

1989
KOTZEBUE DISTRICT
SALMON REPORT
to the
Alaska Board of Fisheries

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1989 KOTZEBUE SALMON SEASON SUMMARY

INTRODUCTION

The 1989 commercial harvest of salmon in the Kotzebue district totalled 254,617 chum salmon and 87 chinook salmon, (Table 1 and Figure 1). The chum harvest was 24 percent below the recent ten-year average (1979-1988) of 333,920 chum salmon.

FISHERIES MANAGEMENT

The primary management objectives were to provide adequate chum salmon escapement through the commercial fishery to ensure 1) sustained runs in future years, and 2) adequate subsistence harvest levels. Fisheries management in the Kotzebue Area in 1989 was dependent on comparing period catch and catch per unit effort (CPUE) to historical averages (Figures 2, 3). The limited use of newly established inseason escapement programs and a changing fishery (increasing efficiency) necessitates a conservative approach to management of the Kotzebue salmon fishery. Run strength was assessed after each period by comparing catch data (catch and catch per unit of effort) to historic average values for approximately the same date. The ten-year average used for comparison includes a range of weak and strong runs, thus providing a good comparative base.

Management considered first-hand knowledge of run strength and fishing conditions by local fishermen in decision-making processes. Frequent meetings were held with members of the local commercial fishermen's association to exchange ideas and information. In addition, subsistence fishers in the lower Kobuk River villages were contacted to give their assessment of salmon abundance, timing, and fishing conditions.

COMMERCIAL FISHING SUMMARY

One hundred and sixty-five permit holders fished at least one fishing period during the 1989 commercial salmon season which extended from July 10 to August 30.

After the first three periods of near average catches, both catch and catch rates dropped significantly below the recent ten-year average. Therefore, 24-hour periods remained in effect until July 31. However, on July 25 the period closure was delayed for four hours due to sudden unexpected violent weather conditions. This one-time extension was made because a large portion of the fishing fleet could not retrieve their nets by the end of the period, and the marine forecast predicted the winds to subside in the immediate future.

Fishing time was extended to 36 hours on July 31 as that period has been at least 36 hours long when it was open for the last ten years. Since catch and catch rates remained considerably below average, fishing time was reduced to 24 hours on August 3, to allow for adequate escapement and salmon for subsistence use. An increase in the catch rate and the number of 4 year old fish, as well as increasing Noatak test net catches, provided a basis for an increase in

fishing time to the normal 36 hour period schedule on August 7. Continued strong catch and catch rates, given the low number of fishers, in addition to adequate escapement as indicated by strong Noatak test net and Kobuk River subsistence catches, supported an extension to two 48 hour periods per week beginning August 10 for the remainder of the season.

Catch and CPUE both peaked on the 9th period (August 8) when 44,741 chum salmon were sold. The below average catches before the peak could be attributed in part to the poor return of 5 year old chum salmon and the late arrival of 4 year old chums.

Total fishing time allowed was 532 hours, just slightly under the recent ten year average of 535 hours. The normal amount of fishing time compared to the below average return was explained by the low number of fishers. The number of permit holders ranged from 17 in the 15th period to 138 in the 10th period, no more than 89 per cent of the normal participation.

Thirty nine percent of the chum catch was taken in statistical area 331-01, adjacent to the Baldwin Peninsula (Table 3 and Figure 5). Forty two percent was taken in area 331-02 (Sisaulik) and twelve percent was taken in newly created statistical area 331-06, in the area between Cape Blossom and Riley Wreck (Figure 6). The boundary was extended last year to include this area, but in 1988 the catch from this area was included in area 331-01.

Eighty one percent of the permit holders participated in area 331-01 during at least one period of the fishing season. Seventy two percent fished in area 331-02, seventeen percent in 331-03 (near Noatak River mouth), eleven percent in area 331-04 (Kobuk Lake), ten percent in area 331-05 (Northwest Boundary) and twenty seven percent in area 331-06 (Figure 7).

1989 chum prices started at 25 cents a pound, and rose to 31 cents. Chinook sold for \$2.00 a pound at three buyers, while the fourth buyer paid \$1.25 a pound. Average prices for the season were 28 cents a pound for chum and \$1.72 a pound for chinook. This is the second lowest average price for chum since 1975. Commercial fishermen received approximately \$613,823 for the 1989 commercial catch, for an average of \$3,720 for each permit-holder who fished this year.

Four buyers operated, shipping salmon out in the round. One processing plant operated in Kotzebue this year, cutting some of the fish from two of the buyers. About 940,000 pound of chum in the round were headed and gutted, and roe recovered. The roe was brined in Kotzebue. About 700,000 pounds of dressed chum were shipped out by this processor. No figures were provided on roe. Average weights were 8.50 pounds for chum and 16.39 pounds for chinook.

The age composition of the commercial catch (weighted by period catch) was 0.7 percent, age 3; 77.8 percent, age 4; 20.4 percent, age 5; and 1.0 percent, age 6 (Table 4). One seven year old, which rarely occurs, was observed in the commercial catch.

CHAR

Char are taken incidentally in the Kotzebue commercial chum salmon fishery,

appearing in commercial catches mostly during the last three weeks of August. A total of 3,093 char were sold in 1989, for an average price of 28 cents a pound. All four buyers purchased char this year, for a total weight of 20,293 pounds. The commercial catch was about 17% above the average (2,562) of the years 1978, 1979, 1980 and 1982, which are the only years of a significant char market in the recent history of the fishery. This years sales are the second highest since 1972. Average weight for char in 1989 was 6.56 pounds.

SUBSISTENCE FISHERY

Door-to-door subsistence fishing interviews were conducted in two Kobuk River villages, Shungnak and Noorvik, during the third week of September. Fishers in both villages reported an abundance of salmon in the river, but the continuous rain throughout the summer made for poor fishing and drying conditions. This was especially true of the upper Kobuk (Shungnak) where people were reluctant to continue fishing until weather improved. Much of the salmon caught in July and August spoiled and was unfit for human consumption. Conditions were not so severe near Noorvik, where people reported generally good catches of salmon. People were just beginning to fish for whitefish and siifish, (or sheefish, or inconnu) so survey figures do not reflect the substantial fall catches of these species. Residents of Shungnak expressed a need for good fall catches to supplement their low numbers of salvaged salmon.

Due to the high water conditions and apparent late freeze up this year, people in the village of Noatak had just started seining salmon and char at the time of this report. A subsistence survey will be conducted at a later date and the results included in the 1989 AMR.

HATCHERY CONTRIBUTION

Preliminary figures estimate the hatchery contribution to the commercial catch to be 9300 chum salmon. Revised estimates will be available after additional analysis of the age composition of returning fish.

ESCAPEMENT

A test fishery was initiated during the 1987 season to evaluate the feasibility of indexing chum salmon escapement in the Noatak River using systematic drift gillnet catches. The project continued in 1988, and in 1989 operated from July 17 through August 24, with peak catches occurring on August 14. Although data collected was of limited use in the management of the commercial fishery this year since only two years of data exist for comparison, test net catches indicated a higher level of escapement than the previous two years. Each year the project is continued the data becomes more valuable in providing management with an index of chum salmon timing and escapement to the Noatak River, the largest salmon system in the area.

Aerial surveys of index spawning streams were precluded during the entire season due to continued poor weather and high water. Ground surveys were conducted on

the lower Kobuk and Noatak Rivers to collect information on the age, sex, and length of fish escaping to these areas. Preliminary scale analysis indicates an age composition similar to that of the commercial catch. This information will be available in the annually published N.S./Kotzebue Sound Catch and Escapement report series.

OUTLOOK FOR 1990

In 1990, chum salmon will be returning from the 1984-1987 brood years, with returns from the 1986 year class dominating. Both the per cent and number of 3 year olds in the 1989 commercial catch were far below average. Since there is a strong relationship between the number of three year old fish in one year and the subsequent number of 4 year olds the next year, the number of 4 year old fish in the 1990 commercial catch may be below average. The number of 5 year old fish returning in 1990 is expected to be about average, based on the return of four year olds in 1989. Since these two age groups have historically comprised 85% of the catch in the Kotzebue fishery, the commercial catch of salmon in 1990 is expected to be below average. However, the age composition data needs to be further analyzed. The number of 3 year old fish returning in 1990 is dependent on a combination of escapement during the parent year (1987) and weather conditions during the fall and winter of 1987-88, which affect egg and fry survival. Kotzebue area spawning streams experienced high water during the fall as well as a below average salmon return in 1987. Without additional information, it is impossible to estimate egg and fry mortality levels caused by adverse freshwater environmental conditions.

FRESHWATER FISHERIES

Limited commercial harvests of miscellaneous finfish have been allowed since statehood, normally under the auspices of a permit which delineates harvest levels, open areas, legal gear, etc. In 1989 there was no commercial harvest of whitefish, pike, and burbot, as there has been in previous years. However, eight catcher-sellers harvested siifish, selling 2,387 fish weighing 17,085 pounds. Siifish were sold predominantly between late October and late March. Average weights of daily catches ran from 5.5 to 11.7 pounds, with the 1989 season average weight of 7.16 pounds. Total value of the commercial siifish harvest was just under \$9,000, with an average price of 53 cents a pound. The commercial siifish season opened October 1st, 1988, and was not closed, since reported sales did not reach the 25,000 pound limit set for commercial harvest.

Table 1. Commercial catches of chum, chinook, and char by fishing period, Kotzebue District, 1989

PERIOD	DATES	HOURS FISHED	NO. OF PERMITS	NO. OF CHUM	CHUM POUNDS	CHUM CPUE	NO. OF CHINOOK
1	JULY 10-11	24	53	2312	20619	1.82	1
2	JULY 13-14	24	74	5950	52519	3.35	17
3	JULY 17-18	24	90	11397	100942	5.28	5
4	JULY 20-21	24	97	8381	74281	3.60	10
5	JULY 24-25	28	103	16145	141739	5.60	7
6	JULY 27-28	24	108	12736	110965	4.91	6
7	JULY31-AUG1	36	122	24918	218642	5.67	7
8	AUGUST3-4	24	123	28887	252498	9.79	8
9	AUGUST7-8	36	127	44741	384499	9.79	3
10	AUGUST10-12	48	138	42046	345116	6.35	8
11	AUGUST14-16	48	126	31787	261125	5.26	5
12	AUGUST17-19	48	80	7973	64048	2.08	2
13	AUGUST21-23	48	65	10408	82552	3.34	4
14	AUGUST24-26	48	35	4545	35229	2.71	2
15	AUGUST28-30	48	17	2391	18400	2.93	7
SEASON TOTALS		532	165	254617	2163174	5.41	8.

Table 2. Kotzebue District chum fishery information 1979-1989

COMMERCIAL CATCH	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Chum (in thousands)	141.5	367.3	677.2	417.8	175.8	320.2	521.4	261.4	109.5	352.9	254.6
Number of permits	181	176	187	199	189	181	189	187	160	193	165
Average chum per permit	782	2087	3622	2099	930	1769	2759	1398	684	1829	1543.1
Est. value (in thousands)	990.3	1446.6	3247	1962	421	1149	2137	933	515	2605	613.8
ESCAPEMENT											
(in thousands)	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989 4/
Noatak	24.6	182.1	116.4	20.7 1/	78.9	67.8	44 1/	37.2 1/	9.3 3/	45.9 1/	
Upper Kobuk	2	11.5	8.6	14.7	33.7	10.6	6.2 1/	6 1/	8.2	13.2	
Squirrel	1.5	13.5	9.8	7.7	6.1	5.5	6.2	5 1/	2.7	4.8 1/	
Salmon	0.7	8.5	4.7	5.4 2/	1.7	1.5	2	2 1/	3.3	6.2	
Tutuksuk	0.4	1.2	1.1	1.3	2.6	1.1	5.1	4.5	0.2 3/	3.1	
ESCAPEMENT GOALS											
Area	Goal										
Noatak River (mouth to Kelly Bar)	80000										
Upper Kobuk (Kobuk Village to Beaver Creek)	10000										
Squirrel (entire)	11500										
Salmon (entire)	7000										
Tutuksuk (entire)	2000										

1/ Low escapement estimates due to poor survey conditions during peak spawning. Estimate achieved either under poor survey conditions (high turbid water) or before or after peak spawning.

2/ Foot surveys.

3/ Partial survey and poor survey conditions.

4/ Aerial surveys not feasible due to unfavorable weather and water conditions.

Table 3. Commercial chum and chinook salmon catch by statistical area, Kotzebue District, 1989.

CHUM

STATAREA	PERMITS	CHUM	PERCENT	POUNDS	AV.WT	CPUE
33101	134	98615	38.73	829356	8.41	3.94
33102	120	107038	42.04	909134	8.49	4.90
33103	28	9535	3.74	82141	8.61	3.62
33104	18	3785	1.49	32824	8.67	2.89
33105	17	4464	1.75	37373	8.37	5.66
33106	45	31180	12.25	272346	8.73	7.96
TOTAL	165	254617	100.00	2163174	8.50	5.41

CHINOOK

STATAREA	PERMITS	CHINOOK	PERCENT	POUNDS	AV.WT
33101	15	20	23.00	328	16.40
33102	19	31	35.60	532	17.16
33103	2	4	4.60	58	14.50
33104	1	1	1.20	41	41.00
33105	2	3	3.40	62	20.67
33106	13	28	32.20	405	14.46
TOTAL	46	87	100.00	1426	16.39

CHAR

STATAREA	PERMITS	CHAR	PERCENT	POUNDS	AV.WT.	CPUE
33101	44	446	14.42	2754	6.17	0.06
33102	59	2172	70.22	14278	6.57	0.26
33103	3	62	2.00	406	6.55	0.08
33104	1	9	0.29	62	6.89	0.04
33105	3	307	9.93	2160	7.04	1.60
33106	9	97	3.14	633	6.53	0.07
TOTAL	96	3093	100.00	20293	6.56	0.20

Table 4. Percent age and sex composition of chum salmon taken in the Kotzebue commercial chum salmon fishery, 1962-1989.

Year	Sample Size	Percent		Percent Age Class			
		Males	Females	0.2	0.3	0.4	0.5
1962	69	26.1	73.9	7.3	63.3	28.0	1.4
1963	255	35.0	65.0	30.1	50.9	18.6	0.4
1964	463	43.6	56.4	53.3	45.1	1.7	0.0
1965	480	42.1	57.9	2.3	91.0	6.7	0.0
1966	430	40.2	59.8	10.1	67.1	22.8	0.0
1967	1865	37.3	62.7	8.8	72.3	18.5	0.5
1968	1989	48.2	51.8	21.2	58.0	19.8	0.9
1969	1125	53.7	46.3	36.8	58.3	4.9	0.0
1970	267	45.3	54.7	3.9	91.0	5.1	0.0
1971	1105	54.6	45.4	7.1	67.3	26.3	0.0
1972	980	50.9	49.1	15.8	59.4	24.1	0.6
1973	598	46.0	54.0	16.7	69.5	13.8	0.0
1974	350	47.1	52.9	28.5	63.5	7.8	0.2
1975	340	46.4	63.6	2.5	86.9	10.7	0.0
1976	566	47.9	52.1	11.2	51.6	37.2	0.1
1977	446	49.3	50.7	6.7	73.0	18.6	1.7
1978	579	49.9	50.1	10.5	57.5	31.8	0.2
1979	658	53.3	46.7	30.6	53.2	15.2	1.0
1980	710	56.4	43.6	15.1	78.1	6.6	0.2
1981	1167	52.4	47.6	2.4	67.1	30.6	0.0
1982	983	48.8	51.2	5.9	48.3	40.3	5.5
1983	1979	43.4	56.6	5.8	57.8	34.2	2.3
1984	2933	50.2	49.8	14.6	64.3	19.7	1.3
1985	3293	47.8	52.2	0.4	83.7	15.5	0.4
1986	3095	46.0	54.0	0.3	18.6	78.9	2.2
1987	1987	52.0	48.0	15.0	43.0	31.0	11.0
1988 1/	3324	48.0	52.0	6.5	74.9	16.8	1.7
1989	3336	49.3	50.7	0.7	77.9	20.4	1.0
10 yr avg (1979-1988)		49.7	50.3	9.5	58.7	29.1	2.7

1/ Includes 0.1% age 7.

KOTZEBUE DISTRICT CHUM SALMON

COMMERCIAL CATCH, 1962-1989

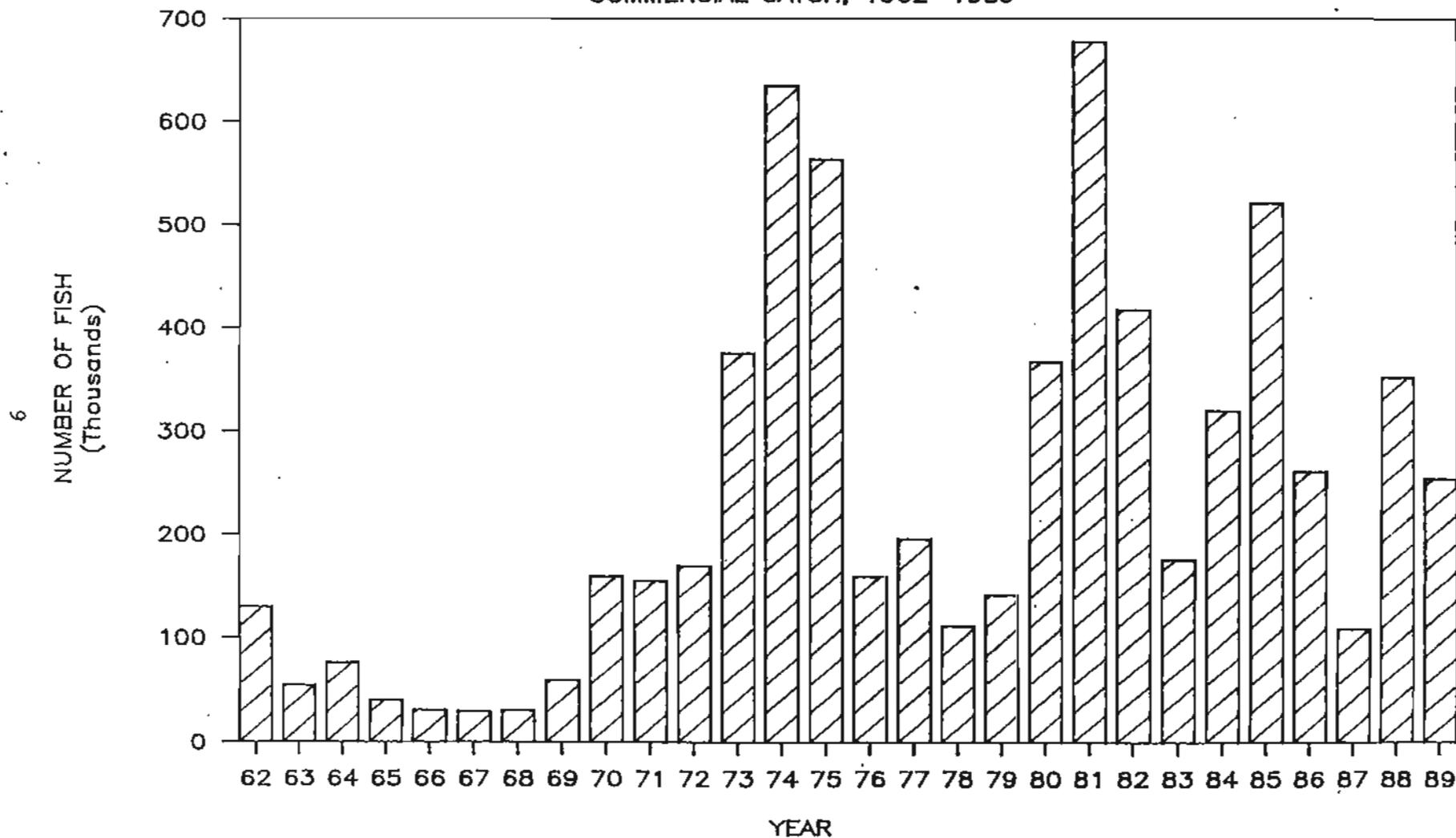


Figure 1. Kotzebue sound commercial chum salmon harvests, (1962-1989).

Commercial Catch

Ten-year Av. vs. 1989

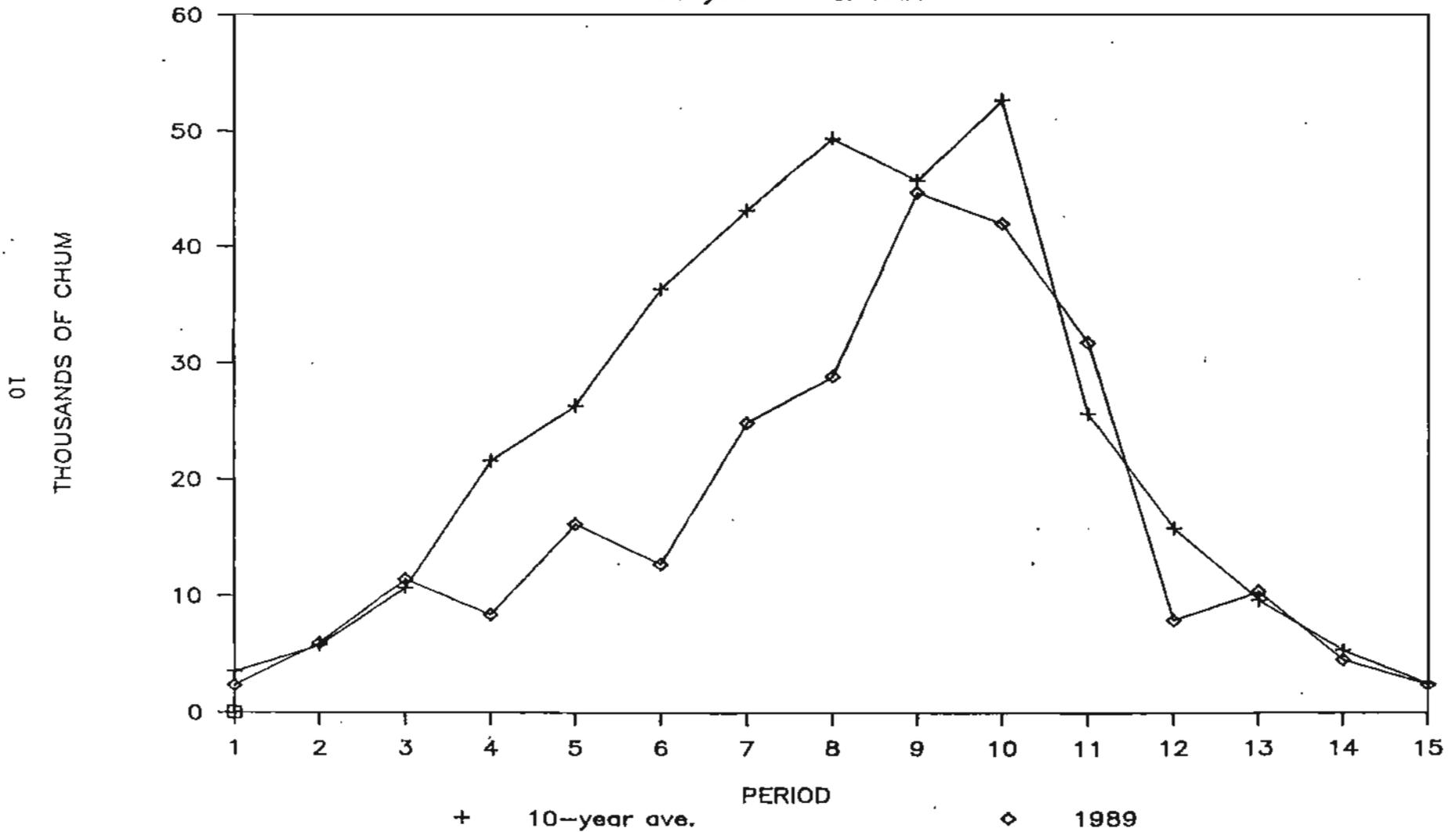


Figure 2. Comparison of 1989 and ten year average (1979-1988) commercial chum salmon period catch.

CATCH PER UNIT EFFORT

TEN-YEAR AV. VS 1989

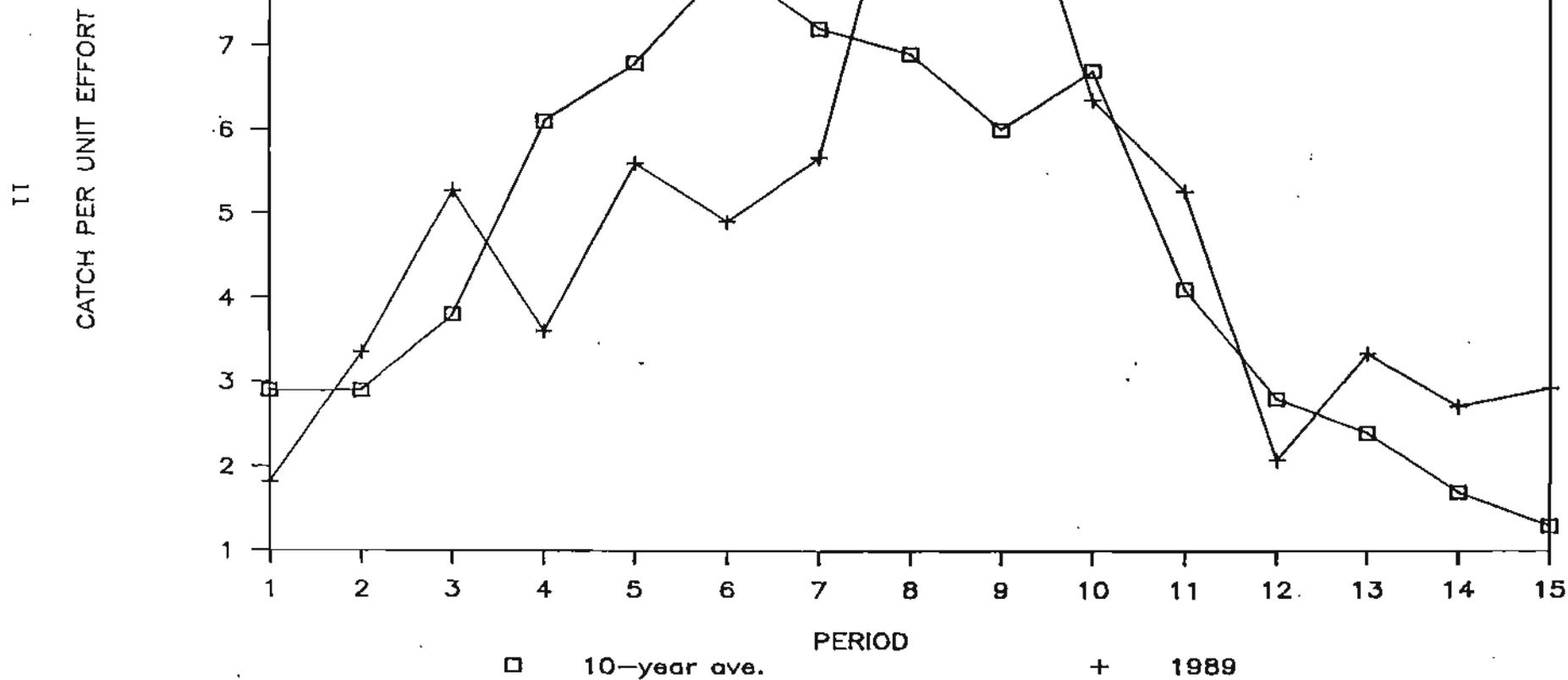


Figure 3. Comparison of 1989 and ten year average (1979-1988) commercial chum salmon period CPUE.

Kotzebue District Chum Salmon

1989, % Chum Catch by Statistical Area

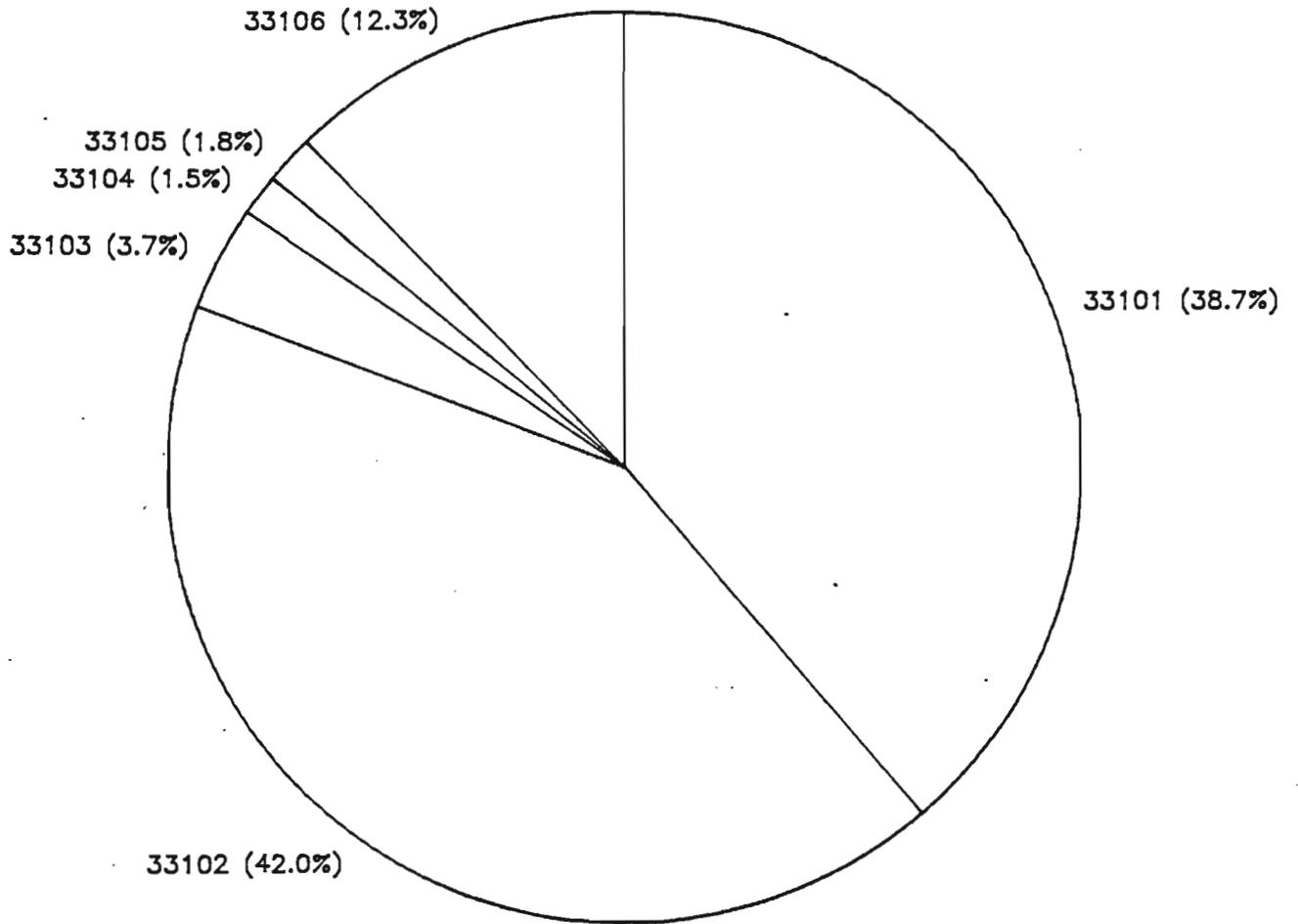


Figure 4. Proportion of the 1989 Kotzebue District chum salmon harvest by statistical area.

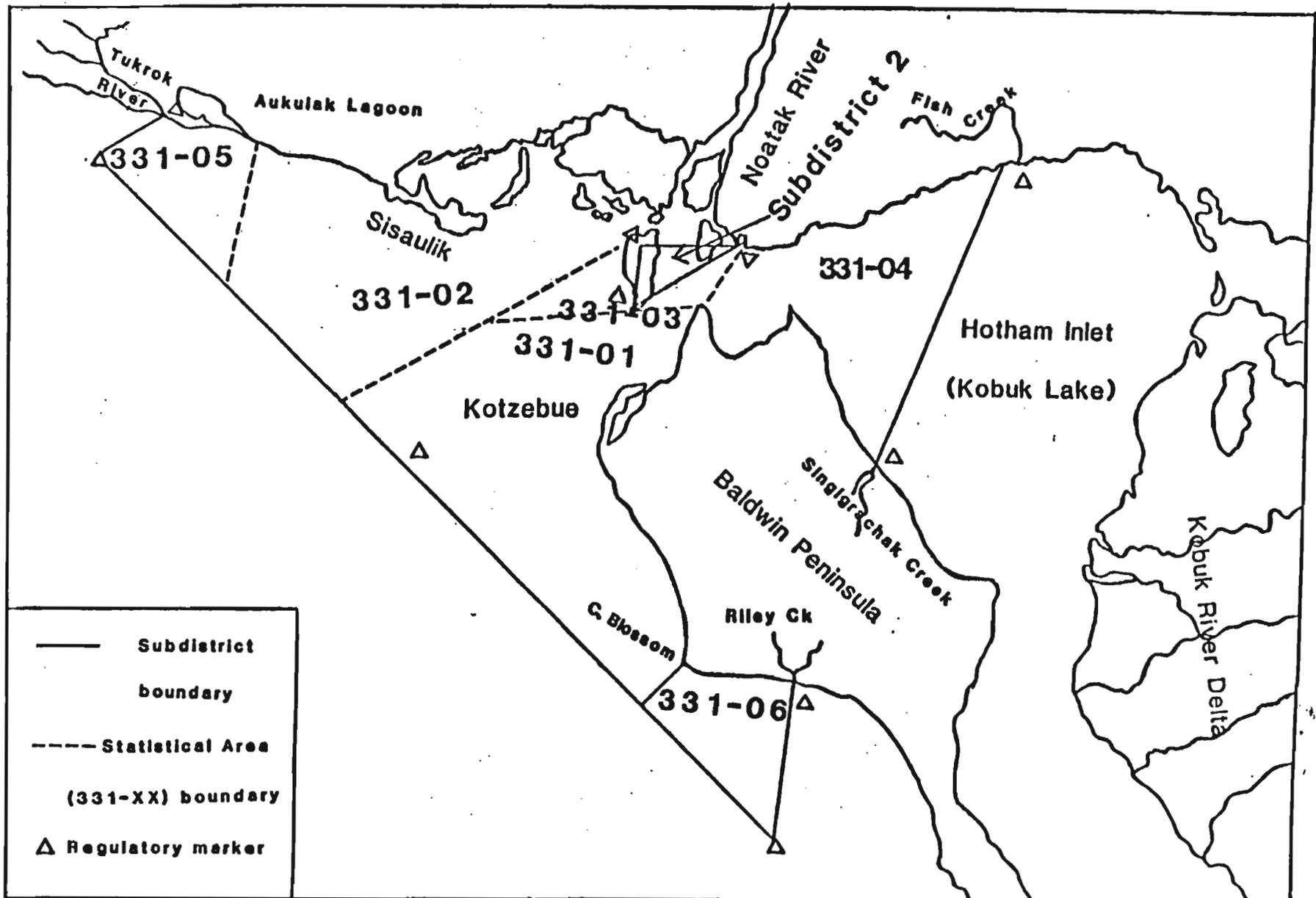


Figure 5. Kotzebue Sound commercial salmon fishing subdistricts.