

4K95-6

THE SOUTHEASTERN DISTRICT MAINLAND  
SALMON FISHERY OF AREA M  
REPORT TO THE ALASKA BOARD OF FISHERIES

By

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Regional Information Report<sup>1</sup> 4K95-6

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## TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES .....	i
LIST OF FIGURES .....	i
ABSTRACT .....	1
INTRODUCTION .....	2
RECENT HISTORY .....	2
LOCAL STOCKS .....	5
Orzinski Bay .....	5
Stepovak Flats Section .....	5
1992-94 SEASON SUMMARY .....	6
SEASON OUTLOOK 1995 .....	6
LITERATURE CITED .....	7
TABLES .....	8
FIGURES .....	23
APPENDIX .....	35

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1.	Southeastern District Mainland sockeye salmon catch, by gear, through July 10, 1970-94. ....	8
2.	Southeastern District Mainland sockeye salmon catch, by gear, through July 25, 1970-94. ....	9
3.	Southeastern District Mainland sockeye salmon catch, by gear, for the entire season, 1970-94. ....	10
4.	Harvest of Chignik bound sockeye salmon, in the Chignik, Cape Igvak, and Southeastern District Mainland areas from 1964-94. ....	11
5.	Sockeye salmon harvests in the Chignik Management Area and 80 percent of the harvest in the Cape Igvak and Southeastern District Mainland areas, 1964-94. ....	13
6.	Chignik sockeye salmon contribution to the Southeastern District Mainland harvest, by gear, through July 25, 1970-94. ....	15
7.	Southeastern District Mainland fishery, excluding Orzinski Bay, estimated sockeye salmon interception of Chignik destined salmon for the entire season, 1970-94 ....	16
8.	Southeastern District Mainland fishery, annual CFEC permits and number of landings by gear type, 1970-94 ....	17
9.	Sockeye salmon daily and cumulative counts through Orzinski Lake weir 1994 ....	18
10.	Estimated Orzinski sockeye salmon runs and total Southeastern District Mainland sockeye salmon catch, in numbers of fish, 1935-94 ....	20
11.	Average time of entry for sockeye salmon through Orzinski Lake weir, 1990-94 ....	21
12.	Sockeye salmon escapement requirements for Orzinski Lake ....	22

## LIST OF FIGURES

<u>Figures</u>	<u>Page</u>
1. Map of the Alaska Peninsula Management Area with the Southeastern District Mainland Area defined . . . . .	23
2. Map of the Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections defined . . . . .	24
3. Sockeye salmon catch in percent by gear type, through July 25, Southeastern District Mainland, 1970-94. . . . .	25
4. Sockeye salmon catch in percent by gear type, through October 31, Southeastern District Mainland 1970-94. . . . .	26
5. Harvest of Chignik bound sockeye salmon in the Southeastern District Mainland area, through July 25, in percent, 1973-94 . . . . .	27
6. Set gillnet effort and sockeye harvest level in the Southeastern District Mainland fishery, through July 25, 1970-1994 . . . . .	28
7. Overview of the Southeastern District Mainland (SEDM) Salmon Management Plan . . . . .	29
8. Southeastern District Mainland CFEC permits fished by gear, 1970-94. . . . .	30
9. Southeastern District Mainland landings by gear, 1970-94. . . . .	31
10. Map of the pre-1992 Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections defined . . . . .	32
11. Purse seine effort and sockeye harvest level in the Southeastern District Mainland fishery, through July 25, 1970-1994 . . . . .	33
12. Orzinski Lake weir average cumulative sockeye escapement timing, 1990-94. . . . .	34

## LIST OF APPENDICES

<u>Appendix</u>	<u>Page</u>
A. Southeastern District Mainland (Alaska Peninsula Area) Salmon Management Plan, 1994 . . . . .	36
B. Chignik (preliminary) forecast of the 1995 run . . . . .	45
C.1. Southeastern District Mainland salmon harvest by species, all gear combined, June 1-July 10, 1970-94 . . . . .	47
C.2. Southeastern District Mainland salmon harvest by species, purse seine gear, June 1-July 10, 1970-94 . . . . .	48
C.3. Southeastern District Mainland salmon harvest by species, set gillnet gear, June 1-July 10, 1970-94 . . . . .	49
C.4. Southeastern District Mainland salmon harvest, by species, all gear combined, June 1-July 25, 1970-94 . . . . .	50
C.5. Southeastern District Mainland salmon harvest by species, purse seine gear, June 1-July 25, 1970-94 . . . . .	51
C.6. Southeastern District Mainland salmon harvest by species, set gillnet gear, June 1-July 25, 1970-94 . . . . .	52
C.7. Southeastern District Mainland set gillnet salmon harvest, June 1-July 25, 1994 . . . . .	53
C.8. Orzinski Bay daily salmon harvest by species, all gear combined, June 1-July 10, 1991-94 . . . . .	54
C.9. Orzinski and American Bays, daily salmon harvest, by species and gear type, June 1-July 25, 1990 . . . . .	55
C.10. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1991 . . . . .	56
C.11. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1992 . . . . .	57
C.12. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1993 . . . . .	58
C.13. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1994 . . . . .	59

## LIST OF APPENDICES (Cont.)

<u>Appendix</u>	<u>Page</u>
C.14. Orzinski Bay daily salmon harvest by species and gear type, June 1-July 25, 1991 .....	60
C.15. Orzinski Bay daily salmon harvest by species and gear type, June 1-July 25, 1992 .....	61
C.16. Orzinski Bay daily salmon harvest by species and gear type, June 1-July 25, 1993 .....	62
C.17. Orzinski Bay daily salmon harvest by species and gear type, June 1-July 25, 1994 .....	63
C.18. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1993 .....	64
C.19. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1992 .....	65
C.20. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1991 .....	66
C.21. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1990 .....	67

## ABSTRACT

The Southeastern District Mainland (SEDM) fishery is located in Stepovak, Beaver and Balboa Bays in Area "M" of the Alaska Peninsula Management Area (Figure 1-2). Under a management plan established by the Alaska Board of Fisheries (BOF) in 1991, the fishery is allocated 7.0% of the total Chignik bound sockeye salmon harvest through July 25. The present plan to regulate the Southeastern District Mainland fishery is based on the Cape Igvak Salmon Management Plan, in the Kodiak Management Area, which the BOF instituted in 1978. After July 25, the area is managed on local stocks. Over the past 20 years, about 89% of the sockeye salmon harvest has been by set gillnet fishers and 11% by purse seine fishers. The recent ten year average harvest (1985-94) of sockeye in the Southeastern District Mainland through July 25 is 180,458 salmon. Since 1990, the Southeastern District Mainland fishery has harvested an average of 7.2% of the total Chignik bound run through July 25.

In 1994, the Southeastern District Mainland harvest of sockeye salmon through July 25 was 221,657 salmon. The Chignik bound sockeye salmon contribution of the harvest (142,350 salmon) accounted for 7.0% of the total Chignik bound harvest through July 25. Through July 25, 56 Area "M" set gillnet and zero purse seine permit holders participated in the Southeastern District Mainland fishery.

In 1994, Orzinski Lake had an escapement of 38,000 sockeye salmon and a 47,077 sockeye harvest attributed to the system. The 1990-94 average sockeye escapement into Orzinski Lake was 27,943 salmon.

KEY WORDS: Southeastern District Mainland, Orzinski Lake, sockeye salmon

## INTRODUCTION

The Southeastern District Mainland (SEDM) fishery of Area "M" is located on the South Alaska Peninsula (Figure 1). Included in this fishery are the Beaver Bay, Balboa Bay, Southwest Stepovak, Northwest Stepovak, East Stepovak, and Stepovak Flats Sections (Figure 2). Through the present Alaska Board of Fisheries (BOF) management plan (Appendix A), Orzinski (Orzenoi) Bay and the Stepovak Flats Section are managed on a local stock basis throughout the season, and the remainder of the area is managed on an allocation based on the strength of the Chignik sockeye run (Appendix B). After July 25, the entire area is managed on a local stock basis.

Set gillnet fishers have traditionally harvested about 90% of the total sockeye salmon harvest. Since the 1978 season, set gillnet gear is the only legal gear type through July 10. Purse seine fishers harvest the remainder (about 10%) during periods established after July 10 (Tables 1-3; Figures 3 and 4).

Fishing effort during June and most of July primarily targets Chignik bound sockeye salmon, and to a lesser degree the Orzinski Lake sockeye run in the Northwest Stepovak Section and early July chum salmon in the Stepovak Flats Section. During late July through mid August, local pink and chum salmon runs are peaking. The fishery is usually closed during mid and late August to achieve desired pink and chum salmon escapement goals and is opened again in September to harvest coho salmon. Sockeye salmon are migrating through the area during the entire season.

## RECENT HISTORY

Since 1964, the SEDM fishery has produced harvests typically less than 100,000 sockeye salmon (Table 4 and Appendix C). From 1974 through 1977, the fishery was open on a day per day basis with Chignik Lagoon. During some years, such as 1977, only short fishing periods were required to harvest large runs in Chignik Lagoon while daily interception rates in the SEDM fishery were low. This resulted in low numbers of salmon being caught in the SEDM area.

For the 1978 season, the BOF allowed three fishing days per week in the SEDM fishery through July 10 and made set gillnet gear the only legal gear through July 10. Interception rates were low despite strong Chignik runs, resulting in a SEDM harvest of only 21,952 sockeye salmon (Tables 4-6). From 1973 through 1978, an average of 20 set gillnet fishers participated in this fishery for the entire season (Table 8 and Figure 8).

During the winter of 1978-79, the BOF increased fishing time from three days to five days per week but specified that not more than 60,000 estimated Chignik sockeye salmon could be harvested through July 10. However, it was stipulated that the fishery could be closed if it became apparent that a closure was needed to assure Chignik escapement requirements. Also, if the Chignik Area catch exceeded 1,000,000 sockeye salmon before July 10, the SEDM fishery could continue beyond the 60,000 ceiling. This management plan remained in effect until 1985.

From 1979 through 1982, SEDM fishers harvested an average of over 76,000 sockeye salmon annually, 6.4% of the total (Figure 5) Chignik bound sockeye harvest, even though numerous fishery closures were needed because of weak Chignik Area sockeye escapements. From 1978 through 1982, set gillnet permit holder participation, for the entire season increased to an average of 33 (Table 8 and Figure 8).

The 1983 season estimated interception of Chignik destined sockeye salmon totaled 227,392 fish (Tables 4-6). Most of the sockeye salmon (76%) were harvested between July 10 and August 10.

In 1984, set gillnet effort increased to 57 permits (Table 8 and Figure 8), of which five were operated by purse seine permit holders. Due to an exceptionally large early Chignik run, a large number of fish available in the SEDM area, and a large amount of gear, only 6 days were required to harvest an estimated 60,000 Chignik bound sockeye salmon. The fishery was closed for only 3 days before the Chignik sockeye harvest reached 1,000,000 salmon. The SEDM fishery was re-opened on June 14 using the fishing periods listed in the regulation book (6 a.m. Monday through 6 p.m. Friday).

In 1984, the second Chignik sockeye salmon run was not as strong as predicted. The Chignik second run escapement goal was reached only after considerable curtailment of the SEDM, Chignik, and Cape Igvak (Kodiak Area) fisheries during mid-July. The total 1984 SEDM interception of Chignik destined sockeye salmon through July 25 was 423,068 fish.

Prior to the 1985 season, the BOF developed a management plan based on the Cape Igvak Salmon Management Plan (Figure 7) instead of using a set fishing schedule. The new plan stated that in years when a harvestable surplus beyond the escapement goals for the first and second runs of Chignik River system sockeye salmon was expected to be more than 600,000, and the department determined that the runs were as strong as expected, and would manage the fishery so that the number of sockeye salmon taken in the SEDM fishery (exclusive of the Northwest Stepovak Section) was as near as possible to 6.2% of the total Chignik bound sockeye salmon harvest through July 25. The BOF changed the allocation to 6.0% beginning with the 1988 season.

In years when a harvestable surplus for the first and second runs of Chignik River system sockeye salmon was expected to be less than 600,000, no commercial salmon fishery targeting Chignik sockeye salmon would be allowed in the SEDM fishery until a harvest of 300,000 sockeye salmon was achieved in the Chignik area. After July 9, fishing in the SEDM might occur provided at least 300,000 sockeye salmon had been harvested in the Chignik Area, escapement goals were being met, the Chignik Area harvest was anticipated to total at least 600,000, and the SEDM fishery harvest was, as near as possible, 6.0% of the total Chignik bound sockeye salmon harvest.

From 1985 through 1991, the harvest of Chignik bound sockeye salmon in the SEDM, through July 25, averaged 88,776 fish and 5.5% of the total Chignik bound sockeye salmon harvest.

The present management plan was instituted by the BOF beginning with the 1992 season (Appendix A). The revised plan included two significant changes as follows:

- 1) the area in the Northwest Stepovak Section to be managed on a local stock basis was reduced to include only the waters of Orzinski Bay; the Stepovak Flats Section would continue to be managed on the basis of the Stepovak River chum salmon stock (Figures 2 and 10).
- 2) the allowable harvest of sockeye salmon in the SEDM fishery (exclusive of Orzinski Bay) through July 25, was increased from 6.0% to 7.0% of the total Chignik bound sockeye salmon catch.

The total Chignik destined sockeye salmon catch is estimated by adding 80% of the SEDM catch (excluding Orzinski Bay) to 80% of the Cape Igvak catch plus the entire Chignik Area sockeye salmon catch. The 80% interception allocation rates are based on ADF&G tagging studies conducted in Stepovak Bay and Cape Igvak.

Since set gillnet gear is the only legal gear type in the SEDM area through July 10, management attempts to reach the 7% sockeye salmon allocation on July 10, and again on July 25, to achieve parity when the area is open to both set gillnet and purse seine gear.

There are two distinct sockeye salmon runs into the Chignik River system; the Black Lake run and the Chignik Lake run. Based on previous tagging studies, the two runs overlap in run timing in the SEDM and Cape Igvak fishery areas from about June 26 through July 9. During the overlap period, the strength of the second run (Chignik Lake) cannot be evaluated. In order to prevent overharvest of the second run, the Cape Igvak and SEDM fisheries (except Orzinski Bay) are usually closed during this period. However, fishing may continue at the terminal area in Chignik, where fishing must be allowed to harvest excess early run sockeye salmon, even though second run fish are present (Figure 7).

Table 4 lists the harvests in the Cape Igvak, SEDM, and Chignik Management Areas. The 1975-1994 SEDM catch of Chignik destined sockeye salmon through July 25 averaged 98,616 fish (6.6% of the total Chignik bound harvest; Table 6). The 1994 harvest was 142,350 sockeye salmon (7.0% of the total Chignik bound harvest; Table 4).

Figure 8 shows that 1978 marked the beginning of a substantial yearly increase of set gillnet effort in the SEDM fishery, jumping from 23 permits in 1978 to 61 in 1994. Since 1985, set gillnet effort has averaged about 56 permits (Table 8 and Figure 8). Previously, many fishers participated in both set gillnet and purse seine fishing, and received a limited entry permit for each gear type. During the 1970's and 1980's, many of the dual permit holders sold or transferred their set gillnet permits and retained their purse seine permits. This action increased effort in the SEDM fishery, since many permits which were previously used part-time were now fishing full-time. Set gillnet landings have increased from 235 in 1978 to 1,302 in 1994. Set gillnet landings in the SEDM averaged 876 from 1975 through 1994, however since 1985, set gillnet landings have averaged 1,035 (Table 8 and Figure 9). Since 1991, set gillnet effort and landings have remained stable, averaging 62 permits and 1,331 landings.

Purse seine effort in the SEDM fishery has also increased, from 45 permits in 1978 to 61 in 1994, (Table 8; Figures 8, 9 and 11). Since 1991, purse seine effort has averaged 63 permits.

Purse seine landings in the SEDM averaged 231 from 1975 through 1994, 246 since 1985, and about 250 from 1991-94.

## LOCAL STOCKS

### *Orzinski Bay*

Commercial salmon fishing in Orzinski Bay, in the Northwest Stepovak Section, and in the Stepovak Flats Section is managed on a local stock basis (Figure 2). Orzinski Bay fisheries are managed based the Orzinski Lake sockeye salmon escapement through July 25, and after about July 25 on local sockeye and pink salmon runs. Fisheries in the Stepovak Flats Section are managed on the basis of local Stepovak River chum salmon stocks. The entire SEDM area is managed on the basis of local stocks (sockeye, pink, chum, and coho salmon) after July 25.

Orzinski Lake sockeye salmon escapement was counted through a weir from 1935 to 1941, and from 1990 to 1994 (Table 10). The earliest recorded sockeye salmon escapement occurred on June 11, (1940), but sockeye salmon usually begin to enter the lake about June 17. July 17 is the average date of 50% cumulative sockeye escapement (Table 11), while on average , 99% of the annual escapement occurs by August 7. Based on historical aerial surveys and weir counts, sockeye escapement requirements for Orzinski Lake by time periods were developed and implemented beginning with the 1991 season (Table 12). The sockeye escapement goal for Orzinski Lake is 20,000 salmon (Table 12). From 1990 through 1994, the sockeye escapement has averaged 28,500, and ranged from a high of 40,000 in 1991 to a low of 15,000 in 1990. Since 1990, July 9 is the average date when 50% of the sockeye escapement requirement of 20,000 salmon has been achieved (Figure 12). In 1993, the estimated total sockeye escapement into Orzinski Lake was 25,000 salmon, while in 1994, total escapement was estimated at 38,000 fish (Tables 9 and 10).

All of the sockeye salmon caught within Orzinski Bay are considered to be of Orzinski Lake stock. Of those sockeye salmon caught in the remainder of the SEDM fishery 80% are considered to be of the Chignik River system runs. From July 1 through July 25, fishing time in Orzinski Bay is based on the strength of the sockeye salmon run destined to Orzinski Lake. After July 25, fishing time is also based on local sockeye, pink and chum salmon stocks.

### *Stepovak Flats Section*

Commercial salmon fishing in the Stepovak Flats Section is managed on the basis of local chum salmon runs into the Stepovak Rivers. Through July 11, this section is open on a day per day basis with the remainder of the SEDM fishery. Eighty percent of the sockeye salmon harvested in this section are assigned as Chignik bound fish, and are included as part of the 7.0% allocation criteria stated in the SEDM management plan. The entire section is closed to salmon fishing by regulation after July 29 to protect schooling chum salmon.

## 1992-94 SEASON SUMMARY

Since 1992, when the current Southeastern District Mainland Salmon Management Plan went into effect, the harvest of total Chignik bound sockeye salmon, through July 25, in the SEDM has averaged 6.95%, and ranged from 7.15% in 1992 to 6.7% in 1993 (Table 4 and Figure 5). The current plan of harvesting 7.0% allocation of Chignik bound sockeye salmon has been achieved the past three seasons, and the escapement goals at Orzinski Lake continue to be attained (Tables 4 and 10; Figure 5).

## SEASON OUTLOOK 1995

The outlook for the 1995 sockeye salmon harvest in the SEDM is based on the Chignik Management Area preliminary sockeye salmon forecast (Appendix B), and uses the current 7% allocation figure for the SEDM fishery.

The 1995 preliminary Chignik Area forecast estimates an early run (Black Lake) harvest of 1,500,000, a late run (Chignik Lake) harvest of 650,000, for a total estimated Chignik sockeye harvest of 2,150,000 salmon.

Since 1975, prior to July 26, the harvest of Chignik bound sockeye (100% Chignik + 80% Cape Igvak + 80% SEDM) has averaged 81 percent of the Chignik harvest for the entire season, and the recent ten year average (1985-94) is 79%. Therefore, assuming that approximately 80 percent of the 2,150,000 total estimated Chignik sockeye salmon harvest for 1995 will occur before July 26, the SEDM (less Orzinski Bay) 7% allocation converts into a potential sockeye harvest of about 120,000 salmon through July 25. This estimated harvest figure compares favorable with both the recent ten year average of 98,616 sockeye, and the past twenty year average of 101,960 sockeye salmon harvested in the SEDM (less Orzinski Bay) through July 25 (Table 6 and Appendix C).

## LITERATURE CITED

ADF&G (Alaska Department of Fish and Game). 1992. 1992-1994 Bristol Bay and Westward Alaska Commercial Fishing Regulations, Salmon and Miscellaneous Finfish. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.

Table 1. Southeastern District Mainland sockeye salmon catch, by gear, through July 10, 1970-94.

Year	Catch by Gear				Total Catch
	Set Gillnet <sup>a</sup>		Purse Seine		
	Number	Percent	Number	Percent	
1970	76,251	95.8	3,357	4.2	79,608
1971	48,523	97.5	1,240	2.5	49,763
1972	14,874	96.8	490	3.2	15,364
1973	34,668	98.0	703	2.0	35,371
1974	44,448	77.9	12,610	22.1	57,058
1975	0	0.0	0	0.0	0
1976	48,742	93.7	3,276	6.3	52,018
1977	19,111	75.1	6,322	24.9	25,433
1978	25,406	100.0	0	0.0	25,406
1979	37,444	100.0	0	0.0	37,444
1980	51,347	100.0	0	0.0	51,347
1981	133,201	100.0	0	0.0	133,201
1982	60,386	100.0	0	0.0	60,386
1983	119,396	100.0	0	0.0	119,396
1984	532,080	100.0	0	0.0	532,080
1985	61,160	100.0	0	0.0	61,160
1986	140,329	100.0	0	0.0	140,329
1987	216,609	100.0	0	0.0	216,609
1988	17,924	100.0	0	0.0	17,924
1989	11,728	100.0	0	0.0	11,728
1990	20,177	100.0	0	0.0	20,177
1991	251,386	100.0	0	0.0	251,386
1992	134,978	100.0	0	0.0	134,978
1993	135,950	100.0	0	0.0	135,950
1994	177,938	100.0	0	0.0	177,938
<hr/>					
Averages					
1975-94	109,765	99.6	480	1.6	110,245
1985-94	116,818	100.0	0	0.0	116,818

<sup>a</sup> Only set gillnet gear is allowed prior to July 10 since 1978 season. After 1977, any purse seine deliveries prior to July 11 are assumed to be in error and were assigned to set gillnet gear.

Table 2. Southeastern District Mainland sockeye salmon catch, by gear, through July 25, 1970-94.

Year	Catch by Gear				Total Catch
	Set Gillnet <sup>a</sup>		Purse Seine		
	Number	Percent	Number	Percent	
1970	80,692	95.4	3,904	4.6	84,596
1971	60,767	95.9	2,587	4.1	63,354
1972	19,491	92.4	1,614	7.6	21,105
1973	46,141	97.9	976	2.1	47,117
1974	66,101	74.9	22,129	25.1	88,230
1975	1,807	57.3	1,349	42.7	3,156
1976	52,414	90.2	5,712	9.8	58,126
1977	30,658	70.5	12,827	29.5	43,485
1978	28,930	92.7	2,267	7.3	31,197
1979	77,604	87.5	11,136	12.5	88,740
1980	89,743	93.0	6,729	7.0	96,472
1981	181,698	90.1	20,013	9.9	201,711
1982	79,442	91.5	7,351	8.5	86,793
1983	213,051	71.0	87,107	29.0	300,158
1984	567,043	95.3	28,000	4.7	595,043
1985	78,347	96.8	2,610	3.2	80,957
1986	196,545	95.2	9,987	4.8	206,532
1987	244,413	99.8	482	0.2	244,895
1988	77,204	95.1	3,956	4.9	81,160
1989	46,977	52.7	42,247	47.3	89,224
1990	85,368	52.0	78,660	48.0	164,028
1991	275,768	95.2	13,959	4.8	289,727
1992	214,638	99.6	806	0.4	215,444
1993	186,656	88.5	24,271	11.5	210,927
1994	221,657	100.0	0	0.0	221,657
Averages					
1975-94	147,498	89.1	17,973	10.9	165,471
1985-94	162,757	90.2	17,698	9.8	180,455

<sup>a</sup> Only set gillnet gear is allowed prior to July 10 since 1978 season.

Table 3. Southeastern District Mainland sockeye salmon catch, by gear<sup>a</sup>, for the entire season, 1970-94.

Year	Catch by Gear				Total Catch
	Set Gillnet <sup>a</sup>		Purse Seine		
	Number	Percent	Number	Percent	
1970	81,259	95.1	4,158	4.9	85,417
1971	61,037	95.1	3,141	4.9	64,178
1972	19,957	89.9	2,233	10.1	22,190
1973	46,586	97.2	1,346	2.8	47,932
1974	66,200	74.0	23,219	26.0	89,419
1975	1,807	57.3	1,349	42.7	3,156
1976	54,190	90.4	5,725	9.6	59,915
1977	35,410	73.1	13,053	26.9	48,463
1978	30,229	87.1	4,462	12.9	34,691
1979	89,863	71.2	36,270	28.8	126,133
1980	115,978	89.0	14,344	11.0	130,322
1981	226,820	87.4	32,719	12.6	259,539
1982	109,867	93.1	8,165	6.9	118,032
1983	284,735	72.2	109,489	27.8	394,224
1984	617,011	90.7	63,634	9.3	680,645
1985	119,672	86.8	18,219	13.2	137,891
1986	224,333	91.4	21,178	8.6	245,511
1987	290,042	96.9	9,421	3.1	299,463
1988	125,509	79.2	32,865	20.8	158,374
1989	151,745	53.8	130,549	46.2	282,294
1990	158,065	57.0	119,395	43.0	277,460
1991	336,238	84.8	60,417	15.2	396,655
1992	283,927	86.8	43,267	13.2	327,194
1993	271,750	82.1	59,265	17.9	331,015
1994	305,447	92.5	24,832	7.5	330,279
<b>Averages</b>					
1975-94	191,632	82.6	40,431	17.4	232,063
1985-94	226,673	81.4	51,941	18.6	278,614

<sup>a</sup> Set gillnet gear only prior to July 10 since 1978 season. Assumes the same ratio of Chignik bound sockeye during July 26 through the end of the season as found prior to July 26.

Table 4. Harvest of Chignik bound sockeye salmon in the Chignik, Cape Igvak, and Southeastern District Mainland areas<sup>a</sup> from 1964-94.

Year	Chignik Area		Cape Igvak		Southeastern District Mainland Area		Total
	Catch	Percent	Catch	Percent	Catch	Percent	
1964 <sup>b</sup>	556,890	90.57	14,980	2.44	43,021	7.00	614,891
1965	599,553	89.94	11,021	1.65	56,020	8.40	666,594
1966	219,794	87.99	18,003	7.21	12,011	4.81	249,808
1967	462,000	91.48	23,014	4.56	20,021	3.96	505,035
1968	977,382	82.53	135,951	11.48	70,959	5.99	1,184,292
1969	394,135	78.96	97,982	19.63	7,013	1.41	499,130
1970 <sup>c</sup>	1,325,734	72.51	434,394	23.76	68,181	3.73	1,828,309
1971	1,016,136	80.33	197,614	15.62	51,272	4.05	1,265,022
1972	378,218	87.99	33,865	7.88	17,752	4.13	429,815

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

1973 <sup>d</sup>	769,258	89.01	57,348	6.64	37,613	4.35	864,219
1974	530,278	73.97	122,071	17.03	64,564	9.01	716,913
1975	115,984	81.78	23,635	16.67	2,205	1.55	141,824
1976	792,024	83.08	117,926	12.37	43,356	4.55	953,306
1977	1,547,285	90.61	128,852	7.55	31,498	1.84	1,707,635
1978 <sup>e, f</sup>	1,454,389	85.38	227,014	13.33	21,952	1.29	1,703,355
1979 <sup>g</sup>	794,504	80.30	13,950	1.61	55,352	6.41	863,806
1980	670,001	91.33	32	0.00	63,570	8.67	733,603
1981	1,606,300	79.88	282,727	14.06	121,870	6.06	2,010,897
1982	1,250,768	84.46	167,401	11.30	62,767	4.24	1,480,936
1983	1,450,832	72.68	318,048	15.93	227,392	11.39	1,996,272
1984	2,474,405	73.93	449,372	13.43	423,068	12.64	3,346,845
1985 <sup>h</sup>	696,169	79.91	123,627	14.19	51,421	5.90	871,217
1986	1,456,729	82.64	188,017	10.67	118,006	6.69	1,762,752
1987	1,659,915	77.98	321,746	15.12	146,886	6.90	2,128,547
1988	678,912	95.70	11,218	1.58	19,320	2.72	709,450
1989	502,477	99.12	0	0.00	4,485	0.88	506,962
1990	1,211,097	83.67	107,706	7.44	128,599	8.88	1,447,402
1991 <sup>i</sup>	1,966,986	80.48	324,329	13.27	152,714	6.25	2,444,029
1992 <sup>j</sup>	1,066,732	81.25	152,358	11.60	93,845	7.15	1,312,935
1993	1,500,459	77.78	300,055	15.55	128,536	6.63	1,929,050
1994 <sup>k</sup>	1,641,574	80.70	250,230	12.30	142,350	7.00	2,034,154

<sup>a</sup> The Cape Igvak and Southeastern District Mainland 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 Southeastern District Mainland Area (excluding sockeye caught in Northwest Stepovak Section from 1964-1991 and in Orzinski bay in 1992) are destined for Chignik.

<sup>b</sup> The data from 1964-1972 are based on total yearly catches. Prior to 1973, Cape Igvak and Southeastern District Mainland fisheries were set by regulation to weekly fishing periods, usually 5 days per week. Time modifications were implemented when poor escapements occurred at Chignik.

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Table 4. (page 2 of 2)

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- c Catches (1970-1992) were updated using historical electronic fish ticket databases.
  - d During 1973 through 1977 all three fisheries were managed on a day by day basis.
  - e From 1978-1991, the Cape Igvak Fishery Management Plan allocated 15 percent of the total sockeye catch destined for Chignik.
  - f During 1978, seining prior to July 11 was disallowed in the Southeastern District Mainland. 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.
  - g During 1979-1984 and prior to July 11, fishing was allowed 5 days per week in the Southeastern District Mainland fishery with a ceiling of an estimated 60,000 sockeye destined for Chignik. If the Chignik Area sockeye catch was 1,000,000 or more before July 11, the 60,000 ceiling was to be dropped.
  - h Beginning in 1985, Southeastern District Mainland fishery (excluding the Northwest Stepovak Section from 1964-1991 and Orzinski Bay statistical area) was placed on an allocation of 6.2 percent of the total estimated Chignik sockeye catch through July 25. After July 25, the Southeastern District Mainland is managed on a local stock basis. The allocation changed to 6.0 percent beginning in 1988. Seining is still not allowed prior to July 11.
  - i Includes overescapement of 278,305 sockeye counted past the weir during the Chignik Area seiners' boycott (June 23-July 4).
  - j Review of Orzinski Lake historical and current escapement records led the Alaska Board of Fisheries to redefine the Southeastern District Mainland Management Plan. Beginning in 1992, the Southeastern District Mainland fishery (excluding Orzinski Bay) was placed on an allocation of 7.0 percent of the total estimated Chignik sockeye catch through July 25.
  - k Includes overescapement of 208,921 sockeye salmon counted past the weir during the Chignik Area seiner's boycott (June 22-June 25).
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Table 5. Sockeye salmon harvests in the Chignik Management Area and 80 percent of the harvest in the Cape Igvak and Southeastern District Mainland areas, 1964-94.<sup>a</sup>

Year	Harvest To July 25 Only				Harvest For Entire Season			
	Chignik	Cape Igvak	Southeastern Mainland	Total	Chignik	Cape Igvak	Southeastern Mainland	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	-	-	-	-	1,325,734	434,394	68,181	1,828,309
1971	-	-	-	-	1,016,136	197,614	51,272	1,265,022
1972	-	-	-	-	378,218	33,865	17,752	429,835
1973	769,258	57,348	37,613	864,219	870,354	57,348	38,266	965,968
1974	530,278	122,071	64,564	716,913	662,905	122,071	65,514	850,490
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	227,014	21,952	1,703,355	1,576,283	227,052	23,990	1,825,325
1979	794,504	13,950	55,352	863,806	1,049,497	20,436	82,153	1,152,086
1980	670,001	32	63,570	733,603	859,966	631	88,046	948,643
1981	1,606,300	282,727	121,870	2,010,897	1,839,469	284,211	166,034	2,289,714
1982	1,250,768	167,401	62,767	1,480,936	1,521,686	168,295	86,849	1,776,830
1983	1,450,832	318,048	227,392	1,996,272	1,824,175	323,004	297,429	2,444,608
1984	2,474,405	449,372	423,068	3,346,845	2,660,619	450,066	487,938	3,598,623
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	188,129	147,056	1,981,019
1987	1,659,915	321,746	146,886	2,128,547	1,898,838	344,357	188,983	2,432,178
1988	678,912	11,218	19,320	709,450	795,841	28,783	79,101	903,725
1989	502,477	-	4,485	506,962	1,159,287	-	138,594	1,297,881
1990	1,211,097	107,706	128,599	1,447,402	2,093,650	133,821	216,944	2,444,415
1991 <sup>b</sup>	1,966,986	324,329	152,714	2,444,029	2,173,970	341,869	228,934	2,744,773
1992	1,066,732	152,358	93,845	1,312,935	1,277,449	156,318	177,713	1,611,480
1993	1,500,459	300,055	128,536	1,929,050	1,697,351	329,905	222,591	2,249,847
1994 <sup>c</sup>	1,641,574	250,230	142,350	2,034,154	1,827,894	257,830	226,562	2,312,286

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Table 5. (page 2 of 2)

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- <sup>a</sup> Catches (1970-1992) were updated using historical electronic fish ticket databases.
- <sup>b</sup> Includes overescapement of 278,305 sockeye counted past the weir during the Chignik Area Seiners' boycott (June 23 - July 4).
- <sup>c</sup> Includes overescapement of 208,921 sockeye counted past the weir during the Chignik Area Seiners' boycott (June 22 - June 25).
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Table 6. Chignik sockeye salmon contribution to the Southeastern District Mainland harvest, by gear, through July 25, 1970-94<sup>a,b</sup>.

Year	Catch by Gear				Total Catch
	Set Gillnet		Purse Seine		
	Number	Percent	Number	Percent	
1970	63,688	94.2	3,894	5.8	67,582
1971	48,575	95.9	2,066	4.1	50,641
1972	15,593	92.4	1,291	7.6	16,884
1973	36,870	98.0	743	2.0	37,613
1974	52,798	81.8	11,766	18.2	64,564
1975	1,126	51.1	1,079	48.9	2,205
1976	40,399	93.2	2,957	6.8	43,356
1977	23,924	76.0	7,574	24.0	31,498
1978	20,174	91.9	1,778	8.1	21,952
1979	50,610	91.4	4,742	8.6	55,352
1980	58,190	91.5	5,380	8.5	63,570
1981	106,811	87.6	15,059	12.4	121,870
1982	57,646	91.8	5,121	8.2	62,767
1983	157,831	69.4	69,561	30.6	227,392
1984	404,738	95.7	18,330	4.3	423,068
1985	49,523	96.3	1,898	3.7	51,421
1986	110,572	93.7	7,434	6.3	118,006
1987	146,636	99.8	250	0.2	146,886
1988	16,465	85.2	2,855	14.8	19,320
1989	4,371	97.5	114	2.5	4,485
1990	65,671	51.1	62,928	48.9	128,599
1991	152,454	99.8	260	0.2	152,714
1992	93,564	99.7	281	0.3	93,845
1993	109,119	84.9	19,417	15.1	128,536
1994	142,350	100.0	0	0.0	142,350
<b>Averages</b>					
1975-94	90,609	88.9	11,351	11.1	101,960
1985-94	89,072	90.3	9,544	9.7	98,616

<sup>a</sup> From 1970-91, the Chignik contribution is 80% of the sockeye salmon harvested in Beaver Bay, Balboa Bay, Southwest Stepovak, Stepovak Flats and East Stepovak Sections.

<sup>b</sup> From 1992-94, the Chignik contribution is 80% of the sockeye salmon harvested in the Southeastern District Mainland fishery except Orzinski Bay where 100% of the sockeye salmon are considered local production.

Table 7. Southeastern District Mainland fishery, excluding Orzinski Bay, estimated sockeye salmon interception of Chignik destined salmon for the entire season, 1970-94<sup>a,b</sup>.

Year	Catch by Gear				Total Catch
	Set Gillnet		Purse Seine		
	Number	Percent	Number	Percent	
1970	64,920	95.2	3,261	4.8	68,181
1971	48,759	95.1	2,513	4.9	51,272
1972	15,966	89.9	1,786	10.1	17,752
1973	37,226	97.3	1,039	2.7	38,266
1974	52,877	80.7	12,638	19.3	65,514
1975	1,126	51.1	1,079	48.9	2,205
1976	41,820	93.4	2,961	6.6	44,781
1977	27,646	78.1	7,754	21.9	35,401
1978	21,140	88.1	2,850	11.9	23,990
1979	59,188	72.0	22,965	28.0	82,153
1980	77,500	88.0	10,546	12.0	88,046
1981	140,857	84.8	25,177	15.2	166,034
1982	81,391	93.7	5,458	6.3	86,849
1983	211,001	70.9	86,428	29.1	297,429
1984	441,758	90.5	46,181	9.5	487,938
1985	79,521	85.3	13,686	14.7	93,206
1986	130,744	88.9	16,312	11.1	147,056
1987	181,589	96.1	7,394	3.9	188,983
1988	53,166	67.2	25,935	32.8	79,101
1989	76,599	55.3	61,994	44.7	138,594
1990	121,534	56.0	95,410	44.0	216,944
1991	193,010	84.3	35,924	15.7	228,934
1992	143,466	80.7	34,250	19.3	177,716
1993	175,201	78.7	47,390	21.3	222,591
1994	206,696	91.2	19,866	8.8	226,562
<b>Averages</b>					
1975-94	123,248	81.2	28,478	18.8	151,726
1985-94	136,153	79.2	35,816	20.8	171,969

<sup>a</sup> From 1970-91, the Chignik contribution is 80% of the sockeye salmon harvested in Beaver Bay, Balboa Bay, Southwest Stepovak, Stepovak Flats and East Stepovak Sections.

<sup>b</sup> From 1992-94, the Chignik contribution is 80% of the sockeye salmon harvested in the Southeastern District Mainland fishery except Orzinski Bay where 100% of the sockeye salmon are considered local production.

Table 8. Southeastern District Mainland fishery, annual CFEC permits and number of landings by gear type, 1970-94.

Year	Purse Seine		Set Gillnet		Total	
	Permits	Landings	Permits	Landings	Permits	Landings
1970	35	127	17	273	46	411
1971	41	216	15	269	48	485
1972	24	43	15	167	34	210
1973	13	22	16	167	24	189
1974	20	100	31	262	42	362
1975	6	11	7	14	13	25
1976	44	167	19	174	62	341
1977	34	136	21	190	54	326
1978	45	196	23	235	68	431
1979	49	247	33	437	82	684
1980	40	143	31	598	69	741
1981	50	365	35	923	87	1,288
1982	48	343	41	1,167	89	1,510
1983	49	260	43	1,259	92	1,519
1984	55	292	57	2,171	112	2,463
1985	42	245	49	864	91	1,109
1986	42	150	47	927	89	1,077
1987	49	160	55	942	104	1,102
1988	55	254	49	784	104	1,038
1989	75	428	48	832	123	1,260
1990	74	228	58	683	132	911
1991	70	348	63	1,352	133	1,700
1992	59	178	60	1,267	119	1,445
1993	62	363	65	1,401	127	1,764
1994	61	106	61	1,302	122	1,408
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1985-94 Average	59	246	56	1,035	115	1,281
1975-94 Average	50	231	43	876	93	1,107

Table 9. Sockeye salmon daily and cumulative counts through Orzinski Lake weir, 1994.

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
June 10-17	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
18	8	0	8	8	0	8	0.0	0.0	0.0	0.0	0.0
19	4	0	4	12	0	12	0.0	0.0	0.0	0.0	0.0
20	0	0	0	12	0	12	0.0	0.0	0.0	0.0	0.0
21	18	0	18	30	0	30	0.0	0.0	0.1	0.0	0.1
22	0	0	0	30	0	30	0.0	0.0	0.1	0.0	0.1
23	34	0	34	64	0	64	0.1	0.0	0.2	0.0	0.2
24	10	1	11	74	1	75	0.0	0.0	0.2	0.0	0.2
25	245	2	247	319	3	322	0.6	0.0	0.8	0.0	0.8
26	31	0	31	350	3	353	0.1	0.0	0.9	0.0	0.9
27	143	3	146	493	6	499	0.4	0.0	1.3	0.0	1.3
28	10	0	10	503	6	509	0.0	0.0	1.3	0.0	1.3
29	7	0	7	510	6	516	0.0	0.0	1.3	0.0	1.4
30	0	0	0	510	6	516	0.0	0.0	1.3	0.0	1.4
July 1	257	12	269	767	18	785	0.7	0.0	2.0	0.0	2.1
2	25	1	26	792	19	811	0.1	0.0	2.1	0.1	2.1
3	46	7	53	838	26	864	0.1	0.0	2.2	0.1	2.3
4	11	6	17	849	32	881	0.0	0.0	2.2	0.1	2.3
5	5	2	7	854	34	888	0.0	0.0	2.2	0.1	2.3
6	104	4	108	958	38	996	0.3	0.0	2.5	0.1	2.6
7	210	7	217	1,168	45	1,213	0.6	0.0	3.1	0.1	3.2
8	309	22	331	1,477	67	1,544	0.8	0.1	3.9	0.2	4.1
9	5,973	230	6,203	7,450	297	7,747	15.7	0.6	19.6	0.8	20.4
10	2,334	148	2,482	9,784	445	10,229	6.1	0.4	25.7	1.2	26.9
11	3,065	160	3,225	12,849	605	13,454	8.1	0.4	33.8	1.6	35.4
12	295	35	330	13,144	640	13,784	0.8	0.1	34.6	1.7	36.3
13	471	23	494	13,615	663	14,278	1.2	0.1	35.8	1.7	37.6
14	868	35	903	14,483	698	15,181	2.3	0.1	38.1	1.8	39.9
15	2,230	185	2,415	16,713	883	17,596	5.9	0.5	44.0	2.3	46.3
16	2,649	146	2,795	19,362	1,029	20,391	7.0	0.4	51.0	2.7	53.7
17	2,195	138	2,333	21,557	1,167	22,724	5.8	0.4	56.7	3.1	59.8
18	943	85	1,028	22,500	1,252	23,752	2.5	0.2	59.2	3.3	62.5
19	1,797	114	1,911	24,297	1,366	25,663	4.7	0.3	63.9	3.6	67.5
20	1,612	67	1,679	25,909	1,433	27,342	4.2	0.2	68.2	3.8	72.0
21	1,426	72	1,498	27,335	1,505	28,840	3.8	0.2	71.9	4.0	75.9
22	512	40	552	27,847	1,545	29,392	1.3	0.1	73.3	4.1	77.3
23	1,228	84	1,312	29,075	1,629	30,704	3.2	0.2	76.5	4.3	80.8
24	965	86	1,051	30,040	1,715	31,755	2.5	0.2	79.1	4.5	83.6
25	0	0	0	30,040	1,715	31,755	0.0	0.0	79.1	4.5	83.6
26	1,686	160	1,846	31,726	1,875	33,601	4.4	0.4	83.5	4.9	88.4
27	399	27	426	32,125	1,902	34,027	1.1	0.1	84.5	5.0	89.5
28 <sup>a</sup>	497	16	513	32,622	1,918	34,540	1.3	0.0	85.8	5.0	90.9

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Table 9. (page 2 of 2)

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
Post July 28 <sup>b</sup>	3,209	251	3,460	35,831	2,169	38,000	8.4	0.7	94.3	5.7	100.0
Total	35,831	2,169	38,000	35,831	2,169	38,000	94.3	5.7	94.3	5.7	100.0

<sup>a</sup> July 28 was the last day fish were counted through Orzinski Lake weir.

<sup>b</sup> Post July 28 escapement was estimated from aerial surveys and July 22-28 adult to jack ratios.

Table 10. Estimated Orzinski sockeye salmon runs and total Southeastern District Mainland sockeye salmon harvest, in numbers of salmon, 1935-94.

Year	Escapement	Orzinski and American Bay Catch	Balance of Suzy Creek Dent Point Catch	Total Suzy Creek Dent Point Catch	Total Orzinski Run	Total Southeastern Mainland Catch
1935 <sup>a</sup>	28,474					
1936 <sup>a</sup>	31,720					
1937 <sup>a</sup>	15,393					
1938 <sup>a, b</sup>	8,675					
1939 <sup>a</sup>	10,414					
1940 <sup>a</sup>	16,414					
1941 <sup>a</sup>	8,241					
1981	18,000 <sup>c</sup>	19,385	32,612	51,997	69,997 <sup>f</sup>	259,539
1982	9,000 <sup>c</sup>	6,079	3,392	9,471	18,471 <sup>f</sup>	118,032
1983	21,300 <sup>c</sup>	10,814	11,624	22,438	43,738 <sup>f</sup>	394,224
1984	18,600 <sup>c</sup>	18,603	52,119	70,722	89,322 <sup>f</sup>	680,645
1985	14,000 <sup>c</sup>	5,061	16,322	21,383	35,383 <sup>f</sup>	137,891
1986	10,300 <sup>c</sup>	12,455	49,236	61,691	71,991 <sup>f</sup>	245,511
1987	11,400 <sup>c</sup>	14,463	48,771	63,234	74,634 <sup>f</sup>	299,463
1988	19,300 <sup>c</sup>	14,462	45,036	59,498	78,798 <sup>f</sup>	158,374
1989	16,700 <sup>c</sup>	18,476	90,576	109,052	125,752 <sup>f</sup>	282,294
1990	15,000 <sup>d</sup>	1,257	5,023	6,280	21,280 <sup>f</sup>	277,460
1991	40,000 <sup>d</sup>	50,496	59,991	110,487	150,487 <sup>f</sup>	396,655
1992	25,000 <sup>d</sup>	105,050 <sup>e</sup>	23,539	128,589	130,050 <sup>g</sup>	327,194
1993	24,717 <sup>d</sup>	52,776 <sup>e</sup>	37,894	90,670	77,493 <sup>g</sup>	331,015
1994	38,000 <sup>g</sup>	47,077 <sup>e</sup>	60,628	107,705	85,077 <sup>g</sup>	330,279

a Weir was used to count escapement.

b In 1938, adverse weather conditions may have caused only part of the run to be counted.

c Escapement counts are indexed total escapements and are likely lower than the actual total.

d Escapement count is the sum of weir counts plus aerial surveys conducted after the weir was removed.

e Catch number is for Orzinski Bay only.

f The total Orzinski run is escapement plus total Suzy Creek to Dent Point catch.

g The total Orzinski run is escapement plus Orzinski Bay catch.

Table 11. Average time of entry for sockeye salmon through Orzinski Lake weir, 1990-94.

Date	Day	Year					Total	1990-94 Average	1990-94 3 Day Moving Average	1990-94 Cumulative Average
		1994 <sup>a</sup>	1993 <sup>b</sup>	1992 <sup>c</sup>	1991 <sup>d</sup>	1990 <sup>e</sup>				
June	10-17	1	0	0	0	0	0	0	0	
	18	2	8	1	0	0	9	2	1	
	19	3	4	0	0	1	5	1	1	
	20	4	0	0	0	1	1	0	2	
	21	5	18	0	0	2	20	4	1	
	22	6	0	0	0	1	1	0	29	
	23	7	34	366	0	14	414	83	29	
	24	8	11	5	0	0	16	3	61	
	25	9	247	35	205	2	489	98	68	
	26	10	31	474	1	16	522	104	152	
	27	11	146	474	295	348	1,263	253	216	
	28	12	10	184	1,255	3	1,452	290	319	
	29	13	7	216	9	1,839	2,071	414	281	
	30	14	0	0	56	638	695	139	484	
July	1	15	269	2,909	241	1,067	3	4,489	898	
	2	16	26	1,380	685	367	40	2,498	500	
	3	17	53	1,394	0	1,080	0	2,527	505	
	4	18	17	686	2,152	9,852	0	12,707	2,541	
	5	19	7	0	5,285	2,828	286	8,406	1,681	
	6	20	108	0	475	1,845	240	2,668	534	
	7	21	217	95	201	948	59	1,520	304	
	8	22	331	0	489	380	10	1,210	242	
	9	23	6,203	438	274	1,275	0	8,190	1,638	
	10	24	2,482	0	227	1,359	123	4,191	838	
	11	25	3,225	503	162	1,511	208	5,609	1,122	
	12	26	330	5	476	2,811	860	4,482	896	
	13	27	494	1,834	393	2,075	0	4,796	959	
	14	28	903	286	486	461	3	2,139	428	
	15	29	2,415	198	821	786	50	4,270	854	
	16	30	2,795	125	113	458	553	4,044	809	
	17	31	2,333	276	330	1,185	142	4,266	853	
	18	32	1,028	2,358	906	1,128	4,573	9,993	1,999	
	19	33	1,911	1,224	312	938	65	4,450	890	
	20	34	1,679	833	648	*	999		1240	
	21	35	1498	1027	905		888		20922	
	22	36	552	316	441		228		22002	
	23	37	1312	98	562		282		22386	
	24	38	1051	806	464		749		22950	
	25	39	0	1231	326		58		23717	
	26	40	1846	0	321		29		24121	
	27	41	426	53	221		8		24670	
	28	42	513	271	147		150		24847	
	29	43	*	733	358		399		25117	
	30	44		143	300		486		25614	
	31	45		271	*		669		25923	
August	1	46		593			0		26393	
	2	47		446			47		26690	
	3	48		*			334		26936	
	4	49					230		27270	
	5	50					526		27500	
	6	51					169		28026	
	7	52					*		28195	

- <sup>a</sup> July 28, 1994 was the last day fish were counted through Orzinski Lake weir. Post July 28 escapement was estimated from aerial surveys.
- <sup>b</sup> August 2, 1993 was the last day fish were counted through Orzinski Lake weir. Post August 2 escapement was estimated from aerial surveys.
- <sup>c</sup> July 30, 1992 was the last day fish were counted through Orzinski Lake weir. Post July 30 escapement was estimated from aerial surveys.
- <sup>d</sup> July 19, 1991 was the last day fish were counted through Orzinski Lake weir. Post July 19 escapement was estimated from aerial surveys.
- <sup>e</sup> August 6, 1990 was the last day fish were counted through Orzinski Lake weir. Post August 6 escapement was estimated from aerial surveys.
- <sup>f</sup> After July 19, cumulative average escapement was based on average daily escapement during years when the weir was in place.

Table 12. Sockeye salmon escapement requirements for Orzinski Lake.

Cumulative Escapement Goal Date	Numbers of Fish
June 15	0
July 1	2,000
July 9	5,000
July 16	10,000
July 23	15,000
August 7	20,000
Season Total	20,000



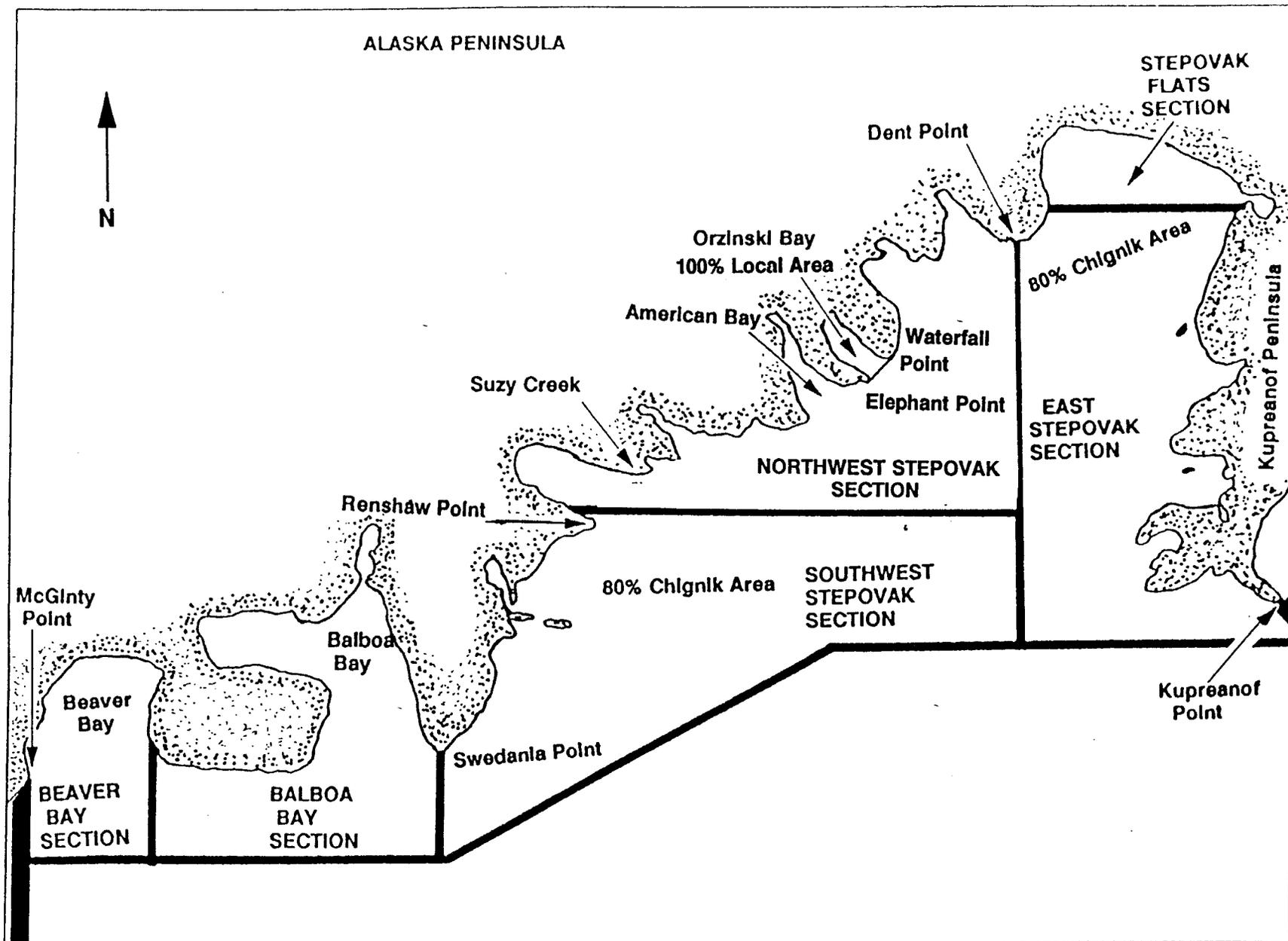


Figure 2. Map of the Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections defined.

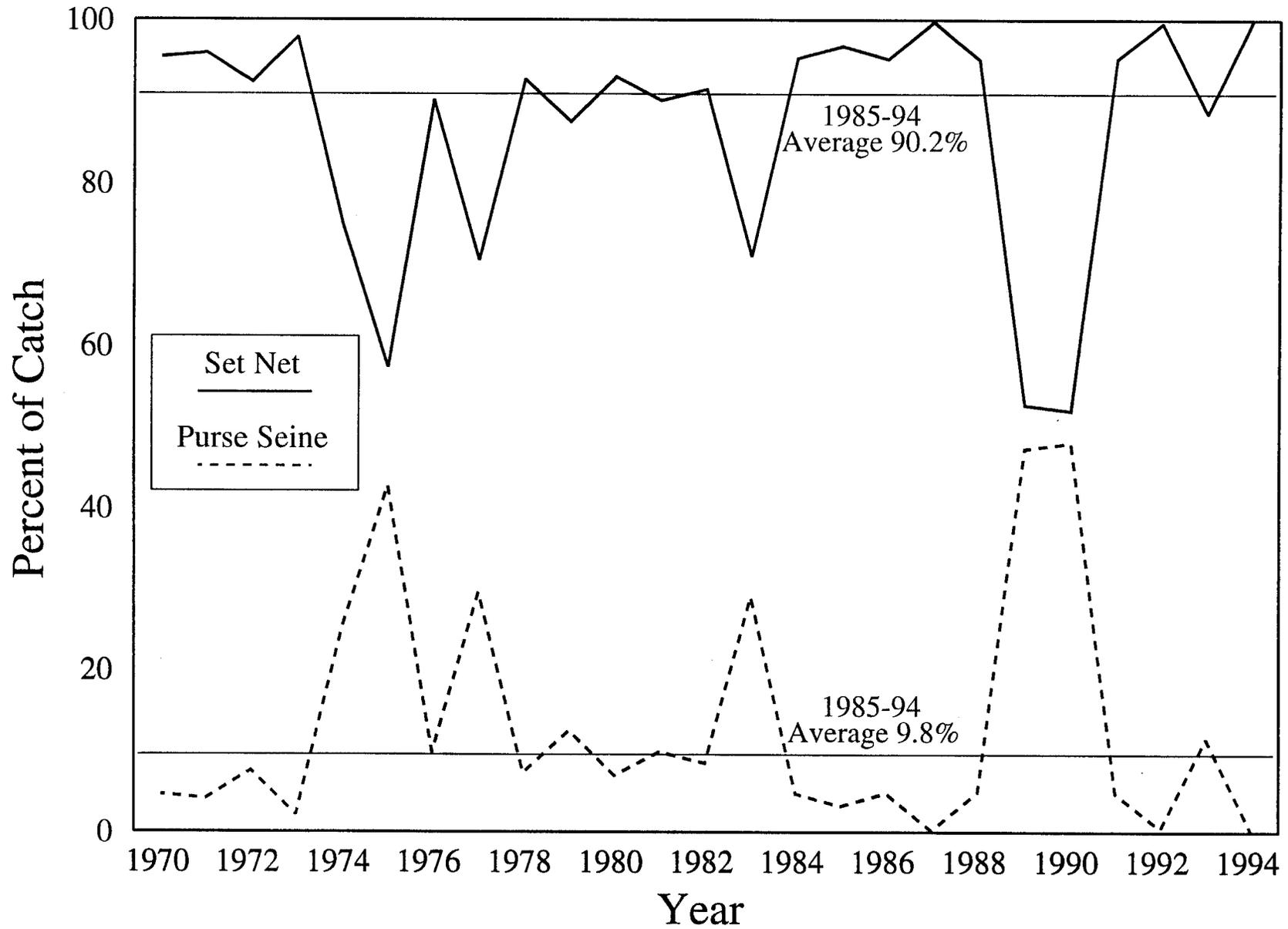


Figure 3. Sockeye salmon catch in percent by gear type, through July 25, Southeastern District Mainland, 1970-94.

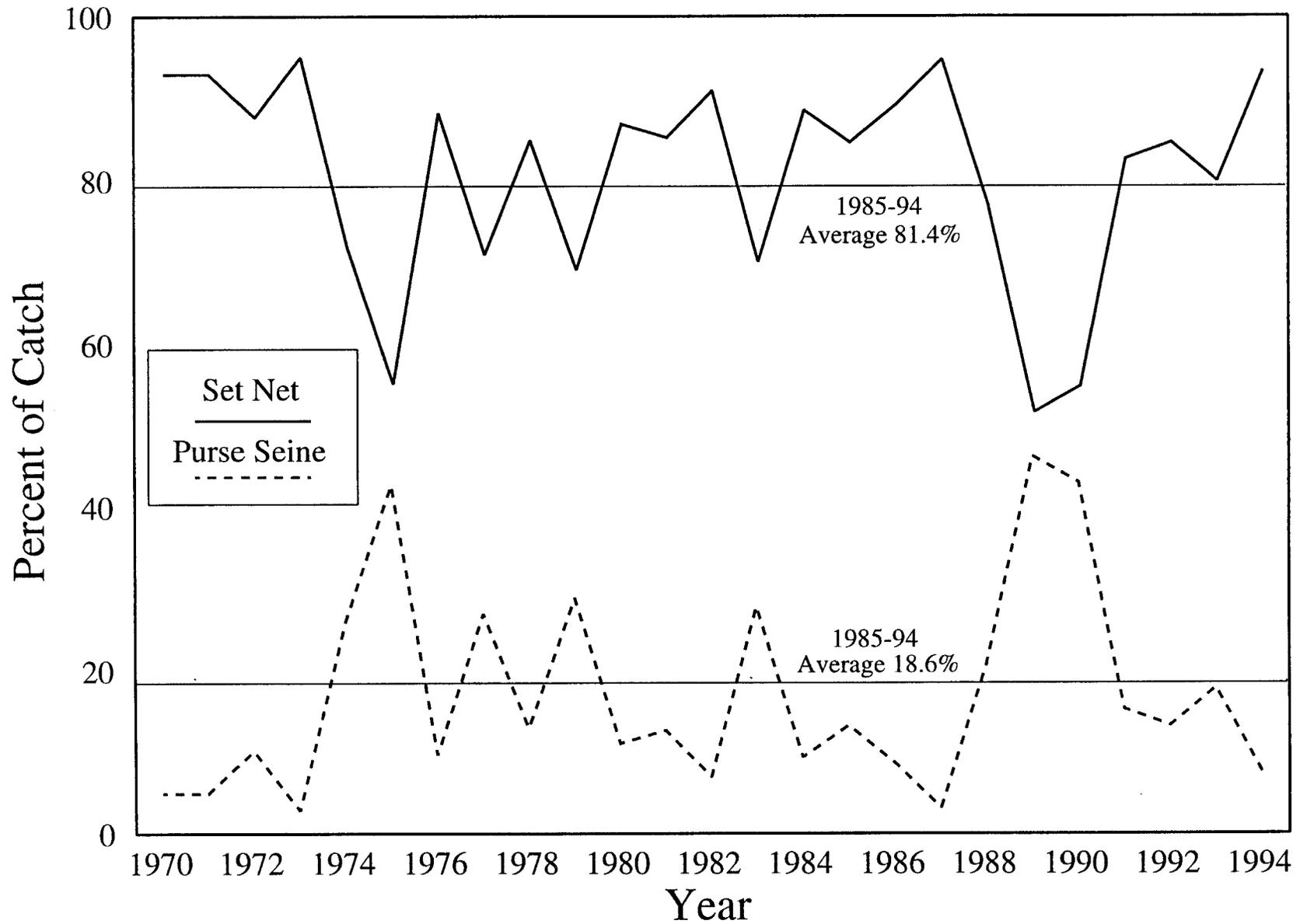


Figure 4. Sockeye salmon catch in percent by gear type, through October 31, Southeastern District Mainland, 1970-94.

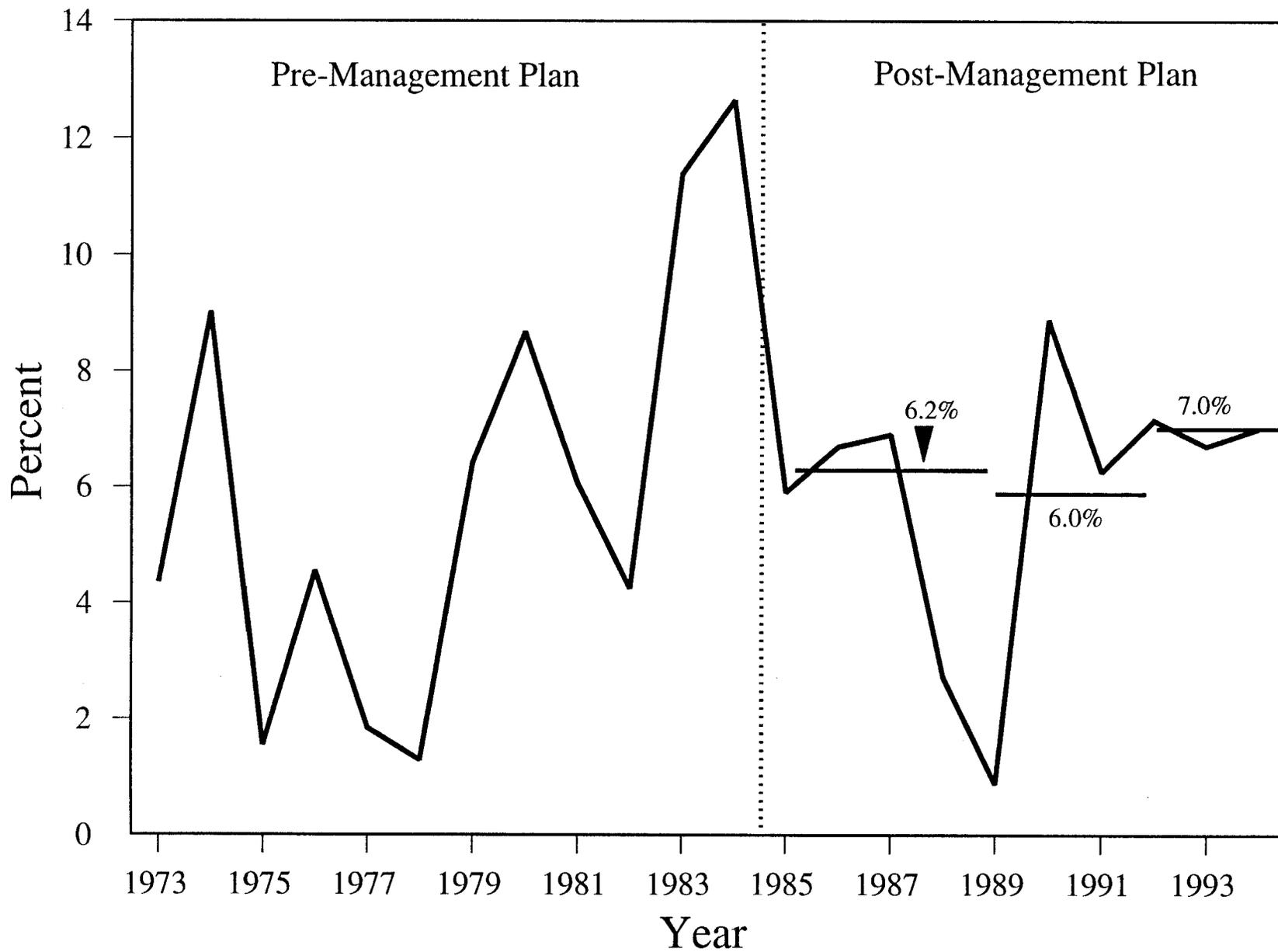


Figure 5. Harvest of Chignik bound sockeye salmon in the Southeastern District Mainland area, through July 25, in percent, 1973-94.

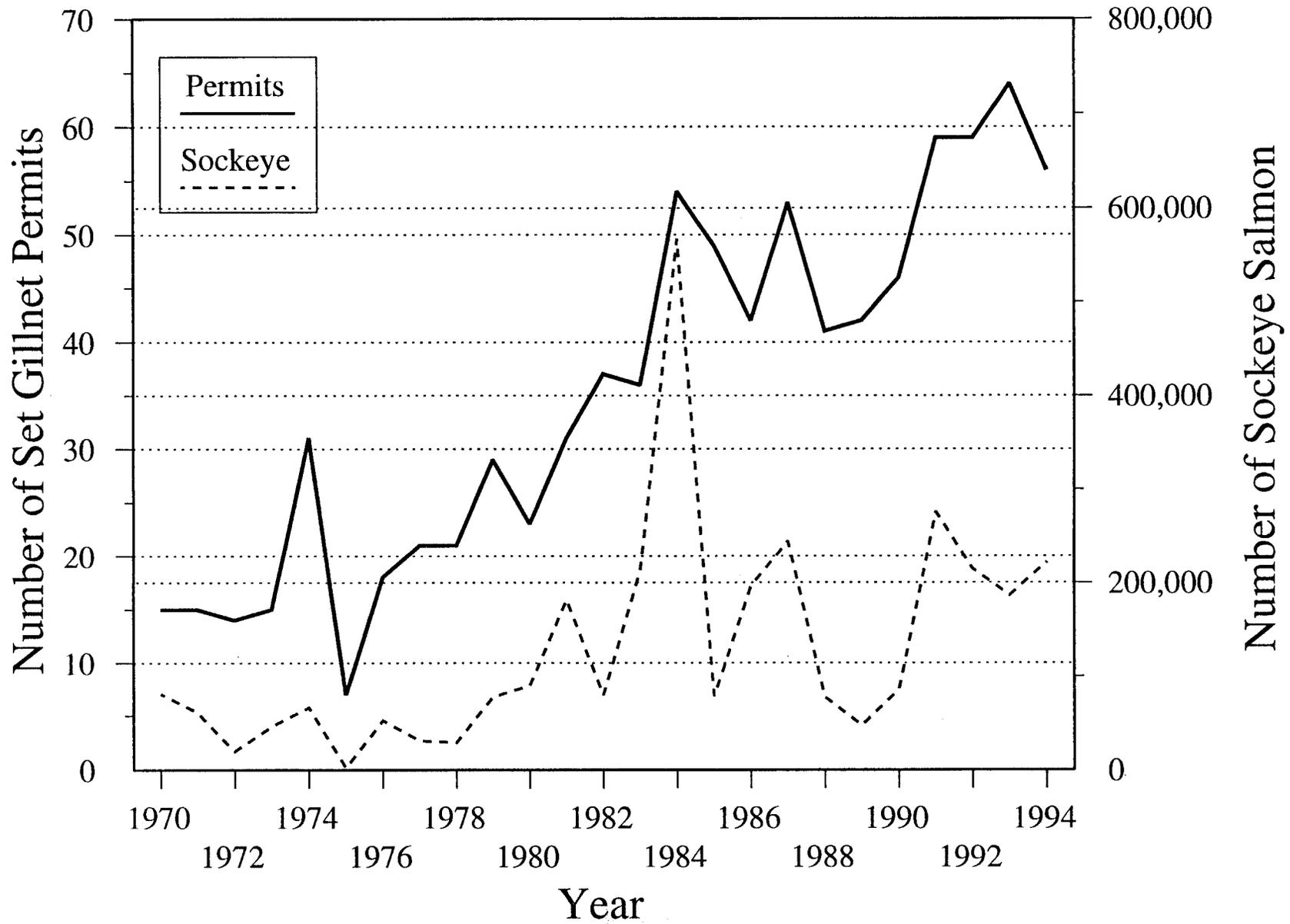
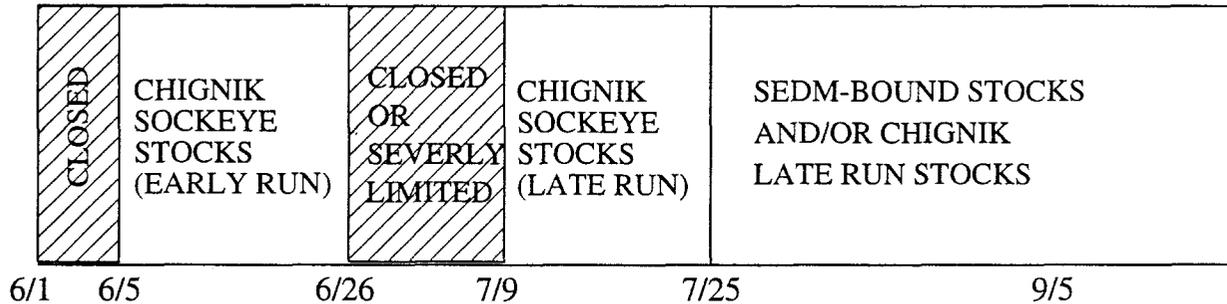


Figure 6. Set gillnet effort and sockeye salmon harvest level in the Southeastern District Mainland fishery, through July 25, 1970-94.

THE REGULATORY REQUIREMENTS OF THIS PLAN ARE DESCRIBED IN THE 1992 COMMERCIAL FINFISH REGULATION BOOK. A DIAGRAM OF THE CHRONOLOGICAL REQUIREMENTS OF THIS PLAN IS SHOWN BELOW ALONG WITH THE BIOLOGICAL AND ALLOCATION CRITERIA OF THIS PLAN. THE HARVEST PROJECTIONS FOR THE CHIGNIK SOCKEYE RETURN INDICATES THAT THE EARLY-PRODUCTION WILL BE ABOVE AVERAGE AND THAT THE LATE PRODUCTION SHOULD CONTINUE AT OR ABOVE AVERAGE.

SEDM MANAGEMENT CHRONOLOGY FOR CHIGNIK-BOUND SOCKEYE AND SEDM SALMON



BIOLOGICAL AND ALLOCATIVE CRITERIA FOR MANAGING THE SEDM FISHERY ON CHIGNIK-BOUND SOCKEYE SALMON

BIOLOGICAL REQUIREMENTS			ALLOCATIVE REQUIREMENTS		
REGULATION 5AAC 09.360	ESCAPEMENT NEEDS		REGULATION 5AAC 09.360	CHIGNIK MINIMUM HARVEST	SEDM %
	CHIGNIK (EARLY RUN)	CHIGNIK (LATE RUN)			
(a) (b) (c)	THROUGH 6/30 350,000-400,000	-	(a)	EXPECTATIONS OF LESS THAN 600,000	CLOSED
-	-	-	(b)	EXPECTATIONS OF 600,000 ARE IN DOUBT	CLOSED
(a) (b) (c)	-	THROUGH 7/30 195,000-200,000	(c)	EXPECTATIONS OF 600,000 OCCUR	OPEN TO ACHIEVE 7%
-	-	-	(d)	CHIGNIK SALMON % INTERCEPTION CALCULATIONS	80% OF CATCH IN SEDM ARE CHIGNIK SOCKEYE
-	-	-	(e)	ALLOCATION PERIOD 600,000	6/5 - 7/25 % NOT APPLICABLE
(f)	FROM JUNE 26 - JULY 9 SEDM CLOSED OR SEVERLY LIMITED UNTIL CHIGNIK LAKE RUN EVALUATED		-	-	-
-	-	-	(g)	-	24 HOUR ADVANCE NOTICE
	400,000	250,000		600,000 MINIMUM	7 %

Figure 7. Overview of the Southeastern District Mainland (SEDM) Salmon Management Plan.

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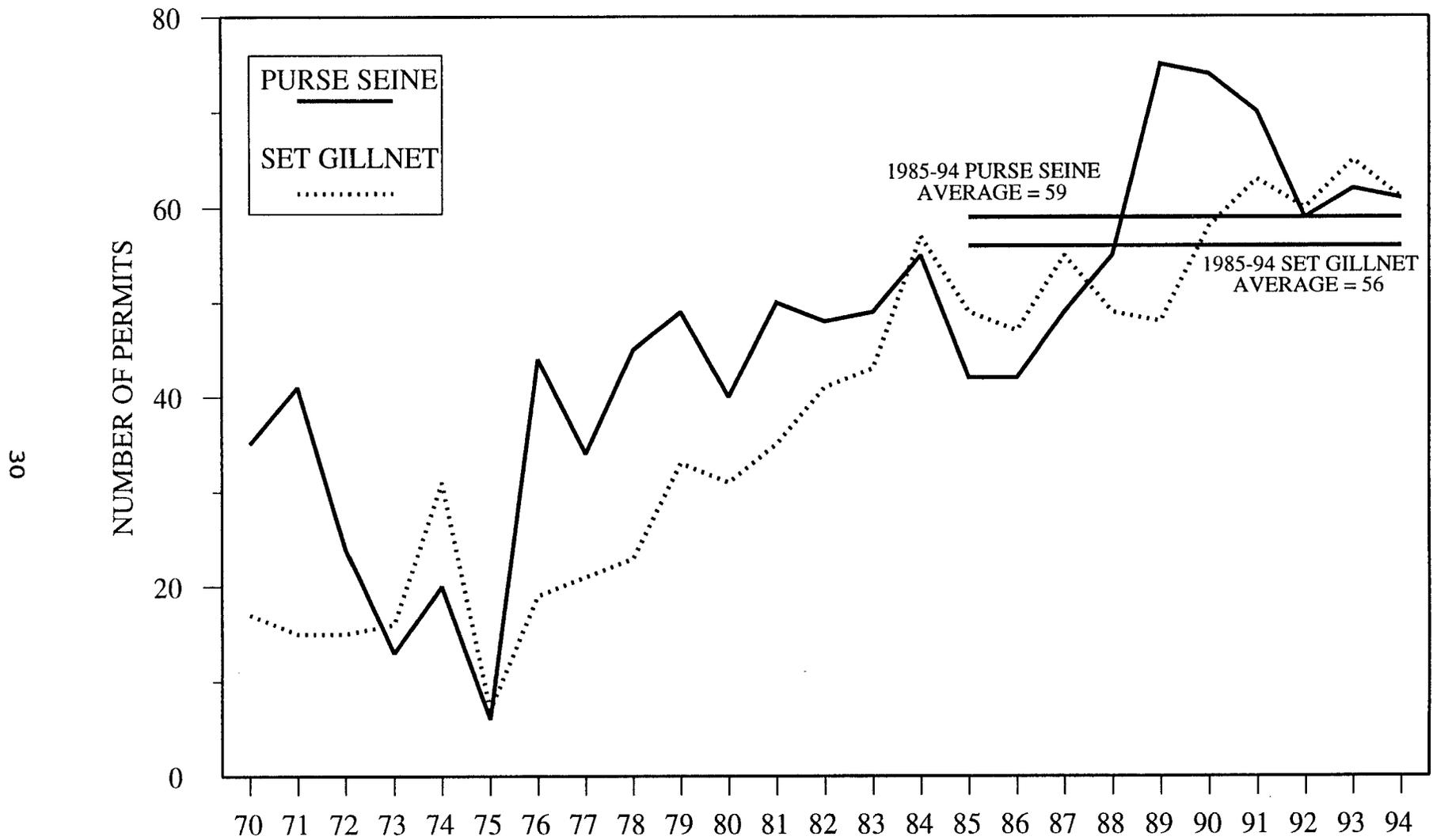


Figure 8. Southeastern District Mainland CFEC permits fished by gear, 1970-1994.

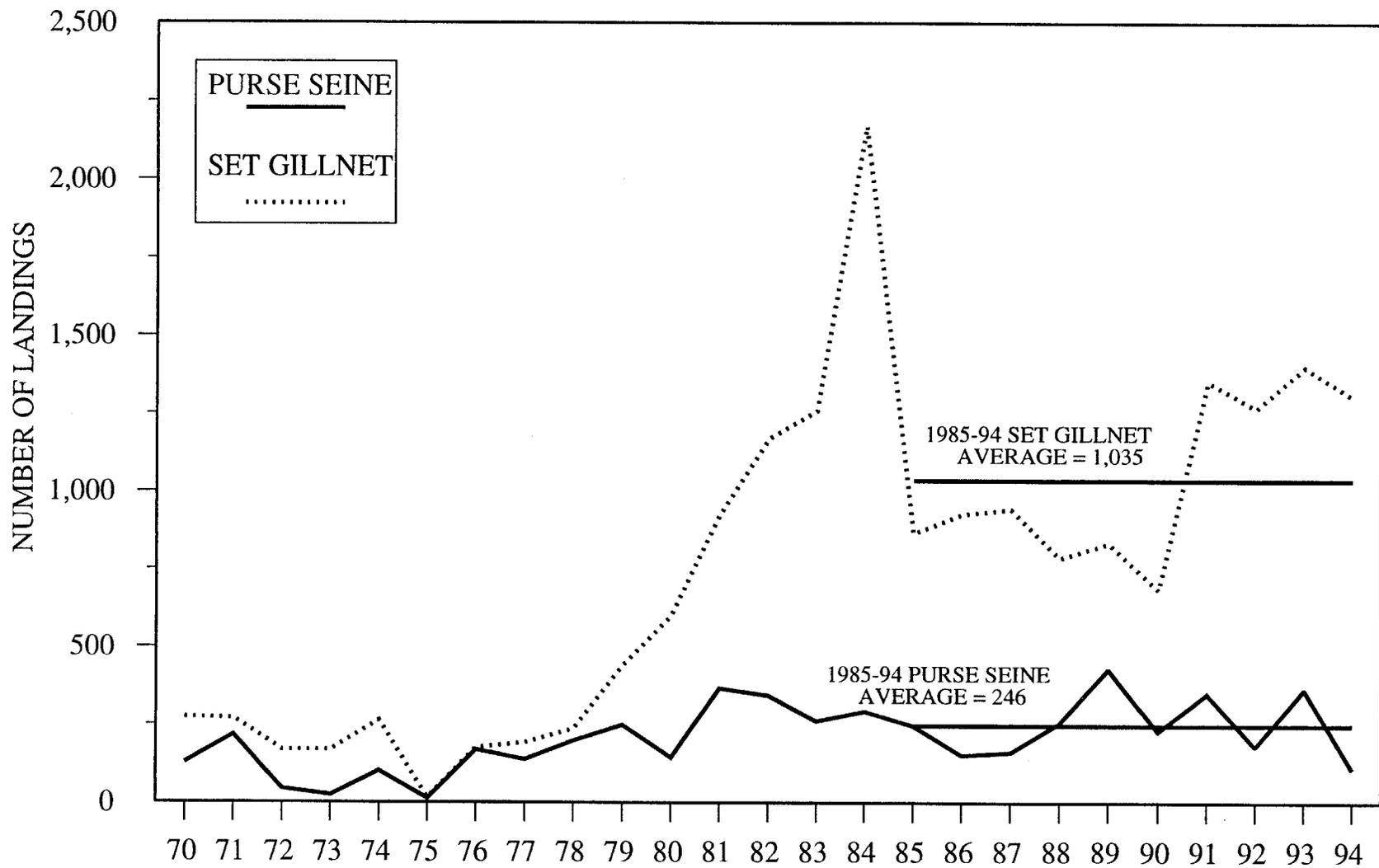


Figure 9. Southeastern District Mainland landings by gear, 1970-1994.

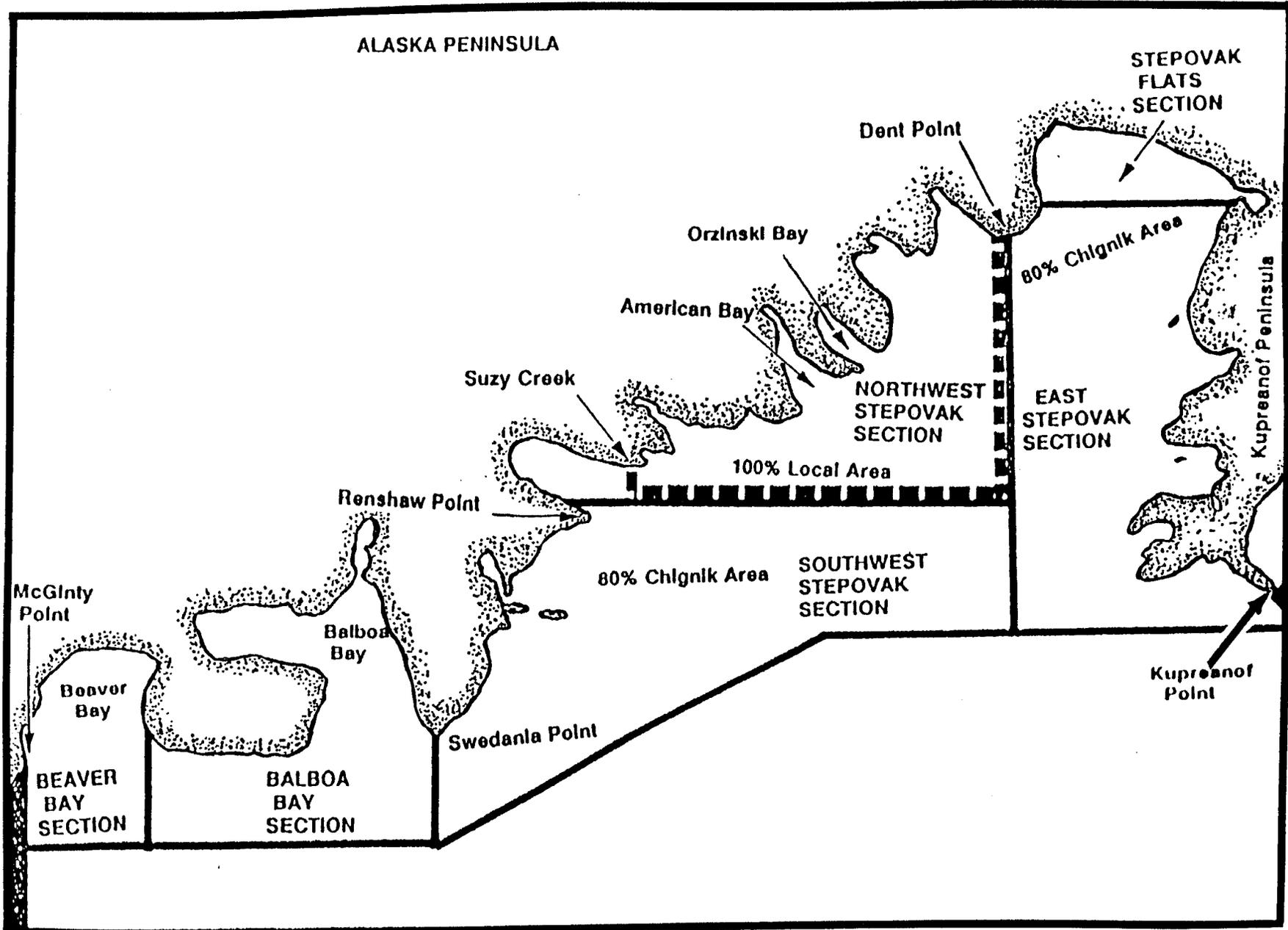
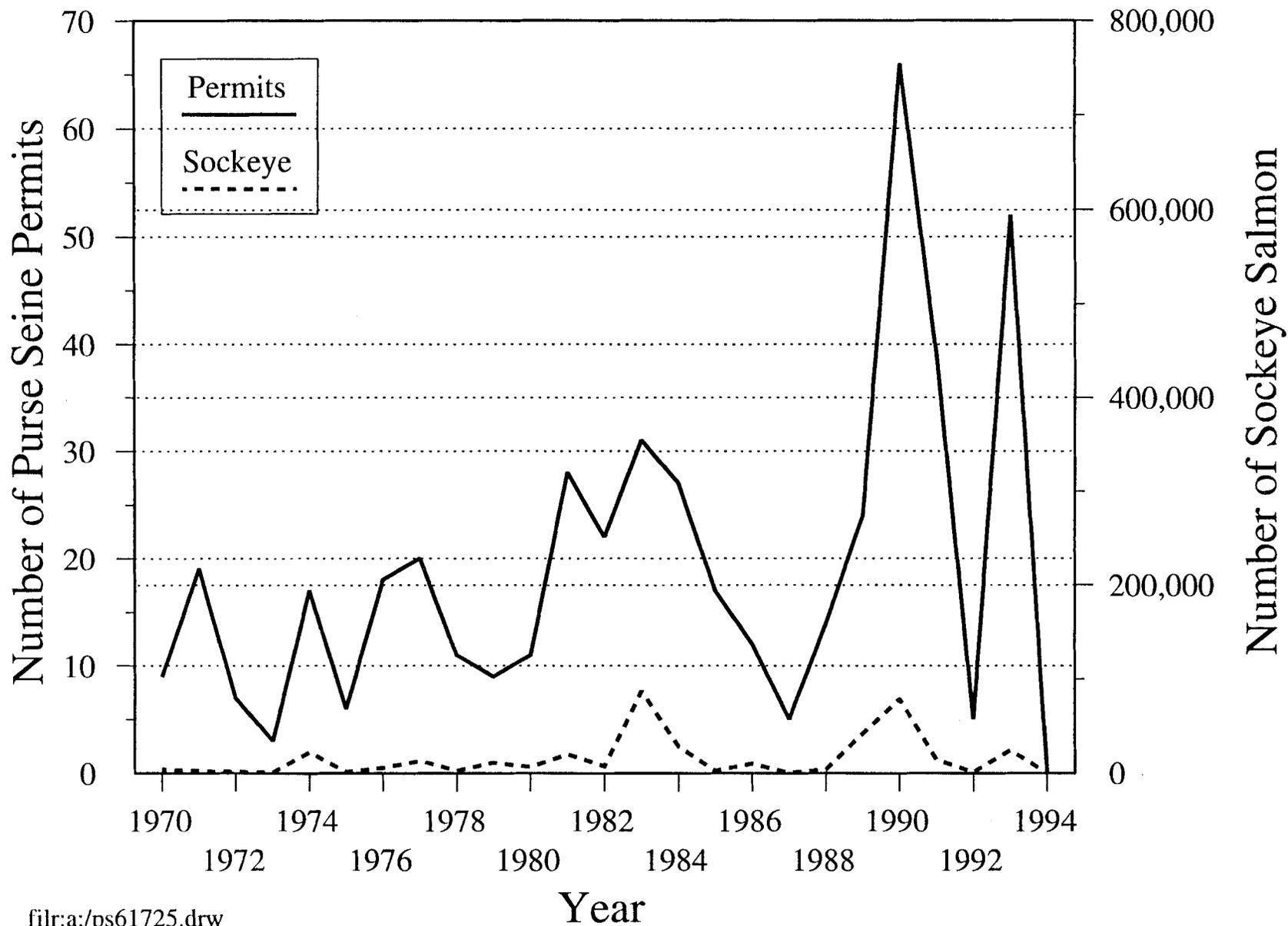


Figure 10. Map of the Pre-1992 Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections defined.



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Figure 11. Purse Seine effort and sockeye salmon harvest level in the Southeastern District Mainland fishery, through July 25, 1970-94.

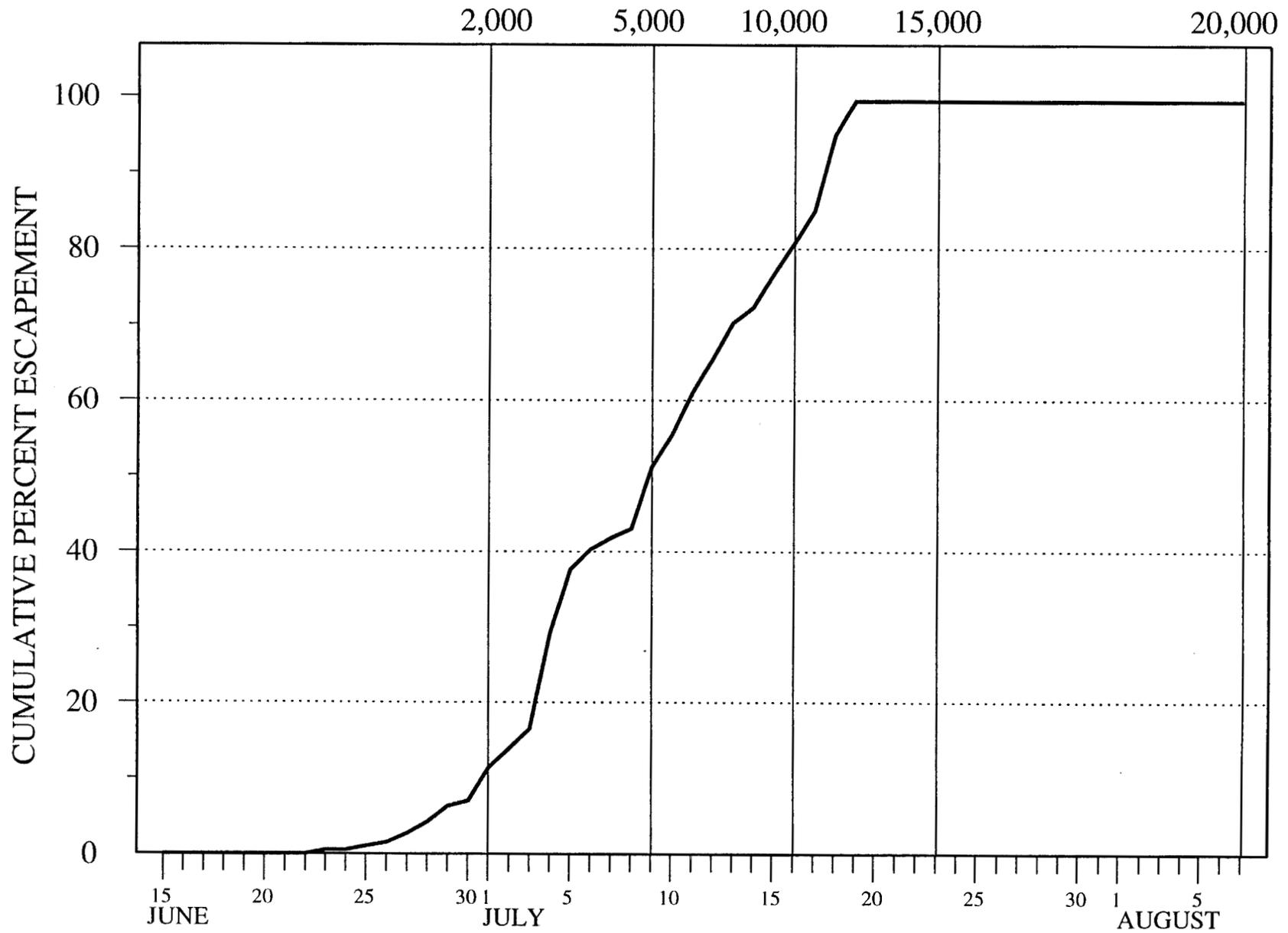


Figure 12. Orzinski Lake weir average cumulative sockeye escapement timing, 1990-94.

## Appendix

**APPENDIX A. Southeastern District Mainland Salmon Management  
Plan, 1994.**

SOUTHEASTERN DISTRICT MAINLAND (ALASKA PENINSULA AREA)  
SALMON MANAGEMENT PLAN, 1994

By

James N. McCullough  
and  
Rodney D. Campbell

Regional Information Report<sup>1</sup> No. 4K94-14

Alaska Department of Fish and Game  
Commercial Fisheries Management and Development Division  
211 Mission Road  
Kodiak, Alaska

April 1994

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<sup>1</sup>The Regional Information Report Series was established in 1987 to provide an information access system for all unpublished division reports. These reports frequently serve diverse ad hoc informational purposes or archive basic uninterpreted data. To accommodate timely reporting of recently collected information, reports in this series undergo only limited internal review and may contain preliminary data; this information may be subsequently finalized and published in the formal literature. Consequently, these reports should not be cited without prior approval of the author or the Division of Commercial Fisheries.

TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES .....	i
LIST OF FIGURES .....	i
LIST OF APPENDICES .....	i
MANAGEMENT PLAN .....	1
Southeastern District Mainland .....	1
Local Stocks .....	3
Northwest Stepovak Section .....	3
Stepovak Flats Section .....	4
LITERATURE CITED .....	5
APPENDIX .....	11

**LIST OF TABLES**

<u>Table</u>	<u>Page</u>
1. Southeastern District Mainland fishery catch of Chignik destined sockeye salmon through July 25, 1983-93 . . . . .	6
2. Sockeye salmon escapement requirements for Orzinski Lake . . . . .	7

**LIST OF FIGURES**

<u>Figure</u>	<u>Page</u>
1. Map of the Alaska Peninsula Management Area with the Southeastern District Mainland area defined . . . . .	8
2. Map of the Southeastern District Mainland area from Kupreanof Point to McGinty Point with the salmon sections defined . . . . .	9
3. Map of Stepovak Bay with Dent Point defined . . . . .	10

**LIST OF APPENDICES**

<u>Appendix</u>	<u>Page</u>
A. Southeastern District Salmon Management Plan . . . . .	12
B. Chignik (Preliminary) Forecast of the 1994 Run . . . . .	14
C. Application of Fishery Management Plans . . . . .	16

## MANAGEMENT PLAN

### *Southeastern District Mainland*

The Southeastern District Mainland (Balboa-Stepovak) fishery (Figure 1-2) will be managed according to the Southeastern District Management Plan (Appendix A) as adopted by the Alaska Board of Fisheries during the November 1991 meeting.

The East Stepovak, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections will be managed on the basis of the interception of Chignik River sockeye salmon. Orzinski (Orzenoi) Bay (all waters north of a line from Elephant Point 55°41'55" N.lat., 160°03'12" W.long. to Waterfall Point 55°43'11" N.lat., 160°01'08" W.long. as based on a 1993 GPS survey) in the Northwest Stepovak Section and the Stepovak Flats Section will be managed on a local stock basis, Orzinski Bay on the basis of the Orzinski Lake sockeye salmon stock and the Stepovak Flats Section on the basis of the Stepovak River chum salmon stock.

When possible, fishing periods in Orzinski Bay and Stepovak Flats will coincide with fishing periods in the remainder of the Southeastern District Mainland fishery to avoid concentrating fishing gear. Through July 25 (the time period covered by the Southeastern District Management Plan), no attempt will be made to coincide fishing periods in the Southeastern District Mainland area with any other nearby fisheries. All fishing periods will be announced by emergency orders. At least 36 hours notice will be given prior to the first commercial fishing period in the fishery. At least 24 hours notice will be given prior to the opening of any other fishing period, unless it is an extension of a fishing period in progress.

In the Southeastern District Mainland area, set gillnet gear is the only legal gear type allowed through midnight July 10, while after July 10, set gillnet, purse seine, and hand purse seine gear types are allowed.

The forecasted midpoint harvest for the Chignik sockeye salmon runs for 1994 are 1,400,000 salmon for the early run and 1,050,000 salmon for the second run (Appendix B). If the runs come in as expected and the goals of the management plan are achieved, about 115,000 estimated Chignik destined sockeye salmon will be harvested in the Southeastern District Mainland area prior to July 26. This compares to the recent five-year average of 101,636 and 10-year average of 126,688 (Table 1).

The total Chignik sockeye salmon catch is 100% of those sockeye salmon caught within the Chignik Management Area, plus 80% of those sockeye salmon caught in the Cape Igvak Section of the Kodiak Management Area, plus 80% of those sockeye salmon caught in the Southeastern District Mainland fishery excluding 100% of those sockeye salmon caught in Orzinski Bay.

Because the harvestable surplus is expected to exceed 600,000 sockeye salmon, the Southeastern District Mainland fishery may open when the fishery opens in the Chignik Management Area. Based on the 1,400,000 sockeye salmon early run harvest forecast, it is possible that the first opening for the Southeastern District Mainland fishery could be in early to mid-June.

If the first run fails to develop as expected, 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 salmon are surplus to escapement requirements.

During the period from about June 26 through July 9, the strength of the second run of Chignik River sockeye salmon cannot be evaluated at Chignik. To prevent over-harvest of the second run, the Alaska Department of Fish and Game (ADF&G) may close or severely restrict commercial salmon fishing in the Southeastern District during this period.

After July 8, fishing time in the Southeastern District Mainland fishery will be dependent upon the strength of the second run as evaluated at Chignik and on the catch of Chignik bound sockeye during the first run at Cape Igvak, Chignik, and the Southeastern District Mainland fisheries. When the second run escapement goals are being met and the second run appears strong enough for a fishery at Chignik, the Southeastern District Mainland may open to commercial salmon fishing if at least 300,000 combined first and second run sockeye salmon were harvested in the Chignik Area. ADF&G will manage the fishery so that the number of sockeye salmon harvested in the Chignik Area from both runs combined will be at least 600,000 salmon and the harvest in the Southeastern District Mainland will approach as near as possible 7.0% of the total Chignik bound sockeye salmon catch (Appendix C), if that many sockeye salmon are surplus to escapement requirements.

The fishery shall be managed according to the plan as stated in the 1992-1994 Bristol Bay and Westward Alaska commercial salmon fishing regulation book (ADF&G 1992; Appendix A). No attempt will be made to allow equal fishing time with Chignik, as had been done from 1974 through 1977, but rather the end goal will be to meet the 7.0% allocation level after the conditions of the management plan have been satisfied. An interim management goal of 7.0% at midnight July 10 will also be attempted after the conditions of the management plan have been satisfied. The interim management goal of 7.0% at midnight July 10 is desirable to achieve historical harvest levels between set gillnet and purse seine fishers; purse seine gear is legal in the fishery after July 10. To meet the goal of 7.0% by July 11 and July 25, the percentage may fluctuate above or below 7.0% prior to July 11 and July 25. Because of the restrictions placed upon the Southeastern District Mainland fishery to protect the Chignik runs, it may not be possible to achieve a 7.0% allocation level, even though escapement goals are met and the minimum catch level of 600,000 salmon at Chignik is exceeded.

The Southeastern District Mainland fishery is regulated by a management plan that is independent of other fisheries occurring in the Alaska Peninsula Management Area. Because the fishery is primarily effected by sockeye salmon catches in the Kodiak and Chignik Management Areas, while being independent of other Alaska Peninsula Management Area fisheries except for fishing

effort, the Southeastern District Mainland area will have independent fishing periods from those in the Shumagin Islands Section and other areas of the South Peninsula. ADF&G will attempt to have fishing periods in Orzinski Bay and Stepovak Flats concurrent with other fishing periods in the Southeastern District Mainland area.

There has been confusion for several years concerning the definition of Dent Point. A map of the Dent Point area is found on Figure 3. The Alaska Board of Fisheries approved definition of Dent Point is 55° 47'15" N. lat., 159° 52'00" W. long. (based on 1983 datum chart). This definition of Dent Point will be used as: (1) the boundary between the Northwest Stepovak and Stepovak Flats Sections; (2) as one of the closed waters points for Stepovak Bay when the head of Stepovak Bay is closed from July 29 through September 30; and (3) whenever an ADF&G reference is made regarding Dent Point.

### *Local Stocks*

Orzinski Bay in the Northwest Stepovak Section and the Stepovak Flats Section will be managed on a local stock basis. Orzinski Bay will be managed on the basis of the Orzinski Lake sockeye salmon stock from June 1 through about July 25, and after about July 25 on local sockeye and pink salmon runs. The Stepovak Flats Section will be managed on the basis of the Stepovak River chum salmon stock. The entire Southeastern District Mainland area will be managed on the basis of local stocks (sockeye, pink, chum, and coho salmon) after July 25.

### **Northwest Stepovak Section**

The sockeye escapement goal for Orzinski Lake is 20,000 salmon. In 1993, the total estimated sockeye escapement was 25,000 salmon. ADF&G intends to operate a weir on the Orzinski system in 1994, similar to 1993.

A weir was used to count escapements into the lake from 1935 to 1941, and in 1990-93. The earliest recorded sockeye escapement occurred on June 11, 1940 (11 salmon), while the usual pattern of first entry into the lake is about June 17. July 17 is the average date of 50% cumulative sockeye escapement, while on average, 99% of the escapement occurs by August 7. Based on aerial surveys and weir counts, sockeye salmon escapement requirements for Orzinski Lake by time periods have been developed (Table 2).

Through July 25, 1993, Orzinski Bay will have fishing periods based on the Orzinski River sockeye salmon weir counts. Sockeye salmon caught within Orzinski Bay (north of a line from Elephant Point at 55°41'55" N. lat., 160°03'12" W. long. to Waterfall Point at 55°43'11" N. lat., 160°01'08" W. long.) will be allocated 100% to the Orzinski Lake run. Sockeye salmon caught

in the remainder of the Southeastern District Mainland fishery will be allocated 80% to the Chignik system runs. After July 25, fishing time will be based on local sockeye, pink, chum, and coho salmon stocks. If the sockeye salmon escapement goals into Orzinski Lake are not met, Orzinski Bay will be closed north of a line from Elephant Point (55°41'55" N.lat., 160°03'12" W.long.) to Waterfall Point (55°43'11" N.lat., 160°01'08" W.long.), until management of the bay shifts to pink salmon.

### **Stepovak Flats Section**

The Stepovak Flats Section will be managed on the basis of the chum salmon run into the Stepovak River (local stock basis). Through July 11, this section will open to commercial salmon fishing on a day per day basis with the remainder of the Southeastern District Mainland fishery. Sockeye harvested in this section will be assigned as 80% Chignik bound and are included as part of the 7.0% allocation criteria set forth in the Southeastern District Mainland management plan. After July 10, the Stepovak Flats Section will be managed on the basis of the chum salmon run into the Stepovak River. Fishermen are reminded that this section is usually closed to commercial salmon fishing from July 29 through September 30 (5 AAC 09.350(23)).

### LITERATURE CITED

- ADF&G (Alaska Department of Fish and Game). 1992. 1992-1994 Bristol Bay and Westward Alaska commercial fishing regulations salmon and miscellaneous finfish, 1992 edition. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
- Shaul, A.R., J.N. McCullough, R.L. Murphy, R.S. Bercelli, and R.D. Campbell. *In Press* Alaska Peninsula, Aleutian Islands, and Atka-Amlia Management Areas Salmon Annual Management Report, 1993. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report, *In Press* Kodiak.

Table 1. Southeastern District Mainland fishery catch of Chignik destined sockeye salmon through July 25, 1983-93.<sup>a</sup>

Year	Number of Salmon			
	Total Catch	Northwest Stepovak <sup>b</sup>	Total Catch Minus Northwest Stepovak	Chignik Bound Catch <sup>a</sup>
1983	300,158	15,918	284,240	227,392
1984	595,043	66,209	528,834	423,067
1985	80,957	16,681	64,276	51,421
1986	206,532	59,025	147,507	118,006
1987	244,895	61,287	183,608	146,886
1988	81,160	57,010	24,150	19,320
1989	89,224	83,618	5,606	4,484
1990	164,028	3,279	160,749	128,599
1991	289,727	98,834	190,893	152,714
1992	215,444	98,138	117,306	93,845
1993	210,927	50,257	160,670	128,536
Average:				
5 Year	193,870	66,825	127,045	101,636
10 Year	217,794	59,434	158,360	126,688

<sup>a</sup> From 1970-91, the Chignik contribution is 80% of the sockeye salmon harvested in Beaver Bay, Balboa Bay, Southwest Stepovak, Stepovak Flats, and East Stepovak Sections. In 1992 and 1993, the Chignik contribution is 80% of the sockeye salmon harvested in the Southeastern District Mainland fishery except Orzinski Bay where 100% of the sockeye salmon are considered local production.

<sup>b</sup> From 1970-91, the Northwest Stepovak Section figures include the harvest from the entire Northwest Stepovak Section. In 1992 and 1993 the figures include only the Orzinski Bay harvest.

Table 2. Sockeye salmon adult escapement requirements for Orzinski Lake.

Time Period	Cumulative Escapement Goal
June 15	0
July 1	2,000
July 9	5,000
July 16	10,000
July 23	15,000
August 7	20,000
Season Total	20,000

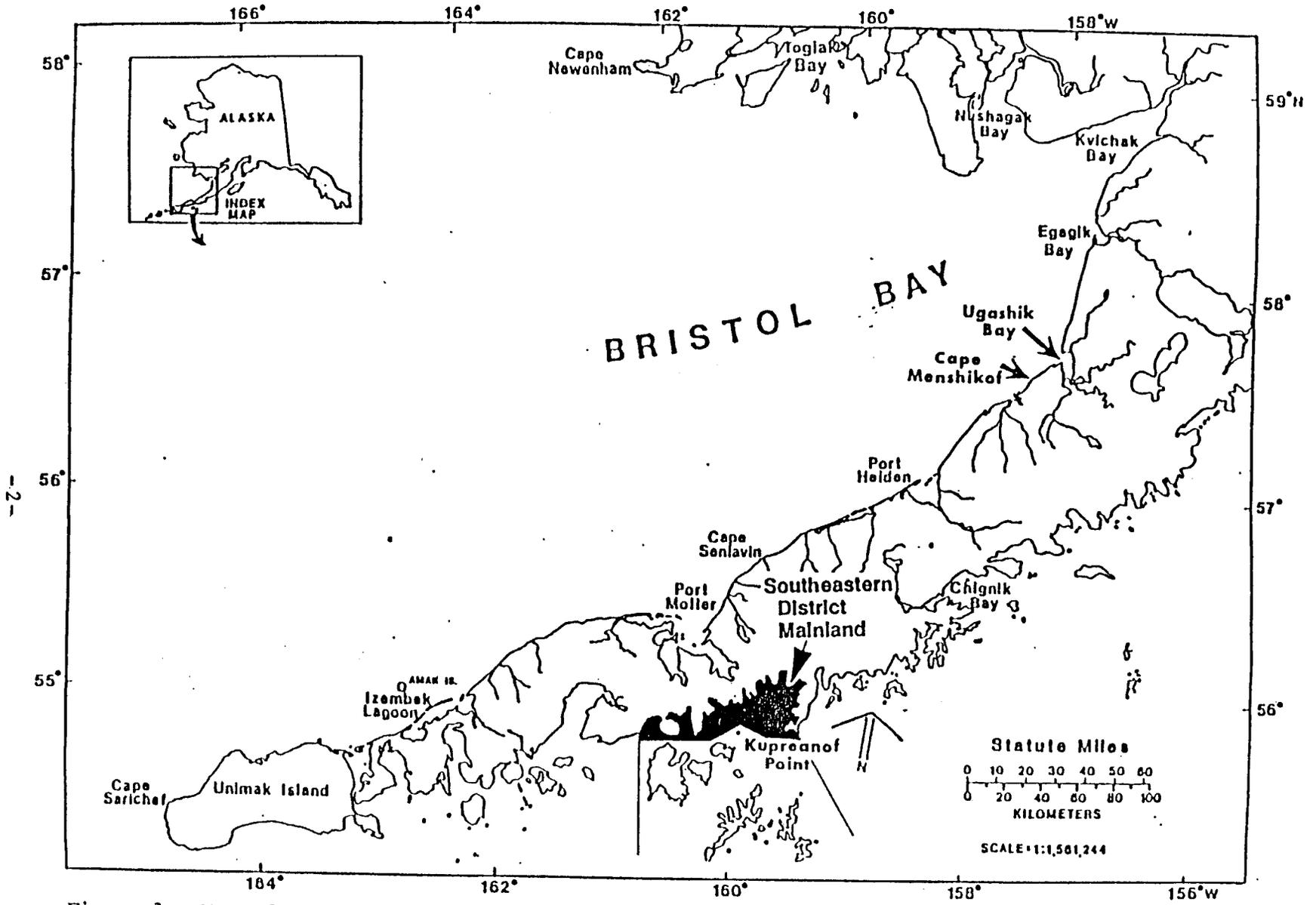


Figure 1. Map of the Alaska Peninsula Management Area with the Southeastern District Mainland area defined.

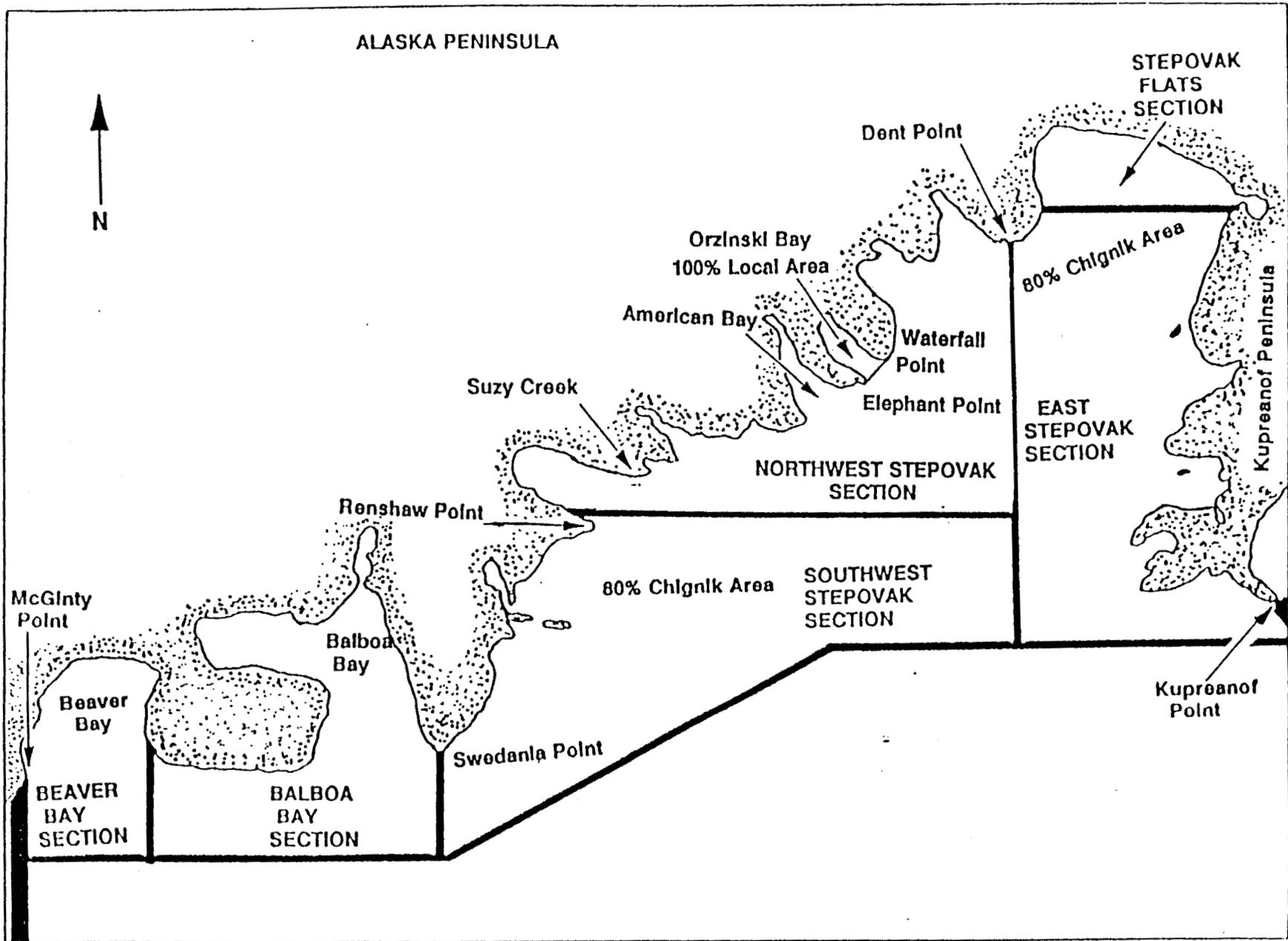


Figure 2. Map of the Southeastern District Mainland fishery from Kupreanof Point to McGinty Point with the salmon sections defined.

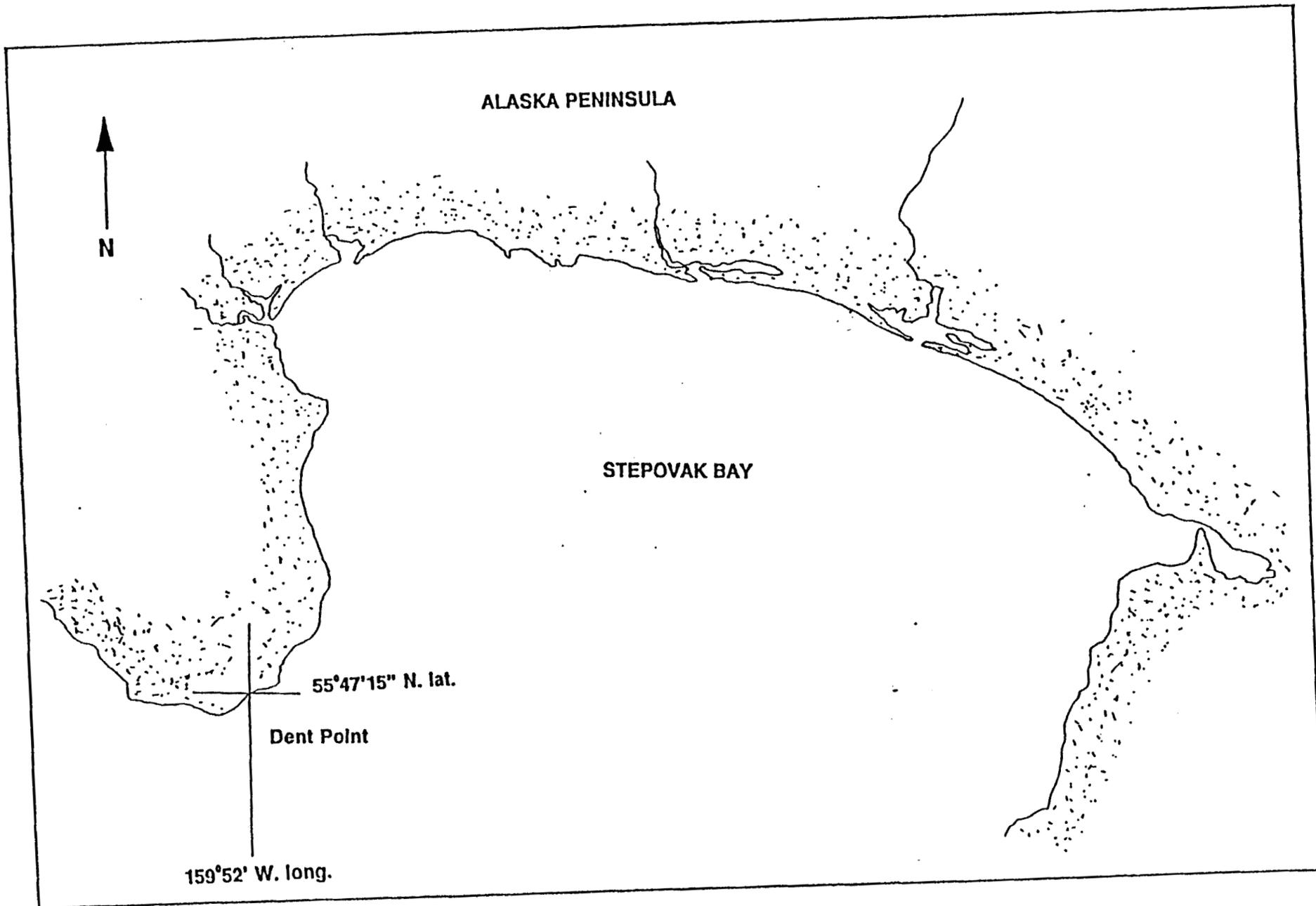


Figure 3. Map of Stepovak Bay with Dent Point defined.

10

APPENDIX

APPENDIX A: SOUTHEASTERN DISTRICT SALMON MANAGEMENT PLAN

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5 AAC 09.360. SOUTHEASTERN DISTRICT SALMON MANAGEMENT PLAN

(a) This plan pertains to the management of the interception of Chignik River sockeye salmon caught in the Southeastern District Mainland fishery: East Stepovak, Stepovak Flats, Northwest Stepovak, Southwest Stepovak, Balboa Bay, and Beaver Bay Sections. Before July 11, only set gill net gear may be used in these sections. For the purpose of this plan, local runs include only those salmon in the waters:

- 1) north of a line in Orzinski Bay from Elephant Point (55° 41'55" N. lat., 160° 03'12" W. long.) to Waterfall Point (55° 43'11" N. lat., 160° 01'08" W. long.) and:
- 2) the Stepovak Flats Section as described in 5 AAC 09.200(f).

(b) In years when a harvestable surplus for the first (Black Lake) and second (Chignik Lake) runs of Chignik River system sockeye salmon is expected to be less than 600,000, no commercial salmon fishery is allowed in the East Stepovak, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections, as described in 5 AAC 09.200(f), until a harvest of 300,000 sockeye salmon in the Chignik Area, as described in 5 AAC 15.100, is achieved. After July 8, if at least 300,000 sockeye salmon have been harvested in the Chignik Area, and if escapement goals are being met, the department shall manage the fishery so that the number of sockeye salmon harvested in the Chignik Area will be at least 600,000 and the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible seven percent of the total Chignik sockeye salmon catch.

(c) In years when a harvestable surplus beyond escapement goals for the first and second runs of Chignik River system sockeye salmon is expected to be more than 600,000 but the first run fails to develop as predicted and it is determined that a total sockeye salmon harvest in the Chignik Area of 600,000 or more may not be achieved, the commercial salmon fishery in the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections must be curtailed in order to allow at least a minimum harvest in the Chignik Area of 300,000 sockeye salmon by July 9 if that number of fish are determined to be surplus to the escapement goals of the Chignik River system. After July 8, if at least 300,000 sockeye salmon have been harvested in the Chignik Area, and if escapement goals are being met, the department shall manage the fishery so that the number of sockeye salmon harvested in the Chignik Area is at least 600,000 and the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible seven percent of the total Chignik sockeye salmon catch.

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APPENDIX A: (page 2 of 2)

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(d) In years when a harvestable surplus beyond the escapement goals for the first and second runs of Chignik River system sockeye salmon is expected to be more than 600,000 and the department determines that the runs are as strong as expected, the department shall manage the fishery so that the number of sockeye salmon taken in the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections approaches as near as possible seven percent of the total Chignik sockeye salmon catch.

(e) The estimate of sockeye salmon destined for the Chignik River has been determined to be 80 percent of the sockeye salmon harvested in the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections. The remaining sockeye salmon taken in the Southeastern District Mainland fishery have been determined to be destined for Orzinski Bay.

(f) 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 East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections, as described in 5 AAC 09.200(f), plus 80 percent of the sockeye salmon caught in the Cape Igvak Section of the Kodiak Area. The percentage of Chignik sockeye salmon may be permitted to fluctuate above or below seven percent at any time before July 25.

(g) This allocation method is in effect through July 25. The first fishing period of the commercial salmon fishing season in the East Stepovak, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Sections may not occur before the first fishing period of the commercial salmon fishing season in the Chignik Area. After July 25, commercial salmon fishing in the entire Southeastern District Mainland area may be allowed on local stocks.

(h) During the period from approximately June 26 to July 9, the strength of the second run of the Chignik River system sockeye salmon cannot be evaluated. In order to prevent over-harvest of the second run, the department may disallow or severely restrict commercial salmon fishing in the East Stepovak, Stepovak Flats, Northwest Stepovak (except Orzinski Bay), Southwest Stepovak, Balboa Bay, and Beaver Bay Section during this period.

(i) The department shall announce all commercial salmon fishing periods by emergency order. The department shall give at least 24 hour notice before the opening of a commercial salmon fishing period, unless it is an extension of a fishing period in progress.

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**APPENDIX B: CHIGNIK MANAGEMENT AREA PRELIMINARY SOCKEYE FORECAST**

FORECAST AREA: Chignik Management Area

SPECIES: Sockeye Salmon

PRELIMINARY FORECAST OF THE 1994 RUN

<u>Early Run (Black Lake)</u>	<u>Point Estimate</u>	<u>80% Prediction Forecast Range</u>
Escapement Goal:	400,000	
Harvest Estimate:	1,400,000	
Return Estimate:	1,800,000	1,200,000 - 2,400,000
<u>Late Run (Chignik Lake)</u>		
Escapement Goal:	250,000	
Harvest Estimate:	1,050,000	
Return Estimate:	1,300,000	940,000 - 1,600,000
<u>Total Chignik Run</u>		
Escapement Goal:	650,000	
Harvest Estimate:	2,450,000	
Return Estimate:	3,100,000	2,140,000 - 4,000,000

FORECAST METHODS:

The estimated run to Black Lake is the sum of a regression estimate for two major age classes (ages 1.3 and 2.3) and a 10-year average for minor age classes, while the Chignik Lake run is based on a recruit per spawner relationship. The Black Lake forecast is based on the historical relationship between the number and length of prior year age 1.2 fish, and the parent year escapement number. All other age classes are predicted from a 10-year average. The Chignik Lake forecast accuracy has historically been quite variable and developing a model such as the one used for the Black Lake run has been unsuccessful. The Chignik Lake run forecast for 1994 was derived using average return per spawner relationships for each year class since 1969.

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DISCUSSION OF THE 1994 FORECAST:

Early Run

The 1994 Black Lake sockeye salmon run is expected to be 1.8 million fish. This is approximately 0.1 million fish more than the 1984-92 average run of 1.7 million fish and 200,000 fish more than the 1993 forecast. This above average run is expected because in 1993 age 1.2 fish were about 50% more abundant than the 10 year average.

Late Run

The estimated 1994 Chignik Lake sockeye salmon run is 1.3 million fish, .2 million more than the 1983-92 average of 1.1 million fish. The Chignik Lake run forecast accuracy has historically been quite poor when compared to actual returns. The major returning year classes are primarily age 5 and 6 year olds. For the 5-year olds, the 1989 parent year escapement of 557,171 is 300,00 over the optimum of 250,000. Overescapements of this magnitude have historically resulted in low recruit per spawner relationships ( $<1$ ). For the 6-year olds, the 1988 parent year escapement of 255,180 was close to the desired goal. Returns at this level have been variable with the post 1969 average of 2.8 per spawner.

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## APPENDIX C: APPLICATION OF FISHERY MANAGEMENT PLANS

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### 5 AAC 39.200 APPLICATION OF FISHERY MANAGEMENT PLANS

(a) The Board of Fisheries has implemented by regulation fishery management plans that provide the Department of Fish and Game with guidelines to be followed when making management decisions regarding the state's subsistence, commercial, sport and personal use fisheries. The primary goal of these management plans is to protect the sustained yield of the state's fishery resources while at the same time providing an equitable distribution of the available harvest between various users. The regulations contained in this section are intended to aid in the achievement of that goal and therefore will apply to all fishery management plans contained in 5 AAC 03-5 AAC 39.

(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 the 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 are 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.

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## APPENDIX B. CHIGNIK MANAGEMENT AREA PRELIMINARY SOCKEYE FORECAST

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FORECAST AREA: **Chignik Management Area**

SPECIES: **Sockeye salmon**

PRELIMINARY FORECAST OF THE 1995 RUN:

	Forecast Estimate (thousands)	Forecast Range (thousands)
TOTAL PRODUCTION:		
<i><u>Early Run (Black Lake)</u></i>		
Total Run	1,900	1,300–2,400
Escapement	400	
Commercial Common Property Harvest	1,500	
<i><u>Late Run (Chignik Lake)</u></i>		
Total Run	900	650–1,250
Escapement	250	
Commercial Common Property Harvest	650	
<i><u>Total Chignik Run</u></i>		
Total Run	2,800	2,050–3,350
Escapement	650	
Commercial Common Property Harvest	2,150	

### FORECAST METHODS

The estimated run to Black Lake is the sum of a regression estimate for two major age classes (ages 1.3 and 2.3) and a 10-year average for minor age classes, while the Chignik Lake run is based on recruit per spawner relationships. The Black Lake forecast is based on the historical relationship between the number and length of prior year age-1.2 fish. All other age classes are predicted from a 10-year average. The Chignik Lake forecast accuracy has historically been quite variable, and developing a model such as the one used for the Black Lake run has been unsuccessful. The 1995 Chignik Lake run forecast for 1995 was derived using post-1969 average return per spawner relationships for each year class.

### DISCUSSION OF THE 1995 FORECAST

Early Run: The 1995 Black Lake sockeye salmon run is expected to be 1.9 million fish. This is approximately 0.3 million fish more than the 1984–93 average run of 1.6 million fish and 100,000 fish more than the 1993 forecast. This above average run is expected because in 1994 age-1.2 fish were about 40% more abundant than the 10-year average.

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Late Run: The estimated 1995 Chignik Lake sockeye run is 0.9 million fish, 0.3 million less than the 1984–93 average of 1.2 million fish. The Chignik Lake run forecast accuracy has historically been quite poor when compared to actual returns. For the 6-year-olds which typically dominate the run, the 1989 parent year escapement of 557,171 is 300,000 over the optimum of 250,000. Overescapements of this magnitude have historically resulted a in low recruit per spawner relationship (<1). Since-1970 when Black Lake runs have exceeded 1.5 million (8 times in the last 25 years), Chignik Lake runs have been low.

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**Chignik Management Area  
1995 Harvest Projections  
(in thousands)**

<u>Chinook<sup>a</sup></u>	<u>Sockeye<sup>b</sup></u>	<u>Coho<sup>c</sup></u>	<u>Pink<sup>d</sup></u>	<u>Chum<sup>e</sup></u>	<u>Total</u>
7	1,677	200	1,100	240	3,224

<sup>a</sup> Chinook harvest is dependent upon the amount of fishing time allowed for sockeye salmon in July; the harvest projection approximates a 10-year average.

<sup>b</sup> Estimate does not include the Cape Igvak and Southeast Mainland District intercept fisheries (22% allocation) which equates to approximately .5 million Chignik bound sockeye salmon through July 25.

<sup>c</sup> Coho salmon harvest is related to the strength of the Chignik Lake sockeye run. Lagoon and outside catches are based on a 10-year harvest average.

<sup>d</sup> The pink salmon forecast is computed by multiplying the average recruit per spawner for the previous ten years by the parent year escapement. The catch projection is driven by escapements to the Central/Eastern and Western/Perryville Districts. The largest pink catches should come from the Central/Eastern Districts and could account for 60% of the projected total. Unstable stream conditions in these districts have resulted in poor returns from excellent parent year escapements.

<sup>e</sup> The chum salmon forecast is computed by multiplying the average recruit per spawner for the previous ten years by the parent year escapement. Western/Perryville Districts should experience the largest proportion of the catch.

Appendix C.1. Southeastern District Mainland salmon harvest by species, all gear combined, June 1-July 10, 1970-94.

Year	Permits <sup>a</sup>	Number Of Salmon						Total
		Landings	Chinook	Sockeye	Coho	Pink	Chum	
1970	17	201	21	79,608	26	1,909	3,299	84,863
1971	15	196	77	49,763	4	1,991	4,874	56,709
1972	10	119	22	15,364	12	164	1,295	16,857
1973	15	92	9	35,371	2	399	1,009	36,790
1974	32	198	36	57,058	34	1,228	1,727	60,083
1975	0	0	0	0	0	0	0	0
1976	32	165	54	52,018	0	539	981	53,592
1977	31	99	16	25,433	0	4,807	1,910	32,166
1978	21	153	19	25,406	0	412	2,142	27,979
1979	24	185	61	37,444	107	3,955	1,254	42,821
1980	23	215	51	51,347	3	76	2,392	53,869
1981	29	416	1,177	133,201	177	1,436	7,410	143,401
1982	36	480	197	60,386	65	1,028	11,924	73,600
1983	34	370	293	119,396	22	102	2,864	122,677
1984	55	1,468	661	532,151	582	6,965	18,474	558,833
1985	44	261	146	61,160	1	855	3,601	65,763
1986	42	383	153	140,329	70	1,461	12,231	154,244
1987	53	385	89	216,609	4	105	5,382	222,189
1988	21	58	21	17,924	3	67	972	18,987
1989	39	101	44	11,728	5	301	458	12,536
1990	37	94	128	20,177	95	115	2,946	23,461
1991	58	631	386	251,386	388	744	5,040	257,944
1992	59	367	142	134,978	11	296	4,281	139,708
1993	59	540	491	135,950	294	393	1,218	138,346
1994	55	407	220	177,938	672	6,767	5,343	190,940
Averages <sup>b</sup>								
1975-94	38	339	217	110,248	125	1,521	4,541	116,653
1985-94	47	323	182	116,818	154	1,110	4,147	122,412

<sup>a</sup> Any discrepancies between the total number of permits listed for all gear combined, and the sum of the purse seine and set gillnet permits, are due to a few beach seine and drift gillnet deliveries reported in error.

<sup>b</sup> Only set gillnet gear is allowed prior to July 10 since the 1978 season. After 1977, any purse seine deliveries prior to July 11 are assumed to be in error and were assigned to gillnet gear.

Appendix C.2. Southeastern District Mainland salmon harvest by species, purse seine gear, June 1-July 10, 1970-94.

Year	Permits	Landings	Number Of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1970	4	10	1	3,357	0	373	350	4,081
1971	7	12	7	1,240	0	1,539	692	3,478
1972	a	a	a	a	a	a	a	a
1973	a	a	a	a	a	a	a	a
1974	10	43	11	12,610	17	583	1,191	14,412
1975	0	0	0	0	0	0	0	0
1976	14	24	7	3,276	0	203	216	3,702
1977	10	20	9	6,322	0	3,548	570	10,449
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
Averages <sup>b</sup> 1970-77	6	14	4	3,500	2	782	380	4,668

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

<sup>b</sup> Only set gillnet gear is allowed prior to July 10 since the 1978 season. After 1977, any purse seine deliveries prior to July 11 are assumed to be in error and were assigned to gillnet gear.

Appendix C.3. Southeastern District Mainland salmon harvest by species, set gillnet gear, June 1-July 10, 1970-94.

Year	Permits	Landings	Number Of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1970	14	191	20	76,251	26	1,536	2,949	80,782
1971	9	184	70	48,523	4	452	4,182	53,231
1972	10	115	22	14,874	12	164	1,276	16,348
1973	14	90	9	34,668	2	390	1,009	36,078
1974	25	155	25	44,448	17	645	536	45,671
1975	0	0	0	0	0	0	0	0
1976	18	141	47	48,742	0	336	765	49,890
1977	21	79	7	19,111	0	1,259	1,340	21,717
1978	21	153	19	25,406	0	412	2,142	27,979
1979	24	185	61	37,444	107	3,955	1,254	42,821
1980	23	215	51	51,347	3	76	2,392	53,869
1981	29	416	1,177	133,201	177	1,436	7,410	143,401
1982	36	480	197	60,386	65	1,028	11,924	73,600
1983	34	370	293	119,396	22	102	2,864	122,677
1984	55	1,468	661	532,151	582	6,965	18,474	558,833
1985	44	261	146	61,160	1	855	3,601	65,763
1986	42	383	153	140,329	70	1,461	12,231	154,244
1987	53	385	89	216,609	4	105	5,382	222,189
1988	21	58	21	17,924	3	67	972	18,987
1989	39	101	44	11,728	5	301	458	12,536
1990	37	94	128	20,177	95	115	2,946	23,461
1991	58	631	386	251,386	388	744	5,040	257,944
1992	59	367	142	134,978	11	296	4,281	139,708
1993	59	540	491	135,950	294	393	1,218	138,346
1994	55	407	220	177,938	672	6,767	5,343	190,940
Averages <sup>a</sup>								
1975-94	36	337	217	109,768	125	1,334	4,502	115,945
1985-94	47	323	182	116,818	154	1,110	4,147	122,412

<sup>a</sup> Only set gillnet gear is allowed prior to July 10 since the 1978 season. After 1977, any purse seine deliveries prior to July 11 are assumed to be in error and were assigned to gillnet gear.

Appendix C.4. Southeastern District Mainland salmon harvest, by species, all gear combined, June 1-July 25, 1970-94.

Year	Permits <sup>a</sup>	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1970	24	277	31	84,287	183	17,332	15,265	117,098
1971	32	290	94	63,354	92	14,561	17,782	95,883
1972	23	179	34	21,105	85	4,495	8,872	34,591
1973	18	170	17	47,117	231	4,503	5,236	57,104
1974	41	344	49	88,230	214	29,142	7,371	125,006
1975	13	25	0	3,156	63	3,020	770	7,009
1976	38	210	56	58,126	37	18,384	5,801	82,404
1977	43	216	31	43,585	940	18,143	7,407	70,106
1978	40	209	34	31,197	354	33,069	15,730	80,384
1979	40	330	116	88,673	5,807	44,184	7,462	146,242
1980	35	417	79	96,472	1,590	39,819	59,221	197,181
1981	66	712	1,320	201,581	3,057	16,826	170,742	393,526
1982	67	893	401	86,793	1,920	209,898	134,473	433,485
1983	78	845	1,382	300,158	2,730	11,295	101,838	417,403
1984	87	1,736	1,054	595,044	4,414	199,990	141,452	941,954
1985	72	418	177	80,957	909	74,592	87,116	243,751
1986	60	645	219	206,532	770	40,771	51,003	299,295
1987	59	537	130	244,895	197	2,363	21,332	268,917
1988	57	345	214	81,160	2,318	97,534	74,743	255,969
1989	67	248	145	89,224	1,226	210,017	6,570	307,182
1990	114	406	684	164,028	16,781	46,882	43,003	271,378
1991	98	818	614	289,727	1,386	24,788	12,113	328,628
1992	65	664	170	215,444	135	15,939	20,629	252,317
1993	117	845	1,093	210,927	4,207	78,278	9,266	303,771
1994	56	678	242	221,657	1,041	11,158	5,651	239,749
<hr/>								
Averages								
1975-94	64	560	408	165,467	2,494	59,848	48,816	277,033
1985-94	77	560	369	180,455	2,897	60,232	33,143	277,096

<sup>a</sup> Any discrepancies between the total number of permits listed for all gear combined, and the sum of the purse seine and set gillnet permits are due to a few beach seine and drift gillnet deliveries reported in error.

Appendix C.5. Southeastern District Mainland salmon harvest by species, purse seine gear, June 1-July 25, 1970-94.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1970	12	27	10	3,904	27	11,659	3,298	18,898
1971	22	35	20	2,587	36	13,561	9,340	25,544
1972	12	19	6	1,614	4	2,494	3,435	7,553
1973	5	9	7	976	137	2,653	1,298	5,071
1974	18	85	18	22,129	72	21,622	4,108	47,949
1975	6	11	0	1,349	34	2,060	178	3,621
1976	20	52	7	5,712	37	13,436	3,767	22,959
1977	23	76	12	12,827	940	13,057	3,227	30,063
1978	19	24	11	2,267	321	31,355	10,371	44,325
1979	11	21	19	11,136	2,821	32,972	1,676	48,624
1980	12	35	4	6,729	993	33,847	30,387	71,960
1981	35	112	117	19,883	2,725	12,984	149,523	185,232
1982	30	140	128	7,351	973	190,694	101,744	300,890
1983	42	145	1,022	87,107	2,192	9,455	87,155	186,931
1984	33	79	346	28,001	2,933	154,448	109,445	295,173
1985	23	51	20	2,610	725	66,517	77,537	147,409
1986	18	29	42	9,987	321	31,231	30,653	72,234
1987	6	9	19	482	95	808	8,388	9,792
1988	16	45	130	3,956	1,587	80,939	63,211	149,823
1989	25	54	58	42,247	1,121	198,917	5,121	247,464
1990	68	129	493	78,660	15,952	45,417	33,939	174,461
1991	39	71	175	13,959	529	18,660	4,380	37,703
1992	6	14	4	806	20	4,810	14,832	20,472
1993	53	82	536	24,271	3,543	63,521	5,850	97,721
1994	0	0	0	0	0	0	0	0
<b>Averages</b>								
1975-94	24	59	157	17967	1893	50256	37069	107343
1985-94	25	48	148	17698	2389	51082	24391	95708

Appendix C.6. Southeastern District Mainland salmon harvest by species, set gillnet gear, June 1-July 25, 1970-94.

Year	Number of Salmon							
	Permits	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1970	16	250	21	80,383	156	5,673	11,967	98,200
1971	15	255	74	60,767	56	1,000	8,442	70,339
1972	15	160	28	19,491	81	2,001	5,437	27,038
1973	16	161	10	46,141	94	1,850	3,938	52,033
1974	31	259	31	66,101	142	7,520	3,263	77,057
1975	7	14	0	1,807	29	960	592	3,388
1976	18	158	49	52,414	0	4,948	2,034	59,445
1977	21	140	19	30,758	0	5,086	4,180	40,043
1978	21	185	23	28,930	33	1,714	5,359	36,059
1979	29	309	97	77,537	2,986	11,212	5,786	97,618
1980	23	382	75	89,743	597	5,972	28,834	125,221
1981	31	600	1,203	181,698	332	3,842	21,219	208,294
1982	37	753	273	79,442	947	19,204	32,729	132,595
1983	36	700	360	213,051	538	1,840	14,683	230,472
1984	54	1,657	708	567,043	1,481	45,542	32,007	646,781
1985	49	367	157	78,347	184	8,075	9,579	96,342
1986	42	616	177	196,545	449	9,540	20,350	227,061
1987	53	528	111	244,413	102	1,555	12,944	259,125
1988	41	300	84	77,204	731	16,595	11,532	106,146
1989	42	194	87	46,977	105	11,100	1,449	59,718
1990	46	277	191	85,368	829	1,465	9,064	96,917
1991	59	747	439	275,768	857	6,128	7,733	290,925
1992	59	650	166	214,638	115	11,129	5,797	231,845
1993	64	763	557	186,656	664	14,757	3,416	206,050
1994	56	678	242	221,657	1,041	11,158	5,651	239,749
<hr/>								
Averages								
1975-94	39	501	251	147,500	601	9,591	11,747	169,690
1985-94	51	512	221	162,757	508	9,150	8,752	181,388

Appendix C.7. Southeastern District Mainland set gillnet salmon harvest, June 1 - July 25, 1994.

Month	Day	Permits	Landings	Chinook		Sockeye		Coho		Pink		Chum		Total		
				Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	
June	23	23	24	8	91	5,872	38,203	2	14	189	653	461	3,059	6,532	42,020	
	24	38	73	56	609	23,859	156,054	10	62	463	1,722	614	4,293	25,002	162,740	
	26	21	23	3	40	9,311	59,607	2	11	63	217	166	1,114	9,545	60,989	
	27	39	61	49	526	27,356	177,109	8	50	668	2,249	998	6,844	29,079	186,778	
	28	38	61	42	703	22,240	141,721	6	44	1,336	4,350	916	6,640	24,540	153,458	
July	6	3	5	1	10	2,114	14,366	2	13	46	179	38	277	2,201	14,845	
	9	48	65	21	244	40,410	273,132	199	1,431	1,286	4,235	736	5,403	42,652	284,445	
	10	53	95	40	564	46,776	307,924	443	3,230	2,716	9,661	1,414	10,143	51,389	331,522	
	11	11	12	1	31	1,685	10,617	7	50	45	177	13	98	1,751	10,973	
	12	18	34	2	14	5,304	36,026	1	8	87	261	16	127	5,410	36,436	
	13	19	27	2	38	5,012	31,051	0	0	151	520	8	56	5,173	31,665	
	14	18	34	1	10	5,249	36,138	5	41	74	222	10	74	5,339	36,485	
	15	11	12	0	0	1,289	8,626	6	51	37	114	2	15	1,334	8,806	
	16	17	33	0	0	7,304	44,381	8	52	330	1,251	31	214	7,673	45,898	
	17	17	28	0	0	3,909	25,561	1	8	403	1,271	14	100	4,327	26,940	
	18	8	13	0	0	1,243	8,372	1	8	104	299	5	38	1,353	8,717	
	19	9	16	0	0	1,969	13,783	2	20	204	786	6	47	2,181	14,636	
	20	7	11	3	56	2,951	20,638	10	59	287	1,151	11	68	3,262	21,972	
	21	7	14	4	57	2,161	13,651	31	223	419	1,704	21	150	2,636	15,785	
	22	5	8	1	7	1,500	8,859	44	269	457	1,920	33	208	2,035	11,263	
23	6	13	4	71	2,126	13,569	83	559	693	2,820	55	329	2,961	17,348		
24	5	7	4	67	1,109	7,093	80	542	677	2,951	50	317	1,920	10,970		
25	5	9	0	0	908	5,969	90	683	423	1,797	33	237	1,454	8,686		
Total			56	678	242	3,138	221,657	1,452,450	1,041	7,428	11,158	40,510	5,651	39,851	239,749	1,543,377

Appendix C.8. Orzinski Bay daily salmon harvest by species, all gear combined, June 1-July 10, 1991-94.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>1991</b>							
6/13	1	2	0	846	0	0	0
6/15	2	2	2	1,148	0	0	0
6/20	2	3	0	905	0	0	18
6/21	3	7	0	2,225	0	0	19
6/25	3	4	0	1,233	0	1	7
7/06	4	7	2	5,370	4	5	28
7/08	6	6	1	2,075	0	12	36
7/09	6	6	2	2,822	5	5	8
7/10	5	7	0	3,832	1	0	6
Total	9	44	7	20,456	10	23	122
<b>1992</b>							
6/29	2	2	0	629	0	0	0
7/06	12	19	0	4,897	0	11	58
7/07	11	31	2	6,325	0	62	52
7/08	13	21	0	4,031	0	26	24
7/09	15	20	5	5,185	0	64	48
7/10	16	22	2	4,208	0	45	31
Total	17	115	9	25,275	0	208	213
<b>1993</b>							
7/03	26	27	2	3,821	2	2	5
7/04	28	35	2	4,176	0	2	9
7/05	25	37	1	5,762	1	10	10
7/06	22	32	2	6,896	0	0	0
7/07	17	17	0	4,138	0	0	0
7/08	17	23	0	4,372	0	4	1
7/09	12	16	3	2,435	1	7	14
7/10	20	33	2	5,498	0	0	1
Total	32	220	12	37,098	4	25	40
<b>1994</b>							
	0	0	0	0	0	0	0

Appendix C.9. Orzinski and American Bays, daily salmon harvest, by species and gear type, June 1 - July 25, 1990.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>SET GILLNET</b>							
7/09	a	a	a	a	a	a	a
7/10	a	a	a	a	a	a	a
<b>Total</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>525</b>	<b>0</b>	<b>7</b>	<b>88</b>
<b>Grand Total</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>525</b>	<b>0</b>	<b>7</b>	<b>88</b>

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.10. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1991.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
6/13	a	a	a	a	a	a	a
6/15	a	a	a	a	a	a	a
6/20	a	a	a	a	a	a	a
6/21	a	a	a	a	a	a	a
6/25	a	a	a	a	a	a	a
7/06	4	7	2	5,370	4	5	28
7/08	6	6	1	2,075	0	12	36
7/09	6	6	2	2,822	5	5	8
7/10	5	7	0	3,832	1	0	6
7/14	7	7	2	1,184	10	31	10
7/15	10	17	2	3,939	85	261	105
7/16	7	10	0	2,662	6	254	90
7/21	7	11	5	6,467	67	920	263
7/22	7	9	9	3,769	65	1,510	388
7/23	10	17	4	3,979	106	2,084	538
<b>Total</b>	<b>18</b>	<b>115</b>	<b>29</b>	<b>42,456</b>	<b>349</b>	<b>5,083</b>	<b>1,516</b>

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.11. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1992.

Date	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	
6/29	a	a	a	a		a	a	a
7/06	12	19	0	4,897		0	11	58
7/07	11	31	2	6,325		0	62	52
7/08	13	21	0	4,031		0	26	24
7/09	15	20	5	5,185		0	64	48
7/10	16	22	2	4,208		0	45	31
7/11	14	22	3	5,467		1	117	43
7/12	14	24	3	4,911		1	126	48
7/13	11	17	0	4,784		3	132	54
7/14	11	11	0	5,277		3	150	74
7/15	13	20	1	7,288		9	272	87
7/16	15	20	2	5,064		0	298	41
7/17	15	24	0	6,468		0	235	33
7/18	14	19	2	4,627		2	334	11
7/19	14	19	2	6,440		11	755	51
7/20	14	23	0	6,848		3	1,066	125
7/21	14	18	1	4,090		1	1,013	47
7/22	16	22	1	2,991		0	1,209	74
7/23	8	9	0	2,044		1	898	42
7/24	8	9	0	2,880		0	1,060	27
7/25	9	13	1	3,684		0	1,879	141
<b>Total</b>	<b>21</b>	<b>385</b>	<b>25</b>	<b>98,138</b>		<b>35</b>	<b>9,752</b>	<b>1,111</b>

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.12. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1993.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
7/03	26	27	2	3,821	2	2	5
7/04	28	35	2	4,176	0	2	9
7/05	25	37	1	5,762	1	10	10
7/06	22	32	2	6,896	0	0	0
7/07	17	17	0	4,138	0	0	0
7/08	17	23	0	4,372	0	4	1
7/09	12	16	3	2,435	1	7	14
7/10	20	33	2	5,498	0	0	1
7/11	13	17	0	2,665	0	3	2
7/12	15	17	0	2,748	0	2	2
7/14	4	4	0	1,100	0	36	23
7/15	16	18	4	2,215	0	59	13
7/16	13	13	0	1,885	1	35	6
7/21	a	a	a	a	a	a	a
7/22	a	a	a	a	a	a	a
7/23	11	12	1	1,763	32	956	48
7/24	a	a	a	a	a	a	a
<b>Total</b>	<b>33</b>	<b>306</b>	<b>17</b>	<b>50,257</b>	<b>37</b>	<b>1,400</b>	<b>143</b>

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.13. Orzinski Bay salmon harvest by species, all gear combined, June 1-July 25, 1994.

Date	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	
7/11	11	12	1	1,685		7	45	13
7/12	18	34	2	5,304		1	87	16
7/13	19	27	2	5,012		0	151	8
7/14	18	34	1	5,249		5	74	10
7/15	11	12	0	1,289		6	37	2
7/16	17	33	0	7,304		8	330	31
7/17	17	28	0	3,909		1	403	14
7/18	8	13	0	1,243		1	104	5
7/19	9	16	0	1,969		2	204	6
7/20	7	11	3	2,951		10	287	11
7/21	7	14	4	2,161		31	419	21
7/22	5	8	1	1,500		44	457	33
7/23	6	13	4	2,126		83	693	55
7/24	5	7	4	1,109		80	677	50
7/25	5	9	0	908		90	423	33
<b>Total</b>	<b>22</b>	<b>271</b>	<b>22</b>	<b>43,719</b>		<b>369</b>	<b>4,391</b>	<b>308</b>

Appendix C.14. Orzinski Bay daily salmon harvest by species and gear type, June 1- July 25, 1991.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>PURSE SEINE</b>							
7/14	a	a	a	a	a	a	a
7/15	a	a	a	a	a	a	a
7/16	a	a	a	a	a	a	a
7/21	a	a	a	a	a	a	a
7/22	a	a	a	a	a	a	a
7/23	a	a	a	a	a	a	a
Total	4	9	1	6,791	0	919	1
<b>SET GILLNET</b>							
6/13	a	a	a	a	a	a	a
6/15	a	a	a	a	a	a	a
6/20	a	a	a	a	a	a	a
6/21	a	a	a	a	a	a	a
6/25	a	a	a	a	a	a	a
7/06	4	7	2	5,370	4	5	28
7/08	6	6	1	2,075	0	12	36
7/09	6	6	2	2,822	5	5	8
7/10	5	7	0	3,832	1	0	6
7/14	5	5	1	717	10	11	10
7/15	7	14	2	3,240	85	136	104
7/16	6	9	0	2,112	6	210	90
7/21	6	10	5	2,667	67	720	263
7/22	6	8	9	2,719	65	1,060	388
7/23	9	16	4	3,754	106	2,004	538
Total	14	106	28	35,665	349	4,164	1,515
Grand Total	18	115	29	42,456	349	5,083	1,516

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.15. Orzinski Bay daily salmon harvest by species and gear type, June 1-  
July 25, 1992.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>PURSE SEINE</b>							
7/21	a	a	a	a	a	a	a
7/22	a	a	a	a	a	a	a
Total	a	a	a	a	a	a	a
<b>SET GILLNET</b>							
6/29	a	a	a	a	a	a	a
7/06	12	19	0	4,897	0	11	58
7/07	11	31	2	6,325	0	62	52
7/08	13	21	0	4,031	0	26	24
7/09	15	20	5	5,185	0	64	48
7/10	16	22	2	4,208	0	45	31
7/11	14	22	3	5,467	1	117	43
7/12	14	24	3	4,911	1	126	48
7/13	11	17	0	4,784	3	132	54
7/14	11	11	0	5,277	3	150	74
7/15	13	20	1	7,288	9	272	87
7/16	15	20	2	5,064	0	298	41
7/17	15	24	0	6,468	0	235	33
7/18	14	19	2	4,627	2	334	11
7/19	14	19	2	6,440	11	755	51
7/20	14	23	0	6,848	3	1,066	125
7/21	13	17	1	4,055	1	973	46
7/22	14	20	1	2,571	0	829	64
7/23	8	9	0	2,044	1	898	42
7/24	8	9	0	2,880	0	1,060	27
7/25	9	13	1	3,684	0	1,879	141
Total	19	382	25	97,683	35	9,332	1,100
Grand Total	21	385	25	98,138	35	9,752	1,111

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.16. Orzinski Bay daily salmon harvest by species and gear type, June 1-  
July 25, 1993.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>SET GILLNET</b>							
7/03	26	27	2	3,821	2	2	5
7/04	28	35	2	4,176	0	2	9
7/05	25	37	1	5,762	1	10	10
7/06	22	32	2	6,896	0	0	0
7/07	17	17	0	4,138	0	0	0
7/08	17	23	0	4,372	0	4	1
7/09	12	16	3	2,435	1	7	14
7/10	20	33	2	5,498	0	0	1
7/11	13	17	0	2,665	0	3	2
7/12	15	17	0	2,748	0	2	2
7/14	4	4	0	1,100	0	36	23
7/15	16	18	4	2,215	0	59	13
7/16	13	13	0	1,885	1	35	6
7/21	a	a	a	a	a	a	a
7/22	a	a	a	a	a	a	a
7/23	11	12	1	1,763	32	956	48
7/24	a	a	a	a	a	a	a
<b>Total</b>	<b>33</b>	<b>306</b>	<b>17</b>	<b>50,257</b>	<b>37</b>	<b>1,400</b>	<b>143</b>
<b>Grand Total</b>	<b>33</b>	<b>306</b>	<b>17</b>	<b>50,257</b>	<b>37</b>	<b>1,400</b>	<b>143</b>

<sup>a</sup> Confidentiality requirements prohibit reporting harvest by day.

Appendix C.17. Orzinski Bay daily salmon harvest by species and gear type, June 1-July 25, 1994.

Date	Permits	Landings	Number of Salmon				
			Chinook	Sockeye	Coho	Pink	Chum
<b>SET GILLNET</b>							
7/11	11	12	1	1,685	7	45	13
7/12	18	34	2	5,304	1	87	16
7/13	19	27	2	5,012	0	151	8
7/14	18	34	1	5,249	5	74	10
7/15	11	12	0	1,289	6	37	2
7/16	17	33	0	7,304	8	330	31
7/17	17	28	0	3,909	1	403	14
7/18	8	13	0	1,243	1	104	5
7/19	9	16	0	1,969	2	204	6
7/20	7	11	3	2,951	10	287	11
7/21	7	14	4	2,161	31	419	21
7/22	5	8	1	1,500	44	457	33
7/23	6	13	4	2,126	83	693	55
7/24	5	7	4	1,109	80	677	50
7/25	5	9	0	908	90	423	33
Grand Total	22	271	22	43,719	369	4,391	308

Appendix C.18. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1993.

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
June 8-17	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
18	1	0	1	1	0	1	0.0	0.0	0.0	0.0	0.0
19	0	0	0	1	0	1	0.0	0.0	0.0	0.0	0.0
20	0	0	0	1	0	1	0.0	0.0	0.0	0.0	0.0
21	0	0	0	1	0	1	0.0	0.0	0.0	0.0	0.0
22	0	0	0	1	0	1	0.0	0.0	0.0	0.0	0.0
23	362	4	366	363	4	367	1.5	0.0	1.5	0.0	1.5
24	5	0	5	368	4	372	0.0	0.0	1.5	0.0	1.5
25	34	1	35	402	5	407	0.1	0.0	1.6	0.0	1.6
26	456	18	474	858	23	881	1.8	0.1	3.5	0.1	3.6
27	460	14	474	1,318	37	1,355	1.9	0.1	5.3	0.1	5.5
28	170	14	184	1,488	51	1,539	0.7	0.1	6.0	0.2	6.2
29	204	12	216	1,692	63	1,755	0.8	0.0	6.8	0.3	7.1
30	0	0	0	1,692	63	1,755	0.0	0.0	6.8	0.3	7.1
July 1	2,805	104	2,909	4,497	167	4,664	11.3	0.4	18.2	0.7	18.9
2	1,302	78	1,380	5,799	245	6,044	5.3	0.3	23.5	1.0	24.5
3	1,319	75	1,394	7,118	320	7,438	5.3	0.3	28.8	1.3	30.1
4	565	121	686	7,683	441	8,124	2.3	0.5	31.1	1.8	32.9
5	0	0	0	7,683	441	8,124	0.0	0.0	31.1	1.8	32.9
6	0	0	0	7,683	441	8,124	0.0	0.0	31.1	1.8	32.9
7	71	24	95	7,754	465	8,219	0.3	0.1	31.4	1.9	33.3
8	0	0	0	7,754	465	8,219	0.0	0.0	31.4	1.9	33.3
9	277	161	438	8,031	626	8,657	1.1	0.7	32.5	2.5	35.0
10	0	0	0	8,031	626	8,657	0.0	0.0	32.5	2.5	35.0
11	415	88	503	8,446	714	9,160	1.7	0.4	34.2	2.9	37.1
12	4	1	5	8,450	715	9,165	0.0	0.0	34.2	2.9	37.1
13	1,709	125	1,834	10,159	840	10,999	6.9	0.5	41.1	3.4	44.5
14	239	47	286	10,398	887	11,285	1.0	0.2	42.1	3.6	45.7
15	178	20	198	10,576	907	11,483	0.7	0.1	42.8	3.7	46.5
16	75	50	125	10,651	957	11,608	0.3	0.2	43.1	3.9	47.0
17	208	68	276	10,859	1,025	11,884	0.8	0.3	43.9	4.1	48.1
18	2,043	315	2,358	12,902	1,340	14,242	8.3	1.3	52.2	5.4	57.6
19	1,084	140	1,224	13,986	1,480	15,466	4.4	0.6	56.6	6.0	62.6
20	776	57	833	14,762	1,537	16,299	3.1	0.2	59.7	6.2	65.9
21	886	141	1,027	15,648	1,678	17,326	3.6	0.6	63.3	6.8	70.1
22	249	67	316	15,897	1,745	17,642	1.0	0.3	64.3	7.1	71.4
23	42	56	98	15,939	1,801	17,740	0.2	0.2	64.5	7.3	71.8
24	538	268	806	16,477	2,069	18,546	2.2	1.1	66.7	8.4	75.1
25	896	335	1,231	17,373	2,404	19,777	3.6	1.4	70.3	9.7	80.0
26	0	0	0	17,373	2,404	19,777	0.0	0.0	70.3	9.7	80.0
27	30	23	53	17,403	2,427	19,830	0.1	0.1	70.4	9.8	80.2
28	204	67	271	17,607	2,494	20,101	0.8	0.3	71.2	10.1	81.3
29	581	152	733	18,188	2,646	20,834	2.4	0.6	73.6	10.7	84.3
30	11	32	43	18,299	2,678	20,977	0.4	0.1	74.0	10.8	84.9
31	160	111	271	18,459	2,789	21,248	0.6	0.4	74.7	11.3	86.0
Aug 1	286	307	593	18,745	3,096	21,841	1.2	1.2	75.8	12.5	88.4
2	217	229	446	18,745	3,325	22,287	0.9	0.9	76.7	13.5	90.2
Post August 2											
	1,538	892	2,430	20,500	4,217	24,717	6.2	3.6	82.9	17.1	100.0
Total	20,500	4,217	24,717	20,500	4,217	24,717	82.9	17.1	82.9	17.1	100.0

August 2 count was estimated from morning fish counts.  
The weir was closed for the season on August 2.

Appendix C.19. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1992.

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
June 12-24	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
25	197	8	205	197	8	205	0.8	0.0	0.8	0.0	0.8
26	1	0	1	198	8	206	0.0	0.0	0.8	0.0	0.8
27	290	5	295	488	13	501	1.2	0.0	2.0	0.1	2.0
28	1,247	8	1,255	1,735	21	1,756	5.0	0.0	6.9	0.1	7.0
29	9	0	9	1,744	21	1,765	0.0	0.0	7.0	0.1	7.1
30	55	1	56	1,799	22	1,821	0.2	0.0	7.2	0.1	7.3
July 1	235	6	241	2,034	28	2,062	0.9	0.0	8.1	0.1	8.2
2	679	6	685	2,713	34	2,747	2.7	0.0	10.9	0.1	11.0
3	0	0	0	2,713	34	2,747	0.0	0.0	10.9	0.1	11.0
4	2,129	23	2,152	4,842	57	4,899	8.5	0.1	19.4	0.2	19.6
5	5,245	40	5,285	10,087	97	10,184	21.0	0.2	40.3	0.4	40.7
6	473	2	475	10,560	99	10,659	1.9	0.0	42.2	0.4	42.6
7	200	1	201	10,760	100	10,860	0.8	0.0	43.0	0.4	43.4
8	488	1	489	11,248	101	11,349	2.0	0.0	45.0	0.4	45.4
9	272	2	274	11,520	103	11,623	1.1	0.0	46.1	0.4	46.5
10	223	4	227	11,743	107	11,850	0.9	0.0	47.0	0.4	47.4
11	162	0	162	11,905	107	12,012	0.6	0.0	47.6	0.4	48.0
12	455	21	476	12,360	128	12,488	1.8	0.1	49.4	0.5	50.0
13	367	26	393	12,727	154	12,881	1.5	0.1	50.9	0.6	51.5
14	471	15	486	13,198	169	13,367	1.9	0.1	52.8	0.7	53.5
15	793	28	821	13,991	197	14,188	3.2	0.1	56.0	0.8	56.8
16	106	7	113	14,097	204	14,301	0.4	0.0	56.4	0.8	57.2
17	318	12	330	14,415	216	14,631	1.3	0.0	57.7	0.9	58.5
18	883	23	906	15,298	239	15,537	3.5	0.1	61.2	1.0	62.1
19	304	8	312	15,602	247	15,849	1.2	0.0	62.4	1.0	63.4
20	629	19	648	16,231	266	16,497	2.5	0.1	64.9	1.1	66.0
21	880	25	905	17,111	291	17,402	3.5	0.1	68.4	1.2	69.6
22	427	14	441	17,538	305	17,843	1.7	0.1	70.2	1.2	71.4
23	550	12	562	18,088	317	18,405	2.2	0.0	72.4	1.3	73.6
24	453	11	464	18,541	328	18,869	1.8	0.0	74.2	1.3	75.5
25	324	2	326	18,865	330	19,195	1.3	0.0	75.5	1.3	76.8
26	318	3	321	19,183	333	19,516	1.3	0.0	76.7	1.3	78.1
27	218	3	221	19,401	336	19,737	0.9	0.0	77.6	1.3	78.9
28	146	1	147	19,547	337	19,884	0.6	0.0	78.2	1.3	79.5
29	353	5	358	19,900	342	20,242	1.4	0.0	79.6	1.4	81.0
30 <sup>a</sup>	300	0	300	20,200	342	20,542	1.2	0.0	80.8	1.4	82.2
Post July 30 <sup>b</sup>	4,384	74	4,458	24,584	416	25,000	17.5	0.3	98.3	1.7	100.0
Total	24,584	416	25,000	24,584	416	25,000	98.3	1.7	98.3	1.7	100.0

<sup>a</sup> Count was estimated from morning fish counts.

<sup>b</sup> The weir was closed for the season on July 30.

Appendix C.20. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1991.

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
June 14	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
15	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
16	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
17	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
18	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
19	0	1	1	0	1	1	0.0	0.0	0.0	0.0	0.0
20	1	0	1	1	1	2	0.0	0.0	0.0	0.0	0.0
21	1	1	2	2	2	4	0.0	0.0	0.0	0.0	0.0
22	0	1	1	2	3	5	0.0	0.0	0.0	0.0	0.0
23	10	4	14	12	7	19	0.0	0.0	0.0	0.0	0.0
24	0	0	0	12	7	19	0.0	0.0	0.0	0.0	0.0
25	1	1	2	13	8	21	0.0	0.0	0.0	0.0	0.1
26	11	5	16	24	13	37	0.0	0.0	0.1	0.0	0.1
27	276	72	348	300	85	385	0.7	0.2	0.8	0.2	1.0
28	1	2	3	301	87	388	0.0	0.0	0.8	0.2	1.0
29	1,772	67	1,839	2,073	154	2,227	4.4	0.2	5.2	0.4	5.6
30	602	36	638	2,675	190	2,865	1.5	0.1	6.7	0.5	7.2
July 1	1,034	33	1,067	3,709	223	3,932	2.6	0.1	9.3	0.6	9.8
2	359	8	367	4,068	231	4,299	0.9	0.0	10.2	0.6	10.7
3	1,070	10	1,080	5,138	241	5,379	2.7	0.0	12.8	0.6	13.4
4	9,802	50	9,852	14,940	291	15,231	24.5	0.1	37.4	0.7	38.1
5	2,818	10	2,828	17,758	301	18,059	7.0	0.0	44.4	0.8	45.1
6	1,832	13	1,845	19,590	314	19,904	4.6	0.0	49.0	0.8	49.8
7	948	0	948	20,538	314	20,852	2.4	0.0	51.3	0.8	52.1
8	378	2	380	20,916	316	21,232	0.9	0.0	52.3	0.8	53.1
9	1,274	1	1,275	22,190	317	22,507	3.2	0.0	55.5	0.8	56.3
10	1,348	11	1,359	23,538	328	23,866	3.4	0.0	58.8	0.8	59.7
11	1,490	21	1,511	25,028	349	25,377	3.7	0.1	62.6	0.9	63.4
12	2,788	23	2,811	27,816	372	28,188	7.0	0.1	69.5	0.9	70.5
13	2,049	26	2,075	29,865	398	30,263	5.1	0.1	74.7	1.0	75.7
14	454	7	461	30,319	405	30,724	1.1	0.0	75.8	1.0	76.8
15	767	19	786	31,086	424	31,510	1.9	0.0	77.7	1.1	78.8
16	453	5	458	31,539	429	31,968	1.1	0.0	78.8	1.1	79.9
17	1,162	23	1,185	32,701	452	33,153	2.9	0.1	81.8	1.1	82.9
18	1,113	15	1,128	33,814	467	34,281	2.8	0.0	84.5	1.2	85.7
19	910	28	938	34,724	495	35,219	2.3	0.1	86.8	1.2	88.0
Post July 19 <sup>a</sup>	4,715	66	4,781	39,439	561	40,000	11.8	0.2	98.6	1.4	100.0
Total	39,439	561	40,000	39,439	561	40,000	98.6	1.4	98.6	1.4	100.0

<sup>a</sup> Post July 19 data reflect aerial survey estimates.

Appendix C.21. Sockeye salmon daily and cumulative escapement counts through the Orzinski Lake weir, 1990.

Date	Daily			Cumulative			Daily Percent		Cumulative Percent		
	Adults	Jacks	Total	Adults	Jacks	Total	Adults	Jacks	Adults	Jacks	Total
June	27	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
	28	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
	29	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
	30	0	1	0	1	1	0.0	0.0	0.0	0.0	0.0
July	1	2	1	2	2	4	0.0	0.0	0.0	0.0	0.0
	2	36	4	38	6	44	0.2	0.0	0.3	0.0	0.3
	3	0	0	38	6	44	0.0	0.0	0.3	0.0	0.3
	4	0	0	38	6	44	0.0	0.0	0.3	0.0	0.3
	5	275	11	313	17	330	1.8	0.1	2.1	0.1	2.2
	6	233	7	546	24	570	1.6	0.0	3.6	0.2	3.8
	7	52	7	598	31	629	0.3	0.0	4.0	0.2	4.2
	8	10	0	608	31	639	0.1	0.0	4.1	0.2	4.3
	9	0	0	608	31	639	0.0	0.0	4.1	0.2	4.3
	10	120	3	728	34	762	0.8	0.0	4.9	0.2	5.1
	11	199	9	927	43	970	1.3	0.1	6.2	0.3	6.5
	12	787	73	1,714	116	1,830	5.2	0.5	11.4	0.8	12.2
	13	0	0	1,714	116	1,830	0.0	0.0	11.4	0.8	12.2
	14	3	0	1,717	116	1,833	0.0	0.0	11.4	0.8	12.2
	15	29	21	1,746	137	1,883	0.2	0.1	11.6	0.9	12.6
	16	526	27	2,272	164	2,436	3.5	0.2	15.1	1.1	16.2
	17	39	103	2,311	267	2,578	0.3	0.7	15.4	1.8	17.2
	18	4,374	199	6,685	466	7,151	29.2	1.3	44.6	3.1	47.7
	19	63	2	6,748	468	7,216	0.4	0.0	45.0	3.1	48.1
	20	907	92	7,655	560	8,215	6.0	0.6	51.0	3.7	54.8
	21	774	114	8,429	674	9,103	5.2	0.8	56.2	4.5	60.7
	22	195	33	8,624	707	9,331	1.3	0.2	57.5	4.7	62.2
	23	260	22	8,884	729	9,613	1.7	0.1	59.2	4.9	64.1
	24	666	83	9,550	812	10,362	4.4	0.6	63.7	5.4	69.1
	25	38	20	9,588	832	10,420	0.3	0.1	63.9	5.5	69.5
	26	25	4	9,613	836	10,449	0.2	0.0	64.1	5.6	69.7
	27	8	0	9,621	836	10,457	0.1	0.0	64.1	5.6	69.7
	28	113	37	9,734	873	10,607	0.8	0.2	64.9	5.8	70.7
	29	331	68	10,065	941	11,006	2.2	0.5	67.1	6.3	73.4
	30	385	101	10,450	1,042	11,492	2.6	0.7	69.7	6.9	76.6
	31	577	92	11,027	1,134	12,161	3.8	0.6	73.5	7.6	81.1
Aug	1	0	0	11,027	1,134	12,161	0.0	0.0	73.5	7.6	81.1
	2	41	6	11,068	1,140	12,208	0.3	0.0	73.8	7.6	81.4
	3	264	70	11,332	1,210	12,542	1.8	0.5	75.5	8.1	83.6
	4	142	88	11,474	1,298	12,772	0.9	0.6	76.5	8.7	85.1
	5	376	150	11,850	1,448	13,298	2.5	1.0	79.0	9.7	88.7
	6 <sup>a</sup>	163	6	12,013	1,454	13,467	1.1	0.0	80.1	9.7	89.8
Post-6 <sup>b</sup>	1,150	383	1,533	13,163	1,837	15,000	7.7	2.6	87.8	12.2	100.0
Total	13,163	1,837	15,000	13,163	1,837	15,000	87.8	12.2	87.8	12.2	100.0

<sup>a</sup> Escapement reflects only a partial daily count (through noon).

<sup>b</sup> Counts estimated from aerial surveys.

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