Fishery Management Report No. 15-02

Aleutian Islands and Atka-Amlia Islands Management Areas Salmon Annual Management Report, 2014

by

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and

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January 2015

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

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

Mathematics, statistics

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

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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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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This report provides a summary of the 2014 commercial salmon fishing season, as well as historical harvest and escapement data of the Aleutian Islands and Atka-Amlia Islands management areas. Pink salmon *Oncorhynchus gorbuscha* are the predominate species found in the Aleutian Islands Management Area (AIMA) commercial salmon harvest. In 2014, the entire commercial harvest in the AIMA was comprised of 121,938 pink salmon and occurred around the island of Unalaska. No commercial salmon fishing has occurred in the Atka-Amlia Islands Management Area since 1996.

Salmon escapement information for the Aleutian Islands and Atka-Amlia Islands Management Areas is sporadically collected. Salmon enumeration weirs have been operated at Summers Bay Lake (1998–2001) and McLees Lake (2001–present) on Unalaska Island to assess salmon escapement. In 2014, 12,424 sockeye salmon *Oncorhynchus nerka* were counted at the McLees Lake weir. Limited aerial surveys were conducted in the Aleutian Islands in 2014.

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

INTRODUCTION

The Aleutian Islands Management Area is part of the Alaska Peninsula Salmon Management Area (Area M) and includes the State waters west of Cape Sarichef Light and Scotch Cap (both located on Unimak Island), and the Pribilof Islands, but excludes the Atka-Amlia Islands Management Area (5 AAC 12.100; Figure 1). The Atka-Amlia Islands Management Area (Area F) encompasses all State waters of the Aleutian Islands between Seguam Pass (long 172°50.00' W) and Atka Pass (long 175°23.00' W; 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 salmon harvest and escapement information for these areas. Subsistence harvest information can be found in Johnson and Fox (*In prep*).

Purse seines, hand purse seines, and beach seines are the only legal salmon gear types 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 fishermen on local area pink salmon *Oncorhynchus gorbuscha* runs. Legal salmon gear types for the Atka-Amlia Islands Management Area include both set gillnets and purse seines (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 *O. 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 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). Processors in Unalaska-Dutch Harbor or Akutan purchased most of the commercially harvested salmon from 1979–1988. Due to 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 processing facilities on the Alaska Peninsula.

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).

Since 2006, markets have developed for pink salmon creating a renewed interest in the Aleutian Islands salmon runs. Commercial salmon fisheries have taken place (2006–2012 and 2014) in the Aleutian Islands Area, mostly around Unalaska Island (Table 1). Odd-year average pink salmon harvest for 1995–2013 was 467,955 fish while the even-year average harvest for 1994–2012 was 280,934 fish (Table 1). The largest Aleutian Islands Area pink salmon harvest of 2,597,461 fish was taken in 1980 (Table 1). Of these, approximately 2.0 million pink salmon were harvested in the Makushin Bay Section (Figure 3; Nichols and Poetter 2014).

SALMON ESCAPEMENT, DISTRIBUTION, AND RUN TIMING

The Aleutian Islands have runs of sockeye, coho, pink, and chum salmon. There are no known Chinook salmon *O. tshawytscha* 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 substantial 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 ADF&G in 1982 (Holmes 1997). Repetitive surveys on some Atka and Amlia Islands streams were conducted by ADF&G 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 Summers Bay Lake, on Unalaska Island, from 1998– 2001 (Nichols and Poetter 2014). More recently, a weir has been operated at McLees Lake on Unalaska Island (Figure 4). The USFWS operated the McLees Lake weir from 2001–2011 (Table 3; Palmer 2003). In 2012, the McLees Lake weir project was transferred from USFWS to ADF&G. These projects documented larger runs of sockeye salmon than had been previously observed in these streams. Since a weir has been operated at Mclees Lake, sockeye salmon escapements have ranged from 8,661 fish in 2008 to 101,793 fish in 2003 (Table 3). Aerial surveys confirmed that 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 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 has targeted 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).

2014 SEASON

The commercial salmon fishery in the Aleutian Islands and Atka-Amlia areas was managed by ADF&G staff in Sand Point.

COMMERCIAL HARVEST

In 2014, the commercial salmon harvest in the Aleutian Islands Area was 121,938 pink salmon (Table 1). All of the commercial harvest occurred around Unalaska Island in the Makushin Bay Area. There was no commercial salmon harvest in the Atka-Amlia Islands Area in 2014 (Table 2).

ESCAPEMENT

One aerial survey was conducted in the Aleutian Islands Management Area in 2014, on August 18. Observations from that survey indicated that there was adequate escapement in the rivers to allow for a commercial salmon fishery. Foot surveys were not conducted in 2014.

In 2014 ADF&G operated a weir at the outlet of McLees Lake (which empties into Reese Bay) from June 12–July 25 (Table 4; Figure 4). A total of 12,424 sockeye salmon were counted through the weir, achieving the SEG (10,000–60,000).

ACKNOWLEDGMENTS

The ADF&G Dutch Harbor staff was very helpful in assisting with the McLees Lake weir project. Also, a special thanks to the Qawalangin Tribe for their partnership with the McLees Lake weir project.

REFERENCES CITED

Holmes, P. B. 1995. Atka/Amlia Islands Management Area pink salmon fishery 1992, 1993, 1994. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 4K95-09, Kodiak.

Holmes, P. B. 1997. Aleutian Islands Salmon 1982 stock assessment survey and current status. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 4K97-6, Kodiak.

Johnson, R. H., and E. K. C. Fox. *In prep.* Annual summary of the commercial salmon fisheries and salmon escapements in the Alaska Peninsula, Aleutian Islands, and Atka-Amlia Islands Management Areas, 2014. Alaska Department of Fish and Game, Fishery Management Report, Anchorage.

Nichols, N. W., and A. D. Poetter. 2014. Aleutian Islands and Atka-Amlia Islands management areas salmon annual management report, 2013. Alaska Department of Fish and Game, Fishery Management Report No. 14-33, Anchorage.

Palmer, D. E. 1995. Survey of fisheries resources on Adak Island, Alaska Maritime National Wildlife Refuge, 1993 and 1994. U.S. Fish and Wildlife Service, Technical Report No. 29, Kenai.

Palmer, D. E. 2003. Estimation of the sockeye salmon escapement into McLees Lake, Unalaska Island, Alaska, 2002. U.S. Fish and Wildlife Service, Alaska Fisheries Data Series No. 2003-4, Kenai.

Poetter, A. D., and M. D. Keyse. 2011. Aleutian Islands and Atka-Amlia Islands Management Areas annual report, 2010. Alaska Department of Fish and Game, Fishery Management Report No. 11-35, Anchorage.

Seimenstad, C. A., J. S. Isakson, and R. E. Nakatani. 1977. Marine fish communities [*In*] M. L. Merritt, and R. G. Fuller, editors. The environment of Amchitka Island, Alaska. United States Energy Research and Development Administration, Technical Information Document 26712, Oak Ridge.

Valdez, R. T., W. T. Helm, and J. M. Neuhold. 1977. Aquatic ecology [*In*] M. L. Merritt, and R. G. Fuller, editors. The environment of Amchitka Island, Alaska. United States Energy Research and Development Administration, Technical Information Document 26712, Oak Ridge.

Witteveen, M. J., H. Finkle, M. Loewen, M. B. Foster, and J. W. Erickson. 2009. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas; A Report to the Alaska board of fisheries, 2010. Alaska Department of Fish and Game, Fishery Manuscript No. 09-09, Anchorage

TABLES AND FIGURES

Table 1.–Aleutian Islands Area (excluding Atka-Amlia Islands Area) commercial salmon harvests in numbers of fish by year, 1911–2014.

Year	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1911			0	9,300	0	0	0	9,300
1912–1915[c]								
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[c]								
1922			0	14,000	0	0	0	14,000
1923[c]								
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[a]								
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[c]								
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[b]								
1974[c]								
1975	5	6	0	19,402	0	659	1,881	21,942
1976–1977[c]								
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

-continued-

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[b]								
1984	37	281	26	67,163	1,923	2,309,665	32,025	2,410,802
1985[b]								
1986	9	31	11	7,702	60	42,621	38,819	89,213
1987[b]								
1988[b]								
1989[b]								
1990	15	49	2	12,435	74	282,823	1,038	296,372
1991[b]								
1992	4	20	0	3,082	0	312,072	1,230	316,384
1993[c]								
1994	10	64	0	47	6	858,787	617	859,457
1995–1999[c]								
2000[b]								
2001–2005[c]								
2006	3	43	0	2,329	0	991,687	1,534	995,550
2007[b]								
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
2012	9	23	0	0	0	173,252	245	173,497
2013[c]								
2014	5	11	0	0	0	121,938	0	121,938
Odd-Year Average Pink Harvest, 1995–2013						467,955		
Even-Year Average Pink Harvest, 1994–2012						280,934		

[a] The Aleutian Islands Area harvest cannot be separated from those of the Alaska Peninsula Area from 1928–1950.

[b] Confidential information.

[c] No commercial salmon fishery.

Table 2.–Atka-Amlia Islands Area commercial salmon harvests in numbers of fish, by year, 1992–2014.

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[a]								
1997–2014[b]								

[a] Confidentiality rules prohibit the release of this information.
[b] No commercial salmon fishery.

Table 3.–McLees Lake annual weir counts of salmon by species and year, 2001–2014.

		Number of Fish [a]				
Year	Dates of Operation	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
2012	7/10 – 7/31	0	15,111	0	1	0
2013	6/5 – 7/24	0	15,687	0	6	0
2014	6/12 – 7/25	0	12,424	0	0	0

[a] Does not include estimates of salmon escapement before or after weir operations.

Table 4.–Sockeye salmon daily and cumulative escapement counts through McLees Lake weir, 2014.

Date	Daily Count	Cumulative Count
11-Jun	Weir installed	
12-Jun	57	57
13-Jun	282	339
14-Jun	121	460
15-Jun	78	538
16-Jun	163	701
17-Jun	547	1,248
18-Jun	215	1,463
19-Jun	233	1,696
20-Jun	514	2,210
21-Jun	710	2,920
22-Jun	171	3,091
23-Jun	642	3,733
24-Jun	650	4,383
25-Jun	796	5,179
26-Jun	1,071	6,250
27-Jun	426	6,676
28-Jun	631	7,307
29-Jun	346	7,653
30-Jun	126	7,779
1-Jul	482	8,261
2-Jul	253	8,514
3-Jul	468	8,982
4-Jul	269	9,251
5-Jul	402	9,653
6-Jul	352	10,005
7-Jul	221	10,226
8-Jul	285	10,511
9-Jul	146	10,657
10-Jul	58	10,715
11-Jul	281	10,996
12-Jul	440	11,436
13-Jul	44	11,480
14-Jul	102	11,582
15-Jul	213	11,795
16-Jul	62	11,857
17-Jul	36	11,893
18-Jul	46	11,939
19-Jul	211	12,150
20-Jul	70	12,220
21-Jul	27	12,247
22-Jul	22	12,269
23-Jul	62	12,331
24-Jul	37	12,368
25-Jul	56	12,424
26-Jul	Weir pulled	

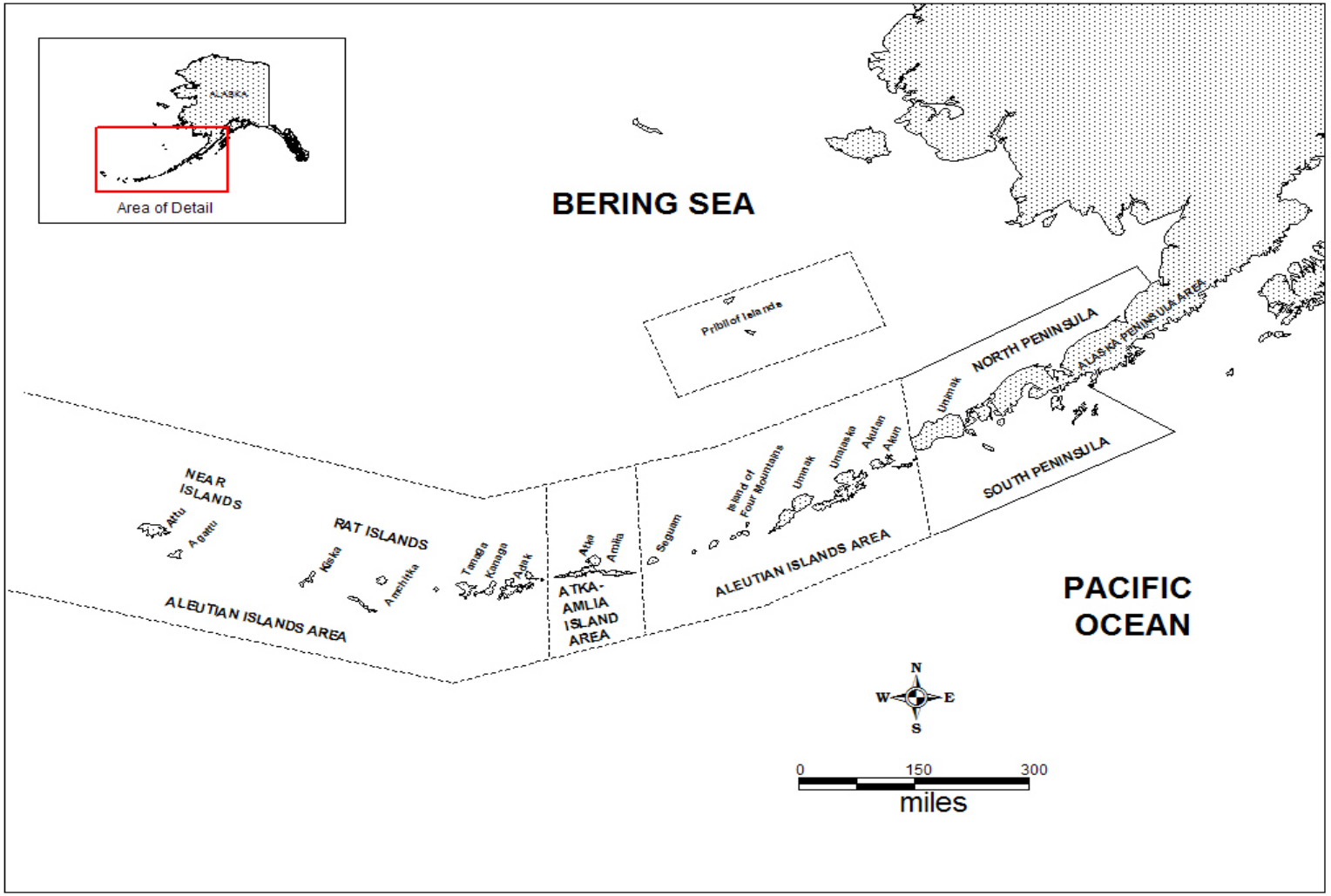

Figure 1.–Map of the Aleutians Islands and Alaska Peninsula salmon management areas (Area M), and the Atka-Amlia Islands Management Area (Area F).

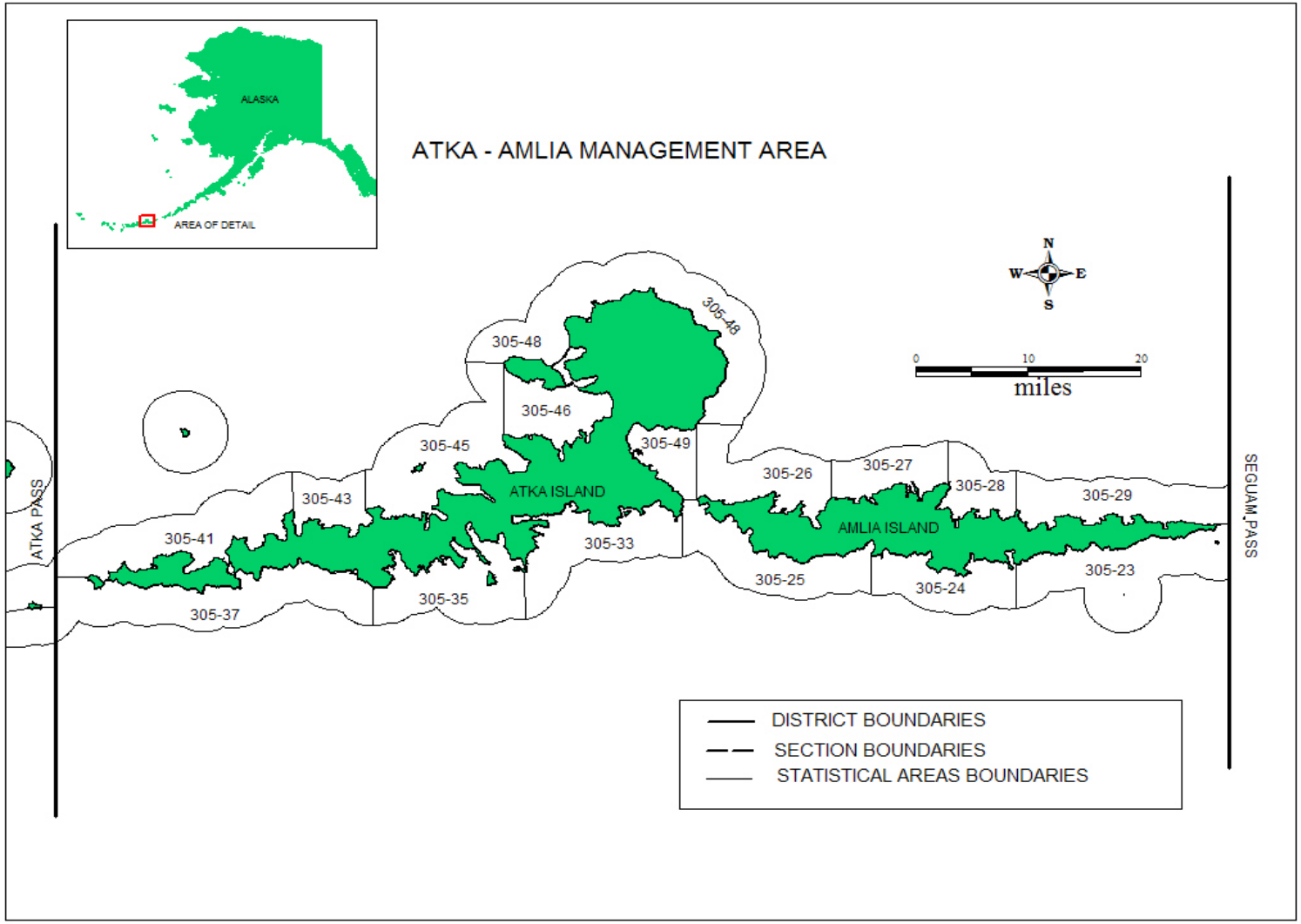

Figure 2.–Map of the Atka-Amlia Management Area from Seguam Pass to Atka Pass, with statistical salmon fishing areas shown.

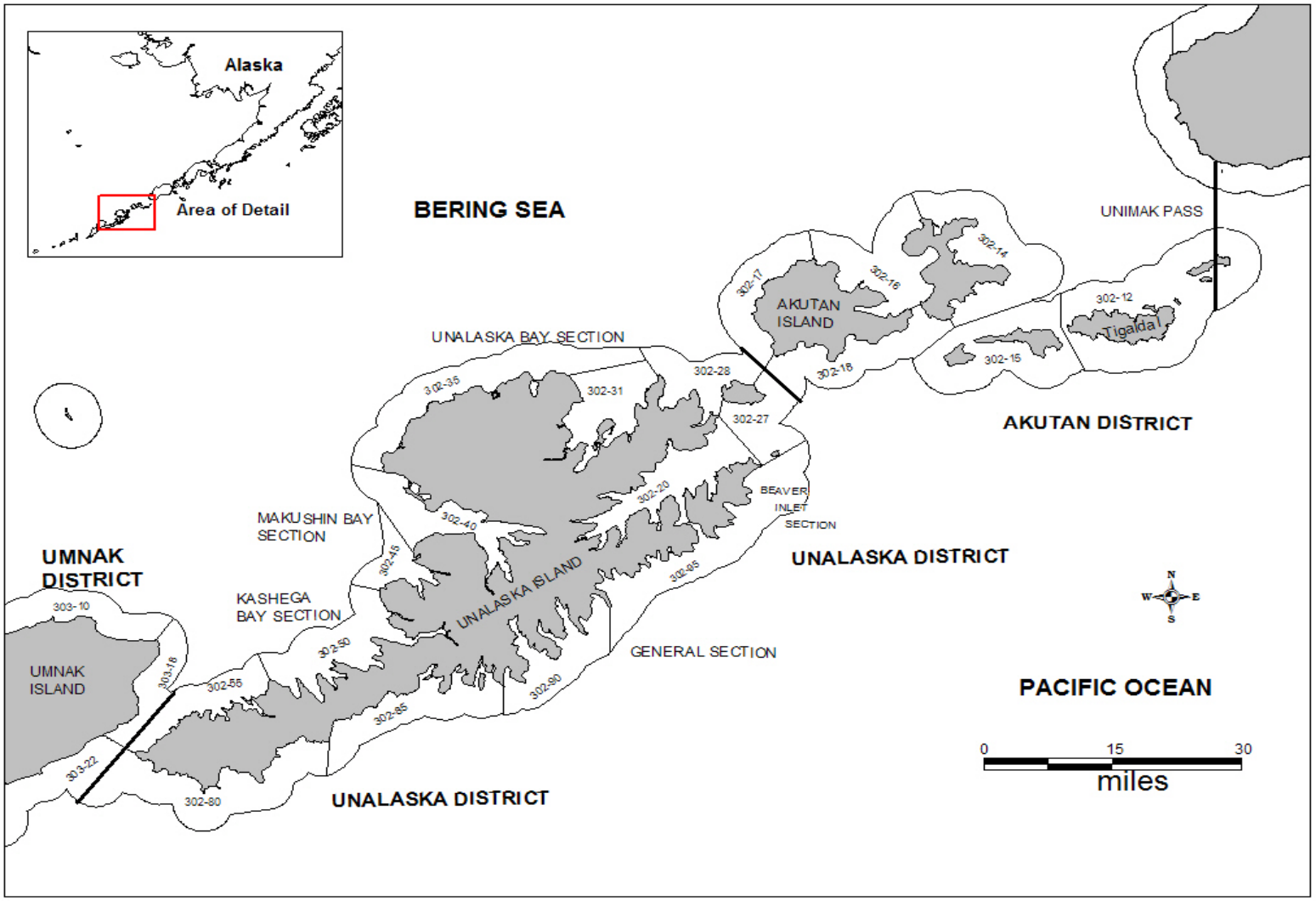

Figure 3.–Map of the Aleutian Islands Management Area from Unimak Pass to Umnak Island, with statistical salmon fishing areas shown.

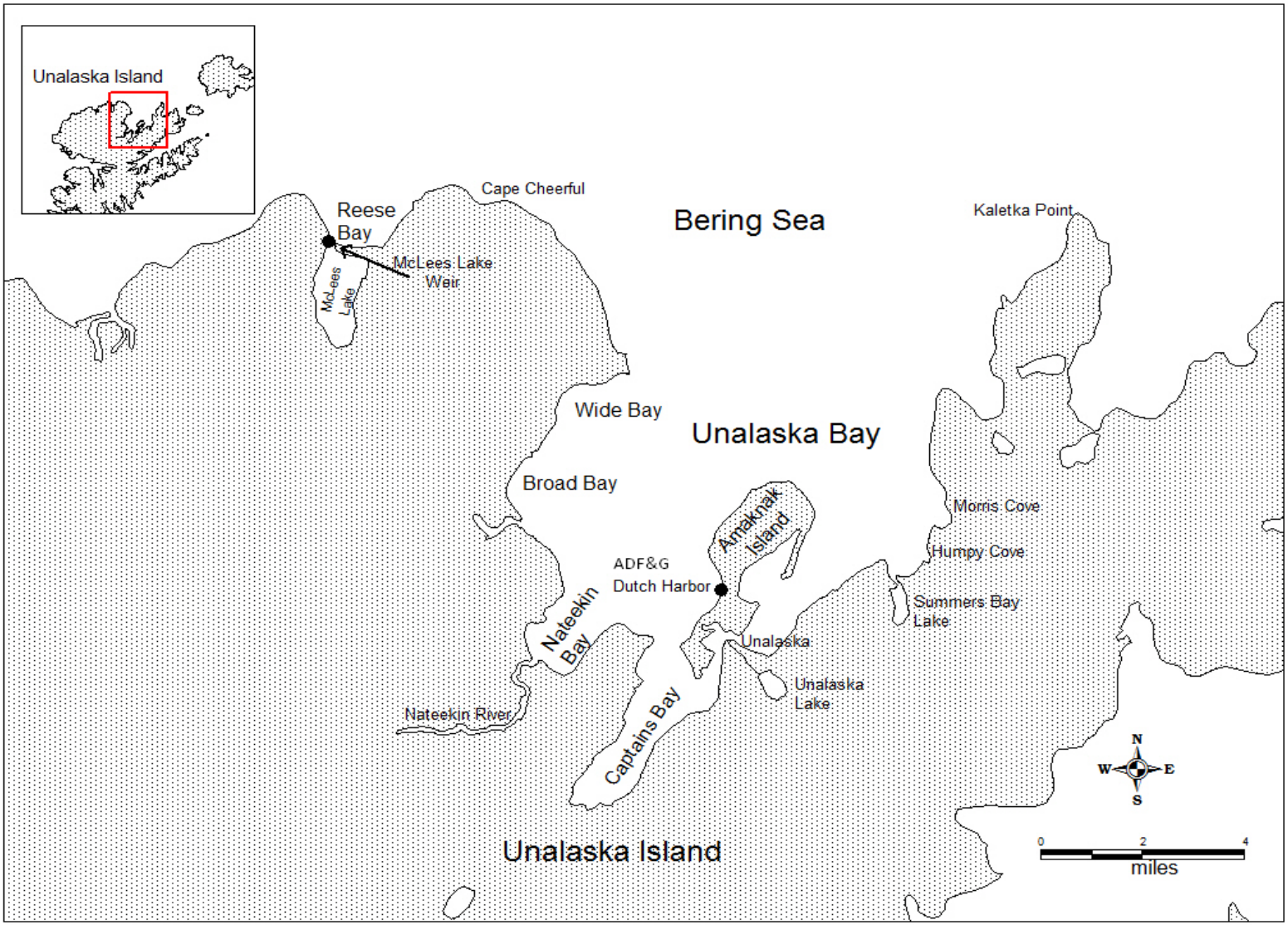

Figure 4.–Map of Unalaska Bay vicinity, depicting McLees Lake weir and ADF&G Dutch Harbor office locations.