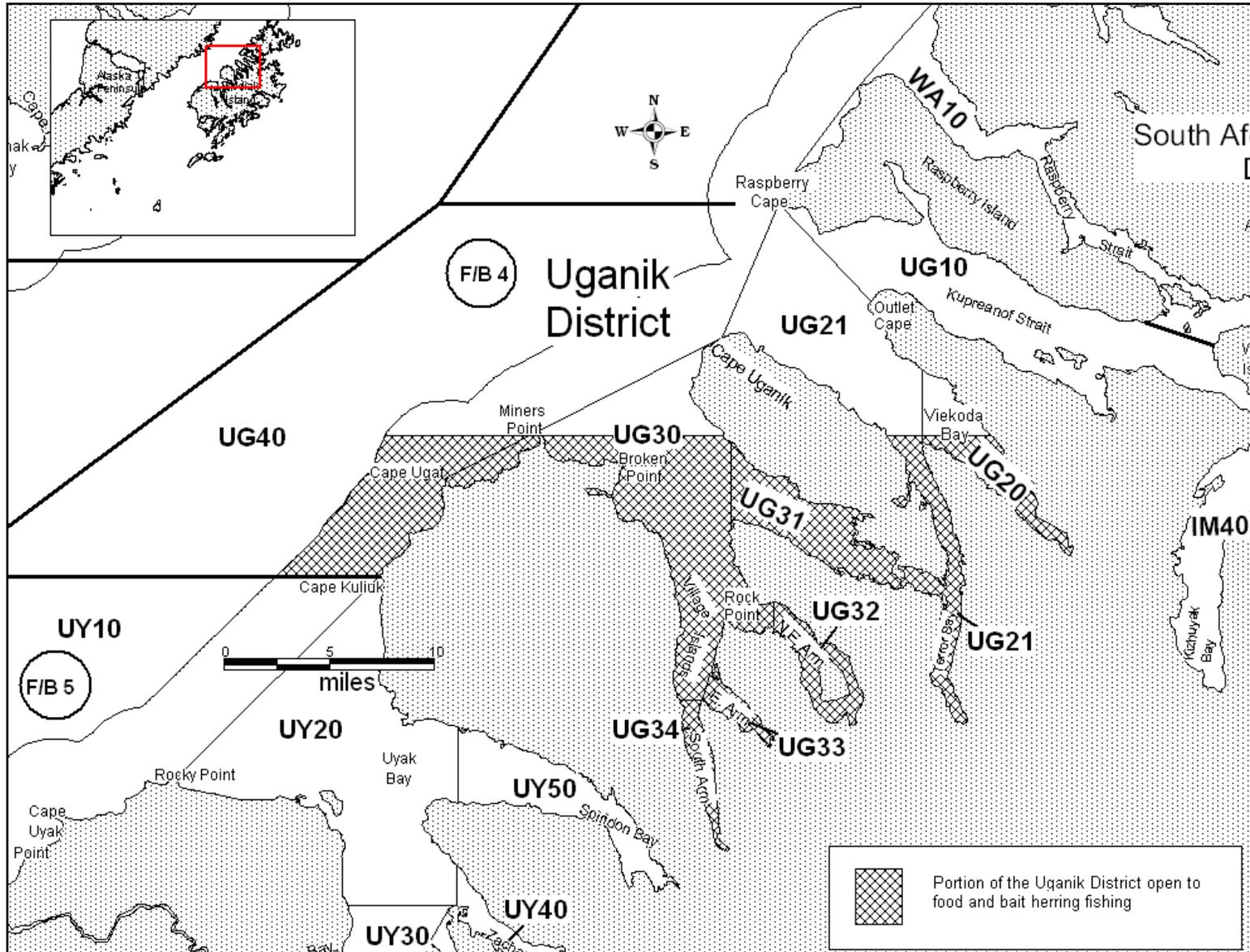


Figure 3.—Map of the North Shelikof Strait and the Uganik District (F/B 4) showing that portion south of the latitude of Miners Point that is open to herring food and bait fishing for the 2011 season.

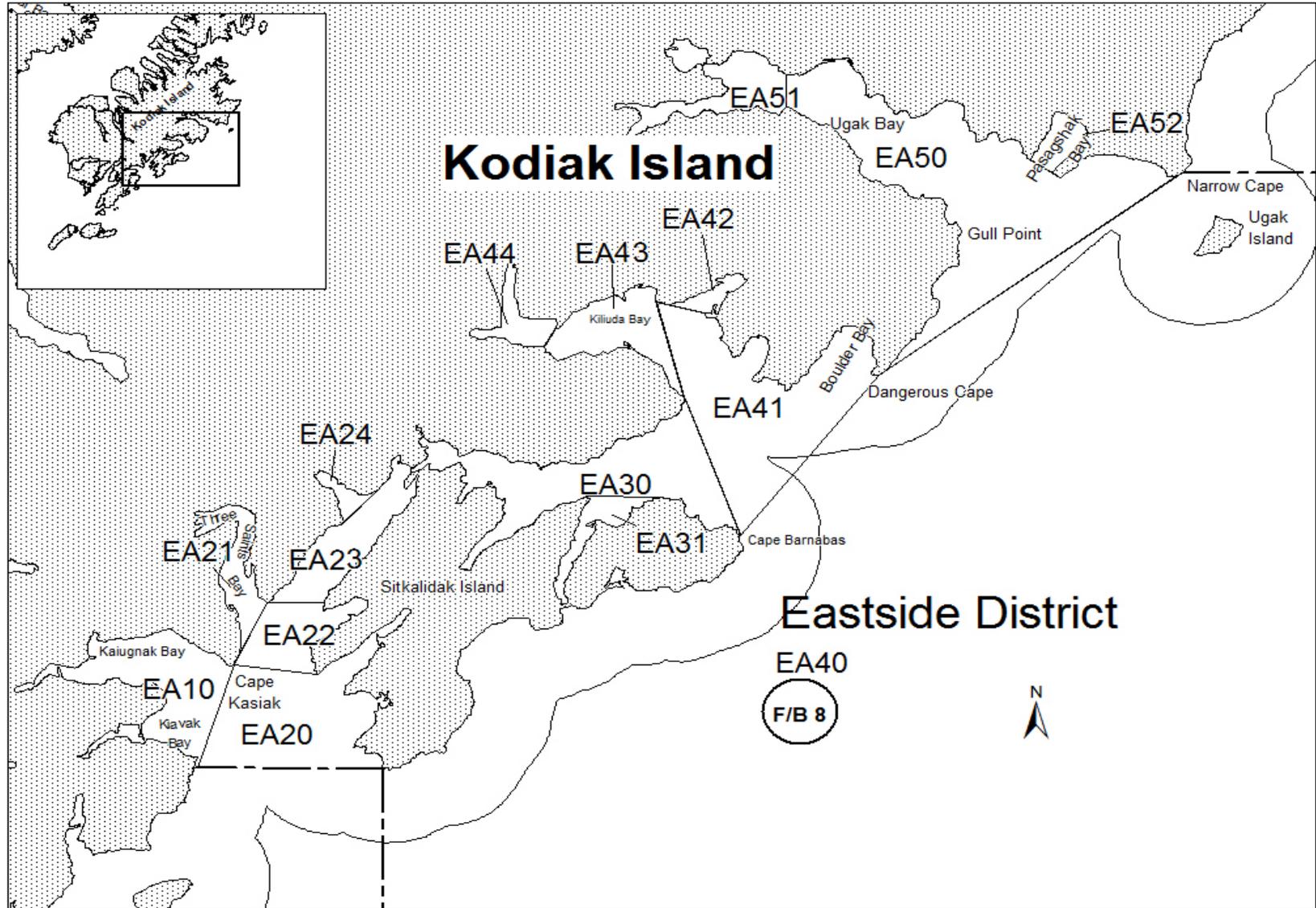


Figure 4.-Map showing the Eastside District (F/B 8) of the herring food and bait fishery

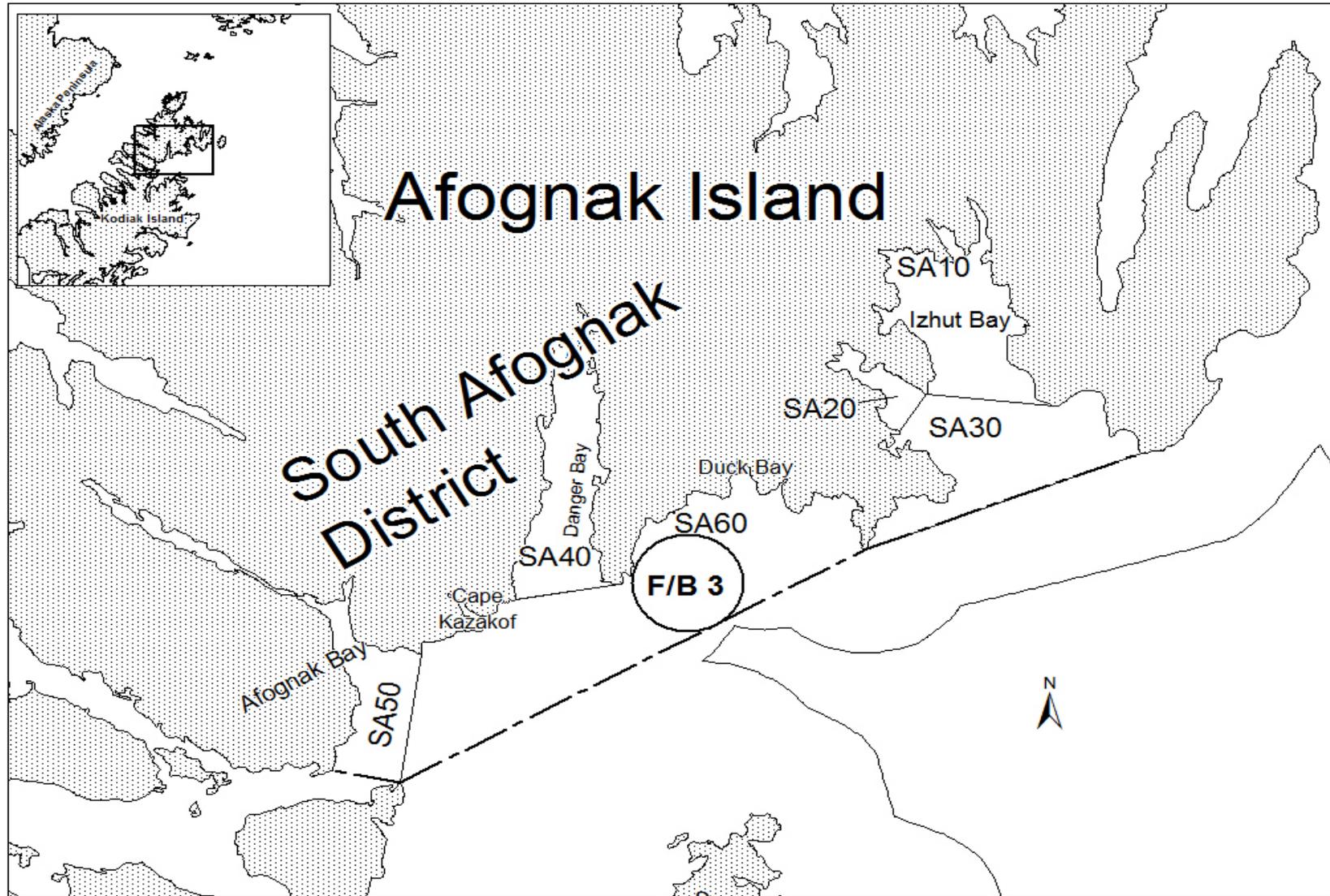


Figure 5.—Map showing the South Afognak District (F/B 3) of the herring food and bait fishery.