

**Fishery Management Report No. 12-19**

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**Aleutian Islands and Atka-Amlia Islands Management  
Areas Salmon Annual Management Report, 2011**

by

**Aaron D. Poetter**

and

**Matthew D. Keyse**

April 2012

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



## Symbols and Abbreviations

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

<b>Weights and measures (metric)</b>		<b>General</b>		<b>Mathematics, statistics</b>	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	$H_A$
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	$e$
hectare	ha	at	@	catch per unit effort	CPUE
kilogram	kg	compass directions:		coefficient of variation	CV
kilometer	km	east	E	common test statistics	(F, t, $\chi^2$ , etc.)
liter	L	north	N	confidence interval	CI
meter	m	south	S	correlation coefficient (multiple)	R
milliliter	mL	west	W	correlation coefficient (simple)	r
millimeter	mm	copyright	©	covariance	cov
		corporate suffixes:		degree (angular)	°
<b>Weights and measures (English)</b>		Company	Co.	degrees of freedom	df
cubic feet per second	ft <sup>3</sup> /s	Corporation	Corp.	expected value	$E$
foot	ft	Incorporated	Inc.	greater than	>
gallon	gal	Limited	Ltd.	greater than or equal to	≥
inch	in	District of Columbia	D.C.	harvest per unit effort	HPUE
mile	mi	et alii (and others)	et al.	less than	<
nautical mile	nmi	et cetera (and so forth)	etc.	less than or equal to	≤
ounce	oz	exempli gratia	e.g.	logarithm (natural)	ln
pound	lb	(for example)		logarithm (base 10)	log
quart	qt	Federal Information Code	FIC	logarithm (specify base)	log <sub>2</sub> , etc.
yard	yd	id est (that is)	i.e.	minute (angular)	'
		latitude or longitude	lat. or long.	not significant	NS
<b>Time and temperature</b>		monetary symbols (U.S.)	\$, ¢	null hypothesis	$H_0$
day	d	months (tables and figures): first three letters	Jan, ..., Dec	percent	%
degrees Celsius	°C	registered trademark	®	probability	P
degrees Fahrenheit	°F	trademark	™	probability of a type I error (rejection of the null hypothesis when true)	$\alpha$
degrees kelvin	K	United States (adjective)	U.S.	probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
hour	h	United States of America (noun)	USA	second (angular)	"
minute	min	U.S.C.	United States Code	standard deviation	SD
second	s	U.S. state	use two-letter abbreviations (e.g., AK, WA)	standard error	SE
				variance	
<b>Physics and chemistry</b>				population sample	Var var
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

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The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: <http://www.adfg.alaska.gov/sf/publications/>. This publication has undergone regional peer review.

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## ABSTRACT

The 2011 commercial salmon harvest in the Aleutian Islands Management Area (AIMA) consisted primarily of 632,889 pink salmon, *Oncorhynchus gorbuscha*. The entire 2011 AIMA harvest occurred around the island of Unalaska. No commercial salmon fishing has occurred in the Atka-Amlia Islands Management Area since 1996.

Subsistence salmon harvest information is compiled from permits that are returned when subsistence fishing activities are completed. In 2011, the estimated Unalaska District subsistence salmon harvest was 10 Chinook *O. tshawytscha* salmon, 5,359 sockeye *O. nerka* salmon, 275 coho *O. kisutch* salmon, 375 pink salmon, and 72 chum *O. keta* salmon. Permits were not requested or issued to residents in the Adak District in 2011.

Salmon escapement information for the AIMA and Atka-Amlia Islands Management Areas is sporadically collected. Salmon enumeration weirs have been operated at Summer Bay Lake (1998–2001) and McLees Lake (2001–present) on Unalaska Island to assess salmon escapement. In 2011, 36,602 sockeye salmon were counted at the McLees Lake weir. No aerial or foot surveys were conducted in the Aleutian Islands in 2011.

Key words: Aleutian Islands, Atka-Amlia Islands, annual management report, commercial salmon harvest, subsistence salmon harvest, Chinook salmon, *Oncorhynchus tshawytscha*, sockeye salmon, *Oncorhynchus nerka*, coho salmon, *Oncorhynchus kisutch*, pink salmon, *Oncorhynchus gorbuscha*, chum salmon, *Oncorhynchus keta*, sustainable escapement goal, AMR, SEG.

## INTRODUCTION

The Aleutian Islands Management Area includes the State waters west of Cape Sarichef Light and Scotch Cap (both located on Unimak Island), the Pribilof Islands, but excludes the Atka-Amlia Islands Management Area (5 AAC 12.100; Figure 1). The Atka-Amlia Islands Management Area encompasses all Aleutian Islands waters between Seguam Pass (172°50.00' W long) and Atka Pass (175°23.00' W long; 5 AAC 11.101; Figure 2). The Alaska Department of Fish and Game (ADF&G) has been responsible for managing the salmon resources of the Aleutian Islands and Atka-Amlia Islands Management areas since 1960. In this report we present commercial and subsistence salmon harvest and escapement information for these areas.

The Aleutian Islands Management Area is part of the Alaska Peninsula Salmon Management Area (Area M). Purse seines, hand purse seines, and beach seines are the only legal gear types allowed to fish for salmon in the Aleutian Islands Area (5 AAC 12.330).

The Alaska Board of Fisheries (BOF) created the Atka-Amlia Islands Management Area (Area F) in 1992 to provide a harvest opportunity for local fishermen on local area pink salmon *Oncorhynchus gorbuscha* runs. Legal harvest methods for the Atka-Amlia Islands Management Area include both set gillnetting and purse seining (5 AAC 11.333). To date, only set gillnet fishermen have reported commercial salmon harvests from the Atka-Amlia Islands Area (Poetter and Keyse 2011). Area M Commercial Fisheries Entry Commission (CFEC) permits are also valid in Area F.

## COMMERCIAL SALMON FISHING

Runs of sockeye *Oncorhynchus nerka*, coho *O. kisutch*, pink, and chum *O. keta* salmon occur in Aleutian Islands streams; however, poor salmon markets have generally limited commercial salmon harvests in both the Unalaska Island and Atka-Amlia Island fisheries. Pink salmon are the dominant species in the Aleutian Islands, and runs tended to be stronger during even-numbered years through the year 2000 (Poetter and Keyse 2011). Information collected since 2000, suggests that there has been a shift to odd-year dominant pink salmon runs. Commercial salmon harvest records for these areas date back to 1911 (Table 1). Aleutian Islands harvest data from 1928–1950 cannot be separated from Alaska Peninsula salmon harvests, because the total

number of fish harvested was estimated from the number of cases of salmon canned for both areas. There was occasional fishing near Umnak Island during the 1950s and early 1960s, and a fishing expedition to Attu Island in 1963 (Figure 1; Poetter and Keyse 2011). Prior to 1979, fishermen salted and sold some fish (usually sockeye salmon). Processors in Unalaska-Dutch Harbor or Akutan purchased most of the commercially harvested salmon from 1979 through 1988. Because of the decline in demand for pink salmon after 1988, processing facilities in Dutch Harbor did not purchase salmon and any harvest was transported to the Alaska Peninsula for processing. Since 2006, markets have developed for pink salmon, creating a renewed interest in the Aleutian Islands salmon runs.

Historically there was little commercial harvest during odd-numbered years in the Aleutian Islands Area. Odd-year average pink salmon harvest for 1991–2009 was 264,307 fish (only 2007 and 2009 had harvest) while the even-year average harvest for 1990–2010 was 322,909 fish (Table 1). The largest Aleutian Islands Area pink salmon harvest of 2,597,461 fish was taken in 1980. Of these, approximately 2.0 million pink salmon were harvested in the Makushin Bay Section (Figure 3). Since 2006, commercial salmon fisheries have taken place in the Aleutian Islands Area and all of the harvest has occurred around Unalaska Island.

Small commercial harvests occurred in the Atka-Amlia Islands Management Area between 1992 and 1996 with no commercial effort since that time (Table 2). Interest in this fishery diminished due to lack of markets, high processing costs, and low volumes of fish (Holmes 1997).

## **SUBSISTENCE SALMON FISHING**

Subsistence uses of wild resources are defined as noncommercial, customary and traditional uses for a variety of purposes (AS 16.05.940 (33)). These include: direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation, for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption, and for the customary trade, barter, or sharing for personal or family consumption. Whenever it is necessary to restrict harvests, subsistence fisheries have a preference over other uses of the stock (AS 16.05.258(b)).

Subsistence salmon fishing is important to Aleutian Islands communities (Tables 3 and 4; Veltre and Veltre 1981, 1983). However, due to the remoteness of most villages in the Aleutian Islands Area, subsistence salmon fishing permits are only required in the larger communities in the Unalaska and Adak districts (5 AAC 01.380; Shaul and Dinnocenzo 2005). Subsequently, Unalaska and Adak are the only communities from which subsistence information (from returned permits) is compiled on an annual basis.

Because of a large population increase and an increase in subsistence fishing effort on Unalaska Island in recent years, subsistence restrictions have become necessary to protect salmon stocks in some areas (5 AAC 01.375). A gradual increase of permits occurred from 1985 (65 permits) to a high in 2002 (231 permits; Table 3). More recently the number of permits has increased from 178 to 230 between 2007 and 2011 (Table 3).

Sockeye salmon are the preferred species in the Unalaska subsistence fishery. Most of the sockeye salmon catch in recent years was harvested in Reese Bay, presumably bound for McLees Lake (Figure 4). The Unalaska District annual sockeye salmon harvest in 2011 was estimated 5,359 fish, which is the highest recorded since 1985 (Table 3).



Unalaska Lake sockeye salmon are important to local residents due to the lake's proximity to the community. Beginning in 1997, the waters closed to subsistence fishing were expanded around the outlet of Unalaska Lake to protect this small stock of sockeye salmon and to increase escapements (5 AAC 01.375).

Personal use fisheries are different from subsistence fisheries because they do not meet the criteria established by the Joint Board of Fisheries and Game for identifying customary and traditional fisheries (5 AAC 99.010), or because they occur within nonsubsistence areas where dependence upon subsistence is not a principle characteristic of the economy, culture, and way of life (AS 16.05.258(c)). Personal use fisheries provide opportunities for harvesting fish with gear other than rod and reel in nonsubsistence areas. However, personal use fisheries do not enjoy the same priority over other uses of the resource in times of restricted harvest that subsistence fisheries do.

The BOF eliminated subsistence salmon fishing in the Adak District from 1988 through 1997 and created a personal use salmon fishery for the residents of Adak and Kagalaska islands in response to a large influx of military personnel. After 1993, the personal use effort decreased from previous years due to reductions in U.S. Navy personnel stationed at Adak. Fishing effort in this area declined during 1993-1996 when the U.S. Navy phased out operations, but the civilian population of Adak rebounded briefly in 1997 because of military base cleanup work. In 1998, the BOF reinstated the subsistence salmon fishery in the Adak District. From 1998 through 2010, the number of Adak District subsistence permits has ranged from one in 2006 and 2009 to 17 in 2001, for a yearly average of 6 permits issued (Table 5).

In the past, Atka subsistence data were collected by interviews conducted by the ADF&G Subsistence Division. Due to budget reductions, the last survey was conducted in 1994 (Poetter and Keyse 2011).

## **SALMON ESCAPEMENT, DISTRIBUTION, AND RUN TIMING**

The Aleutian Islands have runs of sockeye, coho, pink, and chum salmon. There are no known Chinook *O. tshawytscha* salmon producing streams in the Aleutian Islands. Streams on Unalaska, Umnak, Atka, Amlia, Adak, and Attu Islands produce relatively large pink salmon runs during even-numbered years (Figure 1). Tanaga, Kanaga, and Kiska Islands (Figure 1) each have at least one important pink salmon stream.

There is very little salmon escapement information collected for the Aleutian Islands and Atka-Amlia Islands areas. Poor weather, remoteness, unavailability of suitable aircraft, and the high cost of aircraft charters limit surveys. The United States Energy Research and Development Administration conducted limited studies on Amchitka Island in 1977 (Seimenstad et al. 1977; Valdez et al. 1977). A salmon escapement and distribution study of the entire Aleutian chain was conducted by the ADF&G in 1982 (Holmes 1997). The ADF&G conducted repetitive surveys on some Atka and Amlia Islands streams in 1992, 1993, and 1994 (Holmes 1995). The U.S. Fish and Wildlife Service (USFWS) conducted salmon abundance and distribution research on Adak Island in 1993 and 1994 (Palmer 1995). Foot and aerial surveys have been conducted by ADF&G on a more regular basis on some streams on Unalaska Island; however, these survey efforts have been limited. The resulting data are incomplete and of limited use in fisheries management.

In response to an oil spill from the 1997 grounding of the *M/V Kuroshima*, a weir was operated by ADF&G at Summer Bay Lake, on Unalaska Island, from 1998 through 2001 (Table 6; Figure 4; Honnold et al. 1999; McCullough 2000). The FWS has also operated a weir at McLees Lake on Unalaska Island from 2001 through 2011 (Table 7). These projects documented larger runs of sockeye salmon than had been previously observed in these streams. Sockeye salmon escapements into McLees Lake increased between 2001 and 2003 when the run peaked at 101,793 fish, but then decreased to fewer than 9,000 fish in 2008 (Tables 7). Aerial surveys confirmed that the sockeye salmon escapements into McLees Lake during 2001 and 2002 were unusually large; however, in 2003 it was not possible to survey McLees Lake until September 1, at which point most of the fish had already spawned and died. Historical aerial survey information was deemed to be unreliable and did not correlate with the weir counts. No aerial surveys of McLees Lake have occurred since 2003. The sustainable escapement goal (SEG) adopted in 1993 of 4,000–6,000 sockeye salmon for McLees Lake was eliminated in 2004 because no commercial fishery targets those stocks. In February 2009, ADF&G staff reviewed sockeye salmon escapement data for the McLees Lake system. From this review, an SEG of 10,000–60,000 sockeye salmon was established for McLees Lake in years that a weir is operated. In the absence of a weir there would be no SEG as escapement would only be monitored via aerial surveys (Witteveen et al, 2009). Due to weak runs, the subsistence salmon fishing closed waters markers were adjusted inseason by emergency order for the conservation of McLees Lake sockeye salmon in 2006 and 2008 through 2010.

Unalaska Lake did not reach its minimum sockeye salmon peak count escapement objective of 400 fish in numerous years between 1987 and 2009 though no surveys of Unalaska Lake have been conducted since 2007 (Table 8). In 1997, the waters closed to subsistence fishing at the mouth of the stream were increased to conserve additional fish for escapement (5 AAC 01.375). Between 1998 and 2004, sockeye salmon escapements to this system have been generally adequate, but only 9 fish were documented in 2005 and 12 fish in 2006 under unfavorable survey conditions (Table 8). Surveys have not been conducted on Unalaska Lake since 2006.

## **2011 SEASON**

The commercial salmon fishery in the Aleutian Islands and Atka-Amlia areas was managed by the ADF&G staff in Sand Point. Unalaska District salmon subsistence permits were issued by the ADF&G staff in Dutch Harbor while Adak subsistence salmon permits were issued by ADF&G in Cold Bay.

### **COMMERCIAL HARVEST**

In 2011, the commercial harvest in the Aleutian Islands Area was 632,889 pink salmon (Table 1). In addition, 1,863 sockeye, 2 coho, and 235 chum salmon were also harvested. The larger pink salmon harvests over the past five years have been mainly attributed to increased harvester and processor interest. All the commercial harvest was around Unalaska Island and most of that harvest occurred in the Makushin Bay area. There was no commercial salmon harvest in the Atka-Amlia Islands Area in 2011.

### **SUBSISTENCE AND PERSONAL USE HARVEST**

A total of 230 subsistence permits were issued for the Unalaska District in 2011, which was greater than the number of permits issued in 2010 (217; Table 3). The highest number of permits issued was 231 in 2002, though the highest estimated harvest of 7,139 salmon occurred in 1986.

The total estimated harvest of 6,091 salmon in 2011 was more than the 2006–2010 average estimated harvest of 3,760 salmon (Table 3). An estimated 4,681 sockeye salmon, which represented 87% of the total Unalaska District harvest (5,359), were caught in Reese Bay (Table 4). The Unalaska Lake sockeye salmon harvest was estimated at 179 fish (Table 4). The 2011 total estimated Unalaska District sockeye salmon subsistence harvest of 5,359 fish was higher than the 2006-2010 average harvest of 2,639 fish (Table 3).

The 2011 estimated Unalaska District coho salmon harvest of 275 fish was less than the recent five year average (2006–2010) of 445 fish. The pink salmon subsistence harvest around Unalaska Island in 2011 was an estimated 375 fish (Table 3). Chinook and chum salmon are not abundant in Unalaska Island waters and account for only a small portion of the subsistence harvest. In 2011, an estimated 10 Chinook and 72 chum salmon were caught in the Unalaska District subsistence fishery (Table 3). No subsistence permits were issued in the Adak District in 2011 (Table 5).

## **ESCAPEMENT**

FWS again installed and operated a weir at the outlet of McLees Lake (which empties into Reese Bay) from June 10 through July 17 (Table 9; Figure 4). A total of 36,602 sockeye salmon were counted through the weir which met the SEG.

## **ACKNOWLEDGMENTS**

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## **TABLES AND FIGURES**

Table 1.—Aleutian Islands Area (excluding Atka-Amlia Islands Area) commercial salmon harvests in numbers of fish by year, 1911–2011.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1911			0	9,300	0	0	0	9,300
1912–1915			0	0	0	0	0	0
1916			0	76,500	1,200	180,300	100	258,100
1917			0	70,400	3,800	600	23,100	97,900
1918			0	55,200	4,400	75,600	135,200	270,400
1919			0	3,900	800	4,000	0	8,700
1920			0	10,100	2,800	0	0	12,900
1921			0	0	0	0	0	0
1922			0	14,000	0	0	0	14,000
1923			0	0	0	0	0	0
1924			0	24,900	0	673,800	100	698,800
1925			0	18,600	0	3,800	9,100	31,500
1926			0	1,300	0	521,700	7,800	530,800
1927			0	17,300	0	334,600	0	351,900
1928–1950 <sup>a</sup>								0
1951			0	11,700	400	500	94,500	107,100
1952			200	42,800	0	31,800	25,700	100,500
1953			0	4,200	500	69,200	800	74,700
1954			0	6,300	800	566,500	200	573,800
1955			0	12,600	100	31,100	400	44,200
1956			0	400	0	33,900	0	34,300
1957			2,300	27,300	100	500	13,900	44,100
1958			0	300	0	613,200	3,700	617,200
1959			0	6,100	0	12,000	100	18,200
1960			0	7,600	0	444,900	300	452,800
1961			0	2,700	0	94,000	200	96,900
1962			0	5,500	100	2,001,700	1,200	2,008,500
1963			0	4,500	0	93,900	300	98,700
1964			0	200	0	194,100	2,300	196,600
1965			0	0	0	0	0	0
1966			0	1,000	0	63,500	700	65,200
1967			0	200	0	7,900	0	8,100
1968			0	2,000	100	902,800	800	905,700
1969			0	1,900	0	242,200	1,500	245,600
1970	45	361	6	208	135	644,121	3,029	647,499
1971	11	105	0	333	2	45,114	58	45,507
1972	8	28	0	69	1	2,784	6	2,860
1973 <sup>b</sup>								
1974	0	0	0	0	0	0	0	0
1975	5	6	0	19,402	0	659	1,881	21,942
1976–1977	0	0	0	0	0	0	0	0
1978	6	32	0	1,829	0	38,109	6	39,944
1979	10	124	0	12,206	0	539,393	242	551,841
1980	28	263	2	9,226	2	2,597,461	4,874	2,611,565
1981	16	85	16	5,430	188	302,786	6,553	314,973

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Table 1.–Page 2 of 2.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1982	15	164	0	2,672	28	1,447,818	6,148	1,456,666
1983	– <sup>b</sup>	– <sup>b</sup>	0	4,405	0	2,005	11,361	17,771
1984	37	281	26	67,163	1,923	2,309,665	32,025	2,410,802
1985 <sup>b</sup>								
1986	9	31	11	7,702	60	42,621	38,819	89,213
1987	– <sup>b</sup>	– <sup>b</sup>	0	75	0	0	0	75
1988	– <sup>b</sup>	– <sup>b</sup>	0	4,315	7	183,109	450	187,881
1989	– <sup>b</sup>	– <sup>b</sup>	0	8,248	0	6,700	0	14,948
1990	15	49	2	12,435	74	282,823	1,038	296,372
1991	– <sup>b</sup>	– <sup>b</sup>	0	796	0	0	0	796
1992	4	20	0	3,082	0	312,072	1,230	316,384
1993	0	0	0	0	0	0	0	0
1994	10	64	0	47	6	858,787	617	859,457
1995–1999	0	0	0	0	0	0	0	0
2000	– <sup>b</sup>	– <sup>b</sup>	1	0	59	256,050	0	256,110
2001–2005	0	0	0	0	0	0	0	0
2006	3	43	0	2,329	0	991,687	1,534	995,550
2007	– <sup>b</sup>	– <sup>b</sup>	0	0	0	1,017,164	0	1,017,164
2008	4	44	1	29	48	784,828	261	785,167
2009	6	89	0	703	16	1,625,910	2,005	1,628,634
2010	9	14	2	1,263	0	25,668	4,862	31,795
2011	8	37	2	1,863	2	632,889	235	634,991
Odd-Year Average Pink Harvest, 1991–2009						264,307		
Even-Year Average Pink Harvest, 1992–2010						322,909		

<sup>a</sup> The Aleutian Islands catches cannot be separated from those of the Alaska Peninsula Area during 1928–1950.

<sup>b</sup> Confidentiality rules prohibit the release of this information.

Table 2.—Atka-Amlia Islands Area commercial salmon harvests in numbers of fish, by year, 1992–2011.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1992	13	41	0	231	42	7,972	308	8,553
1993	9	10	0	24	4	145	563	736
1994	6	7	0	16	0	896	0	912
1995	0	0	0	0	0	0	0	0
1996	<sup>a</sup>	<sup>a</sup>	0	0	0	20	0	20
1997–2011	0	0	0	0	0	0	0	0

<sup>a</sup> Confidentiality rules prohibit the release of this information.



Table 3.–Estimated subsistence harvest for Unalaska Island, 1985–2011.

Year	Permits		Chinook	Sockeye	Coho	Pink	Chum	Total
	Issued	Returned						
Unalaska Local Community Residents <sup>a</sup>								
1985	65	28	0	897	208	1,293	20	2,418
1986	121	22	0	3,449	847	2,468	375	7,139
1987	81	49	0	1,097	378	1,780	151	3,406
1988	74	43	1	962	390	2,626	83	4,062
1989	70	41	2	1,064	470	1,292	36	2,864
1990	94	36	4	2,357	681	1,428	100	4,570
1991	89	48	0	1,294	666	1,075	45	3,080
1992	144	102	7	2,739	587	1,723	11	5,067
1993	137	102	17	2,831	697	587	136	4,268
1994	150	120	1	2,759	774	1,053	48	4,635
1995	159	129	23	4,446	480	784	23	5,756
1996	189	123	5	1,107	1,033	492	49	2,686
1997	218	161	8	4,192	864	440	110	5,614
1998	206	161	4	3,317	731	729	26	4,807
1999	208	140	0	2,707	1,327	1,018	13	5,065
2000	205	142	7	3,073	569	315	24	3,988
2001	201	140	4	3,850	563	763	100	5,280
2002	226	156	2	5,267	643	277	63	6,252
2003	220	149	27	4,814	558	408	41	5,848
2004	207	141	4	4,343	792	343	26	5,508
2005	207	123	6	4,210	356	587	15	5,174
2006	193	116	10	1,722	363	745	92	2,932
2007	171	104	16	2,391	207	750	36	3,400
2008	195	117	2	1,833	726	567	115	3,243
2009	205	125	5	3,260	610	444	182	4,501
2010	211	143	2	3,959	307	387	26	4,681
2011	218	140	8	5,191	275	375	72	5,921
Average								
2001–2010	204	131	8	3,565	513	527	70	4,682
2006–2010	195	121	7	2,633	443	579	90	3,751
Alaska State Residents Not Local To The Unalaska District <sup>a</sup>								
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	3	2	2	4	0	1	0	7
1989	4	1	0	48	0	0	0	48
1990	2	1	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	2	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	1	0	0	38	4	7	0	49
1996	0	0	0	0	0	0	0	0
1997	3	2	0	0	0	114	0	114
1998	0	0	0	0	0	0	0	0

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Table 3.–Page 2 of 2.

Year	Permits		Chinook	Sockeye	Coho	Pink	Chum	Total
	Issued	Returned						
Alaska state residents not local to the Unalaska District continued...								
1999	3	2	0	0	0	0	0	0
2000	7	6	0	4	1	10	0	15
2001	2	1	0	0	0	0	0	0
2002	5	3	0	0	0	0	0	0
2003	7	7	0	30	0	0	0	30
2004	2	1	0	30	0	0	0	30
2005	10	6	1	23	0	0	0	24
2006	6	3	0	0	0	0	0	0
2007	7	4	0	0	0	0	0	0
2008	9	5	0	0	0	0	0	0
2009	10	5	0	2	10	0	0	12
2010	6	5	0	29	0	1	0	30
2011	12	5	2	168	0	0	0	170
Average								
2001–2010	6	4	0	11	1	0	0	13
2006–2010	8	4	0	6	2	0	0	8
Total Unalaska <sup>a</sup>								
1985	65	28	0	897	208	1,293	20	2,418
1986	121	22	0	3,449	847	2,468	375	7,139
1987	81	49	0	1,097	378	1,780	151	3,406
1988	77	45	3	966	390	2,627	83	4,069
1989	74	42	2	1,112	470	1,292	36	2,912
1990	96	37	4	2,357	681	1,428	100	4,570
1991	89	48	0	1,294	666	1,075	45	3,080
1992	144	102	7	2,739	587	1,723	11	5,067
1993	139	102	17	2,831	697	587	136	4,268
1994	150	120	1	2,759	774	1,053	48	4,635
1995	160	129	23	4,484	484	791	23	5,805
1996	189	123	5	1,107	1,033	492	49	2,686
1997	221	163	8	4,192	864	554	110	5,728
1998	206	161	4	3,317	731	729	26	4,807
1999	211	142	0	2,707	1,327	1,018	13	5,065
2000	212	148	7	3,077	570	325	24	4,003
2001	203	141	4	3,850	563	763	100	5,280
2002	231	159	2	5,267	643	277	63	6,252
2003	227	156	27	4,844	558	408	41	5,878
2004	209	142	4	4,373	792	343	26	5,538
2005	217	129	7	4,233	356	587	15	5,198
2006	199	119	10	1,722	363	745	92	2,932
2007	178	108	16	2,391	207	750	36	3,400
2008	204	122	2	1,833	726	567	115	3,243
2009	215	130	5	3,262	620	444	182	4,513
2010	217	148	2	3,988	307	388	26	4,711
2011	230	145	10	5,359	275	375	72	6,091
Average								
2001–2010	210	135	8	3,576	514	527	70	4,695
2006–2010	203	125	7	2,639	445	579	90	3,760

<sup>a</sup> Harvest estimated by extrapolating the catches from returned permits to the total number of permits issued.

Table 4.—Estimated Unalaska Island subsistence harvests of sockeye and coho salmon by major location, 2011.

Location	Species	Harvest <sup>a</sup>	Percent of Total Harvest
Reese Bay (Wislow)	Sockeye	4,681	87%
	Coho	8	3%
Broad Bay	Sockeye	5	0%
	Coho	176	64%
Wide Bay	Sockeye	0	0%
	Coho	0	0%
Nateeken Bay	Sockeye	0	0%
	Coho	0	0%
Captains Bay	Sockeye	97	2%
	Coho	0	0%
Unalaska Lake vicinity	Sockeye	179	3%
	Coho	29	11%
Other locations	Sockeye	397	7%
	Coho	62	23%
Totals <sup>b</sup>	Sockeye	5,359	100%
	Coho	275	100%

<sup>a</sup> The numbers of salmon harvested are extrapolated from returned permits.

<sup>b</sup> Totals may not add to 100% due to rounding.

Table 5.—Adak-Kagalaska islands estimated personal use harvest, 1988–1997 and Adak District estimated subsistence harvest 1998–2011.

Year	Permits Issued	Permits Returned	Percent Returned	Chinook	Sockeye	Coho	Pink	Chum	Total
<b>Personal Use<sup>a</sup></b>									
1988	43	29	67.4%	0	503	23	150	0	676
1989	64	47	73.4%	0	382	0	117	0	499
1990	61	29	47.5%	0	800	47	41	0	888
1991	37	31	83.8%	0	281	6	34	0	321
1992	52	41	78.8%	0	572	30	4	0	606
1993	4	3	75.0%	0	156	0	0	0	156
1994 <sup>b</sup>	0	0	0.0%	–	–	–	–	–	–
1995	4	3	75.0%	0	156	0	0	0	156
1996	6	6	100.0%	0	91	0	0	0	91
1997 <sup>c</sup>	18	12	66.7%	0	229	0	0	4	233
<b>1988–1997<sup>d</sup></b>									
Average	29	20	69.6%	0	352	12	38	0	403
<b>Subsistence<sup>a</sup></b>									
1998	13	10	76.9%	0	399	0	25	0	424
1999	5	5	100.0%	0	164	4	0	0	168
2000	13	12	92.3%	0	265	4	78	0	347
2001	17	14	82.4%	0	474	19	17	0	510
2002	3	3	100.0%	0	150	0	0	0	150
2003	6	5	83.3%	0	363	0	0	0	363
2004	6	4	66.7%	0	336	0	0	0	336
2005	2	2	100.0%	0	188	0	0	0	188
2006	1	1	100.0%	0	74	0	1	0	75
2007	9	6	66.7%	0	488	3	38	0	529
2008	10	6	60.0%	0	397	0	19	0	416
2009	1	1	100.0%	0	25	0	0	0	25
2010	2	1	50.0%	0	50	0	0	0	50
2011	0	0	0.0%	–	–	–	–	–	–
<b>2001–2010</b>									
Average	6	4	1	0	255	2	8	0	264

<sup>a</sup> Harvest estimated by extrapolating the reported catches on returned permits to the total number of permits issued.

<sup>b</sup> U.S. Navy personnel reduced at Adak, personal use permits not requested.

<sup>c</sup> In 1997, a substantial number of civilians were hired by the Navy to work in a cleanup effort at Adak.

<sup>d</sup> Average includes 1994.

Table 6.–Summer Bay Lake annual weir counts of salmon, by species and year, 1998–2001.

Year	Dates of Operation	Number of Fish <sup>a</sup>				
		Chinook	Sockeye	Coho	Pink	Chum
1998	6/12 – 10/3	0	2,641	101	7,290	0
1999	5/30 – 9/9	0	3,375	20	2,250	0
2000	6/4 – 10/5	1	2,905	401	7,918	0
2001	6/1 – 9/11	0	5,388	23	4,114	0
Weir discontinued						

<sup>a</sup> Does not include estimates of salmon escapement before or after weir operations.

Table 7.–McLees Lake annual weir counts of salmon by species and year, 2001–2011.

Year	Dates of Operation	Number of Fish <sup>a</sup>				
		Chinook	Sockeye	Coho	Pink	Chum
2001	6/15 – 7/30	1	45,866	1	0	0
2002	6/1 – 7/29	1	97,780	0	0	0
2003	5/30 – 7/28	0	101,793	0	19	0
2004	6/1 – 7/24	0	40,328	0	1	3
2005	5/29 – 7/26	0	12,066	0	3	1
2006	5/30 – 7/28	0	12,936	0	268	0
2007	6/1 – 7/28	1	21,428	2	2	0
2008	5/30 – 7/20	1	8,661	8	25	0
2009	6/1 – 7/19	0	10,120	0	2	289
2010	6/1 – 7/23	54	32,842	74	59	17
2011	6/10 – 7/17	0	36,602	2	0	0

<sup>a</sup> Does not include estimates of salmon escapement before or after weir operations.

Table 8.—Unalaska Lake and Creek peak salmon escapement estimates in number of fish, 1961–2011.

Year	Peak Estimate <sup>a</sup>		
	Sockeye	Coho	Pink
1961	0	0	3,400
1962	0	0	1,500
1963	0	0	1,600
1964	-	-	-
1965	-	-	-
1966	-	-	-
1967	-	-	-
1968	500	0	1,000
1969	-	-	-
1970	250	0	2,850
1971	0	0	150
1972	200	0	400
1973	400	0	500
1974	0	0	1,400
1975	200	0	3,500
1976	-	-	-
1977	400	0	6,600
1978	0	0	4,500
1979	300	0	1,700
1980	100	0	3,000
1981	100	0	1,500
1982	150	0	16,000
1983	50	0	900
1984	0	0	22,600
1985	0	0	3,500
1986	0	0	6,500
1987	400	0	7,100
1988	0	0	31,500
1989	0	0	2,926
1990	0	0	13,000
1991	3 <sup>b</sup>	1 <sup>b</sup>	7,193
1992	0	0	9,000
1993	0	0	10,200
1994	41	0	11,000
1995	255	0	5,199
1996	250	0	7,500
1997	330	0	12,300
1998	800	355	5,600
1999	1,250	61	3,936
2000	300	0	24,200
2001	1,000	0	6,000
2002	500	0	11,000
2003	750	68	25,000

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Table 8.–Page 2 of 2.

Year	Peak Estimate <sup>a</sup>		
	Sockeye	Coho	Pink
2004	3,000	80	1,530
2005	9 <sup>b</sup>	35 <sup>b</sup>	4,212
2006	12 <sup>b</sup>	6 <sup>b</sup>	4,250
2007 <sup>c</sup>			
2008 <sup>c</sup>			
2009 <sup>c</sup>			
2010 <sup>c</sup>			
2011 <sup>c</sup>			
2000–2010 Average	879	32	8,665

Note: “-” = No data.

<sup>a</sup> Estimates are based on the highest observed escapement during all surveys conducted that year.

<sup>b</sup> Surveys not done at optimum times for all species.

<sup>c</sup> No survey conducted.

Table 9.—Sockeye salmon daily and cumulative escapement counts through McLees Lake weir, 2011.

Date	Daily Count	Cumulative Count	Date	Daily Count	Cumulative Count
30-May	0	0	9-Jul	1476	33,424
31-May	0	0	10-Jul	995	34,419
1-Jun	0	0	11-Jul	724	35,143
2-Jun	0	0	12-Jul	339	35,482
3-Jun	0	0	13-Jul	349	35,831
4-Jun	0	0	14-Jul	125	35,956
5-Jun	0	0	15-Jul	236	36,192
6-Jun	0	0	16-Jul	197	36,389
7-Jun	0	0	17-Jul	213	36,602
8-Jun	0	0	18-Jul	Weir pulled	
9-Jun	0	0			
10-Jun	15	15			
11-Jun	113	128			
12-Jun	1333	1,461			
13-Jun	1191	2,652			
14-Jun	1276	3,928			
15-Jun	863	4,791			
16-Jun	1834	6,625			
17-Jun	135	6,760			
18-Jun	714	7,474			
19-Jun	658	8,132			
20-Jun	645	8,777			
21-Jun	554	9,331			
22-Jun	505	9,836			
23-Jun	1457	11,293			
24-Jun	161	11,454			
25-Jun	2208	13,662			
26-Jun	1889	15,551			
27-Jun	1173	16,724			
28-Jun	972	17,696			
29-Jun	2094	19,790			
30-Jun	1677	21,467			
1-Jul	178	21,645			
2-Jul	1927	23,572			
3-Jul	1285	24,857			
4-Jul	1622	26,479			
5-Jul	1533	28,012			
6-Jul	1838	29,850			
7-Jul	1203	31,053			
8-Jul	895	31,948			

*Note:* This weir was funded and operated by U.S. Fish and Wildlife Service.



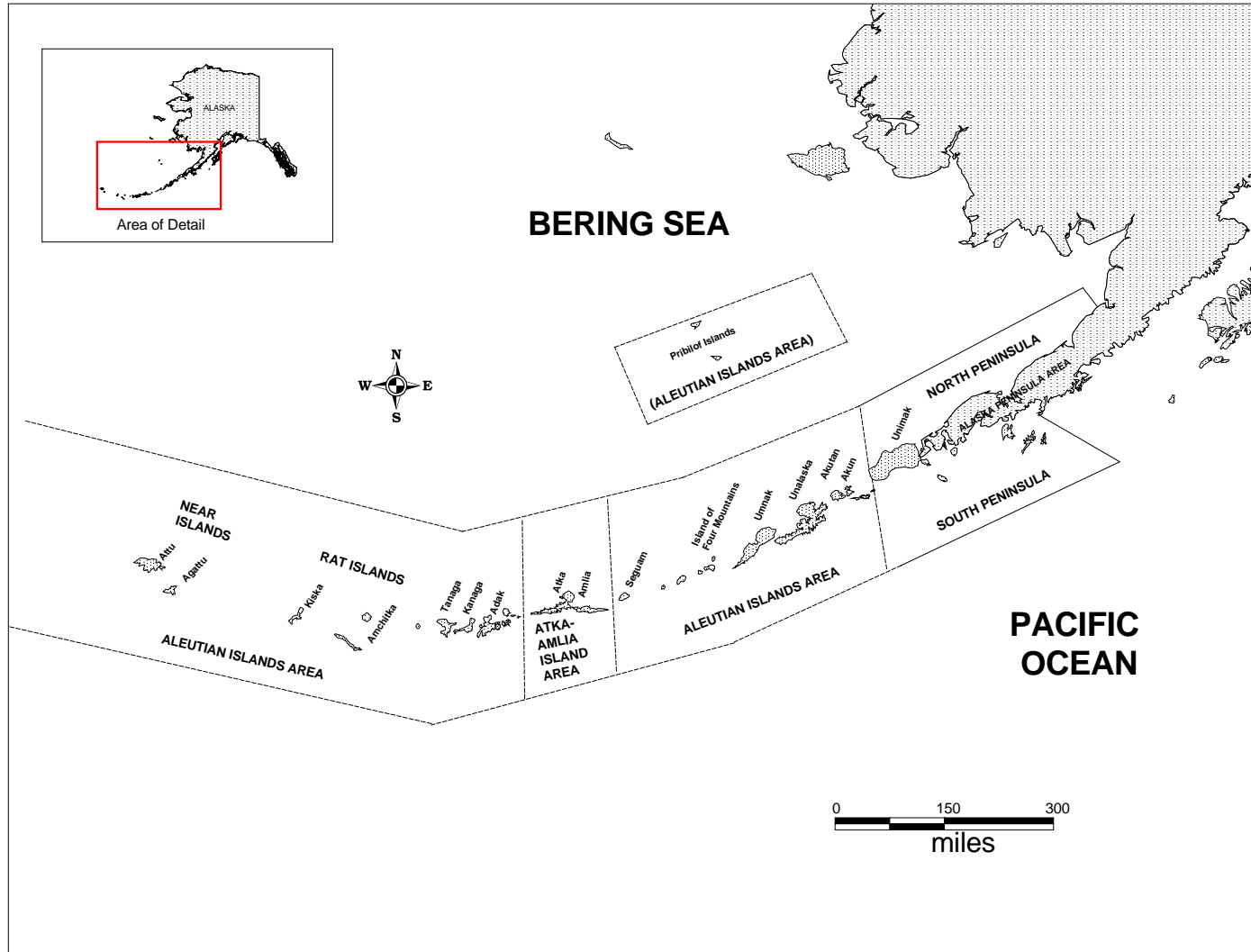


Figure 1.—Map of the Aleutians Islands and Alaska Peninsula salmon management areas (Area M), and the Atka-Amlia Islands Management Area (Area F).

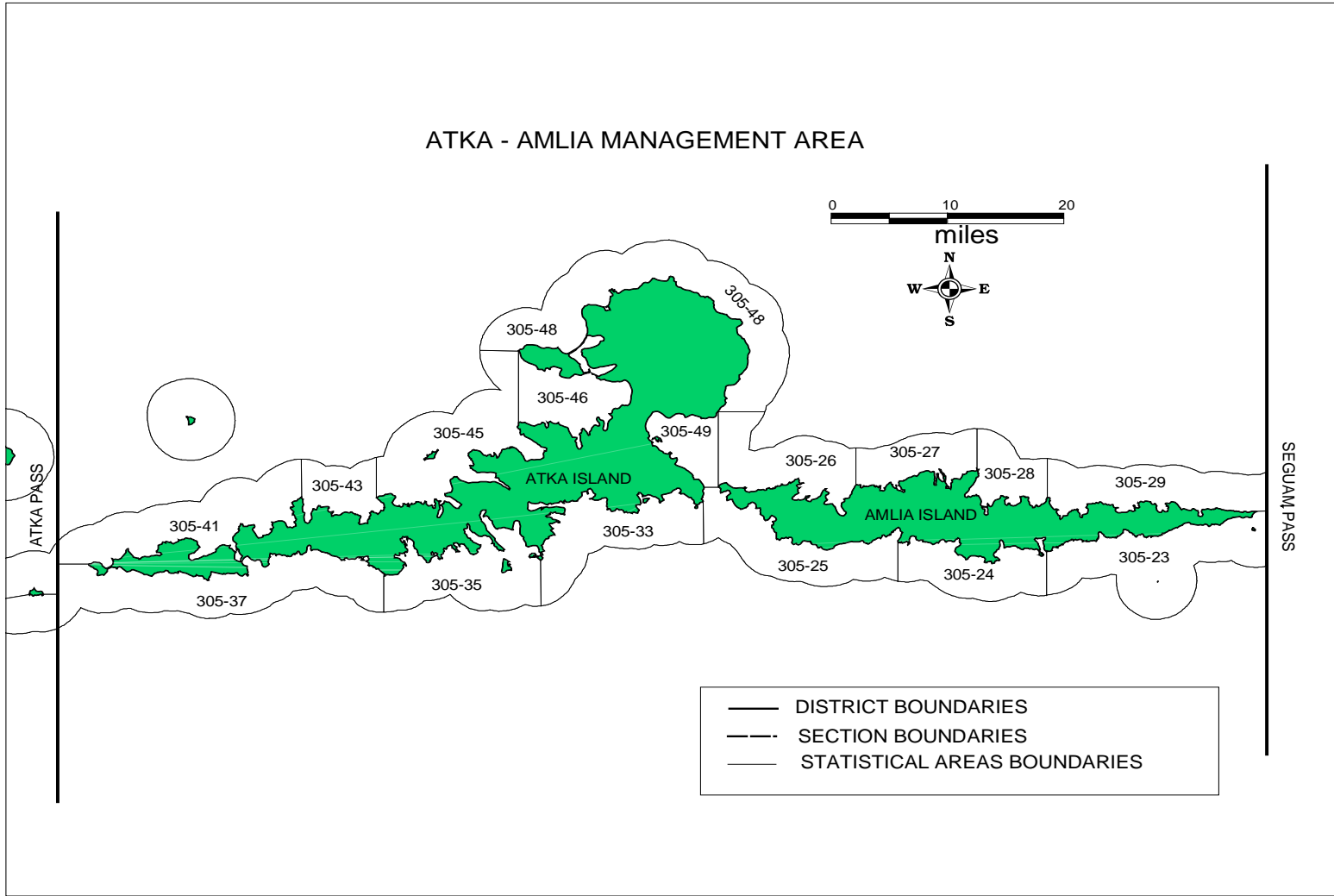


Figure 2.—Map of the Atka-Amlia Management Area from Seguam Pass to Atka Pass, with statistical salmon fishing areas shown.

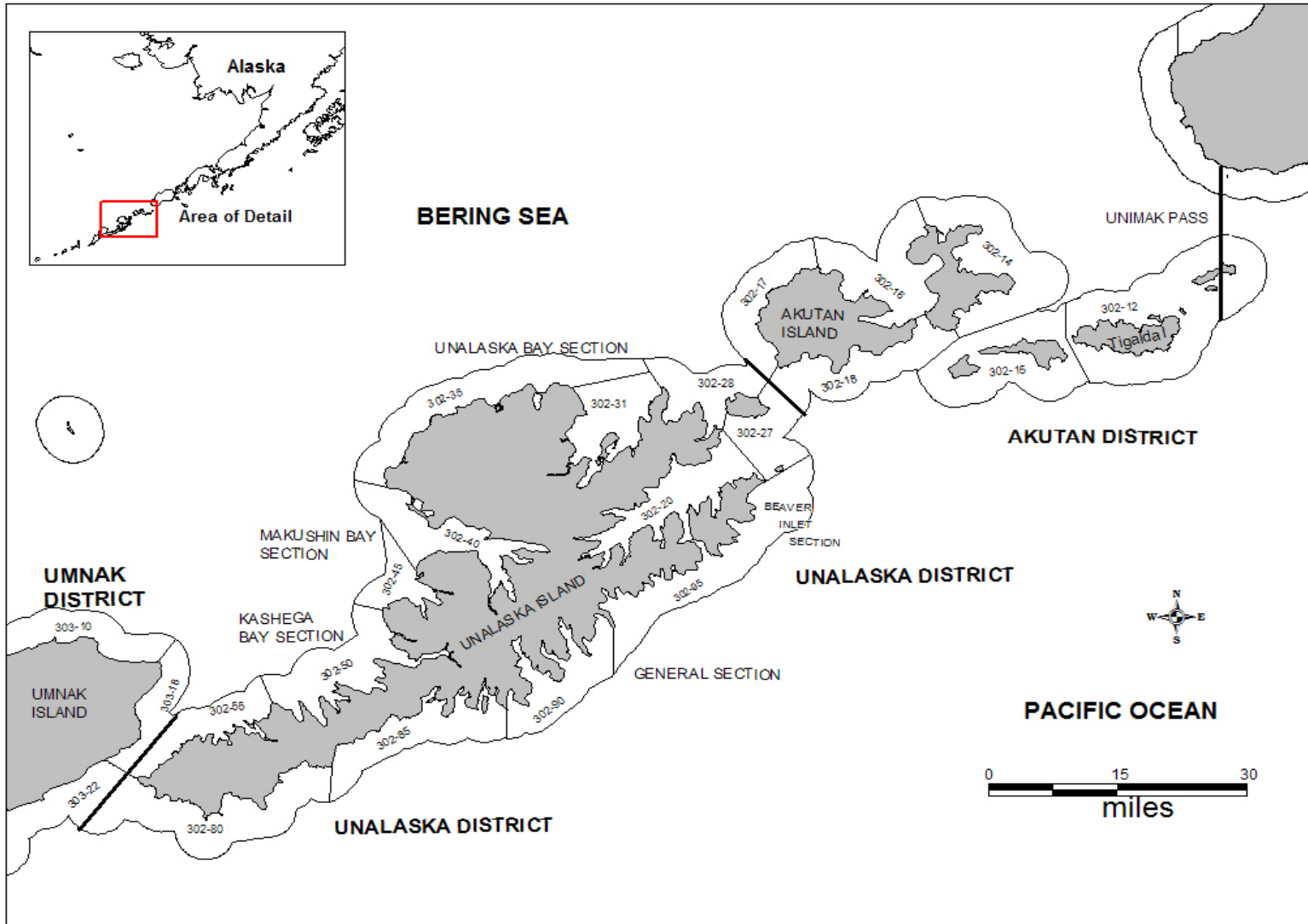


Figure 3.—Map of the Aleutian Islands Management Area from Unimak Pass to Umnak Island, with statistical salmon fishing areas shown.

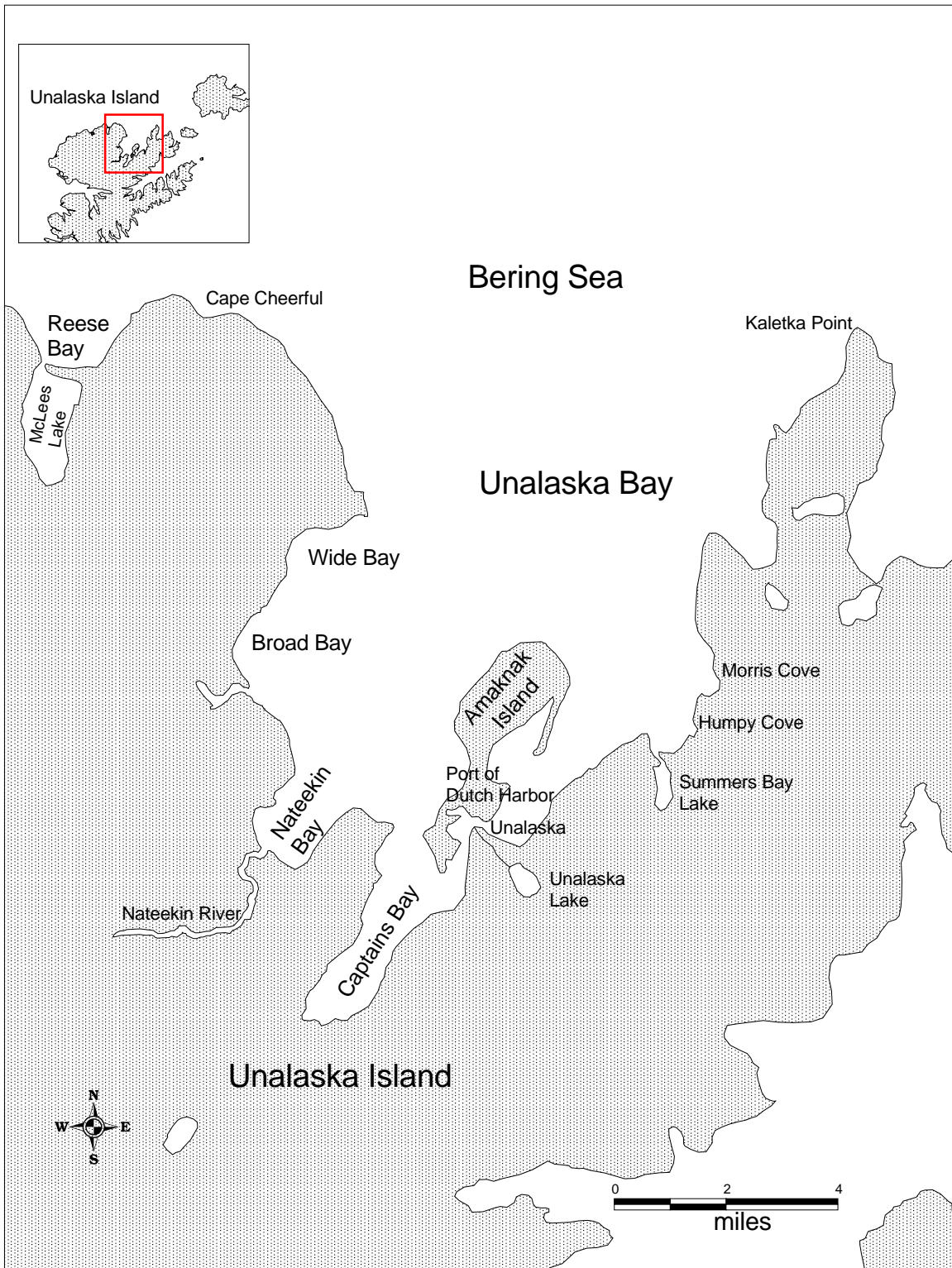


Figure 4.—Map of Unalaska Bay vicinity.