

ALASKA PENINSULA - ALEUTIAN ISLANDS MANAGEMENT AREA
HERRING SAC ROE AND FOOD AND BAIT FISHERIES
ANNUAL MANAGEMENT REPORT, 2003



By

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ABSTRACT

In 2003, commercial Pacific herring *Clupea pallasii* sac roe harvests did not occur in South Alaska Peninsula, North Peninsula, and Aleutian Islands waters due to a lack of industry interest. Total herring biomass estimates from aerial surveys in 2003 for the South Peninsula were 3,909 tons. Herring biomass estimates from aerial surveys in 2003 were documented for the North Peninsula in Herendeen Bay (400 tons), Port Moller Bay (100 tons), and from Bear River to Strogonof Point (500 tons). Total estimated herring biomass on the North Peninsula from these observations was 600 to 1,000 tons. A 1,000 ton threshold is required by regulation to allow a commercial fishery. There were no reports to the department of industry-conducted surveys in 2003.

In 2003, commercial herring food and bait fishery harvests occurred in the Aleutian Islands during both gillnet and seine gear fishing periods. The Alaska Peninsula-Aleutian Islands Area Dutch Harbor herring food and bait gillnet harvest was 108 tons which was 8 tons below the 116 ton allocation. The seine fishery harvest was 1,379 tons which was 167 tons below the 1,546 ton allocation. Fourteen purse seine permit holders formed a cooperative, which limited the fishing effort and controlled the pace of the harvest. The price per ton for the fisheries ranged from \$50 to \$400, with a combined exvessel value of approximately \$376,813.

KEY WORDS: Alaska Peninsula, Aleutian Islands, herring, harvest, age, length, weight, sex, sac roe, food, bait, cooperative

INTRODUCTION

The goals and objectives of this report are to present: (1) historical information pertaining to Alaska Peninsula-Aleutian Islands Management Area Pacific herring *Clupea pallasii* fisheries; (2) information from the commercial harvest in the Alaska Peninsula-Aleutian Islands Management Area during 2003; (3) estimates of the age, sex composition, and mean length and weight of herring harvested in Alaska Peninsula-Aleutian Islands commercial herring fisheries; and (4) biomass estimates of herring within the management area. This information helps the department evaluate harvest rates, recruitment events, and refine management of these fisheries. This report is intended as a reference document; interpretation and discussion of the data are therefore limited.

Alaska Peninsula

The Alaska Peninsula-Aleutian Islands Herring Management Area is designated Management Area M and is divided into three subareas: (1) the North Peninsula, consisting of Bering Sea waters extending west from Cape Menshikof to Cape Sarichef; (2) the South Peninsula, consisting of Pacific Ocean coastal waters extending west of Kupreanof Point to 163°30' W long. (the south side of Unimak Island near Cape Lazaref); and (3) the Aleutian Islands, consisting of Bering Sea waters extending west of Unimak Pass and Pacific Ocean waters extending west from 163°30' W long. (the south side of Unimak Island near Cape Lazaref) to the International Date Line (Figures 1-8).

The North Peninsula is composed of 3 districts and 23 statistical areas (Figures 5-7), the South Peninsula includes 3 districts and 45 statistical areas (Figures 5 and 8), and the Aleutian Islands Area includes 5 districts and 41 statistical areas (Figure 3).

Herring have been reported since 1929 throughout North and South Peninsula waters, and in Akutan, Unalaska, and Adak Islands waters of the Aleutian Islands. In the past, major concentrations of herring have been documented (Table 1) and herring sac roe fishing effort has occurred in North Peninsula waters of Port Heiden, Port Moller, and Herendeen Bays, and along the Bering Sea coast in nearshore waters from Entrance Point to Cape Seniavin (Table 2). Herring sac roe fishing typically begins in late May in both North Peninsula and South Peninsula waters and ends in mid to late June. In South Peninsula waters, most herring sac roe fishing effort has occurred in the Shumagin Islands, and Stepovak, Pavlof, and Canoe Bays (Table 3). Herring sac roe fishing has also occurred later in the season between Dolgoi Island and Lenard Harbor.

From 1981 to 1995, the Alaska Department of Fish and Game (ADF&G) collected harvest data and monitored the commercial herring sac roe fishery utilizing field crews in many locations on the Alaska Peninsula including Stepovak Bay, Canoe Bay, Port Heiden, and Port Moller. Crews also collected herring samples, documented spawn areas, and mapped spawning substrate. Department personnel have conducted herring aerial surveys in Alaska Peninsula waters since 1976. These surveys have provided limited information primarily because of the large area involved, poor weather conditions, budget constraints, turbidity of the water, and the sporadic and unpredictable arrival of the herring.

Because of these limitations, the management staff believes the surveys flown in 1989, 1991, and 1992 provide the best estimates of the total spawning biomass in peninsula waters.

North Peninsula

The first commercial North Peninsula herring sac roe harvest occurred in 1982 when 505.5 tons were harvested (Table 4). From 1993 to 2002, the harvests ranged from 0 to 3,969 tons and averaged 509.6 tons. Since 1982, the majority of the harvest has been taken from Herendeen Bay and Port Moller except in 1986, 1989, and 1998 when most of the harvest was taken along the Bering Sea coast between Entrance Point and Cape Seniavin (Table 5) and in 1992, when over 40% of the North Peninsula harvest came from Port Heiden.

Prior to 1982, fishing vessels destined for, or returning from, the Togiak herring fishery frequently surveyed for herring in the Port Moller and Port Heiden Districts, but no harvest occurred. During the 1986 to 1988 seasons, an average of 52 vessels were present in the Port Moller District, but only a few permit holders actually harvested herring. Starting in 1986, fishing effort increased, targeting the earlier arriving (May) biomass. From 1989 to 1990, the department delayed the opening of the Port Moller District until May 30 in an attempt to shift fishing pressure from the earlier arriving to the later returning, more abundant herring. The Port Moller District opened prior to May 30 from 1991 to 1995 and again in 1998 because the herring biomass was sufficient to warrant commercial harvests.

South Peninsula

The South Peninsula herring sac roe fishery harvest and fishing effort has fluctuated since it began in 1979 (Table 4). During years in which commercial herring sac roe fishery harvests occurred in the South Peninsula (1979 to 1996), landings have been reported from 18 geographical locations. Of these, only Canoe Bay produced a consistent annual harvest (Table 3; Figure 8).

In South Peninsula waters, substantial harvest occurred in 1980 (453.8 tons), and harvest peaked in 1981 (797.6 tons, Table 4). The Alaska Board of Fisheries (BOF) closed the South Peninsula herring sac roe fishery in 1983, and changed the fishery to a winter herring food and bait fishery that, due to a lack of herring biomass in Stepovak Bay waters, 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). In 1992, the BOF allocated the entire harvest to the herring sac roe fishery (Burkey 2002a).

From 1981 to 2000, the effort levels and harvests generally decreased in South Peninsula waters. 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 guideline harvest level (GHL) has discouraged fishers. Since 1997, no herring have been harvested in South Peninsula waters primarily because of a lack of industry participation.

Aleutian Islands

The Aleutian Islands herring food and bait season was established by regulation and extends annually from June 24 through February 28. Actual fishing time is established by emergency order (Appendix A) and is based on inseason evaluation of the observed biomass, effort levels, and harvest (Table 6). Only waters near Unalaska and Akutan Islands have been open during the gillnet and purse seine fisheries. The department has implemented these area limitations while considering processing capabilities, herring concentrations, and logistical concerns with managing the fishery (Figures 2-4). In recent years, three management plans: (1) the Bering Sea Herring Fishery Management Plan (ADF&G 2001; 5 AAC 27.060); (2) the Bristol Bay Herring Management Plan (5 AAC 27.865); and (3) the Alaska Peninsula-Aleutian Islands Management Area Food and Bait Herring Management Plan (Burkey 2002b) have been used to manage the fishery.

A herring food and bait fishery occurred in the vicinity of Unalaska Island from 1929 to 1938 and in 1945 with harvests that ranged from 75 to 2,510 tons (Table 7). This early fishery consisted of gillnet and purse seine harvests. In an attempt to improve product quality, holding pounds were utilized by the numerous small, shore-based hand-packing operations. A large portion of the harvest was brined or frozen as a food or bait product. Purse seine gear provided the bulk of the harvest. From 1946 to 1980 commercial herring harvest did not occur.

From 1981 to 1986 and 1990 to 2000 only purse seine gear was used and harvests ranged from 820 to 3,578 tons (Tables 6 and 7). During the 1987 and 1988 seasons, one gillnet permit holder harvested herring and in 1989 two gillnet permit holders recorded landings. From 1989 through 2000, only purse seine vessels participated in the fishery. Purse seine vessels average approximately 56 feet in length and deploy seines up to 250 fathoms in length and usually 25 to 45 fathoms in depth. In 2001, the BOF adopted a regulation that allocated seven percent of the total Dutch Harbor guideline harvest level to the gillnet fleet and 6 to 13 vessels participated in the fishery in 2001 to 2003. Gillnets may by regulation not exceed 150 fathoms in length and 2 1/8 to 2 1/2 inch mesh size, unless a permit for the use of larger mesh sizes (up to 3 inch) is obtained from the department. All fishermen who participated in the Dutch Harbor gillnet fishery have obtained permits for the use of larger mesh size.

Prior to 1992 and during 1994 to 1996, purse seine fishing occurred at night using scanning sonar to locate herring schools. Fishers would conduct organized sonar searches over fairly large areas to find herring concentrations. In 1992 to 1993 and 1997 to 2003, the purse seine fishery occurred during daylight hours and spotter aircraft were used to locate herring. The change to daylight openings improved the department's ability to monitor and manage the fishery. During recent seasons, the number of spotter aircraft has ranged from three in 1995 to a high of nine in 1997. Historical harvest locations have extended over approximately 90 miles, from Tigalda Island to Makushin Bay on Unalaska Island. However, in most years, the majority of the harvest has occurred within a five mile radius of shore-based processing facilities in Unalaska Bay. In 1991, the BOF changed the regulatory 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 in the Dutch Harbor fishery. In 1998, the BOF changed the opening date again to NOON on July 15 because of aircraft safety concerns with the fishery being conducted in the dark.

Historically, quality concerns associated with feeding herring (i.e., belly burn) have occurred in the food and bait fishery. Feed problems were overcome in the past by using holding pounds, where seine caught herring were held in pens until their stomachs emptied. Gillnet caught herring required special handling to prevent spoilage. Most feed-related spoilage problems have been eliminated in recent years by using ice and chilled seawater in conjunction with rapid processing. However, in 2003, 7 of 23 gillnet deliveries had quality concerns and 19% of the total gillnet harvest was not purchased because of spoilage. This total was largely influenced by one large delivery, which consisted of 72% spoilage.

The fishery timing and availability of herring in the Dutch Harbor area has changed in recent years. Aleutian Islands herring were previously categorized into an early summer run (late June to late July) and a late summer run (late August to early September). Since 1980, herring have arrived in the Dutch Harbor area about July 1 and have been present through mid-September.

From 1991 to 1998, permit holders were paid \$300 per ton. In 1999, a high demand for bait herring in longline and pot fisheries resulted in permit holders receiving \$400 per ton on the grounds and, at one processor, \$600 per ton for herring delivered to the dock. In 2000 and 2001, exvessel prices were between \$300 and \$500 per ton and in 2002 between \$300 and \$450 per ton (Table 7). In 2003, permit holders received \$300 to \$400 per ton until the last two days of the fishery, when prices dropped to \$50 per ton. The entire herring harvest from the 2002 and 2003 Aleutian Islands food and bait fishery was processed for bait.

HARVEST STRATEGY

Commercial herring fisheries are regulated by emergency order to achieve exploitation mandates by the BOF and to address problems with herring spoilage. Management plans and other BOF directives enable managers to develop harvest strategies by which these fisheries are prosecuted (ADF&G 2001, Burkey 2002b).

Dutch Harbor Food and Bait Allocation

The harvest strategy for the Aleutian Islands area Dutch Harbor herring food and bait fishery has changed since the fishery was re-established in 1981. During the 1981 and 1982 open seasons, there were no harvest restrictions. From 1983 to 1985, the department implemented a harvest ceiling of 3,527 tons per year due to biological concerns over exploiting Eastern Bering Sea spawning stocks above 20%, specifically the Bristol Bay, Nelson Island, and Port Moller stocks. Scale pattern analysis studies identified that most herring harvested during the Aleutian Islands herring food and bait fishery are part of the Eastern Bering Sea herring biomass (Rogers and Schnepf 1985). In 1986, the department reduced the Dutch Harbor fishery harvest allocation by 30% to 2,453 tons in response to the BOF concern for the possible lack of recruitment in the contributing stocks (primarily Togiak, which is estimated to be the main contributing stock to the Aleutian Island's fishery). This reduction corresponded with the percent reduction of the observed Togiak herring spawning biomass between

1985 and 1986. The 1987 herring harvest allocation was 2,332 tons, which was proportional to the 1985 to 1987 reduction of the observed Togiak spawning biomass.

In 1988, the BOF implemented the Bering Sea Herring Fisheries Management Plan (5 AAC 27.060), which established the biological criteria for calculating the Dutch Harbor food and bait allocation (Burkey 2002a; Appendix B). To ensure conservation of herring stocks, the BOF adopted a regulation requiring that the overall exploitation of a herring stock should not exceed 20% of the spawning biomass. For the Togiak spawning stock, an allocation between the sac roe fishery, spawn on kelp fishery, and the Dutch Harbor food and bait fishery was established to prevent the harvest from exceeding 20% of the observed spawning biomass. The BOF also considered the number of fishermen involved and the value of the fishery when it established the allocations. The Dutch Harbor food and bait fishery was allocated 7 percent of the Togiak District's harvestable biomass after deducting 1,500 tons for the Togiak District Spawn-on-Kelp fishery.

In 2001, the BOF established a herring food and bait gillnet fishery by adopting a regulation that requires division of the total Dutch Harbor food and bait allocation between gillnet and seine gear. Also, if the harvest by a fishery in a given year exceeded the amount allocated to that fishery, the excess tonnage was to be subtracted from the following year's allocation to that fishery (5 AAC 27.655 (b)). In 2002, the Dutch Harbor food & bait herring harvest by gillnet gear was 134 tons, 24 tons over the 110 ton allocation for this fishery. The seine fishery harvest was 2,617 tons, 1,149 tons over the 1,468 ton allocation. The BOF suspended the penalty provision for the 2003 season in response to an emergency petition by the Western Gulf of Alaska Fishermen (Appendix C). This resulted in the 2003 GHL (1,662 tons) being allocated to 7% (116 tons) for gillnet gear and 93% (1,546 tons) for seine gear (5 AAC 27.655; Table 9). To keep the harvest within the allocations, the BOF directed ADF&G to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery, if more than 10 permit holders registered to fish.

Sac Roe Guideline Harvest Levels

The GHL for the Port Moller District of the North Peninsula is determined inseason. It 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), an expectation of a minimum herring biomass of 1,000 tons is assured prior to the department opening the commercial fishery in the Port Moller District. In 2003, the estimated herring biomass in the Port Moller District was 600 to 1,000 tons.

Prior to 2000, South Peninsula and Aleutian Islands waters were opened by emergency order with individual sections assigned either GHLS based on recent-year biomass estimation or set at 25 tons with the potential of additional harvest if warranted by department surveys (Witteveen et al. 1999). During 2000, South Peninsula and Aleutian Islands waters remained closed to commercial fishing in order to prevent overharvest of individual spawning stocks. Since 2001, the department has considered allowing harvest from individual stocks, if warranted, based on observed biomass.

CATCH DATA

Department personnel compiled the commercial harvest data, which were based on computer tabulations originating from individual sale receipts (fish tickets) given to permit holders at the time of delivery.

Commercial harvest samples were collected during the 2003 Dutch Harbor herring food and bait fishery. These samples provided age composition, weight-at-age, and length-at-age data from the commercial harvest (Tables 10 and 11). Age was determined by examining scales (Warner and Shafford 1979) taken from the preferred area located on the left side of the herring three scales posterior to the center of the operculum. One scale was taken from each herring, and the ages were recorded and entered into a database.

Standard length measurements and fish weight were collected (lower jaw to the hypural plate) and entered into the herring database. Mean lengths (mm) and weights (g) were calculated for each year class and data were recorded separately for purse seine and gillnet samples (Tables 10 and 11; Figures 9 and 10).

SAC ROE FISHERY

In 2003, a herring sac roe commercial harvest did not occur in the Alaska Peninsula-Aleutian Islands Management Area. Since 1996, because of poor market conditions, and or low observed herring biomass, herring harvests in the North Alaskan Peninsula have been absent or minor (Table 5). From 1997 to 1999, poor market conditions and low observed herring biomass contributed to the absence of commercial harvest from the South Alaska Peninsula. This prompted the ADF&G to close the South Alaska Peninsula for the entire 2000 fishery season in order to prevent overharvest of stocks with insufficient biomass information.

Prior to 2000, and since 2001, in areas open for exploration (all sections of the Aleutian Islands districts, the Seal Cape-Wosnesenski Section of the Pavlof District and General Sections of the King Cove and Sand Point Districts) fishing time may be allowed to give fishermen the opportunity to harvest herring. In areas with a GHL, inseason fishing time may be based on department biomass surveys. Since 2001, because of a lack of industry interest, South Peninsula waters were not opened to commercial herring fishing (Table 3).

North Peninsula Sac Roe

There are three commercial herring fishing districts in North Peninsula waters: Port Heiden, Port Moller, and Amak Districts (Figures 5-7). Purse seine and gillnet gear are permitted in North Peninsula waters and both gear types share common time and open areas. The department normally provides a minimum

of six hours advance notice prior to commercial fishing periods in the Port Moller and Port Heiden Districts.

Between May 17 and May 29, four aerial herring surveys were flown in the Port Moller Area. The first aerial survey was conducted on May 17, and 500 tons of herring were spotted in the Bear River to Strogonof Point Section. By May 29, a total of 1,050 tons of herring were observed in the Port Moller District, however between 50 and 450 tons of this total was estimated to have been documented during more than one survey. This resulted in an estimated total biomass range of 600 to 1,000 tons of herring in the Port Moller District (Table 12). As established in the Bering Sea Herring Management Plan, a yearly threshold of 1,000 tons of observed herring biomass is required for the department to allow a fishing period. The total estimated herring biomass was below the 1993-2002 average of 1,188 tons.

The 2004 North Peninsula sac roe herring GHL is 0 to 150 tons. Considering historical herring biomass estimates in North Peninsula waters, management of the North Peninsula sac roe herring fishery will again be conservative in 2004. Historically, the previous year's North Peninsula herring biomass estimate has been a poor indicator of herring returns in the following year. In 2004, the GHL will be adjusted inseason based on the observed stock size (Appendix D). Because no sac roe harvest occurred in the North Peninsula in 2003, no age composition samples were obtained (Appendix E).

South Peninsula Sac Roe

In 2003, no herring fisheries occurred in South Peninsula waters because of a lack of industry interest. The Swedania Point-Balboa Bay, Point Aliaksin-Beaver Bay, and General Sections of the Sand Point District, the Pavlof Bay, Seal Cape-Wosnesenski and General Sections of the Pavlof District, and the King Cove District could have opened for exploratory fishing if biomass estimates warranted commercial fishing and there was industry interest in harvesting herring. Prior to 2000, and again in 2001 through 2003, exploratory herring sac roe fisheries in South Peninsula waters were open from April 15 through July 15. Fishing periods were established by emergency order and opened at NOON on odd number days of the month and closed at NOON on even number days of the month, followed by 24-hour closed periods.

Between May 21 and June 5, 2003 the department conducted five aerial surveys in South Peninsula coastal waters from Cold Bay to Kupreanof Point. The total estimated biomass, not including herring observed during multiple surveys, was 196 tons for Cold Bay (one survey), 441 tons for Pavlov Bay (2 surveys), 279 tons for Beaver/Balboa Bay (2 surveys) and 80 tons for Stepovak Bay (1 survey). Four aerial surveys were conducted in waters of the Shumagin Islands. During the Shumagin Islands surveys 2,913 tons of herring were observed. Based on the times when herring were observed and the locations of the schools, none of these were considered repeat observations (Table 13).

From these surveys, the total South Peninsula and Shumagin Islands herring biomass during May 21 to June 5 was an estimated 3,909 tons (Table 13).

Other forage fish, possibly capelin *Mallotus villosus*, Pacific sand lance *Ammodytes hexapterus*, and juvenile pollock *Theragra chalcogramma* were observed during these surveys. The total biomass for

these species for both the South Peninsula mainland and the Shumagin Islands was estimated to be 2,086 tons (Table 12).

The historical age composition of South Peninsula commercial purse seine herring sac roe harvests by area and percent is presented in Appendix F.

ALEUTIAN ISLANDS FOOD AND BAIT FISHERY

2001 Regulatory Changes

In 2001, the BOF adopted regulations that allowed gillnet fishers a practical opportunity to harvest herring in the Dutch Harbor fishery. Prior to the regulation changes, gillnet gear was not practicable given the short (often less than one hour) open periods required to manage the purse seine fishery. Since 2001, the gillnet fishery has been allowed to open, by emergency order, beginning NOON June 24 and may extend through the close of the food and bait season on February 28. The fishery was allocated 7% of the total Dutch Harbor herring food and bait GHL (5 AAC 27.655).

Another regulation adopted in 2001 required that any herring harvest that exceeds the GHL during the Dutch Harbor fishery be deducted from the following year's allocation by gear type (penalty provision). If less than the herring allocation was harvested, the unharvested allocation was not added to the following year's GHL (5 AAC 27.655 (b)).

In 2002, the total harvest in the Aleutian Islands Dutch Harbor commercial herring fishery exceeded the GHL of 1,578 tons by 77% (1,220 tons). Application of the penalty provision (5 AAC 27.655 (b)) would have reduced the total allowable harvest in 2003 to 397 tons for the purse seine fishery and 92 tons for the gillnet fishery. In response to an emergency petition, the BOF repealed the penalty provision for 120 days effective May 15, 2003 (Appendix C).

Gillnet Fishery

The 2003 Dutch Harbor herring commercial gillnet fishery occurred between June 24 and July 7, with 18 gillnet permit holders (using 13 vessels which made at least one delivery), one processor and one catcher/seller participating. In 2003, the Commercial Fisheries Entry Commission (CFEC) issued 24 set gillnet permits for this fishery. At NOON on June 24, the Akutan, Unalaska, Umnak, and Adak Districts opened to commercial herring fishing by gillnet gear for 24 hours. No herring were harvested. There were three more 24-hour periods, all starting at NOON, on June 30, July 2, and July 4, when no herring were harvested. The final fishing period occurred from NOON July 6 until NOON July 7, when 18 permit holders made 23 deliveries for a harvest of 108 tons. Because of limited processing capacity, 20.2 tons of the harvest were not purchased because inadequate chilling allowed "belly burn" to occur, making these fish unmarketable. The total harvest for the gillnet fishery was 108 tons (including the 20.2 tons waste), which was 8 tons below the 116 ton GHL (Table 8). All herring were harvested within

Unalaska Bay and delivered to one processor for an exvessel price of \$400 per ton, and a total exvessel value of approximately \$35,200.

A total of 270 herring were sampled from the gillnet harvest for length, weight, sex, and age composition. The most abundant age classes in the sample were age-7 (30.7%), age-10 (23.3%), and age-12 (10.0%; Table 11; Figure 10). The overall average herring length was 296 mm and the average weight was 413 g. Sex composition of the sample was 51% male and 49% female.

Purse Seine Fishery

A preseason meeting with fishermen, processors, and other interested parties was held on Tuesday, July 15, 2003 to discuss the ADF&G management strategy, exchange information, and register vessels, tenders, and processors for the purse seine fishery. The CFEC issued a total of 22 permits for the seine fishery in 2003.

Fifteen purse seine permit holders, representatives of three processing companies, one catcher/processor, and three spotter aircraft pilots attended the meeting. Processors indicated that they wished to purchase between 1,180 to 1,460 tons of herring.

A competitive fishery was not allowed because the large harvesting capacity of the fleet would likely have resulted in a harvest that would exceed the GHL. All but one of the 15 registered permit holders participated in a cooperative agreement to harvest the herring. Under the cooperative agreement, fishing effort was limited to two catcher boats per processing company per day. The permit holder that did not join the cooperative did not fish.

ADF&G did not conduct a test fishery in 2003. The department solicited bids for a 250 ton herring test fishery to gather biological information and to recover expenses incurred while administering the fishery. There was no processor interest in the test fishery harvest because of limited markets.

ADF&G conducted no aerial surveys prior to the opening of the commercial fishing period. Reports from commercial spotter pilots indicated a sufficient herring biomass in the area for a commercial fishery. On July 16 at 9:00 AM the fleet was placed on 2-hour notice. The fishery occurred between July 16 and July 19 in Unalaska Bay south of a line from Eider Point to Ulatka Head and from Ulatka Head to Second Priest Rock. A total of 1,379 tons of herring were delivered by 6 permit holders during a total of 45.5 hours (5 periods) of fishing time (Table 7). The exvessel value of the purse seine fishery was an estimated \$341,613. Processors purchased all herring as bait for between \$50 to \$400 per ton.

A total of 332 herring were sampled from the commercial purse seine fishery. The most abundant age classes in the sample were age-7 (27.4%), age-8 (16.9%), and age-10 (15.7%) (Table 10; Figure 9). The average herring length in the sample was 292 mm, and the average weight was 417 g (Table 10). The sex composition of the sample was 54% male and 46% female.

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Table 1. North Peninsula herring biomass aerial surveys (tons), historical summary, 1984-2003.

Date	Port Moller District			Bear River to Strogonof Point	Port Heiden District		Total Biomass Estimate	Aerial Survey Dates	
	Herendeen Bay	Port Moller Bay	Additional Biomass Harvested		Port Heiden Bay Section			Begin	End
1984	2,000	1,500-1,900					3,500-3,900	May 9 -	July 31
1985	260	1,305		5,240			6,805	May 1 -	June 13
1986	1	28		0			29	May 16 -	June 7
1987	0	5,125		0			5,125	May 6 -	June 3
1988	1,737	442		8			2,187	May 17 -	June 15
1989	1,163	1,471					2,634	May 19 -	June 16
1990	155	387					542	May 21 -	June 14
1991	2,278 (250) ^a	4,651		1,471			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	74	0			729	May 22 -	May 28
1995	60	477	200	0			737	May 13 -	June 2
1996	390 (390) ^a	986 (755) ^a		309	65		1,750	May 9 -	June 18
1997	160	45		0			205	May 22 -	June 12
1998	930	135		360 (200) ^a			1,425	May 11 -	June 3
1999	10	220		0			230	May 16 -	June 14
2000	115	350		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			600-1000	May 17 -	May 29
1993-2002									
Average	324	760	137	70	16		1,188		

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

Table 2. Alaska Peninsula herring sac roe fishery harvest, number of landings and permits fished by year, 1979-2003.

Year	North Peninsula			South Peninsula			Total		
	Tons	Landings	Permits	Tons	Landings	Permits	Tons	Landings	Permits
1979		No Harvest		10	a	a	10	a	a
1980		No Harvest		454	15	6	454	15	6
1981		No Harvest		797	93	56	797	93	56
1982	a	a	a	138	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	124	8	4	a	a	a
1997		No Harvest	0		No Harvest	0	0	0	0
1998	a	a	a		No Harvest	0	a	a	a
1999		No Harvest	0		No Harvest	0	0	0	0
2000		No Harvest	0		Closed	0	0	0	0
2001		No Harvest	0		No Harvest	0	0	0	0
2002		No Harvest	0		No Harvest	0	0	0	0
2003		No Harvest	0		No Harvest	0	0	0	0
1993-2002									
Average	321	29	4	124	8	1	0	0	0

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

Table 3. South Peninsula commercial herring sac roe fishery harvest by geographic area, 1979-2003.

Year	Area									Total
	Stepovak Bay ^a	Balboa Bay	Pavlof Bay	Canoe Bay	Volcano-Dolgoi	Belkofski Bay	Lenard Harbor	Dolgoi Harbor	Shumagin Islands	
1979	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	10.1
1980	196.0	132.0	113.8	12.0	0.0	0.0	0.0	0.0	0.0	453.8
1981	128.6	35.7	263.1	168.1	64.8	15.7	121.6	0.0	0.0	797.6
1982	0.0	5.0	0.0	171.2	0.0	0.0	0.0	0.0	0.0	176.2
1983 ^b	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	28.9	25.1	0.0	156.2	0.0	0.0	0.0	0.0	0.0	210.2
1985	10.9	0.0	38.0	238.8	0.0	0.0	0.0	0.0	0.0	287.7
1986	0.0	0.0	61.0	140.6	13.0	8.0	59.3	0.0	0.0	281.9
1987	0.0	0.0	91.7	117.7	0.0	37.8	59.5	12.3	0.0	319.0
1988	0.3	11.0	69.2	236.5	17.0	12.0	30.7	0.0	0.0	376.7
1989	39.2	17.7	52.8	148.3	0.0	0.0	8.6	5.2	38.5	310.3
1990	71.7	20.8	0.0	120.4	0.0	3.2	5.9	0.0	90.4	312.2
1991	19.3	19.3	0.0	77.5	0.0	0.0	0.0	0.0	41.4	157.4
1992	0.0	0.0	0.0	180.4	0.0	0.0	0.0	0.0	0.0	180.4
1993	4.6	0.0	0.0	92.4	0.0	0.0	0.0	0.0	0.0	97.0
1994	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	8.2
1995	0.0	9.8	0.0	52.9	0.0	0.0	0.0	0.0	0.0	62.7
1996	20.7	3.9	0.0	77.1	0.0	0.0	0.0	0.0	15.6	117.3
1997-2003	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1993-2002										
Average	5.1	2.7	0.0	46.1	0.0	0.0	0.0	0.0	3.1	57.0

^a The 1984-88 catches came from Ramsey Bay, the 1989 and 1993 catch came from Granville Bay.

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

Table 4. Alaska Peninsula area commercial herring sac roe fishery harvest by time period, 1979-2003.

Year	North Peninsula		South Peninsula		Total
	Harvest (Tons)	Harvest Time Period	Harvest (Tons)	Harvest Time Period	
1979	0.0	-	10.1	July 4- July 4	10.1
1980	0.0	-	453.8	May 18-July 14	453.8
1981	0.0	-	797.6	May 9-June 23	797.6
1982	505.5	May 31-June 12	176.2	May 31-June 14	681.7
1983	627.0	May 9-May 29	0.0	-	627.0
1984	431.2	May 24-June 8	210.2	May 13-June 1	641.4
1985	710.2	May 24-June 4	287.7	June 1-June 11	997.9
1986	894.4	May 18-May 30	281.9	June 7-June 14	1,176.3
1987	513.7	May 9-June 5	319.0	June 8-June 19	832.7
1988	294.3	May 17-June 15	376.7	May 31-June 20	671.0
1989	729.0	May 28-June 23	310.3	May 13-June 19	1,039.3
1990	272.8	June 4-June 19	312.2	May 14-June 14	585.0
1991	1,313.0	May 17-July 4	157.4	May 16-June 11	1,470.4
1992	3,969.0	May 23-June 17	180.4	June 4-June 7	4,149.4
1993	535.9	May 8-June 9	97.0	May 27-June 9	632.9
1994	89.8	May 21-June 7	8.2	June 2-June 3	98.0
1995	337.3	May 29-June 20	62.7	June 6-June 17	400.0
1996	^a	June 12-June 18	117.3	May 10-June 27	^a
1997	0.0	-	0.0	-	0.0
1998	^a	May 21-June 3	0.0	-	^a
1999-2003	0.0	-	0.0	^b	0.0
1993-2002 Average	192.6		40.7		226.2

^a This information cannot be released due to confidentiality requirements.

^b The South Peninsula exploratory sac roe herring fishery was closed during the 2000 season.

Table 5. North Peninsula commercial herring sac roe fishery harvest by section, 1982-2003.

Year	Port Moller District			Bear River Bering Sea Coast	Port Heiden District	Total
	Deer Island Mud Bay Section	Herendeen Bay Section	Port Moller Bay Section		Port Heiden Bay Section	
1982	0.0	279.5	180.0	46.0	0.0	505.5
1983	0.0	509.3	36.5	81.3	0.0	627.0
1984	0.0	180.8	250.4	0.0	0.0	431.2
1985	0.0	173.3	255.5	281.4	0.0	710.2
1986	0.0	156.1	254.8	483.5	0.0	894.4
1987	0.0	156.6 ^a	349.8	7.3	0.0	513.7
1988	0.0	8.2	286.1	0.0	0.0	294.3
1989	0.0	67.0	246.5	415.6	0.0	729.0
1990	0.0	155.8	117.1	0.0	0.0	272.8
1991	156.3	167.0	689.6	300.2	0.0	1,313.0
1992	18.3	0.0	2,350.7	0.0	1,600.0	3,969.0
1993	0.0	106.6	371.0	57.9	0.0	535.9
1994	7.2	0.0	82.6	0.0	0.0	89.8
1995	3.2	145.7	188.4	0.0	0.0	337.3
1996	0.0	b	b	0.0	0.0	b
1997	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	b	b	0.0	b
1999-2003	0.0	0.0	0.0	0.0	0.0	0.0
1993-2002 Average	1.5	42.1	128.4	9.7	0.0	192.6

^a At least 11 tons were caught in the Deer Island-Mud Bay Section.

^b This information cannot be released due to confidentiality requirements.

Table 6. Aleutian Islands area Dutch Harbor commercial herring food and bait fishery summary, including landing date, days fished, preseason Togiak spawning biomass, guideline harvest level, harvest, and number of vessels fishing, 1981-2003.

Year	Landing Date		Days Fished	Preseason Togiak Spawning Biomass	GHLs Short Tons	Food & Bait Harvest Short Tons	Number Vessels Fishing
	First	Last		Short Tons		Tons	
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	3,480	6
1986	Jul 16	Jul 28	13	96,000	2,453	2,394	7
1987	Jul 16	Jul 23	4	88,000	2,332	2,503	9
1988	Jul 16	Sep 18	21	132,000	3,100	2,004	8
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	1,325	8
1992	Jul 16	Jul 28	5	60,214	1,940	1,949	11
1993	Jul 16	Jul 16	<1	164,135	2,193	2,790	13
1994	Jul 16	Jul 19	4	165,747	2,215	3,349	16
1995	Jul 16	Jul 16	<1	149,093	1,982	1,748	18
1996	Jul 16	Jul 16	<1	135,585	1,793	2,239	25
1997	Jul 15	Jul 19	5	125,000	1,645	1,950	26
1998	Jul 16	Jul 16	<1	121,054	1,590	1,994	22
1999	Jul 16	Jul 20	4	156,200	2,082	2,398	22
2000	Jul 15	Jul 15	<1	130,904	1,728	2,014	23
2001 ^c	Jun 25	Jul 16	10	119,818	1,572	1,439 ^e	20
2002	Jun 25	Jul 16	17	120,196	1,578	2,751 ^e	27
2003	Jun 24	Jul 19	7	126,213	1,662	1,487 ^e	19 ^d
1993-2002	Average		8	138,773	1,838	2,267	21

^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.

^d In 2003 the seine fishery was a cooperative.

^e Includes both gillnet and seine harvest.

Table 7. Aleutian Islands area Dutch Harbor herring food and bait fisheries historical summary for the purse seine fishery, 1929-2003.

Year	Harvest in Short Tons	No. Vessels		Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
		Making Landings	Number Landings					
1929	1,259							Information not Available
1930	1,916							Information not Available
1931	1,056	26						Information not Available
1932	2,510	30						Information not Available
1933	1,585	38						Information not Available
1934	1,533							Information not Available
1935	2,412							Information not Available
1936	1,379							Information not Available
1937	579							Information not Available
1938	513							Information not Available
1939-44	No Fishery							
1945	75							Information not Available
1946-80	No Fishery							
1981	704	a	16	352	44	300	211	a
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	3,480	6	78	560	45	162	564	94
1986	2,394	7	53	342	45	254	600	86
1987	2,503	8	45	373	56	300	751	94
1988	2,004	8	59	251	34	252	505	63
1989	3,081	9	69	342	45	283	873	97
1990	820	7	8	117	103	350	287	41
1991	1,325	8	18	166	74	300	398	50
1992	1,949	11	26	177	75	300	573	52
1993	2,790	13	32	215	87	300	837	64
1994	3,349	14	65	239	52	300	1,005	72
1995	1,748	14	24	125	73	300	524	37
1996	2,239	24	29	93	77	300	672	28
1997	1,950	26	63	75	31	300	585	23
1998	1,994	22	22	91	91	300	598	27
1999	2,398	21	71	109	34	400-600	1,038	49
2000	2,014	20	28	88	72	300-500	671	34
2001	1,332	14	16	95	83	300-500	406	29
2002	2,617	12	14	218	187	300-450	909	76
2003	1,379	6 ^b	16	230	86	50-400	342	57
1929-1938								
Average	1,474							Information not Available
1993-2002								
Average	2,243	18	36	135	79	348	724	44

^a This information can not be released due to state confidentiality requirements.

^b Fishery was conducted by a cooperative fishery of 14 permit holders using 6 vessels.

Table 8. Aleutian Islands area Dutch Harbor herring food and bait fisheries historical summary for the gillnet fishery, 2001-2003.

Year	Harvest in Short Tons	No. Vessels		Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
		Making Landings	Number Landings					
2001	107	6	25	18	4	300-500	54	9
2002	134	13	37	10	4	400	54	4
2003	108	13	23	8	5	400	35 ^a	3
Average	116	11	28	12	4	400	47	5

^a20 of 108 tons were not purchased because of spoilage.

Table 9. Aleutian Islands area Dutch Harbor herring food and bait fishery allocations, commercial harvest, and effort by gear type, 2001-2003.

Preseason Togiak Spawning													
Year	Biomass ^a	All Gear Types		Gillnet Fishery					Seine Fishery				
		Allocation ^a	Harvest ^a	Allocation ^a	Harvest ^a	Permits	Landings	Days Fished	Allocation ^a	Harvest ^a	Permits	Landings	Days Fished
2001	119,818	1,572	1,439	110	107	6	25	9	1,462	1,332	14	16	2
2002	120,196	1,578	2,751	110	134	13	37	16	1,468	2,617	16	14	1
2003	126,213	1,662	1,487	116	108	13	23	5	1,546	1,379	14 ^b	16	4

^a Short tons

^b Fourteen permit holders used 6 vessels in a cooperative fishery.

Table 10. Age, sex, weight and length of herring during the Aleutian Islands area Dutch Harbor commercial purse seine herring food and bait fishery, 2003.

Age (Years)	Sex			Total	Percent of Total	Weight			Standard Length		
	Male	Female	Unknown			Mean (g)	Standard Dev.	Number Weighed	Mean (mm)	Standard Dev.	Number Measured
6	8	2	0	10	3.0	321	47.9	10	273	5.9	10
7	52	39	0	91	27.4	363	44.7	91	281	9.3	91
8	29	27	0	56	16.9	380	38.5	56	284	8.5	56
9	13	12	0	25	7.5	411	43.2	25	290	9.9	25
10	24	28	0	52	15.7	449	48.7	52	301	8.8	52
11	18	15	0	33	9.9	463	42	33	303	8.9	33
12	5	13	0	18	5.4	492	49.9	18	308	8.7	18
13	12	10	0	22	6.6	473	46.6	22	305	9.6	22
14	9	2	0	11	3.3	488	38.5	11	308	8.2	11
15	6	3	0	9	2.7	534	65.7	9	314	8.9	9
16	2	1	0	3	0.9	538	28	3	315	10.5	3
17	2	0	0	2	0.6	536	43.1	2	317	6.3	2
Total	180	152	0	332	100	417	70	332	292	14.7	332

Table 11. Age, sex, weight and length of herring during the Aleutians Islands area Dutch Harbor commercial gillnet herring food and bait fishery, 2003.

Age (Years)	Sex			Total	Percent of Total	Weight			Standard Length		
	Male	Female	Unknown			Mean (g)	Standard Dev.	Number Weighed	Mean (mm)	Standard Dev.	Number Measured
6	4	5	0	9	3.3	322	30.8	9	272	6.7	9
7	41	42	0	83	30.7	365	38.6	83	284	8.1	83
8	8	8	0	16	5.9	373	28.3	16	283	8.6	16
9	8	5	0	13	4.8	415	46.8	13	296	9.5	13
10	28	35	0	63	23.3	434	50.2	63	300	9.9	63
11	11	11	0	22	8.1	434	54.7	22	303	7.8	22
12	15	12	0	27	10.0	445	45.4	27	307	7.1	27
13	7	5	0	12	4.4	475	39.5	12	310	6.9	12
14	2	5	0	7	2.6	498	32.8	7	315	4.6	7
15	9	2	0	11	4.1	491	41.6	11	315	7.5	11
16	5	1	0	6	2.2	491	42.2	6	315	8.3	6
17	0	0	0	0	0.0	0	0.0	0	0	0	0
18	0	1	0	1	0.4	473	0.0	1	325	0	1
Total	138	132	0	270	100	413	62.4	270	296	14.2	270

Table 12. North Peninsula herring biomass aerial surveys, 2003.

Date	Port Moller District				Port Heiden District				Total (Tons)	Surveyor
	Herendeen Bay		Port Moller Bay		Bear River to Strogonof Point		Port Heiden Bay Section			
	Tons	Rating ^a	Tons	Rating ^a	Tons	Rating ^a	Tons	Rating ^a		
May 17	0	2	0	2	500	2	Not Surveyed		500	Murphy
May 20	Not surveyed				50	3	Not Surveyed		50	Murphy
May 21	400	2	0	2	0	2	Not Surveyed		400	Murphy
May 29	0	2	100	2	0	2	Not Surveyed		100	Murphy
Total Biomass Observed										
	400		100		550				1,050	
Estimated 2003 Biomass (Does not include herring observed during multiple surveys)										
	400		100		500		0		600-1,000 ^b	

^a Rating of survey: (1) Excellent, (2) Good, (3) Fair, (4) Poor, (5) Unsatisfactory

^b Observed biomass includes herring documented during multiple surveys. The fish observed in the Bear River area on May 17 may constitute part of the Port Moller and Herendeen Bays biomass observed on May 20 and 21. The total biomass during May 17 to 29 is estimated at 600 to 1,000 tons.

Table 13. South Peninsula herring biomass aerial surveys, 2003.

Date	<u>Cold Bay</u>		<u>Pavlof Bay</u>		<u>Beaver/Balboa Bay</u>		<u>Stepovak Bay</u>		<u>Shumagin Is.</u>		Total (Tons)	Other Forage fish (st)	Surveyor
	Tons	Rating ^a	Tons	Rating ^a	Tons	Rating ^a	Tons	Rating ^a	Tons	Rating ^a			
May 21	Not Surveyed		28	3	175	3	80	4	255	3	538	395	Burkey
May 22	Not Surveyed		Not Surveyed		Not Surveyed		Not Surveyed		1,381	3	1,381	1,019	Burkey
May 23	Not Surveyed		Not Surveyed		Not Surveyed		Not Surveyed		475	4	475	280	Burkey
June 02	196	4	413	4	Not Surveyed		Not Surveyed		Not Surveyed		609	26	Burkey
June 05	Not Surveyed		Not Surveyed		103	4	Not Surveyed		803	4	906	366	Burkey
Total Biomass Observed ^b													
	196		441		279		80		2,913		3,909	2,086	
Estimated 2002 Biomass (Does not include herring observed during multiple surveys)													
	196		441		279		80		2,913		3,909	2,086	

^a Rating of survey: (1) Excellent, (2) Good, (3) Fair, (4) Poor, (5) Unsatisfactory

^b Observed biomass includes herring documented during multiple surveys. The total herring biomass during May 21 to June 5 is an estimated 3,909 tons.

Cold Bay - Cold Bay to Volcano Bay/Dolgi Island

Pavlof Bay - Pavlof Bay to McGinty Point

Beaver/Balboa Bay - Beaver Bay to Dorenoi Bay

Stepovak Bay - Chicagof Bay to Kupreanof Point

Table 14. Estimated age composition of Aleutian Islands commercial herring food and bait harvests, in percent, 1992-2003.

Year	Percent at Age (Years)														
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Purse Seine</i>															
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
<i>Gillnet</i>															
2002	0.0	0.5	4.8	3.2	3.4	22.0	9.4	20.1	11.2	8.8	10.2	4.3	1.0	0.0	0.5
2003	0.0	0.0	3.3	30.7	5.9	4.8	23.3	8.1	10.0	4.4	2.5	4.0	2.2	0.0	0.3

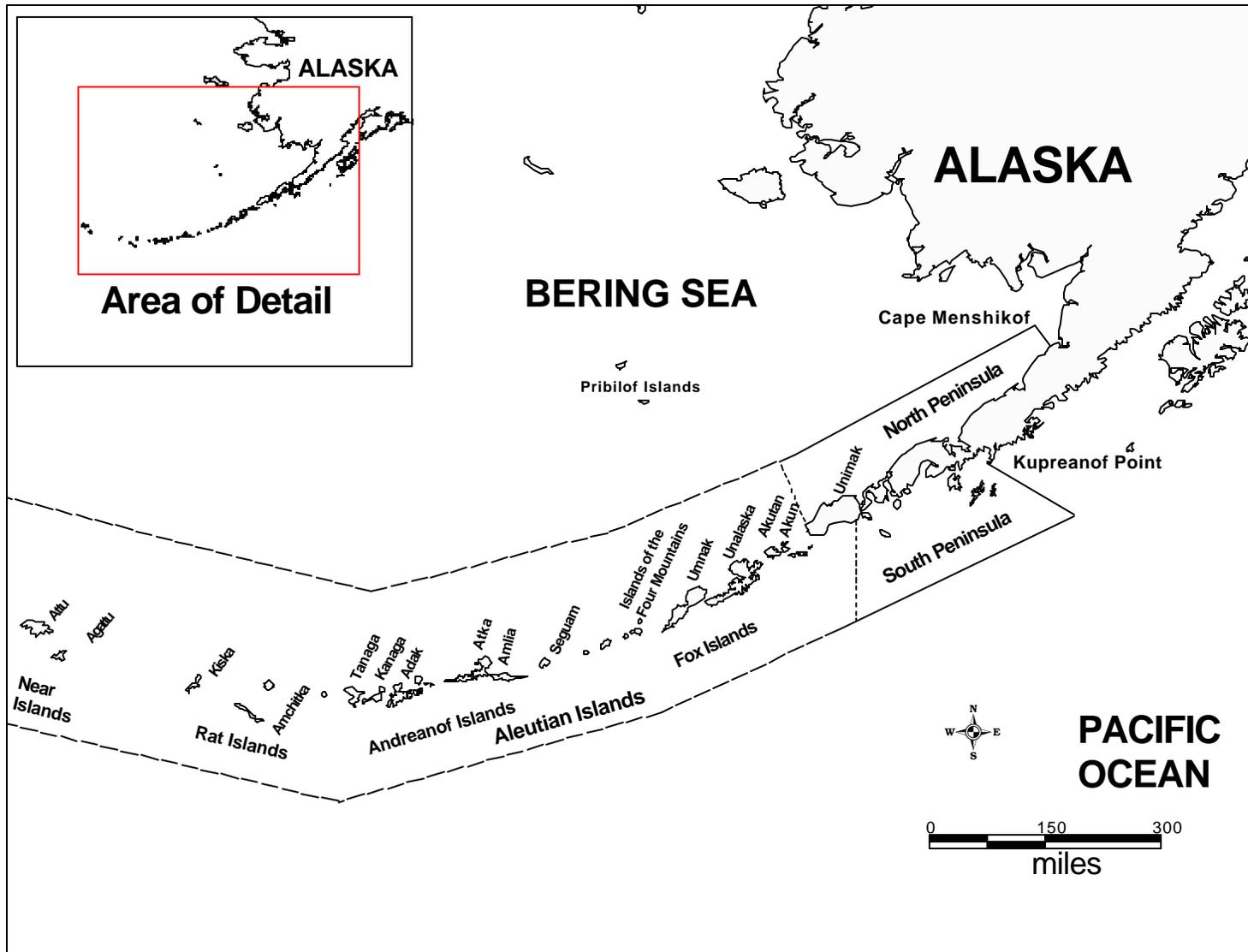


Figure 1. Map of the Alaska Peninsula - Aleutian Islands Herring Management Area.

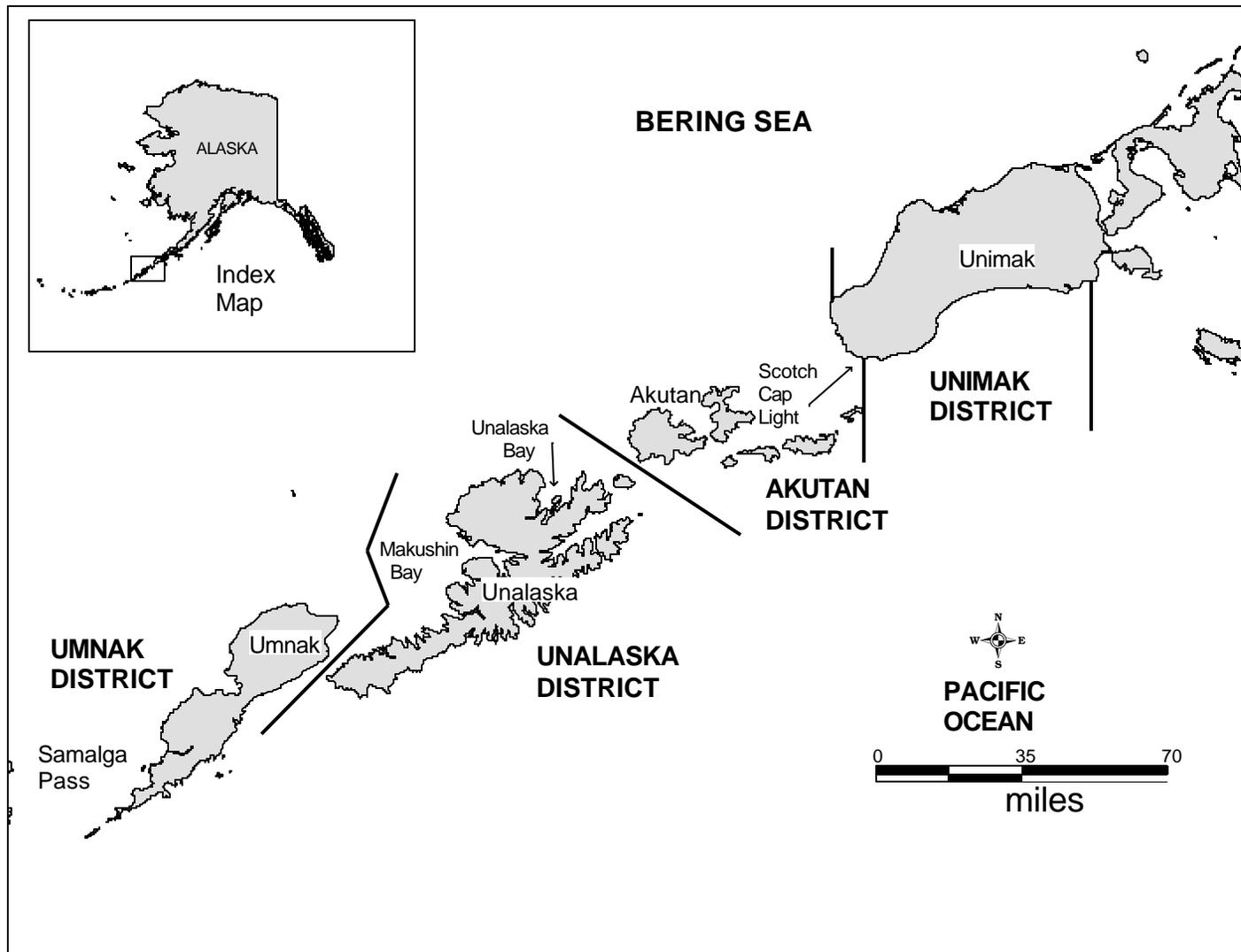


Figure 2. Map of the eastern Aleutian Islands from Samalga Pass to Unimak Island with herring fishing districts shown.

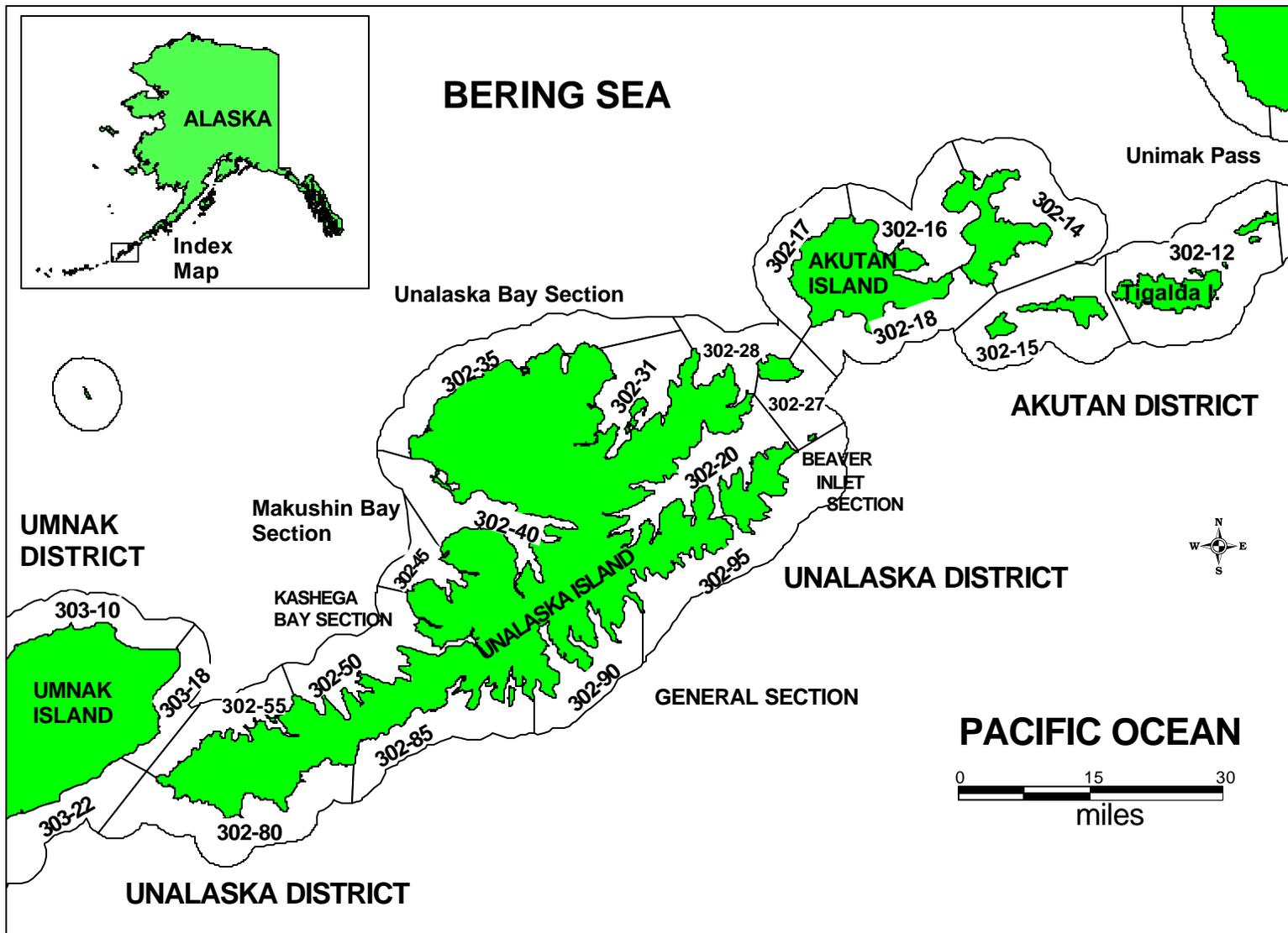


Figure 3. Map of the eastern Aleutian Islands from Tigalda Island to Umnak Island with the statistical herring fishing areas shown.

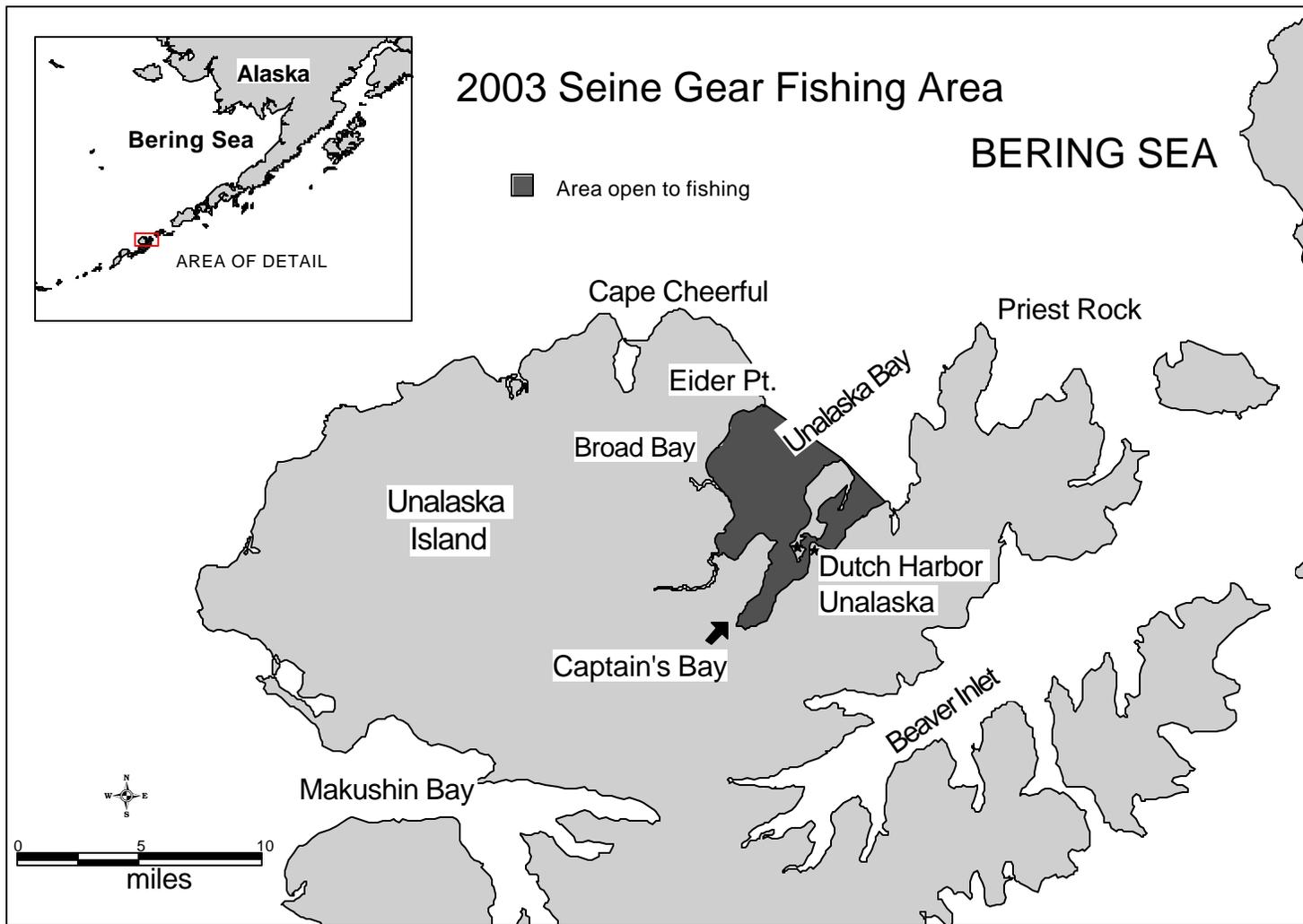


Figure 4. Map of Unalaska Island from Beaver Inlet to Makushin Bay, with the 2003 seine fishery open area defined.

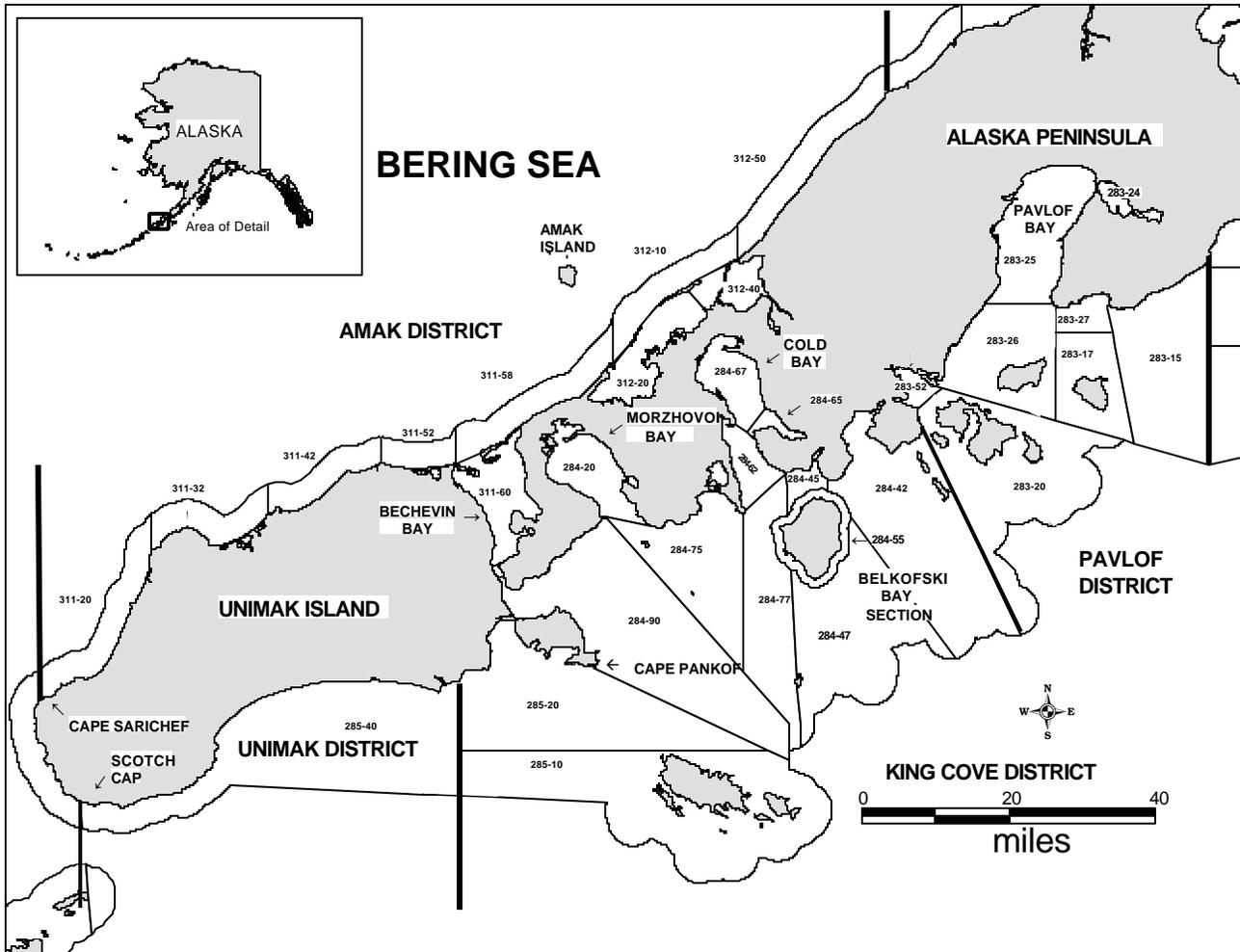


Figure 5. Map of the Alaska Peninsula from Cape Sarichef to Pavlov Bay with commercial herring fishing statistical areas shown.

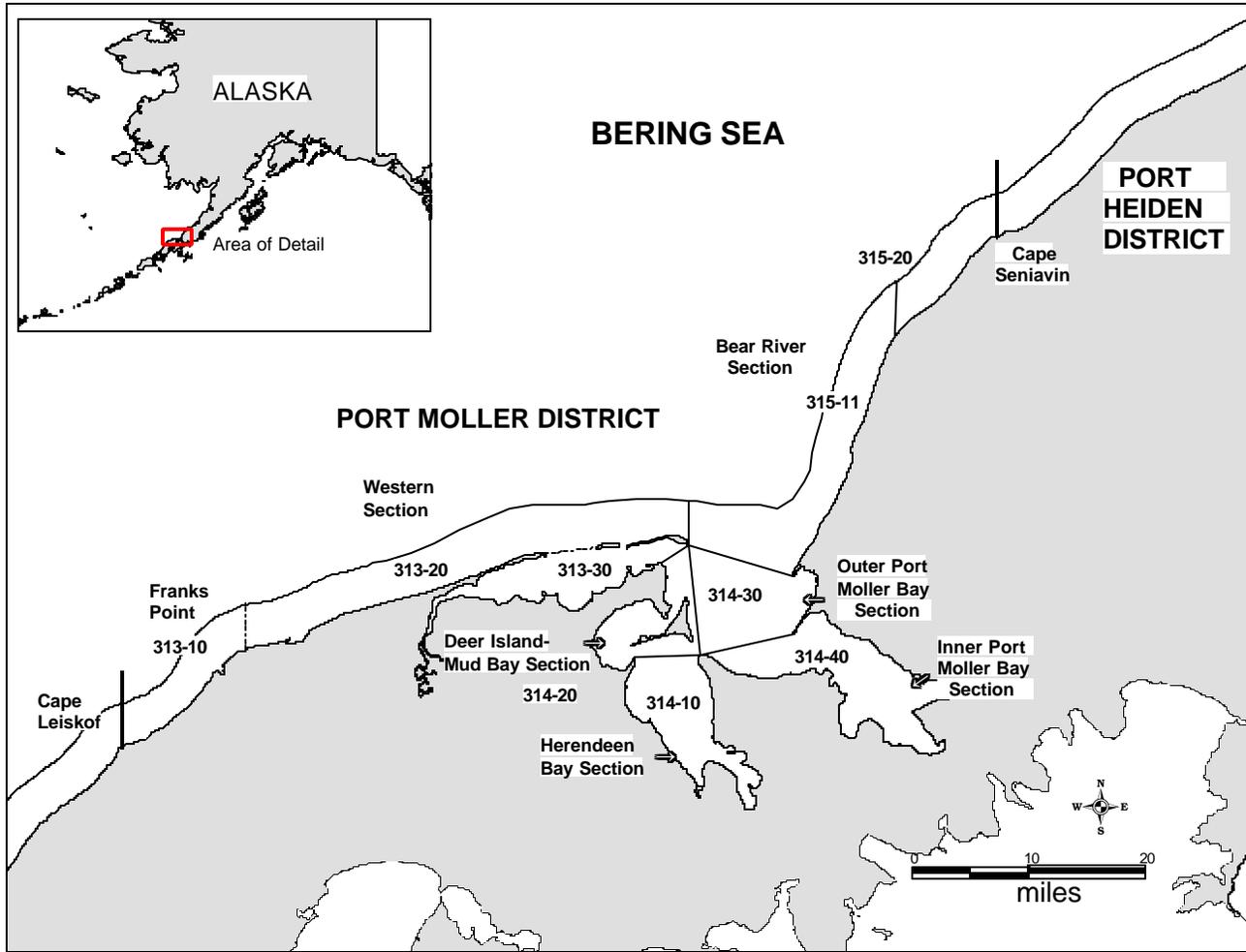


Figure 6. Map of the Port Moller District with commercial herring fishing statistical areas shown.

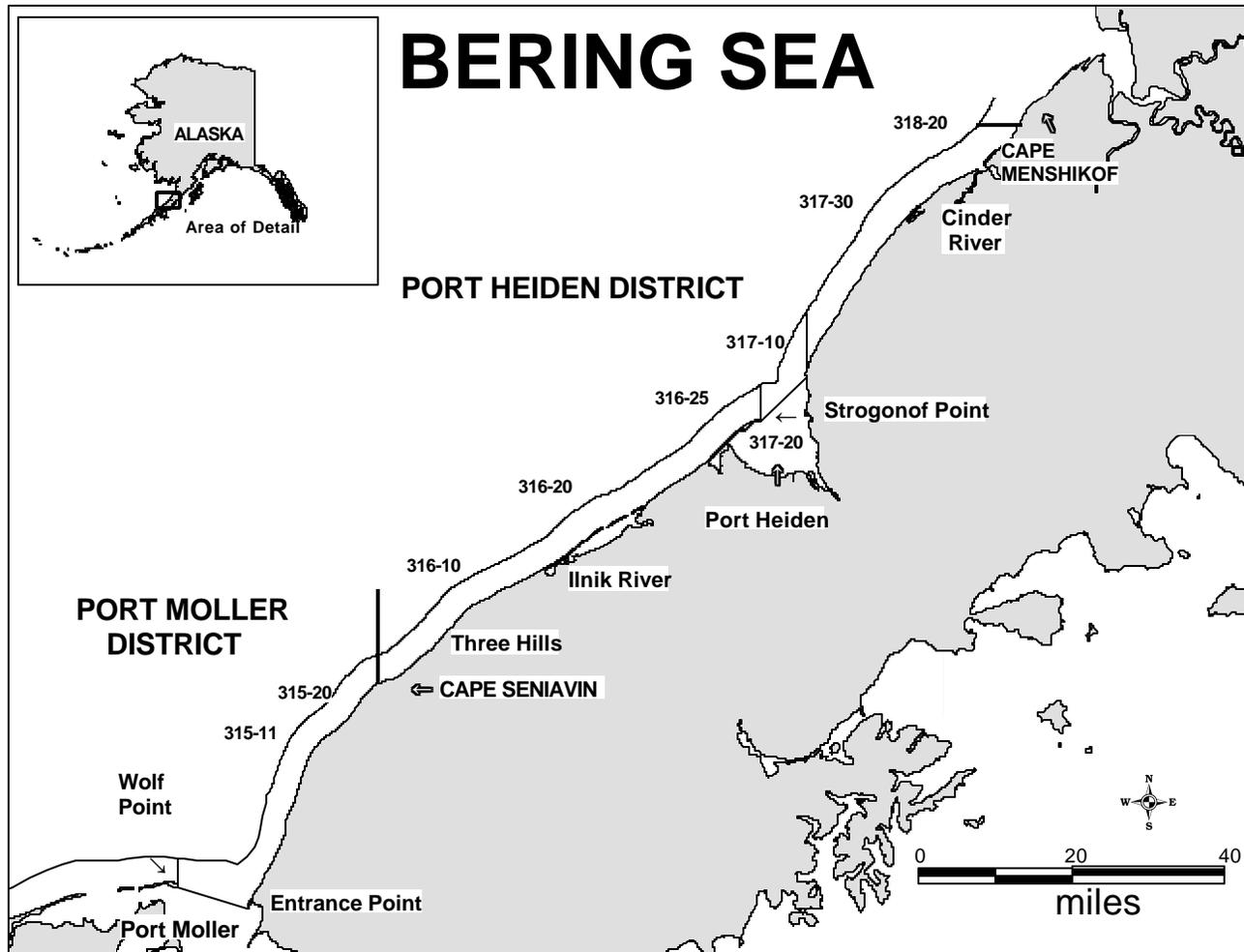


Figure 7. Map of the Alaska Peninsula from Entrance Point to Cape Menshikof with commercial herring fishing statistical areas shown.

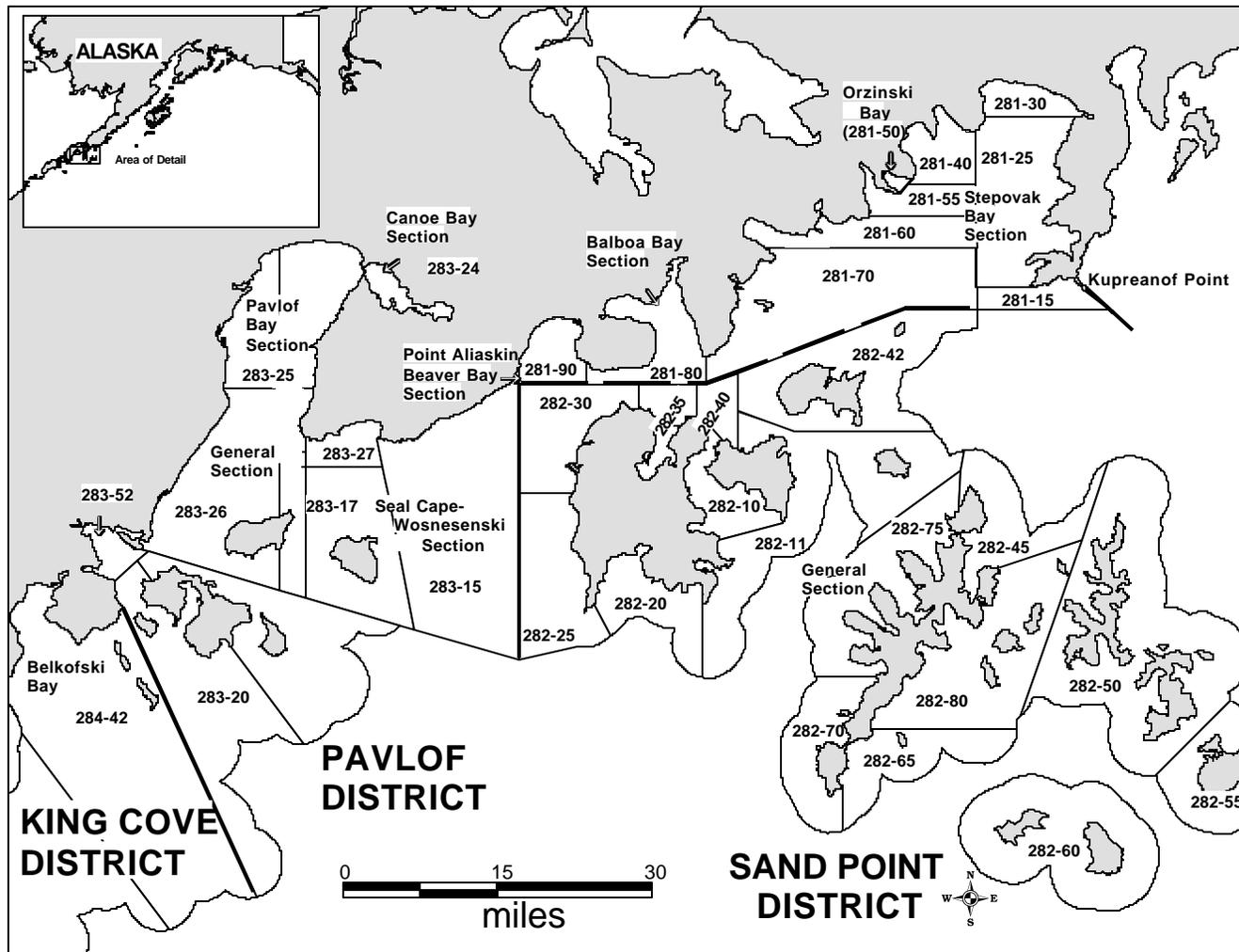


Figure 8. Map of the South Alaska Peninsula from Belkofski Bay to Kupreanof Point with commercial herring fishing statistical areas shown.

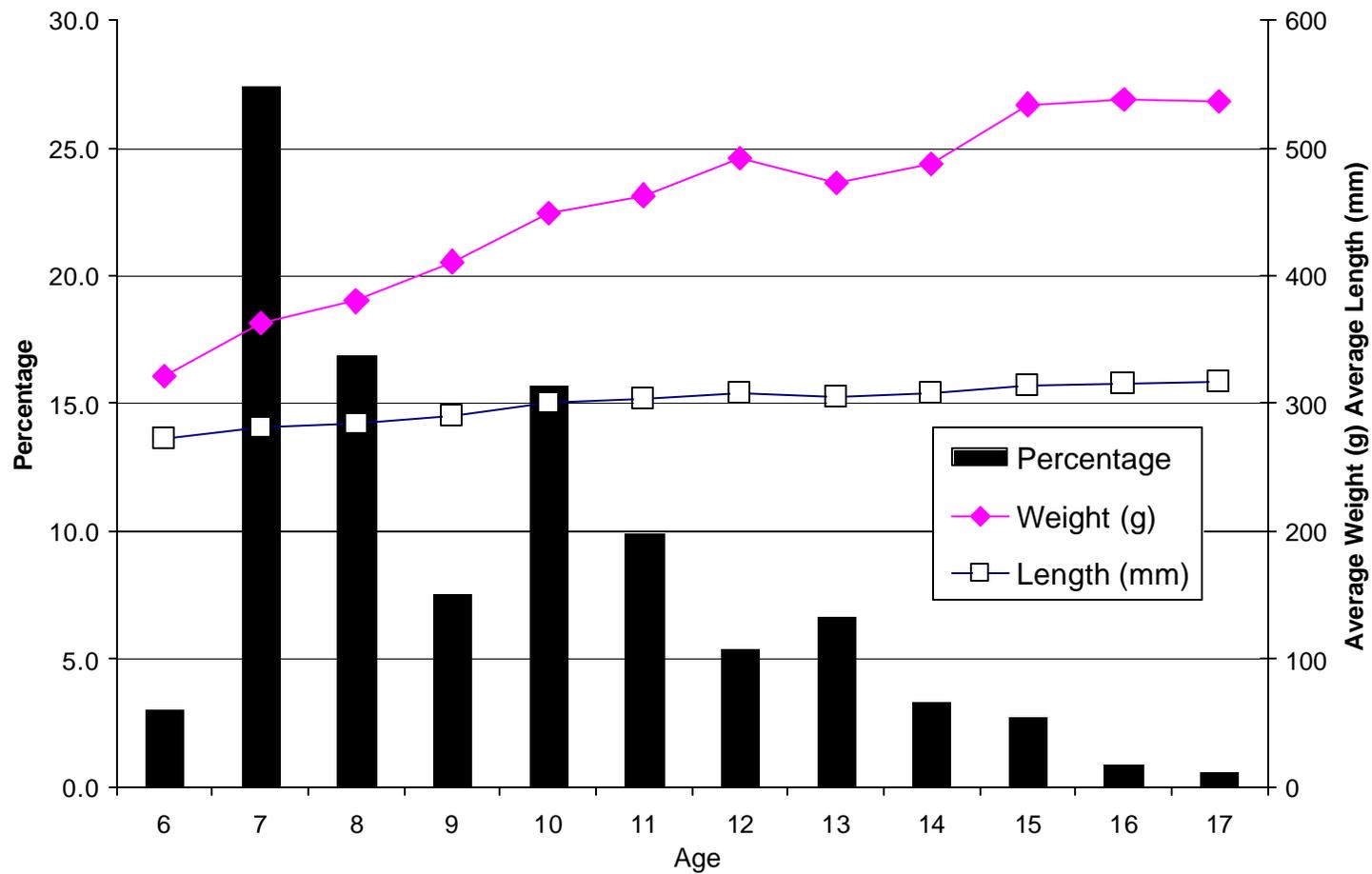


Figure 9. Average length at age (mm), average weight at age (g), and percent by age class in the Aleutian Islands Management area, purse seine herring food and bait fishery, 2003.

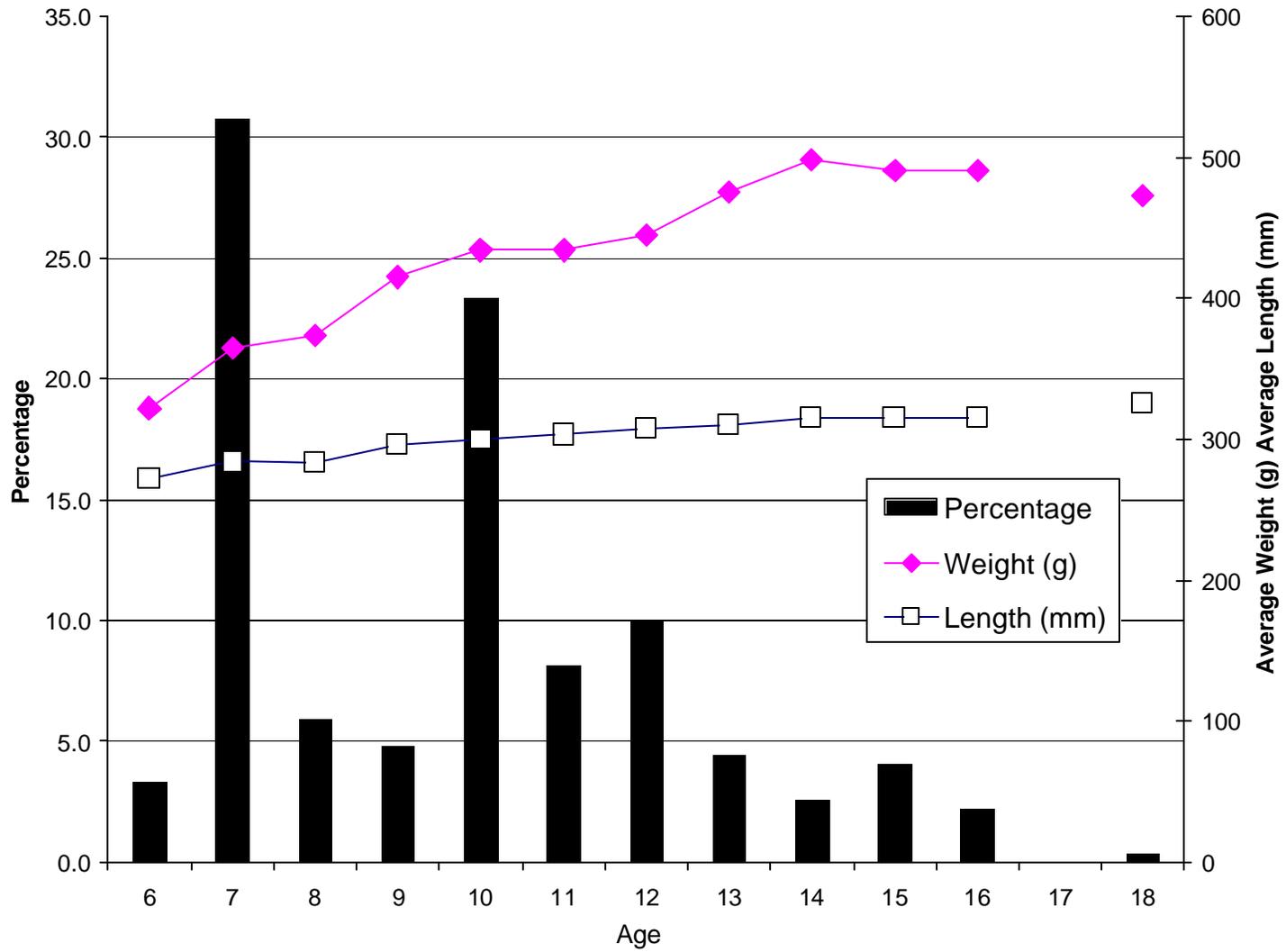


Figure 10. Average length at age (mm), average weight at age (g), and age composition of herring harvested in the Aleutian Islands Management area, gillnet herring food and bait fishery, 2003.

APPENDIX

Appendix A. Emergency order summary, 2003.

EMERGENCY ORDER NO. 4-FH-M-SP-01-03

EFFECTIVE DATE: NOON Tuesday, June 24, 2003

EXPLANATION: This emergency order allows a 24-hour commercial herring gillnet fishing period in the Akutan, Unalaska, Umnak, and Adak Districts of the Alaska Peninsula-Aleutian Islands Herring Management Area from NOON Tuesday June 24, 2003 until NOON Wednesday June 25, 2003.

JUSTIFICATION: In 2001, the Alaska Board of Fisheries adopted regulation 5 AAC 27.610 (e)(2)(A) establishing a commercial herring fishing season, for gillnet gear. Gillnet gear is allocated seven percent of the total Dutch Harbor herring food and bait allocation as established under 5 AAC 27.655 (a)(2). The 2003 herring food and bait allocation for gillnet gear is 116 tons.

Ten permit holders and one processor are currently registered for the fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-02-03

EFFECTIVE DATE: NOON Monday, June 30, 2003

EXPLANATION: This emergency order allows a 24-hour commercial herring gillnet fishing period in the Akutan, Unalaska, Umnak, and Adak Districts of the Alaska Peninsula-Aleutian Islands Herring Management Area from NOON Monday June 30, 2003 until NOON Tuesday July 1, 2003.

JUSTIFICATION: In 2001, the Alaska Board of Fisheries adopted regulation 5 AAC 27.610 (e)(2)(A) establishing a commercial herring fishing season, for gillnet gear. Gillnet gear is allocated seven percent of the total Dutch Harbor herring food and bait allocation as established under 5 AAC 27.655 (a)(2). The 2003 herring food and bait allocation for gillnet gear is 116 tons. To date no herring have been harvested in the fishery.

Fourteen permit holders and two processors are currently registered for the fishery.

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

EFFECTIVE DATE: NOON Wednesday, July 2, 2003

-Continued-

EMERGENCY ORDER NO. 4-FH-M-SP-03-03 (continued)

EXPLANATION: This emergency order allows a 24-hour commercial herring gillnet fishing period in the Akutan, Unalaska, Umnak, and Adak Districts of the Alaska Peninsula-Aleutian Islands Herring Management Area from NOON Wednesday July 2, 2003 until NOON Thursday July 3, 2003.

JUSTIFICATION: In 2001, the Alaska Board of Fisheries adopted regulation 5 AAC 27.610 (e)(2)(A) establishing a commercial herring fishing season, for gillnet gear. Gillnet gear is allocated seven percent of the total Dutch Harbor herring food and bait allocation as established under 5 AAC 27.655 (a)(2). The 2003 herring food and bait allocation for gillnet gear is 116 tons. To date no herring have been harvested in the fishery.

Fourteen permit holders and two processors are currently registered for the fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-04-03

EFFECTIVE DATE: NOON Friday, July 4, 2003

EXPLANATION: This emergency order allows a 24-hour commercial herring gillnet fishing period in the Akutan, Unalaska, Umnak, and Adak Districts of the Alaska Peninsula-Aleutian Islands Herring Management Area from NOON Friday July 4, 2003 until NOON Saturday July 5, 2003.

JUSTIFICATION: In 2001, the Alaska Board of Fisheries adopted regulation 5 AAC 27.610 (e)(2)(A) establishing a commercial herring fishing season, for gillnet gear. Gillnet gear is allocated seven percent of the total Dutch Harbor herring food and bait allocation as established under 5 AAC 27.655 (a)(2). The 2003 herring food and bait allocation for gillnet gear is 116 tons. To date no herring have been harvested in the fishery.

Fourteen permit holders and two processors are currently registered for the fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-05-03

EFFECTIVE DATE: NOON Sunday, July 6, 2003

EXPLANATION: This emergency order allows a 24-hour commercial herring gillnet

-Continued-

EMERGENCY ORDER NO. 4-FH-M-SP-05-03 (continued)

fishing period in the Akutan, Unalaska, Umnak, and Adak Districts of the Alaska Peninsula-Aleutian Islands Herring Management Area from NOON Sunday July 6, 2003 until NOON Monday July 7, 2003.

JUSTIFICATION: In 2001, the Alaska Board of Fisheries adopted regulation 5 AAC 27.610 (e)(2)(A) establishing a commercial herring fishing season, for gillnet gear. Gillnet gear is allocated seven percent of the total Dutch Harbor herring food and bait allocation as established under 5 AAC 27.655 (a)(2). The 2003 herring food and bait allocation for gillnet gear is 116 tons. To date no herring have been harvested in the fishery.

Fourteen permit holders and two processors are currently registered for the fishery.

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

EFFECTIVE DATE: NOON Wednesday, July 16, 2003

EXPLANATION: This emergency order allows an 8-hour commercial purse seine herring fishing period from NOON until 8:00 PM on Wednesday, July 16 in the waters of the Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N.lat., 166° 35.397' W.long. to Ulakta Head at 53° 55.454' N.lat., 166° 30.551' W.long. and north of a line from Arch Rock at 53° 52.613' N.lat., 166° 33.957', W.long. to a point on the opposite shore of Captains Bay at 53° 52.721' N.lat., 166° 34.601' W.long.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery allocation as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. For better control of the total harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered for herring purchase. To date no herring have been harvested in the purse seine fishery.

-Continued-

EMERGENCY ORDER NO. 4-FH-M-SP-07-03

EFFECTIVE DATE: 8:00 PM Wednesday, July 16, 2003

EXPLANATION: This emergency order extends the current commercial purse seine herring fishing period 2 hours. The fishery remains open to a cooperative commercial herring purse seine fishery from 8:00 PM until 10:00 PM on Wednesday, July 16 in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long and north of a line from Arch Rock at 53° 52.613' N. lat., 166° 33.957', W. long. to a point on the opposite shore of Captains Bay at 53° 52.721' N. lat., 166° 34.601' W. long.

This fishery is also open to a cooperative commercial purse seine herring fishery for 8 hours from 9:00 AM Thursday July 17 until 5:00 PM Thursday July 17 in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. and north of a line from Arch Rock at 53° 52.613' N. lat., 166° 33.957', W. long. to a point on the opposite shore of Captains Bay at 53° 52.721' N. lat., 166° 34.601' W. long.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 300 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-08-03

EFFECTIVE DATE: 9:30 AM Thursday, July 17, 2003

EXPLANATION: This emergency order allows a 7.5-hour commercial purse seine herring fishing period. The fishery is open to a cooperative commercial herring purse seine fishery from 9:30 AM until 5:00 PM on Thursday, July 17 in the waters of the Unalaska Bay south

EMERGENCY ORDER NO. 4-FH-M-SP-08-03 (continued)

of a line from Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. to a point on Amaknak Island at 53° 55.82' N. lat., 166° 32.13' W. long.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 700 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-09-03

EFFECTIVE DATE: 10:30 AM Thursday, July 17, 2003

EXPLANATION: This emergency order allows a 6.5-hour commercial purse seine herring fishing period. The fishery is open to a cooperative commercial herring purse seine fishery from 10:30 AM until 5:00 PM on Thursday, July 17 in the waters of Captains Bay south of a line from Arch Rock at 53° 52.613' N. lat., 166° 33.957' W. long. to a point on the opposite shore at 53° 52.7213' N. lat., 166° 34.601' W. long. and south of a line from a point on Agnes Beach at 53° 52.28' N. lat., 166° 32.68' W. long. to a point at 53° 52.35' N. lat., 166° 32.95' W. long. on Amaknak Island and north of 53° 50.00' N. lat. in Captains Bay.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Continued-

EMERGENCY ORDER NO. 4-FH-M-SP-09-03 (continued)

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 700 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-10-03

EFFECTIVE DATE: 7:00 AM Friday, July 18, 2003

EXPLANATION: This emergency order allows a 10-hour commercial purse seine herring fishing period. The fishery is open to a cooperative commercial herring purse seine fishery from 7:00 AM until 5:00 PM on Friday, July 18 in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. and waters in Captains Bay south of a line from a point on Agnes Beach at 53° 52.28' N. lat., 166° 32.68' W. long. to a point at 53° 52.35' N. lat., 166° 32.95' W. long. on Amaknak Island and north of 53° 50.00' N. lat. in Captains Bay.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 780 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-11-03

EFFECTIVE DATE: 7:30 PM Thursday, July 17, 2003

EXPLANATION: This emergency order allows a 4.5-hour commercial purse seine herring fishing period. The fishery is open to a cooperative commercial herring purse seine fishery

EMERGENCY ORDER NO. 4-FH-M-SP-11-03 (continued)

from 7:30 PM until 12:00 PM MIDNIGHT on Thursday, July 17, 2003 in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. and waters in Captains Bay south of a line from a point on Agnes Beach at 53° 52.28' N. lat., 166° 32.68' W. long. to a point at 53° 52.35' N. lat., 166° 32.95' W. long. on Amaknak Island and north of 53° 50.00' N. lat. in Captains Bay.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 780 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-12-03

EFFECTIVE DATE: 5:00 PM Friday, July 18, 2003

EXPLANATION: This emergency order extends the current commercial purse seine herring fishing period 4 hours. The fishery remains open to a cooperative commercial herring purse seine fishery from 5:00 PM until 9:00 PM on Friday, July 18, 2003 in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. and waters in Captains Bay south of a line from a point on Agnes Beach at 53° 52.28' N. lat., 166° 32.68' W. long. to a point at 53° 52.35' N. lat., 166° 32.95' W. long. on Amaknak Island and north of 53° 50.00' N. lat. in Captains Bay.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton

-Continued-

EMERGENCY ORDER NO. 4-FH-M-SP-12-03 (continued)

allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 1,025 tons of herring have been harvested in the purse seine fishery.

EMERGENCY ORDER NO. 4-FH-M-SP-13-03

EFFECTIVE DATE: 8:00 AM Saturday, July 19, 2003

EXPLANATION: This emergency order allows an 8-hour commercial purse seine herring fishing period. The fishery is open from 8:00 AM until 4:00 PM on Saturday July 19, 2003 to a cooperative commercial herring purse seine fishery in the waters of Unalaska Bay south and west of a line from Eider Point at 53° 57.481' N. lat., 166° 35.397' W. long. to Ulakta Head at 53° 55.454' N. lat., 166° 30.551' W. long. and waters in Captains Bay south of a line from a point on Agnes Beach at 53° 52.28' N. lat., 166° 32.68' W. long. to a point at 53° 52.35' N. lat., 166° 32.95' W. long. on Amaknak Island and north of 53° 50.00' N. lat. in Captains Bay.

JUSTIFICATION: A commercial herring fishing season for purse seine gear is established in regulation 5 AAC 27.610 (e)(2)(B). Purse seine gear is allocated 93 percent of the total Dutch Harbor herring food and bait fishery as established under AAC 27.655 (a)(1). In 2002, the seine fishery harvest was 2,617 tons, which was 1,148 tons over the 1,468 ton allocation. To better control the harvest in 2003, the Alaska Board of Fisheries directed the Alaska Department of Fish and Game to allow the commercial purse seine herring fishery only through the formation of a cooperative fishery. The 2003 herring food and bait allocation for purse seine gear is 1,546 tons.

Fourteen purse seine permit holders have formed a cooperative fishery. Four processing companies are registered to purchase herring. To date approximately 1,175 tons of herring have been harvested in the purse seine fishery.

Appendix B. Aleutian Islands area Dutch Harbor herring food and bait forecast, 2003.

The 2003 Togiak herring forecast and harvest allocation is listed below for the Togiak District sac roe fishery and the Dutch Harbor food and bait herring fishery, given a maximum exploitation rate of the projected run biomass: (Frederick West, ADF&G, Anchorage, memo December 19, 2002).

Harvest Allocation of the 2003 Forecasted Pacific
Herring Run Biomass, Togiak District, Bristol Bay

	Biomass (Short Tons)	Harvest (Short Tons)
2003 Forecasted Biomass	126,213	
Exploitation @ Maximum 20% For Total Allowable Harvest		25,243
Togiak Spawn-on-Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		23,743
Dutch Harbor Food/Bait Allocation (7.0% of the remaining allocation)		1,662
Purse seine Allocation (93%)		1,545
Gillnet Allocation (7%)		116
Remaining Allowable Harvest for Togiak District Sac Roe Fishery		22,081
Purse Seine Allocation 70.0%		15,457
Gillnet Allocation 30.0%		6,624

**ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF COMMERCIAL FISHERIES
NEWS RELEASE**

**DUTCH HARBOR COMMERCIAL FOOD AND BAIT HERRING FISHERY
NEWS RELEASE #1**

During a May 14 teleconference, the Alaska Board of Fisheries (Board) repealed the penalty (a.k.a. rollover) provision in 5 AAC 27.655 Dutch Harbor Food and Bait Herring Fishery Allocation Plan for 120 days effective May 15, 2003.

The Board met to consider an emergency petition submitted by The Western Gulf of Alaska Fishermen requesting that the penalty provision not be applied to the 2003 Dutch Harbor Food and Bait Herring fishery. Under the penalty provision in 5 AAC 27.655, the guideline harvest levels (GHL) for the 2003 fishery would have been reduced to 397 tons for the purse seine and 92 tons for the gillnet fishery because of harvests that exceeded the GHL in 2002. By repealing the penalty provision, the GHL for the 2003 fishery will be approximately 1,546 tons for the purse seine fishery and 116 tons for the gillnet fishery.

The Board recognized that if a harvest of 1,662 tons in the 2003 Dutch Harbor fishery occurs, the total exploitation of the Togiak herring biomass would not exceed the 20% maximum rate specified in 5 AAC 27.060(b).

The Department of Fish and Game discussed with the Board a new management policy that would reduce the probability of harvests in the Dutch Harbor herring fishery exceeding the GHL. If the GHL for the purse seine fishery is less than or equal to 150 tons per participating vessel, the department will require permit holders to form a cooperative agreement that reduces the fishing effort enough to conduct a manageable fishery.

Appendix D. Alaska Peninsula herring sac roe fishery forecast, 2004.

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 sac roe herring harvests, or the Port Heiden District, which had a commercial harvest only during 1992.

The 2004 North Peninsula Port Moller District harvest forecast is between 0 and 150 tons. This forecast is based on the 2003 biomass estimate. A sliding scale exploitation rate is applied to the estimate while considering historic harvests in the district. In four aerial surveys in 2003 an estimated biomass of 600 to 1000 tons was observed. Adjustments to the guideline harvest level will be made inseason once herring biomass is quantified. 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 (Short 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 Peninsula herring that may contribute to the Dutch Harbor food and bait fishery. Rowell et. al. (1990) 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 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. Based on Alaska Board of Fisheries findings, exploitation rate may not exceed 20% of the mature biomass of those stocks. The forecast does not include the Port Heiden District where commercial fishing occurred only during 1992.

Confidence in the North Peninsula forecast 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 2004 South Peninsula forecasted sac roe harvest is 0 tons, based on the belief that industry will not be interested in harvesting herring in South Peninsula waters in 2004. Five aerial surveys in 2003 resulted in an observed biomass estimate of 3,909 tons. No age class data were available in 2003, so it is unknown what age classes will dominate the 2004 stocks.

Appendix E. Estimated age composition of North Peninsula commercial purse seine herring sac roe fishery harvests by area and percent, 1985-2003.

Area	Year	Percent at age (Years)									
		2	3	4	5	6	7	8	9	10	11+
Herendeen Bay Section											
	1985	0	5	49	21	15	6	4	0	0	0
	1986	0	0	3	25	13	20	21	17	1	0
	1987	0	2	4	22	24	17	13	10	6	2
	1988	0	3	23	30	22	9	4	3	3	2
	1989	0	0	2	62	22	5	1	1	0	7
	1990	0	14	3	1	57	15	3	1	1	5
	1991	0	2	72	5	2	11	4	0	2	3
	1992	No harvest in this section									
	1993	No harvest in this section									
	1994	No harvest in this section									
	1995	0	5	22	42	17	7	2	0	0	5
	1996	1	60	20	7	7	4	1	0	0	0
	1997-2003	No harvest in this section									
Deer Island-Mud Bay Sections											
	1991	0	1	65	7	3	18	5	0	1	1
	1992	0	0	17	64	5	2	6	3	2	2
	1993-2003	No harvest in this section									
Inner Port Moller Bay Section											
	1985	0	1	12	8	15	33	27	2	0	1
	1986	0	1	7	21	12	18	19	20	1	1
	1987	0	2	11	13	22	12	11	17	11	0
	1988	0	1	30	29	12	6	5	5	8	5
	1989	0	1	1	67	19	3	1	2	2	4
	1990	0	13	4	2	49	16	5	2	2	6
	1991	0	1	59	13	2	16	1	5	2	1
	1992	0	0	23	60	4	2	6	2	1	2
	1993	0	0	0	10	48	5	2	17	8	10
	1994	0	0	3	12	19	46	4	1	10	6
	1995	0	1	2	8	16	23	38	3	4	6
	1996	No harvest in this section									
	1997	No harvest in this section									
	1998	0	0	6	65	5	12	6	3	3	0
	1999-2001	No harvest in this section									
	2002 ^a	0	0	0	31	53	3	2	7	3	2
	2003	No harvest in this section									

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		Percent at age (Years)									
Area	Year	2	3	4	5	6	7	8	9	10	11+
Outer Port Moller Bay											
	1985	0	1	26	16	20	17	17	1	1	0
	1986	0	0	2	22	13	21	23	18	1	0
	1987	0	2	48	9	14	5	11	8	3	0
	1988	No harvest in this section									
	1989	0	0	0	6	26	6	24	7	10	21
	1990 ^b	90	10	0	0	0	0	0	0	0	0
	1991	0	3	74	6	1	11	2	1	1	0
	1992	0	2	41	49	2	0	2	2	0	2
	1993	No samples from this section									
	1994	0	0	8	8	0	54	0	0	23	8
	1995	No samples from this section									
	1996 ^b	0	50	28	14	5	0	3	0	0	0
	1997	No harvest in this section									
	1998	1	1	4	41	13	18	10	4	4	3
	1999-2003	No harvest in this section									
Bering Sea Coast											
Bear River area											
	1991	0	2	86	8	0	4	1	0	0	1
	1992	No harvest in this section									
	1993	No samples from this section									
	1994-97	No harvest in this section									
	1998	0	0	0	68	5	16	3	3	5	0
	1999-2003	No harvest in this section									
Cape Kutuzof area											
	1991	0	0	37	10	0	40	9	2	2	2
	1992-2003	No harvest in this section									
Port Heiden Bay Section											
	1992	0	0	9	64	5	1	13	2	1	4
	1993-2003	No harvest in this section									

^a Commercial purse seine test fishery

^b Juvenile herring sample.

Appendix F. Estimated age composition of South Peninsula commercial purse seine herring sac roe fishery harvests by area and percent, 1985-2003.

Year	Percent at age (Years)									
	2	3	4	5	6	7	8	9	10	11+
Stepovak Bay										
1985	No samples									
1986-87	No Harvest in this section									
1988	0	5	78	17	0	0	1	0	0	0
1989	0	3	31	50	13	0	0	0	2	0
1990	1	6	8	28	50	7	1	0	1	1
1991 ^a	0	4	13	6	23	42	13	0	0	0
1992	No Harvest in this section									
1993 ^a	No samples									
1994-95	No Harvest in this section									
1996	No samples									
1997-2003	No Harvest in this section									
Balboa										
1988	0	32	50	9	0	1	3	1	2	3
1989	No samples									
1990	0	4	7	22	59	4	0	4	0	0
1991	0	16	11	16	26	32	0	0	0	0
1992-94	No Harvest in this section									
1995	No samples									
1996	No samples									
1997-2003	No Harvest in this section									
Shumagin Islands										
1989	0	1	15	79	1	0	0	3	0	2
1990	0	4	0	26	67	2	0	0	0	1
1991	0	0	17	2	30	48	2	0	0	0
1992-95	No Harvest in this section									
1996	0	0	16	73	8	3	0	0	0	0
1997-2003	No Harvest in this section									

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Year	Percent at age (Years)									
	2	3	4	5	6	7	8	9	10	11+
Canoe Bay										
1985	0	1	3	81	7	6	1	1	0	1
1986	0	6	0	3	82	6	2	0	1	0
1987	0	25	28	1	5	34	3	3	0	0
1988	0	24	31	20	0	1	16	4	2	1
1989	0	6	56	22	9	0	0	5	1	1
1990	0	23	5	49	17	5	0	0	1	0
1991	0	27	16	1	41	12	2	0	1	0
1992	0	0	6	9	1	55	23	4	0	2
1993	0	21	4	16	9	2	35	11	2	1
1994	0	71	15	1	9	2	1	2	0	0
1995	No samples									
1996 ^b	0	0	0	29	26	5	12	5	3	20
1997-2003	No Harvest in this section									
Pavlof Bay										
1985-86	No samples									
1987	0	6	18	5	11	48	9	2	1	0
1988	0	34	50	5	0	2	7	0	2	0
1989	No samples									
1990-95	No Harvest in this section									
1996 ^b	0	0	0	29	26	5	12	5	3	20
1997-2003	No Harvest in this section									
Lenard Harbor										
1986	0	3	0	3	83	7	4	0	0	0
1987	0	67	5	0	3	25	0	0	0	0
1988-89	No samples									
1990	0	3	2	35	46	6	0	3	6	0
1991-2003	No Harvest in this section									

^a The 1991 and 1993 Stepovak Bay catch was in the northeastern portion of the bay.

^b The samples from Canoe Bay and Pavlof Bay were mixed.

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