

KODIAK MANAGEMENT AREA  
HERRING SAC ROE HARVEST STRATEGY, 1993

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## TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES .....	i
LIST OF FIGURES .....	i
ABSTRACT .....	1
INTRODUCTION .....	1
GENERAL HARVEST POLICY .....	2
REGULATORY ABSTRACT .....	2
Management Unit Boundary Clarifications .....	2
NEW REGULATIONS .....	3
Management Unit Boundaries .....	3
Seine Specifications and Operations .....	4
Waters Closed to Herring Fishing .....	4
Registration Requirements .....	4
Tenders and Processors .....	4
Fishing Vessels .....	5
Guideline Harvest Levels .....	5
Fishing Season .....	5
Fishing Periods .....	5
Regulatory Closures .....	6
Extra Time For Gillnetters .....	6
Airplanes .....	6
Size Limits .....	6

## TABLE OF CONTENTS (Cont.)

	<u>Page</u>
Inseason Strategy .....	7
General Discussion .....	7
Fishing Periods .....	7
E. O. Announcements: "Getting the Word" .....	8
ADF&G Field Crews/Fisherman Cooperation .....	8
Inseason Catch Reporting .....	9
Guideline Harvest Levels .....	9

## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Herring sac roe fishery guideline harvest levels by stock, Kodiak Management Area, 1993 .....	10
2. Kodiak Management Area herring sac roe fishery industry summary, 1979-1992 .....	13
3. Status of Kodiak herring sac roe limited entry permits, 1988-1992 .....	15
4. Residency status of the limited entry permit holders for the Kodiak herring sac roe fishery, 1985-1992 .....	16
5. Alaska Department of Fish And Game, Division of Commercial Fisheries 1993 management staff .....	17
6. Historical harvests of Kodiak sac roe and food/bait herring (short tons), 1912-1992 .....	18
7. Historical harvest by gear type for the Kodiak herring sac roe fishery, 1964-1992 .....	19
8. 1992 Alaska statewide herring harvests and preliminary 1993 harvest projections .....	20

## LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Map showing the new boundary separating the Paramanof Bay and Foul Bay management units .....	21
2. Map showing the new Pasagshak management unit boundary .....	22
3. Map showing correct boundary lines between the Inner Alitak Bay and the Sulua-Portage Bay Management Units .....	23
4. Reduced scale map of the Kodiak area herring management units, a full scale map can be obtained from the Kodiak ADF&G office .....	24

## ABSTRACT

This document is intended to provide commercial fishermen and buyers with the guidelines to follow during the Kodiak commercial sac roe fishery.

The 1993 Kodiak herring sac roe fishery guideline harvest level is 3,525 tons. The season will begin at 12:00 noon on April 15 and will close at 12:00 noon on June 30. Fishing periods will be 24 hours in duration starting at 12:00 noon on odd numbered days and ending at 12:00 noon on even numbered days.

The Kodiak sac roe fishery is currently managed by the use of 75 management units; herring within 57 of these units are treated as individual stocks and have a history of sac roe harvests. Additionally there are 11 exploratory management units which potentially support sac roe stocks and 7 management units which occur offshore and are not perceived to have habitat suitable for spawning activity to occur.

Guideline Harvest Levels (G.H.L.) are provided for each of the 57 management units as shown in (Table 1). Inseason emergency order closures for each unit will occur as the G.H.L.'s for each unit are achieved. Closures may also result prior to attaining a G.H.L. if the fishery performance indicates that stock status is weaker than expected.

All inseason emergency order closures or reopenings will be broadcast on 4.125 mhz following the daily marine weather broadcasts at 8:00 a.m. and 6:00 p.m. News releases will be available both inside and outside the Kodiak ADF&G building. Additionally, the most current closure announcements will be available 24 hours/day on the ADF&G record-a-phone at 486-4559.

All herring buyers/processors and all tenders are required to register at the Kodiak ADF&G office prior to commencing operations in the Kodiak Area. There is no special vessel registration required for fishing vessels.

**To prevent waste, permit holders are encouraged to check with their markets prior to fishing to find out minimum size/weight restrictions and roe percentage which are acceptable. All herring which are harvested during the sac roe season which are sold as bait or are discarded due to quality problems will be included as part of the total sac roe harvest.**

## INTRODUCTION

The Kodiak Area herring sac roe fishery has occurred annually since 1964 (29 years). This fishery was an open-to-entry fishery from 1964 to 1980, under a moratorium to new entries from 1981 to 1984, and has been a limited entry fishery since 1985. Effort levels since 1979 are shown in Table 2. A listing of entry permits issued by gear type is shown in Table 3.

Since 1964 the harvest has averaged about 1,523 tons. Since 1979 the annual harvest has averaged about 2,256 tons and has provided a stable fishery with harvests ranging from 1,559 tons in 1986 to 4,283 in 1992. The average roe recovery was approximately 10%.

This fishery targets on individual herring stocks immediately prior to spawning to ensure the greatest roe development and resulting roe recovery.

## GENERAL HARVEST POLICY

This commercial fishery is intended to occur in an orderly fashion, with minimal waste of the resource and within conservation limits as determined by the Alaska Department of Fish and Game (ADF&G). Consequently, ADF&G will manage the fishery per the statewide general herring guideline harvest policy which provides for catches in traditional in-shore areas, for the greatest roe recovery, and not to exceed a 20% exploitation rate on the available spawning biomass. Roe recovery standards are determined by industry personnel.

Because of the differential timing and abundance of Kodiak's various herring stocks, relatively high gear levels to Guideline Harvest Levels (GHL's), and the competition between gear types for the same stocks, this fishery is best served by a fixed opening date, which is currently April 15. Generally the season will close for each stock by emergency order as their respective guideline harvest levels are achieved. When fishery and stock performance indicate that deviations from the guideline harvest level (i.e. where actual harvests occur at lesser or greater levels than expected), these areas may be closed under low performance or additional harvest may be warranted if the spawning biomass is greater than expectations. Stocks which are considered to be underexploited inseason will remain open for adequate exploitation to occur or until the regulatory closure of June 30. During the regulatory season, April 15 to June 30, stocks which have been closed to harvesting may be reopened if it is determined by ADF&G that "new" fish have increased the available spawning biomass to the point that the initial exploitation rate has dropped below 10% for that stock, see Table 1. Any reopenings will require confirmation that the "new" fish are not juvenile herring, post spawners, or other forage fish and the ability for ADF&G to monitor and regulate the reopening "on the grounds". At least 24 hours notice will be given prior to any reopenings.

## REGULATORY ABSTRACT

### *Management Unit Boundary Clarifications*

The boundary line in effect this year between the Sulua-Portage Bay Management Unit (AL30) and the Inner Alitak Bay Management Unit (AL20) is depicted on the Kodiak Area Herring Management Unit chart and is also shown in Figure 3.

Listed below is the correct description of the Sulua-Portage Bay Subsection and the Inner Alitak Bay Subsection boundary line.

**5 AAC 27.505. Description of districts and sections.**

(e)(2)(A) Inner Alitak Bay Subsection: all waters enclosed by a line from Cape Alitak to Cape Trinity, south of a line from Cape Hepburn to Bun Point and south of a line extending from Cape Hepburn at 56°57'18" N. lat., 153°58'00" W. long., eastward to 56°56'30" N. lat., 153°51'27" W. long.

(e)(3) Sulua-Portage Bay Section: all waters of Sulua and Portage Bays north of a line from Cape Hepburn at 56°57'18" N. lat., 153°58'00" W. long., to 56°56'30" N. lat., 153°51'27" W. long.

**NEW REGULATIONS**

There are several new regulations in effect for the 1993 herring sac roe season which were adopted by the Alaska State Board of Fisheries at its January 1993 meeting. These regulations, as listed below, deal with management unit boundaries, closed waters, and limits on vessel use by purse seine permit holders.

***Management Unit Boundaries***

**5 AAC 27.505. Descriptions of districts and sections.**

(a)(3)(A) Paramanof Bay Subsection: all waters of Paramanof Bay east of a line from Cape Paramanof (59°18'20" N. lat., 153°03'30" W. long.) to the westernmost tip of Ban Island and south of a line extending from the eastside of Ban Island to the westside of Afognak Island at 58°19'15" N. lat.

(B) Foul Bay Subsection: all waters of Foul Bay east of a line from the westernmost tip of Ban Island to Black Cape (58°24'30" N. lat, 152°53' W. long.) excluding the Paramanof Bay Subsection.

(f)(5)(B) Outer Ugak Subsection: all waters of Ugak Bay east of 152°49' W. long and west of a line from Dangerous Cape to Narrow Cape, excluding the Pasagshak Subsection.

(C) Pasagshak Subsection: all waters of Pasagshak Bay north and east of a line from 57°26'06" N. lat., 152°31' W. long, to 57°25'29" N. lat 152°29'15" W. long.

### *Seine Specifications and Operators*

**5 AAC 27.525. Seine specifications and operations.** (d) From April 1 through July 31, an Area K CFEC sac roe seine permit holder may use, to take herring, only the vessel identified on the permit, unless the permit holder has registered, in person, at the department's Kodiak office, to use a replacement vessel. Only one replacement seine vessel may be registered by a CFEC permit holder at a time.

### *Waters Closed to Herring Fishing*

**5 AAC 27.530. Waters closed to herring fishing.** (a) During the period July 1 through October 31, herring may not be taken in waters described in 5 AAC 18.350 and 5 AAC 39.290. (Waters closed to salmon fishing).

(b)(1) Brown's Lagoon: all waters, beginning at the seaward entrance, are closed to herring fishing from April 15 through June 30:

(3) Uganik Island: lagoons on Uganik Island described as follows are closed to herring fishing from April 15 through June 30:

(A) south and west of a line from (57°51'06" N. lat. 153°13'32" W. long.), to (57°52'07" N. lat., 153°15' W. long.);

(B) north of a line from (57°49'22" N. lat., 153°17'39" W. long.), to (57°49'28" N. lat., 153°19'18" W. long.)

(C) east of a line from (57°50'51" N. lat., 153°19'11" W. long.), to (57°50'04" N. lat., 153°19'11" W. long.);

### *Registration Requirements*

#### **Tenders and Processors**

The tender registration procedure requires:

- Each tender operator and processor must register with the Kodiak ADF&G office either in person or by an authorized agent for that tender or processor.
- Registration must occur prior to taking fish on-board the tender or taking fish at the processing plant.

Registration will ensure that all tenders and processors know the proper reporting requirements needed by ADF&G to manage the herring sac roe fishery.

- (See Regulation 5 AAC 27.540 of the Commercial Herring Regulations for additional information. **Note: This regulation will be strictly enforced**).

### **Fishing Vessels**

There are **no special registration requirements** for either seine or gillnet vessels unless a purse seine permit holder intends to use a different vessel than is listed on his/her permit card. (See new regulation on page 4.)

### ***Guideline Harvest Levels***

For the 1993 sac roe season, approximately 3,525 short tons are expected to be harvested from the entire management area. Harvest projections by management unit are listed in Table 1.

These harvest projections are estimates of harvest levels for each stock based upon ADF&G evaluation of stock status. These harvest projections are not guaranteed quotas and the actual harvest may exceed or fall short of these projections.

Inseason stock evaluation will be guided by the following criteria: 1) stock performance based on biomass estimates and age compositions, 2) fishery performance including fishery timing and harvest duration.

### ***Fishing Season***

The fishing season will be from April 15 through June 30. Adjustments to the season will be announced by emergency order on a stock by stock basis. Closures will occur when desired harvest levels of each stock are either achieved or in jeopardy of being significantly exceeded. Closures may also result when unexpected weaknesses in stock strength become apparent.

### ***Fishing Periods***

Initial fishing periods will be 24 hours and will begin at 12:00 Noon on odd numbered days and end at 12:00 Noon on even numbered days. The first 24 hour period will begin at 12:00 Noon on April 15. Depending on effort levels, harvest rates, and ADF&G's ability to monitor the fishery, the length of fishing periods may be reduced. Any reductions in fishing time will be announced by emergency order.

### *Regulatory Closures*

Browns Lagoon is closed at the seaward entrance of the lagoon (5 AAC 27.530).

Women's Bay is closed inside of a line from Shannon's Point to Nyman's Peninsula. The latitudes and longitudes of these points are described in regulation 5 AAC 27.530.

All Uganik Island Lagoons are closed due to the small and geographically confined stocks which are highly susceptible to overexploitation (5 AAC 27.530).

(Please refer to the 1993 Commercial Herring Fishing Regulation Booklet).

### *Extra Time For Gillnetters*

When the following conditions exist, herring gillnetters are allowed a two hour grace period before having to completely remove their gear from the water.

1. Herring gillnets may remain in the water up to two hours after the "primary closure time" for those fishing periods having fishing time of three hours or less.
2. Herring gillnets may remain in the water up to two hours after the announced "primary" closure time for those fishing periods greater than three hours in length, where the announcement occurs less than three hours before the scheduled "primary closure time" of the fishing period.

The "primary closure time" is the time at which all seine gear must have completed fishing. When it applies, the "secondary closure time", i.e. at the end of the two hour grace period for gillnet gear, ALL GILLNETS MUST BE COMPLETELY OUT OF THE WATER AND NO GILLNET GEAR MAY BE SET OR RESET AFTER THE "PRIMARY CLOSING TIME".

### *Airplanes*

There are no restrictions on the use of airplanes.

### *Size Limits*

No CFEC herring seine permit holder may sell or have aboard a vessel any herring that were taken during the herring sac roe season if the number of individual herring per 50 lbs. of net weight exceeds 250 fish (approximately 91 grams average weight).

TO PREVENT WASTE, PERMIT HOLDERS ARE ENCOURAGED TO CHECK WITH THEIR MARKETS PRIOR TO FISHING TO FIND OUT MINIMUM SIZE/WEIGHT RESTRICTIONS AND ROE PERCENTAGES WHICH ARE ACCEPTABLE. ALL HERRING WHICH ARE HARVESTED DURING THE SAC ROE SEASON WHICH ARE SOLD AS BAIT OR ARE DISCARDED DUE TO QUALITY PROBLEMS WILL BE INCLUDED AS PART OF THE TOTAL SAC ROE HARVEST.

### *Inseason Strategy*

#### **General Discussion**

Table 1 lists by district those management units in which historical harvests have occurred. These management units have been assigned guideline harvest levels. Those management units where sporadic or no harvests have occurred, have been designated "Exploratory" with no designated guideline harvest level. Inseason closures will be used to ensure that excessive harvests are minimized in exploratory situations.

The guideline harvest levels established for each management unit, district and/or the entire management area are meant to reflect the stock status. This means that the previous season's stock performance has been evaluated and that trends have been identified and used to establish the current season's GHL's. Specifically, these criteria are 1) 1992 expected biomass vs. actual biomass estimates, 2) average school size, 3) trends in age composition, 4) level of recruitment (age 3), 5) proportion of the spawning population age 5 and younger, 6) level of age 2 fish in the spawning biomass (indicator of future recruit strength) and 7) spawn observations (extent, frequency, amount deposited). This information is supplemented by fishery performance information, namely the expected vs. actual harvest timing, duration, and level.

Guideline harvest level adjustments are subsequently made based upon stock performance. Generally, adjustments are gradual,  $\pm 25\%$  or  $\pm 50\%$ .

At any time inseason, closed area adjustments can be made when it appears that pre-season expectations were incorrect. Consequently sections may be closed prior to reaching their GHL's or allowed to harvest in excess of their GHL's depending on the assessed available spawning biomass.

#### **Fishing Periods**

Starting April 15, fishing periods will begin at 12:00 Noon on the odd numbered days of the month and end at 12:00 Noon on the even numbered days, through June 30. Staggered days of fishing provide clearly defined closed periods which allow staff time to collect, summarize, and update all harvest data from previous fishing periods. The closures also allows for comparisons between reported and actual harvests. Since 1979, the occurrence of significant excessive harvests in this fishery have been prevented by providing pre-established fishing periods. Later in the season (usually early June) when fleet size and exploitable stocks are lower, fishing periods

may be modified to more adequately harvest late occurring stocks. However, ADF&G's ability to monitor this fishery is limited in late May and June, and this factor will be considered in modifying the fishing periods.

### **E.O. Announcements: "Getting the Word"**

By regulation, both purse seine and gillnet gear are allowed to fish in any open area. This allows for a considerable dispersion of gear in the management area. Consequently, it is important for the fleet to be aware of any changes in closures or reopenings. This can be accomplished by: 1) personal contact with the Kodiak Herring Management staff in Kodiak via office visits, or telephone at 486-1830 (extensions 234, 235, or 231), or radio-telephone, 2) contact with ADF&G field personnel and the ADF&G vessel, the M/V K-Hi-C, which can be reached on VHF Channel 6 or SSB on 3.230 mhz, 3) contacting any local herring processor and having them transmit the latest Kodiak herring emergency order, 4) **calling the 24-hour recorded message phone at 486-4559**, 5) listening for any emergency order update which will be broadcast following the 8:00 A.M. or 6:00 P.M. marine weather broadcasts, on 4.125 mhz, 6) obtaining the most recent emergency order from the pouch posted outside the entrance to the Kodiak Fish and Game building, and 7) listening to the Fish and Game reports broadcast over the local AM and FM radio stations (consult stations for broadcast times). No announcements will be given via VHF because of the limited broadcast range from the Kodiak office; however special consideration may be given to the Chiniak Bay fishery.

Inseason closure announcements for management units which are not monitored by an ADF&G field crew normally occur at the end of a fishing period. However, short notice in-period closures may occur in management units not monitored by ADF&G field crews. Closures of this type will be announced by ADF&G management staff monitoring the area or initially announced on 4.125 mhz following the weather broadcasts at 8:00 A.M. or 6:00 P.M. daily.

Because of the extensive announcements associated with this fishery, **it is recommended that fishermen document the latest E.O. announcement broadcast by either marking a chart or making a tape recording of the broadcast.**

### **ADF&G Field Crews/Fishermen Cooperation:**

The crew on board the Department's M/V K-Hi-C and seasonal personnel in remote tent camps will aid the Area Management Biologists by making frequent fishermen contacts to collect data on harvest levels and rates, fleet movements, and fleet observations of herring concentrations. Fishermen's cooperation will be appreciated when Department personnel request herring samples from their commercial catch. Samples from juvenile schools inadvertently seined-up will be gladly accepted by all ADF&G personnel. These samples will be used primarily for monitoring age composition, and when used with other stock performance indicators, will assist in determining the health of the stock. Copies of historical age data by stock are available at the Kodiak ADF&G office.

ADF&G field crews will also be monitoring and mapping spawning activities, and soliciting information on commercial sightings to supplement information gathered by ADF&G. Fishermen and spotter pilots are encouraged to provide biomass and spawning information, which will remain confidential. Past cooperation has been excellent and has proven valuable in evaluating stock status and in gaining critical management information.

### **Inseason Catch Reporting**

During the 1993 season, frequent aerial surveys and timely catch reports will be an important management tool, particularly in areas without field crews. Timely and accurate catch information provided by the processors and fishermen will be essential in managing the fishery. Processors and independent tender operators will be required to provide daily tallies of herring deliveries by statistical area and accurate estimates of delivered herring still on tenders. Inaccurate or untimely information could result in area closures. Individual code sheets will be provided to each tender or processor required to report catches on a daily basis by radio. **Each tender operator and buyer must register with the Department prior to fishing and will be given a packet containing regulations, statistical charts, etc.**

### **Guideline Harvest Level**

The 1993 GHL of 3,525 tons could result in a near record sac roe herring harvest for the Kodiak Area. The actual harvest will depend on the accuracy of the preseason forecast, and the weather conditions during the season.

Table 1 lists the Guideline Harvest Levels by Management Unit, (GHLs) and will be used as an aid in making inseason management decisions. These harvest levels are meant to reflect the status of each stock listed. Annual harvest levels for these stocks may fluctuate considerably until their status is better understood. All fishermen, spotter pilots, and processors are encouraged to provide the ADF&G management staff with any information on stocks to improve the management of the fishery.

Table 1. Herring sac roe fishery guideline harvest levels by stock, Kodiak Management Area, 1993.

STAT. AREA	MGMT. UNITS	1993 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION	@20% EXPLOITATION
<i>AFOGNAK DISTRICT</i>				
A010	Raspberry Sts.	165 TONS	1,650 Tons	825 Tons
A020	Malina Bay	90 TONS	900 Tons	450 Tons
A031	Paramanof Bay	100 TONS	1,000 Tons	500 Tons
A032	Foul Bay	60 TONS	600 Tons	300 Tons
A040	Devils Inlet	10 TONS	100 Tons	50 Tons
A040	Blue Fox	20 TONS	200 Tons	100 Tons
A050	Offshore W. Afog. <sup>a</sup>	-	a	a
A060	Shuyak Is.	20 TONS	200 Tons	100 Tons
A070	Perenosa Bay	15 TONS	150 Tons	75 Tons
A071	Delphin Bay	10 TONS	100 Tons	50 Tons
A072	Seal Bay	10 TONS	100 Tons	50 Tons
A080	Tonki Bay	15 TONS	150 Tons	75 Tons
A090	Izhut Bay	15 TONS	150 Tons	75 Tons
A091	Kitoi Bay	10 TONS	100 Tons	50 Tons
A092	MacDonalds Lagoon	10 TONS	100 Tons	50 Tons
A100	Danger Bay	25 TONS	250 Tons	125 Tons
A101	Litnik	10 TONS	100 Tons	50 Tons
A102	Duck Bay	10 TONS	100 Tons	50 Tons
District Totals		595 TONS	5,950 Tons	2,975 Tons
<i>UGANIK DISTRICT</i>				
UG10	Kupreanof	10 TONS	100 Tons	50 Tons
UG20	Viekoda	80 TONS	800 Tons	400 Tons
UG21	Terror	90 TONS	900 Tons	450 Tons
UG30	Village Island	135 TONS	1,350 Tons	675 Tons
UG31	W. Uganik Pass	75 TONS	750 Tons	375 Tons
UG32	NE Arm Uganik	110 TONS	1,100 Tons	550 Tons
UG33	E. Arm Uganik	60 TONS	600 Tons	300 Tons
UG34	S. Arm Uganik	60 TONS	600 Tons	300 Tons
UG40	Offshore Uganik <sup>a</sup>	-	a	a
District Totals		620 TONS	6,200 Tons	3,100 Tons
<i>UYAK DISTRICT</i>				
UY10	Offshore Uyak <sup>a</sup>	-	a	a
UY20	Harvester Island	10 TONS	100 Tons	50 Tons
UY30	Inner Uyak	135 TONS	1,350 Tons	675 Tons
UY32	Browns Lagoon	30 TONS	300 Tons	150 Tons
UY31	Larsen Bay	10 TONS	100 Tons	50 Tons
UY40	Zachar Bay	75 TONS	750 Tons	375 Tons
UY50	Spiridon Bay	90 TONS	900 Tons	450 Tons
District Totals		350 TONS	3,500 Tons	1,750 Tons

-Continued-

Table 1. (page 2 of 3)

STAT. AREA	MGMT. UNITS	1993 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS		
			@10% EXPLOITATION	@20% EXPLOITATION	
<i>ALITAK DISTRICT</i>					
AL10	Outer Alitak	(Exploration)		b	b
AL20	Inner Alitak	75 TONS	750 Tons		375 Tons
AL21	Deadman Bay	230 TONS	2,300 Tons		1,150 Tons
AL30	Sulua/Portage Bay	145 TONS	1,450 Tons		725 Tons
AL40	Lower Olga/Moser <sup>c</sup>	20 TONS	200 Tons		100 Tons
AL40	No. Upper Olga Bay <sup>c</sup>	10 TONS	100 Tons		50 Tons
AL50	So. Upper Olga Bay <sup>c</sup>	110 TONS	1,100 Tons		550 Tons
AL60	Geese/Twoheaded	(Exploration)		b	
District Totals		590 TONS	5,900 Tons		2,950 Tons
<i>STURGEON/HALIBUT DISTRICT</i>					
SH10	Sturgeon/Halibut	(Exploration)		b	b
<i>GENERAL DISTRICT</i>					
GO10	Kaiugnak	20 TONS	200 Tons		100 Tons
GO20	W. Sitkalidak St.	150 TONS	1,500 Tons		750 Tons
GO20	SW Sitkalidak St.	125 TONS	1,250 Tons		625 Tons
GO21	Barling	40 TONS	400 Tons		200 Tons
GO22	E. Sitkalidak St.	180 TONS	1,800 Tons		900 Tons
GO23	Tanginak Anchorage	15 TONS	150 Tons		75 Tons
GO30	Outer Sitkalidak	(Exploration)		b	
GO40	Outer Kiliuda	(Exploration)		b	
GO41	Inner Kiliuda	60 TONS	600 Tons		300 Tons
GO42	Shearwater	75 TONS	750 Tons		375 Tons
GO53	Pasagshak	30 TONS	300 Tons		150 Tons
GO50	Outer Ugak	(Exploration) <sup>b</sup>		b	
GO51	Inner Ugak	95 TONS	950 Tons		475 Tons
GO60	Womens Bay	110 TONS	1,100 Tons		550 Tons
GO70	Monashka/Mill B.	(Exploration)		b	
GO80	Anton Larsen	10 TONS	100 Tons		50 Tons
GO81	Sheratin	10 TONS	100 Tons		50 Tons
GO90	Kizhuyak	100 TONS	1,000 Tons		500 Tons
G100	Kalsin Bay	15 TONS	150 Tons		75 Tons
G101	Middle Bay	20 TONS	200 Tons		100 Tons
G102	Inshore Chiniak	10 TONS	100 Tons		50 Tons
G103	Spruce Island	10 TONS	100 Tons		50 Tons
District Total		1,075 TONS	10,750 Tons		5,375 Tons
<i>MAINLAND DIST.</i>					
M010	North Mainland	(Exploration)		b	b
M020	Inner Kukak	65 TONS	650 Tons		325 Tons
M030	Outer Kukak <sup>a</sup>	-		a	a
M040	Inner Missak	(Exploration)		b	b
MO40	Outer Missak <sup>a</sup>	-		a	a
M050	Inner Katmai	65 TONS	650 Tons		325 Tons

-Continued-

Table 1. (page 3 of 3)

STAT. AREA	MGMT. UNITS	1993 GUIDELINE HARVEST LEVEL	REQUIRED SPAWNING BIOMASS	
			@10% EXPLOITATION	@20% EXPLOITATION
<i>MAINLAND DISTRICT (Cont.)</i>				
M060	Outer Katmai <sup>a</sup>	-	a	a
M070	Alinchak	40 TONS	400 Tons <sup>b</sup>	200 Tons
M080	Puale Bay (Exploration) <sup>b</sup>		b	b
M090	Portage Bay (Exploration)		a	a
M100	Outer Portage <sup>a</sup>	-		
M110	Wide Bay	125 TONS	1,250 Tons <sup>b</sup>	625 Tons <sup>b</sup>
M120	Lower Shelikof (Exploration)			
District Total		295 TONS	2,950 Tons	1,475 Tons
GRAND TOTAL		3,525 TONS	35,250 Tons	17,625 Tons

<sup>a</sup> These are offshore management units which are not expected to yield herring of sac roe quality. These units are more applicable to the food/bait fishery. (See Herring Food/Bait Fishery Management Plan.)

<sup>b</sup> Adequate biomass to justify an "exploratory" harvest; the actual harvest should not exceed 20% of the available biomass.

<sup>c</sup> The following management units have been modified either in name or boundaries for the purpose of inseason management of the Olga/Moser Bay herring stocks. Each unit will be described by emergency order when closures are issued for these units.

-AL40 Lower Olga/Moser Unit: Formerly that portion of the Olga/Moser Bay Section south of the latitude of Stockholm Point.

-AL50 North Upper Olga Unit: Formerly that portion of the Olga/Moser Bay Section north of the latitude of Stockholm Point.

-AL50 South Upper Olga Unit: Formerly called the Upper Olga Bay Section.

Table 2. Kodiak Management Area herring sac roe fishery industry summary, 1979-1992.

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Tons/Lndgs	Average Lndgs/Boat
1979	Purse Seine	57	-	1457.2	84	\$2,185,788	\$38,347	25.6	-	-
	Gillnet	125	-	277.9	16	\$416,670	\$3,333	2.2	-	-
	TOTAL	182	-	1735.1	100	\$2,602,458	-	-	-	-
1980	Purse Seine	92	-	2009.0	84	\$1,377,987	\$14,978	21.8	-	-
	Gillnet	109	-	374.0	16	\$280,423	\$2,573	3.4	-	-
	TOTAL	201	-	2383.0	100	\$1,685,410	-	-	-	-
1981	Purse Seine	79	207	1596.2	77	\$1,137,764	\$14,402	20.2	7.7	2.6
	Gillnet	114	406	469.2	23	\$395,640	\$3,471	4.1	1.2	3.6
	TOTAL	193	613	2065.4	100	\$1,633,404	-	-	-	-
1982	Purse Seine	45	138	1447.0	82	\$801,840	\$17,819	32.2	10.5	3.1
	Gillnet	67	191	323.6	18	\$182,160	\$2,719	4.8	1.7	1.8
	TOTAL	112	329	1770.6	100	\$1,533,404	-	-	-	-
1983	Purse Seine	41	164	1796.9	78	\$1,437,520	\$35,061	43.8	11	4
	Gillnet	64	284	521.6	22	\$417,280	\$6,520	8.2	1.8	4.4
	TOTAL	105	448	2318.5	100	\$1,854,800	-	-	-	-
1984	Purse Seine	39	138	1691.2	78	\$1,352,960	\$34,691	43.3	12.3	3.5
	Gillnet	69	212	471.5	22	\$377,200	\$5,467	6.8	2.2	3.1
	TOTAL	108	350	2162.7	100	\$1,730,160	-	-	-	-
1985	Purse Seine	34	118	1244.2	63	\$1,119,780	\$32,935	36.6	10.5	3.5
	Gillnet	81	348	723.5	37	\$651,150	\$8,039	8.9	2.1	4.3
	TOTAL	115	466	1967.7	100	\$1,770,930	-	-	-	-
1986	Purse Seine	31	132	1110.8	71	\$1,054,310	\$34,010	35.8	8.4	4.3
	Gillnet	71	385	448.6	29	\$426,170	\$6,002	6.3	1.2	5.4
	TOTAL	102	517	1559.4	100	\$1,480,480	-	-	-	-
1987	Purse Seine	29	122	1591.3	74	\$1,591,300	\$54,872	54.9	13	4.2
	Gillnet	62	411	554.6	26	\$554,600	\$8,945	9	1.35	6.6
	TOTAL	91	533	2145.9	100	\$2,145,900	-	-	-	-
1988	Purse Seine	33	169	1303.6	60	\$1,694,550	\$51,350	39.5	7.7	5.1
	Gillnet	76	555	867.2	40	\$1,127,620	\$14,837	11.4	1.6	7.3
	TOTAL	109	724	2170.8	100	\$2,822,170	-	-	-	-

-Continued-

Table 2. (page 2 of 2)

Year	Gear Type	Units of Gear	Est. Number Landings	Est. Harvest (Tons)	Est. Harvest Percent	Est. Total Value	Est. Average Earnings	Average Tons/Boat	Average Tons/Lndgs	Average Lndgs/Boat
1989	Purse Seine	37	171	1512.6	67	\$1,285,710	\$34,749	40.9	8.8	4.6
	Gillnet	83	627	736.0	33	\$625,600	\$7,537	8.9	1.2	7.6
	TOTAL	120	798	2248.6	100	\$1,911,310				
1990	Purse Seine	27	156	1644.0	70	\$1,397,400	\$51,724	60.9	10.5	5.8
	Gillnet	63	544	703.0	30	\$597,550	\$9,652	11.2	1.3	8.6
	TOTAL	90	700	2347.0	100	\$1,994,950				
1991	Purse Seine	32	169	1697.0	70	\$1,442,450	\$45,077	53.0	10	5.3
	Gillnet	64	587	735.0	30	\$624,750	\$9,762	11.5	1.3	9.2
	TOTAL	96	756	2432.0	100	\$2,067,200				
1992	Purse Seine	40	185	3260.0	76	\$1,630,000	\$40,750	81.5	17.6	4.6
	Gillnet	74	706	1023.0	24	\$511,500	\$6,912	13.8	1.4	9.5
	TOTAL	114	891	4283.0	100	\$2,141,500				

Table 3. Status of Kodiak herring sac roe limited entry permits, 1988-1992.

Gear Type	Year				
	1988	1989	1990	1991	1992
G.N. TRANSFERABLE	64	68	72	74	94
G.N. NON-TRANSFERABLE	41	44	27	28	14
G.N. TOTAL	105	112	99	102	108
G.N. FISHED	76	83	63	64	74
SEINE TRANSFERABLE	46	47	47	48	59
SEINE NON-TRANSFERABLE	24	25	25	22	11
SEINE TOTAL	70	72	72	70	70
SEINE FISHED	33	37	27	32	40
TOTALS					
TRANSFERABLE	110	115	119	122	153
NON-TRANSFERABLE	65	69	52	50	25
TOTAL	175	184	171	172	178
FISHED	109	120	90	96	114

Note: Data from December 1992, 1992 permit status is preliminary from C.F.E.C.

Table 4. Residency status of the limited entry permit holders for the Kodiak herring sac roe fishery, 1985-1992.

Year	Status	PURSE SEINE		GILLNET		TOTALS	
		Number	%	Number	%	Number	%
1985	Residents	62	.89	114	.94	176	.92
	Non-Resident	8	.11	4	.03	12	.06
	Unknown	0	-	3	.03	3	.02
	TOTAL	<u>70</u>		<u>121</u>		<u>191</u>	
1986	Residents	65	.90	115	.97	180	.95
	Non-Resident	7	.10	3	.03	10	.05
	Unknown	0	-	0	-	0	-
	TOTAL	<u>72</u>		<u>118</u>		<u>190</u>	
1987	Residents	58	.88	101	.94	159	.91
	Non-Resident	6	.09	2	.01	8	.05
	Unknown	2	.03	5	.05	7	.04
	TOTAL	<u>66</u>		<u>108</u>		<u>174</u>	
1988	Residents	62	.90	105	.96	167	.94
	Non-Resident	6	.09	1	.01	7	.04
	Unknown	1	.01	3	.03	4	.02
	TOTAL	<u>69</u>		<u>109</u>		<u>178</u>	
1989	Residents	62	.86	107	.93	169	.90
	Non-Resident	7	.10	4	.035	11	.06
	Unknown	3	.04	4	.035	7	.04
	TOTAL	<u>72</u>		<u>115</u>		<u>187</u>	
1990	Residents	59	.83	95	.92	154	.89
	Non-Resident	9	.13	4	.04	13	.07
	Unknown	3	.04	4	.04	7	.04
	TOTAL	<u>71</u>		<u>103</u>		<u>174</u>	
1991	Residents	59	.84	94	.92	153	.89
	Non-Resident	8	.11	4	.04	12	.07
	Unknown	3	.05	4	.04	7	.04
	TOTAL	<u>70</u>		<u>102</u>		<u>172</u>	
1992	Residents	57	.71	89	.82	146	.78
	Non-Resident	9	.11	6	.05	15	.08
	Unknown	14	.17	13	.12	27	.14
	TOTAL	<u>80</u>		<u>108</u>		<u>188</u>	

Table 5. Alaska Department of Fish and Game, Division of Commercial Fisheries 1993 management staff.

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**Office Staff:**

Regional Supervisor  
Regional Finfish Coordinator

Larry Nicholson  
Pete Probasco

Area Management Biologist  
Assistant Management Biologist  
Assistant Management Biologist  
Fishery Biologist  
Clerk

Dave Prokopowich  
Kevin Brennan  
Dennis Gretsch  
Joan Brodie  
Sharon Theis

**M/V K-Hi-C:**

Boat Officer  
Fishery Biologist  
Fishery Biologist

Tom Emerson  
Dennis Gretsch  
Kevin Brennan

**Field Crews:**

Fishery Technician  
Fishery Technician  
Fishery Technician  
Fishery Technician  
Fishery Biologist  
Fishery Technician  
Fishery Technician  
Fishery Technician

Kim Rudge  
Mo Lambdin  
Jon Becker  
Ed Hajdys  
Dave Sarafin  
Ed Sampson  
Paul Kuriscak  
Shawna Rudio

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Table 6. Historical harvests of Kodiak sac roe and food/bait herring (short tons), 1912-1992.

YEAR	FOOD & BAIT	SAC ROE	TOTAL	YEAR	FOOD & BAIT	SAC ROE	TOTAL
1912	20.0	0.0	20.0	1953	725.0	0.0	725.0
1913	0.0	0.0	0.0	1954	0.0	0.0	0.0
1914	0.0	0.0	0.0	1955	0.0	0.0	0.0
1915	0.0	0.0	0.0	1956	13524.0	0.0	13524.0
1916	70.0	0.0	70.0	1957	21218.5	0.0	21218.5
1917	137.9	0.0	137.9	1958	1711.0	0.0	1711.0
1918	118.4	0.0	118.4	1959	3831.0	0.0	3831.0
1920	45.9	0.0	45.9	1961	0.0	0.0	0.0
1921	944.9	0.0	944.9	1962	0.0	0.0	0.0
1922	1482.6	0.0	1482.6	1963	0.0	0.0	0.0
1923	321.5	0.0	321.5	1964	309.8	568.0	877.8
1924	4823.0	0.0	4823.0	1965	35.0	657.0	692.0
1925	9997.0	0.0	9997.0	1966	198.0	2769.0	2967.0
1926	2680.9	0.0	2680.9	1967	300.3	1662.0	1962.3
1927	2592.9	0.0	2592.9	1968	15.4	2001.0	2016.4
1928	625.0	0.0	625.0	1969	11.0	1130.0	1141.0
1929	NO DATA	0.0	0.0	1970	7.5	342.0	349.5
1930	622.0	0.0	622.0	1971	44.2	284.0	328.2
1931	1000.0	0.0	1000.0	1972	49.8	215.0	264.8
1932	3594.0	0.0	3594.0	1973	178.0	831.0	1009.0
1933	2312.5	0.0	2312.5	1974	40.1	868.0	908.1
1934	60000.0	0.0	60000.0	1975	5.2	8.0	13.2
1935	NO DATA	0.0	0.0	1976	N/A	5.0	5.0
1936	24748.0	0.0	24748.0	1977	N/A	338.0	338.0
1937	27659.3	0.0	27659.3	1978	398.9	904.0	1302.9
1938	24522.0	0.0	24522.0	1979	124.8	1736.0	1860.8
1939	38600.5	0.0	38600.5	1980	380.7	2384.0	2764.7
1940	22677.0	0.0	22677.0	1981	18.0	2063.0	2081.0
1941	40083.5	0.0	40083.5	1982	326.0	1771.0	2097.0
1942	16791.0	0.0	16791.0	1983	33.4	2319.0	2352.4
1943	35352.0	0.0	35352.0	1984	123.0	2163.0	2286.0
1944	26835.0	0.0	26835.0	1985	102.0	1968.0	2070.0
1945	31114.0	0.0	31114.0	1986	213.0	1558.0	1771.0
1946	47505.9	0.0	47505.9	1987	217.1	2146.0	2363.1
1947	50743.0	0.0	50743.0	1988	340.2	2171.0	2551.2
1948	46428.0	0.0	46428.0	1989	315.8	2248.6	2564.4
1949	0.0	0.0	0.0	1990	312.6	2347.0	2659.6
1950	44132.5	0.0	44132.5	1991	215.3	2432.0	2647.3
1951	4299.0	0.0	4299.0	1992	311.3	4283.0	4594.3
1952	1389.0	0.0	1389.0				

Table 7. Historical harvest by gear type for the Kodiak herring sac roe fishery, 1964-1992.

Year	Total Harvest Tons	Seine Tons	Gillnet	Number of Companies	Number of Vessels		
					Seine	Gillnet	Total
1964	568	568		2	5		5
1965	657	657		2	8		8
1966	2,769	2,769		4	11		11
1967	1,662	1,662		4	5		5
1968	2,001	2,001		4	10		10
1969	1,130	1,130		9	21		21
1970	342	342		5	13		13
1971	284	284		2	4		4
1972	215	215		1	4		4
1973	831	831		4	11		11
1974	868	868		4	26		26
1975	8	8		3	2		2
1976	5	5		1	1		1
1977	338	338		3	11		11
1978	904	881	23	7	28	7	35
1979	1,735	1,457	278	8	57	125	182
1980	2,383	2,009	374	9	92	109	201
1981	2,065	1,596	469	9	79	114	193
1982	1,771	1,447	324	6	45	67	112
1983	2,319	1,797	522	7	41	64	105
1984	2,163	1,691	472	7	39	69	108
1985	1,968	1,244	724	7	34	81	115
1986	1,558	1,111	448	8	31	71	102
1987	2,146	1,591	555	8	29	62	91
1988	2,171	1,304	868	6	33	76	109
1989	2,249	1,513	736	6	37	83	120
1990	2,347	1,644	703	6	27	63	90
1991	2,432	1,697	735	6	32	64	96
1992	4,283	3,260	1,023	6	40	74	114
Total	44,172	35,920	8,254				
Average	1,523	1,239	550				

Table 8. 1992 Alaska statewide herring harvests and preliminary 1993 harvest projections.

Fishery	1992 ACTUAL		1993 PROJECTIONS				
	Opening or First Harvest	Harvest (s. tons)	Harvest (s. tons)	Expl. Rate	Mean Wt. (g)	Spawning Biomass (s. tons)	Stock Status/Trend
<b>Southeastern</b>							
Kah Shakes	4/03	1,256	N/A				Moderate/Increasing
Sitka	4/06	5,368	9,691	20%		48,450	High/Increasing
Seymour Canal	Closed		0			1,800	Low/Increasing
Lynn Canal	Closed		0			1,750	Depressed/Stable
Hoonah Snd. Pound	4/05	13.3	11 <sup>a</sup>			5,750	High/Stable
Craig	No Fishery		19 <sup>a</sup>			12,350	Moderate/Stable
Food and Bait	1/14	3,273	2,979	15%		26,700	Moderate/Stable
<b>Prince William Sound</b>							
Seine	4/13	16,784	15,586				
Gillnet	4/23	940	912				
Pound Kelp	4/07	160	305 <sup>a</sup>				
Wild Kelp	5/17	107	268 <sup>a</sup>				
Food/Bait	10/01	4,259	4,373 <sup>b</sup>				
Total			24,444	20% <sup>c</sup>		134,133	High/Stable
<b>Lower Cook Inlet</b>							
Eastern & Outer Districts	5/10		0				
Southern Dist.	No Fishery		Exploratory	Only		Unknown	Unknown
Kamishak Dist.	4/24	2,200	2,592	10% <sup>d</sup>	172	28,805	Moderate/Increasing
<b>Upper Cook Inlet</b>							
Sac Roe	Closed	0	0			Unknown	Depressed/Declining
Food and Bait	5/13	35	50			Unknown	Depressed/Increasing
<b>Kodiak</b>							
Sac Roe	4/15	4,283	3,500			Unknown	High/Stable
Food and Bait							
Eastern Shelikof	8/01	210	288 <sup>b</sup>	1%			Moderate/Increasing
Other Kodiak	8/01	90	350			Unknown	High/Stable
Chignik Sac Roe	No Fishery		-			Unknown	Unknown
<b>Alaska Peninsula</b>							
Port Moller		3,969	3,500			24,843	High/Stable
South Peninsula		180	415			Unknown	Moderate/Stable
Dutch Harbor							
Food and Bait	7/17	1,326	1,978 <sup>b</sup>				
<b>Bristol Bay (Togiak)</b>							
Seine	5/20	19,407	19,709				
Gill Net	5/20	5,030	6,570				
Spawn on Kelp	5/13	1,742 <sup>a</sup>	175 <sup>a</sup>				
Total			26,454	20% <sup>e</sup>		148,786	Depressed/Declining
<b>Kuskokwim Area</b>							
Security Cove	5/15	806	1,256	20%		6,282	Moderate/Increasing
Goodnews Bay	5/29	744	720	20%		3,600	Moderate/Increasing
Cape Avinof	6/04	452	354	15%		2,358	Moderate/Increasing
Nunivak Island	6/04	24	591	15%		3,942	Low/Increasing
Nelson Island	6/10	250	351			3,514	Low/Increasing
Cape Romanzof	6/09	529	355	15%		2,369	Depressed/Declining
<b>Norton Sound</b>							
Gillnet	Closed	0	8,154				
Beach Seine	Closed	0	900				
Total		0	9,054	20%		45,270	High/Stable
<b>Port Clarence</b>	No Harvest		165			Unknown	
Sac Roe Harvest Total <sup>f</sup>		62,224	75,321				
Food and Bait Harvest Total:		9,356	10,018				
<b>Total Herring Harvest:</b>		<b>71,576</b>	<b>82,339</b>		<b>Total Known Biomass</b>	<b>455,902</b>	

- <sup>a</sup> Harvest of spawn-on-kelp product in short tons.
- <sup>b</sup> Preliminary 1993 food/bait guideline. The 1993 guideline will be set after 1993 sac roe season.
- <sup>c</sup> The Prince William Sound exploration rate includes allowances for pound and wild spawn on kelp fisheries.
- <sup>d</sup> Kamishak District exploitation rate includes the eastern Shelikof food and bait harvests.
- <sup>e</sup> Togiak exploration rate includes allowances for spawn-on-kelp fishery and Dutch Harbor food and bait harvest.
- <sup>f</sup> Sac roe statewide total harvests do not include allowances for spawn-on-kelp fishery mortality.

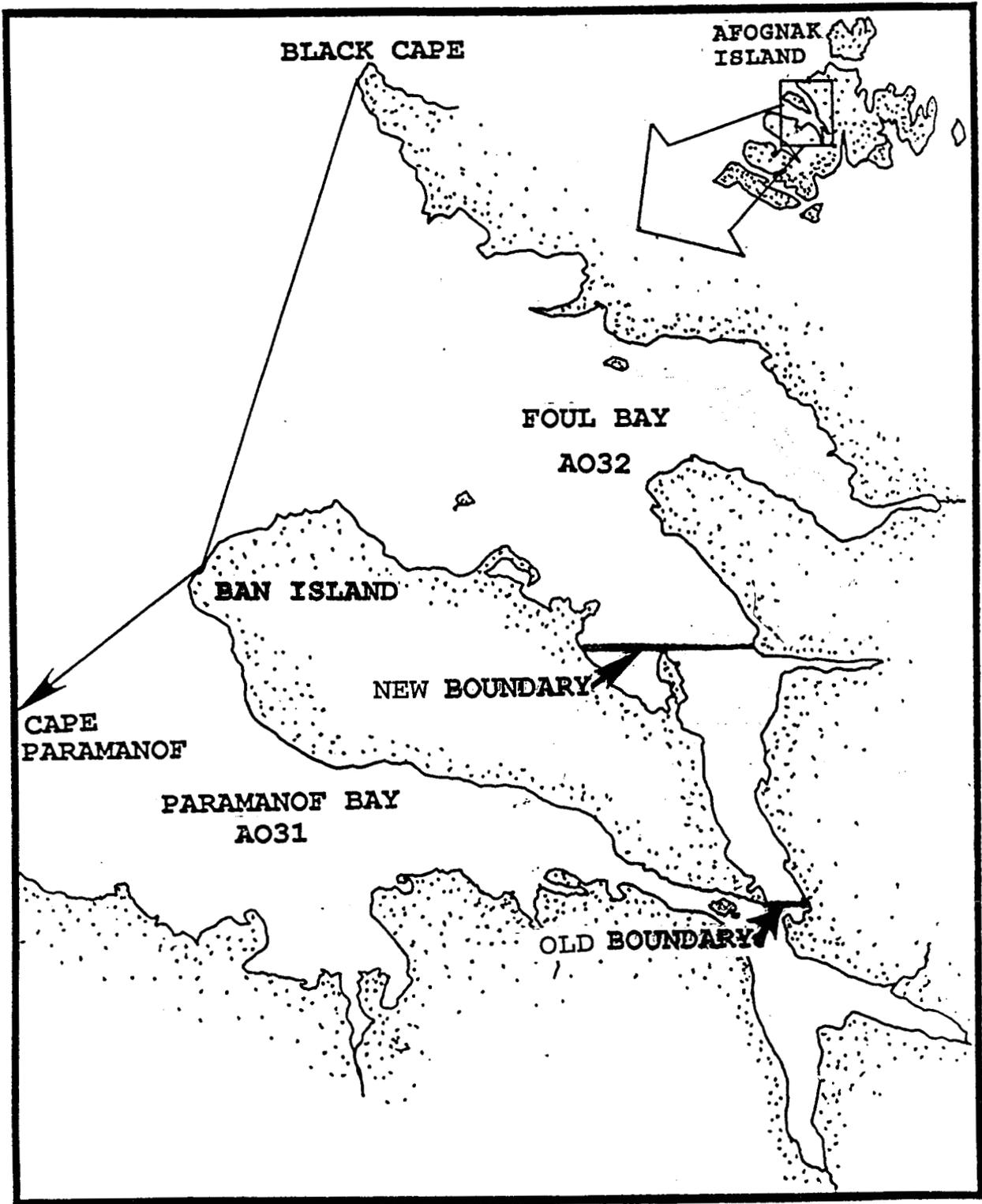


Figure 1. Map showing the new boundary separating the Paramanof Bay and Foul Bay Management Units.

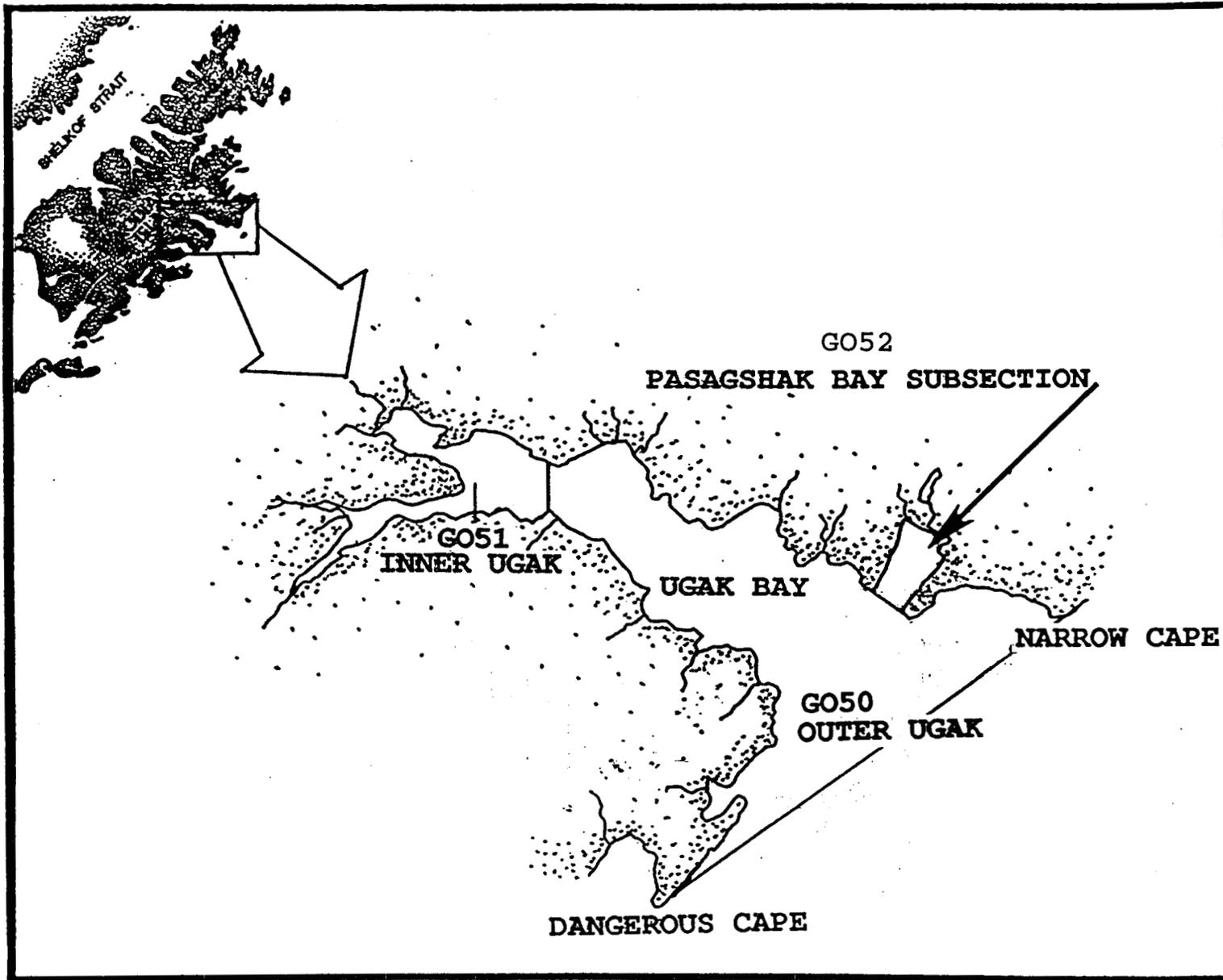


Figure 2. Map showing the new boundary for the Pasagshak Bay Management Unit.

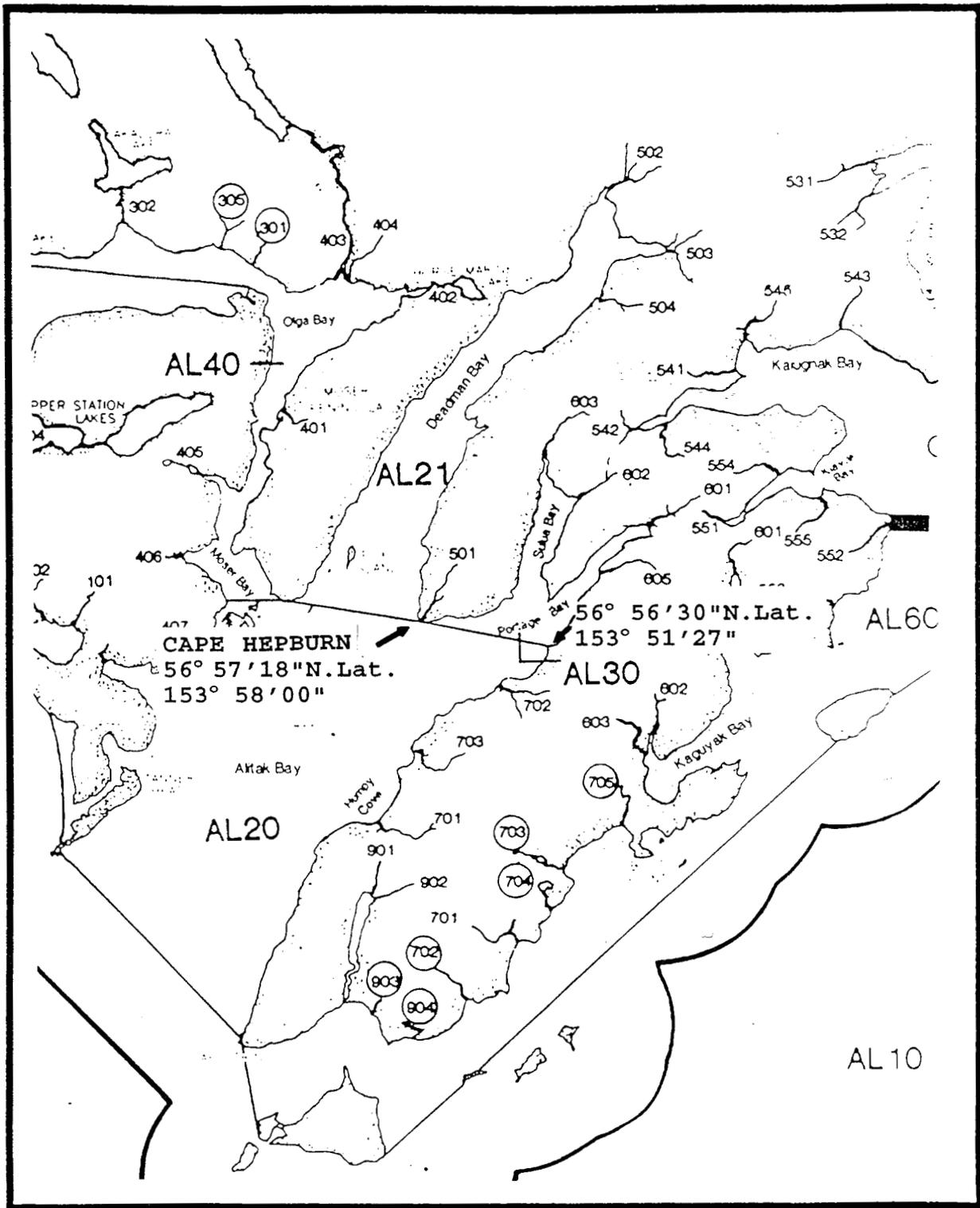


Figure 3. Map showing boundary line between the Sulua-Portage Bay and Inner Alitak Bay Management Units.

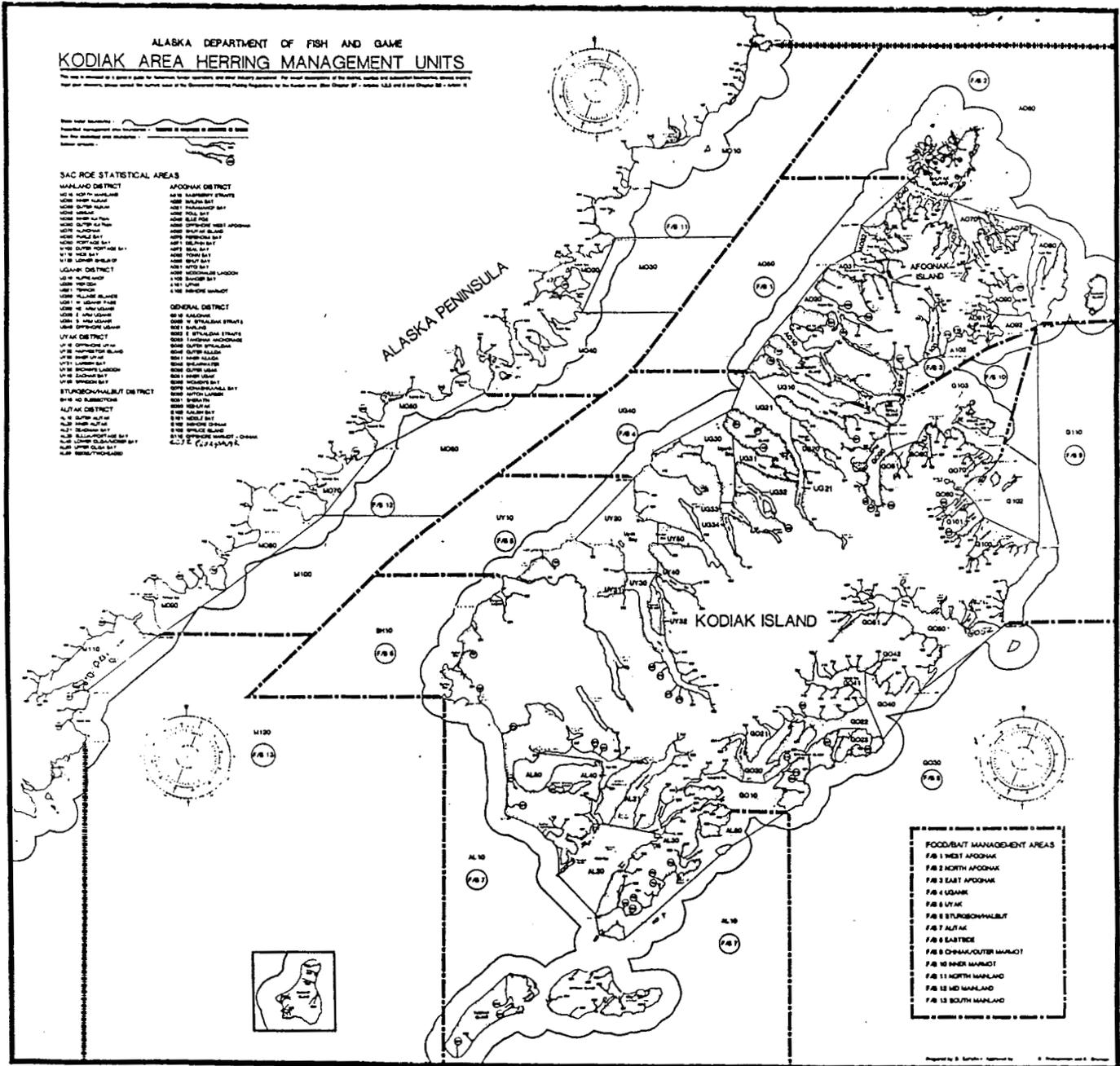


Figure 4. Reduced scale map of the Kodiak Area Herring Management Units, a full scale map can be obtained from the Kodiak ADF&G office.

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