Fishery Management Report No. 08-60

Alaska Peninsula-Aleutian Islands Management Area Herring Sac Roe and Food and Bait Fisheries Annual Management Report, 2006

by

James V. Jackson

December 2008

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)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

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

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye to fork	MEF
mideye to tail fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

FISHERY MANAGEMENT REPORT NO. 08-60

ALASKA PENINSULA-ALEUTIAN ISLANDS MANAGEMENT AREA HERRING SAC ROE AND FOOD AND BAIT FISHERIES ANNUAL MANAGEMENT REPORT, 2006

by
James V. Jackson
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

December 2008

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.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone regional peer review.

James V. Jackson,
Alaska Department of Fish and Game, Division of Commercial Fisheries,
211 Mission Road, Kodiak, AK 99615, USA

This document should be cited as:
Jackson, J. V. 2008. Alaska Peninsula-Aleutian Islands Management Area herring sac roe and food and bait fisheries annual management report, 2006. Alaska Department of Fish and Game, Fishery Management Report No. 08-60, Anchorage.

TABLE OF CONTENTS

Page

TABLE OF CONENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICIES

ABSTRACT

This report presents information concerning the commercial Pacific herring *Clupea pallasi* sac roe and food and bait fisheries that occurred in the Alaska Peninsula-Aleutian Islands Management Area (Area M) in 2006. Area M is split into three sub-areas: the North Alaska Peninsula, the South Alaska Peninsula, and the Aleutian Islands.

The North Alaska Peninsula Area consists of the Bering Sea waters extending west from Cape Menshikof to Cape Sarichef. In 2006, there were no deliveries in the North Alaska Peninsula herring sac roe fishery due to the lack of industry interest. There has never been a herring food and bait fishery in North Alaska Peninsula waters.

The South Alaska Peninsula Area consists of the Pacific Ocean waters extending west of Kupreanof Point to a point on the south side of Unimak Island near Cape Lazaref. In 2006, there were no deliveries in the South Alaska Peninsula herring sac roe fishery due to the lack of industry interest. Since 1992, there has not been a herring food and bait fishery in South Alaska Peninsula waters.

The Aleutian Islands Area consists of the both the Bering Sea waters extending west of Cape Sarichef and the Pacific Ocean waters west of a point near Cape Lazaref to the International Date Line. No herring sac roe has ever been harvested in the Aleutian Islands area due to the lack of industry interest. In 2006, the Aleutian Islands "Dutch Harbor" herring food and bait allocation was set at 1,715 tons, of which 1,375 tons were allocated to the seine fleet, 240 tons to the gillnet fleet, and 100 tons were reserved for the experimental pound fishery. The fishery extended from July 15 until July 30. A total of 952 tons were harvested in the seine fishery, negligible amounts of herring were harvested in the gillnet fishery, and no herring were harvested in the pound fishery. Several seine permit holders formed a combine and one additional permit holder registered in association with a separate market. The price per ton for the fishery ranged from $100 to $500 per ton, with a combined exvessel value of approximately $384,000.

In 2006, 500 tons of herring were allocated to the Aleutian Islands "Adak" food and bait gillnet fishery. However, no herring were harvested in the fishery due to lack of industry interest.

Key words: AMR, Area M, Alaska Peninsula, Aleutian Islands, *Clupea pallasi*, Adak, herring, harvest, age, length, weight, sac roe, food, bait, combine.

INTRODUCTION

This report presents information concerning the commercial Pacific herring *Clupea pallasi* sac roe and food and bait fisheries that occurred in the Alaska Peninsula-Aleutian Islands Management Area (Area M) in 2006. This report is intended as a reference document and provides a regulatory history, historical harvest data by fishery, harvest strategies, and a summary of the 2006 fishery management activities, along with age, weight, and length (AWL) data collected from the commercial harvests. Harvest estimates were taken from the Alaska Department of Fish and Game (ADF&G) fish ticket database in October 2006. Data provided in this report supersedes any data previously published by the department.

Area M herring fisheries are split into three sub-areas: the North Alaska Peninsula, the South Alaska Peninsula, and the Aleutian Islands. The North Alaska Peninsula Area consists of the Bering Sea waters extending west from Cape Menshikof to Cape Sarichef. The South Alaska Peninsula Area consists of the Pacific Ocean waters extending west of Kupreanof Point to a point on the side of Unimak Island near Cape Lazaref (163°30' W. long). Finally, the Aleutian Islands Area consists of the both the Bering Sea waters extending west of Cape Sarichef and the Pacific Ocean waters west of a point near Cape Lazaref (163°30' W. long) to the International Date Line (Figure 1; 5 AAC 27.605 and 27.600).

The North Alaska Peninsula is composed of 3 districts (Port Heiden, Port Moller, and Amak) and 23 statistical areas (Figures 2 through 4). The South Alaska Peninsula includes 3 districts (King Cove, Pavlof, and Sand Point) and 47 statistical areas (Figures 4 and 5). The Aleutian Islands Area includes 5 districts (Unimak, Akutan, Unalaska, Umnak, and Adak) and 41 statistical areas (Figures 1 and 6 through 9).

NORTH ALASKA PENINSULA SAC ROE FISHERY

HISTORICAL PERSPECTIVE

Major concentrations of herring have been documented on the Bering Sea coast from Adak to Cape Seniavin (Table 1; Figures 1 through 3; Shaul et al. 1987; Warner and Shafford 1976). The Alaska Department of Fish and Game (ADF&G) has been conducting herring biomass surveys in Alaska Peninsula-Aleutian Islands waters since 1976. However, these surveys have provided limited information on herring abundance and distribution primarily because of limited aerial survey coverage due to the large area involved, inclement weather conditions, water turbidity, and the lack of available staff and suitable aircraft.

Prior to 1982, fishing vessels returning from the Togiak herring sac roe fishery frequently surveyed for herring in North Alaska Peninsula waters (Shaul et al. 1982). During the 1986 to 1988 commercial fishing seasons, an average of 52 purse seine vessels were present in the Port Moller District (Schwarz 1988). Historically, herring sac roe harvests began in North Alaska Peninsula waters in late May and ended in mid to late June. Starting in 1986, fishermen started targeting the earlier (May) herring biomass. In 1989 and 1990, the department delayed the opening of the fishery in the Port Moller District until May 30 in an attempt to shift fishing pressure to the later and more abundant herring stocks (Shaul et al. 1991). In some years, the Port Moller District has opened to herring fishing prior to May 30, due to sufficient herring biomass (Tables 1 through 4).

From 1981 to 1995 the ADF&G used field crews in many locations on the North Alaska Peninsula to observe the herring sac roe fisheries (McCullough and Campbell 1996). ADF&G personnel collected herring samples for age, weight, length, (AWL) and sexual maturity. Department personnel also documented spawning areas and mapped spawning substrate. Beginning in 1996, the department eliminated herring sac roe fishery field crews on the Alaska Peninsula.

HARVEST STRATEGY

Herring may be commercially harvested each spring for their sac roe from April 15 through July 15 in the Amak, Port Moller, and Port Heiden districts (Figures 2 through 4; 5 AAC 27.610). The guideline harvest level (GHL) for the Port Moller District is determined inseason and is based on the observed herring biomass from department aerial surveys. As established in the Bering Sea Herring Fishery Management Plan (5 AAC 27.060), a minimum herring biomass of 1,000 tons is required prior to the department opening the commercial fishery in the Port Moller District (Appendix A1).

THE 2006 SEASON

In 2006, no commercial herring sac roe fishery occurred in North Alaska Peninsula waters. On May 26 and 28, the department conducted aerial surveys from Herendeen Bay to Port Heiden and estimated a biomass of 6,235 tons of herring (Table 1). However, due to the lack of industry participation no fishing periods occurred.

SOUTH ALASKA PENINSULA SAC ROE FISHERY

HISTORICAL PERSPECTIVE

The harvest of herring sac roe has fluctuated in South Alaska Peninsula waters since it began in 1979 (Shaul et al. 1991; Tables 2 and 3). The majority of the fishing effort has occurred around the Shumagin Islands, and Stepovak, Pavlof, and Canoe bays (Table 5; Figures 4 and 5). Of these, only Canoe Bay (Figure 5) produced a consistent annual harvest through 1996 (Table 5). Beginning in 1992, herring fishing effort and harvests generally decreased in South Alaska Peninsula waters (Tables 2 through 4). Many bays may have small harvestable quantities of herring but the cost of having fishing vessels, tenders, and airplanes available to harvest each section's small guideline harvest level (GHL) has discouraged both fishermen and processors.

HARVEST STRATEGY

Herring may be commercially harvested each spring for their sac roe from April 15 through July 15 in the Sand Point, Pavlof, and King Cove districts (Figures 4 and 5; 5 AAC 27.610). The South Alaska Peninsula herring sac roe fishery is opened by emergency order with individual sections assigned GHLs set at 10-25 tons with the potential of additional harvest opportunity if warranted by department surveys (Jackson 2006).

THE 2006 SEASON

In 2006, no commercial herring fishery occurred in South Alaska Peninsula waters due to a lack of industry participation. No aerial surveys were conducted in South Alaska Peninsula waters due to budget restrictions, inclement weather, and lack of industry interest.

ALEUTIAN ISLANDS SAC ROE FISHERY

HISTORICAL PERSPECTIVE

No herring sac roe has ever been harvested in the Aleutian Islands area due to both lack of interest and limited available biomass.

HARVEST STRATEGY

Herring may be commercially harvested each spring for their sac roe from April 15 through June 24 in the Unimak, Akutan, Unalaska, Umnak and Adak districts. The GHL for each individual section is determined in season based on observed herring biomass.

THE 2006 SEASON

In 2006 and since its inception, there has never been any sac roe herring commercially harvested in the Aleutian Islands area. No aerial surveys were conducted in the Aleutian Island waters due to lack of industry interest.

ALASKA PENINSULA HERRING FOOD AND BAIT FISHERIES

HISTORICAL PERSPECTIVE

There has never been a herring food and bait fishery in North Alaska Peninsula waters. In 1982, the Alaska Board of Fisheries (BOF) closed the South Alaska Peninsula herring sac roe fishery and changed the fishery to a winter herring food and bait fishery (Burkey and Duesterloh 2003). However, due to a lack of herring biomass in Stepovak bay, the fishery failed to develop. From 1984 to 1991, the BOF allocated the harvest between the sac roe fishery (75% of the allowable harvest) and the food and bait fishery (25% of the allowable harvest). From 1983 to 1991, a total of 161.4 tons of herring food and bait and 2,225 tons of sac roe herring were harvested and in South Alaska Peninsula waters. In 1992, the BOF allocated the entire harvest to the herring sac roe fishery (Burkey and Duesterloh 2003).

HARVEST STRATEGY

By regulation, there has never been a herring food and bait fishery in North Alaska Peninsula waters. Since 1992, there has not been a herring food and bait fishery in South Alaska Peninsula waters.

ALEUTIAN ISLANDS "DUTCH HARBOR" HERRING FOOD AND BAIT FISHERIES

HISTORICAL PERSPECTIVE

From 1929 to 1945, herring fisheries occurred in the vicinity of Unalaska Bay (Figures 6 and 7). Historically, the industry was a mixture of gillnet and seine gear, holding pounds, and numerous small shore-based hand packing operations. A large portion of the catch was brined for either food or bait purposes. In those early years, seine gear provided the bulk of the herring harvest (Schwarz 1988).

Regulatory History

When the fishery began again in 1981, herring were harvested from Tigalda Island to Umnak Island (Figures 7 and 9). However, the majority of the harvest occurred within several miles of shore-based processing facilities in Unalaska and Akutan bays. During the 1981 and 1982 seasons, there were no harvest restrictions (Schwarz 1988). From 1983 to 1985 the BOF implemented a harvest ceiling of 3,527 tons. In 1986, the department modified the harvest ceiling to 2,453 tons over concern for depressed western Alaska herring stocks. In 1988, the BOF implemented the Bering Sea Herring Fishery Management Plan (5 AAC 27.060), which established a quota for the Dutch Harbor food and bait fishery based on 7% of the Togiak remaining available biomass.

In 1990, the BOF changed the opening date of the fishery from August 15 to July 16 to reduce the chance of catching non-Togiak and North Alaska Peninsula herring stocks (Shaul et al. 1991). In 1998, the BOF changed the opening date of the purse seine fishery to NOON on July 15 because of aircraft safety concerns (5 AAC 27.610 (e) (2) (A)).

Historical Effort

Purse seine gear has predominantly been used to harvest herring in the Dutch Harbor food and bait fishery (Table 6). However, between the 1987 and 1989, and again in 1997, gillnet permit holders recorded landings. In 2001, the BOF adopted a regulation that allocated 7% of the total Dutch Harbor GHL to the gillnet fleet. From 2001 to 2003, the number of gillnet fishermen increased from 8 to 18 vessels (Tables 7 and 8). In 2004, the gillnet harvest allocation was further increased to 14%. However, since 2004 the Dutch Harbor food and bait herring gillnet harvest has been negligible.

In 2004, the BOF established a herring seine and pound fishery in the Alaska Peninsula-Aleutian Islands Management Area with an allocation of 100 tons (5 AAC 27.655 (c)). In the pound fishery, seine-caught herring are transferred to a holding pound and retained for several days for gut clearance. The rationale for this was to minimize belly burn and achieve a high quality product suitable for food markets. However, since the fisheries implementation, no significant amounts of herring have been placed into the pounds.

Catch Sampling and Fishery Monitoring

The department collects age composition information from herring harvested in the Aleutian Islands to gain insight into recruitment trends. Since 1981 the ADF&G has been collecting AWL and sexual maturity data on herring harvested in the Unalaska and Akutan districts.

HARVEST STRATEGY

In recent years, three management plans: (1) the Bering Sea Herring Fishery Management Plan, (2) the Bristol Bay Herring Management Plan (5 AAC 27.865 (b)), and (3) the Dutch Harbor Food and Bait Herring Allocation Plan (5 AAC 27.610) have been used to manage the Aleutian Islands 'Dutch Harbor" food and bait herring fishery. Fishing time is established by emergency order and is based on a percent allocation of the remaining Togiak biomass, the inseason evaluation of the observed biomass, effort levels, and harvest (Table 9).

The department attempts to manage the Dutch Harbor herring food and bait fishery so that the harvest remains within the allocated 7% of the remaining Togiak District herring sac roe harvest. In order for the Unimak, Akutan, Unalaska, or Umnak districts to open to herring food and bait fishing, each Western Alaska herring stock must surpass its respective BOF mandated spawning biomass threshold (Figures 1 and 7). These fisheries include the Port Moller, Togiak, Security Cove, Goodnews Bay, Cape Avinof, Nelson Island, Nunivak Island, Cape Romonzof, and Norton Sound districts (Figure 1). Excluding the Port Moller District, which only conducts inseason estimates, the biomass of all the respective Bering Sea herring stocks were forecasted to be above their respective threshold levels for 2006 (Appendix B1). However, processors and fishermen were advised that the management of the 2006 Dutch Harbor food and bait fishery would be based on the estimated spawning biomass of each Bering Sea herring stock in 2006. The ADF&G updates the biomass estimates for each stock as herring move into coastal waters during spawning migrations. The projected harvest allocation for the 2006 Dutch Harbor herring food and bait fishery was 1,715 tons (Appendix C1). This allocation was derived using 7% of the remaining Togiak biomass according to the Bering Sea and Bristol Bay Herring Management Plans. The 2006 Togiak herring spawning biomass was projected to be 129,976 tons (Table 9).

The Dutch Harbor herring food and bait allocation is divided between gear groups according to the Dutch Harbor herring Food and Bait Allocation Plan, which gives 86% to the seine fishery and 14% to the gillnet fishery. These allocations are considered independent of each other so that one gear group may not harvest herring allocated to the other gear group. Furthermore, 100 tons may be reserved from the purse seine allocation for an experimental herring pound fishery. For the 2006 season, this resulted in a projected harvest allocation of 1,375 tons for the purse seine fishery, 100 tons for the seine pound fishery, and 240 tons for the gillnet fishery (Appendix C1).

THE 2006 SEASON

Gillnet Fishery

In 2006, the Dutch Harbor food and bait herring commercial gillnet fishery occurred from July 1 through July 30, with only a few gillnet permit holders and one processor participating. At NOON on July 1, the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area opened to commercial herring fishing by gillnet gear for 48 hours (Appendix D1). The fishery opened again for 48 hours on July 6, July 9, and July 12. From July 15 through July 30, continuous fishing was allowed on a daily basis in the Unalaska and Akutan districts with gillnet gear. Few herring were harvested and no herring were sampled from the gillnet harvest for length, weight, sex, and age composition data.

Purse Seine Fishery

A preseason meeting with fishermen, processors, and other interested parties was held on Friday, July 14, 2006 to discuss the ADF&G management strategy, exchange information, and register vessels, tenders, and processors for the purse seine fishery. Two representatives from the processing companies attended the meeting. However, no tender operators, seine fishermen, or spotter pilots attended the meeting. Several seine permit holders formed a combine to use one purse seine vessel to harvest herring. One additional permit holder registered with the department in association with a separate market, for a total purse seine fishery participation of two purse seine vessels and two processors. The department did not conduct aerial surveys to assess herring biomass in the Dutch Harbor area because of budget constraints.

The 2006 Aleutian Islands food and bait seine fishery occurred within the Unalaska and Akutan districts (Figures 6, 7 and 9). The first 24-hour fishing period in the Akutan District and in the Unalaska and Kaletka Bay sections began at NOON on July 15. (Figure 9; Appendix D1). No herring were harvested during the first opener so the department extended the opening for an additional 24 hours. On July 16, 83 tons of herring were harvested in Unalaska Bay by the purse seine combine. With 1,292 tons left on the purse seine allocation, the opening was extended for an additional 24 hours. On July 17, 44 tons of herring were harvested in the Unalaska and Akutan districts. Again, with 1,247 tons left on the purse seine allocation, the current opening was extended for another 24 hours (Appendix D1). Over the next 10 days of continuous fishing, a total of 825 tons of herring were harvested in the Unalaska and Akutan districts. On July 25, there were 423 tons left on the seine allocation and the department extended the current opening for an additional 72 hours. However, the industry showed no interest in further harvest and the last delivery was on July 27.

Just over 69% of the purse seine allocation was harvested (Table 9). Exvessel prices ranged between $100 to $500 per ton. The total exvessel value of the 2006 purse seine fishery was an estimated $384,000 (Table 6).

A total of 292 herring were sampled from the Unalaska District commercial purse seine fishery (Table 10). The most abundant age classes in the Unalaska District samples were age-5 (6.8%), age-9 (34.9%) and age-10 (25.3%; Table 10; Figure 10). The average herring length in the sample was 297 mm, and the average weight was 395 g (Table 10). The sex composition of the sample was 49% male and 50% female, with 1% unknown. A total of 381 herring were sampled from the Akutan district commercial purse seine fishery. The most abundant age classes in the sample were age-6 (6.8%), age-9 (29.9%) and age-10 (22.8%; Table 11; Figure 11). The average herring length in the sample was 296 mm, and the average weight was 425 g (Table 11). The sex composition of the sample was 47% male and 53% female. From the combined Unalaska and Akutan districts commercial purse seine fishery samples, the most abundant age classes were age-6 (6.2%), age-9 (32.1%) and age-10 (23.9%; Tables 12 and 13; Figures 12 and 13). The average herring length in the combined sample was 296 mm, and the average weight was 412 g (Table 12). The sex composition of the combined sample was 48% male and 52% female.

Pound Fishery

In 2006, one permit holder applied for a permit for a pound fishery. Square pounds of 40'x 40' were planned for the South Channel between Iliuliuk Harbor and Captains Bay. Fishing operations occurred during the purse seine fishing periods. Due to the low abundance of herring in Unalaska Bay, the slow pace of the fishery, no herring were put in pounds.

ALEUTIAN ISLANDS "ADAK" HERRING FOOD AND BAIT FISHERIES

HISTORICAL PERSPECTIVE

In 2004, the BOF enacted the Alaska Peninsula-Aleutian Islands Herring Management Plan (5 AAC 27.657). This plan established a herring gillnet fishery in the Adak Island area (Figure 8) with a 500 ton allocation independent of the Dutch Harbor food and bait allocation. Herring can be harvested as food and bait and the fishery occurs annually from June 24 until February 28.

HARVEST STRATEGY

The Alaska Peninsula Aleutian Islands Herring Management Plan allocates 500 tons of food and bait herring to be harvested exclusively with gillnet gear from June 24, 2006 until February 28, 2007. This fishery is managed in compliance with the terms of a commissioner's permit.

THE 2006 SEASON

Due to lack of industry interest, no herring were harvested in the Adak gillnet fishery in 2006 or the winter of 2007. No effort has occurred in this fishery since it was established in 2004.

REFERENCES CITED

Burkey C. and S. Duesterloh. 2003. Alaska Peninsula-Aleutian Islands Management Area herring sac roe and food and bait fisheries annual management report, 2003. Alaska Department of Fish and Game, Regional Information Report 4K03-63, Kodiak.

Jackson, J. V. 2006. Alaska Peninsula - Aleutian Islands management area herring sac roe fishery management plan, 2006. Alaska Department of Fish and Game, Fishery Management Report No. 06-25, Anchorage.

McCullough, J. N., and R. D. Campbell. 1996. Alaska Peninsula - Aleutian Islands Management Areas sac roe herring report and the Aleutian Islands Management Area food and bait herring report. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 4K96-12, Kodiak.

Rowell, K. A., H. J. Geiger, and B. G. Bue 1991. Stock Identification of Pacific herring in the eastern Bering Sea trawl bycatch and the Dutch Harbor directed food and bait fishery. Proc. Int. Herring Symposium. Alaska Sea Grant Report, No 91-01, 1991, pp 255-278.

Schwarz, L. 1988. Peninsula/Aleutians herring sac-roe fishery report to the Board of Fisheries. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 4K88-3, Kodiak.

Shaul, A. R., T. R. Gilmer, J. N. McCullough, and L. M. Malloy. 1982. 1982 FinFisheries annual report Alaska Peninsula- Aleutian Islands Areas. Area Management Report. Kodiak

Shaul, A. R., L. J. Schwarz, J. N. McCullough, L. M. Malloy, and S. J. Thesis. 1987. 1986 Alaska Peninsula and Aleutian Islands Area annual finfish management report. Alaska Department of Fish and Game Commercial Fisheries Division, Finfish Management Report 3-87.

Shaul, A. R., J. N. McCullough, A. J. Quimby, R. S. Berceli, and M. E. Stopha. 1991. 1990 Alaska Peninsula–Aleutian Islands Areas salmon and herring annual management report. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 4K91-12, Kodiak.

Warner, I. M., and P. Shafford. 1979. Forage fish spawning surveys-southern Bering Sea. Alaska Marine Environmental Assessment Project. Completion Report (revised November 1979), Alaska Department of Fish and Game, Kodiak.

TABLES AND FIGURES

Table 1.–Herring biomass estimates in tons for the North Alaska Peninsula, by area, 1984-2006.

	Port Moller District			Port Heiden District		
Date	Herendeen Bay	Port Moller Bay	Bear River to Strogonof Point	Port Heiden Bay	Total Biomass Estimate	Aerial Survey Dates Begin End
1984	2,000	1,500-1,900	0	0	3,500-3,900	May 9 - July 31
1985	260	1,305	5,240	0	6,805	May 1 - June 13
1986	1	28	0	0	29	May 16 - June 7
1987	0	5,125	0	0	5,125	May 6 - June 3
1988	1,737	442	8	0	2,187	May 17 - June 15
1989	1,163	1,471	0	0	2,634	May 19 - June 16
1990	155	387	0	0	542	May 21 - June 14
1991	2,278 (250)[a]	4,651	1,471	0	8,400	May 17 - June 26
1992	755	8,269	5,798	10,021	24,843	May 19 - June 18
1993	775	2,878	33	0	3,686	May 4 - June 9
1994	381	274	0	0	655	May 22 - May 28
1995	60	477	0	0	537	May 13 - June 2
1996	390 (390)[a]	986 (755)[a]	309	65	1,750	May 9 - June 18
1997	160	45	0	0	205	May 22 - June 12
1998	930	135	360 (200)[a]	0	1,425	May 11 - June 3
1999	10	220	0	0	230	May 16 - June 14
2000	115	350	0	0	465	May 15 - May 28
2001	335	1,980	0	0	2,315	May 14 - May 22
2002	85	255	0	0	340	May 15 - May 28
2003	400	100	500	0	1,000	May 17 - May 29
2004	0	0	0	0	0	June 2 - June 10
2005	1,500 [b]	3,300	50	0	4,850	May 8-May 24
2006	4,500	1,150	585	0	6,235	May 26-May 28
1995-2005 Average	362	713	102	6	1,192	

[a] Biomass estimates (tons) conducted by commercial spotter pilots are enclosed in parenthesis ( ); these estimates are included in the total biomass estimates. They may not be comparable to ADF&G estimates.

[b] Biomass estimates (tons) conducted by both commercial spotter pilots and ADF&G biologists.

Table 2.–Alaska Peninsula herring sac roe fishery harvest, number of landings and permits fished by year, 1979-2006.

	North Peninsula			South Peninsula			Total		
Year	Tons	Landings	Permits	Tons	Landings	Permits	Tons	Landings	Permits
1979	0	0	0	10	[a]	[a]	10	[a]	[a]
1980	0	0	0	454	15	6	454	15	6
1981	0	0	0	798	93	56	797	93	56
1982	[a]	[a]	[a]	176	13	4	[a]	[a]	[a]
1983	627	47	23	0	0	0	627	47	23
1984	431	20	11	210	20	5	642	40	15
1985	710	31	17	288	8	5	998	39	20
1986	894	116	50	282	14	6	1,176	130	51
1987	514	46	27	319	8	[a]	833	54	27
1988	294	21	9	377	22	10	671	43	19
1989	729	24	10	310	31	13	1,039	55	19
1990	273	23	5	312	31	6	585	54	9
1991	1,313	59	11	157	26	10	1,470	85	18
1992	3,969	100	24	180	11	7	4,149	112	29
1993	536	44	16	[a]	[a]	[a]	[a]	[a]	[a]
1994	90	7	5	[a]	[a]	[a]	[a]	[a]	[a]
1995	337	37	12	[a]	[a]	[a]	[a]	[a]	[a]
1996	[a]	[a]	[a]	117	8	4	[a]	[a]	[a]
1997	0	0	0	0	0	0	0	0	0
1998	[a]	[a]	[a]	0	0	0	[a]	[a]	[a]
1999-2004	0	0	0	0	0	0	0	0	0
2005	351	12	4	0	0	0	351	12	4
2006	0	0	0	0	0	0	0	0	0
1996-2005 Average	51	3	1	12	1	0	64	3	1

[a] Harvest numbers cannot be released due to state confidentiality requirements.

Table 3.–Alaska Peninsula Area commercial herring sac roe fishery harvest by time period, 1980-2006.

	North Peninsula		South Peninsula		
Year	Harvest (Tons)	Harvest Time Period	Harvest (Tons)	Harvest Time Period	Total
1980		Fishery Closed	454	May 18-July 14	454
1981		Fishery Closed	798	May 9-June 23	798
1982	[a]	May 31-June 12	176	May 31-June 14	[a]
1983	627	May 9-May 29		Fishery Closed	627
1984	431	May 24-June 8	210	May 13-June 1	642
1985	710	May 24-June 4	288	June 1-June 11	998
1986	894	May 18-May 30	282	June 7-June 14	1,176
1987	514	May 9-June 5	319	June 8-June 19	833
1988	294	May 17-June 15	377	May 31-June 20	671
1989	729	May 28-June 23	310	May 13-June 19	1,039
1990	273	June 4-June 19	312	May 14-June 14	585
1991	1,313	May 17-July 4	157	May 16-June 11	1,470
1992	3,969	May 23-June 17	180	June 4-June 7	4,149
1993	536	May 8-June 9	[a]	May 27-June 9	[a]
1994	90	May 21-June 7	[a]	June 2-June 3	[a]
1995	337	May 29-June 20	[a]	June 6-June 17	[a]
1996	[a]	June 12-June 18	117	May 10-June 27	[a]
1997	[b]			[b]	0
1998	[a]	May 21-June 3		[b]	[a]
1999	[b]			[b]	0
2000	[b]			[b]	0
2001	[b]			[b]	0
2002	[b]			[b]	0
2003	[b]			[b]	0
2004	[b]			[b]	0
2005	351			[b]	351
2006	[b]			[b]	0
1996-2005 Average	51		12		64

[a] This information cannot be released due to confidentiality requirements.

[b] Fishery was closed.

Table 4.–North Alaska Peninsula commercial herring sac roe fishery harvest in tons by section, 1982-2006.

	Port Moller District				Port Heiden District	
Year	Deer Island Mud Bay Section	Herendeen Bay Section	Port Moller Bay Section	Bear River Bering Sea Coast	Port Heiden Bay Section	Total
1982	0	[a]	[a]	[a]	0	[a]
1983	0	509	37	81	0	627
1984	0	181	250	0	0	431
1985	0	173	256	281	0	710
1986	0	156	255	484	0	894
1987	0	157 [b]	350	7	0	514
1988	0	8	286	0	0	294
1989	0	67	247	416	0	729
1990	0	156	117	0	0	273
1991	156	167	690	300	0	1,313
1992	18	0	2,351	0	1,600	3,969
1993	0	107	371	58	0	536
1994	7	0	83	0	0	90
1995	3	146	188	0	0	337
1996	0	[a]	[a]	0	0	[a]
1997	[c]	[c]	[c]	[c]	[c]	[c]
1998	0	0	[a]	[a]	0	[a]
1999-2004	[c]	[c]	[c]	[c]	[c]	[c]
2005	0	0	351	0	0	351
2006	[c]	[c]	[c]	[c]	[c]	[c]
1996-2005 Average	0	7	40	4	0	52

[a] This information cannot be released due to confidentiality requirements.

[b] At least 11 tons were harvested in the Deer Island-Mud Bay Section.

[c] Fishery was closed.

Table 5.–South Alaska Peninsula commercial herring sac roe fishery harvest in tons by geographic area, 1979-2006.

Year	Stepovak Bay[a]	Balboa Bay	Pavlof Bay	Canoe Bay	Volcano-Dolgoi	Belkofski Bay	Lenard Harbor	Dolgoi Harbor	Shumagin Islands	Total
1979	0	0	0	0	0	10	0	0	0	10
1980	196	132	114	12	0	0	0	0	0	454
1981	129	36	263	168	65	16	122	0	0	798
1982	0	5	0	171	0	0	0	0	0	176
1983[b]	0	0	0	0	0	0	0	0	0	0
1984	29	25	0	156	0	0	0	0	0	210
1985	11	0	38	239	0	0	0	0	0	288
1986	0	0	61	141	13	8	59	0	0	282
1987	0	0	92	118	0	38	60	12	0	319
1988	0	11	69	237	17	12	31	0	0	377
1989	39	18	53	148	0	0	9	5	39	310
1990	72	21	0	120	0	3	6	0	90	312
1991	19	19	0	78	0	0	0	0	41	157
1992	0	0	0	180	0	0	0	0	0	180
1993	5	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1994	0	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1995	0	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]	[a]
1996	21	4	0	77	0	0	0	0	16	117
1997-2006	[c]	[c]	[c]	[c]	[c]	[c]	[c]	[c]	[c]	[c]
1996-2005 Average	2	0	0	8	0	0	0	0	2	12

[a] The 1984-1988 catches came from Ramsey Bay, the 1989 and 1993 catch came from Granville Bay.

[b] In 1983 the South Alaska Peninsula sac roe fishery was closed, all herring catches were allocated to a food and bait fishery that did not develop.

[c] Fishery was closed.

Table 6.–Aleutian Islands Area Dutch Harbor herring food and bait fisheries historical summary for the purse seine fishery, 1929-2006.

Year	Harvest in Tons	No. Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price ($) Per Ton	Exvessel Value ($) (Thousands)	Exvessel Value Per Vessel (Thousands)
1929	1,259				ND			
1930	1,916				ND			
1931	1,056	26			ND			
1932	2,510	30			ND			
1933	1,585	38			ND			
1934	1,533				ND			
1935	2,412				ND			
1936	1,379				ND			
1937	579				ND			
1938	513				ND			
1939-1944	[a]							
1945	75				ND			
1946-1980	[a]							
1981	70	[b]		[b]			[b]	[b]
1982	3,565	7	95	509	38	$300	$1,020	$146
1983	3,567	8	96	446	37	$232	$828	$104
1984	3,578	9	61	398	59	$210	$751	$83
1985	3,554	6	68	560	52	$162	$564	$94
1986	2,394	7	54	342	44	$254	$600	$86
1987	2,485	8	44	373	56	$300	$751	$94
1988	1,983	7	50	251	40	$252	$505	$72
1989	3,079	7	67	342	46	$283	$873	$125
1990	820	7	15	117	55	$350	$287	$41
1991	1,794	14	34	166	53	$300	$398	$28
1992	2,002	19	36	177	56	$300	$573	$30
1993	2,824	14	33	215	86	$300	$837	$60
1994	3,350	15	66	239	51	$300	$1,005	$67
1995	1,705	15	23	125	74	$300	$524	$35
1996	2,279	26	29	95	79	$300	$684	$26
1997	1,950	26	63	75	31	$300	$585	$23
1998	2,025	24	27	75	75	$300	$598	$25
1999	2,437	22	72	109	34	$400-600	$1,038	$47
2000	2,014	20	22	88	92	$300-500	$671	$34
2001	1,332	14	29	95	46	$300-500	$406	$29
2002	2,664	13	15	205	178	$300-450	$909	$70
2003	1,379	6	16	230	86	$50-400	$342	$57
2004	1,045	4	17	348	61	$100-500	$309	$103
2005	1,154	2	4	385	289	$100-500	$370	$123
2006	953	2	18	318	53	$100-500	$384	$128

-continued-

Table 6.–Page 2 of 2.

Year	Harvest in Tons	No. Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price ($) Per Ton	Exvessel Value ($) (Thousands)	Exvessel Value Per Vessel (Thousands)
1929-1938 Average	1,474				ND			
2001-2005 Average	1,515	8	16	253	132	$170-480	$467	$76
1996-2005 Average	1,828	16	29	170	97	$245-440	$591	$54

[a] Fishery was closed.

[b] This information can not be released due to state confidentiality requirements.

Table 7.–Aleutian Islands Area Dutch Harbor herring food and bait gillnet historical summary, 2001-2006.

Year	Harvest in Tons	No. Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
2001	105	8	25	13	4	$300-500	$53	$7
2002	134	15	37	9	4	$400	$54	$4
2003	88	18	23	5	4	$400	$35 [a]	$2
2004	216	12	37	18	6	$300	$65	$5
2005	0	0	0	0	0	$300	$0	$0
2006 [b]								
2001-2005 Average	109	11	24	9	4	$350	$41	$4

[a] Twenty of the 108 tons were not purchased because of spoilage.

[b] This information can not be released due to state confidentiality requirements.

Table 8.–Aleutian Islands Area herring food and bait fisheries allocations, commercial harvest, and effort by gear type, 1991-2006.

	Preseason Togiak Spawning	All Gear Types		Gillnet Fishery					Seine Fishery					% Togiak Spawining Biomass
Year	Biomass[a]	Allocation[a]	Harvest[a]	Allocation[a]	Harvest[a]	Permits	Landings	Days Fished	Allocation[a]	Harvest[a]	Permits	Landings	Days Fished	Harvested
1991	83,229	931	1,794	None	0	0	0	ND	931	1,794	14	34	<1	2.2
1992	60,214	1,940	2,802	None	0	0	0	ND	1,940	2,802	19	36	5	4.7
1993	164,135	2,193	2,824	None	0	0	0	ND	2,193	2,824	14	33	<1	1.7
1994	165,747	2,215	3,395	None	45	1	1	ND	2,215	3,350	15	66	4	2.0
1995	149,093	1,982	1,748	None	43	1	1	ND	1,982	1,705	15	23	<1	1.2
1996	135,585	1,793	2,279	None	0	0	0	ND	1,793	2,279	26	29	<1	1.7
1997	125,000	1,645	1,990	None	40	1	1	ND	1,645	1,950	26	63	5	1.6
1998	121,054	1,590	2,085	None	60	1	1	ND	1,590	2,025	24	27	<1	1.7
1999	156,200	2,082	2,437	None	0	0	0	ND	2,082	2,437	22	72	4	1.6
2000	130,904	1,728	2,014	None	0	0	0	ND	1,728	2,014	20	22	<1	1.5
2001	119,818	1,572	1,437	110	105	8	25	9	1,462	1,332	14	29	2	1.2
2002	120,196	1,578	2,798	110	134	15	37	16	1,468	2,664	13	15	1	2.3
2003	126,213	1,662	1,467	116	88	18	23	5	1,546	1,379	6	16	4	1.2
2004	143,124	1,899	1,261	266	216	12	37	13	1,533	1,045	4	17	13	0.9
2005	105,029	1,365	1,154	191	0	0	0	11	1,174	1,154	2	4	9	1.1
2006	129,976	1,715	954	240					[b] 1,375	953	2	18	15	0.7
Average 2001-2005	122,876	1,615	1,623	159	109	11	24	11	1,437	1,515	8	16	6	1.3
1996-2005	127,036	1,745	2,099	159	49	4	8	11	1,685	2,050	16	32	4	1.8

[a] Tons.

[b] This information can not be released due to state confidentiality requirements.

Table 9.–Aleutian Islands Area, Dutch Harbor commercial herring food and bait fishery (All gear combined) summary, including landing date, days fished, preseason Togiak spawning biomass, guideline harvest level, harvest, and number of vessels fishing, 1981-2006.

Year	Landing Date First	Landing Date Last	Days Fished	Preseason Togiak Spawning Biomass Tons	GHLs Tons	Food & Bait Harvest Tons	Number Vessels Fishing
1981	Aug 3	Aug 23	21	159,000	None	[a]	[a]
1982	Aug 5	Sep 12	39	98,000	None	3,565	7
1983	Jul 23	Sep 6	46	142,000	3,525 [b]	3,567	8
1984	Jul 17	Jul 27	11	115,000	3,525 [b]	3,578	9
1985	Jul 17	Aug 11	26	132,000	3,525 [b]	3,554	6
1986	Jul 16	Jul 28	13	96,000	2,453	2,394	7
1987	Jul 16	Jul 23	4	88,000	2,332	2,485	9
1988	Jul 16	Sep 18	21	132,000	3,100	1,999	9
1989	Jul 16	Aug 5	19	100,108	3,100	3,081	9
1990	Aug 15	Aug 15	<1	72,000	903	820	7
1991	Jul 17	Jul 17	<1	83,229	931	1,794	14
1992	Jul 16	Jul 28	5	60,214	1,940	2,802	19
1993	Jul 16	Jul 16	<1	164,135	2,193	2,824	14
1994	Jul 16	Jul 19	4	165,747	2,215	3,395	16
1995	Jul 16	Jul 16	<1	149,093	1,982	1,748	16
1996	Jul 16	Jul 16	<1	135,585	1,793	2,279	26
1997	Jul 15	Jul 19	5	125,000	1,645	1,990	64
1998	Jul 16	Jul 16	<1	121,054	1,590	2,085	25
1999	Jul 16	Jul 20	4	156,200	2,082	2,437	22
2000	Jul 15	Jul 15	<1	130,904	1,728	2,014	20
2001[c]	Jun 25	Jul 16	10	119,818	1,572	1,437	22
2002	Jun 25	Jul 16	17	120,196	1,578	2,798	28
2003	Jun 24	Jul 19	7	126,213	1,662	1,467	24
2004	Jul 1	Aug 2	26	143,124	1,899	1,261	16
2005	Jul 1	Aug 26	11	105,029	1,365	1,154	2
2006	Jul 1	Aug 31	15	129,976	1,715	954	4
2001-2005 Average			14	122,876	1,615	1,623	18
1996-2005 Average			11	128,312	1,691	1,892	25

[a] Number may not be released due to state confidentiality requirements.

[b] Harvest ceiling of 3,525 established by Alaska Board of Fisheries.

[c] In 2001 a gillnet fishery was established.

Table 10.–Age, sex, weight and length of herring harvested by purse seine gear in the Unalaska District, 2006.

Age	Sex				Percent	Weight			Standard Length		
Years	Male	Female	Unknown	Total	of Total	Mean (g)	Standard Dev.	Number Weighed	Mean (mm)	Standard Dev.	Number Measured
4	0	2	0	2	0.7	211	29.6	2	242	2.8	2
5	9	11	0	20	6.8	250	29.0	20	258	6.3	20
6	9	7	0	16	5.5	306	57.0	16	273	11.3	16
7	5	2	1	8	2.7	325	58.0	8	278	16.2	8
8	12	1	0	13	4.5	373	57.0	13	292	10.5	13
9	42	58	2	102	34.9	390	67.6	102	298	15.8	102
10	34	40	0	74	25.3	412	65.0	74	300	19.0	74
11	4	2	0	6	2.1	431	35.1	6	299	5.4	6
12	8	5	1	14	4.8	492	44.2	14	314	8.6	14
13	10	9	0	19	6.5	475	53.1	19	318	6.7	19
14	2	3	0	5	1.7	477	104.6	5	318	11.0	5
15	2	2	0	4	1.4	516	35.7	4	323	0.9	4
16	1	1	0	2	0.7	523	50.2	2	322	9.8	2
17	4	1	0	5	1.7	490	38.9	5	324	5.3	5
18	0	1	0	1	0.3	335	0.0	1	302	0.0	1
21	1	0	0	1	0.3	393	0.0	1	303	0.0	1
Total	143	145	4	292	100	-	-	-	-	-	292
Percent Total	49	50	1	-	-	-	-	-	-	-	-
Average	-	-	-	-	-	395 [a]	45.3 [b]	292	297 [a]	8.1 [b]	-

[a] Total weighted average of the mean.

[b] Total sample, standard deviation.

Table 11.–Age, sex, weight and length of herring harvested by purse seine gear in the Akutan District, 2006.

Age	Sex				Percent	Weight			Standard Length		
Years	Male	Female	Unknown	Total	of Total	Mean (g)	Standard Dev.	Number Weighed	Mean (mm)	Standard Dev.	Number Measured
4	0	1	0	1	0.3	226	0.0	1	248	0.0	1
5	10	10	0	20	5.2	270	43.5	20	266	27.9	20
6	15	11	0	26	6.8	299	37.8	26	266	10.5	26
7	8	8	0	16	4.2	302	62.6	16	267	14.7	16
8	13	9	0	22	5.8	371	60.4	22	287	10.3	22
9	56	58	0	114	29.9	431	355.3	114	294	16.9	114
10	35	52	0	87	22.8	442	68.1	86	301	13.4	87
11	9	8	0	17	4.5	449	66.4	17	303	12.6	17
12	7	11	0	18	4.7	492	77.2	18	311	13.3	18
13	8	9	0	17	4.5	515	68.5	17	317	11.9	17
14	4	11	0	15	3.9	518	79.2	15	316	18.9	15
15	9	8	0	17	4.5	527	71.5	17	317	9.5	17
16	3	4	0	7	1.8	547	72.5	7	329	9.9	7
17	0	2	0	2	0.5	486	29.6	2	320	1.4	2
18	1	1	0	2	0.5	639	38.1	2	338	3.5	2
Total	178	203	0	381	100	-	-	-	-	-	381
Percent Total	47	53	0	-	-	-	-	-	-	-	-
Average	-	-	-	-	-	425 [a]	75.4 [b]	380	296 [a]	11.6 [b]	-

[a] Total weighted average of the mean.

[b] Total sample, standard deviation.

Table 12.–Age, sex, weight and length of herring harvested by purse seine gear in the Aleutian Islands Area, 2006.

Age	Sex				Percent	Weight			Standard Length		
					of	Mean	Standard	Number	Mean	Standard	Number
(Years)	Male	Female	Unknown	Total	Total	(g)	Dev.	Weighed	(mm)	Dev.	Measured
4	0	3	0	3	0.4	216	22.7	3	244	4.0	3
5	19	21	0	40	5.9	260	37.9	40	262	20.4	40
6	24	18	0	42	6.2	302	45.5	42	268	11.2	42
7	13	10	1	24	3.6	310	60.9	24	271	15.8	24
8	25	10	0	35	5.2	372	58.3	35	289	10.5	35
9	98	116	2	216	32.1	412	262.5	216	296	16.4	216
10	69	92	0	161	23.9	428	68.1	160	300	16.2	161
11	13	10	0	23	3.4	445	59.6	23	302	11.2	23
12	15	16	1	32	4.8	492	63.9	32	312	11.4	32
13	18	18	0	36	5.3	494	63.2	36	318	9.3	36
14	6	14	0	20	3.0	507	85.2	20	317	17.0	20
15	11	10	0	21	3.1	525	65.6	21	318	8.8	21
16	4	5	0	9	1.3	541	66.1	9	328	9.7	9
17	4	3	0	7	1.0	489	34.1	7	323	4.8	7
18	1	2	0	3	0.4	538	177.5	3	326	20.6	3
21	1	0	0	1	0.1	393	0.0	1	303	0.0	1
Total	321	348	4	673	100	-	-	-	-	-	673
Percent Total	48	52	1	-	-	-	-	-	-	-	-
Average	-	-	-	-	-	412 [a]	73.2 [b]	672	296 [a]	11.7 [b]	-

[a] Total weighted average of the mean.

[b] Total sample, standard deviation.

Table 13.–Estimated age composition of Aleutian Islands commercial herring food and bait purse seine harvests, in percent, 1991-2006.

	Age														
Year	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Purse Seine															
1991	0.2	0.2	0.2	8.7	11.0	5.7	13.4	11.2	22.1	17.2	8.9	1.0	0.0	0.2	0.0
1992	0.0	0.3	0.2	0.3	23.3	25.0	4.8	15.2	8.9	10.0	9.4	2.5	0.2	0.0	0.0
1993	0.3	9.5	51.8	5.1	5.9	13.2	6.2	2.5	1.6	1.7	1.3	0.8	0.0	0.0	0.0
1994	0.2	1.7	24.3	36.7	3.8	4.0	13.3	6.5	3.6	3.3	1.0	0.9	0.9	0.0	0.0
1995	0.2	3.2	5.6	30.4	27.5	4.5	4.3	10.4	5.0	1.9	4.8	1.4	0.6	0.2	0.0
1996	0.0	0.7	8.2	16.1	35.8	25.8	3.3	2.9	2.7	1.6	1.5	0.8	0.4	0.2	0.0
1997	0.0	3.2	15.2	31.3	9.3	21.2	9.5	1.8	4.5	1.6	1.2	0.5	0.1	0.0	0.0
1998	0.0	6.5	7.9	25.3	26.0	8.5	14.6	8.4	0.5	1.4	0.3	0.0	0.1	0.1	0.0
1999	0.2	0.2	12.2	8.2	21.8	21.1	10.2	15.6	5.6	2.2	0.9	1.3	0.4	0.0	0.0
2000	0.0	0.0	0.7	19.8	16.6	12.4	14.5	10.8	12.4	8.2	2.3	1.3	0.5	0.0	0.0
2001	0.0	3.5	2.1	6.4	31.4	12.8	11.9	9.7	5.7	10.7	4.0	0.9	0.4	0.0	0.0
2002	0.0	0.0	3.0	6.3	4.3	25.3	11.6	9.3	12.3	9.0	12.0	5.0	0.0	3.0	2.0
2003	0.0	0.0	3.0	27.4	16.8	7.5	15.6	9.9	5.4	6.6	3.3	2.7	0.9	0.6	0.0
2004	0.0	0.0	0.0	18.8	39.3	8.4	3.9	14.6	3.4	5.9	1.9	0.7	1.4	1.2	0.0
2005	1.1	2.5	1.4	4.3	40.0	27.2	5.6	5.1	6.4	1.9	1.2	1.4	0.8	0.3	0.0
2006	0.4	5.9	6.2	3.5	5.2	32.0	23.9	3.4	4.7	5.3	2.9	3.1	1.3	1.0	0.4
2002-2006 Average															
	0.3	1.7	2.7	12.1	21.1	20.1	12.1	8.5	6.4	5.7	4.3	2.6	0.9	1.2	0.5
1997-2006 Average															
	0.2	2.2	5.2	15.1	21.1	17.6	12.1	8.9	6.1	5.3	3.0	1.7	0.6	0.6	0.2

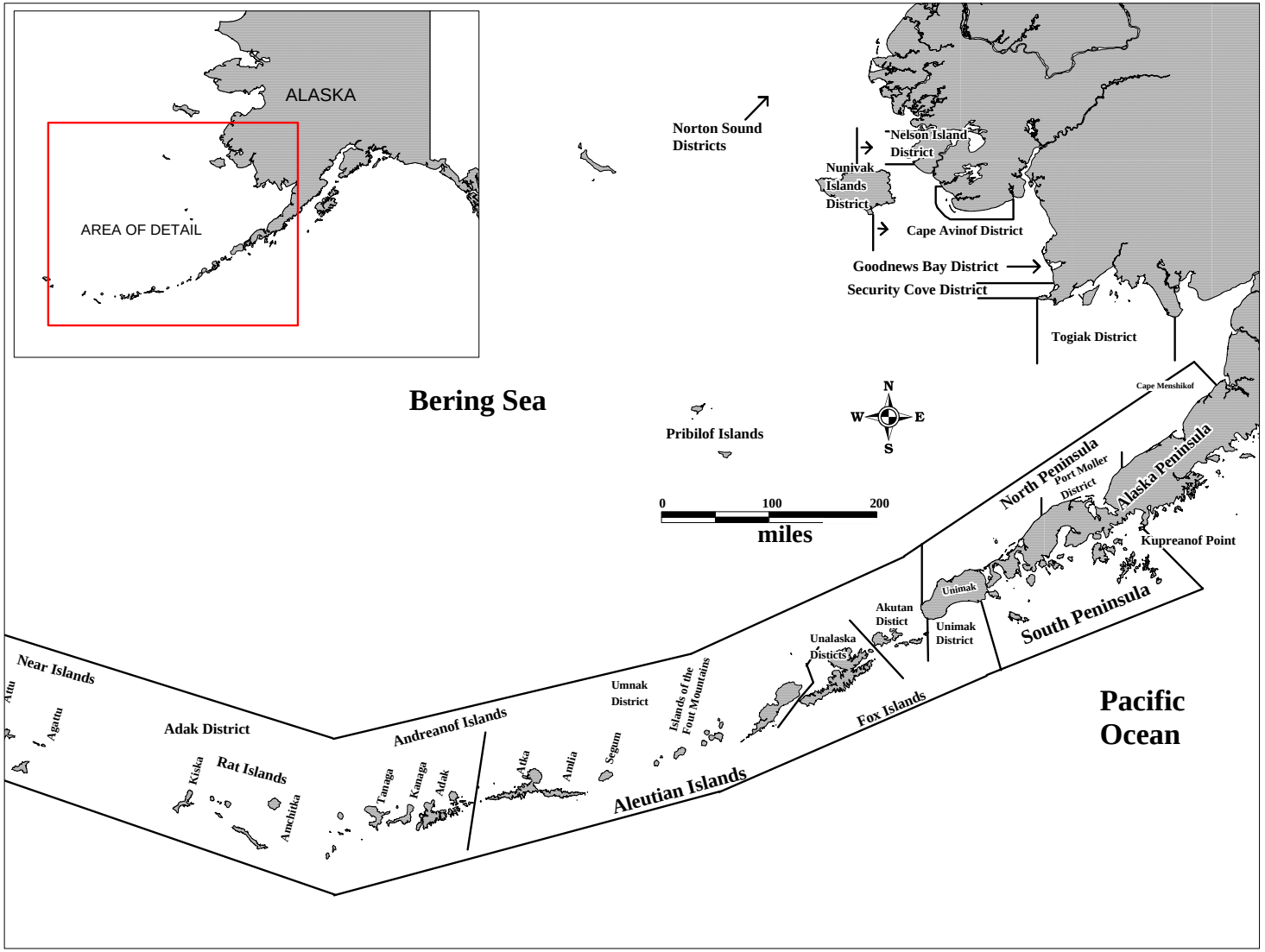

Figure 1.–Map of the Bering Sea Management Plan (5 AAC 27.060) commercial herring districts.

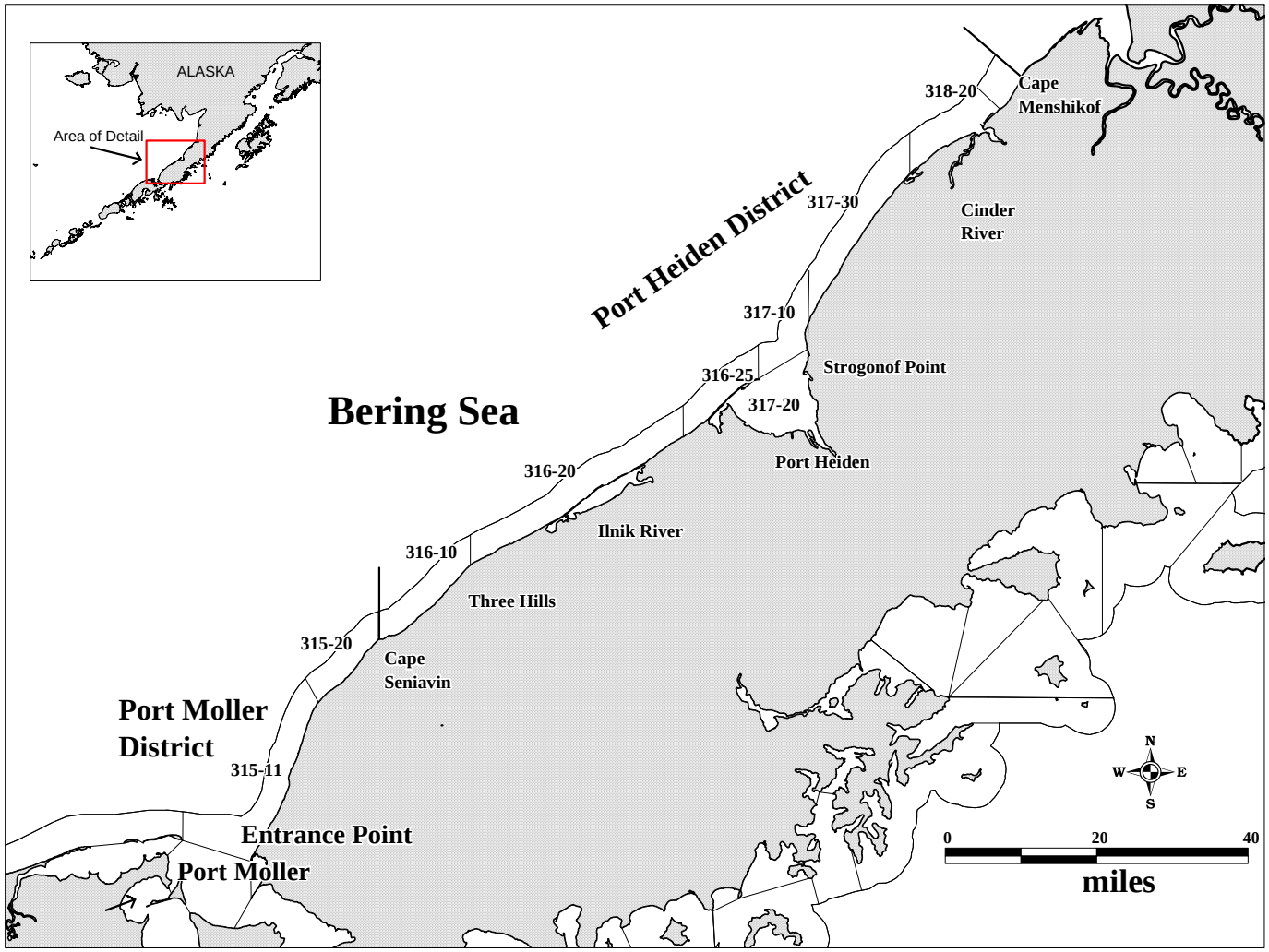

Figure 2.–Map of the Port Heiden and Port Moller Districts with commercial herring fishing statistical areas shown.

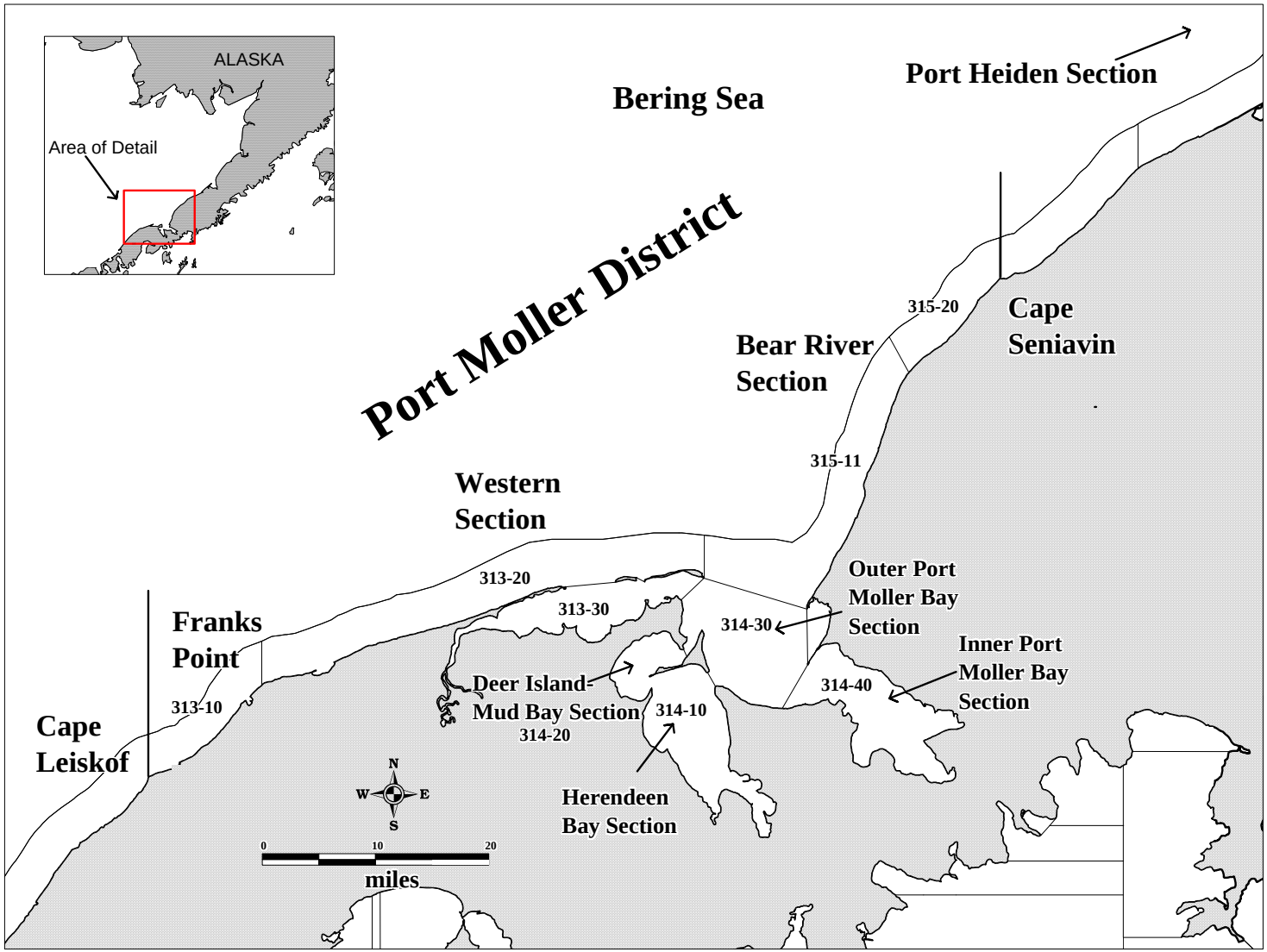

Figure 3.–Map of the Port Moller District with commercial herring fishing statistical areas shown.

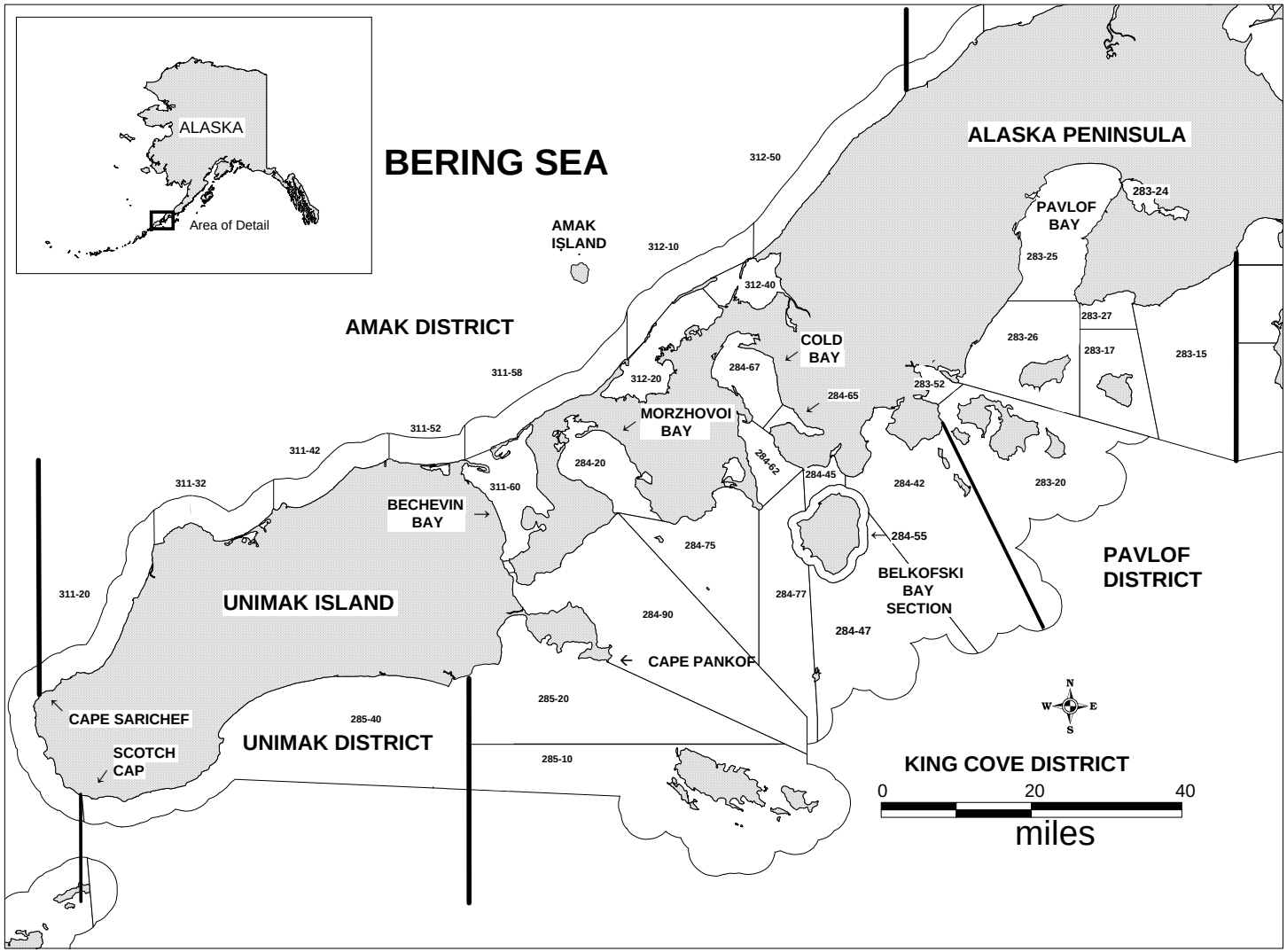

Figure 4.–Map of the Amak, Unimak, King Cove, and Pavlof Districts with commercial herring fishing statistical areas shown.

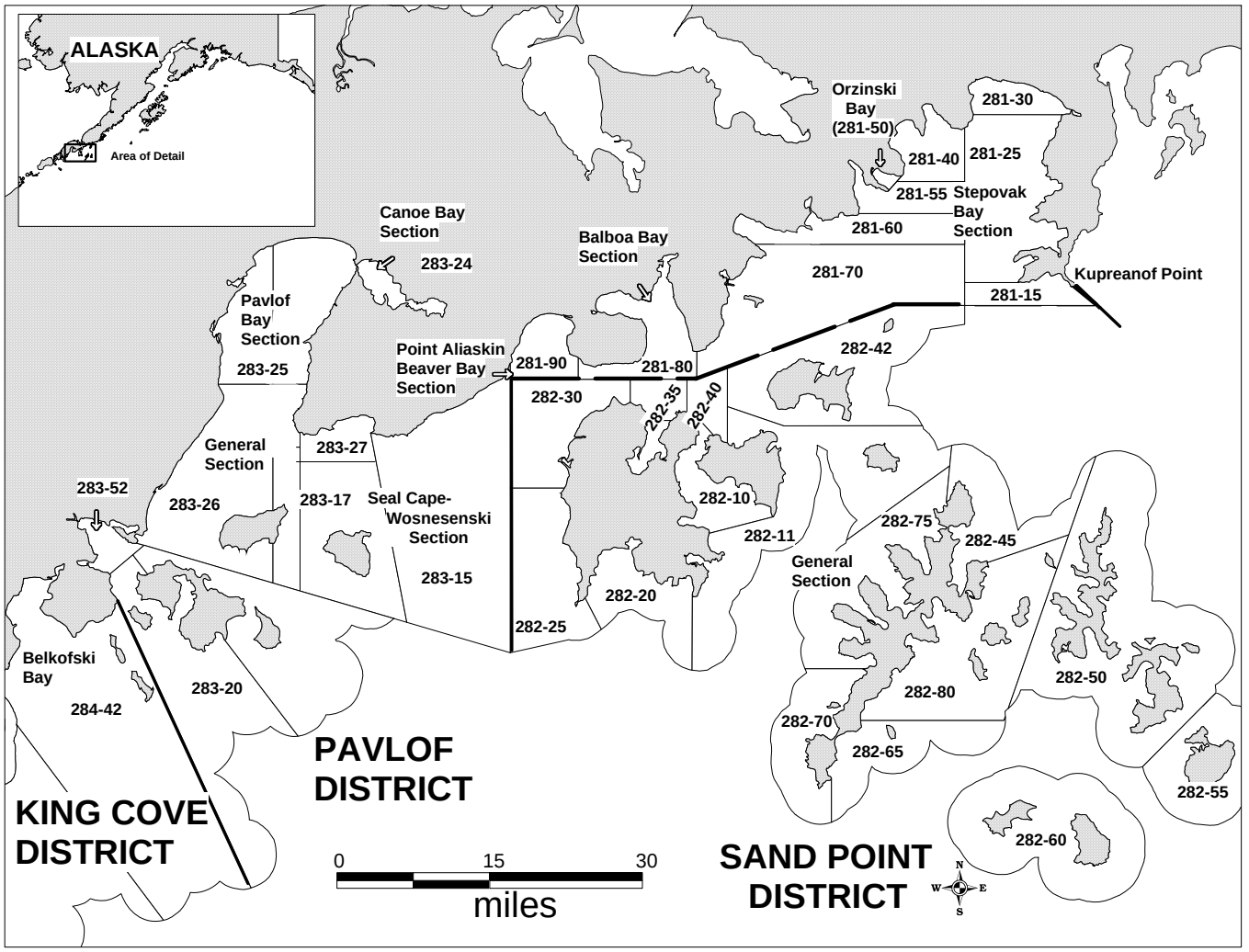

Figure 5.–Map of the Pavlof and Sand Point districts with commercial herring fishing statistical areas shown.

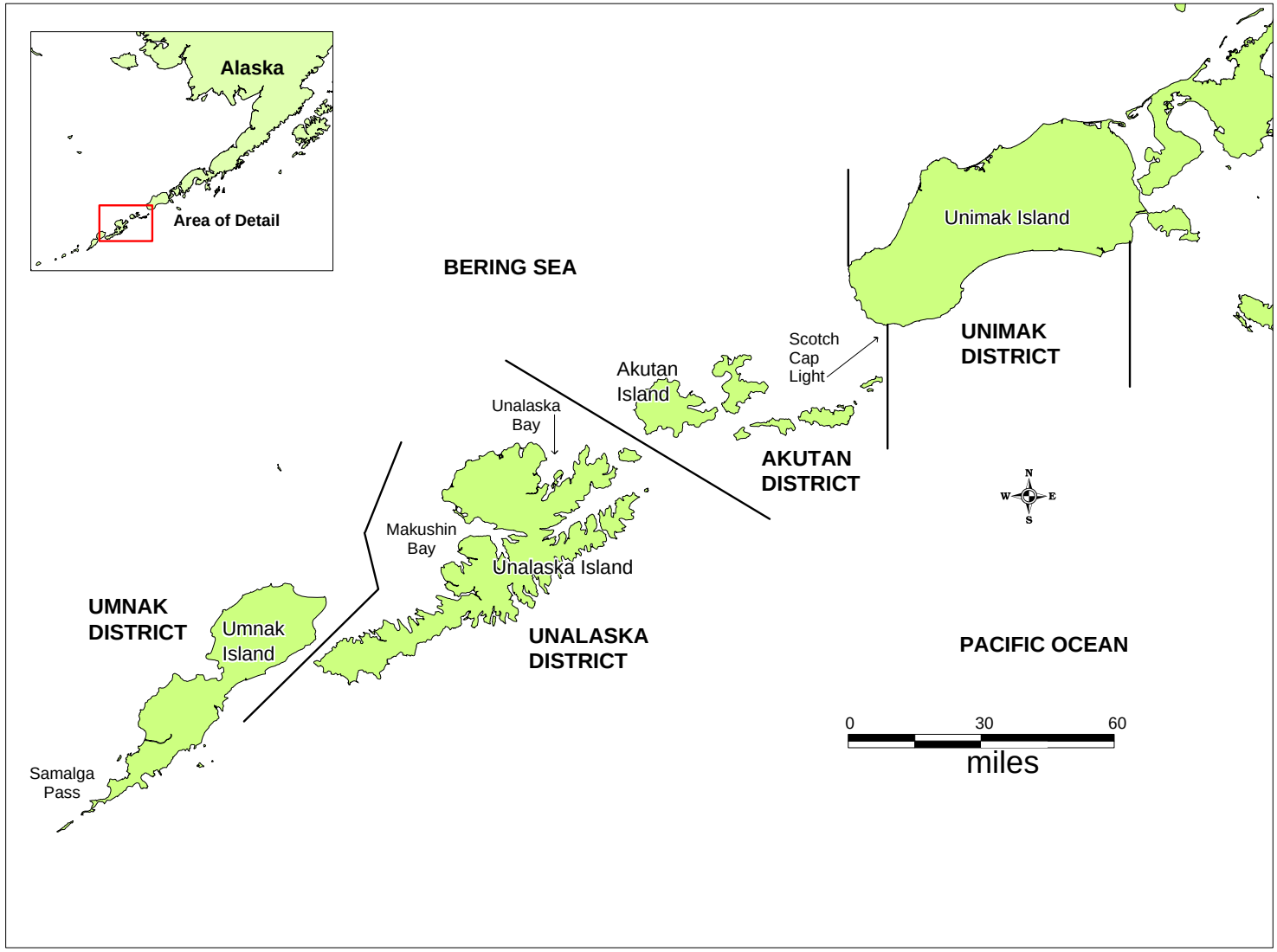

Figure 6.–Map of the Aleutian Islands from Samalga Pass to Unimak Island with herring fishing districts shown.

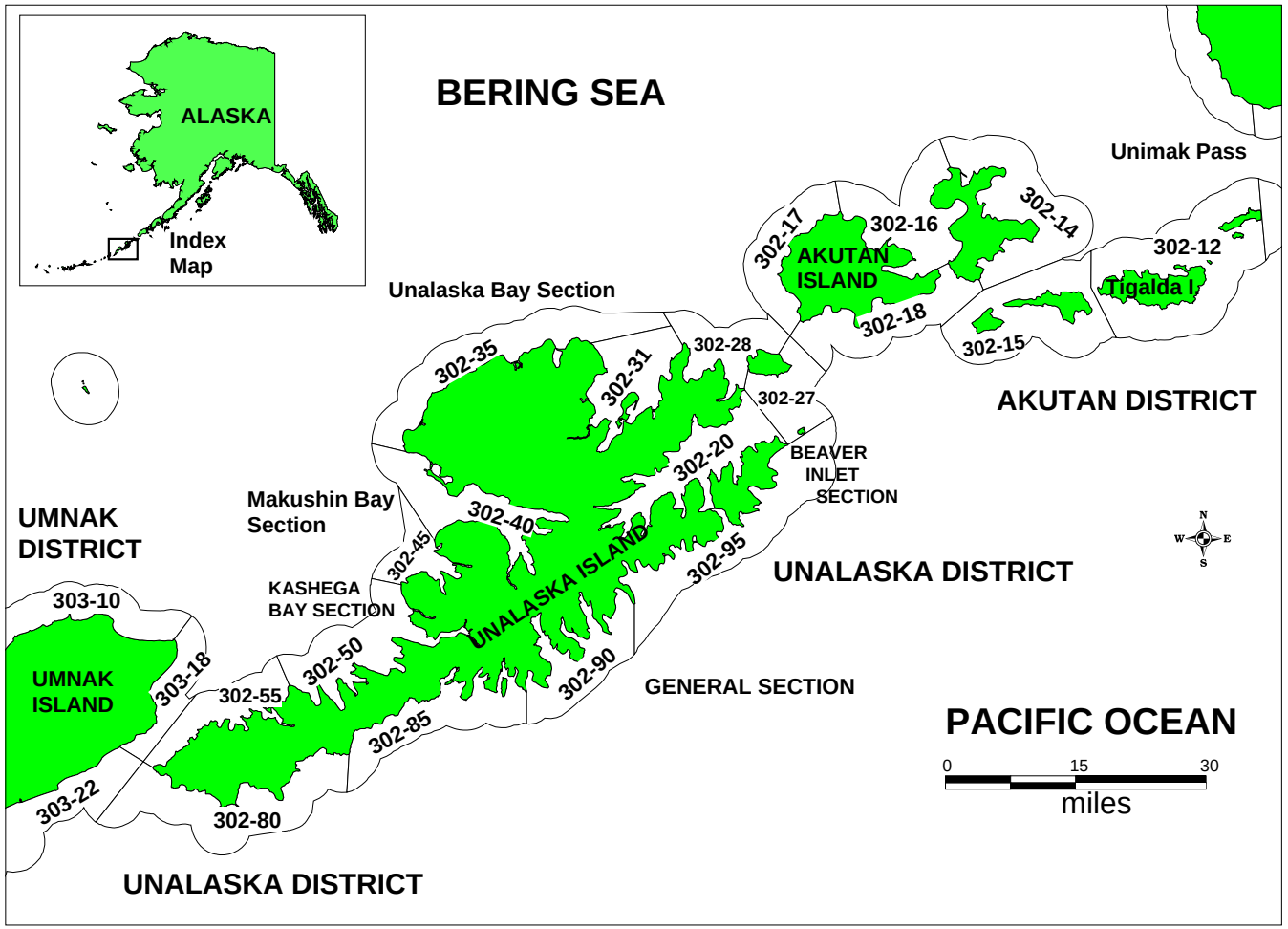

Figure 7.–Map of the Aleutian Islands from Unimak Island to Umnak Island with the statistical herring fishing areas shown.

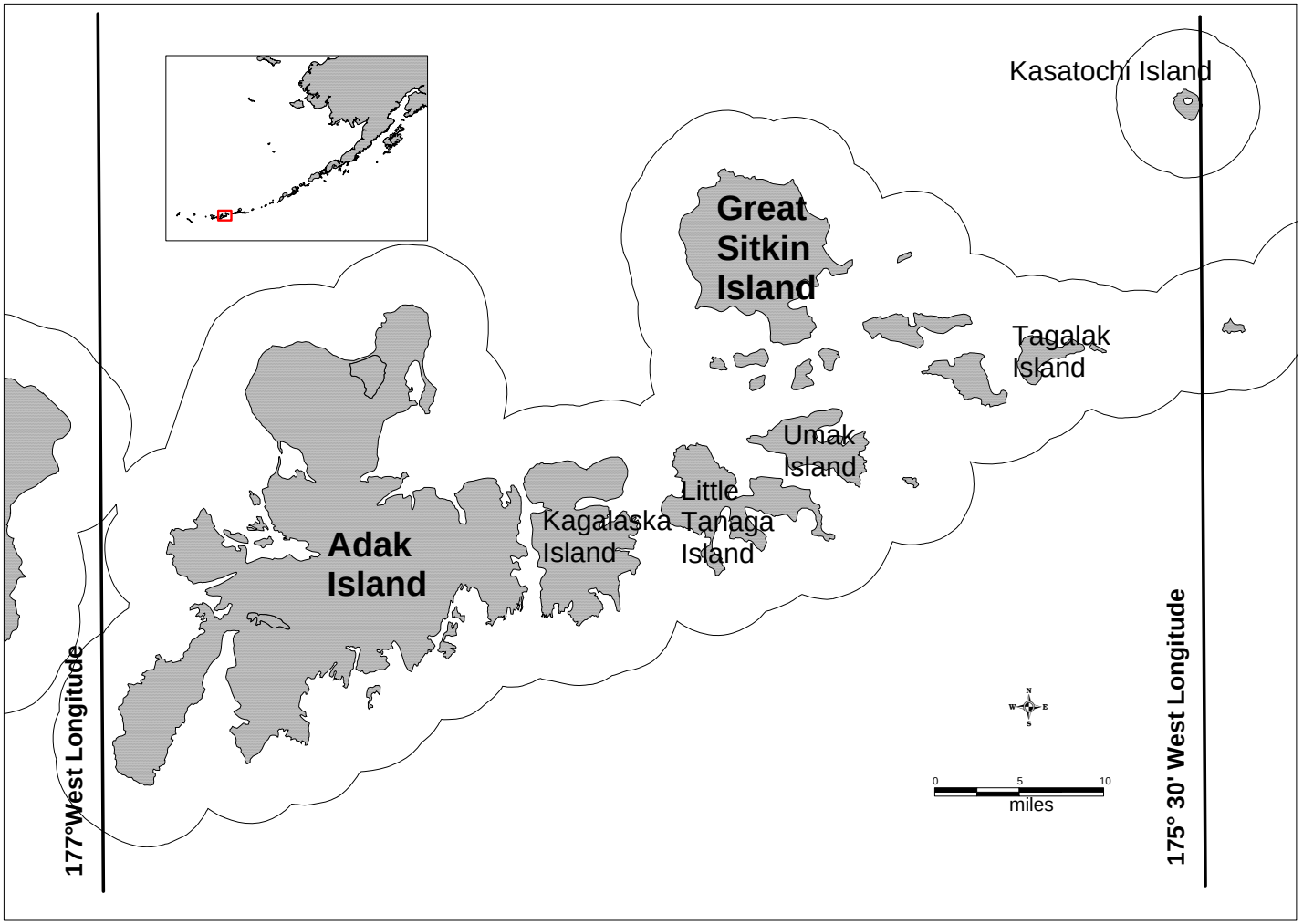

Figure 8.–Map of the Adak Island area with boundaries of exploratory herring fishery defined.

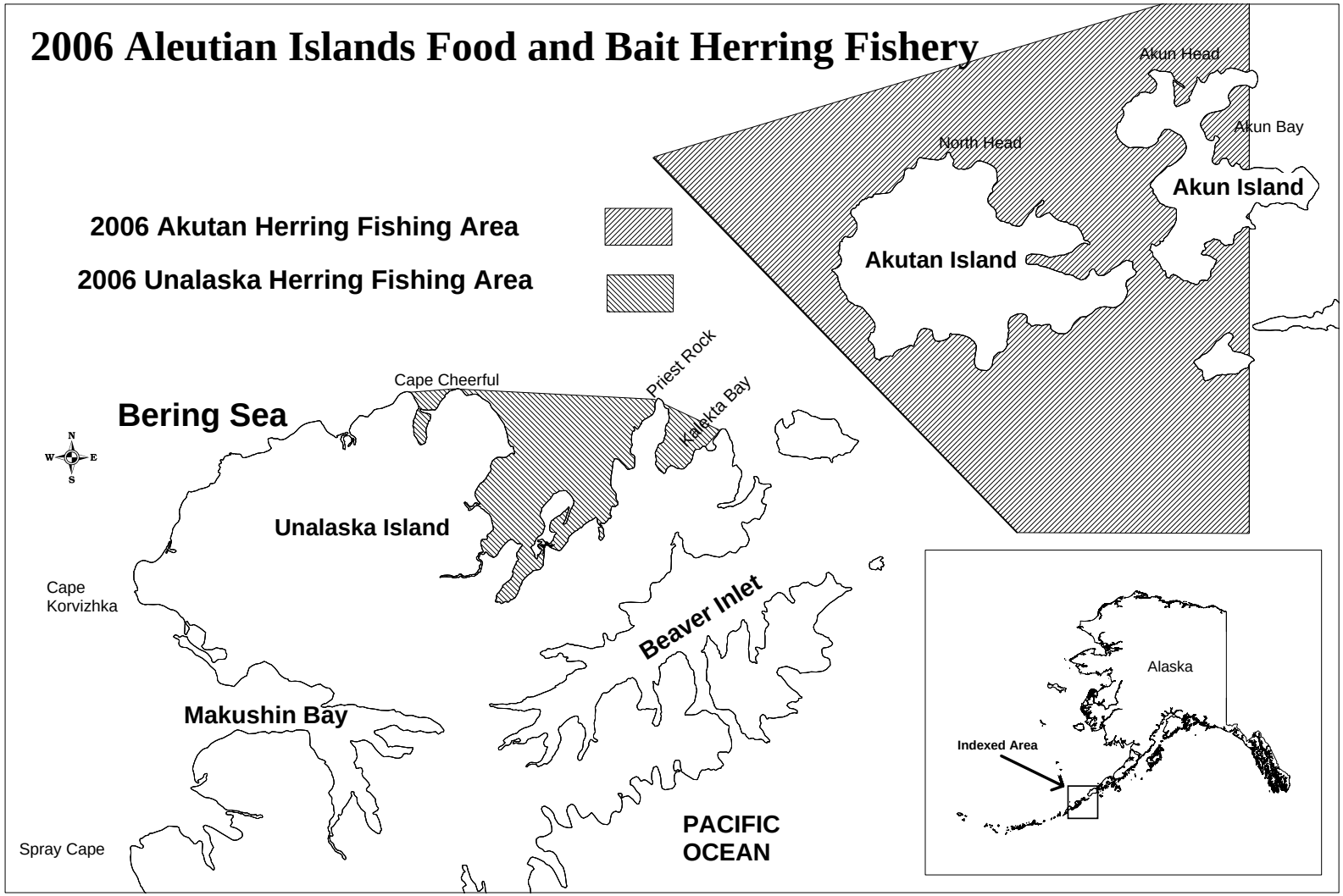

Figure 9.–Map of Akutan and Unalaska islands from Akun bay to Spray Cape, with the 2006 commercial herring fishery open areas shown.

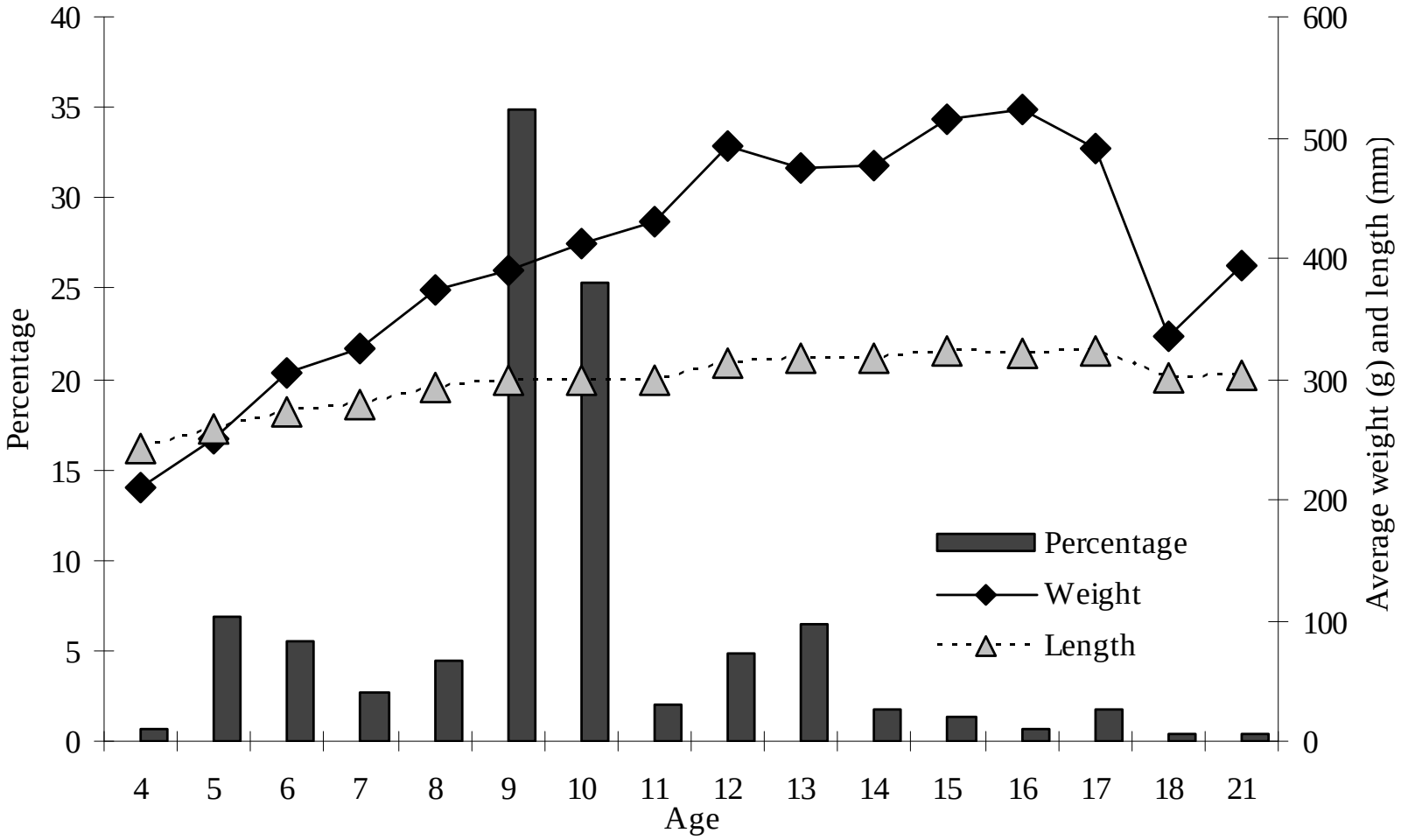

Figure 10.–Estimated average length-at-age (mm), average weight-at-age (g), and age composition of herring harvested in the Unalaska District, 2006 (sample size = 292).

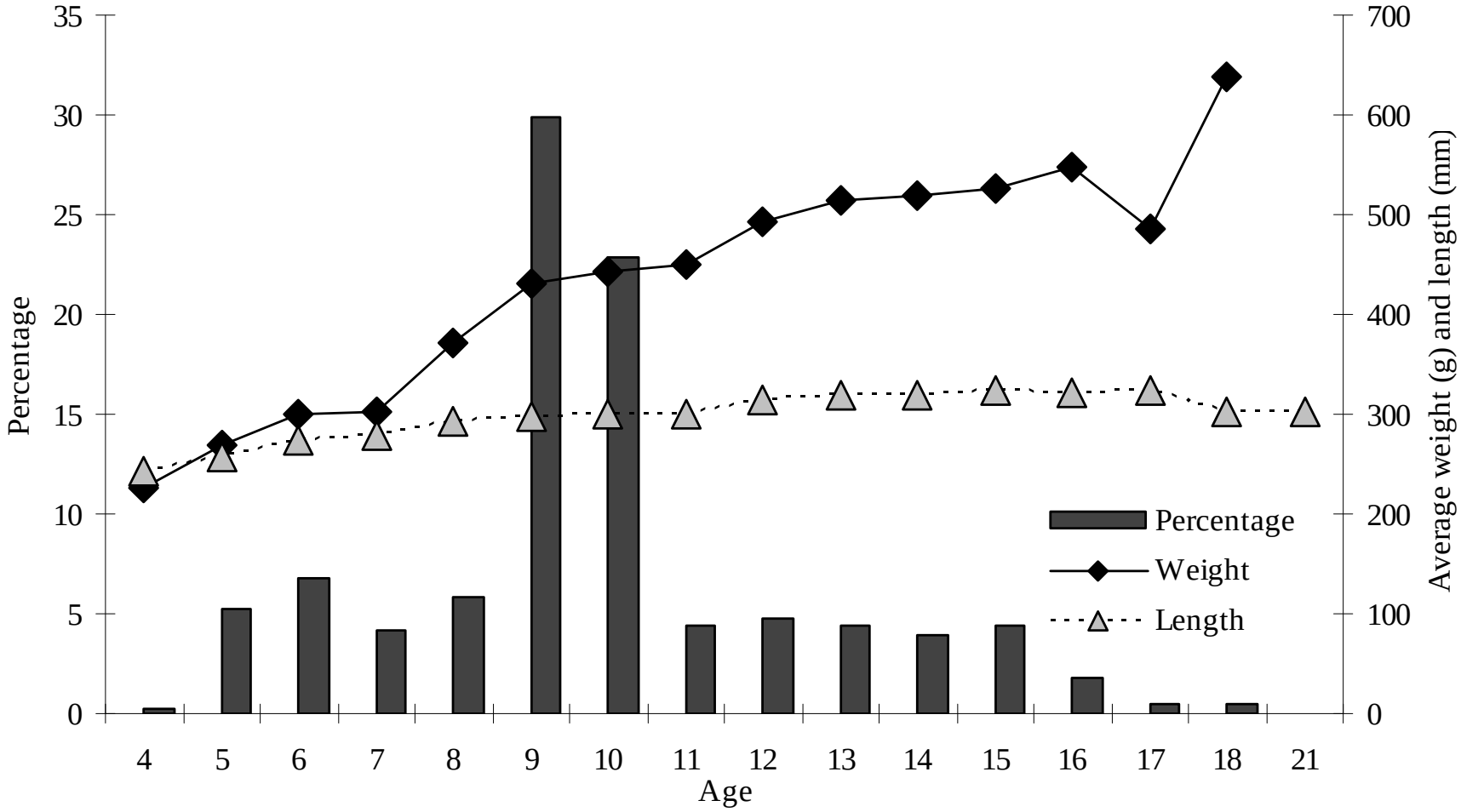

Figure 11.–Estimated average length-at-age (mm), average weight-at-age (g) and age composition of herring harvested in the Akutan District, 2006 (Sample size = 381).

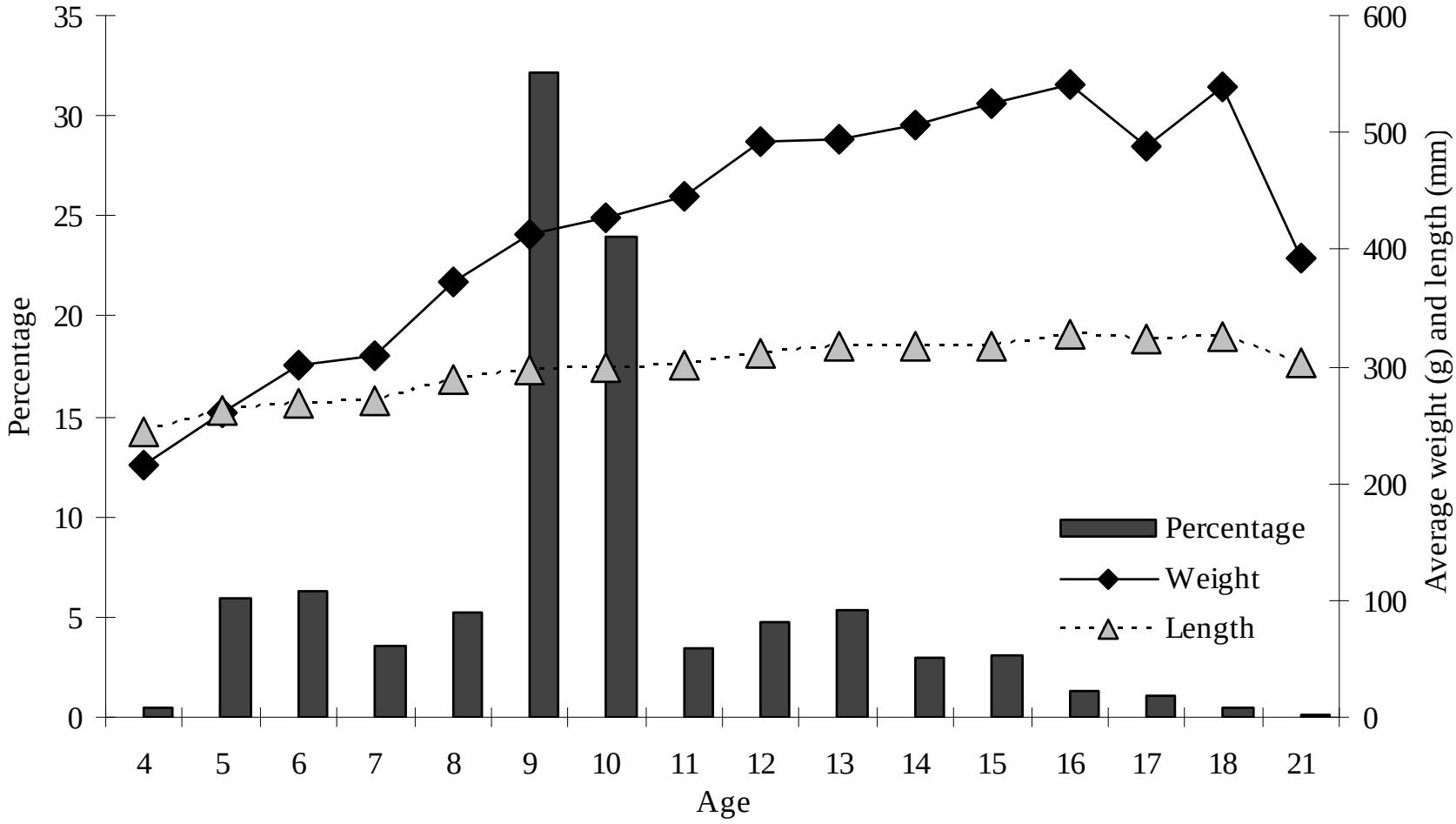

Figure 12.–Estimated average length-at-age (mm), average weight-at-age (g) and age composition of herring harvested in the Aleutian Islands Management Area, 2006 (Sample size = 673).

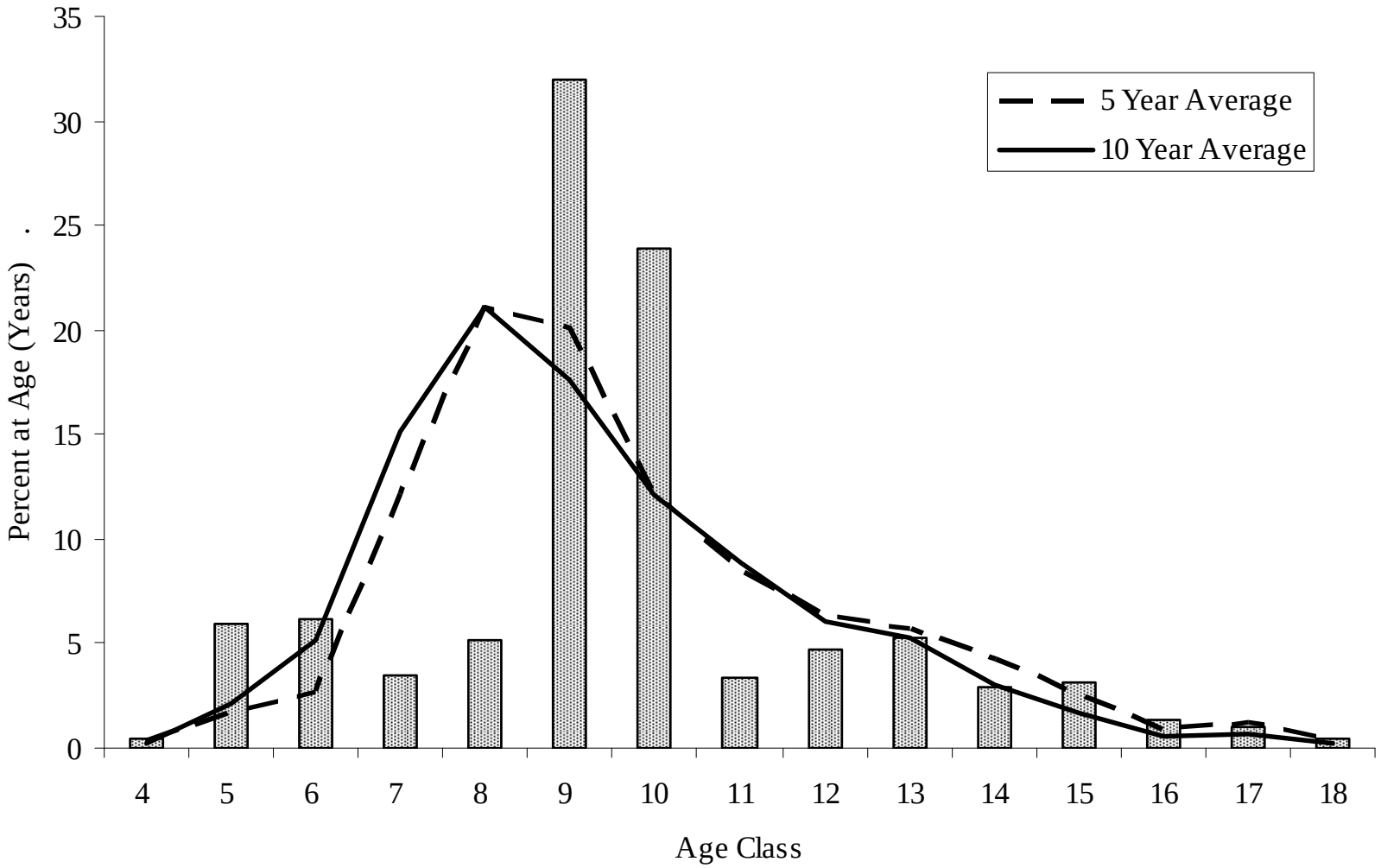

Figure 13.–Estimated 2006 percent age composition of the Aleutian Islands commercial herring food and bait fishery, with five and ten year averages.

APPENDIX A: ALASKA PENINSULA HERRING SAC ROE FISHERY HARVEST PROJECTION, 2006

Appendix A1.–Alaska Peninsula herring sac roe fishery harvest projection, 2006.

This forecast is for North and South Alaska Peninsula areas with guideline harvest levels, excluding those areas open for exploration such as the General Section of the Sand Point District, Seal Cape-Wosnesenski Section, the General Section of the King Cove District, Amak District, and the Western Section of the Port Moller District. This forecast does not include the Aleutian Islands Management Area, which has no history of herring sac roe harvests, or the Port Heiden District.

The North Alaska Peninsula herring sac roe GHL is 0 to 150 tons. Considering historical herring biomass estimates in the North Alaska Peninsula waters, management of the North Alaska Peninsula herring sac roe fishery will again be conservative in 2006. Historically, the previous year's North Alaska Peninsula herring biomass estimate has been a poor indicator of herring returns in the following year. In 2006, the GHL will be adjusted inseason based on the observed stock size. The following table shows the sliding scale allowable harvest on the estimated mature biomass when the threshold of 1,000 tons is assured.

Stock Size (Tons)	Sliding Scale Allowable Exploitation Rate	Harvest
Less than 1,000	0%	0
1,001-1,500	10%	100-150
1,501-1,999	10%	150-200
2,000-2,500	15%	300-375
2,501-3,000	15%	375-450
> 3,000	20%	> 450

At low biomass levels, a conservative approach will be taken to allow the local stocks to rebuild and to account for North Alaska Peninsula herring that may contribute to the Dutch Harbor food and bait fishery. Rowell et. al. (1991) estimated that up to 22% of the Dutch Harbor food and bait harvest may be non-Togiak herring. Based on estimated travel time of eastern Bering Sea herring stocks to Dutch Harbor and the fishery opening date of July 16, North Alaska Peninsula stocks may compose a portion of the non-Togiak component. During periods when large biomass levels are observed a higher harvest rate will be allowed. The Alaska Board of Fisheries has established a maximum exploitation rate of 20% of the spawning biomass of those stocks. The forecast does not include the Port Heiden District where commercial fishing occurred only during 1992.

Confidence in the North Alaska Peninsula harvest projection is only fair. In the Port Moller District, a 1,000 ton threshold of mature herring is required before the department may allow a commercial harvest in that district. Prior to 1996, aerial surveys were conducted but there was no threshold requirement.

The 2006 South Alaska Peninsula forecasted sac roe harvest is 0 tons, based on the belief that industry will not be interested in harvesting herring in South Alaska Peninsula waters in 2006.

APPENDIX B: ARCTIC-YUKON-KUSKOKWIM HERRING OUTLOOK AND MANAGEMENT STRATEGY FOR 2006

ALASKA DEPARTMENT OF FISH & GAME

DIVISION OF COMMERCIAL FISHERIES

Arctic-Yukon-Kuskokwim Region

NEWS RELEASE

January 24, 2006

Arctic-Yukon-Kuskokwim Herring Outlook and Management Strategy for 2006

Projections from postseason escapement estimates suggest that the 2006 spawning biomass for northeastern Bering Sea herring stocks (Security Cove to Norton Sound Districts) will be 62,237 tons, with an anticipated allowable harvest of 12,377 tons. If the return is as expected, a small reduction in biomass will be observed in most districts. The most abundant age classes expected to occur in the herring biomass are age 9 (40.4%), age 10 (18.8%) and age 5 (8.7%). Age 9 and older herring are expected to comprise 72.9% of the returning biomass.

Variability in the quality of aerial survey assessments of biomass and deviations from the assumed survival or recruitment rates may result in the observed biomass being either above or below these projections. Therefore, guideline harvest levels may be adjusted during the season according to observed herring spawning biomass. If determining herring abundance using aerial survey methods is not possible, stock abundance will be assessed using information from the projected biomass, test and commercial catches and spawn deposition observations. In addition, in accordance with the AYK Region harvest strategy, the commercial fishery will not target newly recruited age classes (age 2 through age 5 herring). In all districts, the Department will work cooperatively with fishers and buyers to optimize roe recovery during the 2006 season. In each district, the occurrence and length of fishing periods and harvests will depend on inseason abundance estimates, roe quality, spawning activity, weather conditions, fishing effort and processor interest.

Security Cove District

The 2006 projected return to the Security Cove District is 7,477 tons. A 20% exploitation rate would result in a harvest of 1,495 tons. Commercial fishing will not be allowed until the observed biomass reaches 1,200 tons, or significant spawning activity is observed. Ages 9, 10 and 5 are expected to comprise 66.9% of the returning biomass (40.1%, 18.7% and 8.1%, respectively). Age 9 and older herring are expected to comprise 70.7 % of the biomass.

Goodnews Bay District

The management strategy for the Goodnews Bay District will be similar to that planned for Security Cove. The season will open and close by emergency order when a biomass of 1,200 tons, or significant spawning activity is observed. The 2006 projected return of herring to the Goodnews Bay District is

-continued-

4,111 tons. A 20% exploitation rate would result in a harvest of 822 tons. Ages 9, 10, and 11 herring are expected to comprise 65.3% the biomass (38.1%, 20.2%, and 7.0% respectively). Age 9 and older herring are expected to comprise 74.6% of the biomass.

Cape Avinof District

Either significant spawning activity or a biomass of 500 tons must be observed before the commercial herring season can be opened. The 2006 projected biomass for the Cape Avinof District is 702 tons. The exploitation rate will be no greater than 15% because of the limited database for this area and to ensure the subsistence fishing priority. A 15% commercial exploitation rate would result in a harvest of 105 tons. Ages 9, 10, and 5 are expected to comprise 68.7% of the returning biomass (40.2%, 19.1%, and 9.4% respectively). Age 9 and older herring are expected to comprise 69.3% of the biomass.

Nelson Island District

In the Bering Sea Herring Fishery Management Plan, the Alaska Board of Fisheries set a minimum biomass threshold of 3,000 tons for the Nelson Island District. The inseason estimate of herring biomass must exceed the threshold level before a commercial fishery can be allowed. The spawning biomass projected to return in 2006 to the Nelson Island District is 3,809 tons. At an exploitation rate of 20%, minus 200 tons for subsistence harvest, the commercial harvest guideline will be 562 tons. Ages 9, 10 and 5 are expected to dominate the returning population, contributing 40.9%, 17.5% and 10.3%, respectively. Age 9 and older herring are expected to comprise 68.1% of the biomass.

Nunivak Island District

The biomass of herring projected to return to the Nunivak Island District in 2006 is 4,260 tons. A 20% exploitation rate would result in a harvest of 852 tons. The commercial season will open when the biomass reaches 1,500 tons or when significant spawning is observed. Ages 9, 10 and 5 are expected to dominate the returning population, contributing 38.3%, 18.7% and 8.7%, respectively. Age 9 and older herring are expected to comprise 70.6% of the biomass.

Cape Romanzof District

The projected biomass for 2006, based on an extension of the previous year's projection, is expected to be between 2,500 and 3,500 tons with an approximate midpoint of 3,045 tons. At a 20% exploitation rate, the allowable harvest is expected to range from approximately 500 to 700 tons and will be based on inseason indicators of abundance. Since water turbidity in the Cape Romanzof area generally prevents aerial observations of herring, spawn deposition and test and commercial catch rates will be used to determine the timing and duration of commercial fishing periods. Ages 9, 10 and 5 are expected to comprise 77.0% of the returning biomass (44.8%, 23.2% and 9.0%, respectively). Age 9 and older herring are expected to comprise 76.6% of the biomass.

Norton Sound District

The biomass projected to return in 2006 to Norton Sound is 38,833 tons. A 20% exploitation rate would result in a harvest guideline of 7,767 tons. A maximum of 320 tons of herring are reserved to

-continued-

allow for the pound fishery to harvest a maximum of 90 tons of product (combined weight of herring roe and kelp). This leaves 7,447 tons for sac roe harvest. The beach seine harvest is, by regulation, 10% of the sac roe projected harvest, or 745 tons. The 2006 herring fishery will be opened by emergency order and the fishery will close by emergency order when up to 20% of the available herring biomass has been harvested. Varied harvest rates may be applied to individual subdistricts based on biomass distribution, roe quality, weather, and sea ice conditions. Ages 9, 10 and 5 are expected to dominate the returning population, contributing 40.5%, 18.4% and 8.9%, respectively. Age 9 and older herring are expected to comprise 73.6% of the biomass.

Port Clarence District

Generally, the Department does not project an outlook for the Port Clarence fishery because of the lack of data on Port Clarence herring and the limited scope of the fishery. The guideline harvest of 165 tons established by the Board of Fisheries in 1981 will determine the allowable harvest in 2006. This harvest guideline is based on two years of research conducted by the Department in both the Port Clarence and Kotzebue Districts. Even though this guideline has not appeared in the regulation book since 1984, it still represents the best estimate of harvestable biomass.

Table 1. 2005 Pacific herring spawning biomass (tons), 2006 projected biomass and 2006 harvest guideline for commercial fishing districts in the northeastern Bering Sea, Alaska.

District	Threshold	2005 Observed Biomass (st)	2006 Projected Biomass (st)	Exploitation Rate (%)	2006 Harvest Guideline (st)
Security Cove	1,200	10,281	7,477	20	1,495
Goodnews Bay	1,200	4,902	4,111	20	822
Cape Avinof	500	884	702	15	105
Nelson Island	3,000	4,440	3,809	15	562
Nunivak Island	1,500	4,782	4,260	20	852
Cape Romanzof	1,500	3,388	3,045	20	609
Norton Sound	7,000	43,013	38,833	20	7,767
Port Clarence	-	-	-	-	165
Totals			62,237	20	12,377

[a] Nelson Island commercial harvest is 20% of projected biomass minus 200 st for subsistence harvest.
[b] Harvest guideline of 165 st (150 mt).

APPENDIX C: ALEUTIAN ISLANDS AREA DUTCH HARBOR HERRING FOOD AND BAIT FORECAST, 2006

Appendix C1.–Forecasted harvest allocation for Togiak sac roe and Dutch Harbor herring food and bait fisheries, 2006.

This forecast is for the "Dutch Harbor": Unimak, Akutan, and Unalaska Districts and that portion of the Umnak District located east of Samalga Pass, and west of the Adak line at 177° W long, herring food and bait fishery (Frederick West, ADF&G, Anchorage, memo February 2, 2006).

Harvest Allocation of the 2006 Forecasted Pacific Herring Run Biomass, Togiak District, Bristol Bay

This forecast is for the "Dutch Harbor": Unimak, Akutan, and Unalaska Districts and that portion of the Umnak District located east of Samalga Pass, and west of the Adak line at 177° W long, herring food and bait fishery (Frederick West, ADF&G, Anchorage, memo February 2, 2006).

Harvest Allocation of the 2006 Forecasted Pacific

Herring Run Biomass, Togiak District, Bristol Bay

	Biomass (Tons)	Harvest (Tons)[d]
2006 Forecasted Biomass	129,976	
Exploitation at maximum 20%		
For Total Allowable Harvest		25,995
Togiak Spawn-on-Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		24,495
Dutch Harbor Food/Bait Allocation [a]		***1,715***
Purse Seine Allocation [b]		***1,375***
Pound Fishery Allocation		***100***
Gillnet Allocation [c]		***240***

[a] The Dutch Harbor Food/Bait allocation is 7% of the remaining allowable harvest.

[b] The purse seine allocation for 2006 is 86% of the Dutch Harbor allocation minus the pound fishery allocation of 100 tons.

[c] The gillnet allocation for 2006 is 14% of the Dutch Harbor allocation.

[d] Tons = 2000 lbs

APPENDIX D: ALEUTIAN ISLANDS FOOD AND BAIT HERRING FISHERY EMERGENCY ORDER SUMMARY, 2006

Appendix D1.–Emergency order summary, 2006.

EMERGENCY ORDER NO. 4-FH-M-SP-01-06

EFFECTIVE DATE: 12:00 noon Saturday, July 1, 2006

EXPLANATION: The Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area will open to commercial herring fishing with gillnet gear for 48 hours from 12:00 noon July 1 until 12:00 noon July 3.

EMERGENCY ORDER NO. 4-FH-M-SP-02-06

EFFECTIVE DATE: 12:00 noon Friday, July 6, 2006

EXPLANATION: The Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area will open to commercial herring fishing with gillnet gear for 48 hours from 12:00 noon July 7 until 12:00 noon July 9.

EMERGENCY ORDER NO. 4-FH-M-SP-03-06

EFFECTIVE DATE: 12:00 noon Wednesday, July 12, 2006

EXPLANATION: The Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area will open to commercial herring fishing with gillnet gear for 48 hours from 12:00 noon July 12 until 12:00 noon July 14.

EMERGENCY ORDER NO. 4-FH-M-SP-04-06

EFFECTIVE DATE: 12:00 noon Saturday, July 15, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92’ N. lat., 166° 16.5’ W. long. to Cape Kalekta at 54° N. lat., 166° 22’ W. long. will open to commercial herring fishing with seine, pound and gillnet gear for 24 hours from 12:00 noon July 15 until 12:00 noon July 16.

EMERGENCY ORDER NO. 4-FH-M-SP-05-06

EFFECTIVE DATE: 12:00 noon Sunday, July 16, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92’ N. lat., 166° 16.5’ W. long. to Cape Kalekta at 54° N. lat., 166° 22’ W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 16 until 12:00 noon July 17.

EMERGENCY ORDER NO. 4-FH-M-SP-06-06

EFFECTIVE DATE: 12:00 noon Monday, July 17, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92’ N. lat., 166° 16.5’ W. long. to Cape Kalekta at 54° N. lat., 166° 22’ W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 17 until 12:00 noon July 18.

-continued-

EMERGENCY ORDER NO. 4-FH-M-SP-07-06

EFFECTIVE DATE: 12:00 noon Tuesday, July 18, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 18 until 12:00 noon July 19.

EMERGENCY ORDER NO. 4-FH-M-SP-08-06

EFFECTIVE DATE: 12:00 noon Wednesday, July 19, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 19 until 12:00 noon July 20.

EMERGENCY ORDER NO. 4-FH-M-SP-09-06

EFFECTIVE DATE: 12:00 noon Thursday, July 20, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 20 until 12:00 noon July 21.

EMERGENCY ORDER NO. 4-FH-M-SP-10-06

EFFECTIVE DATE: 12:00 noon Friday, July 21, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 21 until 12:00 noon July 22.

EMERGENCY ORDER NO. 4-FH-M-SP-11-06

EFFECTIVE DATE: 1012:00 noon Saturday, July 22, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 22 until 12:00 noon July 23.

EMERGENCY ORDER NO. 4-FH-M-SP-12-06

EFFECTIVE DATE: 12:00 noon Sunday, July 23, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 23 until 12:00 noon July 24.

-continued-

EMERGENCY ORDER NO. 4-FH-M-SP-13-06

EFFECTIVE DATE: 12:00 noon Monday, July 24, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 24 until 12:00 noon July 25.

EMERGENCY ORDER NO. 4-FH-M-SP-14-06

EFFECTIVE DATE: 12:00 noon Tuesday, July 25, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 25 until 12:00 noon July 26

EMERGENCY ORDER NO. 4-FH-M-SP-15-06

EFFECTIVE DATE: 12:00 noon Wednesday, July 26, 2006.

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 26 until 12:00 noon July 27.

EMERGENCY ORDER NO. 4-FH-M-SP-16-06

EFFECTIVE DATE: 12:00 noon Thursday, July 27, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 27 until 12:00 noon July 28.

EMERGENCY ORDER NO. 4-FH-M-SP-17-06

EFFECTIVE DATE: 12:00 noon Friday, July 28, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 28 until 12:00 noon July 29.

EMERGENCY ORDER NO. 4-FH-M-SP-18-06

EFFECTIVE DATE: 12:00 noon Saturday, July 29, 2006

EXPLANATION: That portion of the Akutan District west of the longitude of Billings Head at 165° 28.67 W. long., the Unalaska Bay Section of the Alaska Peninsula-Aleutian Islands Herring Management Area and that portion of Kalekta Bay south of a line running from Erskine Point at 53° 58.92' N. lat., 166° 16.5' W. long. to Cape Kalekta at 54° N. lat., 166° 22' W. long. previously opened to commercial herring fishing with seine, pound and gillnet gear will remain open for an additional 24 hours from 12:00 noon July 29 until 12:00 noon July 30.