

CHIGNIK MANAGEMENT AREA
ANNUAL FINEFISH MANAGEMENT REPORT

1989

By

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CHIGNIK SALMON FISHERIES

Introduction

The Chignik commercial salmon management area encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figures 1 and 2). The area includes the Chignik River system and approximately 100 other salmon producing streams.

The management area is divided into five districts which are, from east to west, the Eastern, Central, Chignik Bay, Western, and Perryville Districts (Figure 3). Five species of Pacific Salmon are commercially harvested; they are chinook (Oncorhynchus tshawytscha), sockeye (Oncorhynchus nerka), pink (Oncorhynchus gorbuscha), coho (Oncorhynchus kisutch), and chum (Oncorhynchus keta) salmon. The Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries, manages the Chignik Area to achieve desired salmon escapements while allowing for the orderly harvest of the surplus.

Purse seines are the only legal commercial gear type for the Chignik Salmon Management Area. In 1989, 101 limited entry permit holders were active in the area salmon fisheries (Tables 46 and 47).

The 1989 annual management report builds on a series of reports dating back to 1922. The historical information presented in this report is taken from Thompson and Fox (1989). Readers are advised that historical sockeye salmon catch and escapement data for the Chignik Salmon Management Area have been reviewed and edited for this report. Differences between previously reported catch and escapement statistics and those presented in this report can be attributed to the editorial process with the goal of providing the most accurate information available.

Overview of the 1989 Salmon Season

The total salmon harvest in the Chignik Management Area was 1.26 million fish in 1989 (Tables 1 and 4). The 1989 total harvest was less than one-half the 1980-88 average of 2.85 million fish (Figure 5). The sockeye and chinook harvests were within predicted ranges, while pink and chum the catches were well below projected levels. This was due to the presence of oil contaminants in the Chignik Management Area which precluded harvest of surplus local pink and chum stocks. Coho catches were also lower than projected.

The ex-vessel value of the 1989 commercial salmon harvest, based on average in-season prices, was an estimated 13.8 million dollars, well below the 1980-88 average of 18.1 million dollars (Table 44 and Figure 6). The value of the Chignik commercial fishery, based on harvest of local stocks, had there been no closures due to oil

contaminants was an estimated 18.8 million dollars (Barrett 1990) (Appendix K).

Chinook Salmon

Background

Chinook production in the Chignik Management Area is limited to the Chignik River system. This is the largest chinook salmon producing system on the south side of the Alaska Peninsula. Chinook salmon return to Chignik River primarily during July and August. Commercial catches of chinook salmon are incidental to sockeye catches and generally peak during July.

Chinook runs to Chignik River have averaged 3,600 fish since 1960 (Table 6 and Figure 7). Commercial catches have increased in recent years as evidenced by an average harvest of 1,000 fish from 1960-77 and an average catch of 3,450 fish from 1978-89 (Table 4). There has also been a corresponding increase in chinook escapements for the past 10 years (Table 6). Escapement estimates are considered conservative due to the difficulty in distinguishing smaller chinook salmon from sockeye salmon as they pass through the weir.

1989 Management

The 1989 chinook salmon run totaled 6,858 fish (Table 6). The harvest in the Chignik Management Area was 3,542 fish, very similar to the recent 10 year average harvest of 3,851 chinook salmon (Table 4). Oil related closures resulted in most of the chinook harvest coming from the Chignik Bay District. The peak daily harvest of 626 chinook salmon occurred on July 10 (Table 3).

The total ex-vessel value of the 1989 chinook salmon harvest was an estimated 79,000 dollars (Table 44). The average earnings per permit holder was 790 dollars.

The 1989 chinook salmon escapement counted through the Chignik River weir was 3,316 fish (Table 5). However, no adjustment has been made for chinook salmon smaller than 650 mm in length, those removed by sport and subsistence fishing, or fish entering after the weir was removed on August 9.

Chinook salmon in both the commercial and sport fisheries were predominately five and six-year-old fish (Table 7).

Sockeye Salmon

Background

Economically, sockeye salmon are the most important commercial

species in the Chignik Management Area. The local commercial fishery targets on the two runs of sockeye salmon entering the Chignik Lakes system (Figure 4). Sockeye salmon of Chignik Lakes system origin are also intercepted outside the Chignik Management Area in two historic fisheries, one to the east in the Kodiak Management Area (Cape Igvak) and one to the west in the Alaska-Peninsula Management Area (Balboa-Stepovak).

Although most of the sockeye salmon production comes from the Chignik Lakes system some spawning activity does occur in the Eastern District. Sockeye salmon in the Eastern District spawn predominately in Albert Johnson Creek and Surprise Lake, both tributaries to Aniakchak River. Relative to Chignik Lakes sockeye stocks the other stocks are of minor commercial importance. Most sockeye harvested in the Eastern District are intercepted enroute to spawning areas outside the district. Lechner (1969) summarized several years of tagging data from the Aniakchak Bay and Cape Kumlik areas which showed that sockeye harvested in these waters are almost exclusively of Chignik Lakes origin. The Eastern District is based on the basis of the Chignik Lakes run.

Sockeye returning to the Chignik Lakes system are comprised of two stocks, one returning to Black Lake (early run) and the other to Chignik Lake (late run). The sockeye escapement goals for Black Lake and Chignik Lake stocks at 400,000 and 250,000 fish respectively. Commercial fishing time for sockeye salmon has been

predicated on achieving a threshold level of escapement for each run by a specific date. Monitoring escapement with respect to achieving these thresholds is complicated by an overlap in early and late run time of entry called the transition period. The transition period generally occurs from the last of June through mid-July.

Two methods have been developed to estimate daily proportions of each run during the transition period. The first method is based on tagging studies from 1962-1966 (Dahlberg 1968). These studies enabled biologists to develop an average time of entry curve (ATOE) to apportion the Chignik sockeye runs into early and late components. A form of this method is currently used for in-season management of the fishery. The second method, developed in the late 1970's and early 1980's, is based on differences in scale patterns between fry rearing in Black Lake and fry rearing in Chignik Lake (Marshall and Burgner 1975, Conrad 1983). Sockeye fry rearing in Black Lake (early run) emerge earlier and grow at a faster rate than fry rearing in Chignik Lake (late run) (Narver 1966). The faster growth rate experienced by Black Lake fry allow the majority to attain smolt length at age I, while fry rearing in Chignik Lake experience a slower growth rate and generally smolt at age II. Historically this has been recognized in the adult return. The returns to Black Lake have been characterized by the dominance of age 1.3 fish, while the Chignik Lake returns have been primarily age 2.3 fish. These differences in early life histories

are reflected in the scale patterns and supply the discriminating variables used in the scale pattern analysis (SPA) program. In-season ATOE run separation results are discarded in preference of final post-season SPA allocations.

1989 Management

The Chignik River weir, located approximately three miles from Chignik Lagoon, was operational on May 27. The first sockeye fishing period is allowed when the cumulative escapement through the weir prior to June 12 is a minimum 40,000 fish and there is indication of a buildup in Chignik Lagoon. Interim escapement goals have been established for June and July to facilitate achieving the 400,000 and 250,000 fish respective escapement goals for Black and Chignik Lakes (Appendix B).

The 1989 Chignik sockeye fishery started on June 12. Test fishing on June 11 indicated a moderate buildup in Chignik Lagoon, and the escapement of 56,400 sockeye past the weir was within the desired range for that date. The Chignik Bay, Central and Eastern Districts were opened for 24 hours from 11:00 am June 12 until 11:00 am June 13. However, the presence of oil contaminated waters or beaches near Kilokak Rocks and the lack of associated monitoring in the Chignik Management Area dictated that waters of the Eastern District north of 56 degrees 59 minutes North latitude remain closed to fishing (Appendix E).

The harvest for this period was about 59,000 sockeye salmon with a catch-per-unit-effort (CPUE) in the Eastern and Central Districts of only 119 fish per boat.

Since the Eastern and Central Districts combined CPUE for the first period was extremely low and the escapement counts were beginning to lag or just meet the interim goal the early indication was that the first run was not going to develop as originally projected (Table 3 and 8). Although the weir counts continued to meet the escapement schedule test fishing in Chignik Lagoon on June 15, 17 and 20 indicated an insufficient sockeye buildup to justify a commercial fishery.

On June 25 test fishing revealed a moderate buildup in the lagoon, and the cumulative escapement count was 341,600 fish. Age class composition of the test fishery samples were predominantly 1.3 fish (early run), therefore a 24 hour fishing period was scheduled from 9:00 am June 26 until 9:00 am June 27 (Table 25 and Appendix E). Meanwhile, the vessel chartered to monitor for oil continued to make observations from Kilokak Rocks westward to Chignik Bay. They observed oil and sheen in varying quantities throughout the Eastern and Central districts up to a point near the head of Chignik Bay at Unavikshak Island (Barrett and Monkiewicz 1989). As a result, the fishery was restricted to only that portion of the Chignik Bay District west of a line from Dago Frank's Creek to Negro Head (Appendix E). On June 26, at 5:00 pm, while the commercial fishery

was in progress the test fish vessel located oil (mousse) inside Chignik Bay at Anguvik Island. The close proximity of oil to the commercial fishery and the low level of monitoring were important factors in the decision to close the fishery before dark at 10:00 pm June 26, 11 hours prior to the scheduled closure. The harvest for the 13 hours fished was 64,600 sockeye salmon.

Although oil was reported in Chignik Bay the amount of contamination (sheen) within Chignik Lagoon did not appear to exceed a level associated with about 100 vessels operating there. The third fishing period of the season, in Chignik Lagoon only, began at 3:00 pm on June 30 and extended through midnight on July 1. Due to the presence of oil contaminated waters or beaches in the immediate vicinity of Chignik Lagoon a policy of fishing during daylight hours only was adopted. The third period harvest was 54,700 sockeye salmon.

The ATOE curve was used in-season to determine the daily percent composition of the early and late run sockeye salmon through the transition period. The 1989 model was completed on July 10 and indicated that by July 7 more than 50 percent of the fish entering the lagoon were late run fish (Figure 11). The management priority therefore shifted from first run to the late run.

The late run appeared to be coming in as forecast, and a total of 13 fishing days in July resulted in a harvest of 472,100 sockeye

salmon. The late run continued to show strength into August, and in 24 fishing days fishermen harvested 443,100 sockeye salmon. With the late strong showing of the Chignik Lake run it appeared that the preseason forecast would be exceeded.

Scheduled fishing periods were cancelled due to oil on July 27 and August 4. On July 26, a tender load of contaminated fish, approximately 20,000 pounds, was reported to ADF&G staff. While investigating the incident a heavy oil sheen (appeared to be of fresh diesel origin) approximately 175 by 75 yards was observed inside Chignik Lagoon coupled with lighter sheen in the peripheral areas. The onset of darkness prevented further surveillance. Due to the extensive amount of sheen and no information as to the full extent of oil contamination, the fishery scheduled for July 27 was cancelled. Fishing resumed as scheduled on July 28. On August 4, oil from the Exxon Valdez spill, in the form of mousse, was located inside Chignik Lagoon and scheduled fishing periods on August 5 and 6 were cancelled (Barrett and Monkiewicz 1989). The fishery remained closed to allow an assessment while late run escapement by August 7 was building to 340,300 fish, 90,300 fish above the late run escapement goal. On August 7, to prevent potentially damaging over-escapement levels and allow a co-op fishery in upper lagoon waters on August 9 a barrier seine was deployed across Chignik River. The co-op harvest was about 30,000 sockeye salmon. The barrier seine was removed and the commercial fishery in Chignik Lagoon reopened on August 10.

Commercial fishing time was reduced from a five day to a four day per week fishing schedule through September because of a below average coho salmon run. During 17 days of fishing in September fishermen harvested 76,000 sockeye salmon. The last delivery was made on September 29 (Table 3).

The management plan for the Cape Igvak interception fishery was not implemented in 1989 due to oil. The interception harvest at Balboa-Stepovak totalled only 4,000 sockeye salmon prior to July 25 (Table 10). This was due to the weak Black Lake return. Post July 25 Balboa-Stepovak sockeye catches were strong. This was probably due to the late run timing and strength of the Chignik Lake stocks and the large pink run into Balboa and Stepovak Bays. An estimated 80 percent of the post July 25 Balboa-Stepovak sockeye catches or 138,600 fish were from the Chignik Lake run (Table 11).

The ex-vessel value of the sockeye salmon harvested in the Chignik Management Area was approximately 13.05 million dollars (Table 44). The average value per permit holder was 130,500 dollars.

The Black Lake escapement, based on post season SPA, was 383,200 fish, 34,200 fish less than the in-season estimate generated from the ATOE curve (Table 14 and Figure 9). The Chignik Lake escapement, also based on post season SPA, was 557,900 fish, more than twice the desired 250,000 fish escapement level (Table 14 and

Figure 10). This was because of atypical management and fishery closures due to oil contaminants in the area.

The major age classes contributing to the Black Lake sockeye salmon catch and escapement were 1.3 (42.7% and 58.5%), 2.3 (44.4% and 27.9%), 2.2 (7.2% and 6.6%), and 1.2 (5.1% and 6.4%). Major age classes contributing to the Chignik Lake sockeye salmon catch and escapement were 2.3 (70.2% and 64.7%), 2.2 (21.1% and 17.9%) and, 1.3 (6.6% and 14.3%) (Table 24).

In summary, the total sockeye salmon return for both Black and Chignik Lakes in 1989 was 2.23 million fish (Figure 8). This was within the forecasted range of 1.68 to 2.52 million fish and above the point estimate of 2.10 million fish. However, the early run was much weaker than forecast, while the late run was much stronger than forecast.

Pink and Chum Salmon

Background

Pink and chum production in the Chignik Management Area is sporadic from year to year as indicated by the variable return per spawner for both pink (0.1-9.2) and chum (0.1-14.2) salmon (Tables 39-42). This erratic production is directly related to the morphology of the river and stream systems of the Chignik area. The pink and chum systems in the Chignik Area are characterized by loose

substrate, steep gradients, and short overall stream lengths. These systems are impacted by fall, winter and spring floods which cause streambed scouring which may result in high egg and fry mortality.

The pink and chum fisheries in the Chignik Management Area are managed based on in-season aerial assessment of escapement and CPUE data collected during fishing periods. Currently, all salmon processed locally are for the fresh frozen market as there are no canning facilities operational in the area. Consequently, to provide the quality required for fresh frozen processing, the fisheries are managed to intercept migrating fish prior to or just as they reach terminal waters.

1989 Management

The 1989 pink and chum fishery was severely restricted due to the presence of oil contaminated waters or beaches in the Eastern, Central, Western, and Perryville Districts of the Chignik Management Area. Since most of the pink and chum production comes from these districts there was no opportunity to harvest fish surplus to spawning requirements. The total pink and chum salmon harvest in the Chignik Bay District was 27,700 and 1,600 fish respectively (Table 1 and 3).

As expected, due to oil related fishery closures, the ex-vessel

value of pink (33,000 dollars) and chum (4,700 dollars) salmon were comparatively low in 1989 (Table 44).

The Chignik Area pink salmon escapement totalled 1,434,800 fish based on the area under the curve method of estimating total escapement (Johnson and Barrett 1988). This level of escapement is three times the 1963 to 1987 odd year average (Table 32 and Figure 13). It should be noted that pink salmon escapement estimates prior to 1985 were calculated using the indexed total escapement method described by Shaul and Schwarz (1989). Based on the methods described above the Chignik Area chum escapements totalled only 136,400 fish in 1989, 42,000 less than the 1962 to 1988 average (Table 38 and Figure 14). Given that there was no directed chum fishery, the 1989 chum run was considered weak.

Coho Salmon

Background

Coho spawn throughout the Chignik Management Area. However most of the coho spawning occurs in the Chignik Lakes system. Coho salmon first appear in the commercial fishery in about mid July and are still present when the commercial fishery terminates in October. In comparison to other coho producing systems of the Westward Region, the Chignik River system usually supports the largest coho harvests. Since 1976, commercial harvests have ranged from a low of 17,429 in 1977 to a high of 370,400 in 1988 with a

1980-89 average harvest of 158,100 coho salmon (Table 4 and Figure 15). Total production of the Chignik River system is unknown, primarily due to the lengthy timing of the run and the associated costs to enumerate the escapement.

Run reconstruction modelling data presented by Ruggerone (1989) places the 1973-88 average coho salmon run size for the Chignik Lakes system at 131,200 fish.

In recent years, coho catches in the Chignik Management Area have shown a bimodal pattern with respect to time. Early coho salmon harvests start in late July during the targeted pink and chum salmon fishery, and late coho salmon catches extend from the mid August through the remainder of the season. Early coho salmon catches come from the Western and Perryville Districts. These fish usually have a smaller average weight than those caught the end of August and September. Based on timing information and average weights an unknown portion of the early coho salmon catch are considered to be non-local stocks. From mid-August through the end of the season coho salmon are harvested primarily in the Chignik Bay District and are considered local stocks.

1989 Management

The total harvest of coho salmon in 1989 was 66,600 fish, well below the 1979-88 average of 160,600 fish (Table 4). Due to oil

related closures in the Eastern, Central, Western, and Perryville Districts, the entire 1989 harvest was from the Chignik Bay District. The peak daily harvest of 9,400 coho salmon occurred on September 7 (Table 3). Catches of coho salmon were reported through September 29, the last day of fishing.

The ex-vessel value of the coho salmon catch to the Chignik fishermen was an estimated 436,900 thousand dollars in 1989 (Table 44). The average earnings per permit holder was 4,400 dollars.

Aerial surveys for pink and chum salmon were conducted through the first week of September (Table 49). Although these surveys were not specifically targeted for coho salmon many were observed throughout the management area streams. Due to budget constraints and late run timing no attempt was made to estimate the escapement of coho salmon in Chignik spawning areas.

Subsistence

The Chignik Management Area population centers of Chignik, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay rely heavily on local subsistence resources. In 1989, the Chignik area subsistence harvest totalled an estimated 20 chinook, 12,325 sockeye, 1,200 coho, 150 pink and 148 chum salmon (Table 45). The harvest of coho may be underestimated based on a ADF&G, Subsistence Division survey

conducted in 1989-90 (Lisa Scarbrough, ADF&G Subsistence Division, personal communication).

1990 Season Outlook

The total 1990 salmon harvest projection of 3.45 million fish is 760,000 fish more than the 1980-89 average (Table 4 and Appendix L). Harvest projections for chinook (3,500), coho (160,000), and chum (157,000) salmon are close to the respective 1980-89 averages, while the sockeye (1.15 million) forecast is below average and the pink salmon (1.96 million) projected harvest is above average.

The Alaska Board of Fisheries reviewed four proposals concerning the Chignik Management Area in 1989. The only one which was passed into regulation redefined the boundary between the Central and Chignik Bay Districts as follows: (a) The Chignik Bay District includes all waters of Chignik Bay and Lagoon west of a line from a point near Jack Bay at 56 degrees 18 minutes 17 seconds N. latitude, 158 degrees 14 minutes 54 seconds W. longitude to Neketa Creek at 56 degrees 24 minutes 10 seconds N. latitude, 158 degrees 27 minutes 37 seconds W. longitude; (b) The Central District includes all waters, excluding the waters of Chignik Bay District, between a point near Jack Bay at 56 degrees 18 minutes 17 seconds N. latitude, 158 degrees 14 minutes 54 seconds W. longitude, and the southernmost marker 500 yards from the mouth of Aniakchak Lagoon (Appendix H).

CHIGNIK HERRING FISHERIES

Background

The earliest recorded herring fishery in the Alaska Peninsula region was in 1906. During the early history of the herring fishery Chignik area catches were grouped with catches from North and South Peninsula areas and labeled as Southwestern Alaska catches. Annual Southwestern Alaska herring catches did not exceed 500 tons. Herring were harvested with beach seines and marketed as a salted product. The herring fisheries ceased in the late 1930's and did not commence again until 1980, with a sac-roe fishery.

Since 1980, the Chignik area herring sac-roe fishery and has traditionally been a low effort, low yield fishery. Prior to 1984 harvests were concentrated in the Big River Section of the Eastern District (Figure 3). This area was closed to commercial herring fishing 1985 and has remained closed since that time to protect dwindling stocks. The closure of the Big River Section has shifted effort into other areas of the Chignik Management Area.

The spawning biomass in a small geographic areas, generally a bay or lagoon, are managed as discrete stocks. The projected annual harvest for each of these stocks is dependent on the previous year

biomass estimates and an exploitation rate of 0-20% of the available spawning biomass. Pre-season harvest projections may differ from actual harvest levels if in-season information suggests the spawning biomass of a discrete stock differs significantly from anticipated levels.

1989 Management

The ADF&G policy on confidentiality of individual harvest statistics requires a minimum four participants in a fishery before releasing information. The Chignik Area herring sac-roe fishery did not meet the minimum level of effort and for this reason no harvest data is reported for 1989.

Based on samples from the commercial fishery, herring from Kujulik, Ivanof, Lake, and Mud Bays were dominated four year old fish (Tables 50-53). The Anchorage Bay sample was dominated by three year old fish (Table 54)

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Table 1. Chignik Management Area commercial salmon catches by district, statistical area and species, 1989.

District	Stat. Area	Species					Total
		Chinook	Sockeye	Coho	Pink	Chum	
	271-10	3,532	1,156,782	68,231	27,691	1,587	1,257,823
Chignik Bay	Total	3,532	1,156,782	68,231	27,691	1,587	1,257,823
	272-20	0	0	0	0	0	0
	272-30	8	881	0	0	14	903
	272-40	0	0	0	0	0	0
	272-50	1	1,439	2	21	12	1,475
	272-62	0	153	0	0	8	161
	272-64	0	0	0	0	0	0
Central	Total	9	2,473	2	21	34	2,539
	272-60	1	32	0	0	3	36
	272-70	0	0	0	0	0	0
	272-72	0	0	0	0	0	0
	272-80	0	0	0	0	0	0
	272-90	0	0	0	0	0	0
	272-92	0	0	0	0	0	0
	272-96	0	0	0	0	0	0
Eastern	Total	1	32	0	0	3	36
	273-72	0	0	0	0	0	0
	273-74	0	0	0	0	0	0
	273-80	0	0	0	0	0	0
	273-82	0	0	0	0	0	0
	273-84	0	0	0	0	0	0
	273-90	0	0	0	0	0	0
	273-94	0	0	0	0	0	0
Western	Total	0	0	0	0	0	0
	275-40	0	0	0	0	0	0
	275-50	0	0	0	0	0	0
	275-60	0	0	0	0	0	0
Perryville	Total	0	0	0	0	0	0
Total All Districts		3,542	1,159,287	68,233	27,712	1,624	1,260,398

Table 2. Chignik Management Area salmon escapements by district and statistical area, 1989.

District	Stat. Area	Species					Total
		Chinook	Sockeye	Coho ^b	Pink ^a	Chum ^a	
Chignik Bay	271-10	3,316	941,175		13,470	4,167	962,128
	Total	3,316	941,175		13,470	4,167	962,128
Central	272-20				26,008	3,790	29,798
	272-30		100		45,500	17,539	63,139
	272-40						
	272-50				143,539	13,373	156,912
	272-62						
	272-64						
	Total	0	100		215,047	34,702	249,849
Eastern	272-60		7,200		9,957	2,685	19,842
	272-70		60		84,619	10,263	94,942
	272-72				14,000	7,474	21,474
	272-80		56	150	96,772	23,607	120,585
	272-90				291,590	22,657	314,247
	272-92		300		20,616	124	21,040
	272-96		800		363,414	7,444	371,658
		Total	0	8,416	150	880,968	74,254
Western	273-70				2,900	2,006	4,906
	273-72				33,500	1,601	35,101
	273-74						
	273-80				10,800	600	11,400
	273-82				1,702	100	1,802
	273-84				3,010	2,668	5,678
	273-90						
	273-94				5,982	400	6,382
	Total	0	0		57,894	7,375	65,269
Perryville	275-40				188,583	8,404	196,987
	275-50				76,363	7,171	83,534
	275-60				2,473	332	2,805
	Total	0	0		267,419	15,907	283,326
Total All Districts		3,316	949,691	150	1,434,798	136,405	2,524,360

^aEscapement estimates for pink and chum salmon based on methods of Johnson and Barrett (1988).

^bCoho salmon escapement data incomplete due to run timing.

Table 3. Chignik Management Area commercial salmon catch and effort^a by day and statistical area, 1989.

Stat Area	Date	Fishing Effort		Chinook		Sockeye		Coho		Pink		Chum	
		Permits	Indys	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
Z71-10	06/08 ^a	1	1	0	0	187	1,446	0	0	0	0	0	0
	06/11 ^a	1	2	0	0	1,510	11,615	0	0	0	0	0	0
	06/12	67	70	17	332	40,165	304,879	0	0	0	0	0	0
	06/13	67	69	9	168	16,976	129,646	0	0	0	0	0	0
	06/15 ^a	1	1	0	0	697	5,041	0	0	0	0	0	0
	06/17 ^a	1	1	0	0	508	3,600	0	0	0	0	0	0
	06/20 ^a	1	1	0	0	642	4,506	0	0	0	0	0	0
	06/25 ^a	1	1	0	0	2,362	16,233	0	0	0	0	0	0
	06/26	92	98	454	8,780	64,638	465,092	0	0	2	5	1	9
	06/30	87	90	392	7,991	34,700	252,020	0	0	6	20	4	26
	07/01	85	87	226	5,079	20,028	142,544	0	0	17	42	1	7
	07/04	79	80	306	6,442	41,026	306,044	1	8	16	35	7	59
	07/05	83	85	150	3,505	21,166	156,083	0	0	36	86	6	52
	07/10	87	93	626	14,720	88,787	682,114	0	0	41	129	5	35
	07/12	86	89	290	6,198	41,092	307,614	0	0	56	149	6	39
	07/18 ^a	1	1	0	0	527	4,091	0	0	0	0	0	0
	07/19	82	85	448	9,839	56,150	404,439	8	50	171	486	36	284
	07/20	83	84	119	2,656	24,549	172,526	2	17	59	178	7	51
	07/24	84	91	57	1,234	44,262	313,535	3	20	292	945	18	150
	07/26	83	87	75	1,759	36,865	245,898	34	216	851	2,666	38	257
	07/28	80	81	63	1,573	36,240	238,544	4	31	1,067	3,350	33	245
	07/29	72	73	41	840	21,574	136,481	1	6	646	2,159	18	130
	07/30	71	73	19	394	17,372	109,986	2	15	646	1,962	8	61
	07/31	73	74	34	713	23,012	147,649	1	6	699	2,181	29	211
	08/01	77	78	30	573	19,045	119,860	0	0	516	1,631	39	307
	08/02	64	64	18	404	15,876	101,856	1	6	520	1,737	58	445
	08/03	56	56	17	454	17,008	109,842	1	9	498	1,643	68	551
08/04	76	84	17	402	22,584	147,437	12	95	1,151	3,964	71	589	
08/09	77	80	4	77	27,158	185,364	30	125	375	1,265	28	224	
08/10	68	73	14	329	26,550	171,243	29	198	3,749	13,079	215	1,488	

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Table 3. (page 2 of 3)

Stat Area	Date	Fishing Effort		Chinook		Sockeye		Coho		Pink		Chum	
		Permits	Locks	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2/1-10	08/11	65	66	20	349	20,692	134,983	58	384	4,152	14,505	201	1,403
	08/12	58	58	12	187	18,020	118,328	23	193	3,184	11,112	117	840
	08/13	49	50	10	204	20,805	134,378	14	86	1,635	6,043	47	364
	08/14	55	56	9	205	17,819	117,010	11	79	1,411	4,811	54	408
	08/15	54	55	3	56	17,209	113,261	43	341	1,055	3,927	63	406
	08/16	59	70	9	231	24,202	159,098	29	212	1,009	3,504	48	355
	08/19	58	59	6	114	19,292	124,519	43	343	566	1,961	68	440
	08/20	43	43	6	130	16,428	108,857	57	424	482	1,566	59	403
	08/21	52	53	4	63	23,965	160,362	94	617	447	1,482	25	189
	08/22	59	63	5	85	21,802	145,844	122	943	536	1,835	35	276
	08/23	52	55	5	96	20,792	139,556	148	1,106	413	1,277	12	90
	08/24	52	52	3	82	15,919	106,627	128	981	383	1,290	19	125
	08/25	47	48	0	0	16,733	110,732	205	1,501	304	949	9	64
	08/28	51	56	6	110	20,805	135,816	1,349	10,696	177	591	27	184
	08/29	44	47	3	54	12,904	84,209	1,238	9,451	136	410	19	150
	08/30	43	49	1	12	14,949	96,323	1,257	9,683	135	440	18	134
	08/31	33	36	1	15	13,296	86,814	2,088	16,902	87	275	6	45
	09/01	41	41	0	0	13,221	87,240	2,544	20,796	54	170	10	70
	09/05	44	44	1	30	10,720	68,154	7,000	58,319	10	29	6	48
	09/06	36	37	0	0	6,155	39,169	6,426	52,725	17	53	17	111
	09/07	33	34	2	6	7,352	45,691	9,421	78,816	13	42	12	87
	09/08	28	28	0	0	2,893	17,839	3,837	31,966	1	4	5	38
	09/12	36	38	0	0	10,074	60,231	8,019	65,792	3	9	2	16
	09/13	29	31	0	0	6,471	38,236	4,544	37,801	2	6	7	42
	09/14	27	28	0	0	6,091	36,665	6,002	49,498	1	3	2	17
	09/15	26	28	0	0	4,231	24,637	4,599	38,055	64	212	1	7
	09/19	24	24	0	0	2,966	17,002	3,275	26,135	0	0	0	0
	09/20	15	15	0	0	1,133	6,231	1,423	11,750	0	0	1	7
	09/21	13	14	0	0	1,673	8,927	1,435	11,310	0	0	0	0
	09/22	9	9	0	0	1,295	6,855	1,394	11,033	0	0	0	0
	09/26	5	5	0	0	615	3,370	237	1,844	0	0	1	7
09/27	4	4	0	0	1,019	5,402	335	2,568	0	0	0	0	

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Table 3. (page 3 of 3)

Stat Area	Date	Fishing Effort		Chinook		Sockeye		Coho		Pink		Chum	
		Permits	Indys	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
271-10	09/28 ^b												
	09/29 ^b	7	7	0	0	2,005	10,874	714	5,975	0	0	0	0
	Total	96	3,155	3,532	76,491	1,156,782	7,950,548	68,231	559,127	27,691	94,218	1,587	11,546
	Avg. Wt.				21.7		6.9		8.2		3.4		7.3
272-30	06/12	7	7	2	38	709	5,443	0	0	0	0	6	54
	06/13	5	5	6	112	172	1,351	0	0	0	0	8	89
	Total	10	12	8	150	881	6,794	0	0	0	0	14	143
	Avg. Wt.				18.8		7.7		0.0		0.0		10.2
272-50	06/12	7	7	1	27	1,149	8,519	0	0	21	51	11	83
	06/13	5	5	0	0	290	2,142	2	13	0	0	1	8
	Total	7	12	1	27	1,439	10,661	2	13	21	51	12	91
	Avg. Wt.				27.0		7.4		6.5		2.4		7.6
272-60 ^c													
272-62 ^c	06/12	4	4	1	30	185	1,277	0	0	0	0	11	108
Total		4	4	1	30	185	1,277	0	0	0	0	11	108
	Avg. Wt.				30.0		6.9		0.0		0.0		9.8
Area Total		101	3,183	3,542	76,698	1,159,287	7,969,280	68,233	559,140	27,712	94,269	1,624	11,888
	Avg. Wt.				21.7		6.9		8.2		3.4		7.3

^aState chartered test fisheries occurred on these dates resulting in effort levels of 1 or 2.

^bCatches on 9/28 and 9/29 in stat. area 271-10 are reported together to maintain confidentiality.

^cStat. areas 272-60 and 272-62 are reported together to maintain confidentiality.

Table 4 . Chignik Management Area historical commercial salmon catches, 1960-1989^a.

Year	Commercial Salmon Catch					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1960	643	715,969	8,933	557,327	486,699	1,769,571
1961	409	322,890	3,088	443,510	178,760	948,657
1962	435	364,753	1,292	1,519,305	364,335	2,250,120
1963	1,744	408,606	9,933	1,662,363	112,697	2,195,343
1964	1,099	556,890	2,735	1,682,365	333,336	2,576,425
1965	1,592	599,553	9,602	1,118,158	120,589	1,849,494
1966	636	219,794	16,050	683,215	238,883	1,158,578
1967	882	462,000	13,150	108,981	75,543	660,556
1968	674	977,382	2,200	1,290,660	223,861	2,494,777
1969	3,448	394,135	18,103	1,779,736	67,721	2,263,143
1970	1,225	1,325,883	15,348	1,287,605	464,674	3,094,735
1971	2,010	1,016,136	14,557	612,290	353,952	1,998,945
1972	464	378,669	19,615	72,240	78,356	549,344
1973	525	870,352	22,322	25,445	8,701	927,345
1974	255	662,905	12,245	70,017	34,454	779,876
1975	549	399,593	53,283	66,165	25,161	544,751
1976	763	1,163,728	35,301	388,917	80,221	1,668,930
1977	711	1,972,207	17,429	604,824	110,452	2,705,623
1978	1,603	1,576,283	20,212	985,114	120,889	2,704,101
1979	1,266	1,049,497	93,146	2,056,999	188,169	3,389,077
1980	2,325	859,966	117,862	1,125,465	312,572	2,418,190
1981	2,694	1,839,469	78,805	1,162,613	580,332	3,663,913
1982	5,236	1,521,857	300,384	873,390	390,096	3,090,963
1983	5,488	1,824,175	61,915	321,160	159,362	2,372,100
1984	4,318	2,660,478	110,128	446,184	63,408	3,284,516
1985	1,919	922,151	206,624	174,966	26,146	1,331,806
1986	3,037	1,645,834	116,633	647,125	176,640	2,589,269
1987	2,651	1,898,838	150,414	246,775	127,261	2,425,939
1988	7,296	795,841	370,410	2,997,159	267,126	4,437,832
1989	3,542	1,159,287	68,233	27,712	1,624	1,260,398
Avg (1960-1989)	1,981	1,018,837	65,665	834,593	192,401	2,113,477
Avg (1980-1989)	3,851	1,512,790	158,141	802,255	210,457	2,687,493

^aCatch figures do not include catches from Cape Igvak or Balboa-Stepovak.

Table 5. Daily chinook salmon escapement counts at the Chignik Weir site, 1989.

Escapements /1,2			Escapements /1,2		
Date	Daily Esc.	Cum. Esc.	Date	Daily Esc.	Cum. Esc.
14-Jun	1	1	13-Jul	54	1,453
15-Jun	0	1	14-Jul	156	1,609
16-Jun	0	1	15-Jul	108	1,717
17-Jun	0	1	16-Jul	96	1,813
18-Jun	0	1	17-Jul	24	1,837
19-Jun	18	19	18-Jul	84	1,921
20-Jun	5	24	19-Jul	150	2,071
21-Jun	0	24	20-Jul	128	2,199
22-Jun	0	24	21-Jul	30	2,229
23-Jun	30	54	22-Jul	62	2,291
24-Jun	6	60	23-Jul	167	2,458
25-Jun	3	63	24-Jul	84	2,542
26-Jun	5	68	25-Jul	102	2,644
27-Jun	6	74	26-Jul	102	2,746
28-Jun	25	99	27-Jul	36	2,782
29-Jun	84	183	28-Jul	126	2,908
30-Jun	6	189	29-Jul	132	3,040
01-Jul	71	260	30-Jul	54	3,094
02-Jul	124	384	31-Jul	42	3,136
03-Jul	192	576	01-Aug	24	3,160
04-Jul	36	612	02-Aug	36	3,196
05-Jul	42	654	03-Aug	0	3,196
06-Jul	60	714	04-Aug	54	3,250
07-Jul	49	763	05-Aug	0	3,250
08-Jul	18	781	06-Aug	24	3,274
09-Jul	96	877	07-Aug	18	3,292
10-Jul	348	1,225	08-Aug	24	3,316
11-Jul	72	1,297	09-Aug	0	3,316
12-Jul	102	1,399			

1. Escapement estimates considered conservative due to the difficulty of distinguishing small chinook from sockeye as they pass through the weir.
2. No adjustment made for escapement after removal of the weir 09-Aug.

Table 6. Chignik River chinook salmon runs from 1960 to 1989

Year	Escapement ^a	Catch	Total Run ^b
1960		643	643
1961		409	409
1962		435	435
1963	564	1,744	2,308
1964	914	1,099	2,013
1965	942	1,592	2,534
1966	822	636	1,458
1967	1,500	882	2,382
1968	1,000	674	1,674
1969	600	3,448	4,048
1970	2,500	1,225	3,725
1971	2,000	2,010	4,010
1972	1,500	464	1,964
1973	822	525	1,347
1974	672	255	927
1975	877	549	1,426
1976	700	763	1,463
1977	798	711	1,509
1978	1,197	1,603	2,800
1979	1,050	1,266	2,316
1980	876	2,325	3,201
1981	1,603	2,694	4,297
1982	2,412	5,235	7,648
1983	1,943	5,488	7,431
1984	5,806	4,318	10,124
1985	3,144	1,919	5,063
1986	3,612	3,037	6,649
1987	2,624	2,651	5,275
1988	4,868	7,296	12,164
1989	3,316	3,542	6,858

^aNo estimate made for chinook salmon escapement after removal of the weir.

^bTotal run figures should be considered conservative due to the difficulty in distinguishing small chinook from sockeye salmon at the weir.

Table 7. Age composition of the Chignik River chinook salmon from scale samples collected in the Chignik Lagoon commercial harvest and the Chignik River sport harvest, 1989.

Harvest	Age					Total
	1.1	1.2	1.3	1.4	1.5	
<u>Commercial</u>						
Number	3	8	31	32	0	74
Percent	4.1	10.8	41.9	43.2	0.0	100.0
<u>Sport</u>						
Number	3	19	62	65	3	152
Percent	2.0	12.5	40.8	42.8	2.0	100.0

Table 8. Daily sockeye salmon escapement counts at the Chignik Weir site, 1989.

Date	Escapement		Date	Escapement	
	Daily	Cumulative		Daily	Cumulative
27-May	0	0	04-Jul	2,816	425,295
28-May	0	0	05-Jul	1,177	426,472
29-May	0	0	06-Jul	2,696	429,168
30-May	36	36	07-Jul	6,255	435,423
31-May	23	59	08-Jul	8,330	443,753
01-Jun	366	425	09-Jul	10,629	454,382
02-Jun	468	893	10-Jul	9,332	463,714
03-Jun	993	1,886	11-Jul	1,590	465,304
04-Jun	3,122	5,008	12-Jul	5,150	470,454
05-Jun	4,741	9,749	13-Jul	821	471,275
06-Jun	3,549	13,298	14-Jul	3,697	474,972
07-Jun	5,343	18,641	15-Jul	9,054	484,026
08-Jun	5,268	23,909	16-Jul	13,416	497,442
09-Jun	9,601	33,510	17-Jul	16,818	514,260
10-Jun	13,257	46,767	18-Jul	27,271	541,531
11-Jun	9,650	56,417	19-Jul	17,773	559,304
12-Jun	7,725	64,142	20-Jul	2,178	561,482
13-Jun	6,368	70,510	21-Jul	4,316	565,798
14-Jun	5,756	76,266	22-Jul	16,748	582,546
15-Jun	8,456	84,722	23-Jul	36,112	618,658
16-Jun	12,413	97,135	24-Jul	25,229	643,887
17-Jun	16,318	113,453	25-Jul	6,040	649,927
18-Jun	42,381	155,834	26-Jul	23,784	673,711
19-Jun	24,734	180,568	27-Jul	5,147	678,858
20-Jun	19,641	200,209	28-Jul	23,020	701,878
21-Jun	20,926	221,135	29-Jul	4,485	706,363
22-Jun	23,765	244,900	30-Jul	3,585	709,948
23-Jun	31,190	276,090	31-Jul	2,555	712,503
24-Jun	40,787	316,877	01-Aug	1,517	714,020
25-Jun	24,690	341,567	02-Aug	1,740	715,760
26-Jun	10,553	352,120	03-Aug	1,493	717,253
27-Jun	2,021	354,141	04-Aug	2,827	720,080
28-Jun	20,659	374,800	05-Aug	3,475	723,555
29-Jun	12,101	386,901	06-Aug	19,774	743,329
30-Jun	18,751	405,652	07-Aug	17,332	760,661
01-Jul	4,980	410,632	08-Aug	14,310	774,971
02-Jul	3,707	414,339	09-Aug ¹	166,204	941,175
03-Jul	8,140	422,479			

¹ Time series analysis of catch and escapement was used to estimate sockeye salmon escapements after weir removal on 9 August.

Table 9. Catch and escapement of sockeye salmon destined for the Chignik Lakes system in Chignik and Balboa-Stepovak Bay areas, 1989 (timing adjusted to Chignik Lagoon date).

Date	Daily Escap.	Chignik Bay	Hook Bay/ Kujulik	Aniachak	Stepovak	Total
01-Jun	893	0	0	0	0	893
02-Jun	993	0	0	0	0	993
03-Jun	3,122	0	0	0	0	3,122
04-Jun	4,741	0	0	0	0	4,741
05-Jun	3,549	0	0	0	0	3,549
06-Jun	5,343	0	0	0	0	5,343
07-Jun	5,268	0	0	0	0	5,268
08-Jun	9,601	187	0	0	0	9,788
09-Jun	13,257	0	0	0	0	13,257
10-Jun	9,650	0	0	0	0	9,650
11-Jun	7,725	1,510	0	0	0	9,235
12-Jun	6,368	40,165	0	0	0	46,533
13-Jun	5,756	16,976	1,858	0	0	24,590
14-Jun	8,456	0	462	185	0	9,103
15-Jun	12,413	697	0	0	0	13,110
16-Jun	16,318	0	0	0	0	16,318
17-Jun	42,381	508	0	0	0	42,889
18-Jun	24,734	0	0	0	0	24,734
19-Jun	19,641	0	0	0	0	19,641
20-Jun	20,926	642	0	0	0	21,568
21-Jun	23,765	0	0	0	3,381	27,146
22-Jun	31,190	0	0	0	0	31,190
23-Jun	40,787	0	0	0	0	40,787
24-Jun	24,690	0	0	0	0	24,690
25-Jun	10,553	2,362	0	0	0	12,915
26-Jun	2,021	64,638	0	0	0	66,659
27-Jun	20,659	0	0	0	0	20,659
28-Jun	12,101	0	0	0	0	12,101
29-Jun	18,751	0	0	0	0	18,751
30-Jun	4,980	34,700	0	0	0	39,680
01-Jul	3,707	20,028	0	0	0	23,735
02-Jul	8,140	0	0	0	0	8,140
03-Jul	2,816	0	0	0	0	2,816
04-Jul	1,177	41,026	0	0	0	42,203
05-Jul	2,696	21,166	0	0	0	23,862
06-Jul	6,255	0	0	0	0	6,255
07-Jul	8,330	0	0	0	0	8,330
08-Jul	10,629	0	0	0	0	10,629
09-Jul	9,332	0	0	0	0	9,332
10-Jul	1,590	88,787	0	0	0	90,377
11-Jul	5,150	0	0	0	0	5,150
12-Jul	821	41,092	0	0	0	41,913

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Table 9. (page 2 of 3)

Date	Daily Escap.	Chignik Bay	Hook Bay/ Kujulik	Aniachak	Stepovak	Total
13-Jul	3,697	0	0	0	0	3,697
14-Jul	9,054	0	0	0	0	9,054
15-Jul	13,416	0	0	0	0	13,416
16-Jul	16,818	0	0	0	0	16,818
17-Jul	27,271	0	0	0	433	27,704
18-Jul	17,773	527	0	0	471	18,771
19-Jul	2,178	56,150	0	0	200	58,528
20-Jul	4,316	24,549	0	0	0	28,865
21-Jul	16,748	0	0	0	0	16,748
22-Jul	36,112	0	0	0	0	36,112
23-Jul	25,229	0	0	0	0	25,229
24-Jul	6,040	44,262	0	0	0	50,302
25-Jul	23,784	0	0	0	0	23,784
26-Jul	5,147	36,865	0	0	0	42,012
27-Jul	23,020	0	0	0	0	23,020
28-Jul	4,485	36,240	0	0	0	40,725
29-Jul	3,585	21,524	0	0	0	25,109
30-Jul	2,555	17,372	0	0	0	19,927
31-Jul	1,517	23,042	0	0	19,689	44,248
01-Aug	1,740	19,045	0	0	17,960	38,745
02-Aug	1,493	15,876	0	0	0	17,369
03-Aug	2,827	17,008	0	0	0	19,835
04-Aug	3,475	22,584	0	0	17,861	43,920
05-Aug	19,774	0	0	0	9,585	29,359
06-Aug	17,332	0	0	0	4,589	21,921
07-Aug	14,310	0	0	0	0	14,310
08-Aug	21,123	0	0	0	0	21,123
09-Aug	3,253	27,158	0	0	5,089	35,500
10-Aug	2,607	26,550	0	0	8,066	37,223
11-Aug	2,271	20,692	0	0	5,872	28,835
12-Aug	2,621	18,020	0	0	0	20,641
13-Aug	2,245	20,805	0	0	0	23,050
14-Aug	2,168	17,819	0	0	0	19,987
15-Aug	3,049	17,209	0	0	6,240	26,498
16-Aug	3,937	24,202	0	0	10,175	38,314
17-Aug	7,871	0	0	0	5,052	12,923
18-Aug	19,220	0	0	0	5,073	24,293
19-Aug	5,741	19,292	0	0	5,017	30,050
20-Aug	3,020	16,428	0	0	0	19,448
21-Aug	2,747	23,965	0	0	0	26,712
22-Aug	2,620	21,802	0	0	0	24,422
23-Aug	2,006	20,792	0	0	0	22,798
24-Aug	2,108	15,919	0	0	0	18,027
25-Aug	3,160	16,733	0	0	0	19,893
26-Aug	5,825	0	0	0	0	5,825
27-Aug	19,586	0	0	0	0	19,586

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Table 9. (page 3 of 3)

Date	Daily Escap.	Chignik Bay	Hook Bay/ Kujulik	Aniachak	Stepovak	Total
28-Aug	4,776	20,805	0	0	0	25,581
29-Aug	1,884	12,904	0	0	0	14,788
30-Aug	1,675	14,949	0	0	0	16,624
31-Aug	1,666	13,296	0	0	0	14,962
01-Sep	2,795	13,221	0	0	0	16,016
02-Sep	4,863	0	0	0	0	4,863
03-Sep	6,930	0	0	0	0	6,930
04-Sep	8,998	0	0	0	0	8,998
05-Sep	776	10,720	0	0	0	11,496
06-Sep	926	6,155	0	0	1,510	8,591
07-Sep	365	7,352	0	0	1,694	9,411
08-Sep	926	2,893	0	0	1,206	5,025
09-Sep	1,488	0	0	0	854	2,342
10-Sep	2,050	0	0	0	2,557	4,607
11-Sep	2,612	0	0	0	0	2,612
12-Sep	815	10,074	0	0	0	10,889
13-Sep	767	6,471	0	0	0	7,238
14-Sep	533	6,091	0	0	720	7,344
15-Sep	299	4,231	0	0	2,565	7,095
16-Sep	533	0	0	0	1,051	1,584
17-Sep	767	0	0	0	882	1,649
18-Sep	1,002	0	0	0	309	1,311
19-Sep	62	2,966	0	0	0	3,028
20-Sep	146	1,133	0	0	0	1,279
21-Sep	163	1,673	0	0	0	1,836
22-Sep	180	1,295	0	0	83	1,558
23-Sep	198	0	0	0	100	298
24-Sep	215	0	0	0	260	475
25-Sep	232	0	0	0	0	232
26-Sep	128	615	0	0	23	766
27-Sep	155	1,019	0	0	0	1,174
28-Sep	97	1,233	0	0	0	1,330
29-Sep	2	772	0	0	0	774
30-Sep	2	0	0	0	0	2
	941,175	1,156,782	2,320	185	138,567	2,239,029

Table 10. Harvest of Chignik bound sockeye salmon in the Chignik, and Balboa-Stepovak areas^{1/} from 1964 - 1989 (Numbers of Fish in Thousands).

	Chignik Area		Cape Igvak		Balboa-Stepovak ^{2/}		Total Catch
	Catch	%	Catch	%	Catch	%	
1964 ^{2/}	557	90.57	15	2.44	43	7.00	615
1965 ^{2/}	600	89.94	11	1.65	56	8.40	667
1966 ^{2/}	220	87.99	18	7.21	12	4.81	250
1967 ^{2/}	462	91.48	23	4.56	20	3.96	505
1968 ^{2/}	977	82.53	136	11.48	71	5.99	1,184
1969 ^{2/}	394	78.96	98	19.63	7	1.41	499
1970 ^{2/}	1,326	72.79	427	23.46	68	3.74	1,821
1971 ^{2/}	1,016	76.97	253	19.97	51	3.86	1,320
1972 ^{2/}	379	86.32	42	9.58	18	4.10	439

1964-72 catch and percentage figures are total for the entire season. Catch figures and percentages after 1972 are only through July 25.

1973 ^{3/}	769	88.99	57	6.61	38	4.41	864
1974 ^{3/}	530	74.12	121	16.86	65	9.02	715
1975 ^{3/}	116	81.78	24	16.67	2	1.55	142
1976 ^{3/}	792	83.08	113	12.37	43	4.55	953
1977 ^{3/}	1,547	90.61	129	7.55	31	1.84	1,708
1978 ^{4/5/}	1,454	85.48	225	13.23	22	1.29	1,701
1979 ^{4/6/}	795	91.98	14	1.61	55	6.41	864
1980 ^{4/6/}	670	91.17	0	0.00	65	8.83	735
1981 ^{4/6/}	1,606	79.89	282	14.04	122	6.06	2,011
1982 ^{4/6/}	1,251	84.53	166	11.23	63	4.24	1,480
1983 ^{4/6/}	1,451	72.57	321	16.05	227	11.37	1,999
1984 ^{4/6/}	2,474	73.93	449	13.43	423	12.64	3,347
1985 ^{4/7/}	696	79.91	104	14.19	51	5.90	871
1986 ^{4/7/}	1,456	82.64	188	10.67	118	6.69	1,763
1987 ^{4/7/}	1,660	78.02	321	15.08	147	6.90	2,128
1988 ^{4/7/}	679	94.95	11	1.47	26	3.58	715
1989 ^{4/7/}	502	99.12	0	0.00	4	0.88	507

Footnotes are listed on following page.

- 1/ The Cape Igvak and Balboa-Stepovak figures represent 80% of the total sockeye catches for those areas as it is estimated that roughly 80% of the sockeye caught in the Cape Igvak section and Balboa-Stepovak are destined for Chignik.
- 2/ Prior to 1973, Cape Igvak and Balboa-Stepovak fisheries were regulated by set weekly fishing periods in the regulation book, usually 5 days per week. The situation was sometimes modified due to poor escapements at Chignik.
- 3/ During 1973 through 1977 all three fisheries were managed on a day for day basis.
- 4/ Beginning with the 1978 season, the current Cape Igvak Fishery Management Plan still in effect today was implemented. The Cape Igvak fishery was allocated 15 percent of the total Chignik destined sockeye catch.
- 5/ During 1978, seining prior to July 11 was disallowed in Beaver, Balboa, and Stepovak Bays. The set gillnet fishery was allowed to fish 3 days per week through July 10 after which the fishery was managed on the basis of local stocks.
- 6/ During 1979-1984, 5 days per week were allowed at Balboa-Stepovak (including Beaver Bay) with a ceiling of 60,000 estimated Chignik destined sockeye, prior to July 11. If the Chignik Area sockeye catch was 1,000,000 or more before July 11, the 60,000 ceiling was to be dropped.
- 7/ Beginning in 1985, Balboa-Stepovak was placed on an allocation of 6.2 percent of the total estimated Chignik sockeye catch through July 25. After July 25, Balboa-Stepovak is managed on a local stock basis. The allocation was changed to an even 6 percent beginning in 1988. Seining is still not allowed prior to July 11.
- 8/ Balboa-Stepovak includes Beaver Bay. This fishery is also referred to as the Southeastern District Mainland fishery.

Table 11. Sockeye harvests in the Chignik Area and 80 percent of the sockeye salmon harvest in the Cape Igvak and Balboa-Stepovak Bay Areas, 1964-1989.

YEAR	Harvest To July 25 only				Harvest for entire season			
	Chignik	Cape Igvak	Balboa-Stepovak	Total	Chignik	Cape Igvak	Balboa-Stepovak	Total
1964	-	-	-	-	556,890	14,980	43,021	614,891
1965	-	-	-	-	599,553	11,021	56,020	666,594
1966	-	-	-	-	219,794	18,003	12,011	249,808
1967	-	-	-	-	462,000	23,014	20,021	505,035
1968	-	-	-	-	977,382	135,951	70,959	1,184,292
1969	-	-	-	-	394,135	97,982	7,013	499,130
1970	1,325,883	427,338	67,582	1,820,803	1,325,883	427,339	68,181	1,821,403
1971	-	-	-	-	1,016,136	253,044	50,952	1,320,132
1972	-	-	-	-	378,669	42,012	17,999	438,680
1973	769,256	57,098	38,102	864,456	870,352	57,098	38,266	965,716
1974	530,278	120,602	64,563	715,443	662,905	120,602	65,514	849,021
1975	115,984	23,635	2,205	141,824	399,593	23,635	2,205	425,433
1976	792,024	117,926	43,356	953,306	1,163,728	117,978	44,781	1,326,487
1977	1,547,285	128,852	31,498	1,707,635	1,972,207	128,852	35,401	2,136,460
1978	1,454,389	225,078	22,029	1,701,496	1,576,283	225,117	23,990	1,825,390
1979	794,504	13,950	55,344	863,798	1,049,497	20,436	82,153	1,152,086
1980	670,001	32	64,862	734,895	859,966	631	88,046	948,643
1981	1,606,290	282,342	121,870	2,010,502	1,839,469	283,826	166,034	2,289,329
1982	1,250,939	166,219	62,767	1,479,925	1,521,857	167,113	86,849	1,775,819
1983	1,450,832	320,932	227,392	1,999,156	1,824,175	323,004	297,429	2,444,608
1984	2,474,405	449,360	423,068	3,346,833	2,660,478	450,054	487,938	3,598,470
1985	696,169	123,627	51,421	871,217	922,151	125,134	93,206	1,140,491
1986	1,456,729	188,017	118,006	1,762,752	1,645,834	188,126	147,056	1,981,016
1987	1,659,915	320,813	146,886	2,127,614	1,898,838	343,422	188,983	2,431,243
1988	678,912	10,520	25,565	714,997	795,841	27,681	79,101	902,623
1989	502,477	-	4,485	506,962	1,159,287	-	138,567	1,297,854

Table 12. Daily and cumulative sockeye salmon catch and escapement. Black Lake Stock, 1989 (adjusted to Chignik Lagoon Date).

Date	Numbers of Fish			Cumulative Percent
	Escapement	Catch	Daily Total	
01-Jun	893	0	893	0.1
02-Jun	981	0	981	0.3
03-Jun	3,043	0	3,043	0.8
04-Jun	4,559	0	4,559	1.5
05-Jun	3,367	0	3,367	2.1
06-Jun	4,999	0	4,999	2.9
07-Jun	4,863	0	4,863	3.7
08-Jun	8,738	170	8,908	5.1
09-Jun	11,896	0	11,896	7.0
10-Jun	8,532	0	8,532	8.4
11-Jun	6,722	1,312	8,034	9.7
12-Jun	5,561	35,083	40,644	16.3
13-Jun	5,049	16,525	21,574	19.8
14-Jun	7,459	571	8,030	21.1
15-Jun	11,019	620	11,639	22.9
16-Jun	14,145	0	14,145	25.2
17-Jun	35,843	430	36,273	31.1
18-Jun	20,199	0	20,199	34.4
19-Jun	15,455	0	15,455	36.8
20-Jun	15,836	486	16,322	39.5
21-Jun	17,489	2,488	19,977	42.7
22-Jun	22,288	0	22,288	46.3
23-Jun	28,268	0	28,268	50.9
24-Jun	16,577	0	16,577	53.6
25-Jun	6,854	1,533	8,387	54.9
26-Jun	1,272	40,613	41,885	61.7
27-Jun	12,548	0	12,548	63.7
28-Jun	7,098	0	7,098	64.9
29-Jun	10,612	0	10,612	66.6
30-Jun	2,717	18,930	21,647	70.1
01-Jul	1,960	10,583	12,543	72.1
02-Jul	4,167	0	4,167	72.8
03-Jul	1,397	0	1,397	73.0
04-Jul	567	19,756	20,323	76.3
05-Jul	1,239	9,734	10,973	78.1
06-Jul	2,745	0	2,745	78.5
07-Jul	3,497	0	3,497	79.1
08-Jul	4,267	0	4,267	79.8
09-Jul	3,585	0	3,585	80.3
10-Jul	585	32,690	33,275	85.7
11-Jul	1,834	0	1,834	86.0
12-Jul	284	14,155	14,439	88.3

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Table 12. (page 2 of 2)

Date	Numbers of Fish			Cumulative Catch & Esc.	Cumulative Percent
	Escapement	Catch	Daily Total		
13-Jul	1,230	0	1,230	547,918	88.5
14-Jul	2,909	0	2,909	550,827	89.0
15-Jul	4,160	0	4,160	554,987	89.7
16-Jul	5,027	0	5,027	560,014	90.5
17-Jul	7,854	125	7,979	567,993	91.8
18-Jul	4,488	251	4,739	572,732	92.5
19-Jul	474	12,235	12,709	585,441	94.6
20-Jul	786	4,470	5,256	590,697	95.5
21-Jul	2,723	0	2,723	593,420	95.9
22-Jul	5,170	0	5,170	598,590	96.7
23-Jul	3,126	0	3,126	601,716	97.2
24-Jul	634	4,638	5,272	606,988	98.1
25-Jul	2,038	0	2,038	609,026	98.4
26-Jul	385	2,757	3,142	612,168	98.9
27-Jul	1,471	0	1,471	613,639	99.2
28-Jul	238	1,927	2,165	615,804	99.5
29-Jul	151	913	1,064	616,868	99.7
30-Jul	81	551	632	617,500	99.8
31-Jul	32	903	935	618,435	99.9
01-Aug	18	390	408	618,843	100
02-Aug	0	0	0	618,843	100
03-Aug	0	0	0	618,843	100
04-Aug	0	0	0	618,843	100
Total	384,004	234,839	618,843		

Table 13. Daily and cumulative sockeye salmon catch and escapement, Chignik Lake Stock, 1989 (adjusted to Chignik Lagoon date).

Date	Numbers of Fish			Cumulative Catch & Esc.	Cumulative Percent
	Escapement	Catch	Daily Total		
01-Jun	0	0	0	0	0
02-Jun	12	0	12	12	0
03-Jun	79	0	79	91	0
04-Jun	182	0	182	273	0
05-Jun	182	0	182	455	0
06-Jun	344	0	344	799	0
07-Jun	405	0	405	1,204	0.1
08-Jun	863	17	880	2,084	0.1
09-Jun	1,361	0	1,361	3,445	0.2
10-Jun	1,118	0	1,118	4,563	0.3
11-Jun	1,003	198	1,201	5,764	0.4
12-Jun	807	5,082	5,889	11,653	0.7
13-Jun	707	2,309	3,016	14,669	0.9
14-Jun	997	76	1,073	15,742	1.0
15-Jun	1,394	77	1,471	17,213	1.1
16-Jun	2,173	0	2,173	19,386	1.2
17-Jun	6,538	78	6,616	26,002	1.6
18-Jun	4,535	0	4,535	30,537	1.9
19-Jun	4,186	0	4,186	34,723	2.1
20-Jun	5,090	156	5,246	39,969	2.5
21-Jun	6,276	893	7,169	47,138	2.9
22-Jun	8,902	0	8,902	56,040	3.5
23-Jun	12,519	0	12,519	68,559	4.2
24-Jun	8,113	0	8,113	76,672	4.7
25-Jun	3,699	829	4,528	81,200	5.0
26-Jun	749	24,025	24,774	105,974	6.5
27-Jun	8,111	0	8,111	114,085	7.0
28-Jun	5,003	0	5,003	119,088	7.4
29-Jun	8,139	0	8,139	127,227	7.9
30-Jun	2,263	15,770	18,033	145,260	9.0
01-Jul	1,747	9,445	11,192	156,452	9.7
02-Jul	3,973	0	3,973	160,425	9.9
03-Jul	1,419	0	1,419	161,844	10.0
04-Jul	610	21,270	21,880	183,724	11.3
05-Jul	1,457	11,432	12,889	196,613	12.1
06-Jul	3,510	0	3,510	200,123	12.4
07-Jul	4,833	0	4,833	204,956	12.7
08-Jul	6,362	0	6,362	211,318	13.0
09-Jul	5,747	0	5,747	217,065	13.4
10-Jul	1,005	56,097	57,102	274,167	16.9
11-Jul	3,316	0	3,316	277,483	17.2

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Table 13. (page 2 of 3)

Date	Numbers of Fish			Cumulative Catch & Esc.	Cumulative Percent
	Escapement	Catch	Daily Total		
12-Jul	537	26,937	27,474	304,957	18.8
13-Jul	2,467	0	2,467	307,424	19.0
14-Jul	6,145	0	6,145	313,569	19.4
15-Jul	9,256	0	9,256	322,825	19.9
16-Jul	11,791	0	11,791	334,616	20.7
17-Jul	19,417	308	19,725	354,341	21.9
18-Jul	13,285	747	14,032	368,373	22.7
19-Jul	1,704	44,115	45,819	414,192	25.6
20-Jul	3,530	20,079	23,609	437,801	27.0
21-Jul	14,025	0	14,025	451,826	27.9
22-Jul	30,942	0	30,942	482,768	29.8
23-Jul	22,103	0	22,103	504,871	31.2
24-Jul	5,406	39,624	45,030	549,901	33.9
25-Jul	21,746	0	21,746	571,647	35.3
26-Jul	4,762	34,108	38,870	610,517	37.7
27-Jul	21,549	0	21,549	632,066	39.0
28-Jul	4,247	34,313	38,560	670,626	41.4
29-Jul	3,434	20,611	24,045	694,671	42.9
30-Jul	2,474	16,821	19,295	713,966	44.1
31-Jul	1,485	41,828	43,313	757,279	46.7
01-Aug	1,722	36,615	38,337	795,616	49.1
02-Aug	1,493	15,876	17,369	812,985	50.2
03-Aug	2,827	17,008	19,835	832,820	51.4
04-Aug	3,475	40,445	43,920	876,740	54.1
05-Aug	19,774	9,585	29,359	906,099	55.9
06-Aug	17,332	4,589	21,921	928,020	57.3
07-Aug	14,310	0	14,310	942,330	58.2
08-Aug	21,123	0	21,123	963,453	59.5
09-Aug	3,253	32,247	35,500	998,953	61.7
10-Aug	2,607	34,616	37,223	1,036,176	64.0
11-Aug	2,271	26,564	28,835	1,065,011	65.7
12-Aug	2,621	18,020	20,641	1,085,652	67.0
13-Aug	2,245	20,805	23,050	1,108,702	68.4
14-Aug	2,168	17,819	19,987	1,128,689	69.7
15-Aug	3,049	23,449	26,498	1,155,187	71.3
16-Aug	3,937	34,377	38,314	1,193,501	73.7
17-Aug	7,871	5,052	12,923	1,206,424	74.5
18-Aug	19,220	5,073	24,293	1,230,717	76.0
19-Aug	5,741	24,309	30,050	1,260,767	77.8
20-Aug	3,020	16,428	19,448	1,280,215	79.0
21-Aug	2,747	23,965	26,712	1,306,927	80.7
22-Aug	2,620	21,802	24,422	1,331,349	82.2
23-Aug	2,006	20,792	22,798	1,354,147	83.6
24-Aug	2,108	15,919	18,027	1,372,174	84.7
25-Aug	3,160	16,733	19,893	1,392,067	85.9
26-Aug	5,825	0	5,825	1,397,892	86.3

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Table 13. (page 3 of 3)

Date	Numbers of Fish			Cumulative Catch & Esc.	Cumulative Percent
	Escapement	Catch	Daily Total		
27-Aug	19,586	0	19,586	1,417,478	87.5
28-Aug	4,776	20,805	25,581	1,443,059	89.1
29-Aug	1,884	12,904	14,788	1,457,847	90.0
30-Aug	1,675	14,949	16,624	1,474,471	91.0
31-Aug	1,666	13,296	14,962	1,489,433	91.9
01-Sep	2,795	13,221	16,016	1,505,449	92.9
02-Sep	4,863	0	4,863	1,510,312	93.2
03-Sep	6,930	0	6,930	1,517,242	93.6
04-Sep	8,998	0	8,998	1,526,240	94.2
05-Sep	776	10,720	11,496	1,537,736	94.9
06-Sep	926	7,665	8,591	1,546,327	95.4
07-Sep	365	9,046	9,411	1,555,738	96.0
08-Sep	926	4,099	5,025	1,560,763	96.3
09-Sep	1,488	854	2,342	1,563,105	96.5
10-Sep	2,050	2,557	4,607	1,567,712	96.8
11-Sep	2,612	0	2,612	1,570,324	96.9
12-Sep	815	10,074	10,889	1,581,213	97.6
13-Sep	767	6,471	7,238	1,588,451	98.0
14-Sep	533	6,811	7,344	1,595,795	98.5
15-Sep	299	6,796	7,095	1,602,890	98.9
16-Sep	533	1,051	1,584	1,604,474	99.0
17-Sep	767	882	1,649	1,606,123	99.1
18-Sep	1,002	309	1,311	1,607,434	99.2
19-Sep	62	2,966	3,028	1,610,462	99.4
20-Sep	146	1,133	1,279	1,611,741	99.5
21-Sep	163	1,673	1,836	1,613,577	99.6
22-Sep	180	1,378	1,558	1,615,135	99.7
23-Sep	198	100	298	1,615,433	99.7
24-Sep	215	260	475	1,615,908	99.7
25-Sep	232	0	232	1,616,140	99.8
26-Sep	128	638	766	1,616,906	99.8
27-Sep	155	1,019	1,174	1,618,080	99.9
28-Sep	97	1,233	1,330	1,619,410	100
29-Sep	2	772	774	1,620,184	100
30-Sep	2	0	2	1,620,186	100
Total	557,171	1,063,015	1,620,186		

Table 14. Catch and escapement of the Chignik Lakes system sockeye salmon Black Lake, Chignik Lake and combined runs, 1954 - 1989.

Date	Black Lake			Chignik Lake			Combined		
	Catch	Escapement	Run	Catch	Escapement	Run	Catch	Escapement	Run
1954	72,334	184,953	257,287	19,232	277,912	297,144	91,566	462,865	554,431
1955	179,539	256,757	436,296	168,987	201,409	370,396	348,526	458,166	806,692
1956	246,442	289,096	535,538	421,251	483,024	904,275	667,693	772,120	1,439,813
1957	77,423	192,479	269,902	224,757	328,779	553,536	302,180	521,258	823,438
1958	141,180	120,862	262,042	179,949	212,594	392,543	321,129	333,456	654,585
1959	165,000	112,226	277,226	251,547	306,645	560,192	416,547	420,871	837,418
1960	274,048	251,567	525,615	418,356	357,230	775,586	692,404	608,797	1,301,201
1961	53,852	140,714	194,566	278,609	254,970	533,579	332,461	395,684	728,145
1962	71,562	167,602	239,164	292,528	324,860	617,388	364,090	492,462	856,552
1963	80,258	332,536	412,794	323,080	200,314	523,394	403,338	532,850	936,188
1964	142,380	137,073	279,453	472,510	166,625	639,135	614,891	303,698	918,589
1965	497,018	307,192	804,210	169,576	163,151	332,727	666,594	470,343	1,136,937
1966	87,169	383,545	470,714	162,638	183,525	346,163	249,808	567,070	816,878
1967	154,134	328,000	482,134	350,901	189,000	539,901	505,035	517,000	1,022,035
1968	542,598	342,343	884,941	641,693	244,836	886,529	1,184,292	587,179	1,771,471
1969	263,170	366,589	629,759	235,960	132,055	368,015	499,130	498,644	997,774
1970	1,566,065	536,257	2,102,322	255,338	119,952	375,290	1,821,403	655,209	2,477,612
1971	555,832	671,668	1,355,464	764,300	232,501	1,172,789	1,320,132	904,169	2,224,301
1972	43,220	326,320	375,440	395,461	231,270	680,831	438,680	557,590	996,270
1973	569,854	533,047	1,102,901	395,862	247,144	643,006	965,716	780,191	1,745,907
1974	174,883	351,701	526,584	674,138	364,612	1,038,750	849,021	716,313	1,565,334
1975	4,019	308,914	312,933	421,414	314,084	735,498	425,433	622,998	1,048,431
1976	548,107	551,254	1,099,361	778,380	341,828	1,120,208	1,326,487	893,082	2,219,569
1977	439,693	482,247	921,940	1,696,767	463,561	2,160,328	2,136,460	945,808	3,082,268
1978	1,070,487	458,660	1,529,147	754,903	263,009	1,017,912	1,825,390	721,669	2,547,059
1979	207,122	385,694	592,816	944,964	317,889	1,262,853	1,152,086	703,583	1,855,669
1980	170,629	311,332	481,961	778,014	279,729	1,057,743	948,643	591,061	1,539,704
1981	779,755	438,540	1,218,295	1,509,574	301,092	1,810,666	2,289,329	739,632	3,028,961
1982	1,325,041	616,117	1,941,158	450,778	305,193	755,971	1,775,819	921,310	2,697,129
1983	977,548	426,177	1,403,725	1,467,060	441,561	1,908,621	2,444,608	867,738	3,312,346
1984	3,245,482	597,712	3,843,194	352,988	268,496	621,484	3,598,470	866,208	4,464,678
1985	650,340	377,516	1,027,856	490,151	369,262	859,413	1,140,491	746,778	1,887,269
1986	1,371,935	566,088	1,937,913	609,081	207,231	816,312	1,981,016	773,319	2,754,335
1987	1,949,867	589,291	2,539,138	481,376	214,452	695,828	2,431,243	803,743	3,234,986
1988	272,553	420,577	693,131	630,070	255,180	885,250	902,623	675,757	1,578,380
1989	234,839	384,004	618,843	1,063,015	557,171	1,620,186	1,297,854	941,175	2,239,029
AVG. 80-89	1,097,799	472,735	1,570,521	783,211	319,937	1,103,147	1,881,010	792,672	2,673,682

Table 15. Stock composition of age class 2.3 Chignik sockeye salmon commercial catch samples, based on scale pattern analysis, 1989.

Sample Date	Sample Size	Stock	Adjusted Estimate	Estimated Variance	Smoothed Estimate	Estimated Variance
08-Jun	9	Black Lake	0.508	0.28186		
		Chignik Lake	0.492	0.28186		
11-Jun	26	Black Lake	0.926	0.16063	0.722	0.06790
		Chignik Lake	0.074	0.16063	0.278	0.06790
15-Jun	26	Black Lake	0.731	0.16859	0.878	0.05721
		Chignik Lake	0.269	0.16859	0.122	0.05721
17-Jun	18	Black Lake	0.977	0.18571	0.823	0.05630
		Chignik Lake	0.023	0.18571	0.177	0.05630
20-Jun	32	Black Lake	0.760	0.15244	0.719	0.05037
		Chignik Lake	0.240	0.15244	0.281	0.05037
25-Jun	56	Black Lake	0.420	0.11515	0.558	0.04102
		Chignik Lake	0.580	0.11515	0.442	0.04102
30-Jun	79	Black Lake	0.494	0.10156	0.477	0.03458
		Chignik Lake	0.506	0.10156	0.523	0.03458
04-Jul	91	Black Lake	0.518	0.09454	0.444	0.03143
		Chignik Lake	0.482	0.09454	0.556	0.03143
10-Jul	99	Black Lake	0.320	0.08678	0.388	0.02998
		Chignik Lake	0.680	0.08678	0.612	0.02998
17-Jul	95	Black Lake	0.326	0.0885	0.316	0.02919
		Chignik Lake	0.674	0.0885	0.684	0.02919
20-Jul	96	Black Lake	0.302	0.0874	0.209	0.01954
		Chignik Lake	0.698	0.0874	0.457	0.01954

Table 16. Stock composition of age class 2.3 Chignik sockeye salmon commercial catch samples, based on scale pattern analysis using 1988 2.2 age class for inseason simulation in 1989.

Sample Date	Sample Size	Stock	Adjusted Estimate	Estimated Variance	Smoothed Estimate	Estimated Variance
08-Jun	26	Black Lake	0.863	0.12432		
		Chignik Lake	0.137	0.12432		
15-Jun	26	Black Lake	0.969	0.11253	0.944	0.03851
		Chignik Lake	0.031	0.11253	0.056	0.03851
17-Jun	18	Black Lake	1.000	0.10976	0.924	0.03771
		Chignik Lake	0.000	0.10976	0.076	0.03771
20-Jun	32	Black Lake	0.803	0.11709	0.815	0.03575
		Chignik Lake	0.197	0.11709	0.185	0.03575
25-Jun	56	Black Lake	0.643	0.09490	0.684	0.03259
		Chignik Lake	0.357	0.09490	0.316	0.03259
30-Jun	79	Black Lake	0.605	0.08132	0.645	0.02799
		Chignik Lake	0.395	0.08132	0.355	0.02799
04-Jul	91	Black Lake	0.688	0.07571	0.515	0.02498
		Chignik Lake	0.312	0.07571	0.485	0.02498
10-Jul	97	Black Lake	0.252	0.06776	0.507	0.02433
		Chignik Lake	0.748	0.06776	0.493	0.02433
17-Jul	95	Black Lake	0.580	0.07547	0.454	0.02426
		Chignik Lake	0.420	0.07547	0.546	0.02426
20-Jul	96	Black Lake	0.531	0.07512	0.370	0.01673
		Chignik Lake	0.469	0.07512	0.296	0.01673

Table 17. Stock composition of age class 1.3 Chignik sockeye salmon commercial catch samples, based on scale pattern analysis, 1989.

Sample Date	Sample Size	Stock	Adjusted Estimate	Estimated Variance	Smoothed Estimate	Estimated Variance
08-Jun	73	Black Lake	0.880	0.07592		
		Chignik Lake	0.120	0.07592		
11-Jun	99	Black Lake	0.890	0.06662	0.896	0.02306
		Chignik Lake	0.110	0.06662	0.104	0.02306
15-Jun	99	Black Lake	0.919	0.06500	0.890	0.02220
		Chignik Lake	0.081	0.06500	0.110	0.02220
17-Jun	99	Black Lake	0.861	0.06815	0.852	0.02283
		Chignik Lake	0.139	0.06815	0.148	0.02283
20-Jun	99	Black Lake	0.775	0.07231	0.773	0.02409
		Chignik Lake	0.225	0.07231	0.227	0.02409
25-Jun	98	Black Lake	0.683	0.07636	0.684	0.02511
		Chignik Lake	0.317	0.07636	0.316	0.02511
30-Jun	105	Black Lake	0.595	0.07728	0.575	0.02665
		Chignik Lake	0.405	0.07728	0.425	0.02665
04-Jul	90	Black Lake	0.448	0.08618	0.488	0.03034
		Chignik Lake	0.552	0.08618	0.512	0.03034
10-Jul	50	Black Lake	0.422	0.10961	0.301	0.03351
		Chignik Lake	0.578	0.10961	0.699	0.03351
17-Jul	48	Black Lake	0.034	0.10582	0.156	0.03753
		Chignik Lake	0.966	0.10582	0.844	0.03753
20-Jul	29	Black Lake	0.012	0.12233	0.015	0.02535
		Chignik Lake	0.988	0.12233	0.651	0.02535

Table 18. Black Lake and Chignik Lake sockeye salmon escapements through the Chignik River weir, based on daily percentages from the in-season ATOE curve, 1989.

Date	ESCAPEMENT					
	Total Daily	Total Cum.	Percent Chignik	Chignik Daily	Chignik Cum.	Black Cum.
27-May	0	0	0.0	0	0	0
28-May	0	0	0.0	0	0	0
29-May	0	0	0.0	0	0	0
30-May	36	36	0.0	0	0	36
31-May	23	59	0.0	0	0	59
01-Jun	366	425	0.0	0	0	425
02-Jun	468	893	0.0	0	0	893
03-Jun	993	1,886	1.0	10	10	1,876
04-Jun	3,122	5,008	1.1	34	44	4,964
05-Jun	4,741	9,749	1.3	60	104	9,645
06-Jun	3,549	13,298	1.5	52	156	13,142
07-Jun	5,343	18,641	1.7	89	244	18,397
08-Jun	5,268	23,909	1.9	100	345	23,564
09-Jun	9,601	33,510	2.2	210	555	32,955
10-Jun	13,257	46,767	2.5	332	886	45,881
11-Jun	9,650	56,417	2.9	276	1,162	55,255
12-Jun	7,725	64,142	3.3	253	1,415	62,727
13-Jun	6,368	70,510	3.7	238	1,654	68,856
14-Jun	5,756	76,266	4.3	246	1,900	74,366
15-Jun	8,456	84,722	4.9	413	2,313	82,409
16-Jun	12,413	97,135	5.6	691	3,004	94,131
17-Jun	16,318	113,453	6.3	1,035	4,039	109,414
18-Jun	42,381	155,834	7.2	3,059	7,098	148,736
19-Jun	24,734	180,568	8.2	2,029	9,128	171,440
20-Jun	19,641	200,209	9.3	1,829	10,956	189,253
21-Jun	20,926	221,135	10.6	2,208	13,164	207,971
22-Jun	23,765	244,900	11.9	2,836	16,000	228,900
23-Jun	31,190	276,090	13.5	4,201	20,201	255,889
24-Jun	40,787	316,877	15.2	6,187	26,388	290,489
25-Jun	24,690	341,567	17.0	4,208	30,596	310,971
26-Jun	10,553	352,120	19.1	2,015	32,611	319,509
27-Jun	2,021	354,141	21.3	431	33,042	321,099
28-Jun	20,659	374,800	23.7	4,906	37,948	336,852
29-Jun	12,101	386,901	26.3	3,188	41,136	345,765
30-Jun	18,751	405,652	29.1	5,462	46,598	359,054
01-Jul	4,980	410,632	32.1	1,597	48,195	362,437
02-Jul	3,707	414,339	35.2	1,304	49,498	364,841
03-Jul	8,140	422,479	38.4	3,125	52,623	369,856
04-Jul	2,816	425,295	41.7	1,175	53,798	371,497
05-Jul	1,177	426,472	45.1	531	54,329	372,143
06-Jul	2,696	429,168	48.6	1,310	55,638	373,530
07-Jul	6,255	435,423	52.0	3,255	58,893	376,530

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Table 18. (page 2 of 2)

Date	ESCAPEMENT					
	Total Daily	Total Cum.	Percent Chignik	Chignik Daily	Chignik Cum.	Black Cum.
08-Jul	8,330	443,753	55.5	4,622	63,515	380,238
09-Jul	10,629	454,382	58.9	6,258	69,774	384,608
10-Jul	9,332	463,714	62.2	5,804	75,578	388,136
11-Jul	1,590	465,304	65.4	1,040	76,618	388,686
12-Jul	5,150	470,454	68.5	3,526	80,143	390,311
13-Jul	821	471,275	71.4	586	80,729	390,546
14-Jul	3,697	474,972	74.1	2,740	83,470	391,502
15-Jul	9,054	484,026	76.7	6,944	90,414	393,612
16-Jul	13,416	497,442	79.1	10,610	101,024	396,418
17-Jul	16,818	514,260	81.3	13,670	114,694	399,566
18-Jul	27,271	541,531	83.3	22,718	137,412	404,119
19-Jul	17,773	559,304	85.1	15,133	152,544	406,760
20-Jul	2,178	561,482	86.8	1,891	154,435	407,047
21-Jul	4,316	565,798	88.3	3,812	158,247	407,551
22-Jul	16,748	582,546	89.7	15,019	173,267	409,279
23-Jul	36,112	618,658	90.9	32,824	206,090	412,568
24-Jul	25,229	643,887	92.0	23,205	229,296	414,591
25-Jul	6,040	649,927	92.9	5,614	234,910	415,017
26-Jul	23,784	673,711	94.0	22,357	257,267	416,444
27-Jul	5,147	678,858	95.0	4,890	262,156	416,702
28-Jul	23,020	701,878	97.0	22,329	284,486	417,392
29-Jul	4,485	706,363	99.0	4,440	288,926	417,437
30-Jul	3,585	709,948	100	3,585	292,511	417,437
31-Jul	2,555	712,503	100	2,555	295,066	417,437
01-Aug	1,517	714,020	100	1,517	296,583	417,437
02-Aug	1,740	715,760	100	1,740	298,323	417,437
03-Aug	1,493	717,253	100	1,493	299,816	417,437
04-Aug	2,827	720,080	100	2,827	302,643	417,437
05-Aug	3,475	723,555	100	3,475	306,118	417,437
06-Aug	19,774	743,329	100	19,774	325,892	417,437
07-Aug	17,332	760,661	100	17,332	343,224	417,437
08-Aug	14,310	774,971	100	14,310	357,534	417,437
09-Aug	4,763	779,734	100	4,763	362,297	417,437

Table 19. Peak aerial survey counts of sockeye salmon in the Black Lake and Black River tributaries, 1960-1989.

Year	Black Lake						Black River				
	Fan	Milk Boulevard	Alec River	Conglomerate	Broad	Total	Bearskin	West Fork	Chiaktuak	Total	
1960	38,500	8,000	40,000	30,000	3,000	30,000	149,500	11,600	23,000	19,000	53,600
1961	27,000	5,000	28,700	25,000	800	17,000	103,500	2,500	17,100	20,700	40,300
1962	18,000	7,000	13,000	60,000	200	15,000	113,200	3,000	13,000	24,000	40,000
1963	39,000	a	36,000	85,000	1,000	61,000	222,000	900	5,000	9,000	14,900
1964	19,500	3,050	23,850	17,900	9,300	9,500	83,100	500	4,500	7,000	12,000
1965	79,000	3,160	41,000	76,000	10,000	14,000	223,160	100	700	5,000	5,800
1966	90,000	15,000	60,000	41,000	10,000	45,000	261,000	200	20,000	30,000	50,200
1967	20,000	1,000	9,000	156,000	10,000	10,000	206,000	10,000	25,000	31,000	66,000
1968	32,000	2,400	20,000	60,000	2,000	4,100	120,500	1,200	10,500	10,000	21,700
1969	103,000	2,100	33,000	50,000	4,000	5,000	197,100	50	800	1,500	2,350
1970	146,000	9,000	55,500	198,000	5,000	a	413,500	450	4,000	4,000	8,450
1971	105,000	14,000	85,000	158,000	0	a	362,000	3,500	5,500	47,000	56,000
1972	18,000	3,500	19,000	74,000	400	a	114,900	1,400	4,300	23,000	28,700
1973	115,000	4,000	76,000	74,000	5,000	a	274,000	13	4,100	1,500	5,613
1974	90,000	5,000	50,000	93,000	5,000	a	243,000	450	8,000	7,000	15,450
1975	40,000	4,500	25,000	87,000	0	a	156,500	65	2,500	2,500	5,065
1976	78,000	8,900	100,000	119,000	2,000	a	307,900	2,650	23,700	7,700	34,050
1977	88,000	20,000	127,000	133,000	1,000	a	369,000	200	13,600	6,900	20,700
1978	114,000	3,300	74,000	83,300	500	a	275,100	410	9,600	8,500	18,510
1979	37,000	11,800	32,000	105,100	400	26,100	212,400	918	7,610	29,000	37,528
1980	127,000	16,000	75,000	70,500	1,500	68,000	358,000	3,600	33,000	40,400	77,000
1981	93,000	4,700	59,000	76,500	20,000	27,000	280,200	950	1,500	18,700	21,150
1982	50,000	5,500	60,000	43,000	20,000	32,000	210,500	1,066	10,791	5,000	16,857
1983	b	b	b	b	b	b	b	b	b	6,000	6,000
1984	50,000	22,200	70,000	30,500	31,000	36,000	239,700	c	c	8,200	8,200
1985	28,000	5,500	36,000	65,000	5,500	17,000	157,000	350	450	1,200	2,000
1986	60,000	15,300	47,000	76,000	39,000	27,000	264,300	c	c	8,300	8,300
1987	52,000	12,200	133,000	88,400	45,900	32,500	364,000	c	c	1,000	1,000
1988	54,000	71,000	83,700	106,500	2,300	26,500	344,000	a	a	4,600	4,600
1989	19,300	21,000	64,000	133,000	1,000	7,500	245,800	a	a	2,100	2,100

a)No surveys conducted.

b)Survey results incomplete due to pilot sickness.

c)Murky water conditions precluded surveys.

Table 20. Weekly abundance of the Black Lake sockeye salmon escapement estimated by scale pattern analysis, by age class, 1989.

Statistical Week	Age Class														Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
22 Number	0	0	0	386	0	4,121	59	0	351	0	0	0	0	4,917	
Percent	0.0	0.0	0.0	7.9	0.0	83.8	1.2	0.0	7.1	0.0	0.0	0.0	0.0	100.0	
23 Number	37	0	0	3,813	0	39,333	594	19	3,139	0	19	0	0	46,954	
Percent	0.1	0.0	0.0	8.1	0.0	83.8	1.3	0.0	6.7	0.0	0.0	0.0	0.0	100.0	
24 Number	58	54	54	7,708	0	63,999	4,101	113	9,683	0	28	0	0	85,798	
Percent	0.1	0.1	0.1	9.0	0.0	74.6	4.8	0.1	11.3	0.0	0.0	0.0	0.0	100.0	
25 Number	147	231	306	9,229	147	85,429	11,366	37	29,220	0	0	0	0	136,112	
Percent	0.1	0.2	0.2	6.8	0.1	62.8	8.4	0.0	21.5	0.0	0.0	0.0	0.0	100.0	
26 Number	0	221	40	2,668	2	23,022	3,600	0	13,462	0	46	0	0	43,061	
Percent	0.0	0.5	0.1	6.2	0.0	53.5	8.4	0.0	31.3	0.0	0.1	0.0	0.0	100.0	
27 Number	0	95	0	563	37	5,431	1,631	0	9,949	0	23	0	0	17,879	
Percent	0.0	0.5	0.0	3.1	0.2	31.2	9.1	0.0	55.6	0.0	0.1	0.0	0.0	100.0	
28 Number	0	47	0	128	36	1,895	921	9	11,541	0	10	0	0	14,587	
Percent	0.0	0.3	0.0	0.9	0.2	13.0	6.3	0.1	79.1	0.0	0.1	0.0	0.0	100.0	
29 Number	0	134	0	164	110	1,202	1,912	25	22,939	0	36	0	0	26,522	
Percent	0.0	0.5	0.0	0.6	0.4	4.5	7.2	0.1	85.5	0.0	0.1	0.0	0.0	100.0	
30 Number	0	6	0	29	38	18	1,057	0	6,893	0	2	0	0	8,043	
Percent	0.0	0.1	0.0	0.4	0.5	0.2	13.1	0.0	85.7	0.0	0.0	0.0	0.0	100.0	
31 Number	0	0	0	0	1	0	23	0	107	0	0	0	0	131	
Percent	0.0	0.0	0.0	0.0	0.8	0.0	17.6	0.0	81.7	0.0	0.0	0.0	0.0	100.0	
32 Number	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Percent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Number	242	788	400	24,688	371	224,600	25,264	203	107,284	0	164	0	0	384,004	
Percent	0.1	0.2	0.1	6.4	0.1	58.5	6.6	0.1	27.9	0.0	0.0	0.0	0.0	100.0	

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ACE 9121990

Table 21. Weekly abundance of the Black Lake sockeye salmon catch estimated by scale pattern analysis, by age class, 1989.

Statistical Week	Age Class													Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other	
23 Number	0	0	0	13	0	144	2	0	11	0	3	0	0	170
Percent	0.0	0.0	0.0	7.6	0.0	84.7	1.2	0.0	6.5	0.0	0.0	0.0	0.0	100.0
24 Number	137	35	35	5,588	0	42,700	1,490	69	4,419	0	68	0	0	54,541
Percent	0.3	0.1	0.1	10.2	0.0	78.3	2.7	0.1	8.1	0.0	0.1	0.0	0.0	100.0
25 Number	5	6	8	180	5	1,813	210	0	612	0	0	0	0	2,974
Percent	0.2	0.2	0.3	6.1	0.2	62.1	9.4	0.0	21.6	0.0	0.0	0.0	0.0	100.0
26 Number	0	366	67	4,450	11	33,005	5,993	0	22,632	0	74	0	0	71,659
Percent	0.0	0.5	0.1	6.2	0.0	53.1	8.4	0.0	31.6	0.0	0.1	0.0	0.0	100.0
27 Number	0	223	0	1,214	112	10,253	3,011	0	14,621	0	56	0	0	29,490
Percent	0.0	0.8	0.0	4.1	0.4	34.8	10.2	0.0	49.6	0.0	0.2	0.0	0.0	100.0
28 Number	0	33	0	384	26	6,919	2,961	7	36,508	0	7	0	0	46,845
Percent	0.0	0.1	0.0	0.8	0.1	14.8	6.3	0.0	77.9	0.0	0.0	0.0	0.0	100.0
29 Number	0	62	0	125	40	351	1,306	6	15,168	0	23	0	0	17,081
Percent	0.0	0.4	0.0	0.7	0.2	2.1	7.6	0.0	88.8	0.0	0.1	0.0	0.0	100.0
30 Number	0	4	0	32	55	19	1,447	0	8,675	1	2	0	0	10,235
Percent	0.0	0.0	0.0	0.3	0.5	0.2	14.1	0.0	84.8	0.0	0.0	0.0	0.0	100.0
31 Number	0	0	0	3	18	1	324	0	1,497	1	0	0	0	1,844
Percent	0.0	0.0	0.0	0.2	1.0	0.1	17.6	0.0	81.2	0.1	0.0	0.0	0.0	100.0
Total Number	142	729	110	11,969	267	100,301	16,814	82	104,173	2	230	0	0	234,839
Percent	0.1	0.3	0.0	5.1	0.1	42.7	7.2	0.0	44.4	0.0	0.1	0.0	0.0	100.0

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ACE 9121991

Table 22. Weekly abundance of the Chignik Lake sockeye salmon escapement estimated by scale pattern analysis, by age class, 1989.

Statistical Week	Age Class													Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other	
22 Number	0	0	0	10	0	66	1	0	14	0	0	0	0	91
Percent	0.0	0.0	0.0	11.0	0.0	72.5	1.1	0.0	15.4	0.0	0.0	0.0	0.0	100.0
23 Number	7	0	0	573	0	3,069	88	3	712	0	3	0	0	4,455
Percent	0.2	0.0	0.0	12.9	0.0	68.9	2.0	0.1	16.0	0.0	0.1	0.0	0.0	100.0
24 Number	12	9	9	1,385	0	9,395	733	23	2,046	0	7	0	0	13,619
Percent	0.1	0.1	0.1	10.2	0.0	69.0	5.4	0.2	15.0	0.0	0.1	0.0	0.0	100.0
25 Number	55	94	121	3,622	55	27,565	4,375	9	13,725	0	0	0	0	49,621
Percent	0.1	0.2	0.2	7.3	0.1	55.6	8.8	0.0	27.7	0.0	0.0	0.0	0.0	100.0
26 Number	0	163	27	1,836	2	13,764	2,593	0	11,292	0	34	0	0	29,711
Percent	0.0	0.5	0.1	6.2	0.0	46.3	8.7	0.0	38.0	0.0	0.1	0.0	0.0	100.0
27 Number	0	114	0	677	49	6,803	2,021	0	12,382	0	28	0	0	22,164
Percent	0.0	0.5	0.0	3.1	0.2	31.1	9.1	0.0	55.9	0.0	0.1	0.0	0.0	100.0
28 Number	0	121	0	278	91	5,450	2,081	24	20,402	0	26	0	0	28,473
Percent	0.0	0.4	0.0	1.0	0.3	19.1	7.3	0.1	71.7	0.0	0.1	0.0	0.0	100.0
29 Number	0	552	0	895	503	9,921	11,899	84	70,667	0	173	0	0	94,694
Percent	0.0	0.6	0.0	0.9	0.5	10.5	12.6	0.1	74.6	0.0	0.2	0.0	0.0	100.0
30 Number	0	68	0	473	714	3,274	19,264	0	59,406	13	35	0	0	83,247
Percent	0.0	0.1	0.0	0.6	0.9	3.9	23.1	0.0	71.4	0.0	0.0	0.0	0.0	100.0
31 Number	0	18	0	71	606	238	9,399	0	22,838	46	34	0	0	33,299
Percent	0.0	0.1	0.0	0.2	1.8	0.7	28.3	0.0	68.7	0.1	0.1	0.0	0.0	100.0
32 Number	0	85	0	125	1,150	157	16,328	0	45,462	40	170	0	0	63,517
Percent	0.0	0.1	0.0	0.2	1.8	0.2	25.7	0.0	71.6	0.1	0.3	0.0	0.0	100.0

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Table 22. (page 2 of 2)

Statistical Week	Age Class													Total	
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
33 Number	0	46	0	4	568	0	10,440	0	33,164	0	9	0	0	44,231	
Percent	0.0	0.1	0.0	0.0	1.3	0.0	23.6	0.0	75.0	0.0	0.0	0.0	0.0	100.0	
34 Number	0	14	0	29	370	2	4,822	0	16,247	2	0	0	0	21,486	
Percent	0.0	0.1	0.0	0.1	1.7	0.0	22.4	0.0	75.6	0.0	0.0	0.0	0.0	100.0	
35 Number	0	0	0	33	142	43	8,243	0	28,441	43	0	0	0	37,245	
Percent	0.0	0.0	0.0	0.1	1.2	0.1	22.1	0.0	76.4	0.1	0.0	0.0	0.0	100.0	
36 Number	0	0	0	0	142	42	4,857	0	15,326	42	0	0	0	20,409	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
37 Number	0	0	0	0	53	16	1,812	0	5,712	16	0	0	0	7,609	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
38 Number	0	0	0	0	16	4	600	0	1,894	4	0	0	0	2,518	
Percent	0.0	0.0	0.0	0.0	0.6	0.2	23.8	0.0	75.2	0.2	0.0	0.0	0.0	100.0	
39 Number	0	0	0	0	7	0	196	0	628	0	0	0	0	831	
Percent	0.0	0.0	0.0	0.0	0.8	0.0	23.6	0.0	75.6	0.0	0.0	0.0	0.0	100.0	
Total	Number	74	1,284	157	10,011	4,768	79,899	99,752	143	360,358	206	519	0	0	557,171
	Percent	0.0	0.2	0.0	1.8	0.9	14.3	17.9	0.0	64.7	0.0	0.1	0.0	0.0	100.0

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AGE 9121993

Table 23. Weekly abundance of the Chignik Lake sockeye salmon catch estimated by scale pattern analysis, by age class, 1989.

Statistical Week	Age Class														Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
23 Number	0	0	0	2	0	12	0	0	3	0	0	0	0	17	
Percent	0.0	0.0	0.0	11.8	0.0	70.6	0.0	0.0	17.6	0.0	0.0	0.0	0.0	100.0	
24 Number	28	6	6	1,111	0	5,068	293	14	1,280	0	14	0	0	7,820	
Percent	0.4	0.1	0.1	14.2	0.0	64.8	3.7	0.2	16.4	0.0	0.2	0.0	0.0	100.0	
25 Number	1	2	3	67	1	590	106	0	279	0	0	0	0	1,049	
Percent	0.1	0.2	0.3	6.4	0.1	56.2	10.1	0.0	26.6	0.0	0.0	0.0	0.0	100.0	
26 Number	0	204	41	3,030	9	22,952	4,425	0	19,267	0	61	0	0	50,069	
Percent	0.0	0.6	0.1	6.1	0.0	45.8	8.8	0.0	38.5	0.0	0.1	0.0	0.0	100.0	
27 Number	0	246	0	1,340	123	11,184	3,330	0	16,418	0	61	0	0	32,702	
Percent	0.0	0.8	0.0	4.1	0.4	34.2	10.2	0.0	50.2	0.0	0.2	0.0	0.0	100.0	
28 Number	0	73	0	761	56	17,019	5,883	16	59,210	0	16	0	0	83,034	
Percent	0.0	0.1	0.0	0.9	0.1	20.5	7.1	0.0	71.3	0.0	0.0	0.0	0.0	100.0	
29 Number	0	366	0	764	224	6,358	7,997	34	49,364	0	142	0	0	65,249	
Percent	0.0	0.6	0.0	1.2	0.3	9.7	12.3	0.1	75.7	0.0	0.2	0.0	0.0	100.0	
30 Number	0	55	0	602	1,288	4,263	31,642	0	90,740	38	28	0	0	128,655	
Percent	0.0	0.0	0.0	0.5	1.0	3.3	24.6	0.0	70.5	0.0	0.0	0.0	0.0	100.0	
31 Number	0	31	0	408	3,138	1,861	51,533	0	120,866	278	63	0	0	178,178	
Percent	0.0	0.0	0.0	0.2	1.8	1.0	28.9	0.0	67.8	0.2	0.0	0.0	0.0	100.0	
32 Number	0	198	0	210	1,990	50	27,604	0	85,574	13	397	0	0	116,056	
Percent	0.0	0.2	0.0	0.2	1.7	0.0	23.8	0.0	73.7	0.0	0.3	0.0	0.0	100.0	

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Table 23. (page 2 of 2)

Statistical Week	Age Class														Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
33 Number	0	100	0	41	1,514	0	28,928	0	100,219	0	82	0	0	130,884	
Percent	0.0	0.1	0.0	0.0	1.2	0.0	22.1	0.0	76.6	0.0	0.1	0.0	0.0	100.0	
34 Number	0	100	0	131	2,031	0	26,788	0	86,589	0	0	0	0	115,639	
Percent	0.0	0.1	0.0	0.1	1.8	0.0	23.2	0.0	74.9	0.0	0.0	0.0	0.0	100.0	
35 Number	0	0	0	35	716	116	17,238	0	56,954	116	0	0	0	75,175	
Percent	0.0	0.0	0.0	0.0	1.0	0.2	22.9	0.0	75.8	0.2	0.0	0.0	0.0	100.0	
36 Number	0	0	0	0	227	64	7,707	0	21,322	64	0	0	0	32,384	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
37 Number	0	0	0	0	237	68	8,035	0	25,352	68	0	0	0	33,760	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
38 Number	0	0	0	0	60	17	2,010	0	6,337	17	0	0	0	8,441	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
39 Number	0	0	0	0	27	8	934	0	2,945	8	0	0	0	3,922	
Percent	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.1	0.2	0.0	0.0	0.0	100.0	
Total	29	1,461	50	8,502	11,641	69,630	224,453	64	745,719	602	864	0	0	1,063,015	
Percent	0.0	0.1	0.0	0.8	1.1	6.6	21.1	0.0	70.2	0.1	0.1	0.0	0.0	100.0	

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Table 24. Summary of the estimated escapement, commercial catch and total run by age class and stock for the Chignik sockeye salmon run, estimated by scale pattern analysis, 1989.

	Age Class											Total
	0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	
Black Lake												
Escapement	242	788	400	24,688	371	224,600	25,264	203	107,284	0	164	384,004
Percent	0.1	0.2	0.1	6.4	0.1	58.5	6.6	0.1	27.9	0.0	0.0	
Catch	142	729	110	11,989	267	100,301	16,814	82	104,173	2	230	234,839
Percent	0.1	0.3	0.0	5.1	0.1	42.7	7.2	0.0	44.4	0.0	0.1	
Chignik Lake												
Escapement	74	1,284	157	10,011	4,768	79,899	99,752	143	360,358	206	519	557,171
Percent	0.0	0.2	0.0	1.8	0.9	14.3	17.9	0.0	64.7	0.0	0.1	
Catch	29	1,461	50	8,502	11,641	69,630	224,453	64	745,719	602	864	1,063,015
Percent	0.0	0.1	0.0	0.8	1.1	6.6	21.1	0.0	70.2	0.1	0.1	
Total												
Escapement	316	2,072	557	34,699	5,139	304,499	125,016	346	467,642	206	683	941,175
Catch	171	2,190	160	20,491	11,908	169,931	241,267	146	849,892	604	1,094	1,297,854
Run	487	4,262	717	55,190	17,047	474,430	366,283	492	1,317,534	810	1,777	2,239,029
Percent	0.0	0.2	0.0	2.5	0.8	21.2	16.4	0.0	58.8	0.0	0.1	

Table 25. Sockeye salmon age composition from samples collected in the Chignik Lagoon commercial fishery, 1989.

Date	Sample Size	Percent Contribution										
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4
08-Jun	164	0.0	0.0	0.0	7.9	0.0	83.5	1.2	0.0	7.3	0.0	0.0
11-Jun	552	0.4	0.0	0.0	10.9	0.0	78.4	1.8	0.2	8.2	0.0	0.2
15-Jun	569	0.0	0.2	0.2	10.5	0.0	73.3	4.9	0.0	10.9	0.0	0.0
17-Jun	427	0.0	0.0	0.0	7.7	0.0	72.6	5.9	0.2	13.6	0.0	0.0
20-Jun	620	0.2	0.2	0.3	5.6	0.2	61.8	10.2	0.0	21.6	0.0	0.0
25-Jun	544	0.0	0.2	0.2	8.8	0.0	55.0	6.6	0.0	29.2	0.0	0.0
30-Jun	505	0.0	0.8	0.0	4.0	0.0	47.1	10.1	0.0	37.8	0.0	0.2
04-Jul	531	0.0	0.8	0.0	4.3	0.4	35.4	10.4	0.0	48.6	0.0	0.2
10-Jul	543	0.0	0.0	0.0	0.9	0.0	19.0	6.8	0.0	73.3	0.0	0.0
17-Jul	448	0.0	0.9	0.0	0.7	0.7	12.7	6.9	0.2	77.7	0.0	0.2
20-Jul	511	0.0	0.4	0.0	1.2	0.2	6.7	12.7	0.0	78.7	0.0	0.2
26-Jul	527	0.0	0.0	0.0	0.4	0.9	3.0	24.1	0.0	71.5	0.0	0.0
02-Aug	513	0.0	0.0	0.0	0.2	1.9	0.8	30.2	0.0	66.7	0.2	0.0
10-Aug	570	0.0	0.2	0.0	0.2	1.3	0.0	23.9	0.0	73.7	0.0	0.4
16-Aug	126	0.0	0.0	0.0	0.0	0.8	0.0	19.8	0.0	79.4	0.0	0.0
19-Aug	517	0.0	0.2	0.0	0.0	1.7	0.0	27.3	0.0	70.8	0.0	0.0
25-Aug	504	0.0	0.0	0.0	0.2	1.8	0.0	20.0	0.0	78.0	0.0	0.0
31-Aug	428	0.0	0.0	0.0	0.0	0.7	0.2	23.8	0.0	75.0	0.2	0.0
Total	8599											

Table 26. Age composition, in percent, of the Black Lake sockeye escapment samples by date of sample, 1989.

Date	0.2	1.1	1.2	1.3	1.4	2.1	2.2	2.3	Sample Size
22-Jun	0.0	1.5	11.2	72.5	0.0	0.0	3.7	11.2	269
23-Jun	0.0	4.5	9.1	77.3	0.0	0.0	4.5	4.5	22
26-Jun	0.3	2.3	13.7	59.5	0.0	0.0	10.1	14.2	395
27-Jun	0.0	0.2	11.3	68.3	0.2	0.0	6.1	13.9	495
28-Jun	0.0	0.7	8.9	61.2	0.0	0.0	12.6	16.6	595
29-Jun	0.0	0.0	5.8	72.3	0.0	0.6	8.1	13.3	173
30-Jun	0.0	0.0	5.2	70.3	0.4	0.0	10.0	14.0	229
Total Number	1	19	217	1,435	2	1	193	310	2,178
Percent	0.0	0.9	10.0	65.9	0.1	0.0	8.9	14.2	100.0

Table 27. Chignik Bay District pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement ¹	Run	Year	Catch	Escapement	Run
1962	36.7	30.0	66.7	1976	104.3	12.3	116.6
1963	63.7	20.7	84.4	1977	60.9	3.0	63.9
1964	123.6	20.0	143.6	1978	137.1	10.7	147.8
1965	31.5	11.0	42.5	1979	312.6	1.2	313.8
1966	18.3	71.3	89.6	1980	180.6	3.0	183.6
1967	27.4	5.7	33.1	1981	121.4	1.4	122.8
1968	230.2	81.4	311.6	1982	83.0	2.4	85.4
1969	29.5	11.7	41.2	1983	27.3	1.0	28.3
1970	46.3	43.6	89.9	1984	165.2	123.2	288.4
1971	65.3	5.5	70.8	1985	16.0	0.0	16.0
1972	31.6	5.8	37.4	1986	191.3	0.0	191.3
1973	22.7	2.2	24.9	1987	13.9	0.0	13.9
1974	33.8	4.0	37.8	1988	119.8	22.4	142.2
1975	27.4	1.2	28.6	1989	27.7	13.5	41.2

Table 28. Central District pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement ¹	Run	Year	Catch	Escapement	Run
1962	84.3	83.9	168.2	1976	15.4	66.0	82.4
1963	121.3	92.6	213.9	1977	120.0	199.9	319.9
1964	71.9	131.1	203.0	1978	61.3	101.2	162.5
1965	69.5	65.8	135.3	1979	277.3	297.0	574.3
1966	17.4	62.6	80.0	1980	95.9	99.4	196.3
1967	26.0	18.5	44.5	1981	255.1	76.5	331.6
1968	45.4	66.1	111.5	1982	80.6	26.1	106.7
1969	1.4	69.6	71.0	1983	7.8	11.0	18.8
1970	28.1	60.7	88.8	1984	48.6	94.0	142.6
1971	20.5	74.8	95.3	1985	19.6	7.4	27.0
1972	0.8	3.1	3.9	1986	44.1	121.9	166.0
1973	2.8	50.2	53.0	1987	7.8	65.7	73.5
1974	21.7	9.8	31.5	1988	318.4	216.4	534.8
1975	31.4	26.4	57.8	1989	0.0	215.0	215.0

1/ Chignik Bay District escapements are not completely monitored.

Table 29. Eastern District pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	1,109.9	401.7	1,511.6	1976	28.8	228.8	257.6
1963	26.9	126.2	153.1	1977	0.2	76.0	76.2
1964	1,251.5	605.7	1,857.2	1978	86.7	309.3	396.0
1965	25.7	64.8	90.5	1979	271.3	194.3	465.6
1966	386.2	302.2	688.4	1980	514.8	425.5	940.3
1967	22.6	56.1	78.7	1981	128.2	154.7	282.9
1968	523.4	390.3	913.7	1982	89.1	301.5	390.6
1969	1.7	46.0	47.7	1983	7.8	46.3	54.1
1970	399.3	201.7	601.0	1984	57.7	486.5	544.2
1971	29.0	23.0	52.0	1985	6.9	212.1	219.0
1972	13.0	15.9	28.9	1986	49.6	580.7	630.3
1973	0.0	12.8	12.8	1987	2.1	215.6	217.7
1974	1.1	76.2	77.3	1988	1,006.4	1,005.4	2,011.8
1975	0.0	23.5	23.5	1989	0.0	881.0	881.0

Table 30. Western District pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	81.0	242.0	323.0	1976	134.8	114.2	249.0
1963	516.9	305.0	821.9	1977	379.0	355.5	734.5
1964	112.9	165.0	277.9	1978	419.3	333.4	752.7
1965	345.6	152.0	497.6	1979	746.0	185.0	931.0
1966	173.2	179.3	352.5	1980	215.6	139.5	355.1
1967	27.1	104.4	131.5	1981	433.6	249.3	682.9
1968	295.6	151.3	446.9	1982	602.4	45.9	648.3
1969	485.0	422.0	907.0	1983	164.3	36.0	200.3
1970	442.7	202.0	644.7	1984	173.8	188.0	361.8
1971	285.4	268.8	554.2	1985	89.3	67.5	156.8
1972	14.9	8.6	23.5	1986	200.8	43.8	244.6
1973	0.0	62.4	62.4	1987	187.7	38.3	226.0
1974	13.3	77.4	90.7	1988	1,141.4	232.4	1,373.8
1975	7.4	141.7	149.1	1989	0.0	57.9	57.9

Table 31. Perryville District pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	207.4	155.5	362.9	1976	104.7	89.3	194.0
1963	933.6	162.0	1,095.6	1977	44.6	115.4	160.0
1964	122.6	72.0	194.6	1978	280.7	157.5	438.2
1965	644.8	82.0	726.8	1979	269.4	181.3	450.7
1966	88.2	90.0	178.2	1980	107.9	74.8	182.7
1967	5.2	155.3	160.5	1981	224.3	116.0	340.3
1968	196.1	128.7	324.8	1982	18.3	13.4	31.7
1969	1,262.2	218.6	1,480.8	1983	113.9	64.5	178.4
1970	371.4	72.6	444.0	1984	0.8	109.8	110.6
1971	212.1	45.0	257.1	1985	43.2	235.2	278.4
1972	12.0	7.8	19.8	1986	161.3	180.5	341.8
1973	0.0	31.5	31.5	1987	35.4	65.7	101.1
1974	0.0	60.2	60.2	1988	411.2	181.3	592.5
1975	0.0	45.3	45.3	1989	0.0	267.4	267.4

Table 32. Total Chignik Area pink salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	1,519.3	913.1	2,432.4	1976	389.0	510.6	899.6
1963	1,662.4	706.5	2,368.9	1977	604.7	749.8	1,354.5
1964	1,682.5	993.8	2,676.3	1978	985.1	912.1	1,897.2
1965	1,117.1	375.6	1,492.7	1979	1,876.6	858.8	2,735.4
1966	683.3	705.4	1,388.7	1980	1,115.8	742.2	1,858.0
1967	108.3	340.0	448.3	1981	1,162.6	597.9	1,760.5
1968	1,290.7	817.8	2,108.5	1982	873.4	389.3	1,262.7
1969	1,779.8	767.9	2,547.7	1983	321.1	158.8	479.9
1970	1,287.8	580.6	1,868.4	1984	446.1	1,001.5	1,447.6
1971	612.3	417.1	1,029.4	1985	175.0	522.2	697.2
1972	72.3	41.2	113.5	1986	647.1	926.9	1574.0
1973	25.5	159.1	184.6	1987	246.8	385.3	632.1
1974	69.9	227.6	297.5	1988	2,997.2	1,657.9	4,655.1
1975	66.2	238.1	304.3	1989	27.7	1,434.8	1,462.5

Table 33. Chignik Bay District chum salmon catch and escapement, 1962 - 1989 (in thousands)

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	5.2	6.7	11.9	1976	18.2	2.4	20.6
1963	5.3	0.8	6.1	1977	8.6	2.0	10.6
1964	8.5	2.5	11.0	1978	15.0	2.1	17.1
1965	1.2	3.0	4.2	1979	31.3	1.6	32.9
1966	6.6	4.5	11.1	1980	27.2	0.3	27.5
1967	5.9	4.0	9.9	1981	38.1	0.5	38.6
1968	5.4	1.0	6.4	1982	16.0	1.4	17.4
1969	2.9	1.5	4.4	1983	16.7	0.1	16.8
1970	1.7	21.0	22.7	1984	8.2	0.3	8.5
1971	19.4	7.1	26.5	1985	5.4	0.0	5.4
1972	18.2	3.3	21.5	1986	18.2	0.0	18.2
1973	7.3	0.7	8.0	1987	5.2	0.1	5.3
1974	17.5	2.1	19.6	1988	7.0	15.3	22.3
1975	21.2	2.1	23.3	1989	15.9	4.2	20.1

Table 34. Central District chum salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	132.0	40.4	172.4	1976	3.4	17.8	21.2
1963	23.1	34.0	57.1	1977	8.9	9.3	18.2
1964	50.3	24.2	74.5	1978	10.3	13.8	24.1
1965	37.8	19.2	57.0	1979	11.2	44.8	56.0
1966	20.9	10.0	30.9	1980	94.1	34.2	128.3
1967	9.9	17.2	27.1	1981	175.0	26.1	201.1
1968	4.2	14.5	18.7	1982	33.7	49.4	83.1
1969	3.2	6.5	9.7	1983	9.8	17.0	26.8
1970	28.6	23.4	52.0	1984	8.3	35.4	43.7
1971	13.8	29.1	42.9	1985	6.2	9.6	15.8
1972	1.5	14.2	15.7	1986	29.5	31.0	60.5
1973	1.4	12.2	13.6	1987	9.4	17.5	26.9
1974	13.9	18.1	32.0	1988	39.3	55.8	95.1
1975	3.2	18.8	22.0	1989	0.0	34.7	34.7

Table 35. Eastern District chum salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	74.7	79.6	154.3	1976	10.0	122.3	132.3
1963	20.5	55.2	75.7	1977	1.5	54.5	56.0
1964	242.7	165.4	408.1	1978	17.4	55.8	73.2
1965	32.4	58.0	90.4	1979	32.6	79.5	112.1
1966	130.1	58.0	188.1	1980	56.8	107.0	163.8
1967	24.4	89.8	114.2	1981	94.4	126.0	220.4
1968	110.1	63.0	173.1	1982	64.5	145.4	209.9
1969	3.7	66.5	70.2	1983	8.2	50.2	58.4
1970	268.5	126.0	394.5	1984	21.1	214.7	235.8
1971	102.3	219.2	321.5	1985	1.0	4.9	5.9
1972	27.8	107.4	135.2	1986	17.9	8.5	26.4
1973	0.0	59.1	59.1	1987	8.9	38.3	47.2
1974	0.4	76.3	76.7	1988	77.5	221.9	299.4
1975	0.0	41.3	41.3	1989	0.0	74.3	74.3

Table 36. Western District chum salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	134.4	83.1	217.5	1976	33.0	55.0	88.0
1963	44.7	10.0	54.7	1977	88.0	70.4	158.4
1964	21.2	37.0	58.2	1978	45.9	27.3	73.2
1965	36.4	25.0	61.4	1979	83.2	42.5	125.7
1966	73.8	12.0	85.8	1980	92.0	56.5	148.5
1967	33.6	24.0	57.6	1981	221.6	70.3	291.9
1968	90.1	9.6	99.7	1982	253.3	35.4	288.7
1969	36.8	27.6	64.4	1983	101.9	20.1	122.0
1970	139.6	49.7	189.3	1984	25.3	73.8	99.1
1971	177.5	184.1	361.6	1985	12.4	34.6	47.0
1972	18.5	59.0	77.5	1986	74.1	5.3	79.4
1973	0.0	35.6	35.6	1987	86.9	19.7	106.6
1974	3.2	39.4	42.6	1988	102.1	27.4	129.5
1975	0.8	43.4	44.2	1989	0.0	7.4	7.4

Table 37. Perryville District chum salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	17.9	10.5	28.4	1976	15.6	8.9	24.5
1963	19.1	7.0	26.1	1977	3.4	15.4	18.8
1964	10.6	26.0	36.6	1978	32.1	5.3	37.4
1965	12.8	7.0	19.8	1979	26.1	12.8	38.9
1966	7.9	20.4	28.3	1980	41.3	29.1	70.4
1967	1.7	5.7	7.4	1981	51.3	19.3	70.6
1968	14.0	1.8	15.8	1982	22.6	23.6	46.2
1969	21.1	1.0	22.1	1983	22.6	8.2	30.8
1970	26.3	13.0	39.3	1984	0.5	46.0	46.5
1971	40.9	30.0	70.9	1985	1.1	12.9	14.0
1972	12.3	11.5	23.8	1986	37.0	7.7	44.7
1973	0.0	9.3	9.3	1987	16.9	9.8	26.7
1974	0.0	12.5	12.5	1988	41.2	41.4	82.6
1975	0.0	20.5	20.5	1989	0.0	15.9	15.9

Table 38. Total Chignik Area chum salmon catch and escapement, 1962 - 1989 (in thousands).

Year	Catch	Escapement	Run	Year	Catch	Escapement	Run
1962	364.2	220.3	584.5	1976	80.2	206.4	286.6
1963	112.7	107.0	219.7	1977	110.4	151.6	262.0
1964	333.3	255.1	588.4	1978	120.7	104.3	225.0
1965	120.6	112.2	232.8	1979	184.4	181.2	365.6
1966	239.3	104.9	344.2	1980	311.4	227.1	538.5
1967	75.5	140.7	216.2	1981	580.4	242.2	822.6
1968	223.8	89.9	313.7	1982	390.1	255.2	645.3
1969	67.7	103.1	170.8	1983	159.2	95.6	254.8
1970	464.7	233.1	697.8	1984	63.4	370.2	433.6
1971	353.9	469.5	823.4	1985	26.1	62.0	88.1
1972	78.3	195.4	273.7	1986	176.7	52.5	229.2
1973	8.7	116.9	125.6	1987	127.3	85.4	212.7
1974	35.0	148.4	183.4	1988	267.1	361.7	628.8
1975	25.2	126.1	151.3	1989	1.6	136.4	138.0

Table 39. Pink salmon return per spawner in the Central and Eastern districts, 1962 - 1989.

Even Year Cycle				Odd Year Cycle			
Brood Year	Pink Escapement	Return 2-yrs Later	Return/Spawner	Brood Year	Pink Escapement	Return 2-yrs Later	Return/Spawner
1962	485,600	2,060,200	4.2	1963	218,800	225,800	1.0
1964	736,800	768,400	1.0	1965	130,600	123,200	0.9
1966	364,800	1,025,200	2.8	1967	74,600	118,700	1.6
1968	456,400	689,800	1.5	1969	115,600	147,300	1.3
1970	262,400	32,800	0.1	1971	97,800	65,800	0.7
1972	19,000	108,800	5.7	1973	63,000	81,300	1.3
1974	86,000	340,000	4.0	1975	49,900	396,100	7.9
1976	294,800	586,500	2.0	1977	275,900	1,039,800	3.8
1978	439,300	1,136,600	2.6	1979	491,300	737,300	1.5
1980	524,900	497,300	1.0	1981	232,700	115,500	0.5
1982	327,700	686,900	2.1	1983	58,400	262,000	4.4
1984	580,600	796,400	1.4	1985	219,500	291,200	1.3
1986	702,600	2,546,500	3.6	1987	281,300	1,096,000	3.9
1988	1,221,800			1989	1,096,000		

Table 40. Pink salmon return per spawner in the Western and Perryville districts, 1962 - 1989.

Even Year Cycle				Odd Year Cycle			
Brood Year	Pink Escapement	Return 2-yrs Later	Return/Spawner	Brood Year	Pink Escapement	Return 2-yrs Later	Return/Spawner
1962	397,500	472,500	1.2	1963	467,000	1,225,400	2.6
1964	237,000	530,700	2.2	1965	234,000	292,000	1.3
1966	269,300	771,700	2.9	1967	259,700	2,387,800	9.2
1968	280,000	1,088,700	3.9	1969	640,600	811,300	1.3
1970	274,600	43,300	0.2	1971	313,000	93,900	0.3
1972	16,400	150,900	9.2	1973	93,900	194,400	2.1
1974	137,600	443,000	3.2	1975	187,000	894,500	4.8
1976	203,500	1,188,000	5.8	1977	470,900	1,381,700	2.9
1978	492,000	537,800	1.1	1979	366,300	1,023,300	2.8
1980	214,300	680,071	3.2	1981	365,400	378,700	1.0
1982	59,300	472,461	8.0	1983	100,500	435,100	4.3
1984	297,800	586,413	2.0	1985	302,600	327,000	1.1
1986	224,300	1,966,300	8.8	1987	104,000	325,300	3.1
1988	413,400			1989	325,300		

Table 41. Chum salmon return per spawner in the Central and Eastern districts, 1962 - 1989.

Brood Year	Chum Escapement	Return 4-yrs Later	Return/Spawner	Brood Year	Chum Escapement	Return 4-yrs Later	Return/Spawner
1962	120,000	219,000	1.8	1976	140,100	292,100	2.1
1963	89,200	141,300	1.6	1977	63,800	460,000	7.2
1964	189,600	191,800	1.0	1978	69,600	293,000	4.2
1965	77,200	79,900	1.0	1979	124,300	85,200	0.7
1966	68,000	149,400	2.2	1980	141,200	279,500	2.0
1967	107,000	364,400	3.4	1981	152,600	21,700	0.1
1968	77,500	150,900	2.0	1982	194,800	86,800	0.5
1969	73,000	72,700	1.0	1983	67,200	74,100	1.1
1970	149,400	108,700	0.3	1984	250,100	394,500	1.6
1971	248,300	63,300	0.3	1985	14,500	109,000	7.5
1972	121,600	153,500	1.3	1986	39,400		
1973	71,300	74,200	1.0	1987	55,800		
1974	94,400	100,600	1.1	1988	277,700		
1975	60,100	168,100	2.8	1989	109,000		

Table 42. Chum salmon return per spawner in the Western and Perryville districts, 1962 - 1989.

Brood Year	Chum Escapement	Return 4-yrs Later	Return/Spawner	Brood Year	Chum Escapement	Return 4-yrs Later	Return/Spawner
1962	93,600	114,100	1.2	1976	63,900	218,900	3.4
1963	17,000	65,000	3.8	1977	85,800	362,400	4.2
1964	63,000	115,500	1.8	1978	38,800	334,800	8.6
1965	32,000	86,500	2.7	1979	55,300	153,000	2.8
1966	32,400	228,600	7.1	1980	85,600	145,700	1.7
1967	29,700	432,500	14.6	1981	89,600	61,100	0.7
1968	11,400	101,300	8.9	1982	58,900	124,100	2.1
1969	28,600	44,900	1.6	1983	28,400	133,300	4.7
1970	62,700	55,100	0.9	1984	119,800	212,100	1.8
1971	214,100	64,700	0.3	1985	47,500	23,300	0.5
1972	70,500	112,500	1.6	1986	13,000		
1973	44,900	177,200	4.0	1987	29,500		
1974	51,900	116,600	2.3	1988	68,800		
1975	63,900	164,600	2.6	1989	23,300		

Table 43. Pink and chum salmon escapement^a estimates for select Chignik Area streams, 1953-1989^{a,b} (in thousands).

Year	Thompson Valley 272- 204		Hook Bay 272- 302		Cape Kumlik 272- 501		Bear Cr. 272- 505	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953	25.3	0.0	13.0	6.3			0.0	0.7
1954	28.2	4.5	14.3	5.3			0.2	0.2
1955	115.0	3.0	78.0	0.0			1.0	0.0
1956								
1957								
1958								
1959								
1960								
1961								
1962	7.0	0.0	18.9	4.1	7.0	0.0	0.0	12.4
1963	23.3	0.0	33.0	7.5	23.0	0.0	0.0	9.5
1964	4.1	0.0	42.0	1.2	8.7	0.0	0.0	8.8
1965	9.4	0.0	23.3	2.1	13.7	0.0	0.0	8.5
1966	4.1	0.0	10.0	0.5	3.8	0.0	0.0	4.3
1967	2.0	0.4	7.3	2.5	5.2	0.0	0.0	8.0
1968			5.0	0.0			0.0	2.7
1969	19.0	0.0	30.0	0.0			0.0	4.5
1970	12.0	0.0	11.0	1.0	5.0	0.0	0.0	10.0
1971	7.5	0.0	13.0	8.0	51.0	0.0	0.0	10.0
1972	0.2	0.0	0.4	1.1	0.2	0.0	0.0	2.5
1973	2.3	0.2	4.9	4.7	40.0	0.0	0.0	4.0
1974	1.6	0.1	3.8	0.8	0.6	0.0	0.0	2.3
1975	10.2	0.0	1.3	6.0	17.8	0.0	0.0	1.5
1976	5.5	0.2	8.0	2.5	2.6	0.0	0.0	1.4
1977	29.4	0.0	22.6	2.0	124.0	0.0	0.5	2.6
1978	14.0	0.0	14.5	2.8	6.1	0.0	0.1	1.5
1979	35.5	1.0	42.7	11.0	153.0	0.0	0.0	5.0
1980	0.7	0.0	24.5	4.2	2.6	0.0	0.2	0.0
1981	6.5	0.5	13.9	9.0	36.2	0.0	0.1	0.0
1982	1.2	0.0	7.3	10.0	0.9	0.0	0.0	2.5
1983	2.3	0.0	0.2	0.3	0.0	0.0	2.0	7.9
1984	14.0	0.0	16.2	0.1	3.7	0.0	0.3	2.3
1985	0.0	0.0	2.0	0.0			0.0	7.2
1986	0.3	0.0	66.9	0.0	38.2	0.0	0.0	7.5
1987			9.5	0.3	46.9	0.3	0.0	12.0
1988	9.6	3.3	26.4	0.7	18.0	0.0	0.0	0.7
1989	16.6	3.7	45.5	10.2	63.0	0.0	0.0	3.6

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Table 43. (page 2 of 8)

Year	Rudys Cr. 272- 509		North Fork 272- 514		Aniakchak R. 272- 605		Cape Agutka 272- 606	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953	0.7	0.2	1.3	3.5	0.0	35.0	0.2	0.7
1954			55.0	4.6	100.0	37.2	3.9	1.5
1955	15.0	4.0	13.5	1.0	16.0	0.0	1.2	0.0
1956								
1957								
1958								
1959								
1960								
1961								
1962	4.5	5.2	34.0	0.8	126.0	25.0	17.6	0.5
1963	0.0	12.0	9.7	1.8	6.0	14.6	0.4	0.0
1964	0.5	5.0	68.0	3.0	175.0	82.5	11.0	1.1
1965	0.0	1.1	8.7	2.0	10.8	4.0	5.1	0.1
1966	2.0	3.0	2.0		90.8	9.0	7.7	0.2
1967	1.0	3.0	20.0	1.1	2.0	10.5	1.1	0.1
1968	2.0	7.0	26.0	0.0	85.0	10.0	22.3	0.0
1969	0.2	1.0	5.2	4.0	0.1	0.5	4.6	2.0
1970	0.0	3.0	24.0	8.0	40.0	30.5	10.0	2.0
1971	0.0	1.3	0.0	4.5	0.0	11.5	2.0	3.0
1972	0.2	1.7	1.7	6.9	1.8	7.1	2.5	1.5
1973	0.0	1.2	2.8	1.5	2.7	4.0	1.5	1.8
1974	0.8	4.2	2.5	4.2	29.8	25.7	1.6	0.0
1975	0.0	1.8	0.4	3.7	2.4	5.5	1.9	0.2
1976	6.2	3.7	17.5	7.9	165.0	34.0	5.9	0.8
1977	6.3	0.9	6.6	2.3	3.0	14.8	1.0	0.1
1978	4.0	2.2	46.0	6.9	215.5	23.2	8.0	0.2
1979	12.0	7.7	12.7	5.6	0.0	0.2	13.0	1.5
1980	9.3	0.0	38.5	29.5	40.0	43.0	20.0	5.5
1981	0.7	0.1	15.8	16.5	2.7	32.0	5.8	0.0
1982	0.2	8.7	19.0	3.5	130.0	47.0	21.0	0.0
1983	0.0	1.3	4.1	1.3	1.0	3.1	0.1	0.0
1984	4.5	5.0	32.4	17.4	56.4	47.0	17.2	1.2
1985	0.0	0.0	4.7	1.3	0.0	0.0	0.0	0.0
1986	38.0	10.9	34.3	5.0	1.5	0.5	65.0	0.4
1987	0.0	0.0	8.8	4.0	2.5	0.3	4.2	0.3
1988	34.9	16.6	48.5	17.0	95.1	17.4	84.4	0.0
1989	7.3	0.4	23.0	1.2	5.0	2.5	1.8	0.0

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Table 43. (page 3 of 8)

Year	Main Cr. 272- 702		Northeast Cr. 272- 703		Yantarni Cr. 272- 721		Ocean Beach 272- 801	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953	0.2	17.0	3.5	2.0				
1954	6.9	21.5	1.1	0.8				
1955	25.2	0.8			7.5	7.0	8.0	3.0
1956								
1957								
1958								
1959								
1960								
1961								
1962	33.0	3.6	1.6	2.5	52.5	0.1	45.0	2.0
1963	16.0	5.8	5.0	0.9	16.0	0.3	3.4	0.0
1964	40.5		2.3	3.0	42.0	21.0	34.6	10.1
1965	5.0	4.8	2.3	6.0	4.0	7.6	0.4	1.0
1966	3.0	0.0	1.3	0.2	18.5	5.0	11.0	3.3
1967	16.5	2.0	2.0	0.2				
1968	28.0	8.0	7.7	1.0	25.0	6.5	26.5	0.0
1969	3.0	15.0	7.0	4.5	1.5	11.0	6.0	3.5
1970	13.0	7.0	7.0	6.0	1.5	11.5	7.5	5.0
1971	1.0	20.0	2.0	5.5	0.0	18.0	0.0	3.5
1972	2.0	8.0	1.7	0.5	2.1	21.0	0.5	4.6
1973	1.0	7.0	1.1	3.1	0.3	6.5	0.6	1.7
1974	6.6	6.3	3.0	2.0	3.7	3.8	2.3	2.2
1975	4.7	8.0	0.4	0.7	0.3	1.6	0.8	0.2
1976	5.5	8.5	3.8	2.0	5.8	12.5	4.2	3.0
1977	4.5	3.5	10.0	0.8	1.9	3.5	1.1	0.4
1978	5.6	7.6	4.4	4.6	7.9	3.3	7.1	0.5
1979	13.5	14.0	7.0	7.5	14.0	9.5	1.5	0.0
1980	53.5	17.0	4.8	3.0	60.0	11.0	27.6	0.0
1981	6.3	16.3	5.9	2.5	13.5	18.2	10.5	5.5
1982	36.0	12.3	6.2	3.7	8.5	25.5	0.0	14.5
1983	9.2	6.7	3.2	4.7	3.6	13.4	3.1	1.5
1984	15.7	14.5	7.0	4.3	26.5	18.7	19.0	13.2
1985	13.7	4.0	9.0	0.0	67.8	0.7	9.9	0.0
1986	85.0	0.0	13.6	0.0	3.1	0.3	1.8	0.2
1987	14.3	1.5	7.5	0.4	18.0	3.0	13.0	2.7
1988	43.6	5.5	41.4	10.6	33.7	30.3	32.8	12.8
1989	53.0	3.2	17.0	4.0	10.9	3.4	10.9	4.8

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Table 43. (page 4 of 8)

Year	Nakalilok R. 272- 804		Chiginagak 272- 902		Chiginagak R. 272- 903		Chiginagak 272- 904	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953								
1954								
1955	3.0	0.5			0.0	15.9		
1956								
1957								
1958								
1959								
1960								
1961								
1962	22.0	0.1	16.0	0.0	0.3	34.3	20.1	0.0
1963	10.4	0.1	1.2	0.0	0.0	15.0	43.0	0.0
1964	89.0	3.0	20.0	0.0	6.0	24.4	41.4	0.0
1965	0.5	9.0	0.4	0.0	0.0	13.8	12.4	0.1
1966	12.5	0.0	5.8	0.0	0.0	33.2	16.0	0.0
1967	3.5	18.5	0.5	0.1	0.0	27.0	12.4	0.0
1968	7.4	2.0	21.0	0.0	2.0	29.5	20.0	0.0
1969	8.0	3.5	1.3	0.0		20.0	6.0	0.0
1970	10.0	6.5	11.0	0.0	0.0	31.0	4.0	0.0
1971	1.0	44.0	2.8	0.0	0.0	86.0	1.1	0.0
1972	0.0	6.0	0.1	0.3	1.0	33.0	0.1	0.1
1973	0.5	5.2	0.3	0.0	0.2	28.3	0.5	0.0
1974	2.2	4.8	0.2	0.2	8.5	28.5	0.9	0.0
1975	3.0	4.8	0.5	0.5	2.9	20.3	0.8	0.0
1976	2.4	14.2	0.7	0.0	0.7	35.0	2.2	0.0
1977	3.8	4.9	2.7	0.0	1.8	19.4	3.8	0.0
1978	8.1	4.2	4.4	0.4	1.3	9.1	3.5	0.0
1979	12.0	2.9	11.0	15.0	0.4	24.3	7.2	0.0
1980	25.6	14.0	17.9	0.0	16.3	5.7	14.5	0.0
1981	6.5	8.0	5.0	0.0	6.0	23.4	6.9	0.0
1982	4.0	12.3	2.2	0.0	2.0	18.5	1.7	0.4
1983	4.8	4.2	0.7	0.0	1.8	9.6	1.9	0.0
1984	15.0	36.5	16.6	0.0	6.9	53.8	19.5	3.0
1985	27.0	0.0	0.0	0.0	1.0	0.0	5.0	0.0
1986	12.7	1.0	42.3	0.0	21.1	3.3	8.9	0.0
1987	1.4	3.8	3.2	0.4	67.5	15.7	11.0	3.3
1988	16.8	8.0	33.7	0.0	12.6	13.2	40.0	30.0
1989	10.6	4.1	22.0	0.0	70.4	4.2	32.0	11.5

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Table 43. (page 5 of 8)

Year	Chiginagak 272- 905		Agripina R. 272- 961		Glacier Cr. 272- 962		Kilokak 272- 963	
	Pink Chum		Pink Chum		Pink Chum		Pink Chum	
1953								
1954								
1955					0.0	0.0		
1956								
1957								
1958								
1959								
1960								
1961								
1962	17.1	0.0	12.0	3.0	0.5	3.0	16.2	0.0
1963	1.0	0.0	19.2	0.1	0.0	10.0	0.8	0.0
1964	100.0	0.3	8.5	0.0	0.5	6.0	14.2	0.0
1965	1.2	0.0	20.1	0.0	0.0	1.3	0.1	0.0
1966	90.5	0.0					24.5	0.0
1967	5.8	1.8	7.3	0.5	0.0	5.6	0.3	0.0
1968	53.0	0.0	12.0	0.0	0.0	0.2	65.6	0.0
1969	2.4	0.0	2.5	0.0	0.0	2.0	0.2	0.0
1970	24.0	0.0	15.5	0.0	0.0	5.0	55.0	0.0
1971	4.3	2.0	6.6	0.0	0.0	6.0	0.0	0.0
1972	2.4	0.0	1.6	0.0	0.0	4.6	2.1	0.0
1973	1.0	0.0	4.2	0.5	0.0	3.0	0.1	0.0
1974	1.9	0.0	1.2	0.2	0.0	0.9	0.3	0.0
1975	2.1	0.2	2.7	0.0	0.2	0.5	0.6	0.0
1976	20.1	0.4	4.9	0.0	0.0	1.8	4.9	0.0
1977	22.0	1.3	4.3	0.0	0.0	1.0	0.5	0.0
1978	41.0	0.4	7.4	0.1	0.6	1.1	5.9	0.0
1979	61.1	0.0	23.5	0.0	0.0	1.6	1.1	0.0
1980	38.5	0.0	14.3	0.0	5.2	0.7	61.0	0.0
1981	48.0	0.1	13.4	0.0	0.0	0.6	0.3	0.0
1982	34.1	0.0	33.0	0.0	0.0	1.1	20.0	0.0
1983	3.6	5.0	5.0	0.0	1.3	0.2	0.3	0.0
1984	117.2	0.2	39.8	0.0	1.0	3.2	75.8	0.0
1985	17.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0
1986	85.0	0.1	0.0	0.0	0.0	0.0	175.0	0.0
1987	20.0	0.3	1.0	0.0	6.2	0.0	0.0	0.0
1988	52.9	14.4	78.0	20.6	0.3	0.0	137.8	0.0
1989	89.0	4.0	53.0	0.0	0.3	0.1	10.5	0.0

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Table 43. (page 6 of 8)

Year	Coal Cape 273- 702		Ivan River 273- 722		Foot Bay 273- 802		Spoon Cr. 273- 823	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953							1.0	1.5
1954								
1955							15.0	0.0
1956								
1957								
1958								
1959								
1960								
1961								
1962	129.0	12.0	85.0	36.0	13.3	1.0	10.6	2.0
1963	127.5	0.0	124.0	4.5	11.0	1.0	3.5	0.0
1964	60.0	10.0	65.5		12.0	0.9	13.2	0.0
1965	48.0	5.9	89.1	0.0	5.3	0.0	1.4	0.0
1966	9.7	2.0	94.5	1.0	18.4	0.2	15.5	0.0
1967	9.0	1.0	35.0	7.0	4.7	0.0	2.4	0.0
1968	39.0		85.0	0.0	14.2	0.0	7.8	0.0
1969	77.0	0.0	302.0	0.0	14.2	0.1	6.5	0.0
1970	69.0	0.0	103.0	17.0	14.5	3.0	10.5	0.0
1971	8.0	0.0	205.0	90.0	30.0	5.2	7.0	0.0
1972	2.5	4.5	4.4	13.0	0.6	0.6	0.2	0.0
1973	1.6	1.0	43.8	17.2	7.5	0.3	0.8	0.2
1974	62.8	5.1	3.9	22.3	2.1	0.3	1.7	0.0
1975	21.0	4.5	96.0	24.5	9.8	0.0	4.5	0.0
1976	70.3	13.4	17.3	22.1	7.0	1.1	9.3	1.9
1977	78.5	0.0	236.0	36.0	18.3	0.8	5.7	0.1
1978	218.5	0.1	73.7	0.8	16.6	2.0	7.5	0.1
1979	50.2	2.0	90.0	32.0	9.6	0.4	7.1	1.0
1980	53.0	12.5	51.0	22.1	3.5	1.0	4.5	0.9
1981	84.9	3.0	117.0	28.0	10.0	4.6	6.7	0.8
1982	30.5	3.3	21.0	16.3	1.4	2.8	0.1	0.4
1983	17.8	0.5	12.2	7.2	1.2	1.1	0.8	0.0
1984	60.2	6.5	103.0	40.0	6.0	1.8	0.3	0.1
1985	3.5	0.5	49.6	23.3	5.9	1.7	0.3	0.0
1986	22.0	0.0	10.1	0.0	4.9	0.0	0.5	0.0
1987	13.4	0.4	14.8	2.4	6.6	1.0	0.0	0.0
1988	135.6	10.6	57.0	5.6	13.0	0.9	3.1	0.3
1989	2.9	1.5	32.0	0.8	10.8	0.6	1.7	0.1

- continued -

Table 43. (page 7 of 8)

Year	Portage 273- 842		Seal Bay 273- 843		Kupreanof 275- 401		Smokey Hollow 275- 402	
	Pink	Chum	Pink	Chum	Pink	Chum	Pink	Chum
1953	5.3	0.5	2.0	2.0				
1954								
1955	0.0	20.0	0.0	0.6				
1956								
1957								
1958								
1959								
1960								
1961								
1962	0.0	23.8	0.0	1.8	12.2	0.0	3.6	3.9
1963	27.0	4.4	6.0	0.0	3.5	0.0	1.5	2.0
1964	0.0	20.4	1.3	0.0	13.0	1.1	0.8	17.0
1965	1.7	8.3	3.3	0.0	3.0	0.0	0.0	0.5
1966	24.4	8.9	4.0	0.0			0.0	7.4
1967	28.5	15.0	6.0	0.5	6.7	0.0	0.0	0.3
1968	3.3	5.0	2.5	0.0	14.0	0.0	0.0	0.9
1969	0.1	27.5	7.5	0.0	6.8	0.2	0.0	0.2
1970	9.0	27.6	5.2	0.0	11.0	0.0	0.0	2.5
1971	10.2	60.1	5.0	10.1	3.5	0.0	0.0	1.5
1972	0.1	21.4	0.0	11.1	1.0	0.5	0.0	2.0
1973	2.9	18.1	2.0	0.1	0.2	0.5	0.2	0.6
1974	0.0	8.7	1.2	1.0	1.2	0.5	0.4	0.8
1975	0.4	9.2	5.3	2.3	1.0	0.1	0.1	0.1
1976	0.9	8.5	0.6	4.6	4.0	0.0	0.6	0.8
1977	5.0	20.5	3.1	5.2	5.1	0.0	2.3	1.6
1978	4.1	19.0	1.5	1.4	16.1	0.0	0.5	0.5
1979	17.7	4.5	0.2	0.6	28.0	0.0	0.6	0.4
1980	10.2	18.5	1.0	0.5	11.6	0.0	0.5	0.3
1981	6.5	33.3	9.0	0.0	22.5	0.1	1.5	0.0
1982	0.0	6.3	0.0	3.5	5.5	0.0	0.0	0.0
1983	0.3	7.3	0.8	0.0	3.5	0.0	0.2	2.6
1984	1.0	14.6	4.6	5.5	5.2	0.0	0.3	1.4
1985	0.0	9.1	7.3	0.0			0.2	0.0
1986	0.7	5.0	0.0	0.1			0.5	0.1
1987	0.0	10.2	0.5	3.9			1.4	0.1
1988	4.0	6.1	0.0	0.8	5.1	0.0	0.9	1.0
1989	1.2	1.6	1.7	0.8	4.2	0.1	9.4	0.1

Table 43. (page 8 of 8)

Year	Wasco's Creek 275- 404		Ivanof River 275- 406		Humpback Cr. 275- 502	
	Pink	Chum	Pink	Chum	Pink	Chum
1953						
1954						
1955						
1956						
1957						
1958						
1959						
1960						
1961						
1962	23.0	0.0	48.5	2.5	64.5	3.0
1963	1.0	0.0	128.0	4.0	26.4	0.4
1964	0.0	6.5	15.0	0.8	40.7	0.2
1965	2.0	0.0	61.4	5.5	13.8	0.0
1966	10.5	0.0	39.5	9.0	30.0	0.0
1967	2.0	0.0	98.5	3.0	36.7	0.0
1968	0.3	0.0	60.0	0.5	52.3	0.0
1969	4.0	0.0	122.4	0.5	75.0	0.0
1970	2.5	0.0	51.0	10.0	31.0	0.0
1971	3.0	4.0	25.0	21.0	13.4	1.5
1972	0.3	0.0	6.3	7.8	0.5	1.0
1973	0.0	0.0	24.7	8.2	6.1	0.6
1974	6.3	1.9	41.9	8.1	10.2	0.7
1975	0.9	0.0	33.4	15.0	9.2	3.5
1976	6.2	0.2	55.0	6.8	20.3	0.7
1977	1.6	0.5	51.8	9.0	48.2	1.2
1978	9.7	0.0	71.5	4.2	51.0	0.2
1979	2.0	0.1	89.0	7.1	59.0	5.0
1980	0.0	3.0	40.5	22.7	18.7	3.1
1981	0.0	0.2	39.9	17.0	46.5	2.0
1982	0.1	2.3	2.7	9.4	4.8	11.0
1983	2.0	0.0	34.3	5.6	17.8	0.0
1984	14.6	1.4	61.0	42.5	18.3	0.7
1985	0.3	0.0	181.6	10.6	36.8	0.3
1986	10.0	0.0	150.0	7.6	12.0	0.0
1987	11.9	0.1	24.7	6.9	15.5	0.8
1988	14.0	1.1	126.0	30.6	30.8	0.4
1989	3.8	0.3	161.0	4.0	51.0	0.5

^aEscapement estimates from 1985 to present are derived after Johnson and Barrett (1988).

^bEscapement estimates prior to 1985 are based on methods described by Shaul and Schwarz (1989).

Table 44. Economic value of salmon, in dollars, to Chignik Area fishermen, 1970-1989.

Year	Chinook		Sockeye		Coho		Pink		Chum		Total Value
	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	
1970	6,129	89	2,190,272	31,743	18,397	267	635,673	9,213	376,025	5,450	3,226,496
1971	6,472	84	2,034,279	26,419	23,240	302	365,693	4,762	326,760	4,244	2,757,444
1972	2,028	28	825,498	11,308	35,699	489	48,401	663	87,759	1,202	99,385
1973	5,255	72	3,030,057	41,508	73,663	1,009	20,610	282	10,180	139	3,139,765
1974	2,941	32	3,618,781	39,767	31,933	351	64,069	704	51,125	562	3,768,849
1975	6,561	76	1,384,271	16,240	213,539	2,581	104,115	12,211	61,704	717	1,770,190
1976	13,800	179	4,751,000	61,701	138,000	1,792	568,300	7,381	183,600	2,384	5,654,700
1977	18,828	212	14,553,720	163,525	104,819	1,178	920,881	10,347	368,066	4,136	15,966,314
1978	56,700	597	15,653,500	164,774	116,400	1,225	1,131,500	11,911	404,500	4,258	17,362,600
1979	32,050	317	11,345,503	112,332	710,192	7,031	2,622,269	25,963	126,856	1,256	14,836,880
1980	67,657	670	5,532,290	54,775	520,655	5,155	1,477,060	14,624	1,061,963	10,514	8,659,625
1981	75,231	730	17,262,119	167,593	439,900	4,271	1,881,334	18,265	2,431,421	23,606	22,090,005
1982	75,276	717	13,038,510	124,176	1,782,027	16,972	578,184	5,506	1,356,597	12,920	16,830,594
1983	96,159	962	10,728,088	107,281	219,650	2,197	240,171	2,402	421,713	4,217	11,705,781
1984	114,502	1,134	20,402,076	202,000	759,972	7,525	330,916	3,276	146,024	1,446	21,753,490
1985	67,088	664	7,997,834	79,186	1,471,418	14,568	140,076	1,387	59,475	589	8,735,891
1986	84,800	848	16,882,290	168,823	667,740	6,677	356,147	3,562	456,546	4,565	18,447,523
1987	72,739	706	24,783,033	240,612	1,035,129	10,050	269,868	2,620	339,819	3,299	26,500,588
1988	286,740	2,811	14,350,354	140,690	4,153,424	40,720	6,771,266	66,385	2,189,293	21,464	27,751,077
1989	78,999	790	13,047,378	130,474	436,892	4,369	32,994	3,299	4,745	47	13,601,008

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Table 45. Subsistence^a harvest of salmon in the Chignik Management Area, 1976-1989.

Year	Subsistence Harvest					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1976	100	6,000	1,500	500	150	8,250
1977	50	9,700	2,400	1,800	600	14,550
1978	50	6,000	500	2,100	600	9,250
1979	14	7,750	34	262	0	8,060
1980	9	7,831	27	400	141	8,408
1981	100	5,840	0	0	0	5,940
1982	2	2,320	8	1	0	2,331
1983	0	3,438	1,880	1,680	1,136	8,134
1984	26	8,222	553	403	247	9,451
1985	1	7,615	60	32	0	7,708
1986	6	10,356	261	121	95	10,839
1987	10	7,021	278	204	261	7,774
1988	3	8,848	1,817	79	158	10,905
1989	20	12,325	1,200	150	148	13,843
Average	28	7,376	751	552	253	8,960

^aSubsistence harvests are estimated by expanding results of returned permits to total number of permits issued.

Table 46. List of Chignik Management Area salmon permit holders, 1989.

	Name		Permit No.	Residency		ADF&G No.
1	ALECK	NICK	S01L56935	J	R	21611
2	ALEXANDER	JASON	S01L59000	W	R	21757
3	ANDERSON	AL	S01L57160	U	R	50763
4	ANDERSON	DAVID	S01L56415	U	R	32397
5	ANDERSON	DEAN	S01L60114	M	R	37252
6	ANDERSON	EUGENE	S01L60601	G	R	31492
7	ANDERSON	GUNNAR	S01L56589	I	R	49655
8	ANDERSON	H.	S01L57501	K	R	21869
9	ANDERSON	GEORGE	S01L57133	E	R	33375
10	ANDERSON	JULIUS	S01L55433	H	R	41205
11	ANDERSON	MARVIN	S01L58425	P	R	14802
12	ANDERSON	NEIL	S01L58578	P	R	1873
13	ANDERSON	RODNEY	S01L56936	B	R	118
14	ANDERSON	RONALD	S01L58818	F	R	32685
15	BATTISHILL	FRANK	S01L50045	K	R	117
16	BECK	MARK	S01L55925	M	NR	44149
17	BECKER	CARL	S01L57469	C	NR	51091
18	BRANDAL	ALEC	S01L55170	U	R	32586
19	BRANDAL	HENRY	S01L50032	K	R	50946
20	BUMPUS	DONALD	S01L61910	L	NR	21870
21	CAMPBELL	DANIEL	S01L55731	X	NR	11013
22	CARLSON	AXEL	S01L57612	J	R	35863
23	CARLSON	BERNARD	S01L50220	U	R	30680
24	CARLSON	CARL	S01L56192	Z	R	21898
25	CARLSON	DALE	S01L57473	V	R	43370
26	CARLSON	ERIC	S01L62210	Z	R	21972
27	CARLSON	ERNEST	S01L57125	P	R	43775
28	CARLSON	EUGENE	S01L55520	P	R	36054
29	CARLSON	RODERICK	S01L57704	F	R	37779
30	CARLSON	RUDY	S01L63976	A	R	22017
31	CARROLL	ALBERT	S01L60106	Z	NR	33957
32	CONSTANTINE	JOHNNY	S01L57808	I	R	15888
33	CRONK	MILTON	S01L58603	C	NR	38635
34	ENDRESEN	ANDY	S01L60183	F	R	40795
35	ERICKSON	CLARENCE	S01L56512	B	R	53266
36	GREGORIO	TONY	S01L58848	X	R	37548
37	GRUNERT	CLEMENS	S01L50027	Z	R	42335
38	GRUNERT	FRANK	S01L59851	X	R	32424
39	GRUNERT	MICHAEL	S01L55935	K	R	51094
40	MCLENAGHAN	MICHAEL	S01L55938	M	NR	6727
41	HINDERER	WALLACE	S01L57085	S	R	41592
42	JOHNSON	PAUL	S01L56395	S	NR	35956
43	JONES	MORRIS	S01L56405	W	NR	6728
44	KALMAKOFF	ANDY	S01L61370	V	R	38182
45	KALMAKOFF	ARTEMIE	S01L50090	M	R	9266
46	KALMAKOFF	GUSTIA	S01L50123	N	R	21554

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Table 46. (page 2 of 3)

	Name	Permit No.	Residency	ADF&G No.
47	KALMAKOFF HARRY	S01L60115	F R	6923
48	KALMAKOFF JOSEPH	S01L60614	G R	6170
49	KALMAKOFF PETER	S01L58077	F R	14805
50	KASHEVAROF WILLIAM	S01L57487	N R	43125
51	KOPUN ALOYS	S01L57863	I R	45995
52	KOSBRUK BORIS	S01L58206	U R	21899
53	KOSBRUK HARRY	S01L56726	L R	38528
54	KOSBRUK IGNATIUS	S01L50116	R R	45060
55	KULIN STEPHEN	S01L60113	U R	52757
56	LIND ELLIOT	S01L56872	O R	35950
57	LIND JOHNNY	S01L50223	W R	38404
58	LIND LARRY	S01L57376	O R	10567
59	LIND WILLIAM	S01L57384	C R	111
60	MCCALLUM CHARLES	S01L55399	O NR	29006
61	MCKILLY GABRIEL	S01L59493	O R	32863
62	MINAKER HARRY	S01L56203	U NR	33848
63	MUNSON HENRY	S01L59794	I R	41317
64	LOUNSBURY BRETT	S01L58322	F R	31995
65	ODOMIN NICK	S01L57696	L R	195
66	OGLE LEONARD	S01L55311	R R	40484
67	OLSEN KNUD	S01L56418	W NR	11034
68	ORLOFF GEORGE	S01L59308	M R	21612
69	PEDERSEN ALEC	S01L57695	S R	51282
70	PEDERSEN ALEC	S01L64188	M R	34198
71	PEDERSEN ALVIN	S01L55953	V R	37662
72	PEDERSEN ARTHUR	S01L55954	N R	48823
73	PEDERSEN AUGUST	S01L50039	H R	43200
74	PEDERSEN HANS	S01L57171	K R	40248
75	PEDERSEN MARIUS	S01L64187	U R	6421
76	PEDERSON AUGUST	S01L58126	H R	28396
77	PHILLIPS ELIA	S01L50332	L R	36497
78	SHANGIN ANDY	S01L58145	K R	39351
79	SHANGIN CLEMENT	S01L56733	H R	38622
80	SHANGIN DENNIS	S01L58178	G R	9282
81	SHANGIN RUSSELL	S01L57003	B R	36242
82	SIEMION MATTHEW	S01L56992	S NR	32361
83	SIEMION THEODORE	S01L56322	H NR	20453
84	SKONBERG BERNARD	S01L55477	R R	33858
85	SKONBERG CALVIN	S01L56228	C R	34184
86	SKONBERG DARRELL	S01L55546	P R	33614
87	SKONBERG GUY	S01L55361	H R	35698
88	SKONBERG RALPH	S01L50205	L R	6444
89	SKONBERG ROY	S01L58470	R R	42210
90	STEPANOFF ANDREW	S01L60144	G R	194
91	STEPANOFF OLEANA	S01L58308	N R	7143
92	STEPANOFF SAM	S01L50338	P R	14802
93	STEPANOFF WALTER	S01L57091	W R	11045
94	SUYDAM FLOYD	S01L56680	K R	39962

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	Name		Permit No.	Residency	ADF&G No.
95	SUYDAM	GLENN	S01L59615	J R	48805
96	TAKAK	AFONIE	S01L57035	F R	34970
97	TEUBER	PAUL	S01L60121	I NR	32320
98	OLSEN	JEFFREY	S01L58496	R NR	21877
99	VANWINGERDENMARK		S01L57296	B R	37231
100	VEERHUSEN	DANIEL	S01L57662	X R	31166
101	YAGIE	JERRY	S01L56797	N R	36296
102	YAGIE	MARVIN	S01L57278	P R	34902

Table 47. Chignik Area fishing effort in units of seine gear, by resident status, 1966-1989.

Year	Units of Gear				Total
	Resident	Percent	Non-Resident	Percent	
1966	65	89.0	8	11.0	73
1967	73	88.0	10	12.0	83
1968	59	88.1	8	11.9	67
1969	57	83.8	11	16.2	68
1970	57	82.6	12	17.4	69
1971	64	83.1	13	16.9	77
1972	62	78.5	17	21.5	79
1973	63	81.8	14	18.2	77
1974	79	84.0	15	16.0	94
1975	72	83.7	14	16.3	86
1976	66	85.7	11	14.3	77
1977	74	84.1	14	15.9	88
1978	82	86.3	13	13.7	95
1979	87	86.1	14	13.9	101
1980	87	86.1	14	13.9	101
1981	87	84.5	16	15.5	103
1982	89	84.8	16	15.2	105
1983	84	84.0	16	16.0	100
1984	84	83.2	17	16.8	101
1985	85	84.2	16	15.8	101
1986	87	87.0	13	13.0	100
1987	89	87.3	13	12.7	102
1988	88	86.3	14	13.7	102
1989	86	84.3	16	15.7	102

Table 48. List of processors operating in the Chignik Area, 1989.

F0622 Aleutian Dragon Fisheries 5355 28th Ave. N.W. Seattle, WA 98107	F0021 International Seafoods of Alaska P.O. Box 2997 Kodiak, AK 99615
F0365 Chignik Pide Fisheries 4241 21st. Ave. W., Suite 300 Seattle, WA 98107	F0602 New West Fisheries, Inc. 1100 11th Street Bellingham, WA 98225
F0266 Columbia Ward Fisheries-Chignik P.O. Box C-5030 University Station Seattle, WA 98105-0030	F0265 Columbia Ward Fisheries-Alitak P.O. Box C-5050 University Station Seattle, WA 98105-0030
F0320 Western Pride Fisheries 1111 3rd. Ave. Suite 1210 Seattle, WA 98101	

Table 49. Chignik Area pink and chum salmon stream surveys, 1989.

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Chignik Bay District								
271-101a	8- 1	Pillifant	Good	0	0			
271-101a	8-13	Thompson	Excel.	3000	1000	8000P	2000Ch	
271-101b	8-13	Thompson	Excel.	0	0			
271-101b	8-22	Thompson	Fair	4000	2200			
271-101b	8-30	Fox	Excel.	500	2200	6000Ch		
271-102a	8- 1	Pillifant	Good	0	0			
271-102a	8-14	Fox	Excel.	0	0			
271-102b	8- 1	Pillifant	Good	0	10			
271-102b	8-14	Fox	Excel.	0	10			
271-102c	8- 1	Pillifant	Fair	0	0			
271-102c	8-22	Thompson	Fair	0	0			
271-103	8- 1	Pillifant	Good	0	0			
271-103	8-14	Fox	Excel.	250	0			
271-104	8- 1	Pillifant	Good	0	5			
271-104	8-14	Pillifant	Good	400	0			
271-104	8-24	Pillifant	Fair	500	0			Overcast; hard to see
271-104	8-28	Thompson	Fair	4800	0			
271-105	8- 1	Pillifant	Good	0	0			
271-105	8-14	Pillifant	Good	0	0			
271-105	8-24	Pillifant	Fair	400	0			
271-105	8-28	Thompson	Fair	300	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Chignik Bay District								
271-106	8- 1	Pillifant	Good	0	0	500Ch		
271-106	8-14	Pillifant	Good	100	100			
271-106	8-24	Pillifant	Fair	100	0			
271-106	8-28	Thompson	Good	1020	210			
Central District								
272-201	7-18	Fox	Excel.	0	0			
272-201	8- 1	Pillifant	Good	0	0			
272-201	8-14	Pillifant	Good	100	0			
272-201	8-24	Pillifant	Fair	0	0			
272-201	8-28	Thompson	Good	210	0			
82 272-202a	7-18	Fox	Excel.	0	0			
272-202a	8- 1	Pillifant	Good	0	0			
272-202a	8-14	Pillifant	Good	500	0			
272-202a	8-24	Pillifant	Fair	600	0			
272-202a	8-28	Thompson	Fair	450	90			
272-202b	8- 1	Pillifant	Good	0	0			
272-202b	8-14	Pillifant	Good	0	0			
272-202b	8-24	Pillifant	Fair	50	0			Spawning
272-202b	8-28	Thompson	Good	200	0			
272-204	7-18	Fox	Excel.	0	0	400Ch		
272-204	8- 1	Pillifant	Good	0	50			
272-204	8-14	Pillifant	Good	8500	0			
272-204	8-24	Pillifant	Fair	7500	0			
272-204	8-28	Thompson	Good	16600	3700			

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Table 49 (page 3 of 19)

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Central District								
272-205	7-18	Fox	Excel.	0	0			Jumpers?
272-205	8- 1	Pillifant	Good	0	0			
272-205	8-14	Pillifant	Good	5	0			
272-205	8-24	Pillifant	Fair	0	0			
272-206	7-18	Fox	Excel.	0	0			
272-206	8- 1	Pillifant	Good	0	0			
272-206	8-14	Pillifant	Good	0	0			
272-206	8-24	Pillifant	Good	0	0			
272-206	8-28	Thompson	Fair	230	0			
272-302	7-18	Fox	Excel.	0	0			
272-302	8- 1	Fox	Excel.	480	60			Fish observed in lower stretches only
272-302	8-13	Thompson	Excel.	45500	10200			
272-302	8-24	Pillifant	Good	5000	10000			Spawning
272-302	8-28	Thompson	Poor	300	2700			Turbid water conditions; clear near head of creek, left fork
272-302	9-11	Fox	Excel.	1600	0			50 sockeye
272-501	7-18	Fox	Excel.	0	0			
272-501	7-24	Thompson	Excel.	200	0		1700P	
272-501	8- 1	Fox	Excel.	0	0			
272-501	8- 2	Fox	Excel.	19200	0		20000P	Fox Beach; fish dispersed all the way up to narrow canyon
272-501	8-13	Thompson	Good	63000	0		2500P	
272-501	8-16	Bulla	Good	35000	0			Minimum count; muddy in lower stretch
272-501	8-24	Pillifant	Good	50000	0			Spread out fairly even
272-501	8-26	Fox	Good	38000	0			5000 carcasses left after high water
272-501	9-11	Fox	Excel.	45	0			
272-502	8- 1	Fox	Excel.	0	0			
272-502	8- 2	Fox	Excel.	0	0			
272-502	8-24	Pillifant	Good	0	2000			
272-502	9-11	Fox	Excel.	0	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks	
				Pink	Chum	Mouth	Bay		
Central District									
272-502a	7-18	Fox	Excel.	0	0				
272-502a	9-11	Fox	Excel.	0	0				
272-503	7-18	Fox	Excel.	0	0				
272-503	8- 1	Fox	Excel.	0	0				
272-503	8- 2	Fox	Excel.	0	0				
272-504	7- 8	Thompson	Good	0	0				
272-504	7-18	Fox	Excel.	0	0				
272-504	7-24	Thompson	Good	0	0				
272-504	8- 1	Fox	Excel.	0	0				
272-504	8-28	Thompson	Fair	0	0				
84	272-505	7-18	Fox	Excel.	0	0			
	272-505	7-24	Thompson	Good	0	300			
	272-505	8- 1	Fox	Excel.	0	3600		Minimum counts; muddy bottom	
	272-505	8-14	Pillifant	Good	0	300		Spawners washed out at mouth	
	272-505	8-24	Pillifant	Excel.	0	0		4 bears on creek	
	272-505	8-28	Thompson	Fair	0	40			
	272-506	7-18	Fox	Excel.	0	0	400Ch	500Ch	Many jumpers
272-506	7-24	Thompson	Good	0	350	7000Ch			
272-506	8- 1	Fox	Excel.	0	20			Minimum counts; muddy bottom	
272-506	8-14	Pillifant	Good	300	0				
272-506	8-24	Pillifant	Excel.	0	0			6 bears on creek	
272-506	8-29	Thompson	Fair	0	0				
ACE 9122025	272-507	7-18	Fox	Excel.	0	0	200Ch		
	272-507	7-24	Thompson	Good	0	0	1800Ch		
	272-507	8- 1	Fox	Excel.	0	130	30Ch		Minimum counts; muddy bottom
	272-507	8-14	Pillifant	Good	0	40			
	272-507	8-24	Pillifant	Excel.	0	0			
	272-507	8-29	Thompson	Fair	0	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Central District								
272-508	7-18	Fox	Excell.	0	0	100Ch		
272-508	7-24	Thompson	Good	0	600			
272-508	8- 1	Fox	Excell.	0	10			Minimum counts; muddy bottom
272-508	8-24	Pillifant	Excell.	0	0			
272-508	8-29	Thompson	Fair	0	0			
272-509	7-18	Fox	Excell.	0	100			
272-509	7-24	Thompson	Good	0	400			
272-509	8- 1	Fox	Excell.	0	180			Minimum counts; muddy bottom
272-509	8-24	Pillifant	Excell.	2100	0			
272-509	8-28	Thompson	Fair	7300	0			
272-510	7-18	Fox	Excell.	0	0	50Ch		
272-510	7-24	Thompson	Excell.	0	100			
272-510	8- 1	Fox	Excell.	0	10			Minimum counts; muddy bottom
272-510	8-13	Thompson	Good	0	3700			
272-510	8-24	Pillifant	Excell.	200	0			
272-510	8-28	Thompson	Fair	1350	0			
272-511a	7-18	Fox	Excell.	0	0			272-511a and b
272-511a	7-24	Thompson	Good	0	0			Mouth dry
272-511a	7- 8	Thompson	Good	0	0	8000Ch		
272-511a	8- 1	Fox	Excell.	0	20			Minimum counts; muddy bottom
272-511a	8-13	Thompson	Good	0	400			
272-511a	8-24	Pillifant	Good	500	0			
272-511a	8-28	Thompson	Fair	0	0			
272-511b	7-24	Thompson	Good	0	0			
272-511b	8-13	Thompson	Good	0	230			
272-511b	8-28	Thompson	Fair	0	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Central District								
272-512	7-18	Fox	Excel.	0	0			
272-512	7-24	Thompson	Good	0	20			
272-512	8- 1	Fox	Excel.	0	0			
272-512	8-13	Thompson	Good	0	0			
272-512	8-24	Pillifant	Excel.	0	0			
272-512	8-28	Thompson	Fair	0	0			
272-514	7-18	Fox	Excel.	0	0	200Ch	500Ch	
272-514	7-24	Thompson	Excel.	0	1200	6000Ch		
272-514	8- 1	Fox	Fair	800	180			
272-514	8-13	Thompson	Fair	23000	0	3000P		
272-514	8-24	Pillifant	Excel.	3600	0			Most in middle fork; high
272-514	8-28	Thompson	Fair	7400	300			
272-514	9-15	Bulla	Excel.	80	0			
272-514	9-16	Bulla	Excel.	100	0			Helicopter survey
272-516	7-18	Fox	Excel.	0	0			
272-516	7-24	Thompson	Good	0	0			
272-516	8-13	Thompson	Fair	3400	0			
272-516	8-24	Pillifant	Excel.	7000	0			Water clear; spawning
272-516	8-28	Thompson	Good	19000	0			
Eastern District								
272-602	7-18	Fox	Excel.	0	0			
272-602	7-24	Thompson	Fair	0	150			
272-602	8- 1	Fox	Poor	0	0			Poor survey visibility
272-602	8- 2	Fox	Excel.	0	0			
272-602	8-13	Thompson	Good	700	0			
272-602	8-24	Pillifant	Excel.	1700	0			
272-602	8-28	Thompson	Poor	1700	0			Poor visibility

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
<u>Eastern District</u>								
272-604	7-18	Fox	Excel.	0	500	200Ch	300Ch	
272-604	7-24	Thompson	Poor	0	50			
272-604	8- 1	Fox	Poor	0	80			Poor survey visibility
272-604	8- 2	Fox	Excel.	0	0	800P		Many jumpers; bay too windy
272-604	8-13	Thompson	Fair	0	40	800P		
272-604	8-24	Pillifant	Poor	200	0			
272-604	8-28	Thompson	Fair	40	0			
272-605	7-18	Fox	Excel.	0	0			Muddy
272-605	7-24	Thompson	Excel.	0	470			
272-605	8- 2	Fox	Excel.	0	0			
272-605	8-14	Pillifant	Good	5000	2000			Mystery Creek
272-605	8-14	Pillifant	Good	0	2500			3500 Sockeye in Suprise Lake 100 Sockeye in Albert Johnson Cr.
272-605	8-21	Fox	Excel.	4300	600			
272-605	8-28	Thompson	Fair	1400	0			Mystery Creek
272-606	7-18	Fox	Excel.	0	0	200Ch	100Ch	
272-606	7-24	Thompson	Excel.	0	0		2200Ch	
272-606	8- 2	Fox	Excel.	30	0			
272-606	8-13	Thompson	Fair	1800	0			
272-606	8-21	Fox	Excel.	0	0			
272-606	8-28	Thompson	Poor	0	0			Poor visibility
272-701	7-18	Fox	Excel.	0	500			
272-701	7-24	Thompson	Excel.	0	0			
272-701	8- 2	Fox	Excel.	300	0			
272-701	8-13	Thompson	Good	3200	500			
272-701	8-21	Fox	Excel.	2800	0			
272-701	8-28	Thompson	Fair	1700	0			
272-701	9-11	Fox	Poor	0	0			No survey due to poor visibility

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-702	7-18	Fox	Excel.	0	0		200Ch	2 planes
272-702	7-24	Thompson	Excel.	300	2050			
272-702	8- 2	Fox	Excel.	2200	200			
272-702	8-13	Thompson	Good	53000	3200	3000P		
272-702	8-21	Fox	Excel.	10600	2800			30 Sockeye
272-702	8-28	Thompson	Fair	4300	200			
272-702	9- 6	Bulla	Poor	400	0			Helicopter survey; poor visibility
272-702	9-11	Fox	Poor	0	0			No survey due to poor visibility
272-703	7-18	Fox	Excel.	0	0			
272-703	7-24	Thompson	Excel.	0	1150	300Ch		
272-703	8- 2	Fox	Excel.	2000	300			
272-703	8-13	Thompson	Fair	12000	4000	2000P		
272-703	8-21	Fox	Excel.	11800	3300			
272-703	8-28	Thompson	Fair	17000	0			
272-703	9-11	Fox	Excel.	500	0			
272-720	7-27	Fox	Excel.	0	0			
272-721	7-18	Fox	Fair	0	0			
272-721	7-24	Thompson	Good	0	2220	50Ch	1000P	
272-721	8- 2	Fox	Poor	100	800			
272-721	8-13	Thompson	Fair	10500	3400	2000P		
272-721	8-21	Fox	Fair	6300	3100			
272-721	8-28	Thompson	Poor	10900	800			
272-722	7-27	Fox	Excel.	0	0			
272-723	7-27	Fox	Excel.	0	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-801	7-18	Fox	Excel.	0	0			
272-801	7-24	Thompson	Excel.	0	0			
272-801	8- 2	Fox	Excel.	100	750			
272-801	8-13	Thompson	Excel.	0	4800			
272-801	8-21	Fox	Excel.	10900	450			150 Coho
272-801	8-28	Thompson	Fair	10800	2300			
272-801	9-13	Bulla	Excel.	500	0			Helicopter survey; fast, poor visibility
272-802	7-18	Fox	Excel.	0	0			1 plane
272-802	7-24	Thompson	Excel.	0	150			
272-802	7-27	Fox	Excel.	0	0			
272-802	8- 2	Fox	Excel.	100	250			20 Sockeye
272-802	8-13	Thompson	Excel.	9000	2100			
272-802	8-21	Fox	Excel.	8350	2100			28 Sockeye
272-802	8-28	Thompson	Fair	8300	1100			
272-802a	8- 2	Fox	Excel.	200	100			
272-802b	8- 2	Fox	Excel.	750	150			
272-803	7-18	Fox	Fair	0	0			Muddy
272-803	7-24	Thompson	Excel.	0	0			
272-803	8- 2	Fox	Excel.	0	0			
272-803	8-13	Thompson	Excel.	0	2400			
272-803	8-21	Fox	Excel.	610	30			
272-803	8-28	Thompson	Fair	36000	3200			
272-804	7-18	Fox	Fair	0	0			
272-804	7-24	Thompson	Excel.	0	0		250Ch	
272-804	8- 2	Fox	Excel.	50	75	100P, 400Ch		
272-804	8-13	Thompson	Excel.	0	4100	24000P		
272-804	8-21	Fox	Excel.	10600	0	10000P		
272-804	8-28	Thompson	Fair	6000	0			

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Stream	Date M-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-805	7-18	Fox	Excel.	0	0			
272-805	7-24	Thompson	Excel.	0	0	100Ch		
272-805	8- 2	Fox	Excel.	0	0			
272-805	8-13	Thompson	Excel.	1500	6000	14000P	5000P	
272-805	8-21	Fox	Excel.	2200	0	2000P		
272-805	8-28	Thompson	Good	19000	0			
272-900	7-18	Fox	Excel.	0	0			
272-900	7-24	Thompson	Excel.	0	0			
272-900	8- 2	Fox	Excel.	0	0			
272-900	8-13	Thompson	Excel.	0	0	5000P		
272-900	8-21	Fox	Excel.	0	0			
272-900	8-28	Thompson	Good	2300	0			
272-901	7-18	Fox	Excel.	0	0			
272-901	7-24	Thompson	Excel.	0	0		50P	
272-901	8- 2	Fox	Excel.	0	0			
272-901	8-13	Thompson	Excel.	1500	0	2000P		
272-901	8-21	Fox	Excel.	1300	0			
272-901	8-28	Thompson	Good	10000	0			
272-902	7-18	Fox	Excel.	0	0			
272-902	7-24	Thompson	Excel.	150	0	450P	300P	
272-902	8- 2	Fox	Excel.	400	0	200P		
272-902	8-13	Thompson	Excel.	19200	0			
272-902	8-21	Fox	Excel.	14000	0			
272-902	8-28	Thompson	Good	22000	0			
272-903	8- 2	Fox	Excel.	400	300	250Ch	2400Ch	
272-903	8-21	Fox	Excel.	11800	1400	8000P, 4000Ch		

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-903a	7-18	Fox	Excel.	0	0			272-903a and b
272-903a	7-24	Thompson	Excel.	0	0			
272-903a	8-13	Thompson	Fair	1200	3400		9000P	
272-903a	8-28	Thompson	Good	18400	0			
272-903b	7-24	Thompson	Excel.	0	0		1200Ch	
272-903b	8-13	Thompson	Fair	0	800		33000P	
272-903b	8-28	Thompson	Good	52000	0			
272-904	7-18	Fox	Excel.	0	0	300Ch	500Ch	Off Cape
272-904	7-24	Thompson	Excel.	0	0	150Ch	200Ch	
272-904	8-2	Fox	Excel.	100	0	1000P	200Ch	
272-904	8-13	Thompson	Excel.	1500	11500	5000P		
272-904	8-21	Fox	Excel.	3600	150	1000P		
272-904	8-28	Thompson	Fair	32000	0			
272-904	9-12	Bulla	Good	2000	0			
272-904	9-13	Bulla	Excel.	2260	0			
272-905	7-18	Fox	Excel.	0	0		200Ch	
272-905	7-24	Thompson	Excel.	0	250	750P		
272-905	8-2	Fox	Excel.	0	0		6000Ch	
272-905	8-13	Thompson	Excel.	10000	4000	15000P, 6000Ch	40000P	
272-905	8-21	Fox	Excel.	21000	0	11000P		
272-905	8-28	Thompson	Good	89000	0			Helicopter survey
272-905	8-30	Bulla	Excel.	50000	0			
272-906	8-28	Thompson	Good	18000	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-921	7-18	Fox	Excel.	0	0			Muddy
272-921	7-24	Thompson	Poor	0	0			Poor Survey conditions
272-921	8- 2	Fox	Poor	0	0			Jumpers in bay; poor visibility
272-921	8-13	Thompson	Poor	0	0			Poor survey visibility; cloudy water
272-921	8-21	Fox	Excel.	3200	100			150 Sockeye
272-921	8-28	Thompson	Poor	0	0			Turbid water; poor visibility
272-922	7-18	Fox	Excel.	0	0			
272-922	7-24	Thompson	Excel.	0	0			
272-922	8- 2	Fox	Excel.	0	0	200P		
272-922	8-21	Fox	Excel.	0	0			
272-922	8-28	Thompson	Good	8000	0			
272-923	7-18	Fox	Excel.	0	0			
272-923	7-24	Thompson	Excel.	50	0			
272-923	8- 2	Fox	Excel.	0	0	500P		
272-923	8-21	Fox	Excel.	0	0			
272-923	8-28	Thompson	Good	9000	0			
272-941	8- 1	Pittifant	Good	0	0	2000P		
272-961	7-24	Thompson	Fair	0	0			
272-961	8- 2	Fox	Excel.	1200	0	32000P	30000P	1st 1/2 mile only
272-961	8-21	Fox	Excel.	53000	0	113000P		3000 pinks in the lagoon
272-961	9-12	Bulla	Excel.	10000	0			Helicopter survey; post flood
272-961a	7-18	Fox	Excel.	0	0			
272-961a	8- 2	Fox	Excel.	2000	0			Flashing deep in lake
272-961a	8-13	Thompson	Good	8500	0			Most in lake
272-961a	8-21	Fox	Poor	500	0			400 Sockeye
272-961a	8-28	Thompson	Poor	500	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Eastern District								
272-961b	7-18	Fox	Fair	0	40	400Ch		272-961b and c
272-961b	7-24	Thompson	Excel.	0	0			
272-961b	8-13	Thompson	Excel.	29000	5000	145000P		
272-961b	8-28	Thompson	Good	135000	0	11000P		
272-961c	7-24	Thompson	Excel.	0	950	9500P		
272-961c	8-28	Thompson	Good	25000	0			
272-962	8- 2	Fox	Poor	0	0			Fish off mouth in muddy water
272-962	8-21	Fox	Excel.	4	0			
272-962a	7-18	Fox	Excel.	0	0			Muddy
272-962a	7-24	Thompson	Good	0	0	600P		
272-962a	8-13	Thompson	Poor	0	75			
272-962a	8-28	Thompson	Fair	350	0			
272-962b	7-18	Fox	Excel.	0	0			Muddy
272-962b	8-13	Thompson	Fair	0	0	1500P		Cloudy water
272-962b	8-28	Thompson	Poor	0	0			Turbid water; poor light in lake
272-963	7-18	Fox	Excel.	0	0			
272-963	7-24	Thompson	Excel.	0	0			Mouth dry
272-963	8- 2	Fox	Excel.	500	0	100P		
272-963	8-13	Thompson	Excel.	400	0	3000P		
272-963	8-21	Fox	Excel.	1250	0	3000P		
272-963	8-26	Fox		0	4000	0	3000P	
272-963	8-28	Thompson	Excel.	10500	0			

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chin	Mouth	Bay	
Western District								
273-702	7-18	Pillifant	Excel.	0	1500			No chin up further than first fork
273-702	7-28	Fox	Excel.	0	370			Muddy
273-702	8- 3	Pillifant	Good	0	800			
273-702	8-14	Fox	Excel.	2900	150			
273-702	8-24	Thompson	Poor	200	0			Poor survey visibility
273-702	8-30	Fox	Excel.	300	0			
273-702	9- 5	Thompson	Good	920	0			
273-702	9-11	Fox	Good	0	0			Muddy below fork
273-720	7-18	Pillifant	Poor	0	0			Silty; poor survey visibility
273-720	7-28	Fox	Poor	0	0			Muddy, poor survey conditions
273-720	8- 3	Pillifant	Poor	0	0			Poor visibility
273-720	8-14	Fox	Excel.	0	0			
94	273-722	7-18	Pillifant	Excel.	0	150		
	273-722	7-28	Fox	Excel.	0	800	100Ch	
	273-722	8- 3	Pillifant	Good	3000	200		
	273-722	8-14	Fox	Excel.	12200	400		
	273-722	8-22	Thompson	Fair	23500	0		
	273-722	8-24	Thompson	Fair	32000	0		
	273-722	8-30	Fox	Fair	6300	0		
	273-722	9- 5	Thompson	Good	600	120		
273-722	9-11	Bulla	Poor	3700	0			Helicopter survey; high water
273-723	7-18	Pillifant	Excel.	0	0			2 sharks, dark
273-723	7-28	Fox	Excel.	0	1		150Ch	
273-723	8- 3	Pillifant	Good	1500	300	3000P		Lots of sharks
273-723	8-13	Thompson	Poor	0	0			Poor visibility
273-723	8-22	Thompson	Fair	0	0			
273-723	8-30	Fox	Excel.	200	300	100P		

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Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
<u>Western District</u>								
273-802	7-18	Pillifant	Excel.	0	0			
273-802	7-28	Fox	Excel.	0	20			
273-802	8- 3	Pillifant	Good	100	0	200P	5000P	
273-802	8-13	Thompson	Excel.	1800	600	4000P		
273-802	8-22	Thompson	Good	10800	0			
273-802	8-30	Fox	Excel.	1800	0			
273-802	9-10	Bulla	Excel.	1798	0			Helicopter survey
273-802	9-10	Fox		2120	0			Foot survey of stream
273-821	7-18	Pillifant	Excel.	0	0			
273-821	7-27	Fox	Excel.	0	0			
273-821	7-28	Fox	Excel.	0	0			
273-821	8- 3	Pillifant	Good	0	0			
273-821	8-13	Thompson	Excel.	0	0			
273-821	8-22	Thompson	Good	0	0			
273-821	8-30	Fox	Excel.	0	0			
273-822	7-18	Pillifant	Poor	0	0			Turbulent
273-822	7-27	Fox	Excel.	0	0			
273-822	7-28	Fox	Excel.	0	0			
273-822	8- 3	Pillifant	Poor	0	0			Too windy, unable to survey
273-822	8-13	Thompson	Excel.	0	0			
273-822	8-22	Thompson	Good	0	0			
273-822	8-30	Fox	Excel.	2	0			
273-823	7-18	Pillifant	Excel.	0	0			
273-823	7-27	Fox	Excel.	0	0			
273-823	7-28	Fox	Excel.	0	0			
273-823	8- 3	Pillifant	Good	100	100			
273-823	8-13	Thompson	Excel.	30	0	350P		
273-823	8-22	Thompson	Good	1700	0			
273-823	8-30	Fox	Excel.	10	5			
273-823	9- 5	Thompson	Fair	0	0			
273-823	9-11	Fox	Fair	0	0			

-continued-

Table 49 (page 16 of 19)

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
<u>Western District</u>								
273-842	7-18	Henley	Excel.	0	0		2000Ch	Survey conditions were poor in the bay
272-842	7-27	Fox	Excel.	0	0			
273-842	7-28	Fox	Excel.	0	25	65Ch	1800Ch	
273-842	8- 3	Pillifant	Good	0	300	500Ch		
273-842	8-13	Thompson	Excel.	0	500	800Ch	6000Ch	
273-842	8-22	Thompson	Fair	0	1600	4000P		
273-842	8-25	Bulla	Excel.	292	0			
273-842	8-30	Fox	Excel.	1200	500	850Ch		
273-842	9- 5	Thompson	Excel.	300	40	300Ch		
273-842	9-11	Fox	Good	25	300			
96	273-843	7-27	Fox	Excel.	0	0		Between stream 842-843
	273-843	7-28	Fox	Excel.	0	0	210Ch	
	273-843	8- 3	Pillifant	Good	0	0		
	273-843	8-13	Thompson	Excel.	0	30	20Ch	
	273-843	8-22	Thompson	Good	0	400	250Ch	
	273-843	8-30	Fox	Excel.	1700	800		
273-844	7-27	Fox	Excel.	0	0			
273-844	7-28	Fox	Excel.	0	0			
273-844	8- 3	Pillifant	Good	0	50			
273-844	8-13	Thompson	Excel.	0	0	250Ch		
273-844	8-22	Thompson	Good	0	0			
273-844	8-30	Fox	Excel.	0	0			
273-845	7-27	Fox	Excel.	0	0			
273-845	7-28	Fox	Excel.	0	0	35Ch		
273-845	8- 3	Pillifant	Good	0	0			
273-845	8-13	Thompson	Excel.	0	100	250Ch		
273-845	8-22	Thompson	Good	0	0			
273-845	8-30	Fox	Excel.	110	40			

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Table 49 (page 17 of 19)

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
<u>Western District</u>								
273-941	8-13	Thompson	Excel.	4500	0	6500P		
273-941	8-22	Thompson	Good	3800	0			
273-941	8-30	Fox	Excel.	700	400			1500 fish in mouth, too deep to determine species.
<u>Perryville District</u>								
275-401	7-28	Fox	Excel.	0	0			
275-401	8-14	Fox	Excel.	4200	50			
275-401	8-30	Fox	Excel.	0	0			No survey
275-402	7-18	Pillifant	Excel.	0	0			
275-402	7-28	Fox	Excel.	0	120			
275-402	8- 3	Pillifant	Good	200	0			
275-402	8-14	Fox	Excel.	1710	0	13Good, 800 Ch		
275-402	8-24	Thompson	Fair	9400	100			
275-402	8-30	Fox	Excel.	0	0			Did not survey stream
275-403	8-14	Fox	Excel.	0	0			
275-404	7-18	Pillifant	Excel.	0	0			
275-404	7-28	Fox	Excel.	0	0			Jumpers; couldn't see
275-404	8- 3	Pillifant	Good	0	300			Winkly
275-404	8-14	Fox	Excel.	3500	80			
275-404	8-24	Thompson	Poor	0	0			
275-404	8-30	Fox	Excel.	3800	0			
275-405	7-18	Pillifant	Excel.	0	0			Dried up
275-405	7-28	Fox	Excel.	0	0			
275-405	8-14	Fox	Excel.	0	0			
275-405	8-24	Thompson	Poor	0	0			Mouth dry
275-405	8-30	Fox	Excel.	0	0	100Ch		Creek still dry

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Table 49 (page 18 of 19)

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks	
				Pink	Chum	Mouth	Bay		
Barryville District									
275-406	7-18	Pillifant	Excel.	0	2000			4 bears	
275-406	7-28	Fox	Excel.	0	2100	4000P	60000Ch	Off flats	
275-406	8- 3	Pillifant	Good	5000	900	4500P	500P	Lots of jumpers; fish located in first mile of	
275-406	8-14	Fox	Excel.	17200	1300	96800P	4000Ch	Fish spread all the way up to the creek	
275-406	8-24	Thompson	Fair	161000	300	3000P			
275-406	8-26	Bulla	Excel.	70000	0			Helicopter survey	
275-406	8-30	Fox	Fair	55500	4000	13000P		Low tide, maybe more fish	
275-406	9- 5	Thompson	Excel.	80900	3200	170Co,450Ch			
275-406	9-11	Fox	Excel.	4300	150			Fish only visible in clear small tributaries; rest muddy, post Flood, many carcasses in grass minimum count.	
CB	275-408	8-14	Fox	Excel.	200	0			
	275-408	8-30	Fox	Excel.	0	0			
ACE 9122039	275-502	7-18	Pillifant	Excel.	0	500	1000P	1000Ch	Looked like oil in the bay/beach
	275-502	7-28	Fox	Excel.	0	0			
	275-502	8- 3	Pillifant	Good	15000	0	2000Ch		
	275-502	8-14	Fox	Excel.	13800	220			Just moved in
	275-502	8-24	Thompson	Fair	51000	0			
	275-502	8-26	Bulla	Excel.	6300	0			Helicopter survey
	275-502	8-30	Fox	Excel.	4400	0			
	275-502	9- 5	Thompson	Excel.	4800	0			
	275-502	9-11	Fox	Poor	20	0			Poor survey visibility
	275-503	9-11	Fox	Good	40	0			
	275-504	7-18	Pillifant	Excel.	0	0			
275-504	7-28	Fox	Excel.	0	6600	4000Ch	20000Ch		
275-504	8- 3	Pillifant	Good	0	0	1000P			
275-504	8-14	Fox	Excel.	0	0				

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Table 49 (page 19 of 19)

Stream	Date MM-DD	Observer	Survey Conditions	Stream		Build Up Fish		Observer Remarks
				Pink	Chum	Mouth	Bay	
Perryville District								
275-504	8-24	Thompson	Fair	3700	0			
275-504	8-30	Fox	Excel.	1080	0			None under brush
275-504	9-11	Fox	Excel.	100	0			
275-505	7-18	Pillifant	Excel.	0	0			
275-505	7-28	Fox	Excel.	0	0			
275-505	8- 3	Pillifant	Good	200	0			
275-505	8-14	Fox	Excel.	650	0			
275-505	8-24	Thompson	Fair	19000	0			
275-505	8-30	Fox	Excel.	2300	0			
275-505	9-11	Fox	Excel.	375	0			
275-506	7-28	Fox	Excel.	0	0	100Ch		
275-506	8-14	Fox	Excel.	2380	0			
275-506	8-30	Fox	Excel.	0	0			
275-600	7-18	Pillifant	Poor	0	0			Too silty for accurate survey
275-600	7-28	Fox	Poor	0	0			Muddy, poor survey conditions
275-600	8- 3	Pillifant	Poor	0	0			Poor visibility; muddy
275-600	8-14	Fox	Excel.	100	0			
275-600	8-24	Thompson	Poor	2	0			
275-600	8-30	Fox	Excel.	0	0			
275-600	9-11	Fox	Poor	0	0			Poor survey visibility
275-601	7-18	Pillifant	Good	0	0			Lots of people on creek
275-601	7-28	Fox	Poor	0	0			Muddy, poor survey conditions
275-601	8- 3	Pillifant	Poor	0	200			Poor visibility; may have been more fish
275-601	8-14	Fox	Poor	1100	200			
275-601	8-24	Thompson	Poor	1200	0			Fish located in clear water side channel
275-601	8-30	Fox	Excel.	1600	20			
275-601	9-11	Fox	Poor	0	0			Poor survey visibility

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Table 50. Age, weight, length and sex composition of herring from the commercial harvest in Kujulik Bay, 1989.

Sample Period	Age (years)	Sex			Total	Percent of Total	Weight			Std. Length		
		Male	Female	Unknown			Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
4/23	0	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	7	3	-	10	10.2	103	10.1	10	195	9.3	10
	4	31	17	-	48	49.0	173	56.2	48	223	18.6	48
	5	12	3	-	15	15.3	173	25.4	15	229	12.9	15
	6	8	1	-	9	9.2	194	49.7	9	235	22.4	9
	7	-	1	-	1	1.0	173	-	1	220	-	1
	8	1	3	-	4	4.1	218	105.4	4	239	35.4	4
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	1	-	1	1.0	151	-	1	215	-	1
11+	5	5	-	10	10.2	296	69.7	10	227	21.1	10	
Period total		64	34	-	98	100.0	182	68.9	98	227	24.1	98

Table 51. Age, weight, length and sex composition of herring from the commercial harvest in Ivanof Bay, 1989.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length				
		Male	Female	Unknown		Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured		
5/ 1	0	-	-	-	-	-	-	-	-	-	-	-	
	1	-	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	-	
	3	8	3	-	11	20.0	107	26.5	11	193	14.6	11	
	4	16	13	-	29	52.7	142	31.5	29	212	11.3	29	
	5	6	9	-	15	27.3	176	33.4	15	226	13.1	15	
	6	-	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-	-
	11+	-	-	-	-	-	-	-	-	-	-	-	-
Period total		30	25	-	55	100.0	144	38.6	55	212	16.7	55	

Table 52. Age, weight, length and sex composition of herring from the commercial harvest in Lake Bay, 1989.

Sample Period	Age (years)	Sex			Percent of		Weight			Std. Length		
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
5/17	0	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	2	3	-	5	10.4	112	9.5	5	200	5.0	5
	4	9	11	-	20	41.7	164	36.2	20	218	13.0	20
	5	8	12	-	20	41.7	201	29.8	20	232	11.3	20
	6	-	3	-	3	6.3	255	19.7	3	250	13.2	3
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-
11+	-	-	-	-	-	-	-	-	-	-	-	
Period total		19	29	-	48	100.0	180	45.4	48	224	16.8	48

Table 53. Age, weight, length and sex composition of herring from the commercial harvest in Mud Bay, 1989.

Sample Period	Age (years)	Sex			Percent of Total		Weight			Std. Length		
		Male	Female	Unknown	Total	Total	Mean (gm)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured
5/13	0	-	-	-	-	-	-	-	-	-	-	-
	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	13	6	-	19	18.1	112	28.6	19	196	11.9	19
	4	30	25	-	55	52.4	149	17.0	55	215	8.3	55
	5	15	10	-	25	23.8	191	25.4	25	233	10.1	25
	6	3	2	-	5	4.8	195	20.1	5	234	7.4	5
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	1	-	1	1.0	318	-	1	200	-	1
	10	-	-	-	-	-	-	-	-	-	-	-
11+	-	-	-	-	-	-	-	-	-	-	-	
Period total		61	44	-	105	100.0	156	38.2	105	217	16.1	105

Table 54. Age, weight, length and sex composition of herring from the commercial harvest in Anchorage Bay, 1989.

Sample Period	Age (years)	Sex			Percent of Total	Weight			Std. Length			
		Male	Female	Unknown		Mean (gn)	Std. Dev.	Number Weighed	Mean (mm)	Std. Dev.	Number Measured	
5/ 1	0	-	-	-	-	-	-	-	-	-	-	
	1	-	-	-	-	-	-	-	-	-	-	
	2	-	-	-	-	-	-	-	-	-	-	
	3	25	16	-	41	47.7	104	18.8	41	192	12.0	41
	4	19	17	-	36	41.9	139	22.4	36	213	11.4	36
	5	4	5	-	9	10.5	206	38.3	9	238	10.6	9
	6	-	-	-	-	-	-	-	-	-	-	-
	7	-	-	-	-	-	-	-	-	-	-	-
	8	-	-	-	-	-	-	-	-	-	-	-
	9	-	-	-	-	-	-	-	-	-	-	-
	10	-	-	-	-	-	-	-	-	-	-	-
11+	-	-	-	-	-	-	-	-	-	-	-	
Period total		48	38	-	86	100.0	129	38.5	86	205	18.8	86

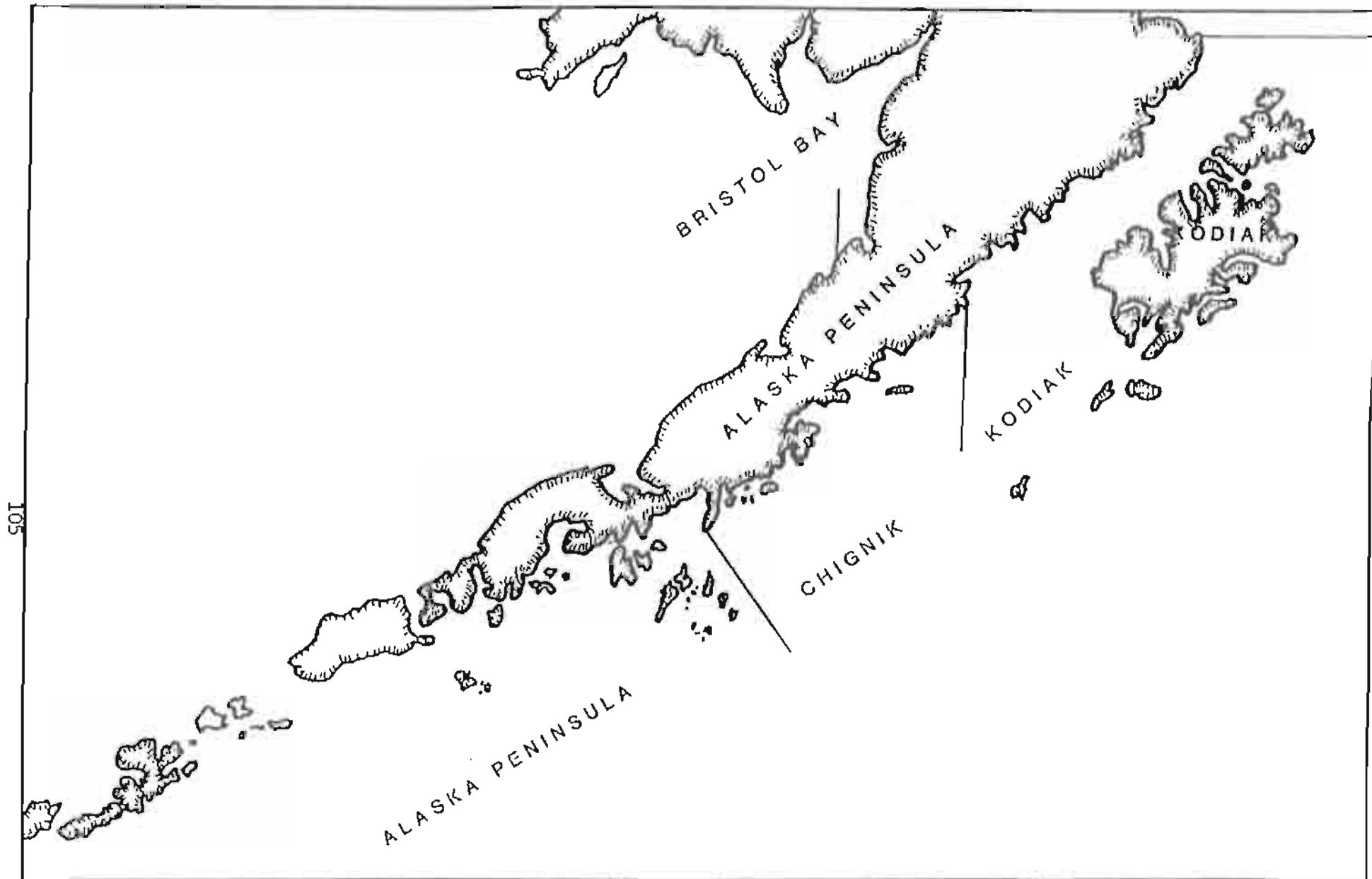


Figure 1. Map of the Alaska Peninsula illustrating the relative location of the Chignik Management Area, 1989.

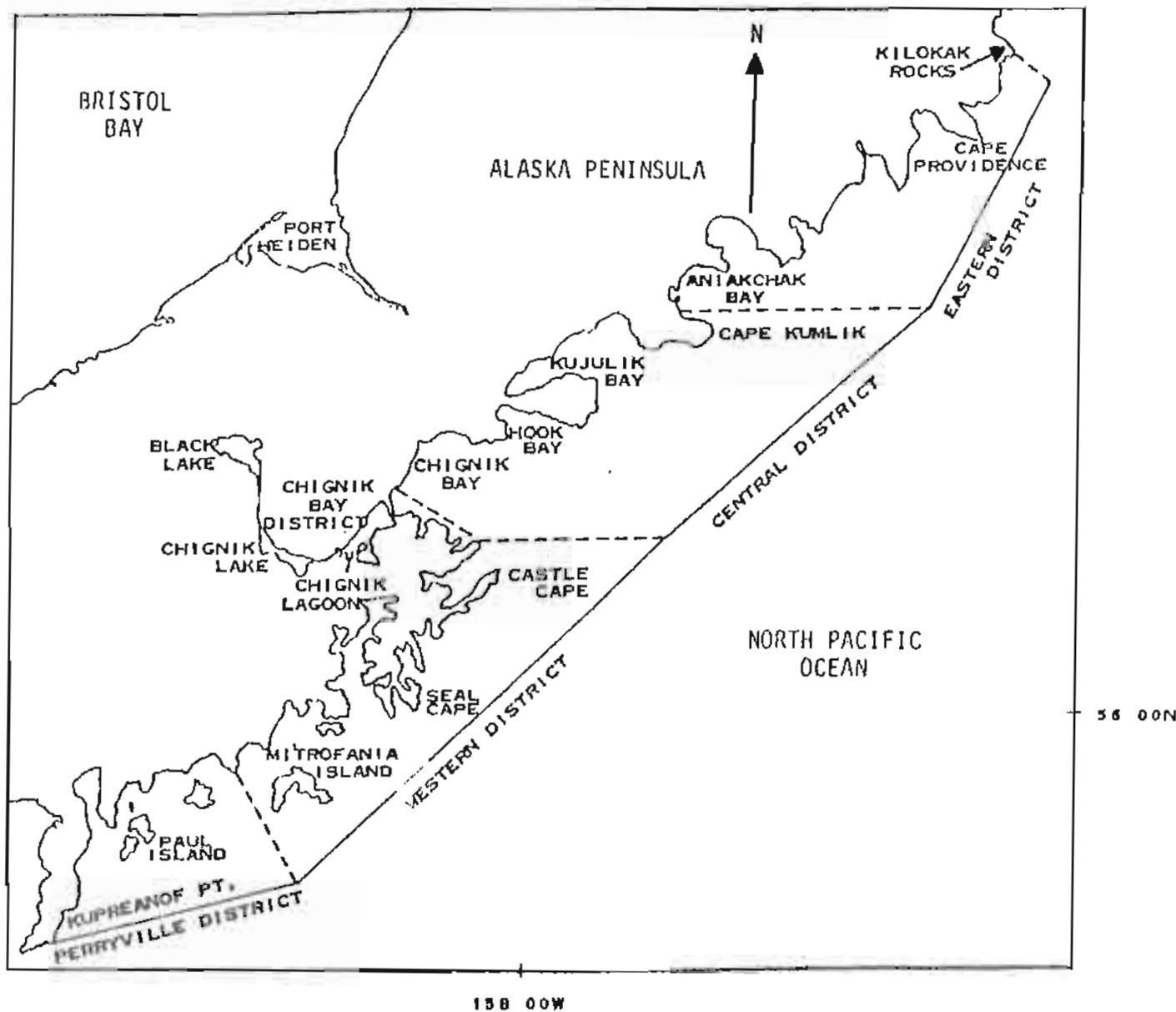


Figure 2. Map of the Chignik Management Area illustrating district boundaries, 1989.

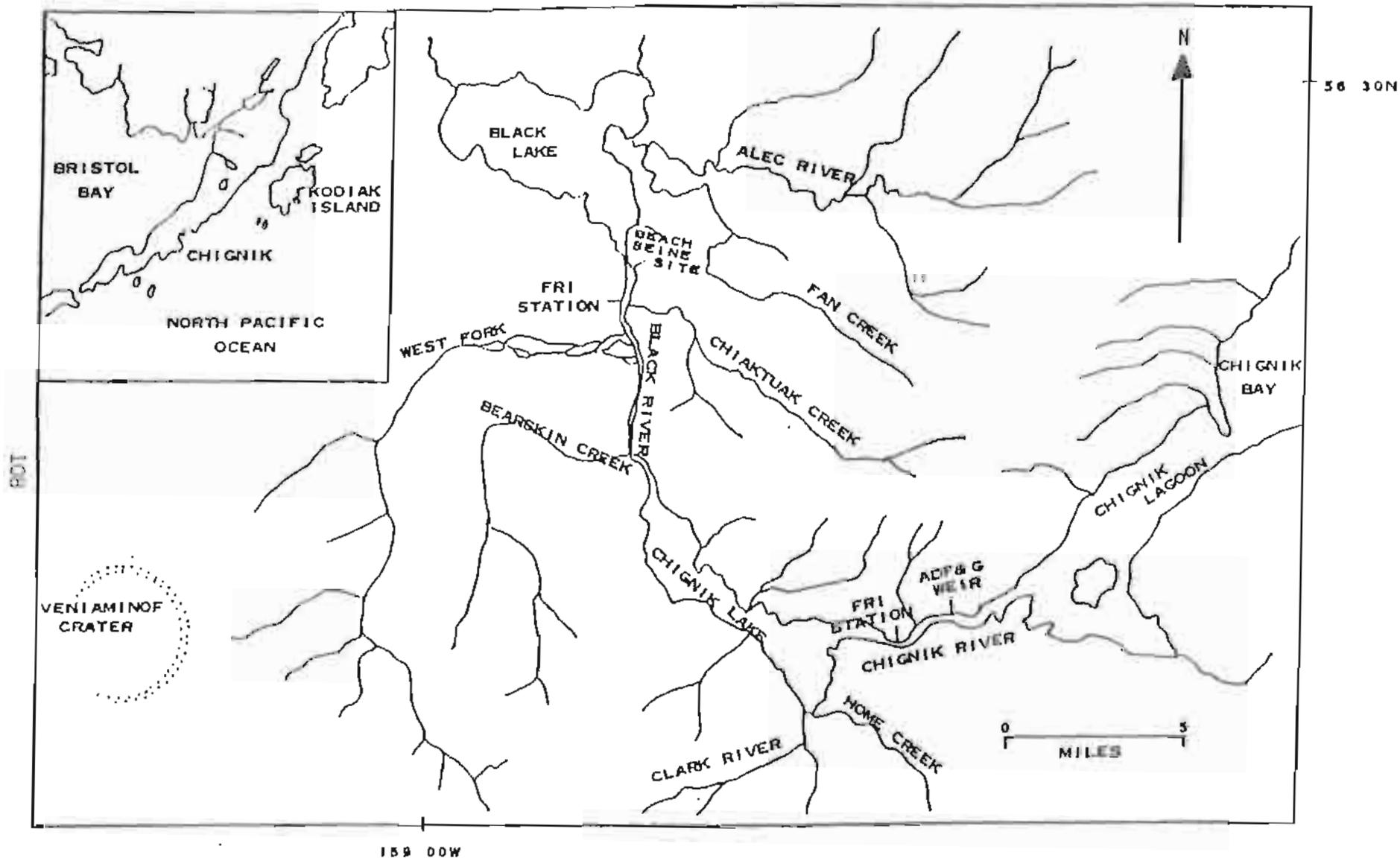


Figure 4. Map of the Chignik Lakes System illustrating major sockeye salmon spawning areas, 1989.

CHIGNIK SALMON HARVESTS

YEARS 1962-1989

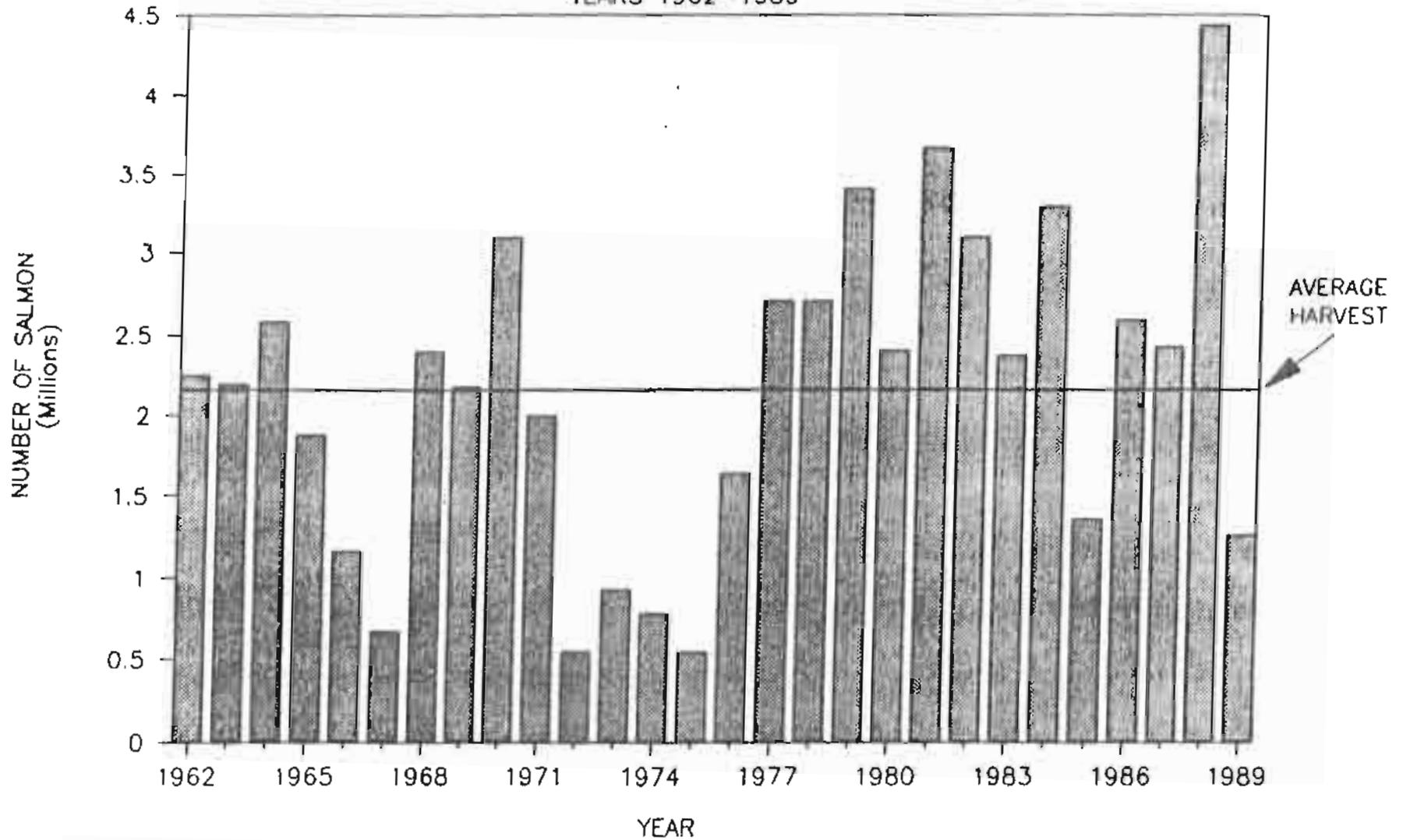
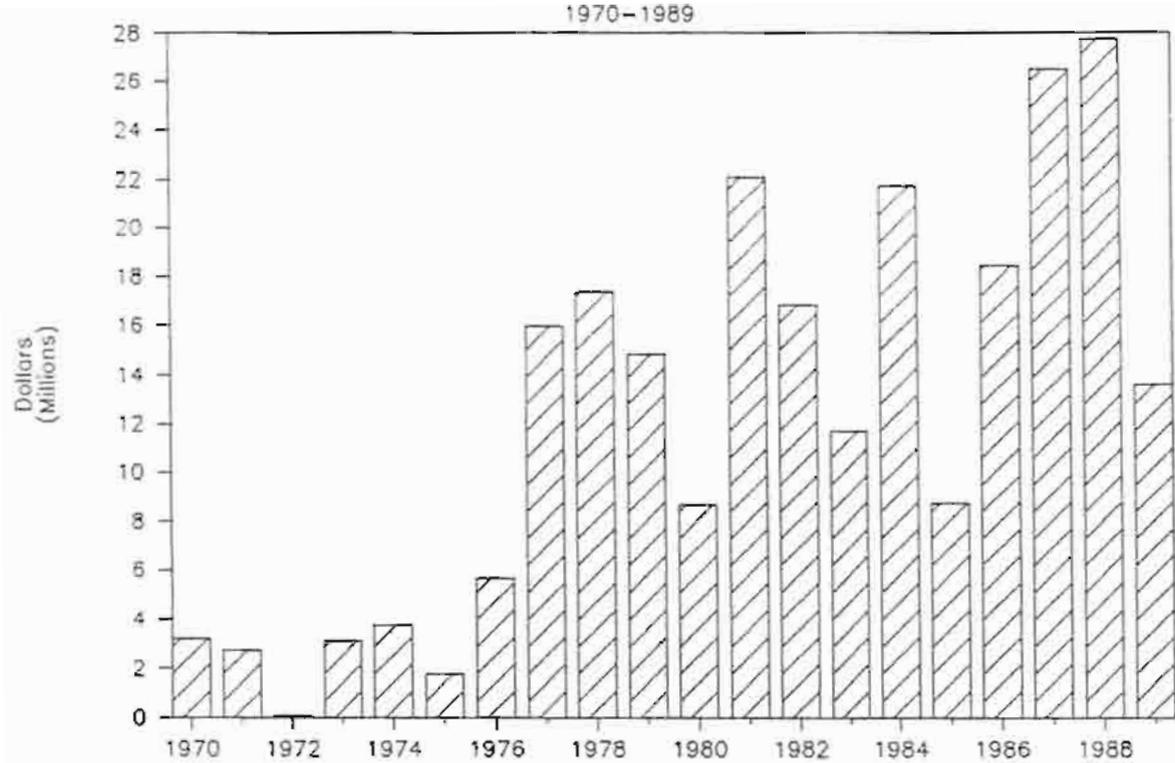


Figure 5. Chignik Management Area salmon harvests from 1962-1989.

Ex-Vessel Value of Salmon in Dollars



Average Economic Value of Salmon

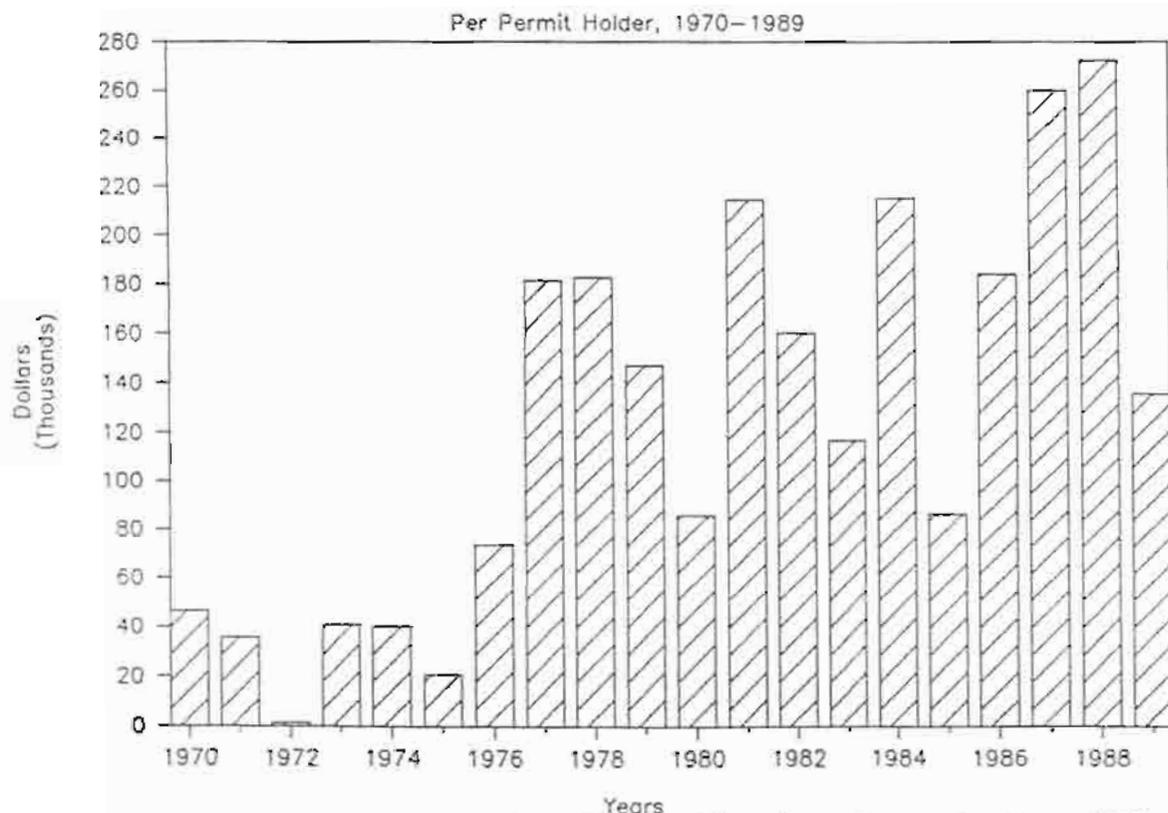


Figure 6. Ex-vessel value of Chignik salmon harvests from 1970-1989 for a) total annual value and b) average value per permit holder.

CHIGNIK CHINOOK SALMON

TOTAL RUN, YEARS 1963-1989

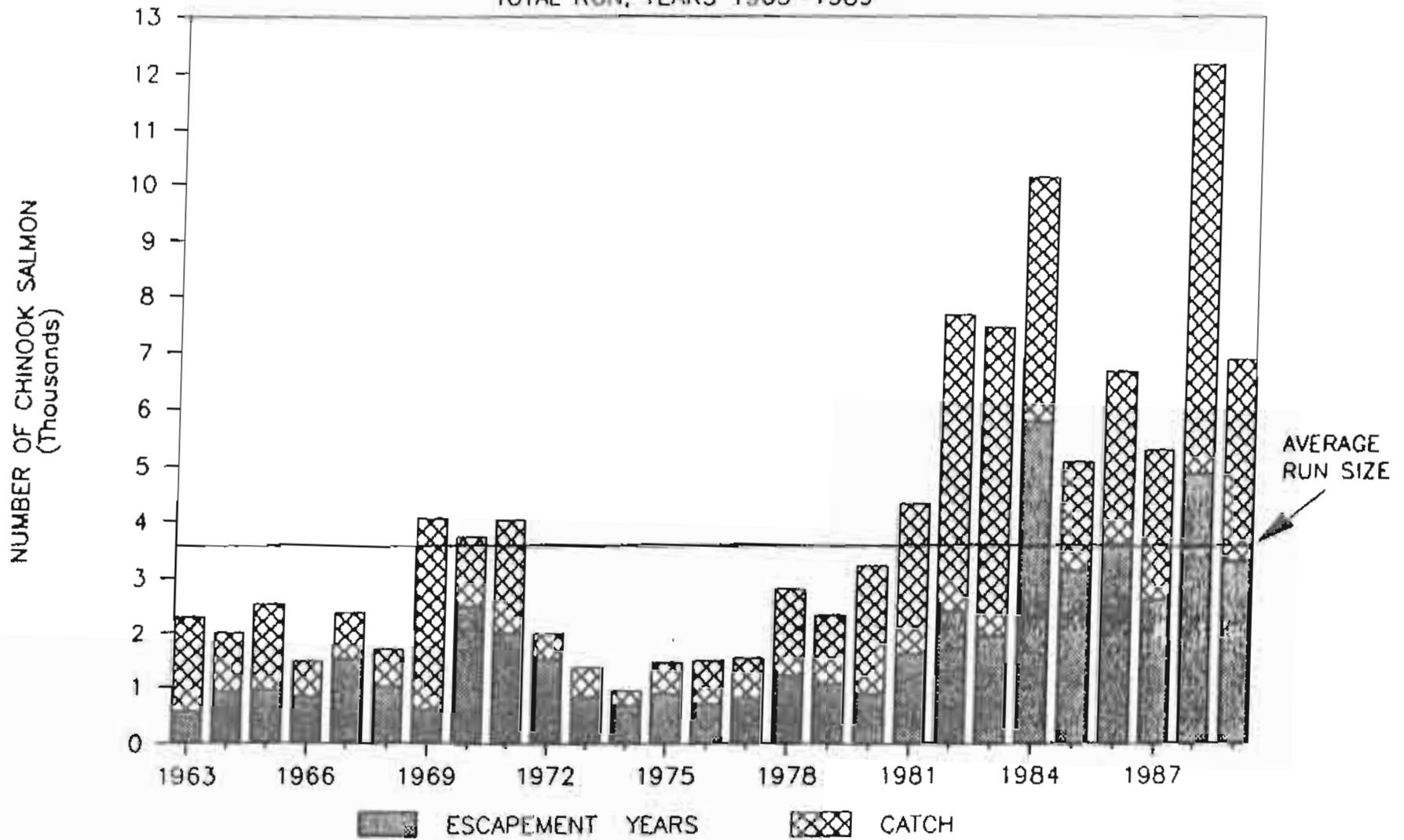


Figure 7. Chignik Management Area chinook salmon catch and escapement, 1963-89.

CHIGNIK SOCKEYE SALMON

CATCH AND ESCAPEMENT, 1954-1989

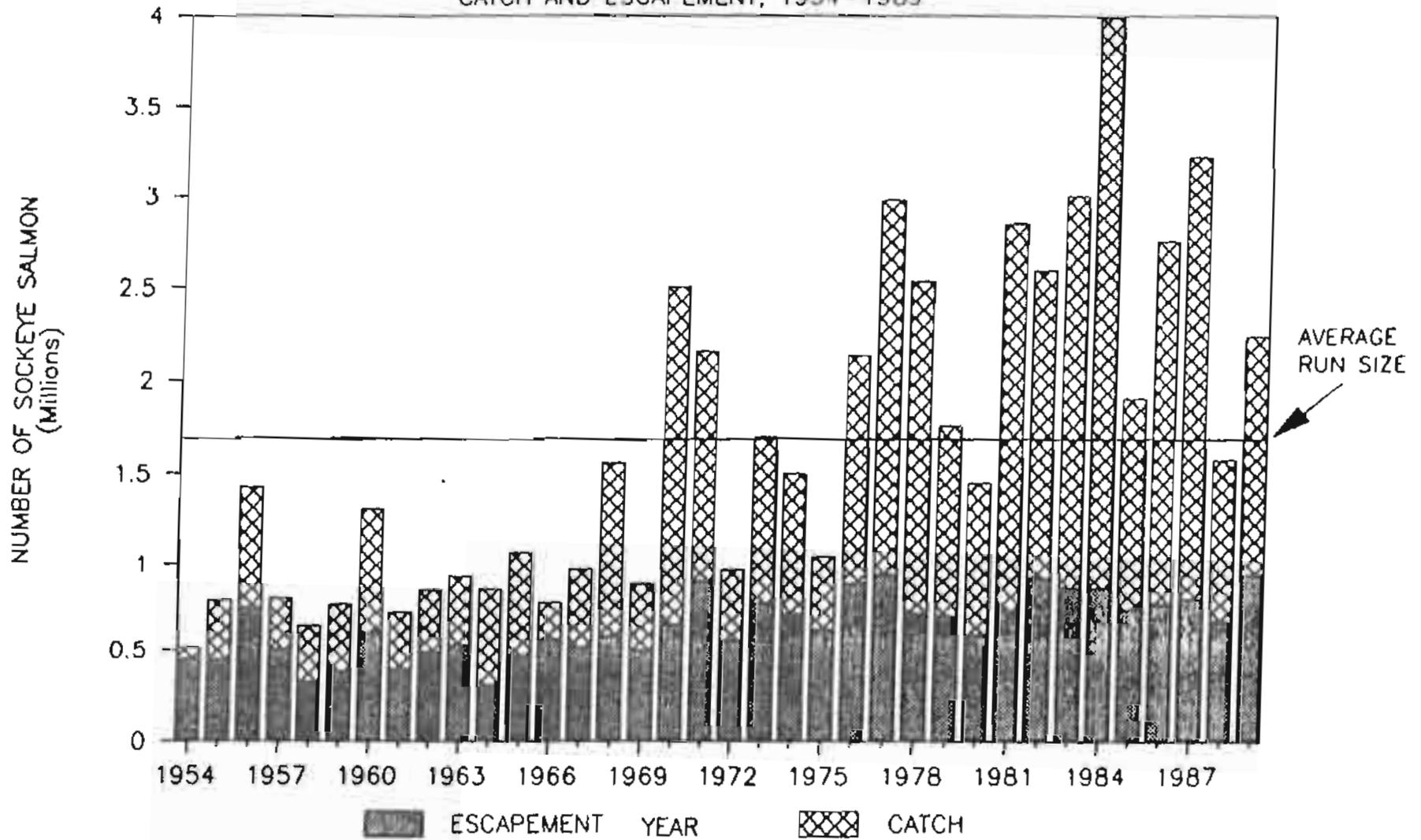


Figure 8. Chignik Management Area sockeye salmon catch and escapement, 1954-89.

CHIGNIK FIRST-RUN SOCKEYE SALMON

CATCH AND ESCAPEMENT, 1954-1989

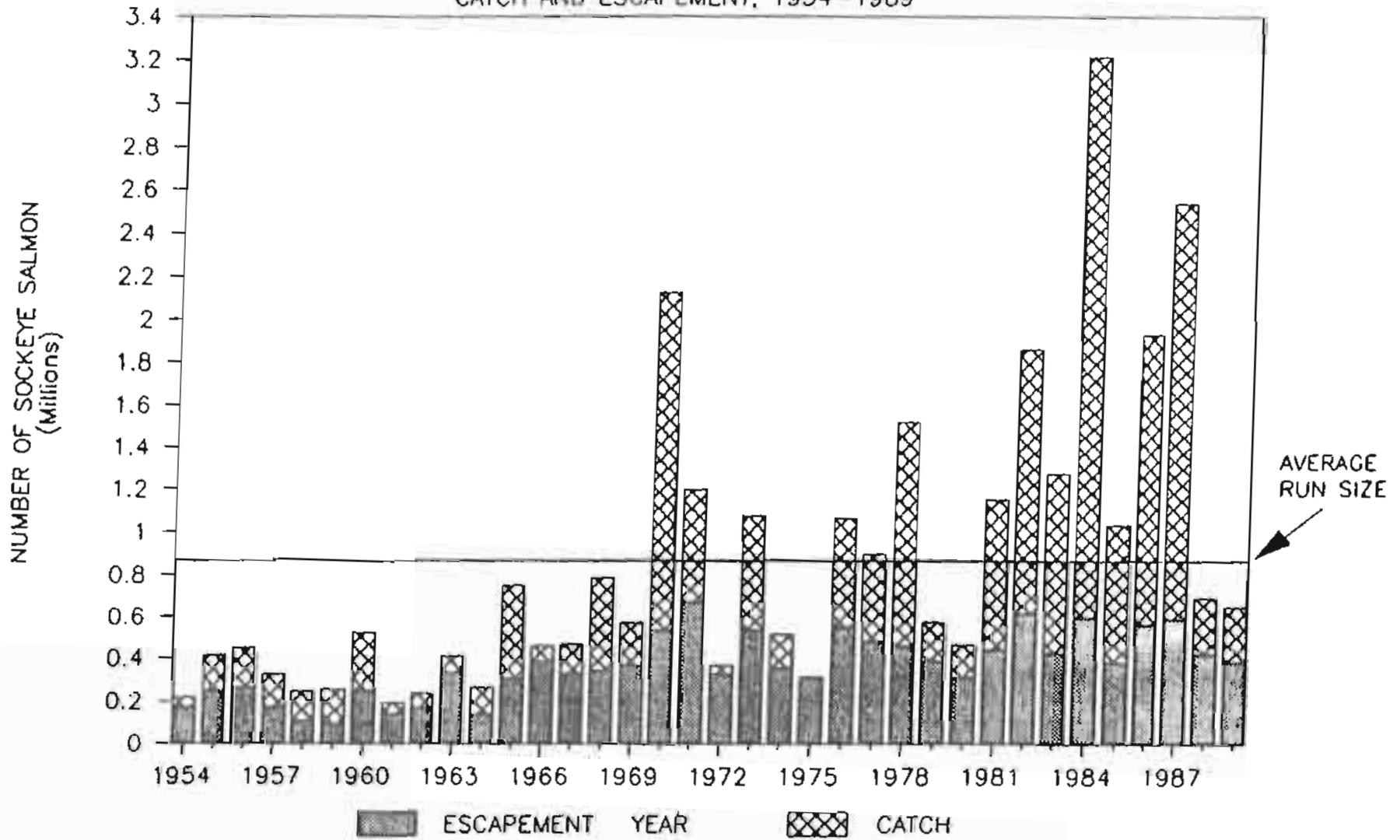


Figure 9. Chignik first-run sockeye salmon catch and escapement 1954 - 1989.

CHIGNIK SECOND-RUN SOCKEYE SALMON

CATCH AND ESCAPEMENT, 1954-1989

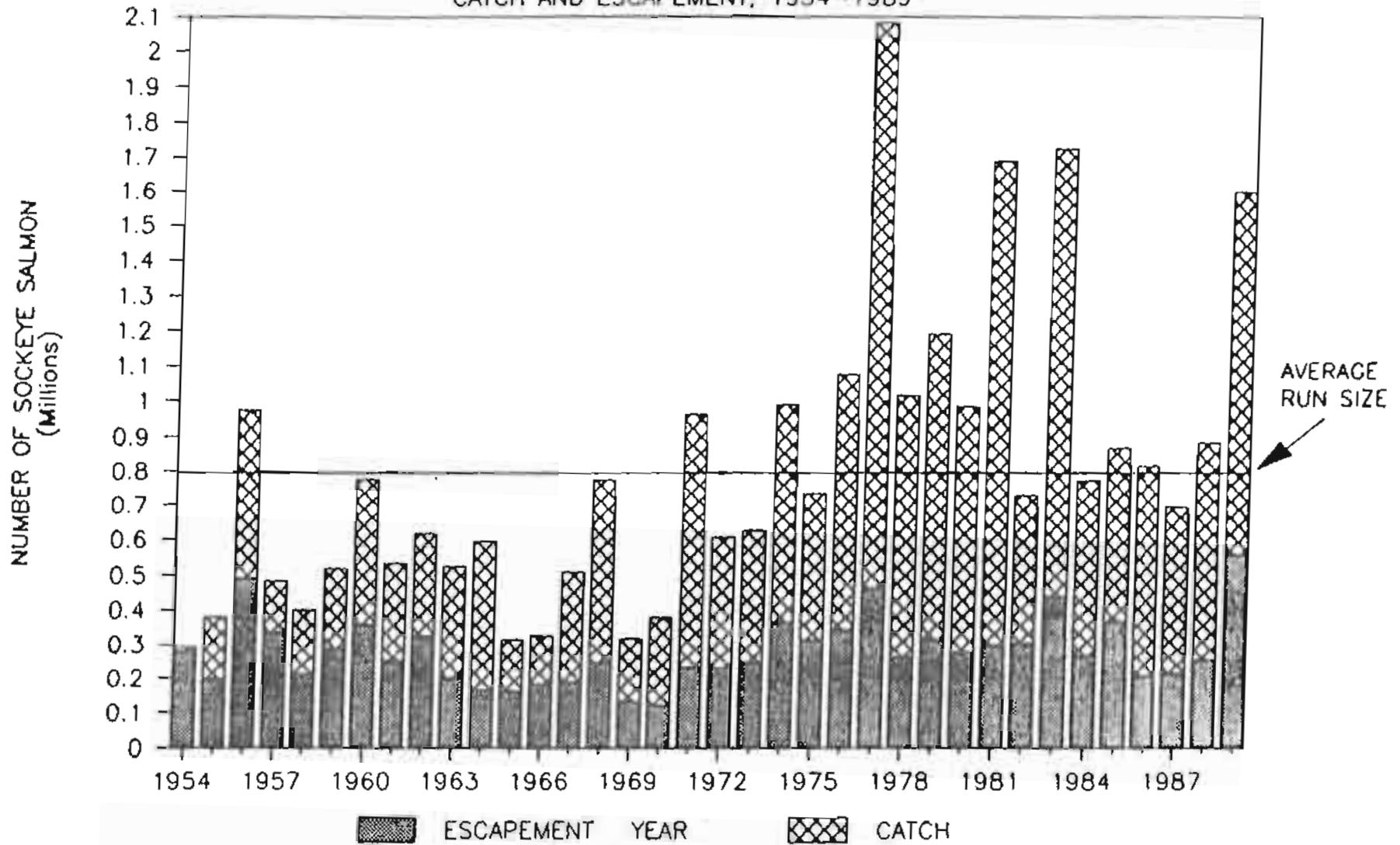


Figure 10. Chignik second-run sockeye salmon catch and escapement 1954-89.

Chignik Sockeye Return by Stock, 1989

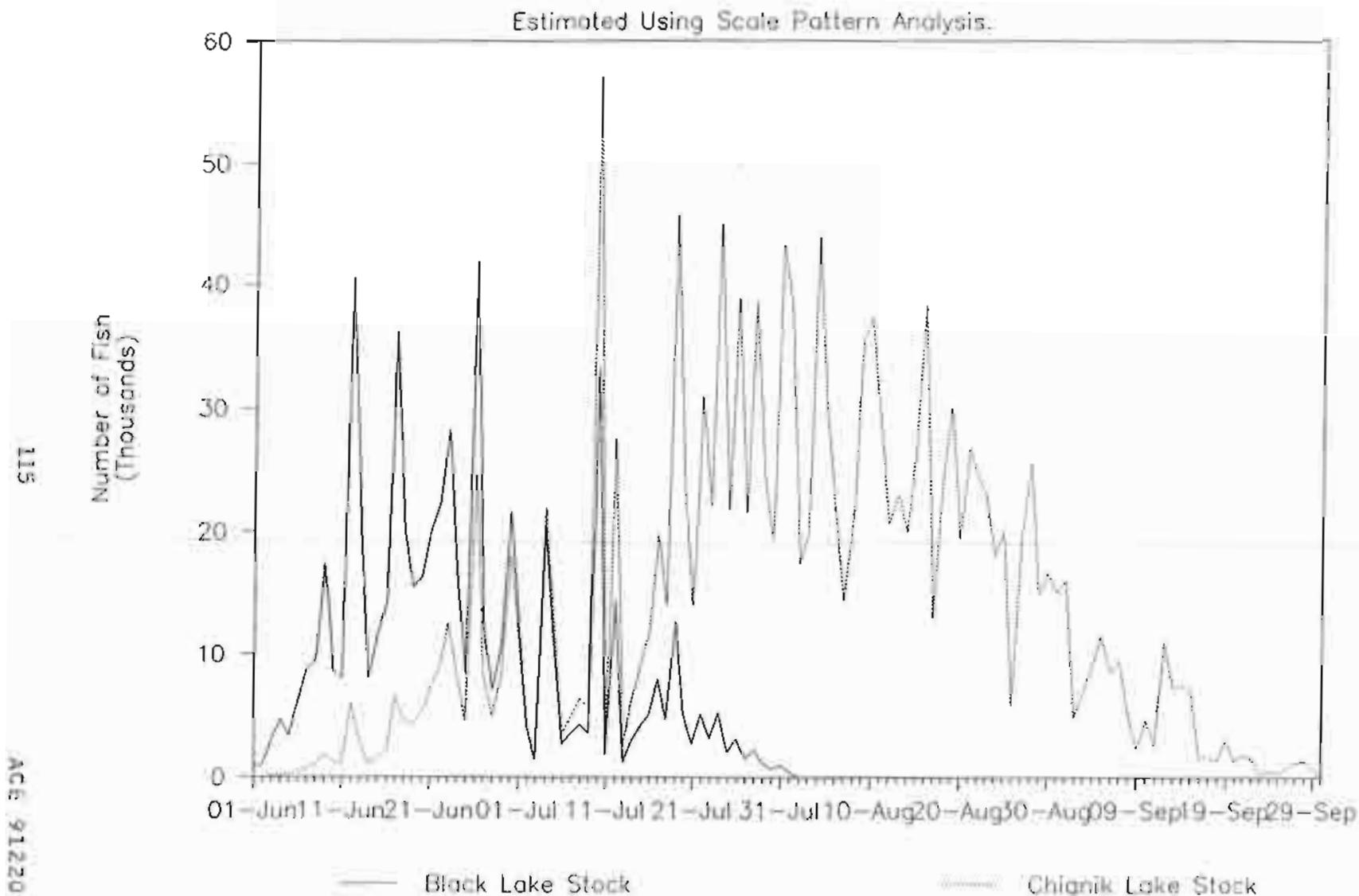


Figure 11. Daily sockeye salmon return to Chignik Lakes system, by stock, estimated from scale pattern analysis, 1989.

Chignik Lagoon Sockeye Age Composition

Major Age Classes

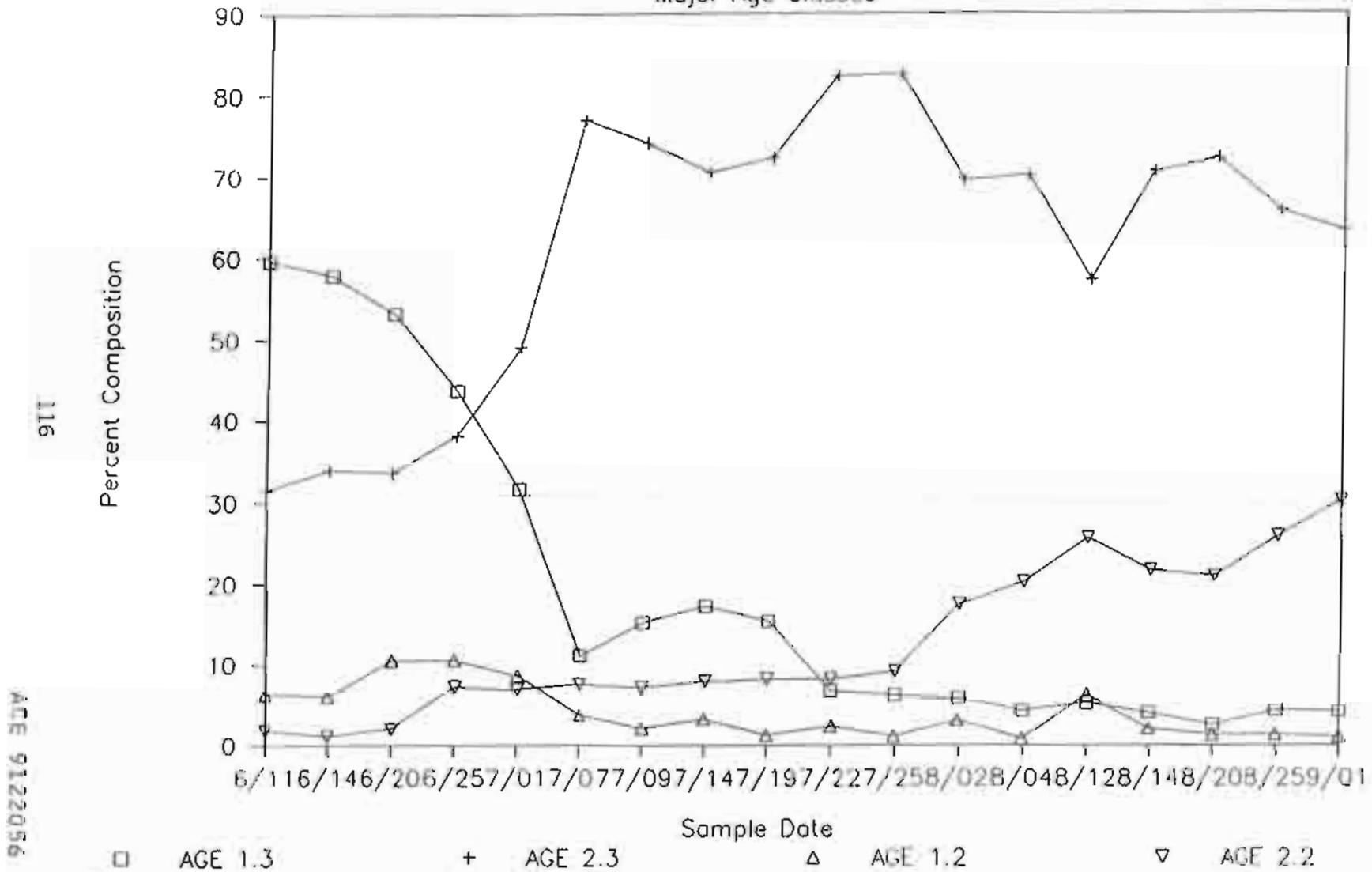


Figure 12. Age composition of sockeye salmon sampled in the Chignik Lagoon commercial fishery, 1989.

CHIGNIK AREA PINK SALMON

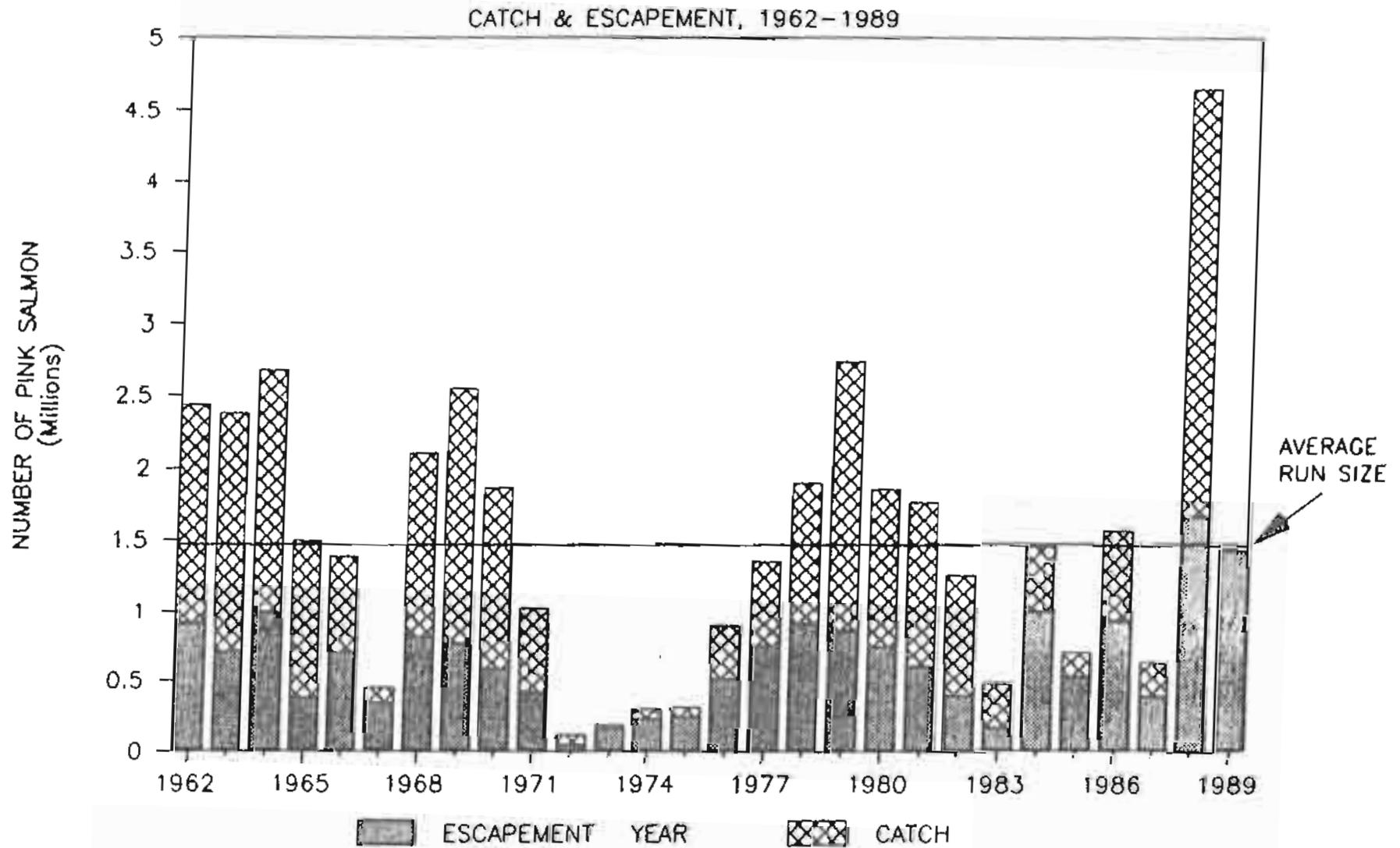


Figure 13. Chignik Management Area pink salmon catch and escapement, 1962-89.

CHIGNIK CHUM SALMON

CATCH AND ESCAPEMENT, 1962-1989

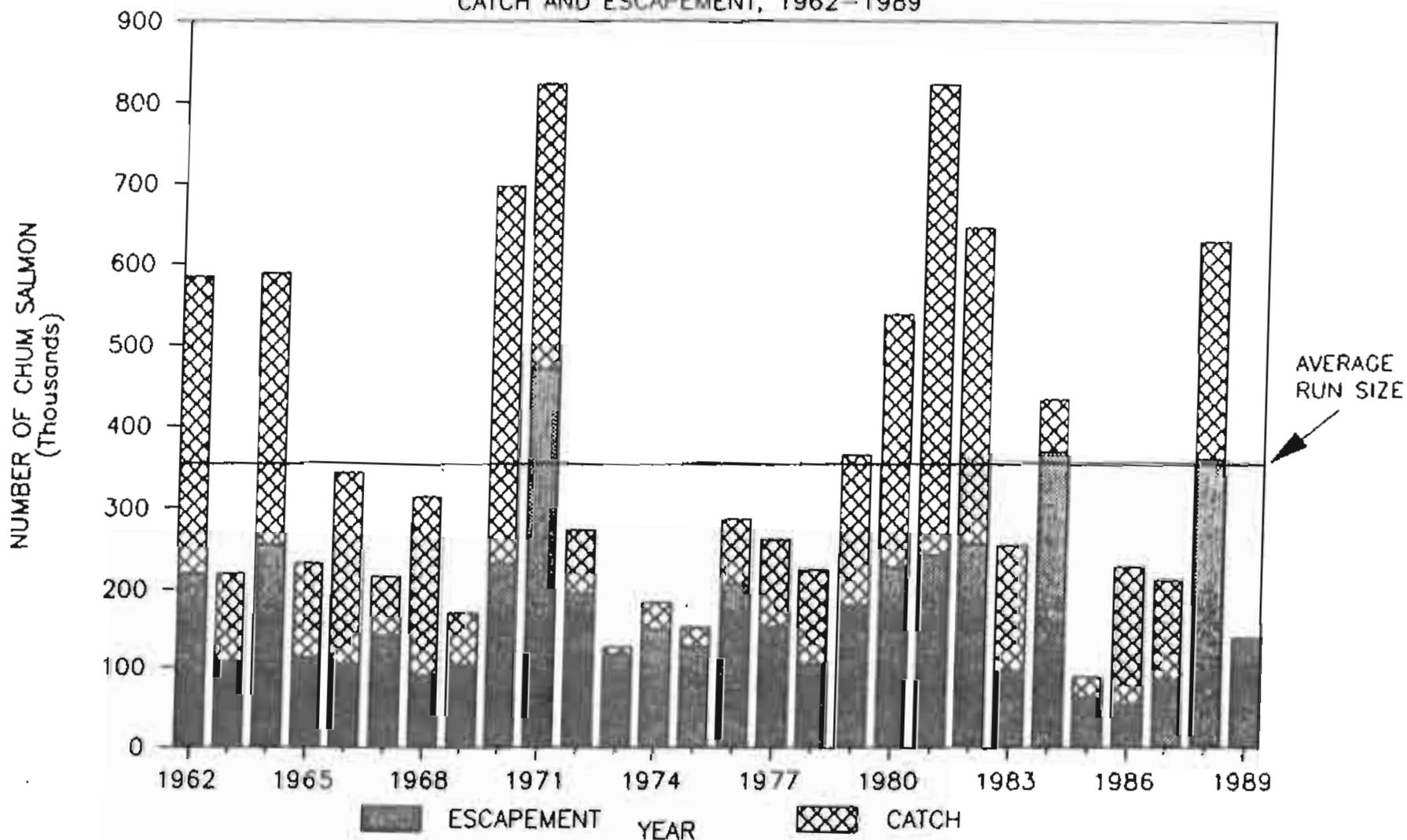


Figure 14. Chignik Management Area chum salmon catch and escapement, 1962-89.

CHIGNIK COHO SALMON

HARVEST FROM 1970-1989

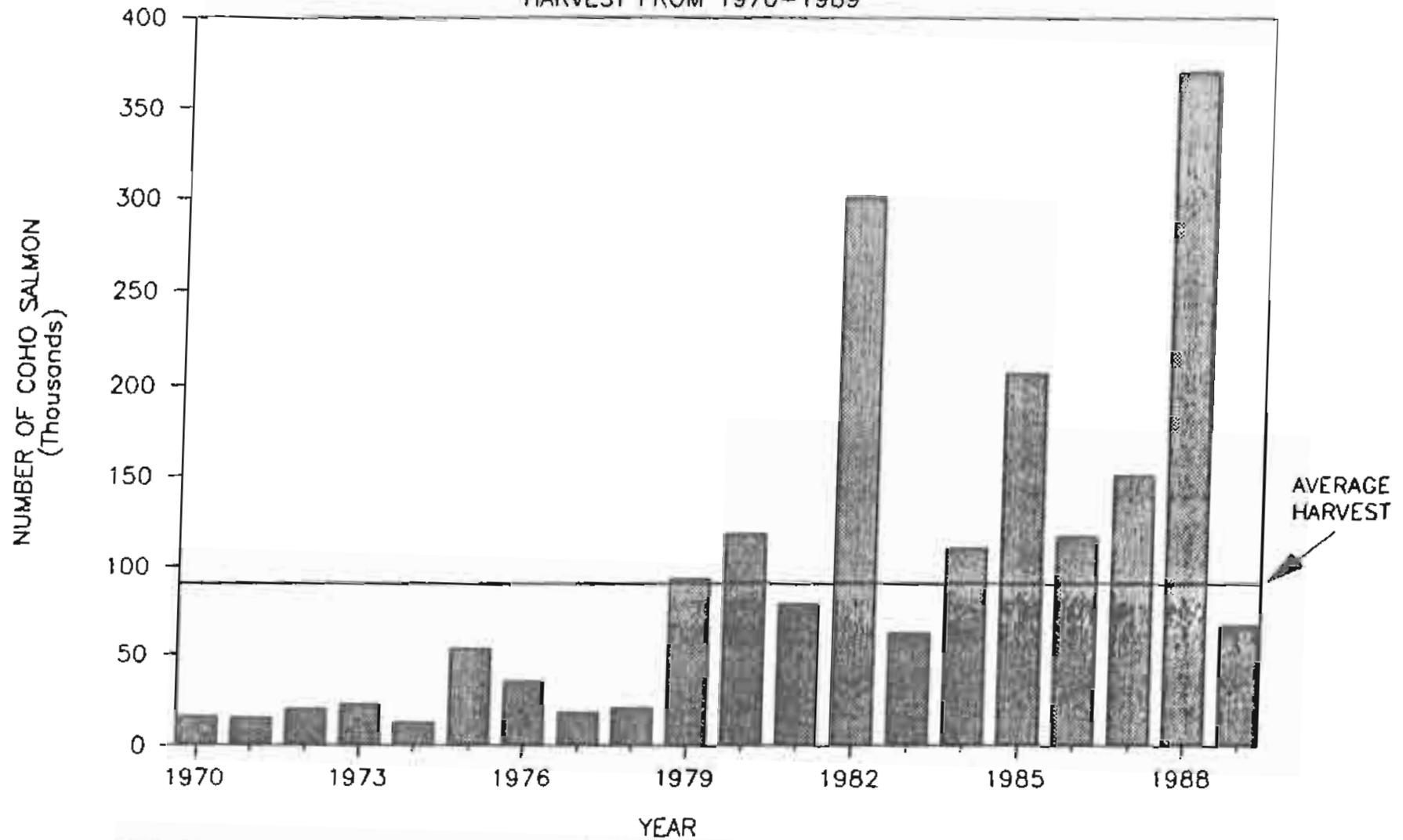


Figure 15. Chignik Management Area coho salmon catch and escapement, 1970-89.

APPENDIX A

Appendix A.1. Total sockeye salmon return to Black Lake by brood year and age class, 1915-1989.

Year	Escapement Parent Year	Age Class													Total	Return Per Spawner
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
1915												1,202	1,202		2,404	
1916									9,315	68,559	37	15	0		77,926	
1917							318,491	20,666	576	18,747	0	0	0	0	358,480	
1918				0	12,960	0	43,803	6,984	0	49,097	0	0	138	0	112,982	
1919		0	0	0	15,073	0	92,073	28,499	16	74,062	30	0	324	0	210,077	
1920		0	0	0	63,251	0	422,288	28,279	0	111,422	6,511	0	273	0	632,024	
1921		0	0	0	122,550	0	258,628	113,493	5,873	255,927	0	0	0	0	756,471	
1922	86,421	0	0	0	40,685	0	659,040	56,121	0	202,612	2,465	1,222	1,669	0	963,814	11.2
1923	4,642	0	0	0	18,213	0	172,343	53,445	2,677	132,776	410	436	59	0	380,359	81.9
1924	121,983	0	0	0	85,083	0	1,206,555	8,855	426	19,931	939	384	384	0	1,322,557	10.8
1925	386,364	0	0	0	1,529	0	54,164	9,924	384	50,707	937	17	0	0	117,662	0.3
1926	289,009	0	0	0	7,544	420	104,094	45,572	11,714	352,025	7,117	0	1,708	0	530,194	1.8
1927	857,881	0	0	0	99,929	66	2,375,878	85,253	721	107,239	165	3,699	4,234	0	2,677,184	3.1
1928	507,353	0	0	0	23,860	0	304,338	49,284	9,848	428,369	2,755	409	2,118	0	820,981	1.6
1929	995,832	0	0	0	9,910	0	918,487	58,777	5,626	68,214	865	144	144	0	1,054,167	1.1
1930	92,955	0	0	0	23,769	0	286,339	13,886	6,663	43,297	3,527	4	0	0	377,485	4.1
1931	96,201	0	0	0	33,685	943	923,763	66,710	28	122,389	0	655	58	0	1,128,231	11.7
1932	2,151,734	0	0	0	50,602	0	191,354	36,823	10,350	43,060	291	8,584	234	0	341,298	0.2
1933	223,913	0	0	0	62,079	0	247,818	7,609	138,675	164,540	0	625	54	0	621,400	2.8
1934	868,890	0	0	0	16,228	4	1,583,632	6,057	9,886	40,971	276	1,299	113	0	1,658,466	1.9
1935	194,636	0	10	0	68,710	0	235,971	7,188	20,562	85,058	572	1,508	138	0	419,709	2.2
1936	548,039	0	0	0	15,422	3	490,061	14,873	23,865	98,553	661	2,346	281	0	645,985	1.2
1937	205,613	0	9	0	32,001	7	567,984	17,179	37,146	153,156	1,026	960	82	0	809,550	3.9
1938	175,972	0	19	0	37,059	7	882,938	26,618	15,193	62,552	418	706	60	0	1,025,570	5.8
1939	1,142,852	0	22	0	57,563	12	360,712	10,840	11,171	45,926	307	2,478	209	0	489,232	0.4
1940	176,307	0	35	0	23,499	5	264,904	7,938	39,130	160,651	1,670	7,513	634	0	505,379	2.9
1941	374,428	0	14	0	17,246	3	926,890	27,697	119,048	488,137	3,247	1,196	101	0	1,583,579	4.2
1942	442,981	0	11	0	60,302	12	2,817,023	83,954	18,948	77,598	515	684	58	0	3,059,105	6.9
1943	701,859	0	36	0	183,156	37	447,919	13,315	10,839	44,522	297	499	38	0	700,658	1.0
1944	291,844	0	111	0	29,106	6	256,848	7,683	7,947	31,664	283	482	43	0	334,893	1.1
1945	317,882	0	18	0	16,715	3	183,734	5,143	7,619	31,784	216	275	27	0	245,534	1.1

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AGE 9122061

Year	Escapement Parent Year	Age Class													Return Per Spawner	
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		Total
1946	774,130	0	10	0	11,775	2	162,835	3,644	4,307	10,686	133	707	64	0	224,163	0.3
1947	2,386,733	0	7	0	11,988	2	106,718	3,550	11,150	46,809	320	525	43	0	181,112	0.1
1948	384,637	0	7	0	7,129	1	268,953	8,407	8,346	33,877	223	352	0	0	327,295	0.9
1949	213,269	0	4	0	17,688	4	195,878	5,713	0	89,095	0	0	152	0	308,534	1.4
1950	206,270	0	11	0	12,671	3	287,407	12,644	1,862	76,722	648	373	286	0	392,627	1.9
1951	125,126	0	8	0	46,798	0	448,360	3,404	2,319	124,345	0	455	0	0	625,689	5.0
1952	34,155	0	0	0	4,390	0	137,957	3,423	208	81,691	0	639	2,512	0	230,820	6.8
1953	168,375	0	0	0	1,024	32	154,589	17,848	1,625	180,887	252	0	1,350	0	357,607	2.1
1954	184,953	0	143	0	6,468	0	50,272	10,720	515	72,973	9	312	1,009	0	142,421	0.8
1955	256,757	0	783	0	30,302	0	430,793	3,476	339	88,693	109	0	0	0	554,495	2.2
1956	289,096	0	17	0	16,499	0	81,569	14,910	9	90,001	0	196	4,967	0	208,168	0.7
1957	192,479	0	0	0	6,559	161	117,979	10,507	52	210,686	3,641	21	906	0	350,512	1.8
1958	120,862	0	905	0	19,146	0	79,955	81,992	0	60,132	77	61	103	0	242,370	2.0
1959	112,226	0	1,522	0	31,039	142	148,403	13,872	402	144,581	874	58	54	0	340,947	3.0
1960	251,567	0	124	0	55,546	221	610,592	32,598	6,221	65,418	49	606	3,383	0	774,756	3.1
1961	140,714	0	276	0	14,301	1	387,053	3,483	536	164,278	486	1,020	209	0	571,645	4.1
1962	167,602	0	698	0	8,379	0	257,371	25,726	3,194	395,626	1,524	954	0	0	693,473	4.1
1963	332,536	0	0	0	29,538	173	448,298	17,628	905	199,104	0	2,506	551	0	698,703	2.1
1964	137,073	0	37	0	13,311	3,735	190,972	133,203	3,809	409,973	414	0	300	0	755,755	5.5
1965	307,192	0	394	0	102,570	421	1,535,858	80,851	3,679	222,194	300	505	23,093	0	1,969,863	6.4
1966	383,545	0	1,631	0	65,254	378	1,093,831	16,838	2,228	229,260	29	0	2,504	0	1,411,953	3.7
1967	328,000	0	2,728	0	17,841	180	100,943	6,175	13,406	96,629	1,537	0	0	0	239,438	0.7
1968	342,343	0	300	0	13,208	0	971,408	4,519	2,163	161,664	1,960	0	1,663	0	1,156,884	3.4
1969	366,589	0	0	0	12,747	153	279,429	63,258	1,313	84,120	486	0	2,251	0	443,757	1.2
1970	536,257	0	0	0	17,281	261	195,050	8,163	4,614	192,247	621	0	3,698	0	421,934	0.8
1971	671,668	0	569	0	22,138	0	800,515	67,483	3,873	454,039	385	264	6,763	0	1,356,029	2.0
1972	326,320	0	0	0	31,630	0	423,794	16,474	3,195	587,997	4,596	831	2,564	0	1,071,082	3.3
1973	533,047	0	0	0	19,627	0	753,970	121,231	0	324,538	1,425	511	1,812	0	1,223,113	2.3
1974	351,701	0	51	0	50,797	334	123,590	117,544	116	305,094	551	452	2,727	0	601,256	1.7
1975	308,914	0	0	0	19,977	1,826	71,732	55,434	1,010	447,233	1,057	396	34	2,437	601,137	1.9
1976	551,254	0	520	0	44,085	85	669,395	24,810	816	135,036	0	0	334	11,778	886,860	1.6

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ACE 9122062

Year	Escapement Parent Year	Age Class													Total	Return Per Spanner
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	1.4	2.3	3.2	2.4	3.3	Other		
1977	482,247	0	102	0	59,211	389	1,687,898	12,701	6,990	337,281	0	3,492	1,655	44,852	2,154,571	4.5
1978	458,660	0	235	0	55,123	3,060	448,274	61,734	6,664	354,902	0	0	210	15,138	945,339	2.1
1979	385,694	0	1,241	0	533,050	671	3,195,846	57,155	4,133	68,046	223	422	805	1,350	3,862,941	10.0
1980	311,332	0	255	120,421	99,989	1,187	641,668	151,574	1,503	741,614	2,098	943	1,113	4,847	1,767,213	5.7
1981	438,540	0	532	0	155,923	1,112	938,072	75,567	4,289	664,383	510	1,112	259	2,819	1,844,578	4.2
1982	616,117	0	121	0	172,993	2,021	1,627,753	134,483	2,133	391,690	0	394	0	194	2,331,780	3.8
1983	426,177	0	0	19,136	79,674	3,905	209,772	37,475	285	211,457	2	0	0	466	562,171	1.3
1984	597,712	478	2,279	1,225	46,148	2,194	324,901	42,078							419,303	0.7
1985	377,516	156	501	510	36,677	638									38,482	0.1
1986	566,088	384	1,517												1,901	
1987	589,291															
1988	420,577															
1989	384,004															

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Appendix A.2. Total sockeye salmon return to Chignik Lake by brood year and age class, 1915-1989.

Year	Escapement Parent Year	Age Class														Return Per Spawner		
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Other		Total	
1915														4514	4514		9028	
1916										11874	690450	9120	2007	0	0	0	713451	
1917								339637	149163	0	296	274036	0	0	0	0	763132	
1918				0	44358	0	201318	195611	0	0	999888	0	2948	2966	0	0	1447089	
1919		0	0	0	100404	2425	243024	286119	0	2492	423094	8770	0	5828	0	0	1071656	
1920		0	0	0	148914	0	435826	137704	0	2509	300319	21713	0	1567	0	0	1047552	
1921		0	0	0	101251	0	216728	278711	0	4085	193620	2245	955	3396	0	0	800991	
1922	352807	0	0	0	43667	0	382956	73351	0	0	991979	14972	2885	4175	0	0	1513986	4.291
1923	213781	0	0	0	74884	218	410194	245187	0	2360	577390	1111	1647	2376	0	0	1315367	6.153
1924	910521	0	0	0	126685	1819	1003422	8350	0	1115	102217	5830	425	55	0	0	1249918	1.373
1925	677566	0	0	0	3736	0	51222	195414	0	332	427580	7817	5367	456	0	0	691924	1.021
1926	695314	0	0	0	25764	919	279018	304619	273	3461	879220	3821	55	2246	0	0	1499396	2.156
1927	429525	0	207	0	113952	1499	951950	100633	0	744	203942	1586	1225	5557	0	0	1381295	3.216
1928	1020520	0	0	0	40063	0	353506	77224	0	12047	500033	3129	1842	1618	0	0	789232	0.773
1929	914307	0	0	0	16254	0	584561	38873	253	5675	361557	1165	2192	1251	0	0	1011781	1.107
1930	359405	0	0	0	26688	0	426128	41867	0	6177	344419	16565	2065	0	0	0	863909	2.404
1931	631986	0	0	0	30856	2454	296899	138440	0	3747	264858	0	2678	635	0	0	740567	1.172
1932	1113859	0	0	0	24809	0	475759	46764	0	8530	185288	2049	13674	1502	0	0	758375	0.681
1933	310088	0	0	0	35679	0	311946	35705	0	48795	321467	0	1267	301	0	0	755160	2.435
1934	447642	0	0	0	19716	90	708212	33934	0	4066	88027	969	6299	1026	0	0	860339	1.922
1935	462469	0	69	0	37642	308	148352	16893	0	13842	299288	3284	4082	976	0	0	524736	1.135
1936	376838	0	0	0	9342	43	504624	57326	0	13186	284707	3117	9326	2233	0	0	883904	2.346
1937	406618	0	33	0	31723	145	480250	54435	0	30220	651642	7116	2664	639	0	0	1258867	3.096
1938	305827	0	111	0	30143	137	1099657	124382	0	8660	186504	2032	1128	270	0	0	1453024	4.751
1939	512754	0	106	0	68919	315	314851	35542	0	3674	79035	859	5420	1305	0	0	510026	0.995
1940	152957	0	244	0	19705	90	133474	15039	0	17705	380481	4130	10049	2422	0	0	583339	3.814
1941	531904	0	70	0	8342	38	642782	72293	0	32912	766532	7654	2225	537	0	0	1473385	2.770
1942	516621	0	30	0	40124	183	1194007	134060	0	7305	156659	1695	4682	1112	0	0	1539837	2.981
1943	1205418	0	143	0	74442	340	264830	29686	0	15007	324527	3562	5405	1621	0	0	719263	0.597
1944	351212	0	266	0	16492	75	547139	62179	0	18110	385087	4101	2886	711	0	0	1037046	2.953
1945	151326	0	59	0	34405	157	652782	72138	0	9784	207054	2186	1246	315	0	0	980126	6.477

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ACE 9122064

Year	Escapement		Age Class													Return Per Spawner	
	Parent Year		0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3		Other
1946	739884	0	121	0	40246	183	351541	38531	0	4401	91579	937	1531	371	0	529441	0.716
1947	1393990	0	147	0	21549	98	156343	16644	0	5048	108068	1165	1316	333	0	310711	0.223
1948	313319	0	80	0	9390	42	182792	20430	0	4658	96858	989	826	0	0	316065	1.009
1949	574715	0	36	0	11360	52	165402	17581	0	1766	103345	0	496	650	0	300688	0.523
1950	861070	0	41	0	9924	45	199966	31411	0	2206	245826	407	2903	1820	0	494549	0.574
1951	490899	0	38	0	33082	0	618729	13748	0	7046	242042	0	1028	0	0	915713	1.865
1952	260540	0	0	0	22213	0	258747	30836	0	986	229563	0	3932	8403	0	554680	2.129
1953	221408	0	0	0	9167	428	125399	32350	0	470	396916	1935	934	5424	0	573023	2.588
1954	277912	0	547	0	2848	0	39658	75361	0	771	418442	804	1661	5069	0	545161	1.962
1955	201409	0	369	0	32187	0	303988	32708	0	168	363162	1252	0	0	0	733834	3.644
1956	483024	0	1330	0	12515	0	106327	36113	0	435	221169	0	1349	4781	0	384019	0.795
1957	328779	0	0	0	17746	622	232393	109475	0	351	332661	2104	1189	1319	0	697860	2.123
1958	212594	0	1459	0	50630	0	23204	139797	0	0	418960	980	93	432	0	635555	2.990
1959	308645	0	3286	0	18094	907	109165	81640	227	117	197975	738	689	187	0	413023	1.338
1960	357230	0	146	0	24446	491	122278	8273	0	1314	210884	141	1618	12824	0	382415	1.070
1961	254970	0	718	0	1899	799	109935	18702	0	220	401733	2698	5335	2420	0	544458	2.135
1962	324860	0	123	0	4312	0	44074	69811	0	998	692188	1074	1109	0	0	813689	2.505
1963	200314	0	0	0	5536	1300	103116	68605	0	29	243939	0	1501	867	0	424894	2.121
1964	166625	0	88	0	6607	4550	24880	65639	0	700	138282	943	241	7193	0	249122	1.495
1965	163151	0	1636	0	25157	5547	159113	57942	0	450	764971	1210	718	104407	0	1121148	6.872
1966	183525	0	1715	0	14517	925	353860	35606	0	501	449527	2665	0	18073	0	877388	4.781
1967	189000	0	581	0	7280	904	85067	33781	0	701	482538	2780	1409	0	0	614961	3.254
1968	244836	0	1076	0	4166	0	115840	20435	339	668	612758	16385	2691	30092	0	804448	3.286
1969	132055	0	0	0	1239	1062	89327	284545	297	818	487805	7288	0	16722	0	889104	6.733
1970	119952	0	0	0	19148	12638	27646	151089	0	1318	461271	12205	0	19870	0	705186	5.879
1971	232501	0	1575	0	15448	12620	185532	410628	0	236	1898372	4096	2842	13887	0	2545236	10.947
1972	231270	0	0	0	30087	2445	120639	96178	0	98	718493	30779	267	3698	0	1002684	4.336
1973	247144	0	0	0	5778	10740	56736	173028	0	0	919784	3852	1248	4756	0	1175921	4.758
1974	364612	0	4420	0	19284	2764	105493	196981	0	51	677611	2036	2316	9262	2703	1022922	2.806
1975	314084	0	0	0	24550	7125	123634	185390	0	914	859629	3573	6449	2334	7609	1221206	3.888
1976	341828	0	1103	0	59255	807	775826	94346	0	2484	499554	0	3117	10	5083	1441585	4.217

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Year	Escapement Parent Year	Age Class														Total	Return Per Spanner
		0.2	1.1	0.3	1.2	2.1	1.3	2.2	3.1	1.4	2.3	3.2	2.4	3.3	Other		
1977	453561	0	252	0	52795	3975	155472	59987	0	1958	1207619	0	2034	789	7477	1492357	3.219
1978	263009	0	422	0	16755	5822	259993	318606	0	685	278532	490	1752	176	239	883474	3.359
1979	317889	0	2029	0	102991	5057	281909	28124	0	1235	278237	388	1469	784	3223	705446	2.219
1980	279729	0	1794	8287	13217	6060	156838	320949	0	632	448135	3096	830	1070	1189	962098	3.439
1981	301092	0	1116	0	88980	5093	232004	74324	0	664	370421	151	649	74	35	773511	2.569
1982	305193	0	2542	0	51480	3199	194469	108490	0	740	582904	160	1383	0	301	945668	3.099
1983	441561	0	0	2715	12125	3824	148143	109007	0	208	1105502	807	0	0	0	1383132	3.132
1984	268496	120	914	552	30409	10724	150188	324007								516914	1.925
1985	369262	98	689	207	18638	16398										36030	0.098
1986	207231	104	2743													2847	0.014
1987	214452																
1988	255180																
1989	557171																

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APPENDIX B

1989
MANAGEMENT PLAN
FOR THE
CHIGNIK MANAGEMENT AREA
COMMERCIAL SALMON FISHERY

By: MIKE THOMPSON AND JEFF FOX

Regional Information Report¹ No. 4K89-15

Alaska Department of Fish and Game
Division of Commercial Fisheries, Westward Region
211 Mission Road
Kodiak, Alaska 99615

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CHIGNIK AREA
SALMON MANAGEMENT PLAN

INTRODUCTION

The Chignik commercial salmon management area encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). The area includes the Chignik River system and approximately 90 other salmon producing streams.

The management area is divided into five districts which are, from east to west, the Eastern, Central, Chignik Bay, Western and Perryville Districts (Figure 2). The Alaska Department of Fish and Game manages all districts to achieve escapement goals for anadromous salmon species while allowing for the orderly harvest... of fish surplus to spawning requirements.

For 1989, waters closed to salmon fishing will be as described in the 1988-89 commercial finfish regulation booklet. Please be aware of three closed water changes made by the Board of Fisheries in 1987. These changes increased the closed water areas in Ivanoff Bay, Portage Bay and Kujulik Bay.

Purse and hand seines are the only legal gear types for the Chignik Area commercial salmon fishery. In the Eastern, Central, Western and Perryville Districts, no seine less than 100 fathoms or more than 225 fathoms in length may be used. In the Chignik Bay District seines may not be less than 100 fathoms or more than 125 fathoms in length.

This document provides the rationale for management of the 1989 Chignik salmon fisheries. In-season fishing time will be established by emergency order as relative run strength of salmon stocks are assessed.

The contents of this document are intended to be informative in nature.

SOCKEYE SALMON

The total sockeye salmon run is forecast to be approximately 2.10 million fish. The early run is expected to be larger with an projected 1.15 million return. The escapement goal for the early run is 400,000 fish, resulting in an anticipated harvest of 750,000 sockeye. The late run return is expected to be 954,000 fish. The late run escapement goal is 250,000 which should allow a commercial harvest of approximately 704,000 fish. Total estimated harvest for both runs is projected to be 1.45 million fish, including fish intercepted outside the Chignik Area.

The first fishing period can occur on June 1 by regulation, however based on historical opening times, this would be highly unlikely, and only considered if a minimum of 40,000 sockeye salmon have passed the weir and test fishing indicates a strong buildup of fish in the lagoon. The average date for the initial fishing period, based on the last 10 years, is June 10. Additional openings will be determined from several factors including escapement counts, commercial catches and test fishing results (Table 1).

During the month of June, commercial fishing will be allowed only in the Chignik Bay, Central, and Eastern Districts. The Eastern District will open and close to commercial salmon fishing simultaneously with the Chignik Bay and Central Districts, as outlined by the Board of Fisheries. In late June and early July the Eastern District may close to commercial salmon fishing until the run strength of the Chignik Lake stocks can be determined.

On July 15 the Eastern District will close to commercial salmon fishing.

This closure is mandated by the Board of Fisheries to evaluate local pink and chum salmon run strength.

If it is determined that stocks being harvested within the Eastern District are not primarily Chignik stocks, the fishery in this district will be closed by emergency order as directed by the Board of Fisheries in the Eastern District Management Plan.

The fisheries in the Cape Igvak Section of the Kodiak Area and the Southeastern District of the Alaska Peninsula intercept Chignik sockeye salmon. The Cape Igvak Management Plan and the Southeastern District Management Plan as adopted by the Alaska Board of Fisheries will be used to manage those fisheries (Attachments 1 and 2).

PINK AND CHUM SALMON

For the 1989 season a total pink salmon return of 1.18 million fish is forecast. The pink salmon escapement goal for the entire Chignik Management Area is 700,000 which could provide a commercial harvest of approximately 448,000 fish. This projected harvest is based on the average return per spawner for odd years from 1965 to 1987 and the level of the 1987 escapements.

The first opening in the westward districts will coincide with the first July sockeye opening targeting on the late sockeye (Chignik Lake stock) run bound for the Chignik system. Pink and chum management in the Eastern District will be based on the following management plan:

5 AAC 15.360. EASTERN DISTRICT SALMON MANAGEMENT PLAN. (a) The department shall open and close the Eastern District for commercial salmon fishing concurrently with the Chignik Bay and Central Districts. The department may close the Eastern District for the period between the first (Black Lake) and second (Chignik Lake) sockeye salmon runs.

(b) The department shall close the Eastern District on July 15 to allow evaluation of the strength of the pink and chum salmon runs.

(c) The department shall close the Eastern District if it is determined that the salmon being harvested in that district are from stocks that do not originate from spawning areas located in the Chignik Area.

The projected chum salmon harvest for Chignik waters is an estimated 120 thousand fish. Aerial surveys will be conducted to monitor the progress of chum salmon escapements in order to provide sufficient opportunity to harvest the surplus when the fish are in their best marketable condition. Area specific openings are possible and a 24 hour notice will be given prior to a commercial opening. Openings and closures will be broadcast over 4125 SSB and CH 6 VHF.

Processors within the Chignik Area and Kodiak based tenders that purchase fish from the Chignik salmon fleet, process these fish primarily for the fresh frozen market. Due to the higher quality standards for the frozen market there will be greater demands placed on management to harvest these fish in optimum condition. Management strategies will be adjusted to harvest fish as they migrate to their home streams, i.e. increased early fishing effort when a harvestable surplus is available. This is consistent with salmon management strategies for the remainder of the region.

Due to the economic and commercial importance of the Chignik sockeye salmon, the corresponding run timing and strength of the two sockeye salmon runs bound to the Chignik River systems, i.e.

Black Lake (Early Run) and Chignik Lake (Late Run) will directly impact commercial fishing time in the Eastern, Western and Perryville Districts.

If the strength of the early run (Black Lake) sockeye is weaker than forecast and the escapement goal of 400,000 through the Chignik River weir is not achieved, then the early July openings in all waters where sockeye would be intercepted will be curtailed. Commercial openings during the transition period between the two sockeye salmon runs (June 26 to July 9) will also be closely monitored to allow an adequate evaluation of the second run (Chignik Lake) strength to assure the escapement goal of 250,000.

COHO SALMON

Fall fisheries for late run sockeye and coho salmon will begin in mid August through mid September provided there is no conflict in achieving escapement goals for the late sockeye run to Chignik Lake. The coho salmon harvest in 1989 is projected to be 100,000. The majority of this harvest should come from Chignik Lagoon. The average coho harvest for the last 10 years is 160,000 fish.

Management of Chignik Bay District coho stocks will be similar to recent years. Management of smaller systems, particularly those in the Eastern District, will continue to be conservative to prevent overharvest during the initial openings of the Chignik Bay commercial coho fisheries.

TENDER AND PROCESSOR REPORTING REQUIREMENTS

- a. 5AAC 15.355. The operator of a floating salmon processing vessel or tender, or a shorebased processing operation, and a company employing aircraft used for transporting salmon, shall report in person, or by radio or telephone, to a local representative of the

department located in the management area of intended operation before the start of processing or buying operations. The report must include the location and the date of intended operation, and identify and describe each vessel or other method of transport employed in hauling or processing salmon.

- b. All processors and tender operators will be required to report daily catch information to ADF&G. This can be accomplished either by radio (SSB) or telephone. The Chignik ADF&G office will stand by on 4125 SSB and VHF CH6 frequencies, between 0800 and 1000 hours and 2000 and 2200 hours. The call sign for Chignik is KGB 76 "Chignik Weir" and the telephone number is 845-2243. If unable to contact ADF&G Chignik, your catch information should be given to ADF&G Sandpoint or Kodiak via telephone or 4125 SSB. The call signs for Kodiak and Sandpoint are WHM 20 and WIM 77, respectively. Failure to report is a violation of commercial fishing regulation (5 AAC 27.590 (2)); vigorous enforcement of this regulation should be expected.
- c. Individual code sheets will be given to each tender/processor for the purpose of reporting catch and statistical area of catch.

Table 1. Chignik River System sockeye salmon escapement goals for Black Lake (early) and Chignik Lake (late runs), by time period.

The numbers of fish presented in the escapement tables below were derived from averages over several years of escapements of various timing and magnitude. It should be noted that daily escapement levels will fluctuate considerably throughout the run. THE TABLES LISTED SERVE ONLY AS A GUIDE FOR ACHIEVING THE TOTAL ESCAPEMENT FOR EACH RUN. In-season variations from the figures listed may be due to variations in actual run timing and/or strength of the run.

EARLY RUN - 400,000 ESCAPEMENT

June 12		40,000
June 14	50 -	65,000
June 16	75 -	100,000
June 18	125 -	150,000
June 20	175 -	200,000
June 22	225 -	250,000
June 25	275 -	325,000
June 30	350 -	400,000

LATE RUN - 250,000 ESCAPEMENT

	<u>EARLY ESCAPEMENT IS ACHIEVED</u>	<u>EARLY ESCAPEMENT IS NOT ACHIEVED</u>
July 6	-	40,000
July 8	-	45 - 50,000
July 10	40,000	55 - 65,000
July 12	50 - 60,000	70 - 75,000
July 14	65 - 75,000	75 - 80,000
July 16	80 - 90,000	80 - 90,000
July 19	100 - 115,000	100 - 115,000
July 21	125 - 135,000	125 - 135,000
July 23	145 - 160,000	150 - 160,000
July 26	170 - 180,000	170 - 180,000
July 29	185 - 195,000	190 - 195,000
July 31	195 - 200,000	195 - 200,000

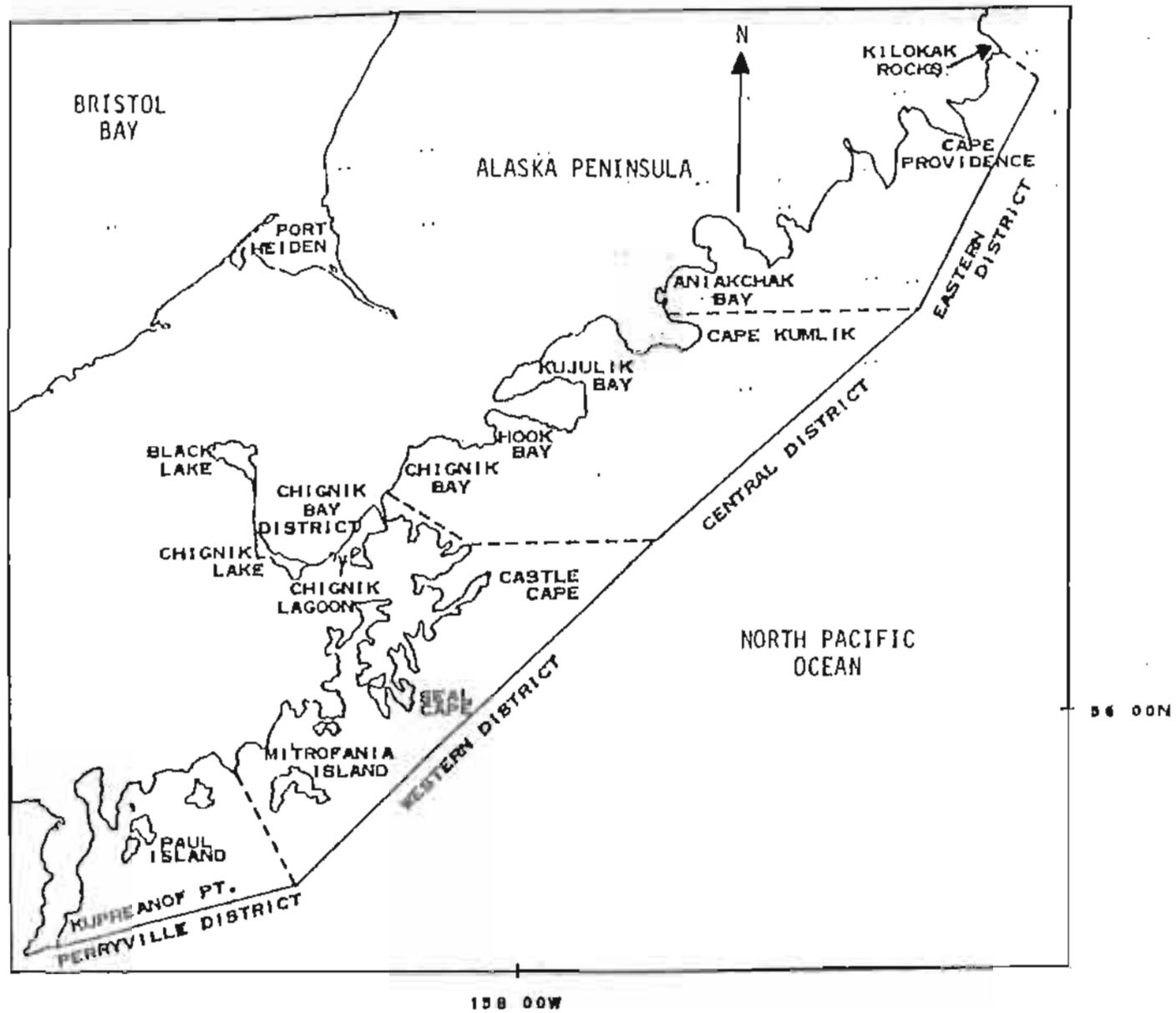


Figure 1. Map of the Chignik Management Area illustrating district boundaries, 1988.

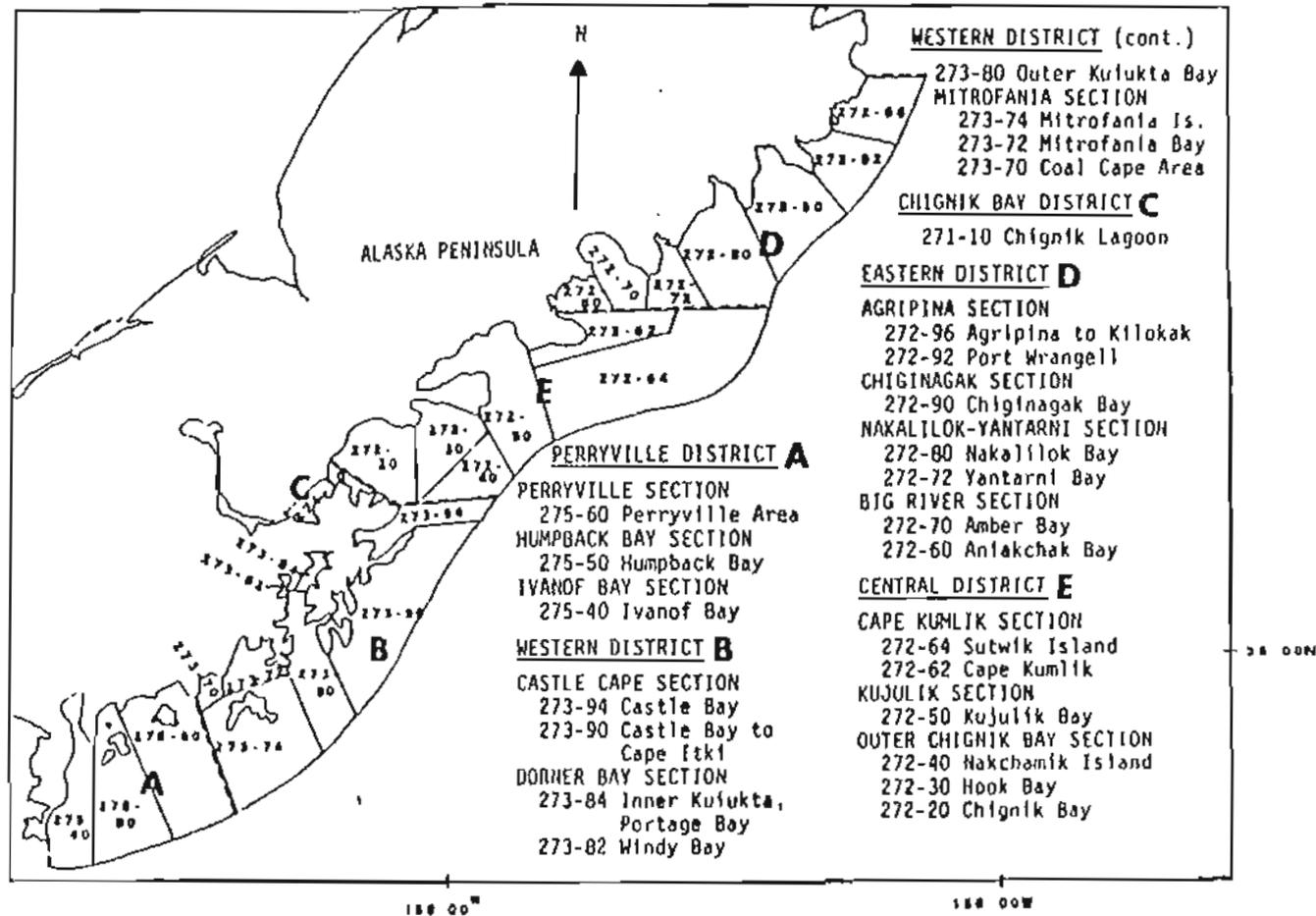


Figure 2. Map of the Chignik Management Area illustrating statistical areas, 1988.

Appendix 1.

MANAGEMENT GUIDE FOR THE
1989
CAPE IGVAK FISHERY

The midpoint harvest figures for the 1989 Chignik sockeye runs are forecast to be 750,000 for the first run and 704,000 fish for the second run, or a projected total harvest of 1.45 million Chignik bound sockeye.

The department will manage the Cape Igvak fishery according to the plan adopted by the Board of Fisheries. Since the harvestable surplus is expected to be more than 600,000, the fishery at Cape Igvak can open when the fishery opens at Chignik, and it is possible that the first opening could be as early as June 5. Approximately 48 hours notice will be given prior to the first Cape Igvak opening. At least a 24 hour notice will be given prior to the opening of any other fishing period, unless it is an extension of a fishing period in progress. Fishing periods will normally be at least 24 hours long and will begin at 12:01 A.M. If the first run fails, the Cape Igvak fishery will be curtailed in order to allow a minimum harvest in the Chignik Area of at least 300,000 sockeye through July if that many are surplus beyond escapement needs.

During the period from approximately June 26 to July 9, the strength of the second run of Chignik River system sockeye salmon cannot be evaluated at Chignik Lagoon. In order to prevent overharvest of the second run, commercial salmon fishing in the Cape Igvak Section will, at the department's discretion, be disallowed or severely restricted during this period.

Fishing time at Cape Igvak after July 8 will be dependent on the strength of the second run and on the Chignik Area catch during the first run.

When the second run appears strong enough for a fishery at Chignik, Cape Igvak could be opened only if at least 300,000 were harvested from the first run in the Chignik Area.

The department will then manage the fishery so that the number of sockeye salmon harvested in the Chignik Area for both runs combined will be at least 600,000 and the harvest in the Cape Igvak Section will approach as near as possible 15 percent of the total catch of Chignik bound sockeye, if that many fish are available surplus to the escapement needs.

1989

SOUTHEASTERN DISTRICT MAINLAND (ALASKA PENINSULA AREA)
MANAGEMENT PLAN

By: ARNIE SHAUL AND LEN SCHWARZ

Regional Information Report¹ No 4K89-9

Alaska Department of Fish and Game
Division of Commercial Fisheries, Westward Region
211 Mission Road
Kodiak, Alaska 99615

April 1989

¹The Regional Information Report Series was established in 1987 to provide an informational access system for all unpublished divisional reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate needs for up-to-date information, reports in this series may contain preliminary data.

1989
SOUTHEASTERN DISTRICT MAINLAND MANAGEMENT PLAN
ALASKA PENINSULA AREA

The Department will manage the Southeastern District Mainland fishery according to the Southeastern District Management Plan adopted by the Alaska Board of Fisheries. (See attached map).

The Northwest Stepovak and Stepovak Flats Sections will be managed on a local stock basis. When possible, fishing time in these sections will coincide with other nearby fisheries to avoid concentrating fishing gear.

Set gillnets are the only legal gear allowed in the Beaver Bay, Balboa Bay, Southwest Stepovak, Northwest Stepovak, East Stepovak, and Stepovak Flats Sections through July 10. After July 10, set gillnets, purse seines, and hand purse seines are legal.

The Beaver Bay, Balboa Bay, Southwest Stepovak, and East Stepovak Sections will be managed on the basis of Chignik sockeye stocks through July 25. After July 25, the whole area will be managed for local stocks.

The forecasted midpoint harvest for the Chignik sockeye returns during 1989 are 750,000 fish for the early return and 704,000 for the second return. If the return comes in as expected and the goals of the plan are achieved, approximately 80,000 estimated Chignik destined sockeye will be taken prior to July 26. This compares to a recent 5 and 10 year average of 144,000 and 125,000 respectively.

Since the harvestable surplus is expected to exceed 600,000 sockeye, the Southeastern District Mainland fishery may open when the fishery opens at Chignik. Based on the moderately strong forecast, it is possible that the first opening could be as early as June 8. At least 36 hours notice will be given prior to the first commercial fishing period in the Southeastern District

Mainland fishery. At least an 18 hour notice will be given prior to the opening of any other fishing period, unless it is an extension of a fishing period in progress. If the first run fails, the Southeastern District Mainland fishery will be curtailed in order to allow a minimum harvest in the Chignik Area of at least 300,000 sockeye through July 8 if that many are surplus to the escapement needs.

During the period from approximately June 26 to approximately July 9, the strength of the second run of Chignik River system sockeye salmon cannot be evaluated at Chignik Lagoon. To prevent overharvest of the second run, commercial salmon fishing in the Southeastern District Mainland will, in the Department's discretion, be disallowed or severely restricted during this period.

Fishing time in the Southeastern District Mainland after July 8 will be dependent upon the strength of the second run and on the Chignik Area catch during the first run. When the second run appears strong enough for a fishery at Chignik, the Southeastern District Mainland will be opened if at least 300,000 were harvested from the first run in the Chignik Area. The Department will then manage the fishery whereby the number of sockeye salmon harvested in the Chignik Area on both runs combined will be at least 600,000 and the harvest in the Southeastern District Mainland will approach as near as possible 6 percent of the total Chignik bound sockeye salmon catch¹, if that many fish are available surplus to the escapement needs.

At the December 1982 meeting, the Board of Fisheries adopted the following regulation pertaining to fishery management plans:

¹ The total Chignik sockeye salmon catch constitutes those sockeye salmon caught within the Chignik Area plus 80 percent of the sockeye salmon caught in the Cape Igvak Section of the Kodiak Area plus 80 percent of the sockeye caught in the Southeastern District Mainland fishery outside of the Suzy Creek to Dent Point portion.

5 AAC 39.200 APPLICATION OF FISHERY MANAGEMENT PLANS

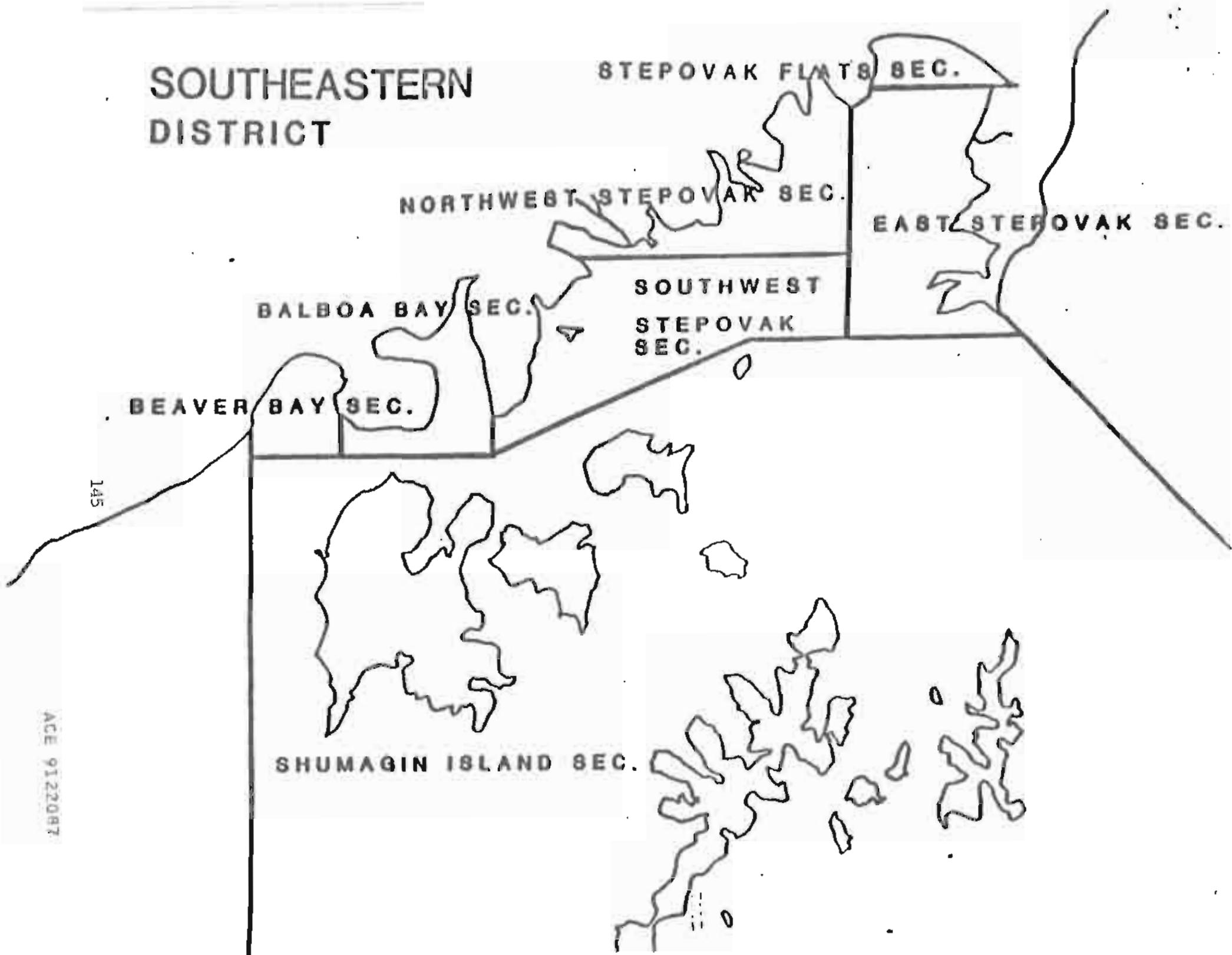
(b) In some fishery management plans, the distribution of harvestable fish between various users is determined by the harvest that occurs during a specific time period, at a specific location or by a specific group or groups of users. At times fishermen, due to circumstances that are beyond the control of the Department, such as weather or price disputes, will not harvest fish. When this happens in a fishery governed by a management plan the goals of that plan may not be achieved. Therefore, when a fishery is open to the taking of fish and the group or groups of users whose catch determines the distribution of the harvest as set out in the applicable management plan is not taking the harvestable fish available to them, the Department shall manage the fishery as if the available harvest is being taken. When determining the available harvest, the Department shall consider the number of fish needed to meet spawning requirements, the number of fish present in the fishery and in spawning areas that are in excess to spawning requirements and the estimated harvesting capacity of the group or groups of users that would normally participate in the fishery.

The fishery shall be managed according to the plan as stated in the 1988-89 regulation book. No attempt will be made to allow equal fishing time with Chignik, as had been done at one time, but rather the end goal will be to meet the 6 percent allocation levels after the conditions^{2/} of the plan have been satisfied. To meet the goal of 6 percent by July 25, the percentage may fluctuate above or below 6 percent prior to July 25.

² Conditions include daily escapement goals at Chignik, a minimum Chignik sockeye harvest for each run, and restrictive fishing time in the Cape Igvak section and Southeastern District Mainland during the June 26 to July 9 overlap period. The total minimum harvest for Chignik is listed under 5 AAC 09.360 on pages 36 and 37 in the 1988-89 Commercial Finfish Regulation booklet.

Because of the many restrictions placed upon the Southeastern District Mainland fishery to protect the Chignik runs, it may not be possible to achieve a 6 percent allocation level even though the minimum catch level of 600,000 at Chignik is exceeded.

SOUTHEASTERN DISTRICT



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APPENDIX C

FORECAST AREA: Chignik Management Area

PRELIMINARY 1988 SEASON SUMMARY

Total Escapement: 654,694¹ + 21,133² = 675,827
Chignik Harvest: 808,609
Igvak Harvest (Chignik origin): 29,000
Stepovak Harvest (Chignik origin): 54,405
Total Return: 1,567,841

1 Weir counts

2 Estimated escapement after weir was removed.

PRELIMINARY FORECAST OF THE 1989 RETURN

<u>Early Run (Black Lake stocks)</u>	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goal:	400,000	
Harvest Estimate:	750,000	
Return Estimate:	1.15 million	850,000 to 1.45 million

<u>Late Run (Chignik Lake stocks)</u>	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goal:	250,000	
Harvest Estimate:	704,000	
Return Estimate:	954,000	763,000 to 1.15 million

<u>Total Chignik</u>	<u>Point</u>	<u>80% Prediction Range</u>
Escapement Goals:	650,000	
Harvest Estimate:	1.45 million	
Return Estimate:	2.10 million	1.68 to 2.52 million

FORECAST METHODS:

The estimated returns to Black Lake provided above are the summation of the predicted returns of two and three ocean sockeye salmon while the Chignik Lake returns are calculated using all contributing age classes.

The Black Lake forecast is based on the historical relationship between the prior year total return of age 1.2 fish, the average length of prior year age 1.2 male fish and the parent year escapement of age 1.3 and 2.3 fish. These variables provided the framework for the multiple linear regression model used to predict the 1989 return. The Chignik Lake forecast has historically been quite variable in its accuracy and developing a model such as the one used for the first run has been unsuccessful. The forecast for 1989 was derived using an average return per spawner for each age class represented in the return.

DISCUSSION OF THE 1989 FORECAST:

Early Run:

The estimated return of Black Lake sockeye salmon in 1989 is 1.15 million fish. This is approximately 320,000 fish less than the previous ten year average return of 1.47 million. The parent year escapement in 1984 was almost 600,000 fish, 200,000 above the 400,000 first run escapement goal. Although the parent year escapement exceeded established escapement goals the total number of age 1.2 fish returning in 1989 was the lowest since 1980. The estimated return of 53.8 thousand age 1.2 fish returning in 1988 represents only 41 percent of the past ten year average. As a result the 1989 forecast is lower than the previous ten year average.

Late Run:

The estimated return of second run sockeye salmon in 1989 is 954 thousand fish, 120 thousand above the 834 thousand average from 1954 to 1988. The second run forecast has historically been quite variable when compared to actual returns. The 1983 parent year escapement of 441,000 was the second highest escapement since 1954. The average return per spawner for each contributing age class was used to forecast the return and it is anticipated that the actual return will fall within the prediction bounds.

Prepared by:

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Chignik Area ADF&G

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Chignik Area ADF&G

CHIGNIK AREA 1989 SALMON HARVEST PROJECTIONS

<u>Chinook</u> ¹	<u>Sockeye</u>	<u>Coho</u> ²	<u>Pink</u> ³	<u>Chum</u> ⁴	<u>Total</u>
3,000	1.15 million	100,000	448,000	120,000	1.82 million

- 1 The 1988 harvest is dependent upon the amount of fishing time allowed for sockeye salmon in July.
- 2 The harvest of coho salmon is related to the Chignik Lake sockeye salmon run strength.
- 3 The pink salmon forecast is driven by the escapements to the Central and Eastern districts (68 percent). Unstable stream conditions in these districts have resulted in poor returns from excellent parent year escapements.
- 4 The parent year escapements in the Eastern and Central districts were the poorest in recent history. Most (87 percent) of the harvest is based on returns to the Western and Perryville districts.

APPENDIX D

CHIGNIK AREA

CHAPTER 15.—CHIGNIK AREA

ARTICLE 1.—DESCRIPTION OF AREA

5 AAC 15.001. APPLICATION OF THIS CHAPTER. Requirements set forth in this chapter apply to commercial fishing only, unless otherwise specified. Subsistence fishing regulations affecting commercial fishing vessels or affecting any other commercial fishing activity are set forth in the subsistence fishing regulations in chs. 1 and 2 of this title.

5 AAC 15.100. DESCRIPTION OF AREA. The Chignik Area includes all waters of Alaska on the south side of the Alaska Peninsula enclosed by 156°20'13" W.long., (the longitude of the southern entrance to Imuya Bay near Kilokak Rocks) and a line extending 135° southeast from Kupreanof Point.

ARTICLE 2.—FISHING DISTRICTS

5 AAC 15.200. FISHING DISTRICTS. (a) The Eastern District includes all waters from the southernmost marker 500 yards from the mouth of Aniakchak Lagoon to the eastern boundary of the Chignik area

(1) Agripina Section: all waters between Kilokak Rocks at 57°11'22" N.lat., 156°20'13" W.long., and Cape Providence at 56°58'40" N.lat., 156°33'28" W.long.;

(2) Chiginagak Section: all waters between Cape Providence at 56°58'40" N.lat., 156°33'28" W.long., and Cape Kuyuyukak at 56°53'54" N.lat., 156°49'43" W.long.;

(3) Nakalilok-Yantarni Section: all waters between Cape Kuyuyukak at 56°53'54" N.lat., 156°49'43" W.long., and Cape Kunmik at 56°45'53" N.lat., 157°11'53" W.long.;

(4) Big River Section: all waters of Amber and Aniakchak Bays bounded by 157°11'53" W.long., and the latitude of the southernmost marker 500 yards from the mouth of Aniakchak Lagoon;

(b) The Chignik Bay District includes all waters of Chignik Bay and Lagoon west of a line from Jack Point at 56°17'32" N.lat., 158°11'56" W.long., to Neketa Creek at 56°24'10" N.lat., 158°27'37" W.long.

(c) The Western District includes all waters south and west of Jack point at 56°17'32" N.lat., 158°11'56" W.long., excluding the waters of Chignik Lagoon, to Coal Cape at 55°53'28" N.lat., 159°00'20" W.long.

(1) Castle Cape Section: all waters between Jack Point at 56°17'32" N.lat., 158°11'56" W.long. and Cape Ikti at 55°58'45" N.lat., 158°30' W.long.;

CHIGNIK AREA

(2) Dorner Bay Section: all waters between Cape Ikti at 55°58'45" N.lat., 158°30' W.long., and a point on the west side of Dorner (Kuiukta) Bay's entrance at 55°57' N.lat., 158°40' W.long.;

(3) Mitrofanina Section: all waters, including Mitrofanina Island between a point on the west side of Dorner (Kuiukta) Bay's entrance at 55°57' N.lat., 158°40' W.long., and Stirni Point at 55°54'50" N.lat., 158°55' W.long.;

(4) Anchor Bay Section: all waters between Stirni Point at 55°54'50" N.lat., 158°55' W.long., and Coal Cape at 55°53'28" N.lat., 159°00'20" W.long.

(d) The Perryville District includes all waters between Coal Cape at 55°53'28" N.lat., 159°00'20" W.long. and Kupreanof Point at 55°33'55" N.lat., 159°35'50" W.long.

(1) Perryville Section: all waters including Chiachi Islands, between Coal Cape at 55°53'28" N.lat., 159°00'20" W.long., and Coal Point at 55°51'31" N.lat., 159°18'50" W.long.;

(2) Humpback Bay Section: all waters including Paul and Jacob islands, between Coal Point at 55°51'34" N.lat., 159°18'50" W.long., and Alexander Point at 55°47'22" N.lat., 159°24'34" W.long.;

(3) Ivanof Bay Section: all waters between Alexander Point at 55°47'22" N.lat., 159°24'34" W.long., and Kupreanof Point at 55°33'55" N.lat., 159°35'50" W.long.

(e) The Central District includes all waters, excluding the waters of the Chignik Bay district between Jack Point (56°17'32" N.lat., 158°11'56" W.long.), and the southernmost marker 500 yards from the mouth of Aniakchak Lagoon.

(1) Cape Kumlik Section: all waters, including Surwik Island, between the latitude of the southernmost marker 500 yards from the mouth of Aniakchak Lagoon and 157°40'25" W.long., on the southwest side of Cape Kumlik;

(2) Kujulik Section: all waters between a point on the southwest side of Cape Kumlik at 56°36'32" N.lat., 157°40'25" W.long., and a point on Cape Kumiun at 56°28'34" N.lat., 157°51'26" W.long.;

(3) Outer Chignik Bay Section: all waters including Nakchamik Island between a point on Cape Kumiun at 56°28'34" N.lat., 157°51'26" W.long., and Jack Point at 56°17'32" N.lat., 158°11'56" W.long., excluding the Chignik Bay district.

ARTICLE 3.—SALMON FISHERY

5 AAC 15.310. FISHING SEASONS. (a) In the Chignik Bay District, salmon may be taken only from June 1 through October 31.

(b) The Perryville, Western, Central and Eastern Districts are opened by emergency order.

CHIGNIK AREA

5 AAC 15.320. WEEKLY FISHING PERIODS. (a) Salmon fishing periods shall be established by emergency order.

5 AAC 15.330. GEAR. (a) Salmon may be taken only by purse seine or hand purse seine.

5 AAC 15.332. SEINE SPECIFICATIONS AND OPERATION. (a) In the Eastern, Central, Western and Perryville Districts, no purse seine less than 100 fathoms or more than 225 fathoms in length may be used.

(b) In the Eastern, Central, Western and Perryville Districts, hand purse seines may not be less than 100 fathoms or more than 225 fathoms in length.

(c) In the Chignik Bay District, purse seines and hand purse seines may not be less than 100 fathoms or more than 125 fathoms in length.

(d) No seine may be less than three fathoms in depth.

(e) No lead may be more than 75 fathoms in length. The aggregate length of seine and lead may not be more than 225 fathoms in the Eastern, Central, Western and Perryville Districts.

(f) When a purse seine or hand purse seine is in the water for the purpose of taking fish, the seine shall be attached to the licensed vessel operating the gear.

5 AAC 15.350. CLOSED WATERS. Salmon may not be taken in the following waters:

(1) Chignik Lagoon

(A) southwest of a line from the tip of Hume Point to the north side of Chignik Island (56°17'25" N.lat., 158°35'30" W.long.);

(B) Mallard Duck Bay: southwest of a line from the tip of Green Point to Chignik Island (56°16'38" N.lat., 158°34'54" W.long.);

(2) Kilokak Rocks Bay: northwest of a line from the southern entrance of the bay at 57°09'50" N.lat., 156°20'40" W.long., then to the opposite shore 500 yards northeast of the mouth of Kilokak Rocks Creek at 57°10'07" N.lat., 156°20'40" W.long.;

(3) Agripina River: west of a line from 57°06'46" N.lat., 156°28' W.long., to 57°06'35" N.lat., 156°28'30" W.long.;

(4) Chiginagak Bay: north of a line from 57°00'33" N.lat., 156°45'38" W.long., to 57°01'48" N.lat., 156°41'51" W.long.;

(5) Nakalilok Lagoon: the lagoon and within 500 yards of the entrance;

(6) Yantarni Lagoon: the lagoon and within 500 yards of the entrance;

CHIGNIK AREA

(7) Aniakchak River: northwest of a line from approximately 500 yards northeast of the mouth at 56°45'43" N.lat., 157°28'46" W.long., to a marker on the southern tip of the island directly off the mouth and then to approximately 1,000 yards southwest of the mouth at 56°45'20" N.lat., 157°31' W.long.;

(8) Aniakchak Lagoon: the lagoon and within 500 yards of the entrance;

(9) Kujulik Bay: the southwest end of the bay southwest of a line from 56°35'51" N. lat., 157°59' W. long., to the opposite shore at 56°34'30" N. lat., 157°57'30" W. long.;

(10) Portage Bay: west of a line from 56°11'40" N.lat., 158°33' W.long., to 56°10'38" N. lat., 158°33' W. long.;

(11) Ivan Bay: north of a line from the marker on the northwest shore 1,000 yards from the stream mouth to the marker on the southeast shore 750 yards from the stream mouth;

(12) Humpback Bay: within 1,000 yards of the terminus of Humpback Bay stream (275-502) at 55°52'30" N.lat., 159°20' W.long.;

(13) Ivanof Bay: all waters northwest of a line from a point on the northeast shore at 55°52'28" N. lat., 159°28'18" W. long. to a point on the north end of the spit at 55°51' N. lat., 159°30'54" W. long. (all waters northwest of Round Island are closed);

(14) Alfred Creek (271-104): before August 1, the 500 yard closure at the terminus does not apply; the 500 yard closure does apply from August 1 to the end of the salmon fishing season;

(15) Dago Frank Creek (271-105): before August 1, the 500 yard closure at the terminus does not apply; the 500 yard closure does apply from August 1 to the end of the salmon fishing season;

(16) Hook Bay: northwest of a line from the tip of Hook Bay spit at 56°30'07" N.lat., 158°08'04" W.long., to a point on the north side of the bay at 56°31'07" N.lat., 158°07'32" W.long.

(17) Unnamed stream at 55°49'02" N.lat., 159°24'15" W.long.; the 500 yard closure at the terminus does not apply.

(18) Lake Bay: all waters southwest of a line drawn at the entrance to Lake Bay at 56°18'51" N. lat., 158°17'30" W. long. extending across the entrance to Lake Bay;

(19) Mud Bay: all waters southwest of a line from 56°19'28" N. lat., 158°25'12" W. long. extending across the entrance to Mud Bay.

5 AAC 15.355. SALMON PROCESSOR AND BUYER REPORTING REQUIREMENTS. The operator of a floating salmon processing vessel or tender, or a shorebased processing operation, and a company employing aircraft used for transport-

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ting salmon, shall report in person, or by radio or telephone, to a local representative of the department located in the management area of intended operation before the start of processing or buying operations. The report must include the location and the date of intended operation, and identify and describe each vessel or other method of transport employed in hauling or processing salmon.

5 AAC 15.360. EASTERN DISTRICT SALMON MANAGEMENT PLAN. (a) The department shall open and close the Eastern District for commercial salmon fishing concurrently with the Chignik Bay and Central Districts. The department may close the Eastern District for the period between the first (Black Lake) and second (Chignik Lake) sockeye salmon runs.

(b) The department shall close the Eastern District on July 15 to allow evaluation of the strength of the pink and chum salmon runs.

(c) The department shall close the Eastern district when it determines that the salmon being harvested in that district are from stocks that do not originate from spawning areas located in the Chignik Area.

ARTICLE 4.—BOTTOMFISH FISHERY.

5 AAC 15. 410. FISHING SEASON. There is no closed season on bottomfish.

APPENDIX E

Emergency Order No. 4-F-L-01-89

Effective Date: April 15, 1989

EXPLANATION:

This emergency order establishes Chignik Management Area commercial herring fishing periods during the sac-roe season (April 15 through June 30) which will begin at 12:00 noon on every odd numbered day and end at 12:00 noon on the following even numbered day. The first period will begin at 12:00 noon April 15 and end at 12:00 noon April 16 and henceforth on all odd numbered days of the month separated by 24 hour closures until 12:00 noon June 30. During the food and bait season (August 15 through February 28) the fishery will be open 24 hours per day, 7 days per week. This emergency order also closes the Big River section to herring fishing until further notice.

JUSTIFICATION:

Regulations adopted by the Alaska Board of Fisheries established that weekly fishing periods for herring in the Chignik Area would be announced by emergency order. During the roe season (April 15 through June 30) herring stocks are concentrated and are vulnerable to over exploitation. The 24 hour on and 24 hour off fishery will reduce the time that stocks are subject to exploitation and will allow the Department more time to collect catch information and asses the situation(s). During the food and bait season (August 15 through February 28) effort is anticipated to be low and stocks dispersed, therefore a 7 day per week fishery is justified.

The Big River section has not received any appreciable recruitment of herring into that fishery since 1980. The age composition of this stock has shifted from a healthy 1980 biomass dominated by 4 and 5 year olds to a biomass dominated by 8 and 9 year old fish. Consequently, the Big River section (272-20 Amber Bay and 272-60 Aniakchak Bay) will remain closed in 1989.

Emergency Order No. 4-F-L-02-89

Effective Date: April 25, 1989

EXPLANATION:

Effective 12:00 noon Tuesday, April 25, 1989, until further notice Kujulik Bay of the Chignik Management Area is closed to commercial herring fishing.

JUSTIFICATION:

A total of 10 tons of herring have been harvested from Kujulik Bay in 1989. The pre-season harvest quota was established at 10 tons. Until further evaluation of the spawning biomass is conducted it is necessary to close the herring fishery in this bay to avoid overexploitation of the stock.

Emergency Order 4-F-L-03-89

Effective Date: May 3, 1989

EXPLANATION:

Effective 12:00 noon Wednesday, May 3, 1989, until further notice Ivanof Bay Section of the Chignik Management Area is closed to commercial herring fishing.

JUSTIFICATION:

A total of 20 tons of herring have been harvested from Ivanof Bay Section in 1989. The pre-season harvest quota was established at 10 tons. Until further evaluation of the spawning biomass is conducted it is necessary to close the herring fishery in this bay.

Emergency Order No. 4-F-L-04-89

Effective Date: May 31, 1989

EXPLANATION:

Effective 3:38 P.M. Wednesday May 31, 1989 Lake Bay of the Chignik Management Area is closed to commercial herring fishing. Lake Bay includes all waters southwest of a line drawn at the entrance to Lake Bay at 56°18'51" N. lat., 158°17'30" W. long. extending across the entrance to Lake Bay.

JUSTIFICATION:

The pre-season harvest quota for Lake Bay was 10 tons. In-season aerial assessment of Lake Bay did not indicate the available biomass to increase the 10 ton quota. The harvest prior to May 31 totaled 8.6 tons and ADF&G staff were on-site to monitor catches for the May 31 fishery. A set was made for 1.2 tons bringing the cumulative catch from Lake Bay to 9.8 tons. The fishery was closed until further notice at 3:38 P.M. May 31.

Emergency Order No. 4-F-L-05-89

Effective Date: June 12, 1989

EXPLANATION:

The Chignik Bay and Central Districts, and the Eastern District except those waters north of a line of 56°59' N. lat. beginning at Cape Providence and extending eastward, will be open to commercial salmon fishing from 11:00 A.M. Monday June 12 until 11: A.M. Tuesday June 13.

JUSTIFICATION:

The cumulative salmon escapement through the Chignik River weir as of June 10 was 46,767 fish. The escapement schedule calls for 40,000 fish by June 12. Since the escapement objectives have been achieved a commercial fishery is justified to harvest fish surplus to escapement requirements. Although a surveillance program designed to monitor the Chignik Management Area for the presence of oil contaminated waters or beaches is not in effect local current patterns and the presence of oil at Kilokak Rocks necessitates a conservative approach to the management of the Eastern District. Therefore, Eastern District waters north of 56°59' N. lat. will be closed to commercial salmon fishing. (Reference ADF&G test fishing observation reports, Kodiak, AK).

Emergency Order No. 4-f-L-06-89

Effective Date: June 26, 1989

EXPLANATION:

Effective 9:00 A.M. Monday June 26, 1989 all waters of the Chignik Bay District west of a line from Dago Frank's Creek to Negro Head will be open to commercial salmon fishing for 24 hours until 9:00 A.M. Tuesday June 27.

JUSTIFICATION:

The cumulative escapement through Chignik Weir at 6:00 P.M. June 25 was 339,659 fish. The escapement goal of 275 and 325 thousand fish on June 25 has been achieved and the daily escapement rate indicates that the minimum escapement level of 350,000 by June 30 will also be achieved. Test fishing in Chignik Lagoon on June 25 indicates a harvestable surplus and a commercial fishery is justified. Therefore, a 24 hour period is scheduled for 10:00 A.M. Monday June 26 to 10:00 A.M. Tuesday June 27.

The F/V Marci LaRae, under the direction of the ADF&G, documented the presence of mousse and sheen throughout the Eastern and Central Districts in the Chignik Management Area (reference test fish observation reports, ADF&G, Kodiak). The nearest reported

concentrations of mousse to Chignik Lagoon were at Unavikshak Island just outside the entrance of Chignik Bay. No mousse was observed in Chignik Bay or Chignik Lagoon although sheen was observed in both areas. The level of sheen was not inconsistent with the number of vessels operating in the area and given no indication of solid contaminants it was decided to continue with the 24 hour fishing period. However, since no protective booms are in position at the entrance of Chignik Lagoon and there is only one monitoring vessel in the entire Chignik Management Area a conservative management strategy with respect to possible oil contamination will be taken. The presence of oil in the Eastern and Central districts dictates that these areas remain closed. Also, proximity of oil to Chignik Lagoon necessitates a reduction of fishing area in the Chignik Bay District.

Emergency Order No. 4-F-L-07-89

Effective Date: June 26, 1989

EXPLANATION:

The presence of mousse and sheen within Chignik Bay near Anguvik Island coupled with a minimal monitoring effort require that the commercial fishery in progress be closed at 10:00 P.M. Monday June 26.

JUSTIFICATION:

The presence of mousse and sheen within Chignik Bay coupled with a minimal level of monitoring for oil dictated that the 24 hour commercial opening from 9:00 A.M. June 26 to 9:00 A.M. June 27 be terminated early. At approximately 1630 hours on June 26 the R/V Marcie LeRae, a test fishing vessel under the direction of the Alaska Department of Fish and Game, called Chignik Weir and reported observations of mousse within Chignik Bay at Anguvik Island (reference test fishery observations, ADF&G Kodiak AK.) The F/V Marcie LeRae represented the only surveillance presence in the Chignik Management Area and until the full extent of the contamination can be evaluated the commercial fishery will be closed.

Emergency Order No. 4-F-L-08-89

Effective Date: June 30, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 3:00 P.M. until 12:00 Midnight both Friday and Saturday June 30 and July 1. The proximity of oil contaminants dictates that the commercial fishery be restricted to Chignik Lagoon.

JUSTIFICATION:

The daily count of 12,101 sockeye salmon on June 29 brings the cumulative weir count to 386,901 fish. The escapement goal of 350 to 400 thousand sockeye by June 30 has been achieved and a commercial fishery to harvest fish surplus to escapement requirements is necessary. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern and Central districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak AK).

Emergency Order No. 4-F-L-09-89

Effective Date: July 4, 1989

EXPLANATION:

In the Chignik Bay District commercial salmon fishing will be open from 5:00 A.M. until 10:00 P.M. Tuesday and Wednesday July 4 and 5, 1989. The proximity of oil contaminants will restrict the fishery to Chignik Lagoon.

JUSTIFICATION:

The daily weir count on July 3 was 8,140 sockeye salmon bringing the cumulative escapement to 422,479 fish. Age composition samples collected from sockeye salmon in Chignik Lagoon indicate that first run fish are predominant. Escapement requirements have been achieved and a commercial fishery is necessary to harvest fish surplus to spawning requirements. Due to the proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also due to the close proximity of contaminated waters or beaches commercial fishing will be restricted to the Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order No. 4-F-L-10-89

Effective Date: July 10, 1989

EXPLANATION:

Effective 9:00 A.M. Monday July 10, 1989 until 10:00 P.M. Monday July 10, 1989 the Chignik Bay District will be open to commercial salmon fishing. Markers will be the Brown's Point and Mensis Point markers.

JUSTIFICATION:

The daily count of 8,330 sockeye salmon brings the cumulative escapement through Chignik Weir on July 9 to 454,832 fish. Age composition from catch samples collected on July 4 indicate that the percentage of second run fish is rapidly increasing. The interim escapement goal of 40,000 second run sockeye by July 10 appears to have been achieved. Therefore a commercial fishery to harvest fish surplus to escapement requirements is warranted. Due to the presence or close proximity of oil contaminated waters or beaches waters of the Eastern, Central, Western, and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to Chignik Lagoon of the Chignik Bay District. (Reference ADF&G test fishery observation reports, Kodiak AK).

Emergency Order No. 4-F-L-11-89

Effective Date: July 12, 1989

EXPLANATION:

Effective 10:00 A.M. Wednesday July 12, 1989 until 10:00 P.M. Wednesday July 12, 1989 the Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing. Markers will be those placed below Teubers cabin and the Mensis Point markers.

JUSTIFICATION:

The cumulative weir count through July 10 was 463,714 sockeye salmon. The interim second-run sockeye escapement of 50-60 thousand fish by July 17 appears to have been achieved. The harvest for the July 10 commercial salmon opening totaled 88,600 sockeye salmon which indicates a steady influx of fish into Chignik Lagoon. A commercial fishery to harvest fish surplus to escapement requirements is warranted at this time. Due to the presence or close proximity of oil contaminated waters or beaches waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order No. 4-F-L-12-89

Effective Date: July 19, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 5:00 A.M. until 10:00 P.M. Wednesday July 19, 1989. The proximity of oil contaminants will restrict the fishery to Chignik Lagoon.

JUSTIFICATION:

The second run sockeye salmon escapement on July 18 totaled 137,412 fish. This exceeds the interim escapement goal of 100 to 115 thousand fish on July 19 by about 22,000 fish. A commercial fishery to harvest fish surplus to spawning requirements is necessary at this time. Due to the proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of contaminated waters or beaches commercial fishing will be restricted to the Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order No. 4-F-L-13-89

Effective Date: July 20, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 5:00 A.M. until 10:00 P.M. Thursday July 20, 1989. The proximity of oil contaminants will restrict the fishery to Chignik Lagoon.

JUSTIFICATION:

The second run sockeye salmon escapement through 6:00 P.M. Wednesday July 19 totaled 151,628 fish. This interim escapement goal of between 125 to 135 thousand second run sockeye by July 21 has been achieved. Therefore a commercial fishery to harvest fish surplus to escapement requirements is justified. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to the Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order No. 4-F-L-14-89

Effective Date: July 24, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 8:00 A.M. until 10:00 P.M. Monday July 24, 1989 and from 10:00 A.M. until 10:00 P.M. Wednesday July 26.

Markers for the lower Chignik Lagoon will be from the sandspit to the Annihilator and for upper Chignik Lagoon markers will be the Mensis Point markers.

JUSTIFICATION:

The cumulative second run sockeye salmon escapement through Sunday July 23 206,090 fish. The second run sockeye escapement schedule requires 200,000 fish by July 31. Since escapement requirements have been achieved, a commercial fishery to harvest surplus fish is necessary at this time. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to the Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order 4-F-L-15-89

Effective Date: July 27, 1989

EXPLANATION:

The Chignik Bay District will be open to commercial salmon fishing from 10:00 A.M. until 10:00 P.M. Thursday and Friday July 27 and 28, 12:00 noon until 10:00 P.M. Saturday and Sunday July 29 and 30 and from 6:00 A.M. until 10:00 P.M. Monday and Tuesday July 31 and August 1.

Markers for the Lower Chignik Lagoon will be from the sandspit to the Annihilator and for the Upper Chignik Lagoon markers will be the Mensis Point markers.

JUSTIFICATION:

The cumulative second run sockeye salmon escapement through Wednesday July 26 was 257,267 fish. The second run escapement schedules requires 200,000 second run sockeye past the weir by July 31. The catch in Chignik Lagoon totaled 43,727 sockeye salmon on July 24 and coupled with the escapement indicate the

second run may attain forecast strength. Since escapement objectives have been achieved a commercial opening to harvest surplus fish is justified. Due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, Alaska).

Emergency Order 4-F-L-16-89

Effective Date: July 27, 1989

EXPLANATION:

Due to the presence of oil contaminants within Chignik Lagoon in sufficient quantities to pose a risk of contaminating gear and/or product the commercial salmon fishing period scheduled for Thursday July 27 is cancelled.

JUSTIFICATION:

A representative of Columbia Ward Fisheries (CWF) reported a load of contaminated fish at approximately 10:00 P.M. Wednesday July 26, 1989. ADF&G staff immediately responded to the report and determined that the fishing vessel Saint Herman had delivered fish to the CWF tender Sea Ducer. Visual observation revealed that the deck and net of the Saint Herman were contaminated with a petroleum product. There was also a very strong odor associated with the contamination. Both vessels were instructed to report for inspection to Department of Environmental Conservation (DEC) staff in Anchorage Bay. ADF&G staff returned to the location of the Saint Herman's last purse seine set. A sheen was visible and further examination revealed a heavy sheen of approximately 175 yards by 75 yards with lighter sheen in the peripheral areas. Darkness prevented further surveillance. Due to the extensive nature of the sheen observed and no information as to the full extent of oil contamination the fishery scheduled for Thursday July 27 was cancelled to allow a more complete evaluation of Chignik Lagoon.

Emergency Order No. 4-F-L-17-89

Effective Date: August 2, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 8:00 A.M. until 10:00 P.M. daily from Wednesday August 2 until Sunday August 6, 1989.

JUSTIFICATION:

The second run sockeye salmon escapement totaled 306,111 fish on August 5. This is well in excess of the 200,000 escapement required by August 1. The apparent overescapement is a result of altered management strategies due to the presence of oil within the management area. A commercial fishery is justified to harvest fish surplus to escapement requirements. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to the Chignik Lagoon of the Chignik Bay District (reference ADF&G test fishery observation reports, Kodiak, AK).

Emergency Order No. 4-F-L-18-89

Effective Date: August 5, 1989

EXPLANATION:

Due to the presence of oil contamination within Chignik Lagoon the commercial salmon opening scheduled for Saturday August 5 is cancelled. Oil contamination in the form of mousse was found on a passive monitor boom near the bluff on the north side of the lagoon. The status of the commercial fishery period scheduled for Sunday August 6 will be announced at 9:00 P.M. Saturday August 5.

JUSTIFICATION:

Oil contamination, in the form of mousse, was located within Chignik Lagoon on August 4. The presence of mousse in waters traditionally fished by local lagoon fishermen indicates that there is an appreciable likelihood of contaminating gear or product. Therefore, per the memorandum of understanding between the Alaska Department of Fish and Game and the Alaska Department of Environmental Conservation the commercial fishery scheduled for Sunday August 6, is cancelled. Test fishing, aerial surveillance and beach assessment will continue until it can be determined that an appreciable likelihood of contaminating gear or product does not exist.

Emergency Order No. 4-F-L-19-89

Effective Date: August 6, 1989

EXPLANATION:

Due to the presence of oil contamination within Chignik Lagoon the commercial salmon opening scheduled for Sunday August 6 is

cancelled. Oil contamination in the form of mousse was found on a passive monitor boom near the bluff on the north side of the lagoon. The status of the commercial fishery is dependent upon results of the ongoing surveillance program and at this point in time closed until further notice.

JUSTIFICATION:

Oil contamination, in the form of mousse, was located within Chignik Lagoon on August 4. The presence of mousse in waters traditionally fished by local lagoon fishermen indicates that there is an appreciable likelihood of contaminating gear or product. Therefore, per the memorandum of understanding between the Alaska Department of Fish and Game and the Alaska Department of Environmental Conservation the commercial fishery in progress is closed. Test fishing, aerial surveillance and beach assessment will continue until time it can be determined that an appreciable likelihood of contaminating gear or product does not exist.

Emergency Order No. 4-F-L-20-89

Effective Date: August 8, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing from 8:00 A.M. until 10:00 P.M. Tuesday August 8. Due to the presence of oil contaminated beaches or waters the commercial fishery will be restricted to Chignik Lagoon.

JUSTIFICATION:

Through August 5 the second run sockeye salmon escapement totaled 306,118 fish, 106,118 fish more than required on August 1. This level of escapement justifies a commercial fishing period. Complicating this matter was the documented presence of oil contamination, in the form of mousse on August 4, within Chignik Lagoon. Daily beach assessment revealed a single tar ball of unknown origin on August 5 (reference ADF&G test fishery observation reports, Kodiak, AK). At this time there does not appear to be an appreciable likelihood of contaminating gear or product (per ADF&G -DEC memorandum of understanding) and if the trend of clean waters and beaches continues a commercial fishery is scheduled for August 8. It will be necessary, however, to increase the protective measures at the entrance of Chignik Lagoon. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to Chignik Lagoon of the Chignik Bay District.

Emergency Order No. 4-F-L-21-89

Effective Date: August 8, 1989

EXPLANATION:

The commercial salmon fishing period scheduled for the Chignik Bay District on August 8 from 8:00 A.M. until 10:00 P.M. is cancelled.

JUSTIFICATION:

The commercial fishery scheduled for the Chignik Bay District on August 8 is cancelled for the following reasons:

1. Deployment of a protective boom at the entrance of Chignik Lagoon has not yet been accomplished.
2. Several unconfirmed reports of oil within Chignik Lagoon must be investigated prior to a commercial fishery.
3. A shift in winds from a favorable offshore westerly to onshore winds from the southeast.
4. Fresh mousse continues to be located on the Ocean Beach within the proximity of Chignik Lagoon.

The above factors necessitate that the commercial fishery scheduled for August 8 be postponed until further notice.

Emergency Order No. 4-F-L-22-89

Effective Date: August 9, 1989

EXPLANATION:

The Chignik Bay District of the Chignik Management Area will be open to commercial salmon fishing daily from 7:00 A.M. until 10:00 P.M. Wednesday August 9 until further notice. Lower Lagoon markers for Wednesday August 9 will be from CWF cannery to Rocky Point and the upper Lagoon markers will be the Mensis Point markers. Beginning Thursday August 10 until further notice the lower Lagoon markers will be from the sandspit and the Annihilator and the upper lagoon markers will be the Mensis Point markers. Additionally, Chignik Bay District waters south of a line from 158°19.5' W. long., 56°19.5' to 158°25.8' W. long., 56°20.6' N. lat., with the exception of normal closed waters will be open to commercial salmon fishing. All other closed waters will be as described in the 1989 commercial finfish regulations.

JUSTIFICATION:

The total second run sockeye salmon escapement through August 7 was 343,224 fish. This level of escapement far exceeds the escapement requirements need for Chignik Lake stocks by this date. This is due to altered management and closures resulting from the Exxon Valdez oil spill. Chignik Lake sockeye stocks are rearing limited and overescapement may negatively impact the juvenile progeny of the 1989 parent year class. To prevent further overescapement an August 9 commercial salmon fishery is scheduled. This fishery will be restricted to the upper lagoon where beach and aerial surveys indicate the waters and beaches are free of Exxon Valdez oil contamination. The lower lagoon will open for commercial salmon fishing August 10 if the waters and beaches remain free of oil contamination and a passive monitor is deployed at the entrance of Chignik Lagoon. Additionally, Anchorage Bay will open to commercial salmon fishing on August 10. Although the fish caught in these waters are ultimately destined for Chignik Lagoon the decision to open Anchorage Bay was an attempt to relieve the congestion problems encountered by fishermen forced to fish in a non-traditional manner. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches commercial fishing will be restricted to Chignik Lagoon and Anchorage Bay of the Chignik Bay District.

Emergency Order No. 4-F-L-23-89

Effective Date: August 16, 1989

EXPLANATION:

Due to the appreciable likelihood of contaminating gear or product with oil contaminants the current commercial salmon fishery in the Chignik Bay district is closed until further notice.

JUSTIFICATION:

Beach surveys in the Chignik Bay District on August 16 revealed a minimum 30 fresh mousse patties on the ocean spit between Alfred Creek and the ADF&G marker (reference ADF&G test fishery observation reports, Kodiak AK). This was the heaviest impact observed on the ocean spit this year and coupled with a large tide series and onshore easterly winds indicates that there is an appreciable likelihood that gear and/or product may be contaminated. Based on the memorandum of understanding between ADF&G and ADEC this justifies closure of the current commercial fishery until further notice.

Emergency Order No. 4-F-L-24-89

Effective Date: August 19, 1989

EXPLANATION:

The Chignik Bay District will be open to commercial salmon fishing daily from 9:00 A.M. to 10:00 P.M. Saturday August 19 until Thursday August 24. The markers for upper Chignik lagoon will be the Mensis Point markers. Markers for the lower Lagoon will be from the sandspit and the Annihilator. Additionally, waters of Anchorage Bay will be open to commercial salmon fishing.

JUSTIFICATION:

The second run sockeye salmon escapement was 362,300 fish on August 9 when the weir was pulled out. This is well in excess of the 200,000 fish escapement required by August 1 and justifies a liberal fishing schedule. The excess escapement can be attributed to altered management strategies due to oil contaminants within the area. Beach surveys and test fishing efforts since August 16 have revealed no mousse or contaminated fish within Chignik Lagoon proper. Since escapement requirements have been met and the appreciable likelihood of contaminating gear or product does not appear to exist a commercial fishery is warranted. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon and Anchorage Bay of the Chignik Bay District.

Emergency Order No. 4-F-L-25-89

Effective Date: August 25, 1989

EXPLANATION:

The current fishing period in the Chignik Bay District will be extended an additional day through Friday August 25. The same times and markers will remain in effect.

Effective Monday August 28 the Chignik Bay District will be open to commercial salmon fishing on the following weekly schedule: Monday through Friday from 8:00 A.M. to 10:00 P.M. The current markers will remain in effect.

JUSTIFICATION:

The second run sockeye salmon escapement totaled 362,300 fish on August 9 when the weir was pulled out. This is well in excess of the 200,000 fish escapement required by August 1. The catches for this past week have averaged 20,000 daily indicating the second-run will be at or above the forecasted run strength. Excess escapement can be attributed to altered management strategy due to oil contaminants within the area. The level of escapement and strong catches justify extending the current period and allowing a liberal five day per week fishing schedule through October 31. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon and Anchorage Bay of the Chignik Bay District.

Emergency Order No. 4-F-L-26-89

Effective Date: September 5, 1989

EXPLANATION:

Due to lower than anticipated coho salmon harvests, the weekly fishing period will be reduced to Tuesday through Friday. Current times and markers will remain in effect.

JUSTIFICATION

The coho salmon catch in the Chignik Bay District through September totalled 9,663 fish. This is considerably lower than the approximate 41,000 coho salmon harvest by September 1 in 1988. The catches indicate that the run may return at lower than forecast levels and a reduction in fishing time is necessary. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon and Anchorage Bay of the Chignik Bay District.

Emergency Order No. 4-F-L-27-89

Effective Date: September 19, 1989

EXPLANATION:

To adhere to the daylight fishing only guidelines, daily fishing time will be reduced to 9:00 A.M. until 8:00 P.M.

JUSTIFICATION

Due to the presence of oil within the Chignik Management Area a guideline of daylight only fishing was implemented early in the season. Declining daylight hours necessitate a reduction in fishing time in order to adhere to this management guideline. Due to the presence or close proximity of oil contaminated waters or beaches, waters of the Eastern, Central, Western and Perryville districts will remain closed to commercial salmon fishing. Also, due to the close proximity of oil contaminated waters or beaches, commercial fishing will be restricted to Chignik Lagoon and Anchorage Bay of the Chignik Bay District.

APPENDIX F

