

**Regional Information Report No. 4K21-02**

---

---

# **Kodiak Management Area Herring Sac Roe Fishery Harvest Strategy for the 2021 Season**

by

**Geoff Spalinger**

March 2021

---

---

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the *Système International d'Unités* (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

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

***REGIONAL INFORMATION REPORT NO. 4K21-02***

**KODIAK MANAGEMENT AREA HERRING SAC ROE FISHERY  
HARVEST STRATEGY FOR THE 2021 SEASON**

by

Geoff Spalinger

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

Alaska Department of Fish and Game  
Division of Commercial Fisheries  
351 Research Court, Kodiak, AK 99615

March 2021

The Regional Information Report Series was established in 1987 and was redefined in 2007 to meet the Division of Commercial Fisheries regional need for publishing and archiving information such as area management plans, budgetary information, staff comments and opinions to Alaska Board of Fisheries proposals, interim or preliminary data and grant agency reports, special meeting or minor workshop results and other regional information not generally reported elsewhere. Reports in this series may contain raw data and preliminary results. Reports in this series receive varying degrees of regional, biometric and editorial review; information in this series may be subsequently finalized and published in a different department reporting series or in the formal literature. Please contact the author or the Division of Commercial Fisheries if in doubt of the level of review or preliminary nature of the data reported. Regional Information Reports are available through the Alaska State Library and on the Internet at: <http://www.adfg.alaska.gov/sf/publications/>.

Product names used in this publication are included for completeness and do not constitute product endorsement. The Alaska Department of Fish and Game does not endorse or recommend any specific company or their products.

*Geoff Spalinger*  
*Alaska Department of Fish and Game, Division of Commercial Fisheries*  
*351 Research Court, Kodiak, AK 99615, USA*

*This document should be cited as follows:*

*Spalinger, G. 2021. Kodiak Management Area herring sac roe fishery harvest strategy for the 2021 season. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 4K21-02, Kodiak.*

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

	<b>Page</b>
LIST OF TABLES.....	ii
LIST OF FIGURES.....	ii
ABSTRACT.....	1
INTRODUCTION.....	1
2021 HARVEST STRATEGY.....	2
Regulation Changes.....	2
Guideline Harvest Levels.....	2
Combined Sections.....	2
Fishing Periods.....	3
Daily Fishing Periods for Purse Seine and Gillnet Sections.....	3
Test Fishing.....	3
ADF&G AND INDUSTRY COOPERATION.....	3
CATCH REPORTING FOR BUYERS AND TENDERS.....	4
Permit Holder Registration.....	4
Registration Permit.....	4
Transporter Permits.....	4
EMERGENCY ORDER ANNOUNCEMENTS.....	4
TABLES AND FIGURES.....	7

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1. KMA districts and management sections, GHGs, closed sections, and district allocation percentages for the herring sac roe fishery, 2021. ....	8
2. Summary of guideline harvest levels (GHL), harvest data by gear type, percentage of harvest by gear type, number of landings, and estimated exvessel earnings for the herring fishery in the KMA, 1979–2020.....	11
3. Alaska Department of Fish and Game, Division of Commercial Fisheries management staff, KMA, 2021.....	13

## LIST OF FIGURES

<b>Figure</b>	<b>Page</b>
1. Map of the Kodiak herring sac roe fishery harvest areas. ....	14

## ABSTRACT

This report describes the harvest strategy for the 2021 Kodiak Management Area (KMA) commercial Pacific herring *Clupea pallasii* sac roe fishery and includes the 2021 guideline harvest levels (GHL) by section, management changes from previous years, and reporting and registration requirements. The 2021 KMA areawide GHL is 7,895 tons, and individual GHLs have been established for 45 sections.

Several regulation changes occurred at the January 2020 Board of Fisheries meeting in Kodiak. The season start date was changed to April 1, extending the season length from April 1 through June 30. The allocative management plan that assigned GHLs and sections by gear type was removed, and both gear types can now fish the same sections. Fishing periods were also changed so that purse seine permit holders and gillnet permit holders fish on alternating days. Purse seine fishing periods will remain the same, but gillnet fishing periods will be from noon on even-numbered days to noon on odd-numbered days.

The only fishing periods will be those that fall under the “standard” fishing schedule established in regulation (5 AAC 27.510). Due to monitoring constraints, ADF&G will not actively manage sections for roe quality on the grounds by emergency order in 2021. All commercial fishery participants are urged to check with their buyer to determine what roe recovery and size limits will be marketable.

Key words: sac roe, herring, *Clupea pallasii*, guideline harvest levels, GHL, Kodiak Management Area, KMA, harvest strategy, Fisheries Management Report, FMR.

## INTRODUCTION

The Alaska Department of Fish and Game (ADF&G) Division of Commercial Fisheries staff in Kodiak will manage the 2021 Kodiak commercial Pacific herring *Clupea pallasii* sac roe fishery. This report presents the harvest strategy for the Kodiak Management Area (KMA) herring sac roe fishery, including the guideline harvest levels (GHL) by section, fishing periods, changes in management, and reporting and registration requirements for the 2021 fishery.

The Kodiak herring sac roe fishery begins April 1 and lasts until June 30 (5 AAC 27.510 (a)). The fishery is intended to occur in an orderly fashion, with minimal waste of resource and within conservation limits as determined by ADF&G, and to strive for the highest quality product (5 AAC 27.535(e)(6)). The fishery will be managed in accordance with general statewide herring guideline harvest policies, which provide for catches in traditional inshore areas, management for the greatest value, and exploitation (harvest) not to exceed 20% of the available spawning biomass. Conservative GHLs are established due to the uncertainty in estimating individual section populations.

The KMA is divided into 13 districts that define areas used to manage the herring sac roe fishery (Figure 1; Table 1). Each district is further divided into smaller areas called sections. There are 81 sections in the KMA that define spawning areas or historical harvest locations. Current statistical charts, which illustrate districts and sections, are available at the ADF&G office in Kodiak (Figure 1).

GHLs are preseason harvest projections that are established for individual sections by Kodiak ADF&G fishery management biologists (Table 1). After a review of stock status trends for the entire KMA, ADF&G determines which sections will be open to commercial fishing and what level of harvest will be targeted. Each section’s GHL is based on the following: 1) fishery performance during the preceding season or seasons (using total harvest, timing, duration of fishery, or average school size); 2) trends in age composition; 3) spawn and juvenile herring observations; 4) aerial surveys; and 5) hydroacoustic surveys. Information from commercial fishery participants and spotter pilots are also considered in setting a GHL.

# **2021 HARVEST STRATEGY**

## **REGULATION CHANGES**

During the January 2020 Board of Fisheries (BOF) meeting in Kodiak, there were several major changes that affected the management of the Kodiak herring sac roe fishery; they included the following items:

- The season start date was changed to April 1 from April 15.
- The allocative management plan that provides opportunities for gillnet permit holders to harvest approximately 25% and purse seine permit holders to harvest approximately 75% of the GHL was removed.
- Both gear types will be allowed to fish the same sections on alternating days. Purse seine fishing periods will remain from noon to 9:00 p.m. on odd-numbered days and from 9:00 a.m. to noon on even-numbered days. Gillnet fishing periods will change to noon on even-numbered days to noon on odd-numbered days.

## **GUIDELINE HARVEST LEVELS**

For the 2021 season, GHLs have been established for 45 of 81 sections (Table 1). Nine sections had little or no harvest during the last 10 years and are designated as exploratory in 2021. Exploratory areas are open to both gear types and have no set GHL. The remaining sections will remain closed, based on either low abundance or lack of herring sac roe harvests.

The 2021 areawide GHL of 7,895 tons (Table 1) is 4,745 tons more than the 2020 GHL (Table 2).

## **COMBINED SECTIONS**

The following adjacent sections will be combined and managed as a single section for the 2021 sac roe herring season ((5 AAC 27.535(e)(1)(A)); Table 1):

- The Izhut Bay, Kitoi Bay, and MacDonald Lagoon Sections;
- The Paramanof Bay and Foul Bay Sections;
- The Village Islands, Northeast Arm Uganik, East Arm Uganik, and South Arm Uganik Bay Sections;
- The Terror Bay, Viekoda Bay, and West Uganik Passage Sections;
- The Inner Uyak and Browns Lagoon Sections;
- The Zachar Bay and Spiridon Bay Sections;
- The Outer Kiliuda Bay, Inner Kiliuda Bay, and Shearwater Bay Sections;
- The Outer Ugak Bay and Inner Ugak Bay Sections;
- The East Sitkalidak and Tanginak Anchorage Sections;
- The West Sitkalidak, Barling Bay, Newman Bay, and Three Saints Bay Sections;
- The Southwest Sitkalidak and Kaiugnak Sections; and
- The Outer Deadman Bay and Inner Deadman Bay Sections.



## FISHING PERIODS

### Daily Fishing Periods for Purse Seine and Gillnet Sections

Unless otherwise specified by emergency order (EO), herring may be taken during the sac roe season from April 1 through June 30 as follows:

- For purse seine permit holders: from April 1 through May 7, fishing periods are from noon until 9:00 p.m. on odd-numbered days and from 9:00 a.m. until noon on even-numbered days. From May 8 through June 30, fishing periods are from noon until 10:00 p.m. on odd-numbered days and from 9:00 a.m. until noon on even-numbered days (5 AAC 27.510(a)(1)).
- For gillnet permit holders: Beginning April 2, fishing periods are from noon on even-numbered days until noon on odd-numbered days (5 AAC 27.510(a)(2)).

## TEST FISHING

ADF&G staff will not conduct roe recovery testing; industry personnel (processor technicians, fishery participants, or tender staff) are expected to determine roe quality. Instructions on how to determine roe quality and recovery percentages may be available from buyers and processors. Additionally, processors establish minimum size requirements (average weights) for the herring that they will purchase. All commercial fishery participants are urged to check with their buyer to determine what roe recovery and size limits will be marketable.

## ADF&G AND INDUSTRY COOPERATION

There will be a registration requirement that will require permit holders to report harvest location and tonnage immediately after landing herring. Fishermen should immediately contact the area management biologists in Kodiak, or onboard the R/V *K-Hi-C* or the R/V *Resolution*, when a harvest occurs. Timely harvest reporting is essential to managing the Kodiak herring fishery. ADF&G staff will make frequent contact with permit holders to collect harvest data, fleet movement information, spawn observations, and observations of juvenile and adult herring concentrations.

Past cooperation between the ADF&G, the fishing fleet, and buyers has been excellent, and it is hoped that this will continue. If cooperation is lacking, **closure of sections may be necessary**, and future openings will be closely evaluated. Fishermen are strongly encouraged to sample catches prior to landing in order to harvest the highest value product possible.

Permit holders and spotter pilots are encouraged to provide biomass estimates, juvenile herring observations, and spawn observations to ADF&G management staff. Past cooperation has helped staff evaluate stock status and gain critical management information. All information from commercial fishery participants and spotter pilots will remain confidential. Of particular interest are any observations of herring in closed management sections. Timely information will be used by management staff to conduct aerial or hydroacoustic surveys to assess herring abundance.

Samples from commercial herring harvests will be collected by ADF&G management biologists. These are primarily used to monitor age composition, and when used with other stock performance indicators, to assist in determining stock status. Support and assistance from the industry is necessary for this style of fishery management to be successful. This support will result in a more

manageable fishery and greater economic benefit to the permit holders, and will help ensure the long-term health of the KMA herring stocks.

## **CATCH REPORTING FOR BUYERS AND TENDERS**

Processors and independent tender operators are required to provide daily catch reports by section to the Kodiak ADF&G office by 9:00 a.m. Herring onboard tenders that have not yet been delivered to a processing facility must also be reported. Timely and accurate harvest reports received from field crews, permit holders, tender operators, spotters, and processors are critical in the assessment of herring harvests and guide the management of the fishery. Late or inaccurate information could result in premature area closures or overharvest. Catch reporting procedures and ADF&G contact information is listed on the registration permit.

## **PERMIT HOLDER REGISTRATION**

ADF&G will require permit holders to register prior to participating in the 2021 fishery. It is the responsibility of the permit holders to keep ADF&G informed of fishing activity and report herring harvests daily. The registration permit will outline reporting requirements by gear type. Failure to maintain contact with ADF&G will result in closures.

Purse seine permit holders are reminded that they may use only 1 purse seine vessel to harvest herring; this may be either the vessel identified on the permit card or a replacement vessel. If a Kodiak sac roe seine permit holder intends to fish with a different vessel than is listed on their permit card, they must register the replacement vessel with Kodiak management staff (5 AAC 27.525(d)).

## **REGISTRATION PERMIT**

Each KMA tender operator and buyer must obtain a registration permit from ADF&G in the Kodiak office, either in person or through an authorized agent (5 AAC 27.540). A registration permit is required prior to taking fish onboard the tender or taking fish at the processing plant. Tenders are required to complete ADF&G fish tickets for each delivery. The fish ticket must have the fishery participant's permit information legibly recorded and must show how many pounds or tons of fish were harvested (the on-the-grounds weight), date of harvest, and section from which the fish were harvested.

## **TRANSPORTER PERMITS**

All KMA herring sac roe permit holders that intend to transport herring, other than their own commercially harvested herring, are required to have in their possession a fish transporter permit (AS 16.05.671). Permit applications are available at the Kodiak ADF&G office.

## **EMERGENCY ORDER ANNOUNCEMENTS**

When a GHZ for a section is approached or achieved, that section will be closed for the remainder of the season. Due to the rapid pace of the harvest in certain locations, inperiod closures are likely. When inperiod closures are necessary, there may be as little as 5 minutes advance notice prior to the closure time, or less if appropriate. Inperiod closures will be announced on VHF channel 6. Fishermen and tender operators should monitor VHF channel 6 to remain aware of section closures.

ADF&G may use EO authority to restrict fishing time and close areas in any section if overharvest concerns exist during the season. Sections may be closed if resources are not available to monitor the fishery and there are overharvest concerns. At any time during the season, if ADF&G determines that herring stock abundance is below preseason expectations, sections may be closed prior to reaching their GHL.

An advisory announcement will be issued to announce fishery decisions such as openings, closures, and area restrictions. Advisory announcements are posted on the ADF&G website and distributed to processors, local radio stations, newspapers, and other interested parties.

All permit holders, tender operators, and processors are responsible for staying updated on section closures as they occur inseason. Fishery information can be obtained in the following ways:

- Contact the herring management staff (Table 3) in the Kodiak office in person, by telephone at 486-1830, or by using Dispatch #7410.
- Contact ADF&G field personnel on VHF channel 6 or using Dispatch (R/V *K-Hi-C*: #7412, RV *Resolution* #7411).
- Contact any local herring processor for the latest Kodiak herring advisory announcement.
- Call the ADF&G message phone at 486-4559.
- Obtain a copy of the most recent advisory announcement from the Kodiak ADF&G office at 351 Research Ct. (copies are available 24 hours a day in a bin located outside the main entrance to the building).
- Advisory announcements may also be searched for and subscribed to on the internet at <http://www.adfg.alaska.gov/index.cfm?adfg=cfnews.main>.
- Contact ADF&G biologists after hours at the following numbers:
  - James Jackson – 907-942-2097
  - Todd Anderson – 701-214-7667
  - Geoff Spalinger – 952-567-1420
  - Brad Fuerst – 907-539-9033



## **TABLES AND FIGURES**

Table 1.–KMA districts and management sections, GHLS, closed sections, and district allocation percentages for the herring sac roe fishery, 2021.

Statistical Area	Management Section	GHLS Tons
<b>NORTH AFOGNAK DISTRICT</b>		
NA10	Shuyak Island	CLOSED
NA20	Delphin Bay	EXPLORATORY
NA30	Perenos Bay	EXPLORATORY
NA40	Seal Bay	CLOSED
NA50	Tonki Bay	75
<b>DISTRICT TOTAL</b>		<b>75</b>
<b>WEST AFOGNAK DISTRICT</b>		
WA10	Raspberry Strait	400
WA20	Malina Bay	200
WA31	Paramanof Bay	400
WA32	Foul Bay	WA31 and WA32 will be managed as one section.
WA40	Blue Fox/Devil's Inlet	EXPLORATORY
WA50	Offshore W. Afognak	CLOSED
<b>DISTRICT TOTAL</b>		<b>1,000</b>
<b>SOUTH AFOGNAK DISTRICT</b>		
SA10	Izhut Bay	100
SA20	Kitoy Bay	SA10, SA20, and SA30 will be managed as one section.
SA30	MacDonald Lagoon	SA10, SA20, and SA30 will be managed as one section.
SA40	Danger Bay	300
SA50	Litnik	CLOSED
SA60	Duck Bay	CLOSED
<b>DISTRICT TOTAL</b>		<b>400</b>
<b>UGANIK DISTRICT</b>		
UG10	Kupreanof	CLOSED
UG20	Viekoda Bay	1,200
UG21	Terror Bay	UG20, UG21, and UG31 will be managed as one section.
UG30	Village Islands	1,000
UG31	West Uganik Passage	
UG32	NE Arm Uganik Bay	UG30, UG32, UG33, and UG34 will be managed as one section
UG33	East Arm Uganik Bay	
UG34	South Arm Uganik Bay	
UG40	Offshore Uganik	CLOSED
<b>DISTRICT TOTAL</b>		<b>2,200</b>
<b>UYAK DISTRICT</b>		
UY10	Offshore Uyak	CLOSED
UY20	Harvester Island	CLOSED
UY30	Inner Uyak	200
UY32	Browns Lagoon	UY30 and UY32 will be managed as one section.
UY31	Larsen Bay	CLOSED
UY40	Zachar Bay	800
UY50	Spiridon Bay	UY40 and UY50 will be managed as one section
<b>DISTRICT TOTAL</b>		<b>1,000</b>

-continued-

Table 1.–Page 2 of 3.

Statistical Area	Management Section	GHL Tons
<b>ALITAK DISTRICT</b>		
AL10	Outer Alitak	CLOSED
AL20	Inner Alitak	25
AL21	Inner Deadman Bay	50
AL22	Outer Deadman Bay	AL21 and AL22 will be managed as one section.
AL30	Sulua Bay	25
AL40	Lower Olga	25
AL41	East Upper Olga Bay	25
AL50	West Upper Olga Bay	25
AL60	Geese/Twoheaded	100
<b>DISTRICT TOTAL</b>		<b>275</b>
<b>STURGEON/HALIBUT DISTRICT</b>		
SH10	Sturgeon/Halibut	CLOSED
<b>EASTSIDE DISTRICT</b>		
EA10	Kaiugnak	100
EA20	SW. Sitkalidak	EA10 and EA20 will be managed as one section
EA21	Three Saints Bay	400
EA22	Newman Bay	EA21, EA22, EA23, EA24 will be managed as one section
EA23	W. Sitkalidak Strait	
EA24	Barling Bay	
EA30	E. Sitkalidak Strait	800
EA31	Tanginak Anchorage	EA30 and EA31 will be managed as one section
EA40	Outer Sitkalidak	CLOSED
EA41	Boulder Bay	CLOSED
EA42	Shearwater Bay	800
EA43	Outer Kiliuda Bay	EA42,EA43, and EA44 will be managed as one section.
EA44	Inner Kiliuda Bay	
EA50	Outer Ugak Bay	500
EA51	Inner Ugak Bay	EA50 and EA51 will be managed as one section
EA52	Pasagshak Bay	CLOSED
<b>DISTRICT TOTAL</b>		<b>2,600</b>
<b>NORTHEAST DISTRICT</b>		
NE10	Womens Bay	CLOSED
NE20	Kalsin Bay	100
NE30	Middle Bay	CLOSED
NE40	Inshore Chiniak	CLOSED
NE50	Offshore Chiniak	CLOSED
<b>DISTRICT TOTAL</b>		<b>100</b>

-continued-

Table 1.–Page 3 of 3.

Statistical Area	Management Section	GHL Tons
<b>INNER MARMOT DISTRICT</b>		
IM10	Monashka Bay	CLOSED
IM20	Anton Larsen Bay	15
IM30	Sharatin Bay	30
IM40	Kizhuyak Bay	200
IM50	Spruce Island	CLOSED
<b>DISTRICT TOTAL</b>		<b>245</b>
<b>NORTH MAINLAND DISTRICT</b>		
NM10	Hallo Bay	CLOSED
NM20	Inner Kukak	EXPLORATORY
NM30	Outer Kukak	CLOSED
NM40	Missak Bay	CLOSED
<b>DISTRICT TOTAL</b>		
<b>MID MAINLAND DISTRICT</b>		
MM10	Inner Katmai	EXPLORATORY
MM20	Outer Katmai	CLOSED
MM30	Alinchak	EXPLORATORY
MM40	Puale Bay	EXPLORATORY
MM50	Portage Bay	EXPLORATORY
MM60	Outer Portage	CLOSED
<b>DISTRICT TOTAL</b>		
<b>SOUTH MAINLAND DISTRICT</b>		
SM10	Wide Bay	EXPLORATORY
SM20	Lower Shelikof	CLOSED
<b>DISTRICT TOTAL</b>		
<b>GRAND TOTAL</b>		<b>7,895</b>



Table 2.—Summary of guideline harvest levels (GHL), harvest data by gear type, percentage of harvest by gear type, number of landings, and estimated exvessel earnings for the herring fishery in the KMA, 1979–2020.

Year	GHL (tons)	Total harvest (tons)	Harvest (tons) by gear type		Percent harvest by gear type		Number of landings by gear type		Units of gear fished		Average catch (tons) by gear		Estimated average earnings <sup>a</sup>		Price per ton <sup>a</sup>	Estimated exvessel total value <sup>a</sup>
			Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet		
1979	2,400	1,735	1,457	278	84%	16%	-	-	57	125	26	2	\$38,342	\$3,336	\$1,500	\$2,602,500
1980	2,400	2,383	2,009	374	84%	16%	-	-	92	109	22	3	\$15,068	\$2,368	\$690	\$1,644,270
1981	2,400	2,065	1,596	469	77%	23%	207	406	79	114	20	4	\$14,647	\$2,983	\$725	\$1,497,125
1982	2,400	1,771	1,447	324	82%	18%	138	191	45	67	32	5	\$17,686	\$2,660	\$550	\$974,050
1983	2,400	2,319	1,797	522	77%	23%	164	284	41	64	44	8	\$35,063	\$6,525	\$800	\$1,855,200
1984	2,400	2,163	1,691	472	78%	22%	138	212	39	69	43	7	\$34,687	\$5,472	\$800	\$1,730,400
1985	2,000	1,968	1,244	724	63%	37%	118	348	34	81	37	9	\$32,929	\$8,044	\$900	\$1,771,200
1986	1,690	1,558	1,110	448	71%	29%	132	385	31	71	36	6	\$34,016	\$5,994	\$950	\$1,480,100
1987	1,640	2,146	1,591	554	74%	26%	122	411	29	62	55	9	\$54,862	\$8,935	\$1,000	\$2,146,000
1988	2,065	2,171	1,304	867	60%	40%	169	555	33	76	40	11	\$51,370	\$14,830	\$1,300	\$2,822,300
1989	2,415	2,249	1,513	736	67%	33%	171	627	37	83	41	9	\$34,758	\$7,537	\$850	\$1,911,650
1990	2,375	2,347	1,644	703	70%	30%	156	544	27	63	61	11	\$51,756	\$9,485	\$850	\$1,994,950
1991	2,510	2,432	1,697	735	70%	30%	169	587	32	64	53	11	\$45,077	\$9,762	\$850	\$2,067,200
1992	2,720	4,283	3,260	1,023	76%	24%	185	706	40	74	82	14	\$40,750	\$6,912	\$500	\$2,141,500
1993	3,525	4,929	4,203	726	85%	15%	237	294	41	86	103	8	\$56,382	\$4,643	\$550	\$2,710,950
1994	4,550	5,893	4,976	917	84%	16%	285	485	66	57	75	16	\$60,315	\$12,870	\$800	\$4,714,400
1995	4,480	4,604	3,837	768	83%	17%	280	642	73	71	53	11	\$66,858	\$13,759	\$1,272	\$5,856,288
1996	4,180	3,386	2,322	1,064	69%	31%	202	890	57	74	41	14	\$81,474	\$28,757	\$2,000	\$6,772,000
1997	3,435	3,235	2,629	606	81%	19%	183	418	64	59	41	10	\$20,539	\$5,136	\$500	\$1,617,500
1998	2,030	2,057	1,954	103	95%	5%	110	26	35	7	56	15	\$27,914	\$7,357	\$500	\$1,028,500
1999	1,495	1,651	1,589	62	96%	4%	94	16	31	5	51	12	\$33,984	\$8,221	\$663	\$1,094,613
2000 <sup>b</sup>	1,735	1,370	1,290	80	94%	6%	57	23	31	10	42	8	\$29,129	\$5,600	\$700	\$959,000
2001	1,540	1,694	1,412	282	83%	17%	67	37	33	9	43	31	\$21,394	\$15,667	\$500	\$847,000
2002	1,860	1,677	1,274	403	76%	24%	37	50	30	14	42	29	\$21,233	\$14,393	\$500	\$838,500
2003	2,600	1,992	1,738	254	87%	13%	59	45	31	11	56	23	\$28,032	\$11,545	\$500	\$996,000

-continued-

Table 2.–Page 2 of 2.

Year	GHL (tons)	Total harvest (tons)	Harvest (tons) by gear type		Percent harvest by gear type		Number of landings by gear type		Units of gear fished		Average catch (tons) by gear		Estimated average earnings <sup>a</sup>		Price per ton <sup>a</sup>	Estimated exvessel total value <sup>a</sup>
			Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet	Seine	Gillnet		
2004	2,850	3,167	2,894	273	91%	9%	95	36	27	11	107	25	\$53,593	\$12,409	\$500	\$1,583,500
2005	3,475	3,463	2,932	531	85%	15%	134	61	32	12	92	44	\$45,813	\$22,125	\$500	\$1,731,500
2006	3,705	2,643	2,617	<sup>c</sup>	99%	0%	86	<sup>c</sup>	21	<sup>c</sup>	125	<sup>c</sup>	\$34,270	<sup>c</sup>	\$275	\$726,825
2007	4,000	2,546	2,510	36	99%	1%	105	8	21	3	120	12	\$47,810	\$4,800	\$400	\$1,018,400
2008	4,290	3,099	3,086	<sup>c</sup>	100%	0%	108	<sup>c</sup>	22	<sup>c</sup>	140	<sup>c</sup>	\$73,643	<sup>c</sup>	\$525	\$1,626,975
2009	4,765	4,759	4,549	210	96%	4%	218	19	31	6	147	35	\$77,040	\$18,375	\$525	\$2,498,475
2010	6,075	5,701	5,538	163	97%	3%	277	14	36	7	154	23	\$61,533	\$9,314	\$400	\$2,280,400
2011	6,135	2,957	2,937	20	99%	1%	95	6	14	3	210	7	\$41,957	\$1,333	\$200	\$591,400
2012	5,355	4,260	4,253	<sup>c</sup>	100%	0%	164	<sup>c</sup>	23	<sup>c</sup>	185	<sup>c</sup>	\$55,474	<sup>c</sup>	\$300	\$1,278,000
2013	5,410	4,447	4,298	149	97%	3%	189	18	33	5	130	30	\$29,956	\$6,854	\$230	\$1,022,810
2014	5,830	2,463	2,463	0	100%	0%	99	0	21	0	117	0	\$11,729	\$0	\$100	\$246,300
2015	3,190	357	357	0	100%	0%	19	0	9	0	40	0	\$4,363	\$0	\$110	\$39,270
2016	1,670	365	365	0	100%	0%	15	0	3	0	122	0	\$15,817	\$0	\$130	\$47,450
2017	1,645	125	124	<sup>c</sup>	99%	0%	6	<sup>c</sup>	3	<sup>c</sup>	41	<sup>c</sup>	\$6,613	<sup>c</sup>	\$160	\$20,000
2018	1,185	226	226	0	100%	0%	8	0	3	0	75	0	\$15,067	\$0	\$200	\$45,200
2019	1,405	<sup>c</sup>	<sup>c</sup>	0	100%	0%	<sup>c</sup>	0	<sup>c</sup>	0	<sup>c</sup>	0	\$0	\$0	\$0	\$0
2020	3,150	4,127	4,127	0	100%	0%	91	0	9	0	459	0	\$66,491	\$0	\$145	\$598,415
Average																
1979 to 2019	3,030	2,553	2,189	364	86%	14%	131	214	34	38	73	14	\$37,145	\$7,577	\$617	\$1,678,773
10-year avg.																
2010 to 2019	3,790	2,092	2,058	34	99%	1%	87	4	15	2	109	14	\$24,251	\$1,976	\$183	\$557,083
5-year avg.																
2015 to 2019	1,819	217	217	0	100%	0%	10	0	4	0	58	1	\$8,372	\$32	\$120	\$30,384

<sup>a</sup> Exvessel values are based on dock delivered herring and inseason data.

<sup>b</sup> An allocative harvest strategy was in effect from 2000–2019.

<sup>c</sup> Confidentiality requirements prohibit the release of this information.

Table 3.—Alaska Department of Fish and Game, Division of Commercial Fisheries management staff, KMA, 2021.

---

<b>Office Staff</b>	
Regional Supervisor	Nick Sagalkin
Regional Finfish Management Supervisor	Jeff Wadle
Area Management Biologist	James Jackson
Assistant Area Management Biologist	Geoff Spalinger
Assistant Area Management Biologist	Todd Anderson
Fishery Biologist	Brad Fuerst

---

<b>Field Staff</b>	
<i>R/V K-Hi-C:</i>	
Boat Officer	Danny Wilson
Management Biologists	Geoff Spalinger/James Jackson
 <i>R/V Resolution:</i>	
Boat Officer	Denis Cox
Management Biologist	Todd Anderson

---

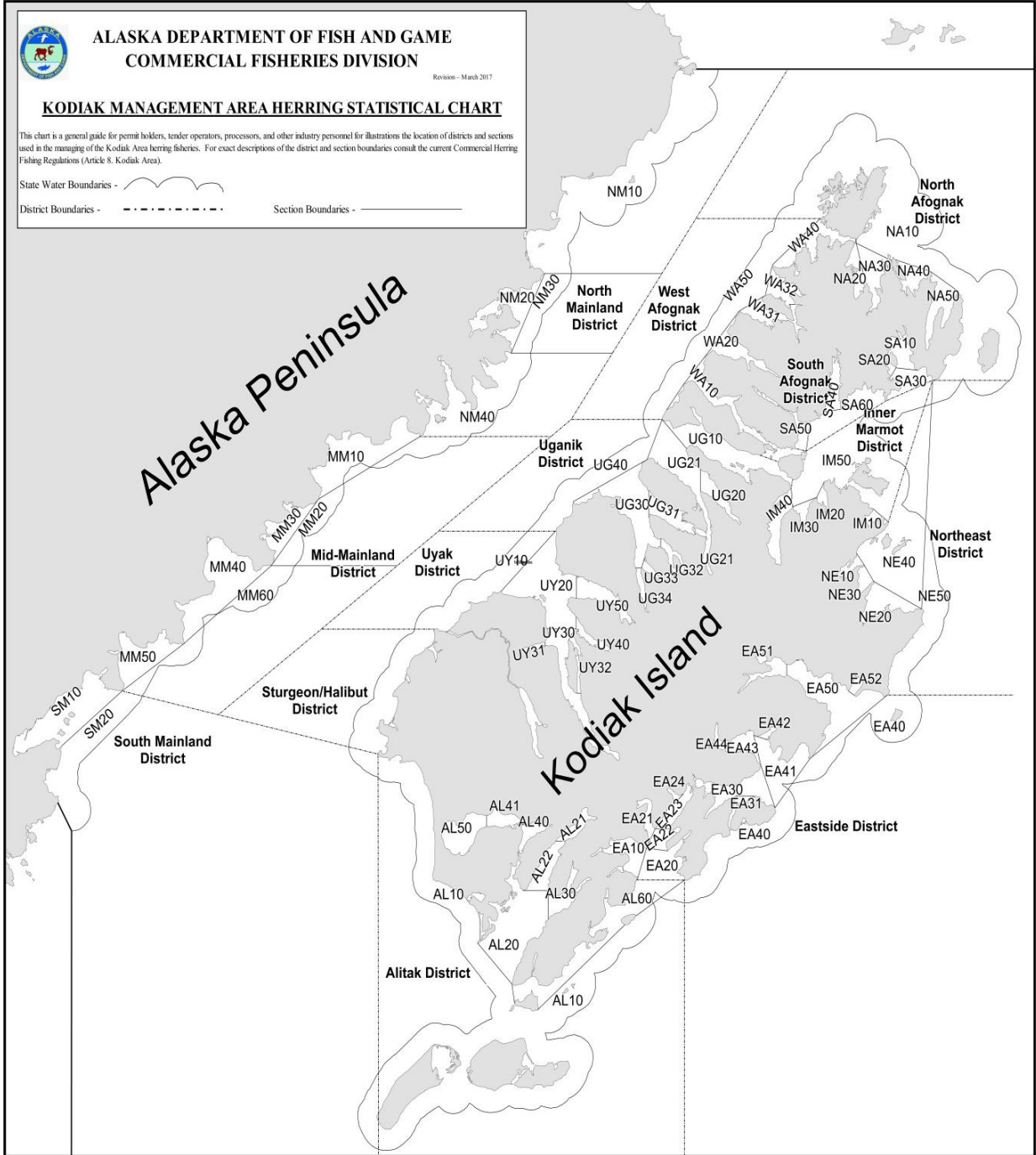


Figure 1.—Map of the Kodiak herring sac roe fishery harvest areas.