

Fishery Management Report No. 08-61

**Alaska Peninsula-Aleutian Islands Management
Area Herring Food and Bait Fishery Management
Plan, 2008**

by

James V. Jackson

December 2008

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

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

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

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HERRING FOOD AND BAIT FISHERY MANAGEMENT PLAN, 2008**

by

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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) occurs within the Unimak, Akutan, Unalaska, Umnak, and Adak districts. The Dutch Harbor herring food and bait fishery takes place from June 24 until February 28 and is allocated 7 percent of the Togiak sac roe herring total allowable harvest (minus the Togiak spawn on Kelp fishery fixed allocation). For the 2008 season, the allocation is 1,722 tons, of which 1,481 (86%) is allocated to the purse seine fishery, and 241 (14%) tons to the gillnet fishery, and 100 tons is subtracted from the purse seine fishery for the experimental pound fishery. The Adak herring food and bait fishery is allocated 500 tons that may be harvested with gillnet gear in either a sac roe or food and bait fishery from June 24 until February 28. This document describes how the fisheries will be managed, the industry requirements to participate in the fisheries, and how to contact and relay information to the Alaska Department of Fish and Game.

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, fisheries management report (FMR).

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 waters extending west of Cape Menshikof, and Pacific Ocean state waters extending west of Kupreanof Point, to the International Dateline (Figure 1; 5 AAC 27.600). Fishermen may only harvest herring food and bait in the Unimak, Akutan, Unalaska, Umnak and Adak districts (Figure 1).

There are two herring food and bait fisheries in Area M, (1) the Dutch Harbor, and (2) the Adak herring fisheries. In recent years, three management plans have been used to manage the Dutch Harbor herring fishery: (A) the Bering Sea Herring Fishery Management Plan (5 AAC 27.060) establishes that in any district, if any of the southwest herring stocks are below their minimum threshold, the Dutch Harbor food and bait fishery will be closed for the season, (B) the Bristol Bay Herring Management Plan (5 AAC 27.865 (b)) establishes a 7% allocation of the Togiak Districts sac roe herring harvest to the Dutch Harbor food and bait fishery, and (C) the Dutch Harbor Food and Bait Herring Fishery Allocation Plan (5 AAC 27.655) splits the 7% allocation into 86% for the purse seine and 14% for the gillnet fishery.

In 2004, the Alaska Board of Fisheries (BOF) created 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). However, since the plans inception, there has been little harvest in the Adak District.

ALASKA PENINSULA-ALEUTIAN ISLANDS (DUTCH HARBOR) FOOD AND BAIT FISHERY

The Alaska Peninsula-Aleutian Islands (Dutch Harbor) food and bait fishery began in 1929 (Rounsefell 1930) as a purse seine fishery and occurred annually through 1938 with total historic harvests averaging 1,474 tons (Table 1). During the years 1929-1938 catches ranged from 513 tons to 2,510 tons. No fishing occurred from 1939 through 1944 or from 1946 through 1980. From 1981 to 2000, catches ranged from 820 tons to 3,395 tons and came predominantly from the purse seine fishery (Table 2), although, starting in 1988 a few gillnet deliveries were made

(Table 3). From 2002 to 2007, the purse seine fishery decreased to an average of 1,156 tons (Table 1).

In the past few years, permit holders have harvested the seine herring allocation in a combine fishery (Jackson *in prep*). Negligible gillnet harvest occurred during the 2006 and 2007 seasons due to the low numbers of herring in Unalaska Bay (Jackson *in prep*; Table 3).

REQUIREMENTS AND HARVEST PROJECTION FOR THE 2008 FISHERY

The Alaska Department of Fish and Game (ADF&G) will attempt to manage the Dutch Harbor food and bait fishery so that the harvest remains within the allocated 7% of the remaining allowable Togiak District herring sac roe harvest. A “rollover” provision was adopted during the 2001 BOF meeting (5 AAC 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 2008 season will be deducted from the allocation for the 2009 season. Neither the gillnet or purse seine allocations were exceeded in 2007.

In order for the Unimak, Akutan, Unalaska, or Umnak districts (Figure 1) to open to herring food and bait fishing, each Western Alaska herring biomass projection must surpass its BOF mandated district threshold. These fisheries include the Security Cove, Goodnews Bay, Cape Avinof, Nelson Island, Nunivak Island, Cape Romonzof, and Norton Sound districts (Figure 1; Appendix A1). The biomass of all the Bering Sea herring stocks are forecasted to be above their threshold levels and the probability of the 2008 Dutch Harbor food and bait fishery occurring is favorable (Appendix A1). However, processors and fishermen are advised that management of the 2008 fishery will be based on the estimated spawning biomass of each Bering Sea herring stock in 2008. The ADF&G will update biomass estimates for each stock as herring move into coastal waters during spawning migrations.

The Dutch Harbor food and bait allocation is divided between gear groups. Eighty six percent is allocated to the seine fishery and 14% to the gillnet fishery. These allocations are considered independent of each other so that one gear group may not harvest herring allocated to the other gear group. Furthermore, 100 tons may be reserved from the purse seine allocation for an experimental herring pound fishery (5 AAC 27.655(c)). For the 2008 season, this results in projected harvest allocations of 1,381 tons for the purse seine fishery, 100 tons for the seine pound fishery, and 241 tons for the gillnet fishery (Table 4; Appendix A2).

Inseason news releases will be broadcasted on VHF channel 12 in Dutch Harbor, which will serve as the designated department channel for communications during the herring 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 (5 AAC 27.606).

All processors must make daily reports of all herring purchased from fishermen, and other processing records as specified by the department (5 AAC 27.662 (a)(2)). These daily reports can be provided to the ADF&G by VHF, SSB, phone, fax, or e-mail. The following ADF&G 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 channels 6 & 72
 Single Side Band 3.230 MHz
 KWB 362 (call sign)

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 12
 Single Side Band 4.125 MHz
 WIM 76 (call sign)

REGISTRATION REQUIREMENTS FOR PERMIT HOLDERS, TENDERS, AND PROCESSORS

Prior to catching, tendering, buying, or processing any herring, 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 still report daily by 10:00 AM or until registration from the fishery is withdrawn. 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 registration.

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. The aggregate length of gillnets operated by a Commercial Fisheries Entry Commission (CFEC) permit holder may not exceed 150 fathoms (5 AAC 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 GEAR

The herring gillnet fishery can open by emergency order beginning NOON June 24 and may be extended until the allocation is reached, or the department decides that an additional fishing period might exceed the allocation, or until the season ends on February 28 (5AAC 27.610 (e)(2)(A)). The fishery will begin no later than July 1. In order to prevent harvests from exceeding available processing capacity and the allocation, fishing periods may be restricted to six hours in length. In addition, effort levels and harvest rates will be considered when establishing fishery opening and closures. If possible, the fishery will be conducted in the waters of Unalaska Bay (Figure 3).

FISHING PERIODS FOR PURSE SEINE GEAR

The initial purse seine herring fishing period may occur as early as NOON on July 15 (5 AAC 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. Openings over several days may be required to prevent exceeding the allocation. Generally, there will be a 12-hour closure between fishing periods to allow permit holders an opportunity to deliver their catch and the department to assess the harvest and processing capacity. A shorter closed period may be allowed if the department receives harvest reports promptly from all permit holders. The department may cancel or extend a fishing period with little notice.

In the past, widespread overharvesting has occurred in the Dutch Harbor food and bait fishery. To avoid potential overharvest issues in the future, the department instituted the following policy; if the average allocation per vessel fished (total allocation/number of vessels registered) is less than 150 tons per registered vessel, the department will drastically limit both the length of the fishing periods and the size of the open area to commercial herring fishing. This will be especially true if there is a large herring biomass within Unalaska Bay.

Harvesters and spotter pilots are encouraged to relay biomass information to the department prior to the opening. Past cooperation between the department and the fishing industry has proven valuable in gaining information critical to management. The department will try to assess herring biomass in the area prior to opening the fishery.

GEAR TESTING

Prior to opening the fishery, purse seine gear may be tested during daylight hours until 5:00 PM July 14. Gear testing will only be allowed at a time and place designated by the department. Permit holders must contact the department in Dutch Harbor on VHF channel 12 or in person prior to setting gear. 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 at a time and place designated by the department.

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 which is deducted from the purse seine allocation. A person planning to operate a pound must check in with the department and include 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 is encouraged to register with the department in Dutch Harbor or Sand Point no later than 4:30 PM, June 30, 2008.

Herring for pounding may be harvested during purse seine fishery openings. If the herring pound allocation is not harvested, it will then be rolled over into the seine allocation. If the seine fishery exceeds the allocation, the penalty provision (5 AAC 27.655(b)) will be applied to the next year's total allocation. 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 Dutch Harbor ADF&G office within ten days after the closure of the fishery (5 AAC 27.662 (3)).** 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 2008 which 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. The department will distribute test fish bid forms to processors and interested fishermen in June or early July.

ALASKA PENINSULA-ALEUTIAN ISLANDS (ADAK) FOOD AND BAIT FISHERY

Beginning in 2004, the BOF authorized a herring gillnet fishery around Adak Island (Figure 2) with a allocation of 500 tons independent of the Dutch Harbor food and bait allocation (5 AAC 27.655). The department has no information about the size, timing, or condition of herring stocks in the Adak area. Under this provision, both a food and bait and a sac roe fishery are possible. The department may station a representative in Adak to manage this fishery and collect herring samples. A request for bids to conduct a herring test fishery may be put forth by the ADF&G. The general Alaska Peninsula-Aleutian Islands herring fishery regulations apply to the Adak 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

FISHING SEASONS, AREA, AND GEAR OPERATION

In that portion of the Adak District, 175° 30' W. long. to 177° W. long., herring may be taken in the in the food and bait fishery, from June 24 through February 28 (5 AAC 27.657; Figure 2).

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 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 above the water surface.

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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, 1929-2007.

Year	Harvest in 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				ND			
1930	1,916				ND			
1931	1,056	26			ND			
1932	2,510	30			ND			
1933	1,585	38			ND			
1934	1,533				ND			
1935	2,412				ND			
1936	1,379				ND			
1937	579				ND			
1938	513				ND			
1939-1944	^a							
1945	75				ND			
1946-1980	^a							
1981	70	^b		^b			^b	
1982	3,565	7	95	509	38	\$300	\$1,020	\$146
1983	3,567	8	96	446	37	\$232	\$828	\$104
1984	3,578	9	61	398	59	\$210	\$751	\$83
1985	3,554	6	68	560	52	\$162	\$564	\$94
1986	2,394	7	54	342	44	\$254	\$600	\$86
1987	2,485	8	44	373	56	\$300	\$751	\$94
1988	1,983	7	50	251	40	\$252	\$505	\$72
1989	3,079	7	67	342	46	\$283	\$873	\$125
1990	820	7	15	117	55	\$350	\$287	\$41
1991	1,794	14	34	166	53	\$300	\$398	\$28
1992	2,002	19	36	177	56	\$300	\$573	\$30
1993	2,824	14	33	215	86	\$300	\$837	\$60
1994	3,350	15	66	239	51	\$300	\$1,005	\$67
1995	1,705	15	23	125	74	\$300	\$524	\$35
1996	2,279	26	29	95	79	\$300	\$684	\$26
1997	1,950	26	63	75	31	\$300	\$585	\$23
1998	2,025	24	27	75	75	\$300	\$598	\$25
1999	2,437	22	72	109	34	\$400-600	\$1,038	\$47
2000	2,014	20	22	88	92	\$300-500	\$671	\$34
2001	1,332	14	29	95	46	\$300-500	\$406	\$29
2002	2,664	13	15	205	178	\$300-450	\$909	\$70
2003	1,379	6	16	230	86	\$50-400	\$342	\$57
2004	1,045	4	17	348	61	\$100-500	\$309	\$103
2005	1,154	2	4	385	289	\$100-500	\$370	\$123
2006	953	2	18	318	53	\$100-500	\$384	\$128
2007	1,248	2	12	416	104	\$100-500	\$437	\$146

-continued-

Table 1.–Page 2 of 2.

Year	Harvest in Tons	No. Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price (\$) Per Ton	Exvessel Value (\$ (Thousands)	Exvessel Value Per Vessel (Thousands)
1929-1938 Average	1,474							Information not Available
2002-2007 Average	1,156	3	13	339	119	\$170-480	368	111
1997-2006 Average	1,625	11	23	227	102	\$245-440	546	76

^a Fishery was closed.

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

Table 2.—Alaska Peninsula-Aleutian Islands Area Dutch Harbor (all gear combined) commercial herring food and bait fishery, including fishing dates, days fished, preseason Togiak spawning biomass, guideline harvest level, harvest, and number of vessels fishing, 1981-2007.

Year	Landing Date		Days Fished	Preseason Togiak Spawning Biomass	Allocation Tons	Food & Bait Harvest	Number Vessels Fishing
	First	Last		Tons		Tons ^a	
1981	Aug 3	Aug 23	21	159,000	None	^a	^a
1982	Aug 5	Sep 12	39	98,000	None	3,565	7
1983	Jul 23	Sep 6	46	142,000	3,525 ^b	3,567	8
1984	Jul 17	Jul 27	11	115,000	3,525 ^b	3,578	9
1985	Jul 17	Aug 11	26	132,000	3,525 ^b	3,554	6
1986	Jul 16	Jul 28	13	96,000	2,453	2,394	7
1987	Jul 16	Jul 23	4	88,000	2,332	2,485	9
1988	Jul 16	Sep 18	21	132,000	3,100	1,999	9
1989	Jul 16	Aug 5	19	100,108	3,100	3,081	9
1990	Aug 15	Aug 15	<1	72,000	903	820	7
1991	Jul 17	Jul 17	<1	83,229	931	1,794	14
1992	Jul 16	Jul 28	5	60,214	1,940	2,802	19
1993	Jul 16	Jul 16	<1	164,135	2,193	2,824	14
1994	Jul 16	Jul 19	4	165,747	2,215	3,395	16
1995	Jul 16	Jul 16	<1	149,093	1,982	1,748	16
1996	Jul 16	Jul 16	<1	135,585	1,793	2,279	26
1997	Jul 15	Jul 19	5	125,000	1,645	1,990	27
1998	Jul 16	Jul 16	<1	121,054	1,590	2,085	25
1999	Jul 16	Jul 20	4	156,200	2,082	2,437	22
2000	Jul 15	Jul 15	<1	130,904	1,728	2,014	20
2001 ^c	Jun 25	Jul 16	10	119,818	1,572	1,437	22
2002	Jun 25	Jul 16	17	120,196	1,578	2,798	28
2003	Jun 24	Jul 19	7	126,213	1,662	1,467	24
2004	Jul 1	Aug 2	26	143,124	1,899	1,261	16
2005	Jul 1	Aug 26	11	105,029	1,365	1,154	2
2006	Jul 1	Aug 31	15	129,976	1,715	954	4
2007	Jul 16	Jul 27	11	134,566	1,779	1,254	4
2003-2007 Average			14	127,782	1,684	1,218	10
1998-2007 Average			13	128,708	1,697	1,686	17

^a Numbers may not be released due to state of Alaska confidentiality requirements.

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

^c In 2001 a gillnet fishery was established.

Table 3.—Aleutian Islands area Dutch Harbor herring food and bait fisheries historical summary for the gillnet fishery, 1988-2007.

Year	No. Vessels			Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
	Harvest in Tons	Making Landings	Number Landings					
1988	b	b	b	b	b	b	b	b
1989	b	b	b	b	b	b	b	b
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	b	b	b	b	b	b	b	b
1995	b	b	b	b	b	b	b	b
1996	0	0	0	0	0	0	0	0
1997	b	b	b	b	b	b	b	b
1998	b	b	b	b	b	b	b	b
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	105	6	25	4	4	300-500	53	9
2002	134	13	37	4	4	400	54	4
2003	88	13	23	4	4	400	35 ^a	3
2004	216	7	37	6	6	300	65	9
2005	0	0	0	0	0	0	0	0
2006	b	b	b	b	b	b	b	b
2007	b	b	b	b	b	b	b	b
2001-2007								
Average	79	6	18	3	3	283	325	152

^a Twenty tons were not purchased because of spoilage.

^b Numbers may not be released due to state of Alaska confidentiality requirements.

Table 4.—Forecasted harvest allocation for Togiak sac roe and Dutch Harbor herring food and bait fisheries, 2008.

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 Adak at 177° W. Long., herring food and bait fishery.

Harvest Allocation of the 2008 Forecasted Pacific Herring Run Biomass, Togiak District, Bristol Bay		
	Biomass (Tons)	Harvest (Tons)
2008 Forecasted Biomass Exploitation at maximum 20%	130,516	
Total Allowable Harvest		26,103
Togiak Spawn on Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		24,603
Dutch Harbor Food/Bait Allocation ^a		1,722
<i>Purse Seine Allocation (86%) ^b</i>		<i>1,381</i>
<i>Pound Fishery Allocation</i>		<i>100</i>
<i>Gillnet Allocation (14%) ^c</i>		<i>241</i>

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

^b The purse seine allocation for 2008 is 86% of the Dutch Harbor allocation minus the pound fishery allocation of 100 tons.

^c The gillnet allocation for 2008 is 14% of the Dutch Harbor allocation.

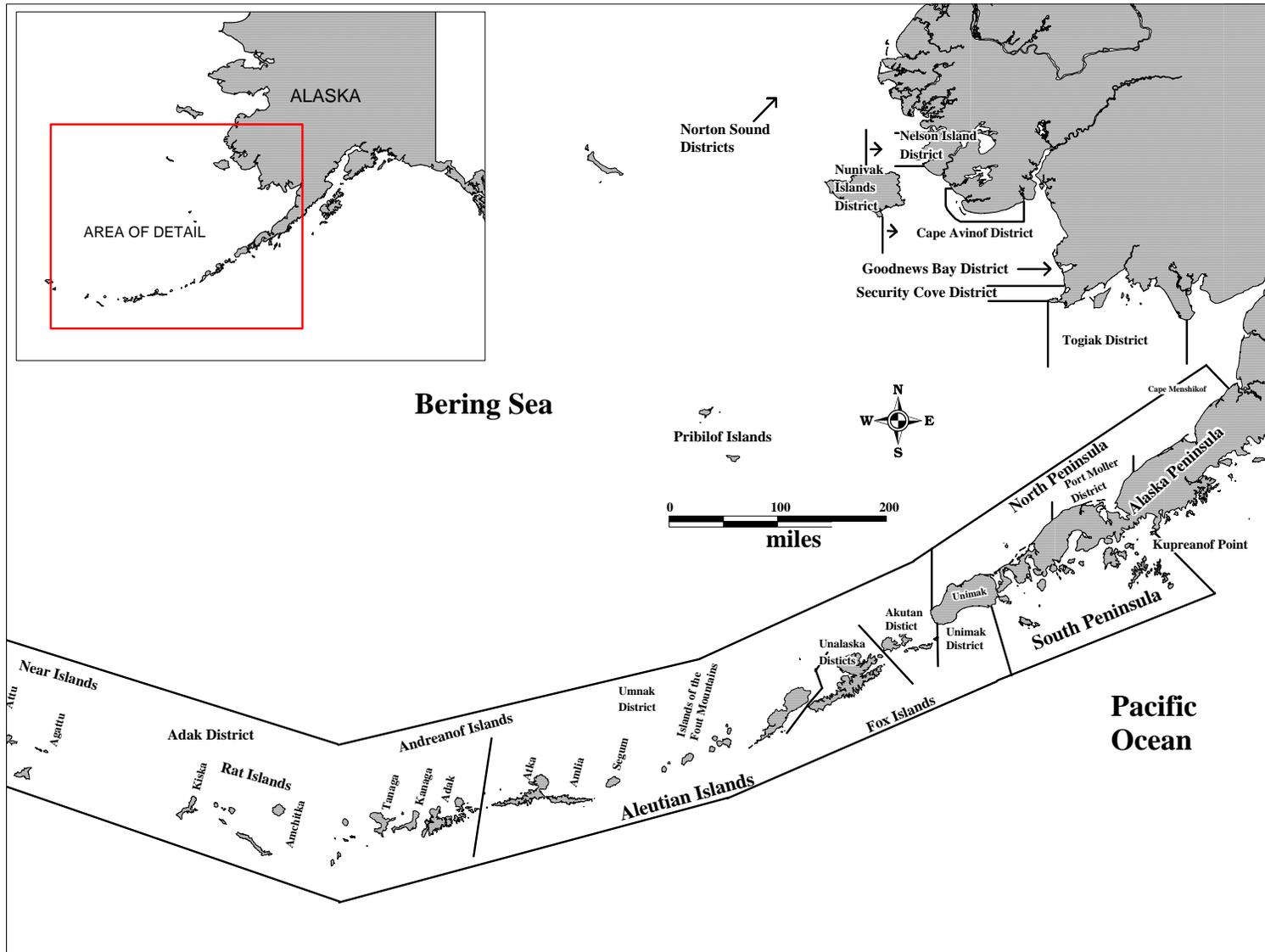


Figure 1.—Map of the Bering Sea Management Plan (5 AAC 27.060) commercial herring districts.

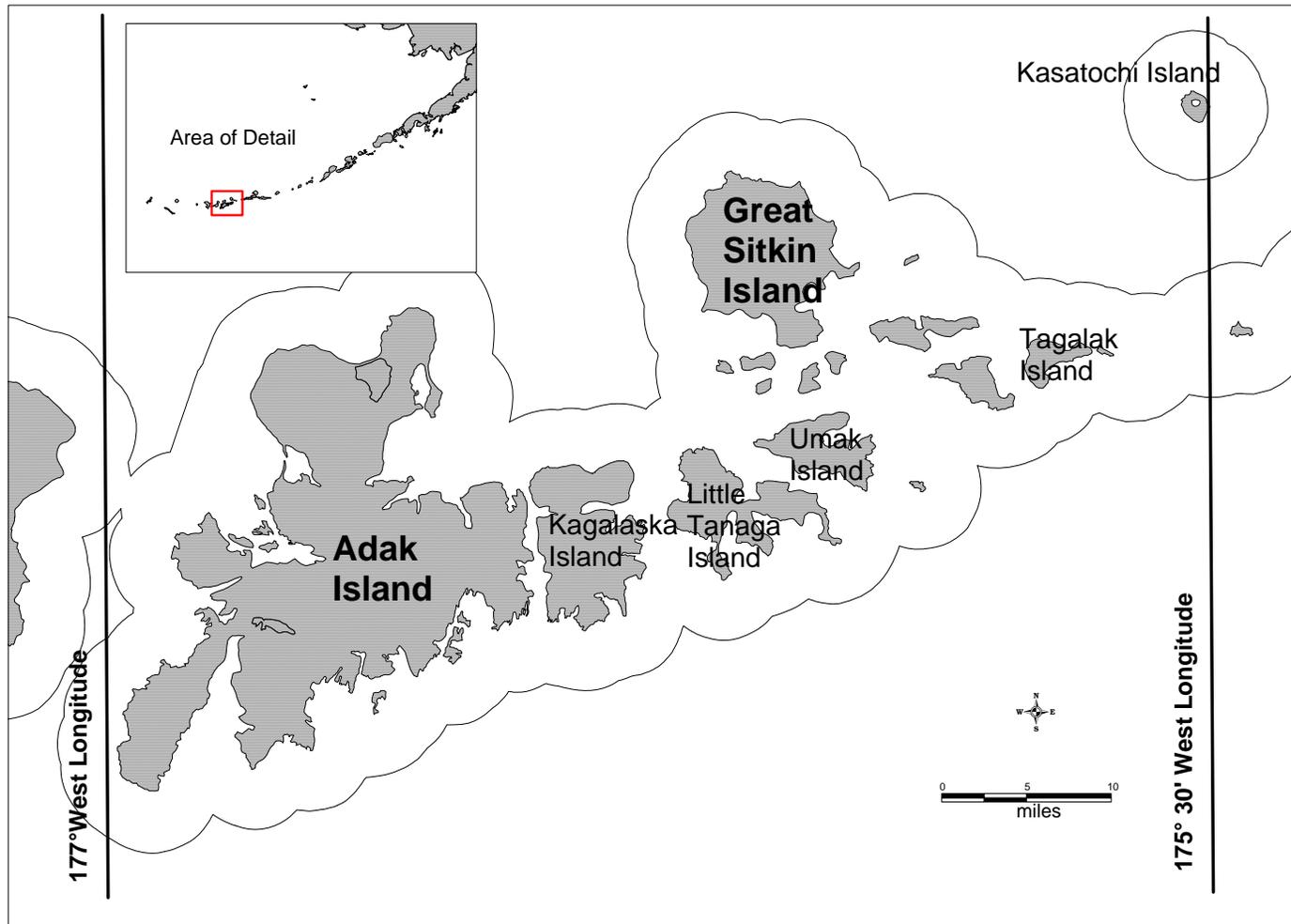


Figure 2.—Map of the Adak Island area illustrating the herring fishery boundaries.

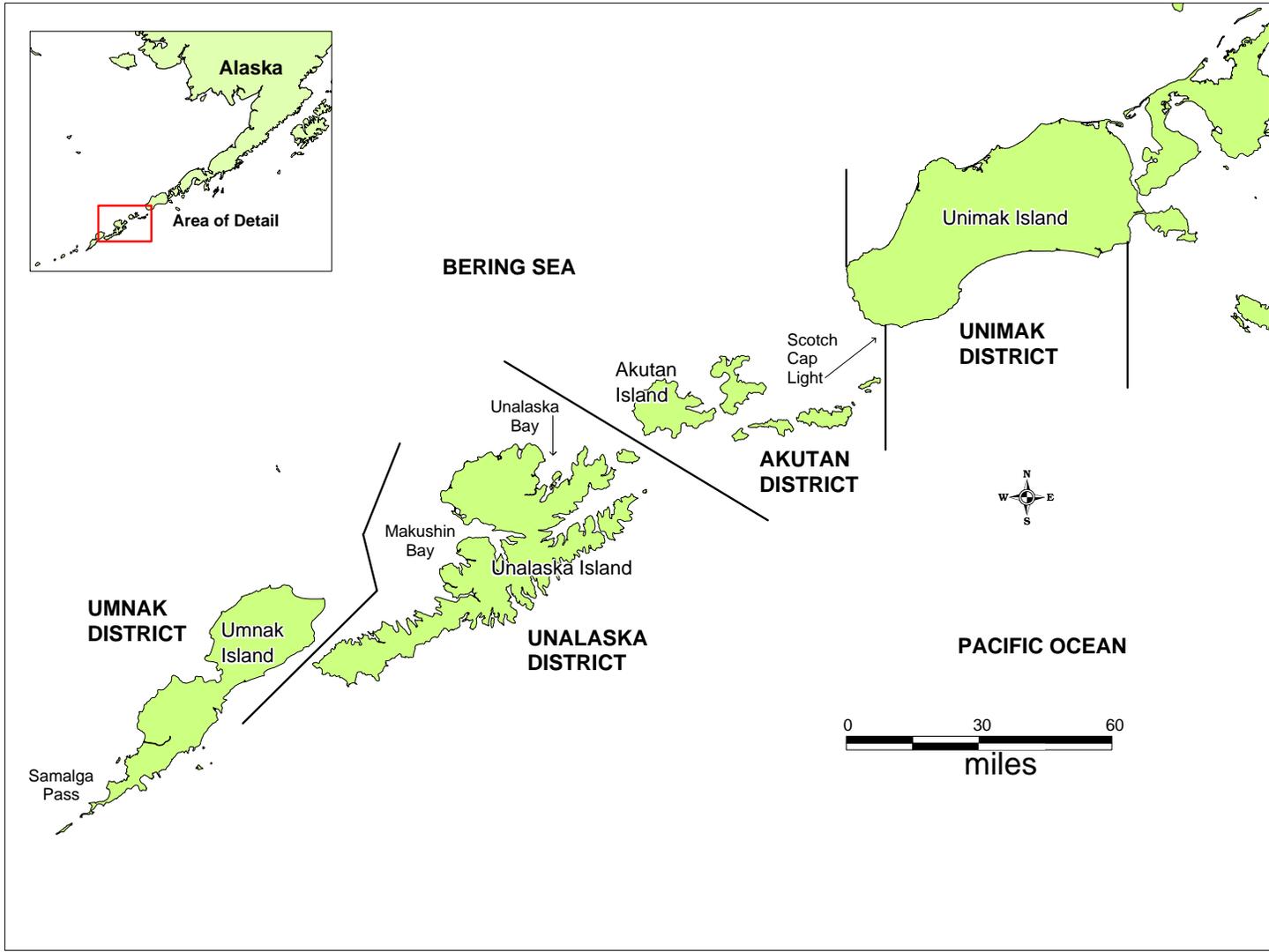


Figure 3.—Map of the eastern Aleutian Islands from Samalga Pass to Unimak Island illustrating the herring fishing district boundaries.

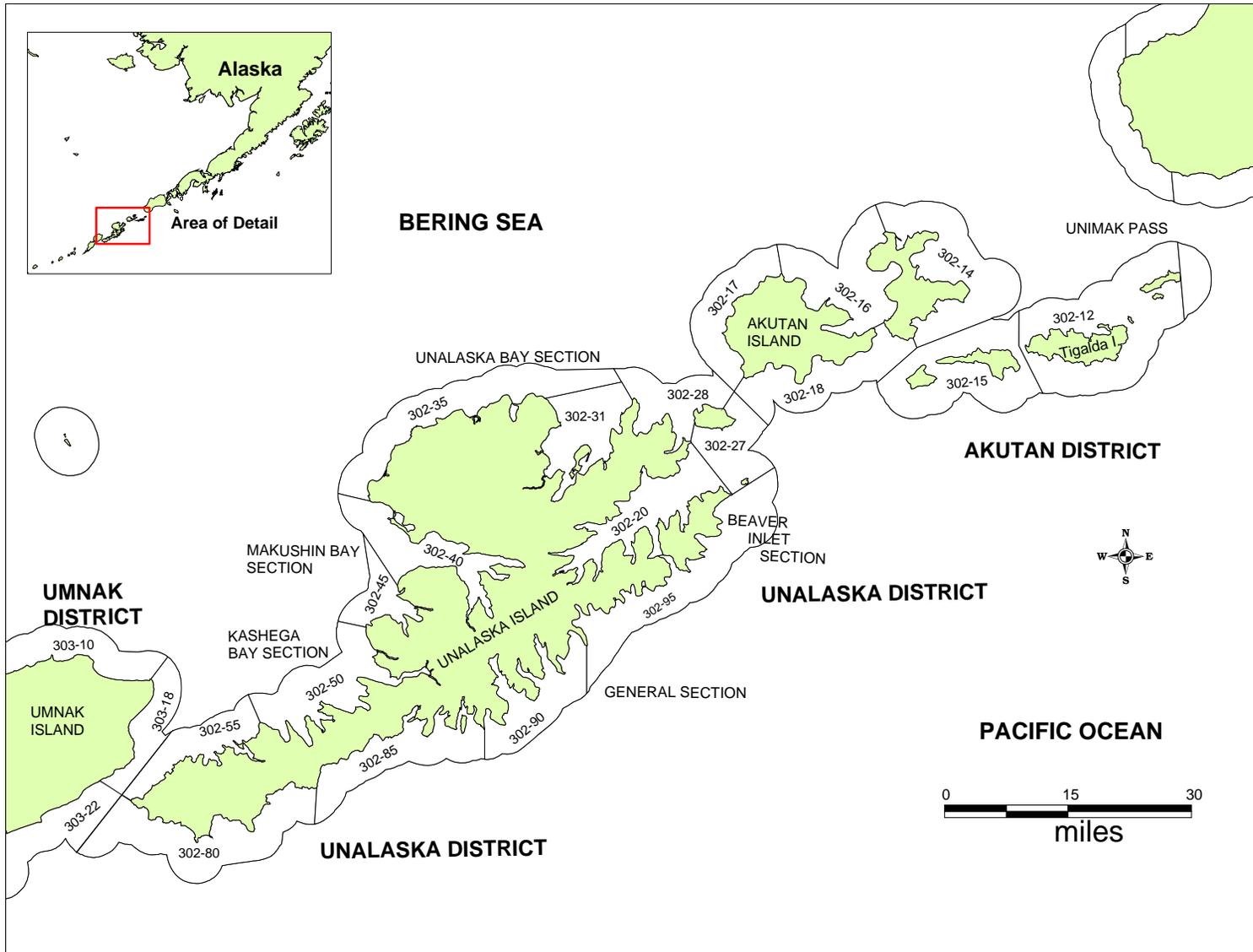


Figure 4.—Map of the Aleutian Islands from Tigalda Island to Umnak Island illustrating the herring fishing district boundaries and statistical areas.

**APPENDIX A: BRISTOL BAY AND ARCTIC-YUKON-
KUSKOKWIM HERRING OUTLOOK AND
MANAGEMENT STRATEGY FOR 2008**

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



Denby S. Lloyd, Commissioner
John Hilsinger, Director



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Arctic-Yukon-Kuskokwim Herring Outlook and Management Strategy for 2008

Projections from postseason escapement estimates suggest that the 2008 spawning biomass for northeastern Bering Sea herring stocks (Security Cove to Norton Sound Districts) will be 58,891 tons, with an anticipated allowable harvest of 11,703 tons. If the return is as expected, a small reduction in biomass will be observed in most districts. The most abundant age classes expected to occur in the herring biomass are age 6 (35%), age 11 (22%), and age 7 (8%). Age 9 and older herring are expected to comprise 41% of the returning biomass.

The department does not anticipate a commercial herring fishery in the AYK Region in 2008 because of a lack of commercial herring market and processor interest. Similar market conditions existed in 2007 resulting in no sac-roe harvest and only a small harvest of 33 tons of bait in the Norton Sound District. This news release is to inform fishers of projected biomass and guideline harvest levels and the strategies employed if commercial fishing does occur.

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

Security Cove District

The 2008 projected return to the Security Cove District is 6,442 tons. A 20% exploitation rate would result in a harvest of 1,288 tons. Commercial fishing will not be allowed until the observed biomass reaches 1,200 tons, or significant spawning activity is observed. Ages 6, 7, and 11 are

-continued-

^a One short ton equals 2000 pounds

expected to comprise 59% of the returning biomass (29%, 14%, and 16%, respectively). Age 9 and older herring are expected to comprise 40 % of the biomass.

Goodnews Bay District

The management strategy for the Goodnews Bay District will be similar to that planned for Security Cove. The season will open and close by emergency order when a biomass of 1,200 tons or significant spawning activity is observed. The 2008 projected return of herring to the Goodnews Bay District is 3,259 tons. A 20% exploitation rate would result in a harvest of 652 tons. Ages 6, 7, and 11 herring are expected to comprise 56% the biomass (23%, 16%, and 17% respectively). Age 9 and older herring are expected to comprise 45% of the biomass.

Cape Avinof District

Either significant spawning activity or a biomass of 500 tons must be observed before the commercial herring season can be opened. The 2008 projected biomass for the Cape Avinof District is 806 tons. The exploitation rate will be no greater than 15% because of the limited database for this area and to ensure the subsistence fishing priority. A 15% commercial exploitation rate would result in a harvest of 121 tons. Ages 6, 7, and 11 are expected to comprise 59% of the returning biomass (29%, 14%, and 16% respectively). Age 9 and older herring are expected to comprise 40% of the biomass.

Nelson Island District

In the Bering Sea Herring Fishery Management Plan, the Alaska Board of Fisheries set a minimum biomass threshold of 3,000 tons for the Nelson Island District. The inseason estimate of herring biomass must exceed the threshold level before a commercial fishery can be allowed. The spawning biomass projected to return in 2008 to the Nelson Island District is 3,424 tons. At a total exploitation rate of 20%, minus 200 tons (6%) for subsistence harvest, the commercial harvest guideline will be 485 tons. Ages 6, 7, and 11 are expected to constitute 64% of the returning population, contributing 38%, 11%, and 15%, respectively. Age 9 and older herring are expected to comprise 33% of the biomass.

Nunivak Island District

The biomass of herring projected to return to the Nunivak Island District in 2008 is 3,688 tons. A 20% exploitation rate would result in a harvest of 738 tons. The commercial season will open when the biomass reaches 1,500 tons or when significant spawning is observed. Ages 6, 7, and 11 are expected to comprise 59% of the returning biomass (29%, 14%, and 16%, respectively). Age 9 and older herring are expected to comprise 40% of the biomass.

Cape Romanzof District

The projected biomass of herring to return to Cape Romanzof District in 2008 is expected to be 3,871 tons. At a 20% exploitation rate, the allowable harvest is expected to be 774 tons and will be based on inseason indicators of abundance. Since water turbidity in the Cape Romanzof area generally prevents aerial observations of herring, spawn deposition and test and commercial catch

rates will be used to determine the timing and duration of commercial fishing periods. Ages 6, 10, and 11 are expected to comprise 64% of the returning biomass (27%, 14%, and 23%, respectively). Age 9 and older herring are expected to comprise 52% of the biomass.

Norton Sound District

The biomass of herring projected to return in 2008 to Norton Sound is 37,401 tons. A 20% exploitation rate would result in a harvest guideline of 7,480 tons. A maximum of 320 tons of herring are reserved to allow for the pound fishery to harvest a maximum of 90 tons of product (combined weight of herring roe and kelp). This leaves 7,160 tons for sac roe harvest. The beach seine harvest is, by regulation, 10% of the sac roe projected harvest, or 716 tons. The 2008 herring fishery will be opened by emergency order and the fishery will close by emergency order when up to 20% of the available herring biomass has been harvested. Varied harvest rates may be applied to individual subdistricts based on biomass distribution, roe quality, weather, and sea ice conditions. Ages 5, 6, and 11 are expected to dominate the returning population, contributing 7%, 38%, and 24%, respectively. Age 9 and older herring are expected to comprise 41% of the biomass.

Port Clarence District

Generally, the department does not project an outlook for the Port Clarence fishery because of the lack of data for Port Clarence herring and the limited scope of the fishery. The guideline harvest of 165 tons established by the Alaska Board of Fisheries in 1981 will determine the allowable harvest in 2008. This harvest guideline is based on 2 years of research conducted by the department in both the Port Clarence and Kotzebue Districts. Even though this guideline has not appeared in the regulation book since 1984, it still represents the best estimate of harvestable biomass.

Table 1. Projections of Pacific herring spawning biomass and harvest guideline for commercial fishing districts in the northeastern Bering Sea, Alaska, 2008.

District	Threshold	2007 Observed Biomass (tons)	2008 Projected Biomass (tons)	Exploitation Rate (%)	2008 Harvest Guideline (tons)
Security Cove	1,200	7,081 ^a	6,442	20	1,288
Goodnews Bay	1,200	3,683 ^a	3,259	20	652
Cape Avinof	500	878 ^a	806	15	121
Nelson Island ^b	3,000	3,614 ^a	3,424	14	485
Nunivak Island	1,500	4,054 ^a	3,688	20	738
Cape Romanzof	1,500	4,489 ^a	3,871	20	774
Norton Sound	7,000	38,415 ^a	37,401	20	7,480
Port Clarence	-	-	-	-	165
Totals			58,891	20	11,703

^a Represents the projected biomass for 2007. Aerial surveys were incomplete or adversely affected by weather.

^b Nelson Island commercial harvest is 20% of projected biomass minus 200 st for subsistence harvest.

**APPENDIX B: FORECASTED HARVEST ALLOCATION
FOR TOGIAK SAC ROE AND DUTCH HARBOR
HERRING FOOD AND BAIT FISHERIES, 2008.**

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



*Denby S. Lloyd, Commissioner
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 Time: 1:00 p.m.

2008 TOGIAK HERRING FORECAST

The 2008 Togiak herring forecast and harvest allocation is listed below for the Togiak District sac roe fishery and the Dutch Harbor food and bait fishery, given a maximum 20% exploitation rate of the projected run biomass:

Harvest Allocation of the 2008 Forecasted Pacific Herring Run Biomass, Togiak District, Bristol Bay

	Biomass (Short Tons)	Harvest (Short Tons)
Forecasted Biomass for 2008	130,516	
Exploitation @ maximum 20% for Total Allowable Harvest		26,103
Togiak Spawn-on-Kelp Fishery (Fixed Allocation)		1,500
Remaining Allowable Harvest		24,603
Dutch Harbor Food/Bait Allocation (7.0% of the remaining allocation)		1,722
Remaining Allowable Harvest for Togiak District Sac Roe Fishery:		22,881
Purse Seine Allocation 70.0%		16,017
Gill Net Allocation 30.0%		6,864

2008 TOGIAK HERRING FORECAST SUMMARY

The Pacific herring population is forecast to be 130,516 tons in the Togiak District during 2008 (Figure 1). Herring returning from the 1997 and 1998-year classes (Age-11 and -10) are expected to comprise 37.3% of the biomass (Figure 2). The remainder of the herring population is expected to be comprised of ages 4–5 (4.9%), ages 6–7 (30.9%), ages 8–9 (16.4%), and ages 12+ (10.5%) herring. The forecasted individual average weight of herring in the harvest biomass is 394 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 (1978–2007), total run age compositions (1978–1995, 1997, 1999, 2001, and 2005–2007), and aerial survey biomass estimates (1981, 1983, 1992–1994, 1997, 1999–2001, and 2005–2007). The model estimates were generated and compared to observed data. Samples from non-selective gear (commercial purse seine) were used to assess the age composition of the total run biomass. Commercial purse seine catch samples ranged from age-4 to age-20. Age-4 herring weight for 2008 was predicted using the recent 4 year average. Simple linear regression models were used to forecast the weight of age-5 through age-15 herring based on their weight the previous year.

A temporal change in age composition from older to younger herring typically occurs in the fishery each year. Age-9 and -10 herring predominated in 2007, comprising 46.0% of the total commercial purse seine harvest by weight. As the season progressed, younger age-5 and -6 herring began to comprise a larger portion of the daily commercial purse seine harvest. This may signify the beginning of a recruitment event. However, assessing younger age classes of herring is difficult as they typically do not show up until the later part or after the fishery. In addition, ADF&G no longer conduct post-fishery sampling that occurred during the 1980's.

The Togiak District herring biomass was estimated to be 134,221 tons in 2007. This was the sum of the peak biomass aerial survey estimate of 84,101 (tons) observed on 17 May, and the aerial biomass estimate of 50,120 (tons) observed on 29 May. Herring were first reported in the district on 6 May, when approximately 68 tons were documented. The peak biomass was observed on 17 May, with a majority of the estimated 84,101 tons concentrated in the Togiak section (71.3%). The 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 8 to 10 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 2008 run is no different than previous years. The performance of the ASA model has had a tendency to forecast low since its inception in 1993. However, the model accurately forecasted (134,566 tons) the total run biomass of 134,221 tons in 2007. The mean percent error (MPE) was -24.8% for years with reliable total run biomass estimates (Figure 1). The accuracy or mean absolute percent error (MAPE) of the ASA model has been 22.3%. The range for the 2008 forecasted total run biomass is from 97,887 tons to 163,145 tons based on a MAPE of ~25%. ADF&G considers the Togiak herring population to be healthy and sustainable.

Chuck Brazil, Fred West and Tim Baker
Bristol Bay Fishery Research Staff
Anchorage

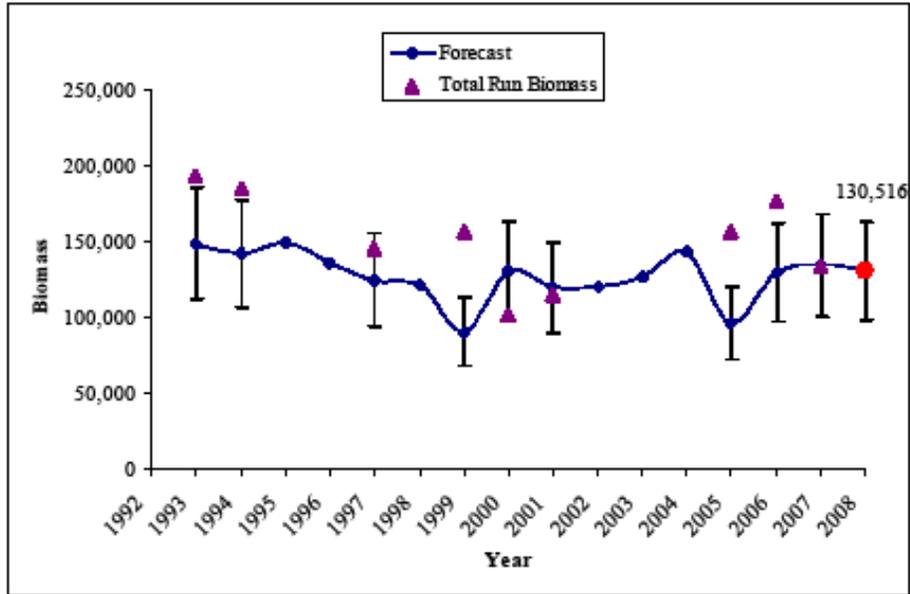


Figure 1.—Observed Togiak herring total run biomass estimates and previous preseason forecasts based on the ASA model. Mean absolute percent error (MAPE) of 25% around the forecast is also shown for years with a reliable total run biomass estimate.

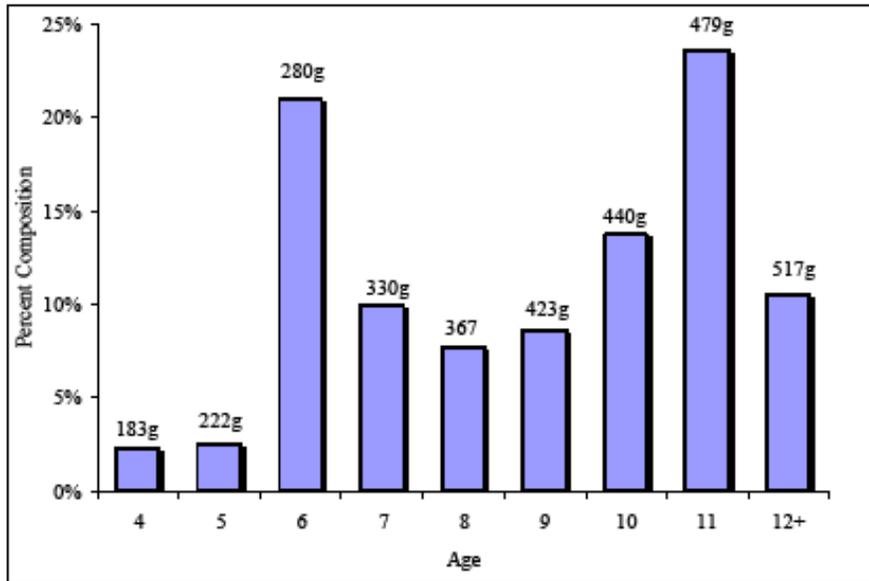


Figure 2.—Forecasted age composition by weight for the 2008 Togiak herring return. Forecasted average weight (grams) by age is also presented.