1990 SALMON FISHERIES MANAGEMENT PLAN
KOTZEBUE AREA

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FISHERY BACKGROUND

The Kotzebue District includes all waters from Cape Prince of Wales to Point Hope. Chum salmon are the most abundant anadromous fish within this district. However, other salmon species (chinook, pink, coho, and sockeye) are available in lesser numbers as are char and sheefish.

Subsistence Fishery

Fishing has long been an important food gathering activity for people of Kotzebue area drainages. Remnants of fishing spears have been found within the area which date back as far as 1250 A.D. The subsistence fishery is still very important to the local people. A recent study of subsistence needs in Kotzebue found that the estimated 1986 chum salmon catch by Kotzebue residents was 35,000. Villages on the Noatak and Kobuk Rivers combined harvested an average of 15,000 chum salmon annually over the past five years. By adding these two estimates an annual subsistence harvest of 50,000 chum salmon by Kotzebue area residents would seem reasonable. Reported harvest figures are considered to be minimal since not all communities or fishermen were contacted.

Commercial Fishery

Commercial salmon fishing in the Kotzebue District dates back to 1914, when during a 4-year period, a canned and salt packed product was processed. The current chum salmon directed, commercial fishery was initiated in 1962 and occurs in ocean waters near Kotzebue (Figure 1). Commercial fishermen operate set gill nets primarily out of open skiffs powered by outboard motors. Buyers generally fly freshly caught, iced salmon out of the district either in the round or partially processed (gilled and gutted).

Commercial chum salmon harvests during the past 11 years (1979-1989) have ranged from 109,500 to 677,200 fish, the 11-year average being 327,240. Fishing effort during the same period has ranged from 160 to 199 fishermen, averaging 184 fishermen. During 1989, 254,617 chum and 87 chinook salmon were harvested by 193 fishermen. The total wholesale value of the harvest was $614,000 and ranked as the second lowest value of the fishery. Chum Salmon brought roughly one-half the recent average price and roughly one-third of 1988's price.

FISHERY OUTLOOK

Status of Stocks

Chum salmon abundance fluctuates greatly between years as noted by commercial harvests and escapements (Table 1). Although relative strength of parent-year

MANAGEMENT OBJECTIVES AND STRATEGIES

Primary fishery management objectives are to provide adequate chum salmon escapement through the commercial fishery to ensure: (1) sustained runs by allowing adequate natural escapement, and (2) meeting subsistence harvest needs. Fishery management will be dependent on comparing period and cumulative season catch rates to prior years. Figures 2 and 3 display the 1979-1988 year averages of catch by period and CPUE by period. A comparison of catch rates over the history of the fishery showed a close relationship to escapement. The comparative data base will be limited to the 1979-1989 year data to account partially for increased fleet efficiency and to encompass the range of years when similar fishing schedules were in effect, thus providing the best available comparative base.

Age composition of catches will be closely monitored to determine if an age class failure occurs. Older salmon tend to migrate into freshwater first; a fact that affects catch rate as the season progresses and affects the fishery managers evaluation of the catch statistics. Weak 5 and 6 year old age classes will tend to depress early season catches.

Aerial surveys will be attempted beginning in Mid-July on the Kobuk River tributaries. Aerial surveys are not a direct count or estimate of the salmon population but are used as a means of comparing previous surveys both in season and in prior years. Surveys will be attempted until mid-September. Aerial surveys are usually made too late to effect present year fisheries decisions but do provide useful information in critiquing the years management decisions and help project future salmon returns.

The Noatak Test Fishing project will be similar to the 1988 and 1989 projects. Test fishing will begin approximately July 17. With each years operation this project becomes more useful. This year the migration data gathered from the test catches will be used to assess run timing in season. The comparative size of the catch will be hard to evaluate since we have only two prior year's data to compare.

The Noatak sonar project will continue this season, preliminary work began during August of 1988. Site selection was made during the peak of the 1988 salmon migration. Assessment of salmon migration timing and movement patterns, along with development of river bottom profiles were the primary objective. For the sonar to be successful it is critical to cover as much of a cross sectional area of the river as possible with the sonar beam. The project will assess the feasibility of new sonar technology for enumerating migrating chum salmon in the Noatak River.

The Kotzebue District fishery generally occurs on a twice weekly schedule. July fishing periods will be 24 hours in duration to protect the lower Kobuk River run from over harvest. The lower Kobuk run peaks in July and supports the area's greatest subsistence harvest. During August when the more abundant Noatak River stock is dominant, fishing time is generally increased to two 36-hour periods per week or more if returns are large. Further adjustments in fishing time are based on trends in commercial catch rates over a series of periods. During

Table 1. 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	4.3	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.

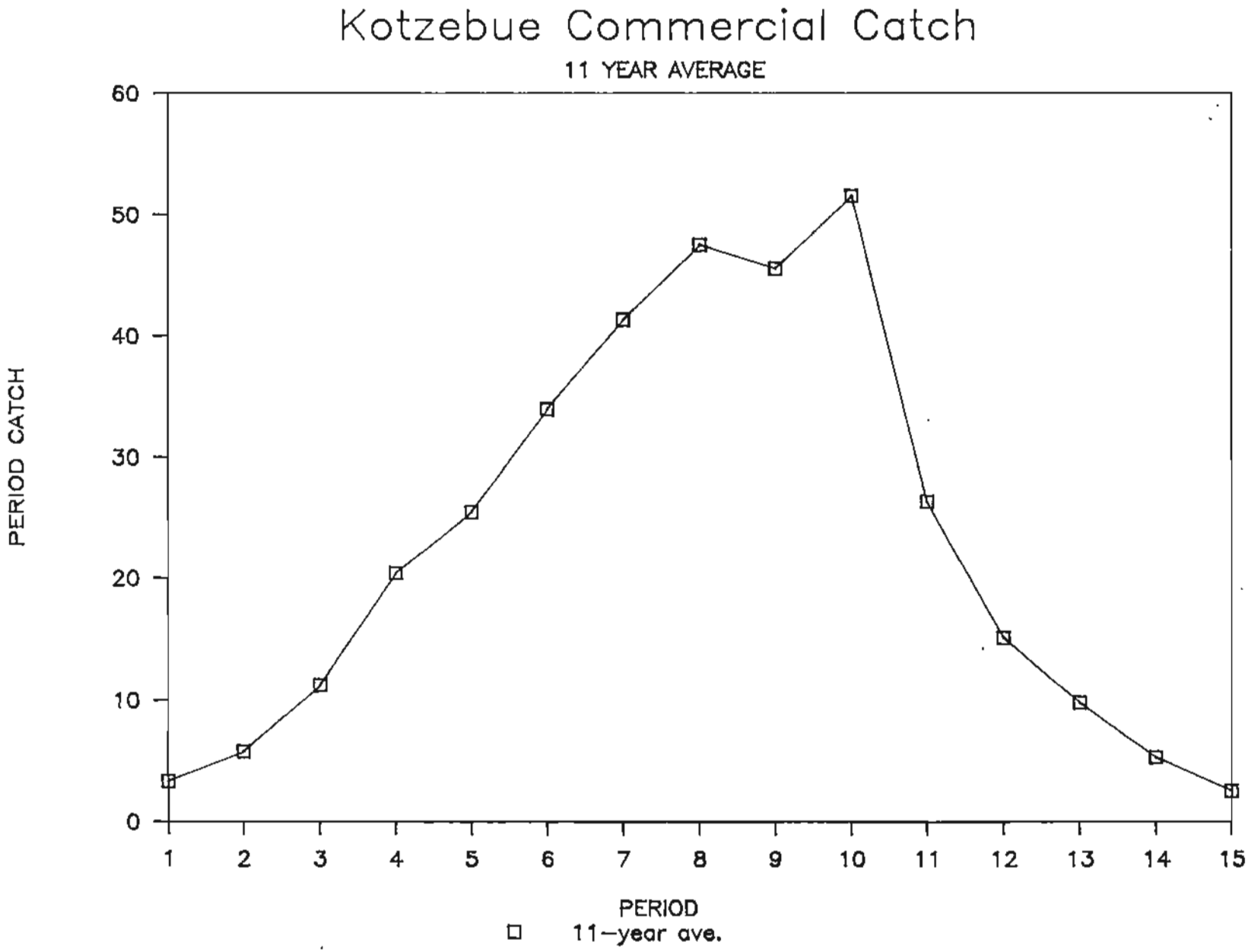

Figure 2. Average period catch (thousands of fish) by fishing period for chum salmon taken in the Kotzebue fishery, 1979-1989.

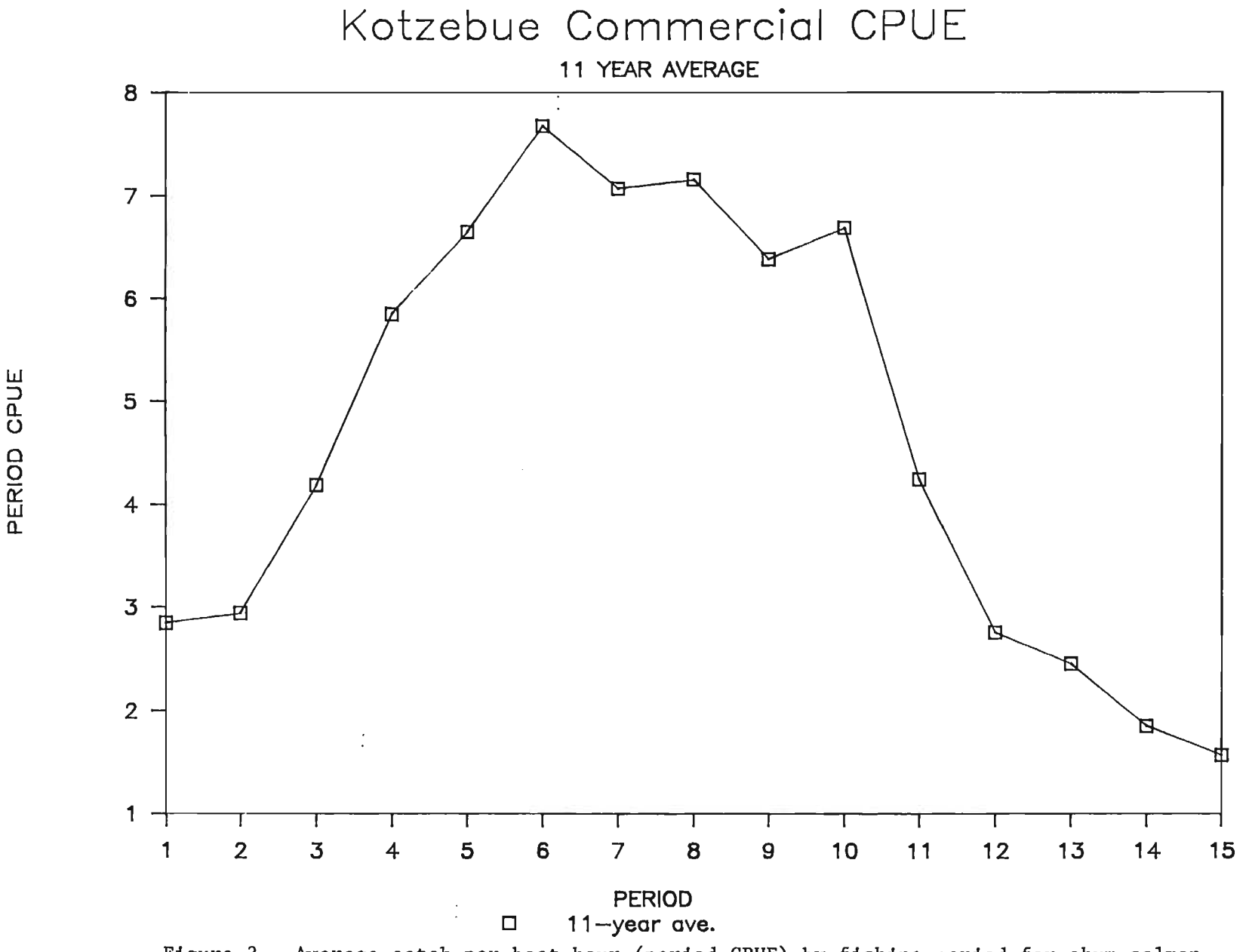

Figure 3. Average catch per boat hour (period CPUE) by fishing period for chum salmon taken in the Kotzebue commercial fishery, 1979-1989.