

Fishery Management Report No. 06-24

**Alaska Peninsula-Aleutian Islands Management Area
Herring Food and Bait Fishery Management Plan,
2006**

by

James Jackson

April 2006

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Division of Commercial Fisheries, Kodiak

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
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ABSTRACT

The food and bait fishery for Pacific herring *Clupea pallasii* in the Alaska Peninsula-Aleutian Islands Herring Management Area (Area M) can occur within the Unimak, Akutan, Unalaska, Umnak, and Adak districts. This document describes how the fishery will be managed, the requirements for industry to participate in the fishery, and how to contact and relay information to the Alaska Department of Fish and Game (ADF&G). Presented are historical harvests for the Dutch Harbor fishery, as well as the 2006 season guideline harvest levels and harvest projections. Guidelines for an exploratory herring food and bait fishery around Adak Island are presented. This document is intended as a guide for commercial herring harvesters, buyers, and tenders. Information regarding commercial herring fishing periods should be obtained from the ADF&G prior to fishing.

Key words: Pacific herring *Clupea pallasii*, commercial food and bait fishery, Alaska Peninsula-Aleutian Islands, Dutch Harbor herring fishery, herring gillnet, herring seine, herring pound, Adak herring fishery, management plan.

INTRODUCTION

This document is intended to provide commercial herring harvesters and buyers with management information and guidelines for participating in the Alaska Peninsula-Aleutian Islands Management Area (Area M) Pacific herring *Clupea pallasii* food and bait fishery.

The Alaska Peninsula-Aleutian Islands Herring Management Area consists of Bering Sea state waters extending west of Cape Menshikof and Pacific Ocean state waters extending west of Kupreanof Point to the International Dateline (Figure 1; 5AAC 27.600). In 1982, the Alaska Board of Fisheries (BOF) enacted regulations that again allowed herring food and bait fishing in the Aleutian Islands portion for the Alaska Peninsula-Aleutian-Islands Management Area. In recent years, three management plans: (1) the Bering Sea Herring Fishery Management Plan (5 AAC 27.060), (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 fishery. Since the fisheries inception, most of the effort and harvest has occurred in the vicinity of Unalaska and Akutan Islands (Duesterloh and Burkey 2005).

In 2004, the Alaska Board of Fisheries (BOF) enacted the Alaska Peninsula-Aleutian Islands Herring Management Plan (5 AAC 27.657), establishing a herring fishery in the Adak Island area with a 500 ton allocation independent of the Dutch Harbor Food and Bait Allocation (Figure 2).

Inseason Alaska Department of Fish and Game (ADF&G) emergency orders will be broadcast on VHF channel 12 in Dutch Harbor. VHF channel 12 will be the designated department channel for conducting herring fishing communications during the fishery. Fishermen, tenders, and processors should monitor this channel.

The global positioning system (GPS; North American Datum 1983) will be used to identify district and section boundaries, closed waters, and regulatory fishing coordinates (5AAC 27.606).

All processors must make daily reports of all herring purchased from fishermen, and other processing records as specified by local representative of the department (5 AAC 27.622 (2)). These daily reports can be provided to ADF&G by VHF, SSB, phone, fax, or e-mail. The following ADF&G local offices can be contacted for information concerning the Dutch Harbor and Adak herring food and bait fisheries:

Sand Point:

Alaska Department of Fish and Game
 P.O. Box 129
 Sand Point, AK 99661

Phone: (907) 383-2066
 Fax: (907) 383-2606
 Record: (907) 383-2334

VHF 6 & 73
 Single Side Band 3.230 MHz
 KWB 362

Dutch Harbor:

Alaska Department of Fish and Game
 P.O. Box 920587
 Dutch Harbor, AK 99692

Phone: (907)581-1239
 Fax: (907)581-1572

VHF 9
 Single Side Band 4.125 MHz
 WIM 76

ALASKA PENINSUAL-ALEUTIAN ISLANDS FOOD AND BAIT FISHERY

The Alaska Peninsula-Aleutian Islands food and bait fishery began in 1929 (Rounsefell 1930) and occurred annually through 1938 with a total historical harvests averaging 1,474 tons (Table 1). During the years 1929-1938 catches ranged 513 tons to 2,510 tons. No fishing occurred from 1939 through 1944 or from 1946 through 1980. From 1981 to 2005, catches ranged from 704 tons to 3,578 tons. From 1982 to 1991, an average of eight vessels participated in the Dutch Harbor herring food and bait fishery. Between 1992 and 2000 effort increased to an average of 18 purse seine vessels. From 2001 to 2004, effort in the purse seine fishery decreased to an average of 15 permits.

In 2003, 14 permit holders harvested 1,379 short tons of herring in four fishing periods using six vessels in a cooperative fishery (Duesterloh and Burkey 2003; Table 1). In 2004, 13 seine permit holders and two processors reached a cooperative agreement and used one vessel to harvest the desired amount of herring. Two independent permit holders harvested herring for alternative markets. Thirteen gillnet permit holders also formed a cooperative and used seven of nine registered vessels (Duesterloh and Burkey 2005). In 2005, 11 seine permit holders and three processors reached a cooperative agreement and used three seine vessels to harvest the desired amount of herring. One additional permit holder registered with ADF&G in association with a separate market. Due to the low abundance of herring in the vicinity of Unalaska Harbor, and with a large portion of the allowable harvest remaining, the department opened Kalekta Bay and the Akutan District west of Billings Head (Figures 3 through 5). No gillnet permit holders fished due to the low numbers of herring in Unalaska Bay (Jackson 2006; Table 2).

In 2001, the BOF established a herring gillnet fishery to allow gillnet fishermen a practical opportunity to harvest herring from the Dutch Harbor allocation given the short (usually less than one hour) open periods required to manage the purse seine fishery. In 2004, the BOF increased the gillnet quota from 7% to 14% of the total Dutch Harbor herring food and bait allocation (5 AAC 27.655; Appendix A1).

The ADF&G will manage the Dutch Harbor herring food and bait fishery according to the Bering Sea Herring Fishery Management Plan (5 AAC 27.060). Areas within Unalaska Bay that are closed to subsistence salmon fishing are also closed to herring fishing (5AAC 27.650 and 5AAC 01.375). Closed areas include waters between Unalaska and Amaknak Islands, from Agnes Beach to the “Bishops House”, and waters within 250 yards of any anadromous stream.

REQUIREMENTS AND HARVEST PROJECTION FOR THE 2006 FISHERY

The department will attempt to manage the Dutch Harbor herring food and bait fishery so that the harvest remains within the allocated 7% of the remaining allowable Togiak District herring sac roe harvest as determined under the provisions of the Bristol Bay Herring Management Plan (5 AAC 27.865). In order for the Dutch Harbor herring food and bait fishery to occur, each respective Western Alaska herring stock must surpass its respective BOF mandated spawning biomass threshold. Currently, the biomass of all stocks is forecasted to be above their respective threshold levels. Therefore, the outlook for a 2006 Dutch Harbor food and bait fishery is favorable. However, processors and fishermen are advised that management of the 2006 fishery will be based on the estimated spawning biomass of each Bering Sea herring stock in 2006. The ADF&G will update 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 is 1,715 short tons (West et al. 2005; Appendix A1). This allocation was derived using the Bering Sea Herring Management Plan (5 AAC 27.060) and the preseason projected 2006 Togiak herring spawning biomass of 129,976 short tons. The actual allocation will be established when the 2006 Togiak District herring spawning biomass is determined.

The Dutch Harbor food and bait allocation established under 5 AAC 27.865(b)(7), shall be divided between gear groups (5AAC 27.655); 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. For the 2006 season, this results in projected harvest allocations of 1,375 tons for the purse seine, 100 tons for the seine pound fishery, and 240 tons for the gillnet fishery (Appendix A1).

A “rollover” provision was adopted during the 2001 BOF meeting (5AAC 27.655 (b)), as an incentive to conduct a fishery that stays within the herring harvest allocation. During years when herring harvest surpasses the allocation, the amount of additional harvest shall be deducted from the next year’s allocation by gear group. If necessary, any excess herring harvested during the 2006 season will be deducted from the allocation for the 2007 season.

REGISTRATION REQUIREMENTS FOR PERMIT HOLDERS, TENDERS, AND PROCESSORS

Prior to catching, tendering, buying, or processing any herring, gillnet permit holders must register at the ADF&G office in Dutch Harbor. Even if no herring are harvested or vessels are not actively fishing, each permit holder, tender and processor must report harvests daily or until registration from the fishery is withdrawn. Permit holders and processors will be required to contact the ADF&G in Dutch Harbor upon harvest or delivery of herring. If conditions arise which require additional time for permit holders to report herring harvests the department shall be informed of the situation prior to fishing operations. Catch reporting instructions will be explained in detail during vessel and processor registration.

Seine permit holders, tender operators, and buyers must register at the ADF&G office in Dutch Harbor or at the purse seine pre-fishery meeting with processors, tenders, and fishermen in Dutch Harbor prior to catching, tendering, buying, or processing any herring. No registrations will be accepted in Sand Point. The purse seine pre-fishery meeting is tentatively scheduled for July 14 at 5:00 PM. The actual time and location will be announced in late June or early July. Permit holders are encouraged to check with their markets prior to fishing to determine which products are

acceptable. A report must be provided to ADF&G by 10 AM daily by VHF, SSB, phone, fax, or e-mail.

GILLNET AND SEINE SPECIFICATIONS

Gillnet mesh sizes up to three and one-half inches with no depth restrictions may be used in the Akutan and Unalaska Districts (5AAC 27.631(d)). The aggregate length of gillnets operated by a Commercial Fisheries Entry Commission (CFEC) permit holder may not exceed 150 fathoms (5AAC 27.631). Purse seines are restricted to a maximum of 250 fathoms in length with no depth restrictions (5 AAC 27.632).

FISHING PERIODS FOR GILLNET VESSELS

The herring gillnet fishery can open by emergency order beginning NOON June 24 and can extend until the guideline harvest level (GHL) is reached or the department decides that an additional fishing period might exceed the GHL, or until February 28 (5AAC 27.610 (e)(2)(A)) . The fishery will begin no later than July 1, or in June if herring are observed in the area. In order to prevent harvests from exceeding available processing capacity and the GHL, the fishing periods will be restricted to six hours in length. In addition, effort levels and harvest rates will be considered when establishing time and area restrictions for gillnet harvesters. If possible, the fishery will be conducted in the waters of Unalaska Bay (Figure 4).

FISHING PERIODS FOR PURSE SEINE VESSELS

The initial purse seine herring fishing period may occur as early as NOON on July 15 (5AAC 27.610 (e)(2)(B)). Unless harvesters form a combine, the department anticipates that purse seine fishing periods will be short in duration and the fishery will be conducted within portions of Unalaska Bay. Short openings over several days may be required to prevent over harvest. After each fishing period and before the next fishing period is announced, a catch report will be required from all registered CFEC permit holders and tender operators that reflects each vessels' harvest. Generally, there will be a 12-hour closure between fishing periods to allow permit holders the opportunity to deliver their catch and the ADF&G time to assess the harvest and processing capacity. A shorter closed period may be allowed if the department promptly receives harvest reports from all permit holders. The department may cancel or extend a fishing period with as little as five minutes notice.

If the total GHL is less than 150 tons per vessel, the department will be conservative in the length of fishing periods and the size of the area open to commercial fishing. The department will not require fishermen to form a combine harvesting agreement; however, if the industry decides to do so, the department will be open to management options that will minimize the risk of over harvesting the resource.

ADF&G will try to assess herring biomass in the area prior to opening the fishery. Harvesters and spotter pilots are encouraged to relay biomass information to ADF&G personnel prior to the opening. Past cooperation has proven valuable in evaluating stock status and gaining management information.

GEAR TESTING

Prior to the opening of the fishery, purse seine gear may be tested during daylight hours until 5:00 PM July 14. Gear testing will only be allowed between Hog Island and Amaknak Island in

view of the ADF&G Dutch Harbor office or within 1/2 mile of the Delta-Western fuel dock in Dutch Harbor. Permit holders must contact an ADF&G representative in Dutch Harbor on VHF channel 12 or in person prior to setting gear and must designate a specific set location and time. In addition, any fish caught during gear testing must immediately be released unharmed. After the fishery has been closed and all herring on the vessel have been offloaded, participants may, after notifying the department, set their net to straighten, clean, and organize their gear in the areas designated above.

HERRING POUND FISHERY

In 2004, the BOF established a herring seine pound fishery as part of the Dutch Harbor food and bait fishery (5 AAC 27.655(c)). One hundred tons of herring were allocated to this fishery. This allocation is deducted from the purse seine allocation. A person planning to operate a pound is required to locate the pound within Unalaska Bay, provide the ADF&G detailed plans describing the design and operation of the pound, including exact location and timing of pound operation. These plans must be received by the department in a timely manner to allow preparation of a Commissioner's permit for pound operation. A permit holder intending to operate a pound must register with the ADF&G in Dutch Harbor or Sand Point no later than 4:30 PM, June 30, 2006.

Herring for pounding may be harvested during purse seine fishery openings. In addition, ADF&G may, by emergency order, establish separate fishing periods for the pound fishery as early as June 10 but no later than August 31, 2006. If the entire herring pound allocation is not utilized by the end of the seine fishery and there is no more interest by pound fishermen to harvest any remaining allocation, the remaining allocation will be reallocated to the purse seine fishery. If the allocation in the pound fishery is exceeded, the permit holders will be required to release excess herring unharmed before they are pounded. If the seine fishery exceeds the GHL, the penalty provision (5 AAC 27.655(b)) will be applied to the next year's seine GHL after the GHL for the pound fishery is allocated. If no pound fishery permits were requested, the pound fishery GHL will be available to the seine fishery. If two or more permit holders register for the pound fishery, the pound allocation is divided equally among them.

FISH TICKETS

Permit holders must provide specific harvest locations (statistical area and specific landmark) to buyers, so that they can be recorded on fish tickets. Fish tickets must be delivered, by mail or in person, to the Sand Point ADF&G office within 10 days after the closure of the fishery or delivered in person immediately following the fishery to the Dutch Harbor ADF&G office. If 10 days is insufficient time to submit fish tickets, other arrangements must be made by contacting the ADF&G in Sand Point.

COMMERCIAL HARVEST SAMPLING

Cooperation from harvesters, tender operators, and processors will be appreciated when ADF&G personnel request herring samples from the commercial catch. These samples will be used to monitor age, sex, and size composition of the stock.

TEST FISHING

The department will attempt to conduct a test fishery in 2006. The test fishery will provide the department with valuable stock assessment information and help pay the associated costs of analyzing data and managing the fishery. In addition, the test fish program will provide age,

weight, and length samples of herring present in the Dutch Harbor area. In the last four years the department has had to curtail management of this fishery because of the lack of industry interest in the test fishery. The department will distribute test fish bid forms to processors in June and early July. Fishermen interested in test fishing are encouraged to contact their processors.

M/V *SELENDANG AYU* OIL SPILL

On December 8, 2004, the freighter M/V *Selendang Ayu* grounded and broke apart between Skan Bay and Spray Cape, releasing an estimated 321,000 gallons of bunker fuel oil and an undetermined amount of marine diesel into the environment (Unified Command, M/V *Selendang Ayu* Grounding, 2004). The presence of oil posed a threat of contamination to fishing gear, fishery resources, and potential fishery harvests. ADF&G closed state-waters between Cape Kovrizhka (53° 50.67' N lat.; 167° 09.00' W long.) and Spray Cape (53° 36.83' N lat. 167° 09.33' W long.) to all commercial fishing at 12:01 AM January 1, 2005; the waters have since been reopened (Figure 4).

At the time of release of this management plan, ADF&G does not anticipate an impact from the oil spill on the 2006 Dutch Harbor herring fishery. The probability of oil contamination in Dutch Harbor herring is believed to be minimal. The herring fishery will be conducted in Unalaska Bay and the department will confirm that no oil is evident in the area prior to opening the fishery. If the presence of oil warrants concerns of contamination of fishing gear or catch, the fishery will be closed.

ADAK FISHERY

Beginning in 2004, the BOF authorized a fishery for herring around Adak Island using gillnet gear only with an allocation of 500 tons independent of the Dutch Harbor Food and Bait allocation (5AAC 27.657). ADF&G has no information about the size, timing, or condition of herring stocks in the Adak area. The fishery is intended to provide the ADF&G with stock condition and age structure data and allow development of a fishery. Under this provision, both a food and bait fishery and a sac roe fishery are possible. The department may station a representative in Adak to manage the exploratory fishery and collect and process herring samples. A request for bids to conduct a herring test fishery may be put forth by ADF&G. The general Alaska Peninsula-Aleutian Islands herring fishery regulations apply to the Adak exploratory fishery.

REGISTRATION REQUIREMENTS FOR PERMIT HOLDERS, TENDERS, AND PROCESSORS

Each permit holder, tender operator, and buyer must register and obtain a Commissioner's permit for the Adak herring fishery at the ADF&G office in Sand Point or Dutch Harbor prior to catching, tendering, buying, or processing herring. The buyer and tender reporting requirements are described in 5AAC 27.662. Permit holders are encouraged to check with their markets prior to fishing to determine which products are acceptable. All crewmembers must have a valid crew member license or a CFEC permit card for any fishery.

FISH TICKETS AND CATCH REPORTING

Permit holders must provide specific harvest locations (statistical area and specific landmark) to buyers, so that they can be recorded on fish tickets. Fish tickets must be received, by mail or fax, at the Sand Point ADF&G office within 10 days after the closure of the fishery. If 10 days is

insufficient time to submit fish tickets, other arrangements may be made by contacting ADF&G in Sand Point. Even if no herring are harvested or vessels are not actively fishing, permit holders and processors will be required to report herring harvest daily or until registration from the fishery is withdrawn. If conditions arise which require additional time for permit holders to report herring harvests, the department should be informed of the situation prior to fishing operations.

COMMERCIAL HARVEST SAMPLING

Cooperation by harvesters, tender operators, and processors will be appreciated when the ADF&G personnel request herring samples from the Adak area commercial catch. These samples will be used to monitor age composition and collect information about the herring stocks.

FISHING SEASONS, AREA, GEAR AND OPERATION

In that portion of the Adak District, 175° 30' W long. (Figure 2) to 177° W long., herring may be taken in the sac roe fishery by gillnet gear only from April 15 through 12:00 NOON June 24 and in the food bait fishery, from 12:00 NOON June 24 through February 28. In the remaining portions of the Adak Districts herring may be take by purse seine and gillnet gear, in the sac roe fishery, from April 15 through 12:00 NOON June 24 and in the food and bait fishery by gillnet gear from 12:00 NOON June 24 through February 28 and by purse seine from 12:00 NOON July 15 through February 28 (5 AAC 27.610).

The permit holder must be physically present while the gillnet is being fished. Each set gillnet in operation must be anchored and buoyed at both ends. Each buoy must be plainly and legibly marked with the permanent vessel license plate number (ADF&G number) of the vessel operating the gear. The buoy may bear only a single number and this number must be that of the vessel used in operating the gear. The numbers must be painted on the top one-third of the buoy in numerals at least four inches in height, one-half inch in width and in a color contrasting to that of the buoy. The buoy markings must be visible on the buoy above the water surface. Notwithstanding 5 AAC 27.050(c), gillnet mesh sizes up to three and one-half inches may be used.

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TABLES AND FIGURES

Table 1.-Alaska Peninsula-Aleutian Islands Area Dutch Harbor herring food and bait fisheries historical summary for the purse seine fishery, 1929-2005.

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							
1930	1,916							
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		
1939-44	No Fishery							
1945	75					ND		
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

-continued-

Table 1.-Page 2 of 2.

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					
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
2004	1,035	3 ^c	17	345 ^c	61	100-500	309	103 ^c
2005	1,154	3 ^d	7	384 ^d	165	100-500	370	123 ^d
1929-1938								
Average	1,474	Information not Available						
1995-2004								
Average	1,871	16	28	147	79	250-432	605	46

^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. Exvessel values were calculated per permit holder.

^c Thirteen seine permit holders formed a cooperative using 1 vessel, in addition, 2 seine permit holders fished outside of the coop. Exvessel values are calculated per permit holder.

^d Eleven permit holders used 3 seine vessels in a cooperative fishery, 1 CFEC seine permit holder did not join the cooperative fishery.

Table 2.-Aleutian Islands area Dutch Harbor herring food and bait fisheries historical summary for the gillnet fishery, 2001-2005.

Year	Harvest in Short Tons	Number of Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
2001	107	6	25	18	4	300-500	54	9
2002	134	13	37	10	4	400	54	4
2003	108 ^a	13	23	8	5	400	35 ^a	3
2004	216	7 ^b	37	31	6	300	65	5 ^b
2005	0	0	0	0	0	0	0	0
Average 2001-2004	113	8	24	13	4	400	42	4

^a Twenty tons were not purchased because of spoilage.

^b In 2004, 12 permit holders used seven of nine registered vessels; exvessel values are reported per permit holder.

Table 3.-Alaska Peninsula-Aleutian Islands Area Dutch Harbor commercial herring food and bait fishery, including fishing dates, days fished, preseason Togiak spawning biomass, guideline harvest level, harvest, and number of vessels fishing, 1981-2005.

Year	Landing Date		Days Fished	Preseason Togiak Spawning Biomass	GHLs Short Tons	Food & Bait Harvest Short Tons	Number Vessels Fishing ^a
	First	Last		Short Tons	Tons	Tons	
1981	Aug 3	Aug 23	21	159,000	None	^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 ^d	20
2002	Jun 25	Jul 16	17	120,196	1,578	2,751 ^d	27
2003	Jun 24	Jul 19	7	126,213	1,662	1,487 ^d	19 ^e
2004	Jul 1	Aug 2	26	143,124	1,899	1,258 ^d	10 ^f
2005	Jul 1	Aug 26	11	105,029	1,365	1,154 ^d	5 ^g
1994-2004 Average			12	132,719	1,753	1,928	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 Includes both gillnet and seine harvest.

^e In 2003 the seine fishery was a cooperative.

^f In 2004, the gillnet fishery operated under a cooperative agreement and 13 seine permit holders formed a cooperative using 1 vessel.

^g In 2005, the gillnet fishery did not harvest any fish, and 11 seine permit holders formed a cooperative and used 3 seine vessels, 1 CFEC seine permit holder did not join the cooperative fishery.

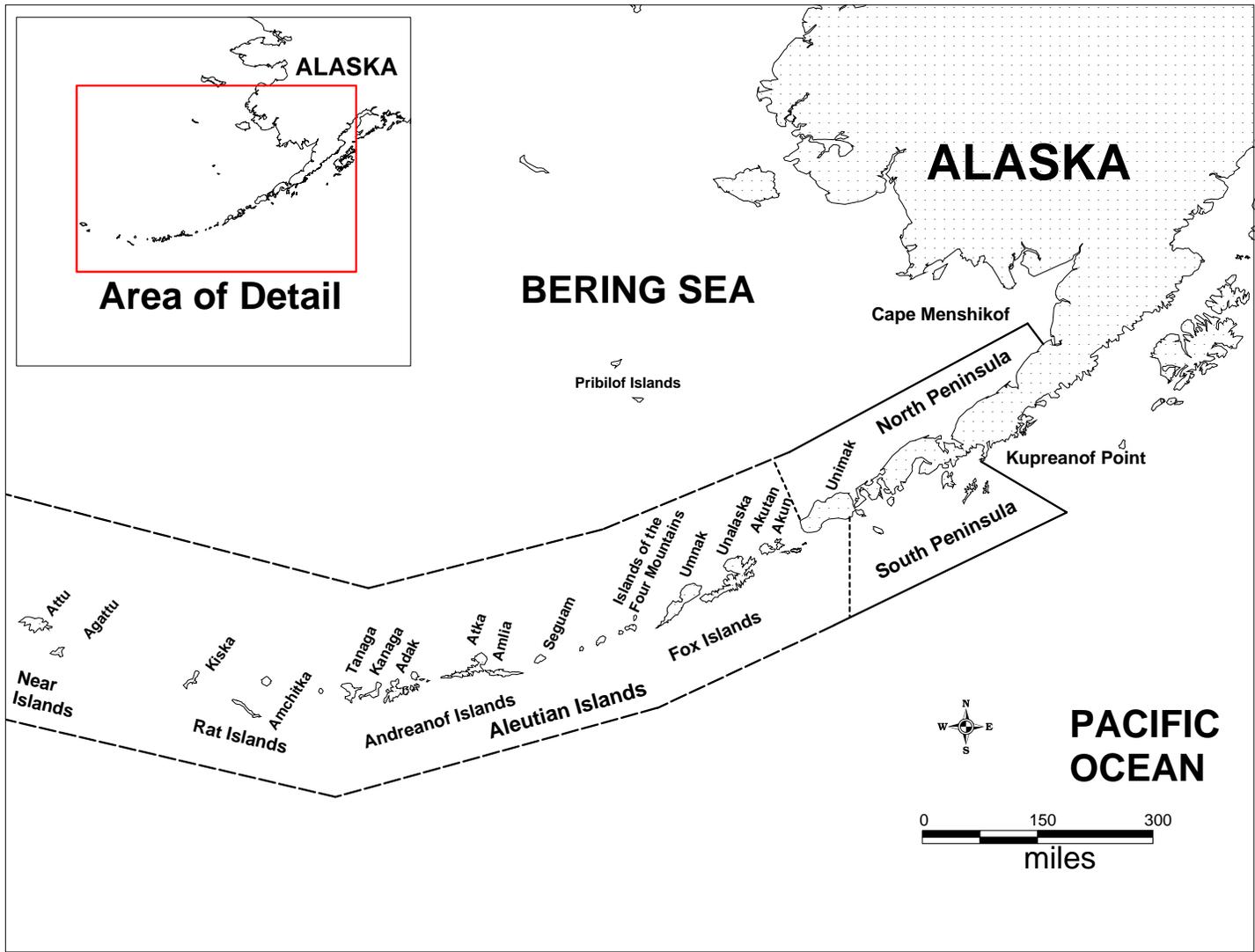


Figure 1.-Map of the Alaska Peninsula-Aleutian Islands Herring Management Area.

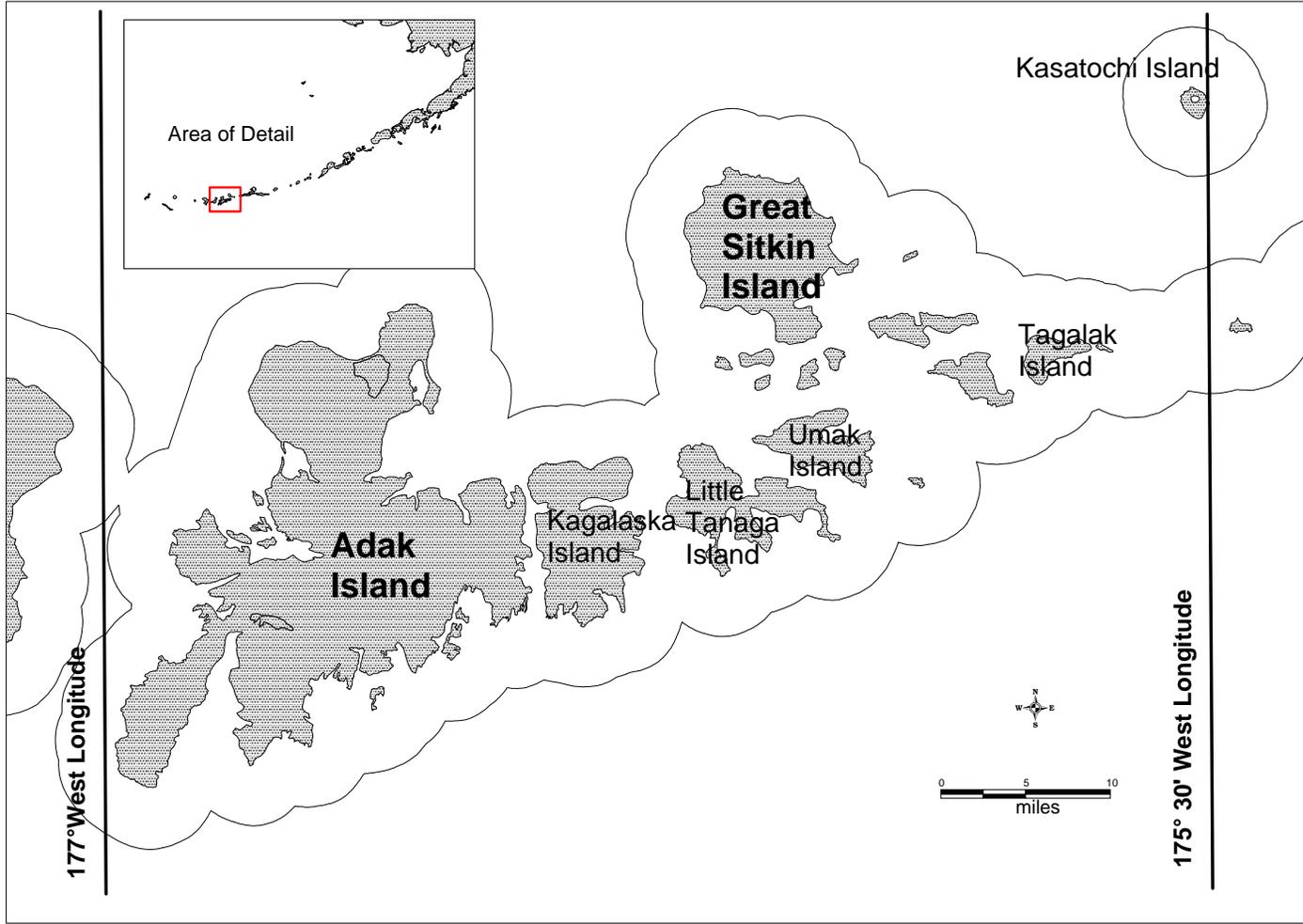


Figure 2.-Map of the Adak Island area illustrating the boundaries of the fishery.

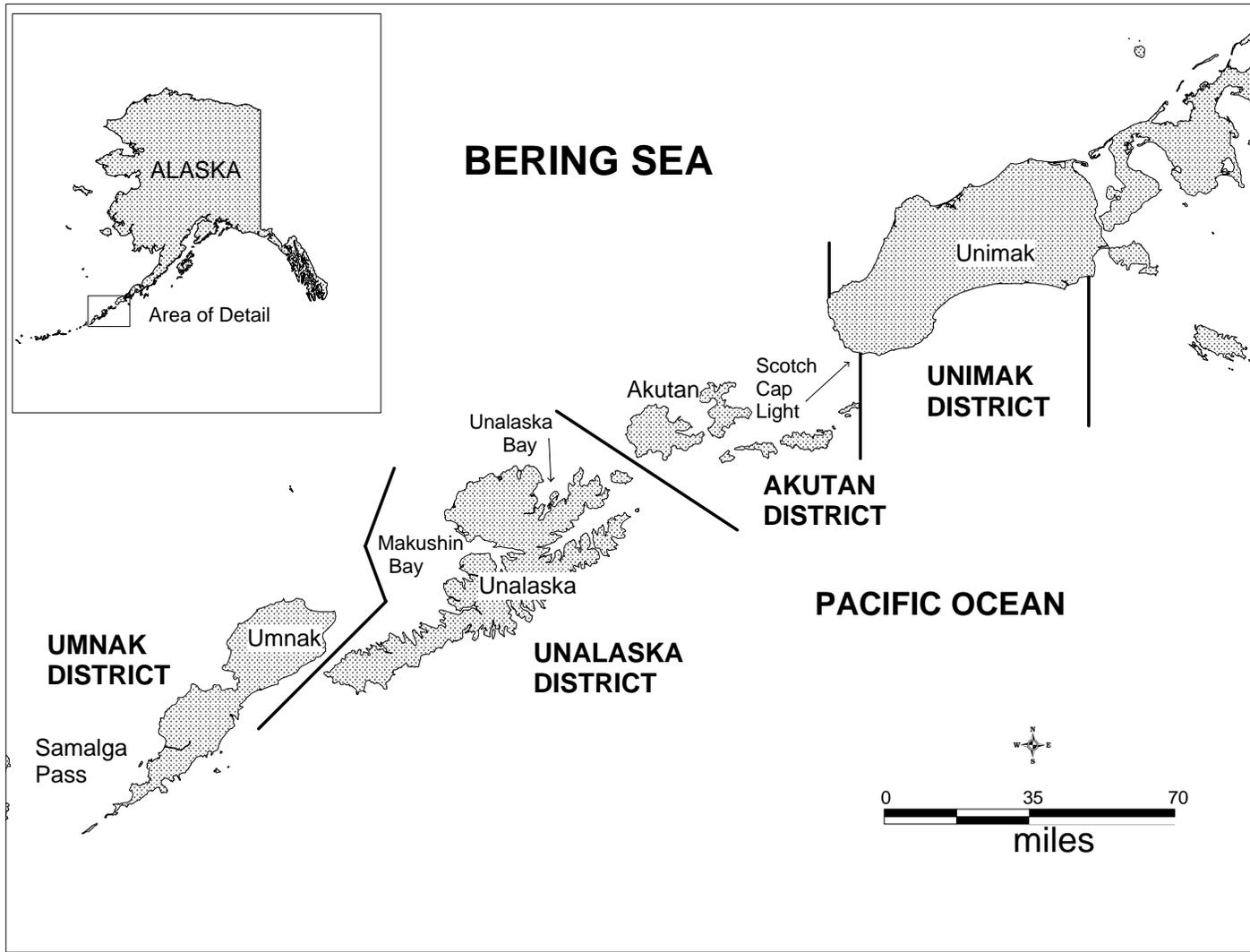


Figure 3.-Map of the eastern Aleutian Islands from Samalga Pass to Unimak Island illustrating the herring fishing district boundaries.

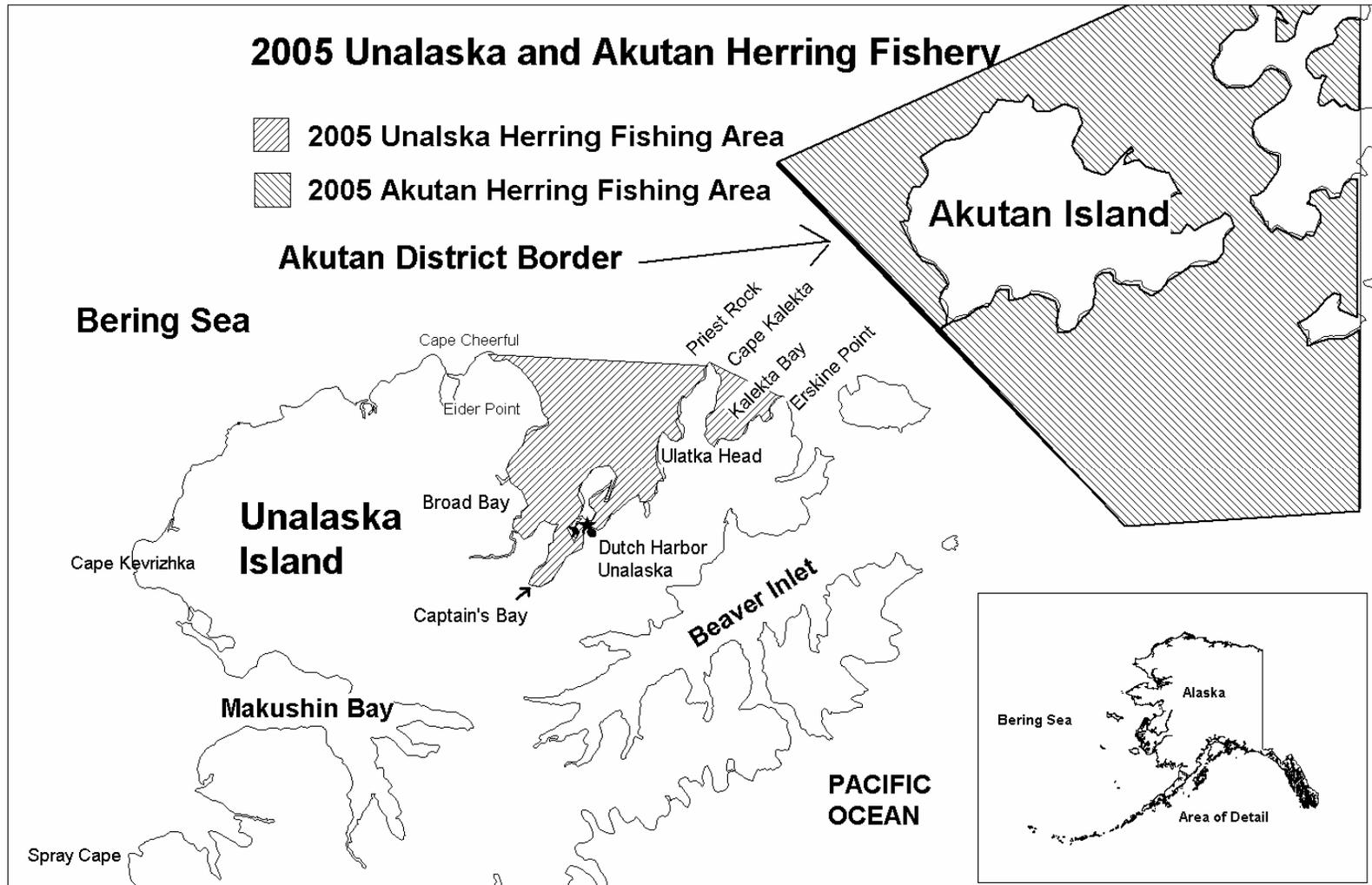


Figure 4.-Map of Akutan Island and Unalaska Island from Beaver Inlet to Makushin Bay, with the 2005 commercial herring fishery open area defined.

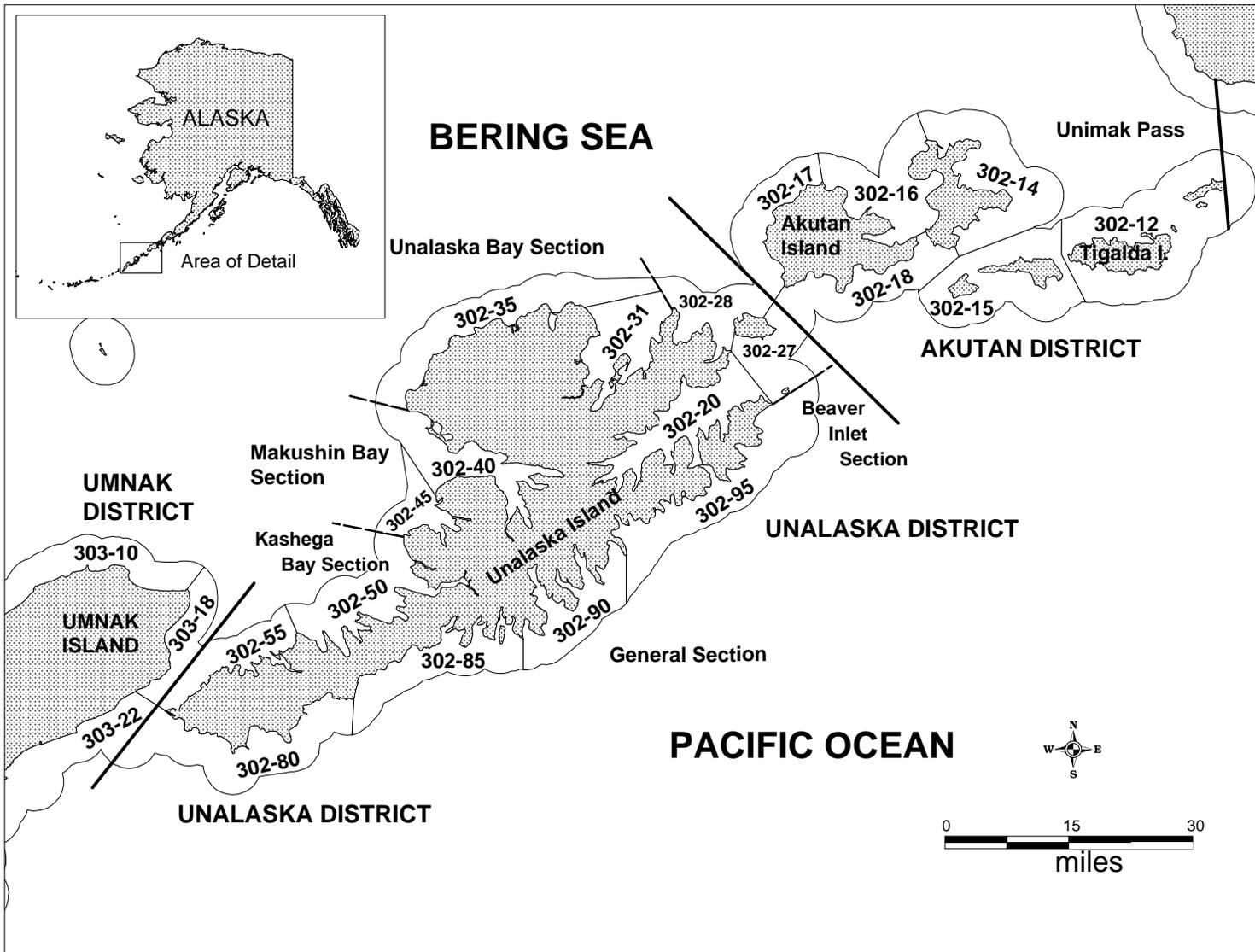


Figure 5.-Map of the Aleutian Islands from Tigalda Island to Umnak Island illustrating the herring fishing district boundaries and statistical areas.

APPENDIX A: FORECASTS

Appendix A1.-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

	Biomass (Short Tons)	Harvest (Short Tons)
2006 Forcaded Biomass	126,976	
Exploitation @ maximum 20%		
For Total Allowable Harvest		25,995
Togiak Spawn-on-Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		24,495
<i>Dutch Harbor Food/Bait Allocation</i>		<i>1,715</i>
<i>Purse Seine Allocation (86%)</i>		<i>1,375</i>
<i>Pound Fishery Allocation</i>		<i>100</i>
<i>Gillnet Allocation (14%)</i>		<i>240</i>
Remaining Allowable Harvest for		
Togiak District Sac Roe Fishery		22,780
Purse Seine Allocation (70.0%)		15,946
Gillnet Allocation (30%)		6,834

^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.

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2006 Togiak Herring Forecast Summary

The Pacific herring population is forecast to be 129,976 tons in the Togiak District during 2006. Herring returning from the 1996, 1997 and 1998-year classes (Age-10, -9 and -8, respectively) are expected to comprise 83% of the biomass. Age-9 herring are expected to make up 46% of the biomass followed by age-10 (22%) and age-8 (15%; Figure A1). The remainder of the herring population is expected to be comprised of age 4-7 (5%) and age 11-15 (12%) fish. The forecasted individual average weight of herring in the harvest biomass is 347 g.

We used an age-structured analysis (ASA) model to forecast the Togiak herring population using catch and age composition data and aerial survey biomass estimates. The ASA model integrated data from purse seine fishery age compositions (1978-2005), total run age compositions (1978-1995, 1997, 1999, 2001, and 2005), and aerial survey biomass estimates (1981, 1983, 1992-1994, 1997, 1999-2001, and 2005). Model estimates were generated and compared to observed data. Samples from non-selective gear (commercial purse seine and test purse seine) were used to assess the age composition of the total run biomass. Commercial purse seine catch and test fish samples ranged from age-4 to age-18. Simple linear regression models were used to forecast the weight of each age class based on their weights the previous year.

A temporal change in age composition from older to younger herring typically occurs in the fishery. However, age-7, -8, and -9 herring predominated throughout 2005. This may signify that younger age classes (age 4-6) of herring are weak or that these age classes did not arrive during the commercial fishery. However, assessing younger age classes of herring is difficult. Younger herring typically do not show up until the later part of the fishery. In addition, we no longer conduct post-fishery sampling that occurred during the 1980's.

The Togiak District herring biomass was estimated to be 156,757 tons in 2005. This was the sum of the peak biomass aerial survey estimate of 108,585 (tons) observed May 1, the aerial biomass estimate of 45,709 (tons) observed May 16, and the estimate of 2,433 (tons) observed May 26. Herring were first reported in the district on April 28, when approximately 11,814 tons were documented. The peak biomass was observed on May 1 with a majority of the estimated 108,585 tons concentrated in Hagemeister and Togiak sections. Biomass of the Togiak herring spawning population has been estimated with aerial surveys since the late 1970's, concurrent with the development of the sac-roe fishery. Large recruitment events have been observed approximately every eight to ten years in the Togiak herring population with the most recent events occurring from the 1996 and 1997-year classes.

There is always uncertainty in forecasting the Togiak District herring biomass and predicting the 2006 return is no different than previous years. Since its inception in 1993, the performance of the ASA model has had a tendency to be biased low. The mean percent error (MPE) was -27% for years with reliable total run biomass estimates (Figure A1). The accuracy or mean absolute percent error (MAPE) of the ASA model has been 25%. We are currently looking into why the forecasts from the ASA model have a tendency to be biased low. In addition, we will continue to work on improving our ability to forecast the Togiak herring population. We consider the Togiak herring population to be healthy and sustainable.

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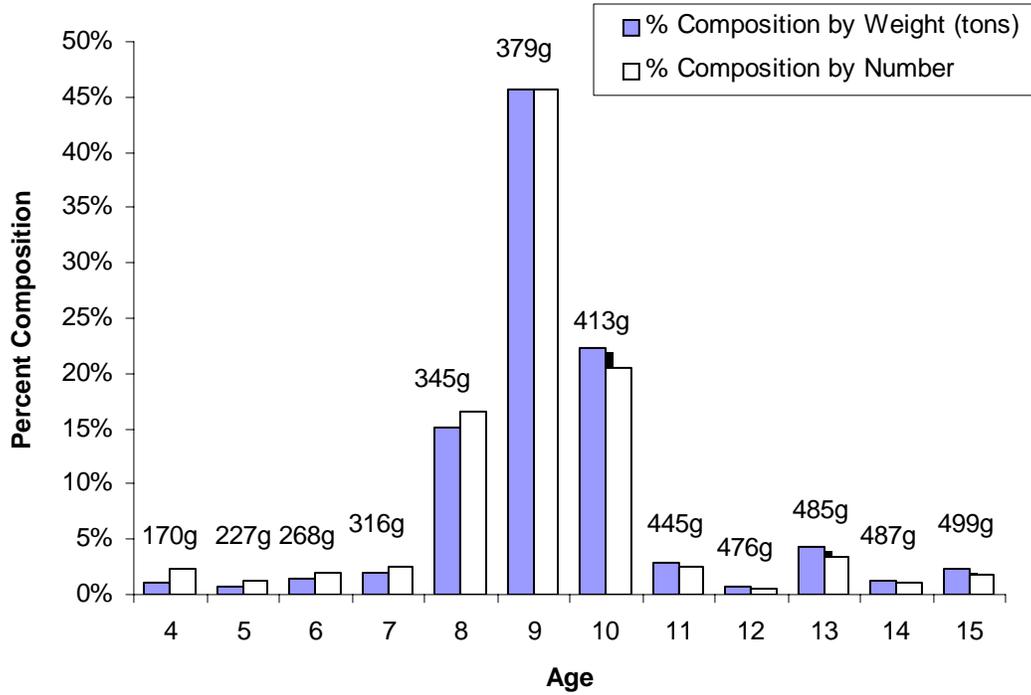


Figure A1.-Forecasted age composition by weight and number for the 2006 Togiak herring return. Forecasted average weight (grams) by age is also presented.