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ATKA/AMLIA ISLANDS MANAGEMENT AREA
PINK SALMON FISHERY ANNUAL REPORT, 1993

By

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INTRODUCTION

The purpose of this report is to document the second of a three year experimental pink salmon *Oncorhynchus gorbuscha* fishery at Atka and Amlia Islands.

Geography

Atka and Amlia Islands are located in the Andreanof archipelago in the central Aleutian Islands (Figure 1). The islands are located approximately 1,250 miles west of Anchorage, Alaska. The Atka/Amlia Salmon Management Area is bounded by Seguam Pass (172° 23' W.long.) on the east and Atka Pass (175° 23' W.long.) in the west. Atka and Amlia Islands are 57 and 48 miles in length, respectively; both islands are relatively narrow, three to seven miles in width (Figure 2). The steep topography of the islands creates short, modest salmon streams, and small lakes.

Travel by small boat is often difficult due to weather and tidal currents. The maritime climate is characterized by frequent storms alternating with periods of dense fog. Steep slopes of the mountains often channel "williwaw" winds offshore on the leeward side of the islands creating an additional hazard to navigation. Tidal currents are a significant problem, particularly in traversing Amlia Pass. Located between Atka and Amlia Islands, this pass is one of the narrowest and most dangerous in the Aleutian Islands. Numerous submerged rocks and reefs create navigation hazardous to all types of vessels. Tidal speeds up to 10 knots have been recorded with heavy tide rips and maelstroms. The tidal influence extends five miles or more north and south of the pass when the tide ebbs and floods (Nick Nevezarof, personal communication, Atka).

Demographics

The remote village of Atka is located at 174°15'W.long., 52°N.lat. and is the westernmost and southernmost civilian community in Alaska. Surface freight arrives once or twice a year by barge or occasionally by an unscheduled freighter; air service from Dutch Harbor is two to three times a week, when weather allows. A small community of 83 persons, it relies on fishing for much of its cash and subsistence economy. None of the Atkan residents (except the Village Public Safety Officer, hired from off-Island) have full time, year round jobs. There are 23 part time positions averaging 22 hours per week. While some residents journey to Dutch Harbor, the Pribilofs, and mainland to fish or seek seasonal work off island; most of the men in the village participate in the local halibut fishery for their main source of income (Mary Shulthies, Atka City Manager, Anchorage, Alaska, Personal Communication).

Fishing Fleet

The local fishing fleet is composed primarily of small skiffs ranging from 16 to 24 feet in length, several are homemade. Most of the commercially manufactured boats are 18 foot, light gauge aluminum skiffs. The lack of capital and a safe all weather anchorage limits the size of the skiffs

to those that can be hauled on to a beach during inclement weather. Most of the skiffs are small enough to be portaged with a 4-wheeler between Nazan and Korovin Bays on Atka Island. Boat trips to the south side of Atka or to Amlia Island require a high level of local knowledge and seamanship.

Development of the Fishery

The development of a commercial salmon fishery in the remote Aleutian Islands, near Atka, has been a long and difficult process. It was delayed by the remote location, lack of a local infrastructure to harvest and process salmon, and depressed pink salmon markets. Creation of a new salmon management area in the Aleutian Islands was viewed by established fishermen as a threat to the salmon limited entry program. Some members of the Alaska Board of Fish (ABOF) feared a new "open to entry" fishery would create management difficulties by shifting effort from other areas. The potential interception of migrating salmon bound for established Alaskan fisheries, during June and early July, also was a concern (A. Shaul, ADF&G, Cold Bay, personal communication; ADF&G and CFEC, 1981).

In spite of occasional explorations by Area M (Alaska Peninsula/Aleutian Islands) purse seiners to Umnak Island and one venture to Attu Island in 1963, the American commercial salmon fishery in the Aleutian Islands never expanded west of Unalaska Island (Atkinson, 1955; ADF&G and CFEC, 1981; A. Shaul, ADF&G, Cold Bay, personal communication). Extensive Japanese fisheries adjacent to the central and western Aleutian Islands from the 1950's to mid 1970's focused on interception of Asian and Alaska mainland stocks (Chitwood, 1969).

In 1980 the Alaska Legislature requested Aleutian Island salmon abundance and distribution information from the Alaska Department of Fish and Game (ADF&G). The Legislature also asked the Commercial Fisheries Entry Commission (CFEC) for a review of the effects of creating a new Aleutian Islands salmon permit area (ADF&G and CFEC, 1981). Funding followed in 1982 for ADF&G to conduct the first comprehensive salmon survey of the Aleutian Islands and determine the potential for developing new salmon fisheries. Small stocks of sockeye *O. nerka*, pink *O. gorbuscha*, chum *O. keta*, and coho *O. kisutch* salmon occurred throughout most of the Aleutian Islands. With the exception of the existing fisheries near Unalaska Island, only pink salmon stocks in the vicinity of Atka and Amlia Island had a potential of developing a viable commercial fishery (Appendix A, Holmes, 1982).

Between 1982 and 1986 the infrastructure of the community of Atka progressed. New housing, power generation facilities, roads, and an aircraft runway were constructed and upgraded; in addition a fishermen's co-operative was formed. In 1990, a modern fish processing/freezing plant was constructed to process halibut, cod, and salmon.

The Sixteenth Alaska Legislature requested ADF&G and CFEC to review the potential of a salmon fishery in the vicinity of Atka Island. The CFEC and ADF&G held a meeting in Atka during June of 1989. The agencies subsequently reviewed the regulatory changes necessary to establish the new fishery, evaluated the potential for commercial harvest, and outlined policy issues to be addressed (ADF&G and CFEC, 1990). In 1991 ABOF and the CFEC, approved an experimental, open to entry, set gillnet fishery for pink salmon near Atka and Amlia Islands.

The first commercial fishery was initiated during the 1992 season. Bad weather and small pink salmon returns restricted the harvest to a total of 8,533 salmon. The harvest included 231 sockeye, 42 coho, 7,972 pink, and 308 chum salmon (Table 1).

Harvest Potential

Pink salmon production in most Aleutian Island streams is small compared to systems on the Alaska Peninsula (Holmes, 1982; Shaul et al., 1993, Shaul and Bercili, 1994). Based on peak escapements in 1982, there were 21 moderate sized (10,000-86,000 fish) pink salmon streams located on the south and north/central portion of Atka Island and 6 small to moderate sized (5,000-18,500 fish) streams on western Amlia Island which could produce commercial numbers of salmon. Peak salmon escapement counts of 578,000 on Atka Island and 138,000 on Amlia Island were expanded using the Johnson and Barrett (1988) method to estimate total escapements of 1,069,000 and 255,000 pink salmon, respectively. These escapements could equate to a harvest of up to 200,000 or more pink salmon during a good year (A. Shaul, ADF&G, Cold Bay, personal communication). If returns reached the exceptional 1982 level, a harvest of 300,000 or more pink salmon might be achieved.

Atka Island has the largest known runs of sockeye, chum, and coho salmon west of Unalaska Island (Appendix A). Most of these relatively small stocks of salmon would not be expected to support commercial effort. Small numbers of these fish are harvested incidental to the targeted commercial pink salmon fishery at Atka Island. These small stocks are very important for local subsistence (Veltre and Veltre, 1983; Holmes 1982, Lisa Scarbrough, ADF&G Anchorage, personal communication).

Processing

A modern fish processing and freezer facility was completed at the City of Atka in 1990. The Atka Fisherman's Cooperative, Atka Indian Reorganization Act (IRA) Council, and the City of Atka raised approximately \$430,000 to purchase this facility. The prefabricated plant was assembled by local fishermen. The Atka Fisherman's Association Cooperative (AFA) operated and maintained the facility. The plant has a daily freezing capacity of 20,000 pounds and a holding capacity of 400,000 pounds. It was hoped that a salmon fishery during August would provide additional product for operation of the facility between halibut openings.

METHODS

Summary of Area Specific Regulations

Introduction

The ABOF and CFEC designated fishing periods and gear regulations for the Atka/Amlia fishery to promote the harvest of local pink salmon (ADF&G 1992).

International North Pacific Fisheries Commission (INPFC) studies have established that Bristol Bay sockeye and other salmon stocks migrate through the Aleutian Islands during spring and early summer (Hartt 1962, French et al., 1975). To prevent interception of migrating stocks of salmon, regulations were adopted restricting commercial fishing to August, after the migration of non-local sockeye and chum salmon stocks. Regulations defining the use of set gillnets further confined the fishery to the near shore waters.

Fishery Participants

Participation in the open-to-entry Atka/Amlia Islands Area fishery was restricted to CFEC Area F (Atka-Amlia Islands) Set Gillnet Interim Use Permit holders and CFEC Area M (Alaska Peninsula/ Aleutian Islands) purse seine permit holders. Previous to the establishment of the Atka/Amlia Area fishery, Area M seiners were allowed to fish these waters after July 10; however, historical harvest records indicate no landings were made from this area.

Registration

Each permit holder, fishing vessel, tender and fish buyer must register with ADF&G prior to fishing or buying salmon in the Atka/Amlia Area. Registration must be completed by contacting an ADF&G area management biologist at Atka, Cold Bay, Sand Point, or other designated locations. Registration must take place at least 48 hours prior to commercial fishing, tendering or processing salmon.

Fishing Season

Commercial salmon fishing in the Atka/Amlia Area was restricted to August 1 through August 31. Fishing periods were from 6:00 a.m. until 6:00 p.m. during Mondays, Wednesdays, and Fridays in Old Harbor, Korovin, and Nazan Bays. All other areas were opened for continuous fishing with the exception of closed waters near stream mouths.

Closed Waters

Waters within a 500 yard radius from the terminus of all salmon streams in the Atka/Amlia Management Area were closed to commercial salmon fishing. Stream markers identifying closed waters were set at the mouths of 26 streams on Atka and 6 on Amlia Islands; including all streams with the potential for fishing activity. Local anadromous streams are identified in ADF&G (1993) and 1993 ADF&G Atka-Amlia Area Salmon Statistical Area Chart.

Purse Seine Specifications

Purse seine gear specifications are the same in both Atka/Amlia Islands Area and Aleutian Islands Management Area (ADF&G 1992).

Set Gillnet Specifications

1. Each CFEC permit holder may operate no more than one gillnet of which the total aggregate length cannot exceed 100 fathoms (not including the lead).

2. Set gillnets must be operated in substantially a straight line except that no more than 25 fathoms of the offshore end of the set gillnet may be used as a hook. A hook may be used in any configuration.
3. The mesh size of the set gillnets shall not exceed 5 inches.
4. The maximum depth of the set gillnets shall not exceed 90 meshes.
5. Twenty-five fathoms of seine webbing may be used as a lead, and may be attached only to the shoreward end of a set gillnet; the shoreward end of the lead or gillnet must be attached to the beach above the high tide.
6. During hours of darkness, each set gillnet must be marked with at least one red light on the seaward end of the net.
7. No vessel used for set gillnet fishing may exceed 29 feet in overall length.

Fisheries Information

Meetings were held prior to the fishing season to inform the community of the goals and objectives of the pink salmon fishery. Attendees included members of the Atka Fishermen's Association, the City of Atka, the Atka Village IRA council, the ATAXM Native Corporation, and the general public. These meetings included: a discussion of important commercial salmon fishing regulations, fish ticket reporting, retaining fish from the catch for personal use, and potential conflicts with subsistence salmon harvest. A slide presentation "Development of the Atka Salmon Fishery" (P. Holmes, oral report to the Alaska Chapter of the American Fisheries Society meeting in Fairbanks, November 1992) was shown to the local community. Staff discussed the State's priority for subsistence harvest and asked residents to report any possible conflicts with the commercial fishery. The potential effect of the commercial pink salmon fishery on the late sockeye run to Korovin Lake was discussed. The public was advised that any conflicts could be resolved by closed water adjustments.

Fishery information was posted at the City of Atka office, Atka Fishermen's Hall, the City Post Office and Community Center, and when appropriate announced on VHF radio.

Escapement Enumeration

Objectives

The primary objective of stream surveys was to enumerate pink salmon abundance. Due to species run timing, sockeye, chum, and coho salmon were not enumerated at periods of peak abundance and counts do not reflect their total abundance.

Aerial surveys to enumerate salmon escapements were precluded by a combination of bad weather, the island's remoteness, the high cost of helicopter charters, and the lack of available aircraft.

Escapements were evaluated by means of foot surveys along selected index streams located in the central portion of Atka Island and on the western portion of Amlia Island. Streams were accessed by skiff and 4-wheeler. Surveys begin with observations of pink salmon in the bays, buildups at stream mouths, then surveys of the streams themselves.

Peak counts reflect the highest number of fish counted during the season, not necessarily the total abundance. Cousens et al. (1982) reported that aerial and foot surveys for salmon often underestimate the true count by not enumerating the entire population over time.

The estimated total pink and chum escapements for 1982, 1992, and 1993, were based on Johnson and Barrett's (1988) geometric approach to estimating total escapement. An assumed 15 day stream-life was employed with this method. The 1982 surveys for Atka and Amlia Islands were primarily based on aerial surveys while the estimates for 1992 and 1993 were based on the expansion of foot surveys counts. Sockeye and coho salmon escapements observed in small clear streams were not expanded. The single observation of spawning sockeye in Korovin Lake was an estimate. All pink and chum escapements with only a peak count or where the computed value was less than the peak count, used an expansion factor of 1.14 for pink salmon, and 1.1 for chum salmon. These values were derived from the ratio of peak count to total estimated escapement for streams where the ascending, peak count, and descending counts were available.

Logistics and Local Hire

Logistics, particularly transportation of staff and equipment to Atka is difficult. Commodities such as food, hardware, and fuel were purchased in Atka. Equipment that could not be purchased locally were shipped air freight to Atka. A home was leased from Dennis Golodoff to provide office, storage, and living facilities. Over-winter gear storage in the "old Golley Store warehouse" was provided by the Golley family, in exchange for improvements.

Ronald Snigaroff, a resident of Atka, was hired as a Fish and Wildlife Technician III. The project's effectiveness and safe field operations were enhanced by his knowledge of local trails, weather conditions, marine hazards, and seamanship skills. Interactions with the community were helped by Ronald's ability to speak the local Aleut dialect, allowing the biologists to benefit from the extensive information of local residents.

The assistance of the community of Atka's residents, particularly the knowledge of the village elders, greatly assisted the ADF&G program. Local knowledge of the geography of Atka and Amlia Islands as well as biological observations were extremely valuable. Assistance with Atkan Aleut place names was provided by Moses Dirks, Clara and Ronald Snigarof, and Bergsland (1959 and 1994).

RESULTS

Season Summary, 1993

Commercial Harvest

By regulation the fishing season opened on Monday August 2. Due to the small return of pink salmon only two days of fishing occurred. A total of 10 set gillnet fishermen fished, 9 made a total of 10 landings. No Area M purse seine permit holders participated in the fishery. All of the participants were Atka residents.

In 1993 a total of 602 salmon weighing 3,169 pounds were landed. The harvest included 24 sockeye, 4 coho, 145 pink, and 429 chum salmon (Table 2). This fishery was established to target pink salmon with the understanding the other species would be taken incidently. Due to the poor pink salmon return chum salmon outnumbered pink salmon. The sockeye, coho, and chum salmon harvest appeared to originate from small local stocks (based on harvest location, water marks, examination of secondary sex characteristics, and gonadal development).

The poor harvests resulted from much lower than expected returns to local streams. The entire commercial salmon harvest was retained for personal use; the majority of the chum and pinks were used locally for halibut bait; bright chum, coho and sockeye salmon were used for food. After the poor salmon catch in early August fishermen shifted their efforts to halibut fishing.

All species of salmon were smaller than in 1992. Pink salmon averaged 2.5 lbs (.9 lbs smaller); chum salmon were 6.3 lbs. (.3 lb smaller); sockeye salmon were 4.0 lbs. (1.0 lb. smaller); coho salmon were 5.0 lbs. (.8 lb. smaller), than the average weight of the 1992 catches (Tables 1).

Subsistence Harvest

The subsistence salmon fishery is essential to the community. While ADF&G did not monitor the salmon subsistence harvest in 1993 it is believed that harvest patterns have not changed significantly since Veltre's and Veltre's 1983 resource utilization report. Their report noted that 50% to 75% of the food resources consumed by local residents are gathered locally. All species of salmon are highly valued for subsistence purposes.

It is assumed that the species preference, household usage rates, and harvest methods during 1993 were similar to those reported in the 1992 study conducted by Lisa Scarbrough, ADF&G, Subsistence Division, Anchorage (Holmes and Campbell, 1993). Over three quarters of the households participate in the harvest sharing the catch with all of the households in the community (Table 3). Sockeye and coho salmon were the preferred salmon subsistence species. Discussions with local residents in 1993 indicate that much of the subsistence harvest was taken gillnets or rod and reel other methods can include: hand purse seine, and retention from the commercial catch (Table 4). A fish trap had been reportedly used to take Korovin Lake sockeye; it was not used while the biologists were in Atka during 1992 or 1993. Fish traps or stone weirs are occasionally used on a few other systems; residents recognize the importance of leaving traps or weirs open when they are not attended. The majority of the subsistence salmon harvest took

place in Korovin and Nazan Bays, although some residents traveled to Amlia Island (for coho salmon) and other locations on Atka Island (for sockeye and coho salmon). The sockeye salmon run into Korovin Lake is the most accessible and important to local residents.

No commercial fishery conflicts with the subsistence harvest were reported during the 1993 season.

ADF&G Inseason Management

The commercial fishing season began with three 12 hour openings per week in the Nazan, Korovin, and Old Harbor statistical areas (Figure 3). The remainder of the management area was left open for continuous fishing to allow for exploration fishing during periods of good weather. The only harvest took place on August 6th and 9th. On August 23 commercial salmon fishing was closed in Korovin and Nazan Bays; while the remainder of the island was left open. The closure was prompted by small return of pink salmon. There was little sign of additional pink salmon buildups near the stream mouths. The remainder of the Island closed on August 31 by regulation.

Value of the Fishery

None of the fish harvested in the 1993 fishery were sold commercially. One "outside" halibut boat reportedly offered \$.40 per pound for chums, but local salmon fishermen decided to retain the few fish caught for their own halibut bait.

Escapements

Escapement surveys were completed for 36 salmon streams (Table 5). Anadromous streams are illustrated in Figure 2. The delineated portions of each stream indicates the maximum distribution of salmon in each system.

This year's pink salmon escapements were considerably less than expected. Weather restricted peak escapement surveys to 18 streams, total pink salmon peak count was 16,570 fish for Atka Island and 534 salmon for Amlia Island (Table 6). Three years of peak escapement data for 13 streams on Atka Island: 1982, 321,970 fish; 1992, 49,076 fish; 1993, 15,828; indicates the 1982 escapements were abnormally high. Escapements at Atka indicates a similar pattern to Unalaska Island (A. Shaul, ADF&G, Cold Bay, personal communication).

The estimated total pink salmon escapement for these streams should not be interpreted as the escapement for the entire island but rather as a relative index when compared with the same 13 streams in the 1982 and 1992 surveys (Table 7). Estimated total escapements for index streams were 595,645 fish for 1982, 67,494 fish for 1992, and 19,211 pink salmon in 1993. A reasonable pink salmon escapement (mid-point of preliminary escapement goals) for these 13 streams would be about 79,000 (range 53,000-105,000) fish (Table 8).

An estimated 1,000 sockeye salmon were observed spawning in Korovin Lake and 5 coho were observed in two streams. A total of 1,553 chum salmon were counted in four systems, the estimated total chum escapement was 1,790 fish.

The chum salmon escapement to the largest chum system, Old Harbor (Kangixtax) was also lower than expected. Only 905 chum salmon returned in 1993; compared to 1,397 fish in 1992, and 4,000 fish 1982.

Preliminary Escapement Goals

In 1993 none of the streams met the interim escapement goals (Table 8). The development of the escapement goals is discussed in Holmes and Campbell, 1993. The authors acknowledged the limited information to project escapement goals. Pink salmon escapement goals are usually derived after examination of several years of run data. The proposed goals will need to be revised as further information is developed for both even and odd-year returns for Atka and Amlia Island streams. They should be viewed as relative guidelines and not absolute values.

In view of the highly variable escapements in the Aleutian Islands the optimum spawning potential is probably seldom reached for most streams (Holmes, 1982; Arnold Shaul, ADF&G, Cold Bay personal communication) .

Outlook for the 1994 Season

The inconsistent nature of pink salmon returns in the Aleutian Islands combined with the lack of multiple year escapement information makes it impossible to project next season's catch and escapement. Comparison with runs in Unalaska and Adak may present some indication for the 1994 returns. Salmon catch and escapements in the Unalaska District during even numbered years is generally stronger than odd years (Shaul and Bercelli, 1994). Escapements at nearby Adak tend to be stronger during even years (Doug Palmer, USFWS, Soldotna, Personal Communication).

If moderate returns occur and the fish can be marketed locally for bait there is a potential for a small commercial fishery in 1994.

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Table 1. Atka/Amlia Islands Area commercial salmon harvest, 1992-1993^{a,b}.

	Number			Species											
	Days Fished	Permits	Lndgs	Chinook		Sockeye		Coho		Pink		Chum		Total	
				No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
1992	11	13	41	0	0	231	1,147	42	265	7,972	27,258	308	2,042	8,553	30,712
Avg. Wt.							5.0		6.3		3.4		6.6		
1993	2	10	10	0	0	24	95	4	20	145	365	429	2,689	602	3,169
Avg. Wt.							4.0		5.0		2.5		6.3		

^a The entire catch came from Korovin and Nazan Bays on Atka Island; bad weather prevented salmon harvest from other streams on Atka and Amlia Islands.

^b The majority of the catch came from Old Harbor and Korovin Bays on Atka Island; no fishing occurred on Amlia Island. The small volume of harvest was not sufficient for commercial sale. The majority of the pink and chum salmon were utilized for personal use (halibut bait), while the sockeye and coho salmon were used for subsistence.

Table 2. Atka/Amlia Islands Area commercial salmon harvest by day, 1993^a.

Date	Number		Species											
			Chinook		Sockeye		Coho		Pink		Chum		Total	
	Permits	Lndgs	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.	No.	Lbs.
08/06	5	4	0	0	5	19	3	15	48	121	182	747	238	902
08/09	7	6	0	0	19	76	1	5	97	244	247	1,942	364	2,267
Total	10	10	0	0	24	95	4	20	145	365	429	2,689	602	3,169
Avg. Wt.						4.0		5.0		2.5		6.3		

^a The majority of the catch came from Old Harbor and Korovin Bays on Atka Island; no fishing occurred on Amlia Island. The small volume of harvest was not sufficient for commercial sale. The majority of the pink and chum salmon were utilized for personal use (halibut bait), while the sockeye and coho salmon were used for subsistence.

Table 3. Percentage of Atka households harvesting subsistence salmon, by gear type and species, 1992^{a,b}.

Resource	Subsistence Methods by Percent					
	Set Net	Seine	Any Subs. Gear	Removed From Commercial Catch	Rod and Reel	Any Method ^c
Chinook	4.50	0.00	4.50	4.55	0.00	9.09
Sockeye	27.27	13.64	40.91	9.09	13.64	63.64
Coho (Bright)	22.73	9.09	31.82	13.64	22.73	59.09
(Spawning)	0.00	0.00	0.00	0.00	4.55	4.55
Total	22.73	9.09	31.82	13.64	27.29	63.64
Pink (Bright)	4.55	9.09	13.64	4.55	45.45	54.55
(Spawning)	0.00	4.55	4.55	0.00	4.55	9.09
Total	4.55	13.64	18.19	4.55	50.00	63.64
Chum	9.09	0.00	9.09	4.55	4.55	18.18
Total Salmon	27.27	18.18	40.91	13.64	54.55	77.27

^a Twenty two (22) out of 23 households interviewed.

^b Prepared by Lisa Scarbrough, ADF&G, Subsistence Division.

^c The percentage of households using salmon by species and method should not add up to 100% of the total salmon utilized.

Table 4. Estimated subsistence salmon harvest by gear type for the community of Atka, 1992^{ab}.

Salmon Species	Harvest Units	Subsistence Methods											
		Set Net		Seine		Any Method		Removed From Commercial Catch		Rod and Reel		Any Method	
		Community Total	HH ^c Mean	Community Total	HH ^c Mean	Community Total	HH ^c Mean	Community Total	HH ^c Mean	Community Total	HH ^c Mean	Community Total	HH ^c Mean
Chinook	Numbers	3.14	0.14	0.00	0.00	3.14	0.14	1.05	0.05	0.00	0.00	4.18	0.18
	Pounds	37.04	1.61	0.00	0.00	37.04	1.61	12.35	0.54	0.00	0.00	49.39	2.15
Sockeye	Numbers	193.41	8.41	141.14	6.14	334.55	14.55	115.00	5.00	52.27	2.27	501.82	21.82
	Pounds	715.61	31.11	522.20	22.70	1,237.82	53.82	425.50	18.50	193.41	8.41	1,856.73	80.73
Coho (Bright)	Numbers	156.82	6.82	57.50	2.50	214.32	9.32	123.36	5.36	124.41	5.41	462.09	20.09
	Pounds	741.75	32.25	271.98	11.83	1,013.73	44.08	583.51	25.37	588.46	25.59	2,185.69	95.03
Coho (Spawning)	Numbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.14	0.14	3.14	0.14
	Pounds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.19	0.40	9.19	0.40
Pink (Bright)	Numbers	73.18	3.18	33.45	1.45	106.64	4.64	10.45	0.45	247.77	10.77	364.86	15.86
	Pounds	181.49	7.89	82.97	3.61	264.46	11.50	25.93	1.13	614.48	26.72	904.86	39.34
Pink (Spawning)	Numbers	0.00	0.00	15.68	0.68	15.68	0.68	0.00	0.00	78.41	3.41	94.09	4.09
	Pounds	0.00	0.00	24.78	1.08	24.78	1.08	0.00	0.00	123.89	5.39	148.66	6.46
Chum	Numbers	12.50	0.55	0.00	0.00	12.55	0.55	10.45	0.45	1.05	0.05	24.05	1.05
	Pounds	61.22	2.66	0.00	0.00	61.22	2.66	51.02	2.22	5.10	0.22	117.34	5.10
Total Salmon	Numbers	439.09	19.09	247.77	10.77	686.86	29.86	260.32	11.32	507.05	22.05	1,454.23	63.23
	Pounds	1,737.12	75.53	901.92	39.21	2,639.04	114.74	1,098.30	47.75	1,534.52	66.72	5,271.86	229.21

^a Twenty two (22) out of 23 households interviewed.

^b Prepared by Lisa Scarbough, ADF&G, Subsistence Division.

^c Household (HH)

Table 5. Salmon escapement surveys of selected streams in the Atka-Amlia Management Area, 1993^a.

Stream Number	Stream Name/Location ^b	Date	Survey Condition	Species				Observer	Remarks
				Sockeye	Coho	Pink	Chum		
Atka (Ataxax) Island									
305-48.210	Cape Kudugnak	03-Aug	Poor	0	0	0	0	Golembeski	Milky stream, poor habitat, chinook reported here? years ago. Checked stream to the so., blocked at mouth
		26-Jul	Good	0	0	0	0	Golembeski	
305-49.140	Spike's Camp (Chunixsax)	03-Aug	Good	0	0	0	0	Golembeski	Pinks colored, paired, and spawning
		06-Aug	Good	0	0	12	0	Golembeski	
		08-Aug	Good	0	0	25	0	Golembeski	
		16-Aug	Good	0	0	320	0	Golembeski	
		20-Aug	Good	0	0	360	0	Golembeski	
		30-Aug	Good	0	0	860	0	Golembeski	
305-49.142	Atka Village Cr.	30-Aug	Good	0	0	51	0	Golembeski	Pinks colored, paired, & spawning; 2 morts
305-49.144	Dancing Creek (Talri Chiganaa)	03-Aug	Good	0	0	0	0	Golembeski	Nothing in stream or mouth
		05-Aug	Good	0	0	0	0	Golembeski	Nothing in stream or mouth
		06-Aug	Good	0	0	0	0	Golembeski	Nothing in stream or mouth
		07-Aug	Good	0	0	0	0	Holmes	400 pinks reported near mouth
		09-Aug	Good	0	0	0	0	Holmes	Nothing in stream or mouth
		10-Aug	Good	0	0	0	0	Holmes	Nothing in stream or mouth
		11-Aug	Good	0	0	0	0	Holmes	Nothing in stream or mouth
		16-Aug	Good	0	0	0	0	Golembeski	Nothing in stream or mouth
		26-Aug	Good	0	0	0	0	Golembeski	Nothing in stream or mouth
		30-Aug	Good	0	0	0	0	Golembeski	Coho reported to enter stream Sept./Oct.
305-49.150	Army Dock Creek (Qizang Chiganaa)	03-Aug	Good	0	0	0	0	Golembeski	Pinks colored, paired, and spawning 6 mortalities.
		08-Aug	Good	0	0	4	0	Golembeski	
		18-Aug	Good	0	0	192	0	Golembeski	
		26-Aug	Good	0	0	430	3	Golembeski	
		31-Aug	Good	0	0	894	0	Golembeski	
305-49.160	Range Creek (Aaguliigagix)	03-Aug							
		05-Aug	Good	0	0	6	0	Golembeski	
		08-Aug	Good	0	0	75	0	Golembeski	
		16-Aug	Good	0	0	255	0	Golembeski	
		26-Aug	Good	0	0	430	0	Golembeski	Pinks colored and paired
		31-Aug	Fair	0	0	1,081	0	Golembeski	Pinks colored and paired
305-47.290	Old Harbor (South) (Kangiixtax)	02-Aug	Good	0	0	0	0	Golembeski	6 pinks jumping at mouth
		05-Aug	Good	0	0	2	40	Golembeski	
		09-Aug	Good	0	0	75	420	Golembeski	Unknown # of mouth
		17-Aug	Fair	0	0	160	898	Golembeski	

-Continued-

Table 5. (page 2 of 4)

Stream Number	Stream Name/Location ^b	Date	Survey Condition	Species				Observer	Remarks
				Sockeye	Coho	Pink	Chum		
305-47.290	Old Harbor (South) (Cont.)	24-Aug	Fair	0	0	1728	905	Golembeski	329 chum morts, Chums spawned out pinks scattered, paired and spawning. Pinks colored & paired up, 59 chum(?) morts.
		01-Sep	Good	0	1	4074	6	Golembeski	
305-47.300	Old Harbor (North) (Ugilga)	02-Aug	Good	0	0	0	0	Golembeski	20 pinks off mouth Colored up, scattered to boulder and falls in second canyon.
		09-Aug	Good	0	0	298	0	Golembeski	
		24-Aug	Fair	0	0	3,656	4	Golembeski	
305-46.280	Clear Cr., Milky R. (Tangalum Angtan- Chiganaa)	09-Aug	Fair	0	0	0	0	Golembeski	0 off mouth, small stream Milky R. flooded most of summer difficult to get to Clear Cr., 1 dead coho
		24-Aug	Fair	0	0	57	0	Snigaroff	
305-46.260	Korovin Cr./Lake (Imlam Chuugaa)	29-Jul	Good	0	0	0	0	Golembeski	Lot of Dolly Varden & coho? fingerlings
		01-Aug	Excellent	0	0	1	0	Holmes	
305-46.260	Korovin Cr./Lake (Imlam Chuugaa)	07-Aug	Excellent	1	0	6	0	Holmes	Pinks seem late, Males colored 50 pinks off mouth, 254 pinks below bridge Colored up and paired Post season observation of shoal spawners
		08-Aug	Excellent	6	0	35	0	Holmes	
		20-Aug	Good	0	2	30	0	Golembeski	
		24-Aug	Fair	1	4	299	0	Golembeski	
		30-Aug	Good	0	0	461	0	Golembeski	
15-Sep	Fair	1,000 ^C	0	0	0	0	Snigaroff		
305-46.270	(1 mi. NE Sarana Co.) (Alax Hatax)	09-Aug	Fair	0	0	0	0	Golembeski	
305-46.250	Martin Harbor (Chizang)	09-Aug	Good	0	0	225	0	Golembeski	25-50 pinks off mouth, 2 stone weirs in stream opened Colored up, not paired up. 3 morts. all colored, 75% paired
		19-Aug	Good	0	0	457	0	Golembeski	
		27-Aug	Good	0	0	1,023	0	Golembeski	
305-46.240	Sarana Cove (Qyasxux "Outer")	09-Aug	Good	0	0	0	0	Golembeski	
		27-Aug	Good	0	0	35	0	Golembeski	
305-46.230	Sarana Cove (Qyasxux "East")	09-Aug	Good	0	0	71	0	Golembeski	200 pinks off mouth Colored up, not paired through out creek. 3 morts. all colored, 75% paired
		19-Aug	Good	0	0	1,253	0	Golembeski	
		27-Aug	Good	0	0	1,574	0	Golembeski	
305-46.220	Sarana Cove (Qyasxux "West")	09-Aug	Good	0	0	0	0	Golembeski	Colored up, not paired up 3 Morts., 50% fish paired all coloredup
		19-Aug	Good	0	0	192	0	Golembeski	
		27-Aug	Good	0	0	396	0	Golembeski	

-Continued-

Table 5. (page 3 of 4)

Stream Number	Stream Name/Location ^b	Date	Survey Condition	Species				Observer	Remarks
				Sockeye	Coho	Pink	Chum		
305-46.210	(2 1/2 mi. E. Egg Pt.)	20-Jan	Good	0	0	0	0	Golembeski	Marginal stream
305-45.200	Egg Bay (Agsagax)	19-Aug	Good	0	0				
305-33.190	Vasilief Bay (Amunaxax "Inner")	08-Aug 21-Aug	Good Good	0 0	0 0	0 164	0 0	Holmes Golembeski	Pinks colored up in first pool
305-33.200	Vasilief Bay (Amunaxax "Outer")	08-Aug 21-Aug	Good Good	0 0	0 0	0 0	0 0	Holmes Golembeski	
305-33.230	Vasilief Bay (Qatayagux)	08-Aug 11-Aug 21-Aug	Good Good Good	0 0 0	0 0 0	0 185 473	0 0 2	Holmes Golembeski Golembeski	3 dead pinks, 20 pinks at mouth All colored up and scattered up stream
305-33.240	Vasilief Bay	08-Aug 11-Aug 21-Aug	Good Good Good	0 0 0	0 0 0	0 19 147	0 0 0	Holmes Golembeski Golembeski	1 dead pink All colored up and scattered up stream
305-33.270	1st. Camp Creek (Tanaagis)	08-Aug 11-Aug 21-Aug	Good Good Good	0 0 0	0 0 0	100 46 1244	30 10 642	Holmes Golembeski Golembeski	75 pinks in bay near mouth Unknown # at mouth Chum spawning, 75% pinks colored up in
305-33.290	No English Name (Amdga)	08-Aug 11-Aug 21-Aug	Good Good Good	0 0 0	0 0 0	200 225 527	0 0 0	Holmes Golembeski Golembeski	0 at mouth Pinks colored up, scattered up stream.
Amlia (Amlax) Island									
305-25.40	Silver Creek (Saganax)	08-Aug	Good	0	0	0	0	Golembeski	Lacustrian st., sandy, aquatic vegetation.
305-26.40	Hungry Bay (West) (Ayangiilgis)	06-Aug 23-Aug	Good Good	0 0	0 0	0 14	0 0	Golembeski Golembeski	Pinks colored up, 2 jumpers at mouth
305-26.50	Hungry Bay (Tanagayux)	06-Aug 23-Aug	Good Good	0 0	0 0	0 5	0 0	Golembeski	Pinks colored up
305-26.60	Hungry Bay (Qusuguunax)	06-Aug 23-Aug	Good Good	0 0	0 0	0 167	0 0	Golembeski	Pinks colored up to forks, 50 off mouth.
305-26.90	Hungry Bay (East) (Amunaxax, Amunaxagi)	06-Aug 23-Aug	Good Good	0 0	0 0	0 156	0 0	Golembeski	
305-27.100	Unnamed (Saqusax Quichikix)	23-Aug	Good	0	0	0	0	Golembeski	Dolly varden
305-27.110	Unnamed (Haanugix)	06-Aug 23-Aug	Good Good	0 0	0 0	0 68	0 0	Golembeski Golembeski	Gravel and logs blocking stream

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Table 5. (page 4 of 4)

Stream Number	Stream Name/Location ^b	Date	Survey Condition	Species				Observer	Remarks
				Sockeye	Coho	Pink	Chum		
305-27.120	Unnamed (Asxanung)	23-Aug	Good	0	0	6	0	Golembeski	Pinks colored up 400 yds to falls
305-27.130	Chalugas Bay (West) (Achiix)	23-Aug	Good	0	0	30	0	Golembeski	Pinks colored up, marginal stream
305-27.135	Chalugas Bay (Quchiix)	23-Aug	Good	0	0	0	0	Golembeski	Dolly Varden and coho fry Check stream nomination
305-27.140	Chalugas Bay (East) (Anidaliilugis)	23-Aug	Good	0	0	94	0	Golembeski	Pinks colored up, 20 off mouth, 100 yds to falls

^a All surveys were conducted on foot.

^b Atkan Aleut stream names in parentheses.

^c Estimate based on casual observation of "at least a thousand fish".

Table 6. Peak and estimated total salmon escapement by species, Island, for selected streams in the Atka/Amlia Management Area, 1993.

Stream Number	Stream Name/Location Aleut (Niigugix) Place Name	Species							
		Sockeye		Coho		Pink		Chum	
		Peak	Total ^a	Peak	Total ^a	Peak	Total ^a	Peak	Total ^a
Atka (Ataxax) Island									
305-48.210	Cape Kudugnak	0	0	0	0	0	0	0	0
305-49.140	Spike's Camp (Chunixsax)	0	0	0	0	860	1,892	0	0
305-49.142	Atka Village Creek	0	0	0	0	51	58	0	0
305-49.144	Dancing Creek (Taligil Thiganax)	0	0	0	0	0	0	0	0
305-49.150	Army Dock Creek (Qizang Chiganaa)	0	0	0	0	894	904		
305-49.160	Range Creek (Aaguliigagix)	0	0	0	0	1,081	1,498	0	0
305-47.290	Old Harbor (Kangixtax)	0	0	0	0	4,074	4,121	905	1,078
305-47.300	North Harbor (Ugila)	0	0	0	0	3,656	3,980	4	4
305-46.280	Clear Creek (Tagalum Angtan Chiganaa)	0	0	0	0	57	65	0	0
305-46.270	1 mi.E.Sarana Co.	0	0	0	0	0	0	0	0
305-46.260	Korovin Cr./Lake ^b (Imlam Chuugas)	1,000	1,000	4	4	461	526	0	0
305-46.250	Martin Harbor (Chigzang)	0	0	0	0	1,023	1,389	0	0
305-46.240	Sarana Cove (Qyasux "Outer")	0	0	0	0	35	42	0	0
305-46.230	Sarana Cove (Qyasux "East")	0	0	0	0	1,574	2,395	0	0
305-46.220	Sarana Cove (Qyasux "West")	0	0	0	0	396	442	0	0
305-46.210	2 1/2mi.E.Egg Pt.	0	0	0	0	0	0	0	0
305-42.200	Egg Bay (East) (Asagax)	0	0	0	0	0	0	0	0
305-33.190	Vasilief Bay (Amunaxax "Inner")	0	0	0	0	164	187	0	0
305-33.200	Vasilief Bay (Amunaxax "Outer")	0	0	0	0	0	0	0	0
305-33.230	Vasilief Bay (Qatxayagux)	0	0	0	0	473	539	2	2
305-33.270	First Camp (Tanaangis)	0	0	0	0	1,244	1,418	642	706

-Continued-

Table 6. (page 2 of 2)

Stream Number	Stream Name/Location Aleut (Niigugix) Place Name	Species							
		Sockeye		Coho		Pink		Chum	
		Peak	Total ^a	Peak	Total ^a	Peak	Total ^a	Peak	Total ^a
305-33.290	No English Name (Amdga)	0	0	0	0	527	601	0	0
Atka Island Subtotal		1,000	1,000	4	4	16,570	20,057	1,553	1,790
Amlia (Amlax) Island^c									
305-25.110	Silver Creek (Saganax)	0	0	0	0	0	0	0	0
305-26.40	Hungry Bay (West) (Aayangiiilis)	0	0	0	0	14	16	0	0
305-26.50	Hungry Bay (Tanagayux)	0	0	0	0	5	6	0	0
305-26.60	Hungry Bay (Qusuguunax)	0	0	0	0	167	190	0	0
305-26.90	Hungry Bay (Amunaxax, Amunaxagix)	0	0	0	0	156	177	0	0
305-26.100	Unnamed (Saqusax Quichikix)	0	0	0	0	0	0	0	0
305-26.110	Unnamed (Haanugix)	0	0	0	0	68	78	0	0
305-27.120	Unnamed (Asxanung)	0	0	0	0	0	0	0	0
305-27.130	Chalugas Bay (West) (Achiix)	0	0	0	0	30	34	0	0
305-27.135	Chalugas Bay (Quchiix)	0	0	0	0	0	0	0	0
305-27.140	Chalugas Bay (East) (Anidaliilugis)	0	0	0	0	94	107	0	0
Amlia Island Subtotal		0	0	0	0	534	608	0	0
Atka-Amlia Area Total		1,000	1,000	4	4	17,104	20,665	1,553	1,790

^a A fifteen day average stream life was used for all pink and chum salmon escapements. For all pink and chum salmon escapements with only a peak count or where the computed value was less than the peak count, an expansion factor of 1.14 was used for pink salmon, and 1.1 for chum salmon. The values were derived from the ratio of peak count to total estimated escapement for streams where ascending, peak peak count and descending counts were available. Sockeye and coho salmon escapements in small clear streams were not expanded.

^b Weather prevented survey of the lake during August, estimate of shore spawners during Sept. by R. Snigaroff.

^c Weather prevented additional surveys of Amlia Island streams.

Table 7. Peak and estimated total pink salmon escapement by Island, and selected streams in the Atka/Amlia Management Area, 1982, 1992, and 1993.

Stream Number	Stream Name/Location Aleut (Niigugix) Place Name	Estimated Total Escapement					
		1982		1992		1993	
		Peak	Total ^a	Peak	Total ^a	Peak	Total ^a
Atka Island							
305-49.140	Spike's Camp (Chunixsax)	12,000	22,200	2,982	5,100	860	1,892
305-49.150	Army Dock Creek (Qizang Chiganaa)	28,200	52,170	3,903	6,679	894	904
305-49.160	Range Creek (Aaguliigagix)	10,150	18,778	5,045	8,324	1,081	1,498
305-47.290	Old Harbor (Kangixtax)	15,500	28,675	3,442	5,679	4,074	4,121
305-47.300	Old Harbor (No.) (Ugila)	86,000	159,100	4,645	7,664	3,656	3,980
305-46.280	Clear Creek (Tagalum Angtan Chiganaa)	1,600	2,960	540	1,043	57	65
305-46.260	Korovin Cr./Lake (Imlam Chuugas)	11,650	21,553	3,420	5,643	461	526
305-46.250	Martin Harbor (Chigzang)	23,170	42,865	2,748	5,295	1,023	1,389
305-46.240	Sarana Cove (Qyasux "Outer")	6,200	11,470	1,052	1,736	35	42
305-46.230	Sarana Cove (Qyasux "East")	26,000	48,100	3,800	6,308	1,574	2,395
305-46.220	Sarana Cove (Qyasux "West")	10,000	18,500	782	1,290	396	442
305-33.190	Vasilief Bay (Amunaxax "Inner")	46,000	85,100	d/	d/	164	187
305-33.230	Vasilief Bay (Qatxayagux "West")	40,000	74,000	1,475	2,434	473	539
305-33.240	Vasilief Bay (Qatxayagux "East")	38,000	70,300	d/	d/	147	168
305-33.270	First Camp (Tanaangis)	51,500	95,275	6,242	10,299	1,244	1,418
305-33.290	No English Name (Amdga)	11,000	20,350	d/	d/	527	601
Atka Island Subtotal		416,970	771,395	40,076	67,494	16,666	20,166

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Table 7. (page 2 of 2)

Stream Number	Stream Name/Location Aleut (Niigugix) Place Name	Estimated Total Escapement					
		1982		1992		1993	
		Peak	Total ^a	Peak	Total ^a	Peak	Total ^a
Amlia (Amlax) Island							
305-26.40	Hungry Bay (West) (Aayangiiilis)	6,200	11,470	/e	/e	14	16
305-26.50	Hungry Bay (Tanarayug)	ns	ns	/e	/e	5	6
305-26.60	Hungry Bay (Tanagayux)	11,000	20,350	700	1,155	167	190
305-26.90	Hungry Bay (East) (Amunaxax)	18,000	33,300	/e	/e	156	177
305-26.110	1st Bay E. of Hungry Bay (Haanugix)	7,500	13,875	/e	/e	68	78
305-27.130	Chalugas Bay (West) (Achiix)	8,000	14,800	/e	/e	30	34
305-27.140	Chalugas Bay (East) (Anidaliilugis)	12,500	23,125	/e	/e	94	107
Amlia Island Subtotal		63,200	116,920	700	1,155	534	608

^a A 15 day average stream life was used.

^b For all 1982 pink salmon escapements with only a peak count or where the computed value was less than the peak count. An expansion factor of 1.85 was used for single counts.

^c For all 1992 pink salmon escapements with only a peak count or where the computed value was less than the peak count. An expansion factor of 1.85 was used for single counts.

^d For all 1993 pink salmon escapements with only a peak count or where the computed value was less than the peak count. An expansion factor of 1.85 was used for single counts.

^e Not surveyed due to weather.

Table 8. Salmon spawning habitat, estimated spawning capacity, and preliminary escapement goals for selected streams on Atka and Amlia Islands, 1993.

1993 Stream #	Stream Name Or Location	Aleut (Niigugix) Place Name	Spawning Habitat (Sq. Meters)	Habitat Evaluation Est. Spawning Capacity			Percentage of 1982 Survey ^d			1992 Foot Surveys	Preliminary Escape. Goals	
				Low ^a	Mid ^b	High ^c	25 %	50 %	100 %		Low	High
Amlia (Amalax) Island (North West side)												
305-26-40	(West Hungry Bay)	Aayangilgis	No habitat survey				1,775	3,550	7,100		1,500	3,000
305-26-60	(Hungry Bay)	Tanagayux	No habitat survey				3,000	6,000	12,000	700	2,000	4,000
305-26-90	(East Hungry Bay)	Amunaxax	No habitat survey				5,000	10,000	20,000		4,000	8,000
305-26-110	Unnamed	Haanugix	No habitat survey				1,700	3,400	6,800		1,500	3,000
Atka (Atxax) Island												
305-45-50	(Bluefox Bay)	Agzangtusix	No habitat survey				7,500	15,000	30,000		4,000	10,000
305-46-260	Korovin Creek ^e	Imlam Chuqaa	543 ^e	760	1,086	1,629	2,963	5,925	11,850	3,420	2,000	4,000
305-46-280	Clear Cr., Milky R.	Tagalum Angtan-Chiganaa	1,059	1,483	2,118	3,177	400	800	1,600	540	1,000	2,000
305-46-250	(Martin Harbor)	Chigzang	4,555	6,377	9,110	13,665	6,175	12,350	24,700	2,748	4,000	9,000
305-46-240	(Sarana Cove)	Qyaxxux (Outer)	No habitat survey				1,550	3,100	6,200	1,052	1,000	2,500
305-46-230	(Sarana Cove)	Qyaxxux (East)	2,774	3,884	5,548	8,322	7,875	15,750	31,500	3,800	3,000	5,000
305-46-220	(Sarana Cove)	Qyaxxux (West)	1,351	1,891	2,702	4,053	2,500	5,000	10,000	782	2,000	3,000
305-45-200	(Egg Bay)	Asagax	No habitat survey				3,250	6,500	13,000	2,010	2,000	3,000
305-45-130	(Banner Bay)		No habitat survey				5,000	10,000	20,000		4,000	8,000
305-47-290	Old Harbor	Kangiixtax	6,372	8,921	12,744	19,116	4,000 ^f	8,000 ^f	16,000 ^f	3,442	4,000	12,000
305-47-300	North Harbor ^g	Ugilga	5,628 ^g	7,879	11,256	16,884	21,500 ^g	43,000 ^g	86,000 ^g	4,645	4,000	10,000
305-49-140	Spike's Camp	Chunixsax	1,396	1,954	2,792	4,188	4,000	8,000	16,000	2,982	2,000	5,000
305-49-150	Army Dock Creek	Qizang Chiganaa (Yaxagim Chuqaa)	3,834	5,368	7,668	11,502	7,050	14,100	28,200	3,903	5,000	8,000
305-49-160	Range Creek ^f	Aaguliigagix	8,840	12,376	17,680	26,520	2,538 ^f	5,075 ^f	10,150 ^f	5,045	7,000	15,000
305-33-90	Explorer Bay		No habitat survey				2,750	5,500	11,000		2,000	3,000
305-33-120	Kobakof Bay		No habitat survey				3,825	7,650	15,300		3,000	4,000
305-33-290	Unnamed	Amdaga	No habitat survey				2,750	5,500	11,000		2,000	3,000
305-33-270	First Camp	Tanaangis	10,195	14,273	20,390	30,585	13,250	26,500	53,000	6,242	10,000	20,000
305-33-240	Unnamed		No habitat survey				9,500	19,000	38,000		8,000	10,000
305-33-230	Vasilief Bay	Qatxayagux	No habitat survey				9,500	19,000	38,000	1,475	8,000	10,000

-Continued-

Table 8. (page 2 of 2)

1993 Stream #	Stream Name Or Location	Aleut (Niigugix) Place Name	Spawning Habitat (Sq. Meters)	Habitat Evaluation Est. Spawning Capacity			Percentage of 1982 Survey ^d			1992 Foot Surveys	Preliminary Escape. Goals		
				Low ^a	Mid ^b	High ^c	25 %	50 %	100 %		Low	High	
305-33-200	Vasilief Bay	Amunaxax (Outer)	No habitat survey				1,875	3,750	7,500		1,500	2,500	
305-33-190	Vasilief Bay	Amunaxax (Inner)	No habitat survey				11,875	23,750	47,500		9,000	15,000	
Total all (26) streams:				-	-	-	143,100	286,200	572,400	42,786	97,500	182,000	
Total for (11) streams with habitat surveys:				46,547	65,166	93,094	139,641	72,250	144,500	289,000	37,549	44,000	93,000

^a Square meters of spawning area X 1.4 (Barrett et al., 1990).

^b Square meters of spawning area X 2.0 (Swanton et al., 1993).

^c Square meters of spawning area X 3.0 (Swanton et al., 1993).

^d Aerial surveys, except for foot surveys of Old Harbor and Range Creeks.

^e Only main outlet stream surveyed, lake shore and small inlet streams not surveyed; possibly additional 250+ sq.m. of habitat.

^f Values less than stream capacity, foot survey may have underestimated abundance or habitat survey may be too high.

^g Survey in 1982 may have been overestimated, spawners may only use the upper 1/3 of stream in exceptional years.

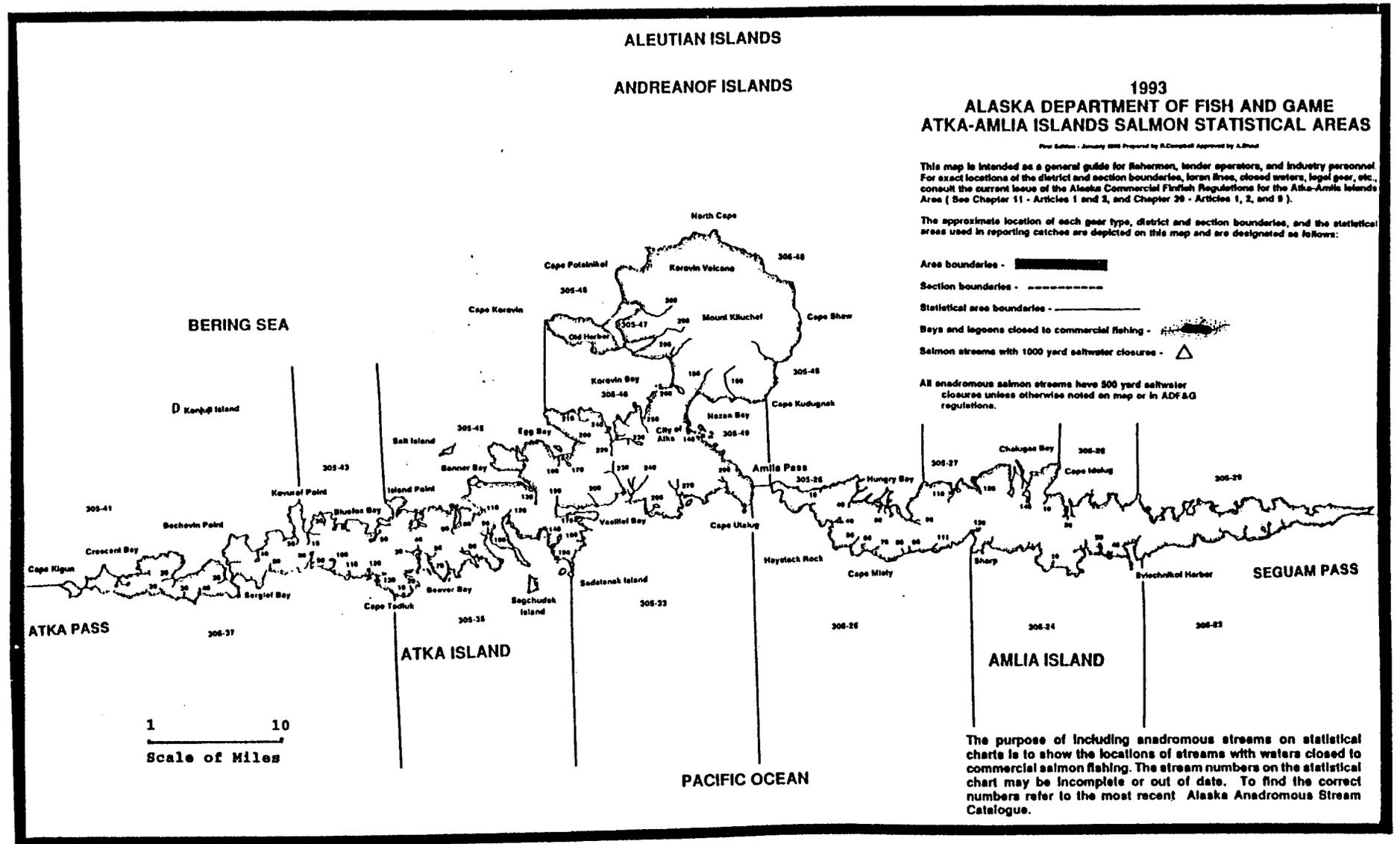


Figure 2. Atka and Amlia Islands statistical areas and streams

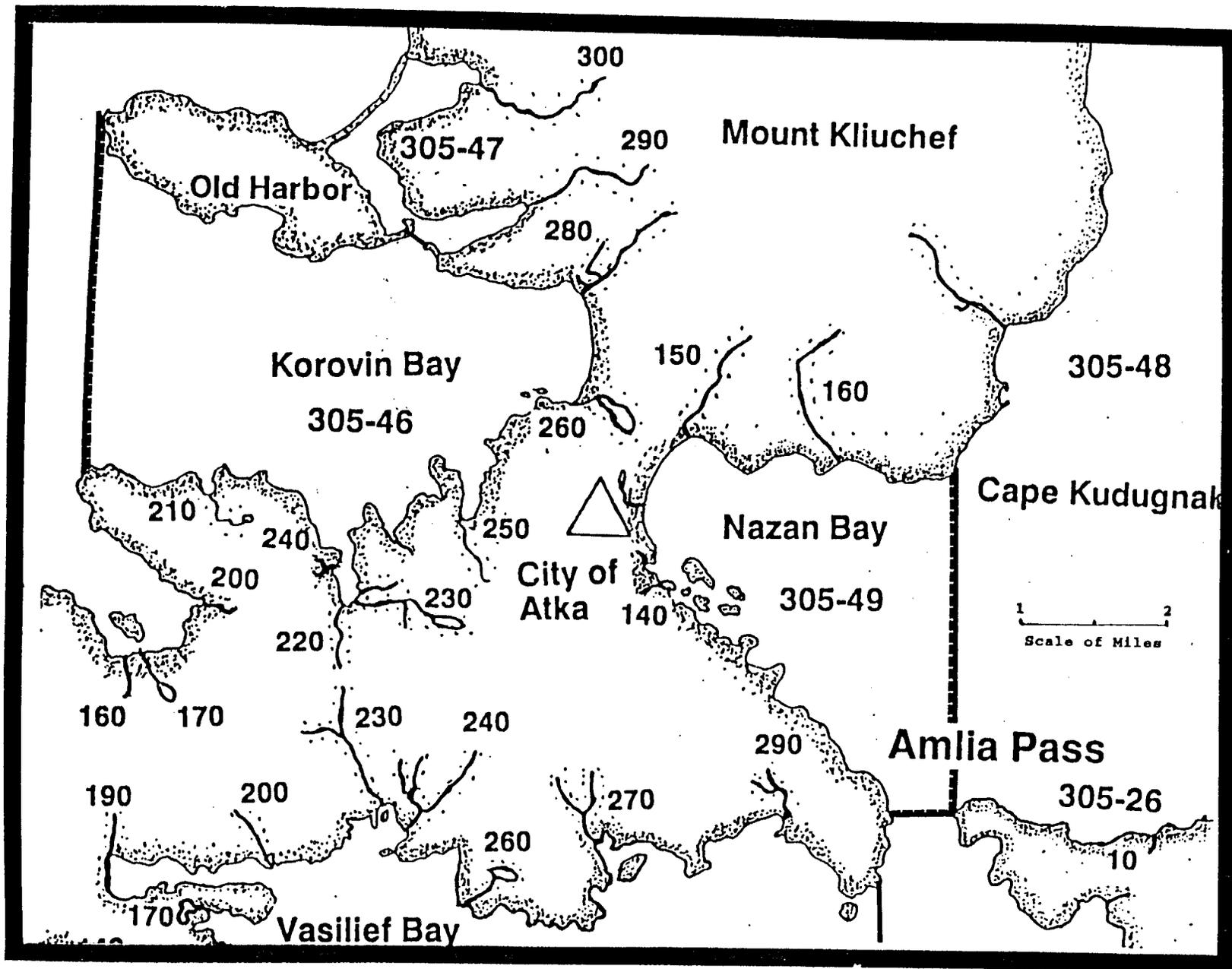


Figure 3. Old Harbor, Korovin and Nazan Bays statistical areas.

APPENDIX

Appendix A. Peak and estimated total salmon escapements by island, Aleutian Islands, 1982.^a

Island	Species ^b							
	Pink		Sockeye		Chum		Coho	
	Peak Cnt.	Est. Total	Peak Cnt.	Est. Total	Peak Cnt.	Est. Total	Peak Cnt.	Est. Total
Akutan ^c	10,500	19,425	-	-	-	-	-	-
Unalaska	1,541,317	2,851,436	44,995	89,990	100	175	300	525
Umnak ^d	295,385	546,462	805	1,610	0	0	143	250
Amlia	138,258	255,777	453	906	772	1,351	0	0
Atka	578,086	1,069,459	3,971	7,942	1,482	2,594	825	1,444
Igiktan	0	0	0	0	0	0	0	0
Great Sitkin	7,720	14,282	0	0	0	0	0	0
Umak	230	426	0	0	0	0	0	0
Little Tanaga	1,550	2,868	0	0	0	0	0	0
Kagalaska	3,310	6,124	975	1,950	0	0	0	0
Adak	362,438	670,510	993	1,986	0	0	0	0
Kanaga	18,448	34,129	0	0	0	0	0	0
Tanaga	68,585	126,882	0	0	0	0	0	0
Semisopochnoi	400	740	0	0	0	0	0	0
Amchitka	1,248	2,309	0	0	0	0	0	0
Rat Island	0	0	0	0	0	0	0	0
Kiska	43,393	80,277	8	16	1	2	20	35
Aggatu ^e	1,500	2,775	-	-	-	-	-	0
Shemya	0	0	0	0	0	0	0	0
Attu ^f	133,589	247,140	220	440	1	2	14	25
Total	3,205,957	5,931,020	52,420	104,840	2,356	4,123	1,302	2,279

^a Streams surveyed between 8/12 and 9/17.

^b Peak salmon counts expanded: by 1.85 for pink salmon, based on the average ratio of peak surveys to total estimated for 1985, 1988, and 1990 (McCullough, 1986, 1989, Shaul et al., 1991); 1.75 for chum salmon (Shaul, et al., 1991); by 2.0 for sockeye salmon (Barrett, et al., 1984); 2.4 for coho salmon based on data from Minard (1986).

^c Harbor Creek only stream surveyed.

^d Includes sockeye in Village Lake (670) estimated from number of spawning redds.

^e Island not surveyed, estimate based on comparison of similar sized streams on Attu Is, stream geomorphology and USFWS observations on east side of the island.

^f Only 40% of the potential salmon streams surveyed in 1982.

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