# Noatak River Test Fish Report, 1990

by

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## INTRODUCTION

A set gill net test fishing project in the lower Noatak River was initiated in 1975 and continued through 1978. Test fishing continued at the Bendix side scan sonar site from a different location from 1979 through 1983, and in 1984 with the Biosonics sonar project (Figure 1). No projects were operated in 1985 or 1986. Although initial site feasibility studies for a drift test fishery in the lower Noatak River were conducted in 1984, project funding was not made available until 1987. This report presents results from the fourth consecutive year of the drift test fish project.

Current management of the Kotzebue commercial salmon fishery is dependent primarily on comparing period and cumulative season catch and catch rates to prior years catches. The drift test fishing project was initiated because of its relatively low cost and the need for an inseason escapement index. If the project is continued it will assist with fisheries management by providing an index of chum salmon migration timing and escapement to the Noatak River, the largest salmon producing system in the Kotzebue area.

The objectives of the test fishing project were as follows:

1. Evaluate the feasibility of indexing chum salmon escapement in the Noatak River using systematic drift gill net catches.

2. Describe the migratory timing for chum salmon escapement.

3. Estimate the age composition of the Noatak River chum salmon escapement.

4. Assess the impact of the Kotzebue District commercial salmon fishery on overall chum salmon abundance in the lower Noatak River.

## METHODS

### Site Description

The present test fishing site was selected because of its desirable stream characteristics and proximity to the Kotzebue commercial salmon fishery (Figure 1). The site consisted of a 0.5 mile river section located approximately 9 miles upstream from the commercial salmon fishing district boundary markers near the mouth of the Noatak River. The river essentially runs through a single channel at that location.

The width of the river was approximately 1,000 feet, and was

divided into three stations (Figure 2). Station A designated the western third, which included the deepest portion of the channel and had the steepest bank (Figure 3). The depth of the channel increased from the upper end to the lower end of the drift area (27 to 40 feet). The lower half of this station contained a considerable amount of submerged vegetation near the shore to a depth of 6 feet or more. Station B, located at the middle of the river, had a relatively even bottom profile with a depth of 19-21 feet. In section C, the eastern third of the river, the depth gradually dropped from 3 feet near shore to 19 feet offshore. This station had the slowest current.

## Test Fishing

Fishing was scheduled to sample salmon escapement during three different segments of the day; late morning, mid-day, and late evening. A series of three drifts (one at each station) was conducted during each time period, at approximately 1200, 1800, and 2400 hours, respectively. The 2400 hour drift was recorded as the number three drift, even though it may have actually occurred the following day. All drift time periods were shifted forward an hour or two during the season to adjust to decreasing daylight. Drifts were conducted by a two person crew, six days a week.

All test fishing drifts were made from a 17 foot outboard motorboat for approximately 20 minutes with a 50 fathom gill net. The net was composed of 5 7/8" stretched mesh multifilament webbing, 45 meshes deep, and hung at a ratio of 2:1. All fish caught were tallied by species, with most salmon sold during commercial fishing periods. Scales were collected for age composition data from all salmon caught. Sex and size data were not collected in an effort to minimize handling mortality. During commercial closures all healthy fish were released and any mortalities were given away to nonprofit organizations or to individuals for subsistence use.

## Standardized Catches

Actual catches were converted to catch per unit of effort (CPUE) by considering fishing time and the length of net used. Each CPUE index (I) was the number of fish which would have been caught if 100 fathoms of net had been fished for 60 minutes. The index was computed as follows:

$$I = \frac{6{,}000(C)}{(L)\ (T)}$$

Where C is the number of chum caught, L is the length of net used (fathoms), and T is the mean fishing time (minutes). Mean fishing time was defined as the amount of time the entire net was fishing plus half the time it took to set and retrieve the net. Specific station catches were combined into an average drift time period

CPUE index which was calculated by weighing the catch information from each station equally. Mean daily drift CPUE indices were summed to produce cumulative and total seasonal CPUE indices for the period of data collection. Cumulative proportions of seasonal total test fish CPUE indices were also calculated.

Seasonal abundance by station was indexed by summing CPUE indices at each station across all time periods fished. Temporal and spatial distribution was described as a percent calculated by using seasonal mean CPUE rather than total CPUE indices, since the number of drifts made at each station and time period varied. No interpolations were made for missing data.

## RESULTS

Drifting began on 17 July and continued through 18 August, 1990. During that time 396 chum salmon were caught in a total of 225 station drifts (75 drift time periods) producing 66.74 chum salmon CPUE index points (Table 1 and Figure 4). Peak catches occurred on 2 and 9 August. Peak catch day was 9 August with 3 drift periods producing a total CPUE of 85.11, which comprised 12.9% of the seasonal total CPUE indices. A total of 32.0, 29.0 and 38.0 percent of the seasonal CPUE was caught at 1200, 1800, and 2400 hours, respectively (Table 2). A total of 41.0, 30.0, and 29.0 percent of the total seasonal CPUE was caught at stations A, B, and C, respectively (Table 3).

Scales were analyzed from 396 chum salmon caught in test nets. The age composition was 1.3, 47.9, 48.4,and 2.4, percent age 3, 4, 5, and 6, respectively (Table 4). The age composition of the 1990 Kotzebue commercial catch is shown in Table 5 for comparison.

Of the 396 chum salmon caught in test nets, 246 (62%) were sold. The rest were either released in good condition, or given to elderly residents of Kotzebue and to community organizations.

For comparative purposes, the basic test fishing operation, gear, location and timing did not change from the previous three years. The 1990 test fish project began and ended earlier than past seasons. A total of 5 days of test fishing were missed due to regular days off. In addition, 8 days were missed due to equipment failures or to strong winds which prevented the crew from returning to camp. The water level remained low during the entire season. Climatological data is presented in Table 7. Seasonal test fish data for 1987-1990 is presented for comparison in Figures 4-9 and Tables 8-12. Figures 4-7 show test fish CPUE by drift. Figure 8 compares cumulative CPUE for each year, and Figure 9 compares cumulative proportions of CPUE.

The test fish CPUE (number of salmon caught) is considerably influenced by commercial fishing activity i. Kotzebue Sound, as

well as the number of drifts conducted and their timing compared to commercial periods. In addition, local salmon migration patterns can be greatly influenced by weather conditions. For these reasons, no interpolations were made for missing data points since accuracy of these values would be questionable. Although the total number of drifts conducted each year were fairly consistent, seasonal mean CPUE, rather than total CPUE, may be more accurate for comparison. The mean catch per 100 fathom hour for the 1990 season was 8.80 chum salmon. This was well below the 1987, 1988 and 1989 means of 21.3, 26.5 and 34.7, respectively (Table 8).

## CONCLUSIONS

The effect of the commercial fishery, at Kotzebue, on the Noatak test net CPUE is greatest in August, primarily due to the two stock nature of the Kotzebue fishery. Test fish indices declined sharply after the onset of the commercial fishery. The 1990 seasonal mean CPUE was the lowest of the four years the project. Aerial survey's also indicated that the Noatak River had only half the escapement goal. The 1990 commercial salmon season was closed after the 10th period. The harvest was only 163,000 chum salmon, 64% below 1989 and roughly half of the average.

Considering the two stock nature of the Kotzebue commercial fishery a test fish project on the Kobuk River would provide valuable migratory timing and impact assessment of the effects of the commercial fishery on the Kobuk River chum salmon stocks.

Table 1. Noatak River drift test fishing catch and mean CPUE by drift for chum salmon, 1990.

| Date | Drift | Chum | Mean CPUE |
|---|---|---|---|
| 17-Jul | 2 | 2 | 3.33 |
| | 3 | 1 | 1.74 |
| 18-Jul | 1 | 2 | 3.48 |
| | 2 | 6 | 10.14 |
| | 3 | 18 | 28.61 |
| 19-Jul | 1 | 8 | 13.33 |
| | 2 | 18 | 29.39 |
| | 3 | 14 | 22.25 |
| 20-Jul | 1 | 2 | 3.53 |
| | 2 | 2 | 3.45 |
| | 3 | 8 | 13.06 |
| 21-Jul | 1 | 10 | 16.44 |
| | 2 | 4 | 6.81 |
| | 3 | 4 | 6.81 |
| 22-Jul | 1 | | |
| | 2 | | |
| | 3 | | |
| 23-Jul | 1 | 4 | 6.86 |
| | 2 | 10 | 17.02 |
| | 3 | 4 | 6.81 |
| 24-Jul | 1 | 4 | 6.86 |
| | 2 | 3 | 5.33 |
| | 3 | 1 | 1.73 |
| 25-Jul | 1 | 4 | 6.81 |
| | 2 | 5 | 8.63 |
| | 3 | 8 | 14.01 |
| 26-Jul | 1 | 14 | 24.00 |
| | 2 | 6 | 10.14 |
| | 3 | 6 | 10.21 |
| 27-Jul | 1 | 10 | 17.02 |
| | 2 | 0 | 0.00 |
| | 3 | 0 | 0.00 |
| 28-Jul | 1 | 1 | 1.76 |
| | 2 | 0 | 0.00 |
| | 3 | 1 | 1.75 |
| 29-Jul | 1 | | |
| | 2 | | |
| | 3 | | |
| 30-Jul | 1 | | |
| | 2 | 13 | 22.29 |
| | 3 | | |
| 31-Jul | 1 | | |
| | 2 | | |
| | 3 | | |

(continued)

Table 1. (p 2 of 2.)

| Date | Drift | Chum | Mean CPUE |
|---|---|---|---|
| 01-Aug | 1 | | |
| | 2 | | |
| | 3 | 4 | 6.81 |
| 02-Aug | 1 | 21 | 35.00 |
| | 2 | 2 | 3.53 |
| | 3 | 3 | 5.29 |
| 03-Aug | 1 | 2 | 3.53 |
| | 2 | 0 | 0.00 |
| | 3 | 0 | 0.00 |
| 04-Aug | 1 | 0 | 0.00 |
| | 2 | 3 | 5.22 |
| | 3 | 0 | 0.00 |
| 05-Aug | 1 | | |
| | 2 | | |
| | 3 | | |
| 06-Aug | 1 | 9 | 15.21 |
| | 2 | 0 | 0.00 |
| | 3 | 0 | 0.00 |
| 07-Aug | 1 | 0 | 0.00 |
| | 2 | 1 | 1.74 |
| | 3 | 3 | 5.11 |
| 08-Aug | 1 | 0 | 0.00 |
| | 2 | 3 | 5.11 |
| | 3 | | |
| 09-Aug | 1 | 10 | 16.78 |
| | 2 | 14 | 23.33 |
| | 3 | 27 | 45.00 |
| 10-Aug | 1 | 5 | 8.76 |
| | 2 | 3 | 5.29 |
| | 3 | 0 | 0.00 |
| 11-Aug | 1 | 0 | 0.00 |
| | 2 | 0 | 0.00 |
| | 3 | 0 | 0.00 |
| 12-Aug | 1 | | |
| | 2 | | |
| | 3 | | |
| 13-Aug | 1 | | |
| | 2 | 4 | 6.86 |
| | 3 | 7 | 11.83 |
| 14-Aug | 1 | 12 | 19.86 |
| | 2 | 3 | 5.26 |
| | 3 | 14 | 23.17 |
| 15-Aug | 1 | | |
| | 2 | 2 | 3.45 |
| | 3 | 4 | 6.91 |
| 16-Aug | 1 | 0 | 0.00 |
| | 2 | 4 | 6.91 |
| | 3 | 6 | 9.93 |
| 17-Aug | 1 | 0 | 0.00 |
| | 2 | | |
| | 3 | 13 | 21.97 |
| 18-Aug | 1 | 8 | 13.62 |
| | 2 | 10 | 17.39 |
| | 3 | 6 | 10.36 |
| Total | | 396 | 660.05 |

a CPUE is calculated in catch/100fm/hour

Table 2. Noatak River seasonal test fishing CPUE indices, mean CPUE, and percent by drift period (time of day) for chum salmon, 1990.

| Drift Period | Season CPUE Indices | Drift Periods | Season Mean CPUE | Percent |
|---|---|---|---|---|
| 1<br>1200 hrs. | 212.82 | 23 | 9.25 | 32% |
| 2<br>1800 hrs. | 194.11 | 26 | 7.47 | 29% |
| 3<br>2400 hrs. | 253.12 | 26 | 9.74 | 38% |
| Total | 660.05 | 75 | 8.80 | 100% |

Table 3. Noatak River seasonal test fishing mean CPUE and percent by station for chum salmon, 1990.

| Station | No. Station Drifts | Season Mean CPUE | Percent |
|---|---|---|---|
| A | 27 | 10.99 | 41% |
| B | 27 | 8.19 | 30% |
| C | 27 | 7.72 | 29% |
| Total | 81 | 26.89 | 100% |

Table 4. Age and sex compostion of Noatak River chum salmon taken from the drift test net catches, 1990.

| | | Brood Year and Age Group | | | | |
|---|---|---|---|---|---|---|
| | | 1987 | 1986 | 1985 | 1984 | |
| | | 0.2 | 0.3 | 0.4 | 0.5 | Total |
| Female | Sample Size | 3 | 103 | 113 | 4 | 223 |
| | Percent of Sample | 0.8 | 27.5 | 30.2 | 1.1 | 59.6 |
| Male | Sample Size | 2 | 76 | 68 | 5 | 151 |
| | Percent of Sample | 0.5 | 20.3 | 18.2 | 1.3 | 40.4 |
| Total | Sample Size | 5 | 179 | 181 | 9 | 374 |
| | Percent of Sample | 1.3 | 47.9 | 48.4 | 2.4 | 100.0 |
| | Standard Error | 0.6 | 2.6 | 2.6 | 0.8 | |

Table 5. Percent age composition of chum salmon taken in the Kotzebue commercial chum salmon fishery, 1990.

| | | Brood Year and Age Group | | | | |
|---|---|---|---|---|---|---|
| | | 1987 | 1986 | 1985 | 1984 | |
| | | 0.2 | 0.3 | 0.4 | 0.5 | Total |
| Female | Sample Size | 18 | 532 | 566 | 19 | 1,135 |
| | Percent of Sample | 0.8 | 23.3 | 24.8 | 0.8 | 49.7 |
| Male | Sample Size | 34 | 499 | 582 | 13 | 1,128 |
| | Percent of Sample | 1.5 | 21.8 | 25.5 | 0.6 | 49.4 |
| Total | Sample Size | 54 | 1,043 | 1,155 | 32 | 2,284 |
| | Percent of Sample | 2.4 | 45.7 | 50.6 | 1.4 | 100.0 |

Table 6. Noatak River test fish site climatological data, 1990.

| Date | Time | Water Level (in.) | Secchi (in.) | Wind (mph) | Cloud Cover | PPT |
|---|---|---|---|---|---|---|
| 18-Jul | 1100 hrs. | 6 | 0.5 | S 5 | 1 | 7 |
| 19-Jul | 1100 hrs. | 18 | 0.5 | S 15 | 2 | 1 |
| 20-Jul | 1100 hrs. | 6 | 0.5 | S 5 | 1 | 7 |
| 21-Jul | 1100 hrs. | 0 | 1.5 | Calm | 1 | 7 |
| 22-Jul | | | | | | |
| 23-Jul | 1100 hrs. | -18 | 1.5 | Calm | 1 | 7 |
| 24-Jul | 1100 hrs. | -18 | 2 | Calm | 1 | 7 |
| 25-Jul | 1100 hrs. | -18 | 2.5 | Calm | 2 | 7 |
| 26-Jul | 1100 hrs. | -24 | 3 | Calm | 1 | 7 |
| 27-Jul | 1100 hrs. | -36 | 3 | Calm | 1 | 7 |
| 28-Jul | 1100 hrs. | -42 | 4 | Calm | 1 | 7 |
| 29-Jul | | | | | | |
| 30-Jul | 1100 hrs. | -36 | 5 | Calm | 1 | 7 |
| 31-Jul | 1100 hrs. | -30 | 5 | Calm | 1 | 7 |
| 01-Aug | 1100 hrs. | -36 | 6 | Calm | 1 | 7 |
| 02-Aug | 1100 hrs. | -36 | 6 | N 15 | 2 | 7 |
| 03-Aug | 1100 hrs. | -36 | 6 | N 5 | 1 | 7 |
| 04-Aug | 1100 hrs. | -36 | 7 | Calm | 1 | 7 |
| 05-Aug | 1100 hrs. | | | | | |
| 06-Aug | 1100 hrs. | -24 | 7 | Calm | 5 | 7 |
| 07-Aug | 1100 hrs. | -24 | 8 | Calm | 1 | 7 |
| 08-Aug | 1100 hrs. | 0 | 7 | Calm | 2 | 7 |
| 09-Aug | 1100 hrs. | -24 | 8 | Calm | 1 | 7 |
| 10-Aug | 1100 hrs. | -24 | 7 | SE 5 | 1 | 7 |
| 11-Aug | 1100 hrs. | -24 | 7 | Calm | 1 | 7 |
| 12-Aug | 1100 hrs. | | | | | |
| 13-Aug | 1300 hrs. | 24 | 5 | | 3 | 7 |
| 14-Aug | 1100 hrs. | 48 | 6.5 | | 3 | 7 |
| 15-Aug | 1100 hrs. | -12 | 8 | Calm | 1 | 7 |
| 16-Aug | 1100 hrs. | -24 | 8 | Calm | 1 | 7 |
| 17-Aug | 1100 hrs. | -24 | 5 | SE 40 | 3 | 7 |
| 18-Aug | 1100 hrs. | -12 | 7 | | 2 | 7 |
| 19-Aug | 1100 hrs. | | | | | |
| 20-Aug | 1100 hrs. | -24 | 6 | Calm | 3 | 7 |
| 21-Aug | 1100 hrs. | -12 | 5 | SE 10 | 4 | 1 |
| 22-Aug | 1100 hrs. | -24 | 6 | | 3 | 7 |
| 23-Aug | 1100 hrs. | 0 | 4 | | 4 | 2 |
| 24-Aug | 1100 hrs. | 0 | 4 | Calm | 4 | 1 |
| 25-Aug | 1100 hrs. | -36 | 4 | NE 30 | 2 | 1 |

a Cloud cover:
- 0 – No observation
- 1 – Clear sky; clouds less than 1/10
- 2 – Cloud cover not more than 1/2
- 3 – Cloud cover more than 1/2
- 4 – Complete overcast
- 5 – Fog or thick haze

b Precipitation: (PPT)
- 0 – No observation
- 1 – Intermittent rain
- 2 – Continuous rain
- 3 – Snow
- 4 – Snow and rain mix
- 5 – Hail
- 6 – Thunderstorm
- 7 – No precipaitation

Table 7. Noatak River cumulative CPUE, seasonal mean CPUE, and percent by drift period for chum salmon, 1987–1990.

| Drift period | Cumulative CPUE 1987 | 1988 | 1989 | 1990 | Number of Drifts 1987 | 1988 | 1989 | 1990 | Seasonal Mean CPUE 1987 | 1988 | 1989 | 1990 | Percent 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 617.40 | 779.53 | 1,049.03 | 212.82 | 27 | 26 | 28 | 23 | 22.90 | 29.98 | 37.46 | 9.25 | 35.7% | 37.6% | 35.6% | 32.0% |
| 2 | 610.40 | 784.95 | 1,080.03 | 194.11 | 31 | 29 | 30 | 26 | 19.70 | 27.07 | 36.02 | 7.47 | 30.7% | 33.9% | 35.2% | 29.0% |
| 3 | 626.00 | 638.02 | 857.31 | 253.12 | 29 | 28 | 28 | 26 | 21.60 | 22.79 | 30.62 | 9.74 | 33.6% | 28.5% | 29.2% | 38.0% |
| Total | 1,853.80 | 2,202.50 | 2,987.04 | 660.05 | 87 | 83 | 86 | 75 | 21.30 | 26.54 | 34.73 | 8.80 | 100.0% | 100.0% | 100.0% | 100.0% |

Table 8. Noatak River test fish seasonal mean CPUE, and percent by station for chum salmon, 1987–1990.

| | Seasonal Mean CPUE | | | | Percent | | | |
|---|---|---|---|---|---|---|---|---|
| Station | 1987 | 1988 | 1989 | 1990 | 1987 | 1988 | 1989 | 1990 |
| A | 25.70 | 36.10 | 42.47 | 10.99 | 35.7 | 37.6 | 35.6 | 32.3 |
| B | 17.10 | 13.20 | 23.24 | 8.19 | 30.7 | 33.9 | 35.2 | 29.5 |
| C | 20.80 | 31.23 | 40.30 | 7.72 | 33.6 | 28.5 | 29.2 | 38.2 |
| Total | 21.20 | 26.84 | 35.39 | 8.97 | 100.0 | 100.0 | 100.0 | 100.0 |

Table 9. Noatak River test fish daily CPUE and cumulative CPUE by drift for chum salmon, 1987–1990.

| Date | Drift | 1987 Daily | 1987 Cum. | 1988 Daily | 1988 Cum. | 1989 Daily | 1989 Cum. | 1990 Daily | 1990 Cum. |
|---|---|---|---|---|---|---|---|---|---|
| 17–Jul | 1 | | | | | | | | |
| | 2 | | | | | | | 3.33 | 3.33 |
| | 3 | | | | | | | 1.74 | 5.07 |
| 18–Jul | 1 | | | | | 3.20 | 3.20 | 3.48 | 8.55 |
| | 2 | | | | | 1.63 | 4.83 | 10.14 | 18.69 |
| | 3 | | | | | 3.26 | 8.09 | 28.61 | 47.30 |
| 19–Jul | 1 | | | 8.69 | 8.69 | 1.57 | 9.66 | 13.33 | 60.63 |
| | 2 | | | 3.55 | 12.24 | 5.93 | 15.59 | 29.39 | 90.02 |
| | 3 | | | 5.11 | 17.35 | 6.37 | 21.96 | 22.25 | 112.27 |
| 20–Jul | 1 | | | 33.36 | 50.71 | 1.54 | 23.50 | 3.53 | 115.80 |
| | 2 | | | 19.76 | 70.47 | 12.44 | 35.94 | 3.45 | 119.25 |
| | 3 | | | 6.81 | 77.28 | | 35.94 | 13.06 | 132.31 |
| 21–Jul | 1 | | | 1.74 | 79.02 | | 35.94 | 16.44 | 148.75 |
| | 2 | | | 13.10 | 92.12 | | 35.94 | 6.81 | 155.56 |
| | 3 | | | 1.70 | 93.82 | | 35.94 | 6.81 | 162.37 |
| 22–Jul | 1 | | | 0.00 | 93.82 | 10.33 | 46.27 | | 162.37 |
| | 2 | | | 0.00 | 93.82 | 14.10 | 60.37 | | 162.37 |
| | 3 | | | 0.00 | 93.82 | 1.67 | 62.04 | | 162.37 |
| 23–Jul | 1 | | | 1.78 | 95.60 | 19.30 | 81.34 | 6.86 | 169.23 |
| | 2 | 3.30 | 3.30 | 1.70 | 97.30 | 17.89 | 99.23 | 17.02 | 186.25 |
| | 3 | 11.70 | 15.00 | 32.44 | 129.74 | 15.90 | 115.13 | 6.81 | 193.06 |
| 24–Jul | 1 | 0.00 | 15.00 | | 129.74 | 9.51 | 124.64 | 6.86 | 199.92 |
| | 2 | 10.30 | 25.30 | | 129.74 | 9.61 | 134.25 | 5.33 | 205.25 |
| | 3 | 0.00 | 25.30 | | 129.74 | 14.16 | 148.41 | 1.73 | 206.98 |
| 25–Jul | 1 | 48.30 | 73.60 | 11.99 | 141.73 | 37.76 | 186.17 | 6.81 | 213.79 |
| | 2 | 6.20 | 79.80 | 5.00 | 146.73 | 27.65 | 213.82 | 8.63 | 222.42 |
| | 3 | 32.70 | 112.50 | 14.08 | 160.81 | 6.15 | 219.97 | 14.01 | 236.43 |
| 26–Jul | 1 | | 112.50 | 5.22 | 166.03 | 21.93 | 241.90 | 24.00 | 260.43 |
| | 2 | | 112.50 | 3.26 | 169.29 | 44.20 | 286.10 | 10.14 | 270.57 |
| | 3 | | 112.50 | 1.90 | 171.19 | 8.16 | 294.26 | 10.21 | 280.78 |
| 27–Jul | 1 | 27.70 | 140.20 | 0.00 | 171.19 | 47.92 | 342.18 | 17.02 | 297.80 |
| | 2 | 35.10 | 175.30 | 1.70 | 172.89 | 27.48 | 369.66 | 0.00 | 297.80 |
| | 3 | 51.90 | 227.20 | 0.00 | 172.89 | 15.26 | 384.92 | 0.00 | 297.80 |
| 28–Jul | 1 | 15.10 | 242.30 | 15.58 | 188.47 | 16.42 | 401.34 | 1.76 | 299.56 |
| | 2 | 11.80 | 254.10 | 12.44 | 200.91 | 14.45 | 415.79 | 0.00 | 299.56 |
| | 3 | 16.00 | 270.10 | 0.00 | 200.91 | 21.56 | 437.35 | 1.75 | 301.31 |
| 29–Jul | 1 | 8.00 | 278.10 | | 200.91 | 17.41 | 454.76 | | 301.31 |
| | 2 | 27.60 | 305.70 | | 200.91 | 14.84 | 469.60 | | 301.31 |
| | 3 | 11.90 | 317.60 | | 200.91 | 25.24 | 494.84 | | 301.31 |
| 30–Jul | 1 | 40.00 | 357.60 | | 200.91 | | 494.84 | | 301.31 |
| | 2 | 32.00 | 389.60 | 6.67 | 207.58 | | 494.84 | 22.29 | 323.60 |
| | 3 | | 389.60 | | 207.58 | | 494.84 | | 323.60 |
| 31–Jul | 1 | 20.50 | 410.10 | | 207.58 | 39.59 | 534.43 | | 323.60 |
| | 2 | 0.00 | 410.10 | | 207.58 | 32.39 | 566.82 | | 323.60 |
| | 3 | 28.10 | 438.20 | 6.82 | 214.40 | 28.31 | 595.13 | | 323.60 |

(continued)

Table 9. (page 2 of 3).

| Date | Drift | 1987 Daily | 1987 Cum. | 1988 Daily | 1988 Cum. | 1989 Daily | 1989 Cum. | 1990 Daily | 1990 Cum. |
|---|---|---|---|---|---|---|---|---|---|
| 01-Aug | 1 | 22.00 | 460.20 | 50.47 | 264.87 | 13.84 | 608.77 | | 323.60 |
| | 2 | 8.00 | 468.20 | 43.18 | 308.05 | 6.51 | 615.28 | | 323.60 |
| | 3 | 5.80 | 474.00 | 34.24 | 342.29 | 12.96 | 628.24 | 6.81 | 330.41 |
| 02-Aug | 1 | | 474.00 | 16.00 | 358.29 | 23.09 | 651.33 | 35.00 | 365.41 |
| | 2 | | 474.00 | 16.69 | 374.98 | 29.85 | 681.18 | 3.53 | 368.94 |
| | 3 | | 474.00 | 29.94 | 404.92 | 66.82 | 748.00 | 5.29 | 374.23 |
| 03-Aug | 1 | 35.50 | 509.50 | 39.07 | 443.99 | 85.99 | 833.99 | 3.53 | 377.76 |
| | 2 | 0.00 | 509.50 | 83.07 | 527.06 | 70.17 | 904.16 | 0.00 | 377.76 |
| | 3 | 1.70 | 511.20 | 58.14 | 585.20 | 9.71 | 913.87 | 0.00 | 377.76 |
| 04-Aug | 1 | 0.00 | 511.20 | 59.61 | 644.81 | 14.22 | 928.09 | 0.00 | 377.76 |
| | 2 | 3.40 | 514.60 | 82.80 | 727.61 | 37.57 | 965.66 | 5.22 | 382.98 |
| | 3 | 19.10 | 533.70 | 85.84 | 813.45 | 12.52 | 978.18 | 0.00 | 382.98 |
| 05-Aug | 1 | 40.00 | 573.70 | 57.90 | 871.35 | 42.77 | 1,020.95 | | 382.98 |
| | 2 | 59.20 | 632.90 | 48.29 | 919.64 | 37.21 | 1,058.16 | | 382.98 |
| | 3 | 31.70 | 664.60 | 32.38 | 952.02 | 20.82 | 1,078.98 | | 382.98 |
| 06-Aug | 1 | 52.40 | 717.00 | | 952.02 | | 1,078.98 | 15.21 | 398.19 |
| | 2 | 26.20 | 743.20 | | 952.02 | | 1,078.98 | 0.00 | 398.19 |
| | 3 | 3.50 | 746.70 | | 952.02 | | 1,078.98 | 0.00 | 398.19 |
| 07-Aug | 1 | 10.00 | 756.70 | | 952.02 | 21.49 | 1,100.47 | 0.00 | 398.19 |
| | 2 | 6.70 | 763.40 | | 952.02 | 21.79 | 1,122.26 | 1.74 | 399.93 |
| | 3 | 1.70 | 765.10 | | 952.02 | 23.70 | 1,145.96 | 5.11 | 405.04 |
| 08-Aug | 1 | 41.20 | 806.30 | 50.23 | 1,002.25 | 63.69 | 1,209.65 | 0.00 | 405.04 |
| | 2 | 29.20 | 835.50 | 33.04 | 1,035.29 | 51.64 | 1,261.29 | 5.11 | 410.15 |
| | 3 | 28.00 | 863.50 | 32.51 | 1,067.80 | | 1,261.29 | | 410.15 |
| 09-Aug | 1 | | 863.50 | 5.25 | 1,073.05 | 93.01 | 1,354.30 | 16.78 | 426.93 |
| | 2 | | 863.50 | 0.00 | 1,073.05 | 92.37 | 1,446.67 | 23.33 | 450.26 |
| | 3 | | 863.50 | 1.78 | 1,074.83 | 156.29 | 1,602.96 | 45.00 | 495.26 |
| 10-Aug | 1 | 90.20 | 953.70 | 1.82 | 1,076.65 | 105.80 | 1,708.76 | 8.76 | 504.02 |
| | 2 | 88.00 | 1,041.70 | 5.18 | 1,081.83 | 31.24 | 1,740.00 | 5.29 | 509.31 |
| | 3 | 89.30 | 1,131.00 | 14.31 | 1,096.14 | 49.06 | 1,789.06 | 0.00 | 509.31 |
| 11-Aug | 1 | | 1,131.00 | 45.89 | 1,142.03 | 20.33 | 1,809.39 | 0.00 | 509.31 |
| | 2 | 135.40 | 1,266.40 | 57.60 | 1,199.63 | 31.48 | 1,840.87 | 0.00 | 509.31 |
| | 3 | 92.40 | 1,358.80 | 87.54 | 1,287.17 | 24.86 | 1,865.73 | 0.00 | 509.31 |
| 12-Aug | 1 | 35.40 | 1,394.20 | 133.87 | 1,421.04 | 19.13 | 1,884.86 | | 509.31 |
| | 2 | 33.50 | 1,427.70 | 73.38 | 1,494.42 | 23.58 | 1,908.44 | | 509.31 |
| | 3 | 83.30 | 1,511.00 | 18.55 | 1,512.97 | 55.83 | 1,964.27 | | 509.31 |
| 13-Aug | 1 | 33.90 | 1,544.90 | | 1,512.97 | | 1,964.27 | | 509.31 |
| | 2 | 6.50 | 1,551.40 | | 1,512.97 | | 1,964.27 | 7.01 | 516.32 |
| | 3 | 6.40 | 1,557.80 | | 1,512.97 | | 1,964.27 | 11.59 | 527.91 |
| 14-Aug | 1 | 5.40 | 1,563.20 | | 1,512.97 | 162.19 | 2,126.46 | 19.86 | 547.77 |
| | 2 | 3.50 | 1,566.70 | | 1,512.97 | 162.02 | 2,288.48 | 5.26 | 553.03 |
| | 3 | 20.30 | 1,587.00 | | 1,512.97 | | 2,288.48 | 23.17 | 576.20 |

(continued)

Table 9. (page 3 of 3).

| Date | Drift | 1987 Daily | 1987 Cum. | 1988 Daily | 1988 Cum. | 1989 Daily | 1989 Cum. | 1990 Daily | 1990 Cum. |
|---|---|---|---|---|---|---|---|---|---|
| 15-Aug | 1 | 16.80 | 1,605.80 | | | 79.98 | 2,368.48 | | |
| | 2 | 3.50 | 1,609.30 | 21.38 | 1,534.35 | 7.16 | 2,375.62 | 3.45 | 579.65 |
| | 3 | 14.80 | 1,624.10 | | 1,534.35 | 27.69 | 2,403.31 | 6.91 | 586.56 |
| 16-Aug | 1 | | 1,624.10 | 8.70 | 1,543.05 | | 2,403.31 | 0 | 5[illegible]3.56 |
| | 2 | | 1,624.10 | 13.33 | 1,556.38 | | 2,403.31 | 6.91 | 593.47 |
| | 3 | | 1,624.10 | | 1,556.38 | | 2,403.31 | 9.93 | 603.40 |
| 17-Aug | 1 | 5.10 | 1,629.20 | 25.54 | 1,581.92 | 108.50 | 2,511.81 | 0 | 603.40 |
| | 2 | 0.00 | 1,629.20 | 1.70 | 1,583.62 | 50.25 | 2,562.06 | | 603.40 |
| | 3 | 0.00 | 1,629.20 | 24.91 | 1,608.53 | | 2,562.06 | 21.97 | 625.37 |
| 18-Aug | 1 | 5.20 | 1,634.40 | 86.57 | 1,695.10 | 17.75 | 2,579.81 | 13.62 | 638.99 |
| | 2 | 7.00 | 1,641.40 | 87.67 | 1,782.77 | 44.97 | 2,624.78 | 17.39 | 656.38 |
| | 3 | 5.90 | 1,647.30 | 73.16 | 1,855.93 | 76.29 | 2,701.07 | 10.36 | 666.74 |
| 19-Aug | 1 | 3.30 | 1,650.60 | 69.18 | 1,925.11 | 25.03 | 2,726.10 | | |
| | 2 | 8.50 | 1,659.10 | 75.17 | 2,000.28 | 31.46 | 2,757.56 | | |
| | 3 | 17.10 | 1,676.20 | 11.89 | 2,012.17 | 34.92 | 2,792.48 | | |
| 20-Aug | 1 | 20.20 | 1,696.40 | | 2,012.17 | | 2,792.48 | | |
| | 2 | 6.80 | 1,703.20 | | 2,012.17 | | 2,792.48 | | |
| | 3 | | 1,703.20 | | 2,012.17 | | 2,792.48 | | |
| 21-Aug | 1 | | 1,703.20 | | 2,012.17 | 34.44 | 2,826.92 | | |
| | 2 | 0.00 | 1,703.20 | 40.22 | 2,052.39 | 62.57 | 2,889.49 | | |
| | 3 | 0.00 | 1,703.20 | 33.87 | 2,086.26 | 35.58 | 2,925.07 | | |
| 22-Aug | 1 | 11.30 | 1,714.50 | | 2,086.26 | | 2,925.07 | | |
| | 2 | 1.60 | 1,716.10 | 10.33 | 2,096.59 | | 2,925.07 | | |
| | 3 | 31.30 | 1,747.40 | 7.45 | 2,104.04 | | 2,925.07 | | |
| 23-Aug | 1 | | 1,747.40 | 19.40 | 2,123.44 | | 2,925.07 | | |
| | 2 | | 1,747.40 | 10.71 | 2,134.15 | | 2,925.07 | | |
| | 3 | | 1,747.40 | 11.99 | 2,146.14 | 34.92 | 2,959.99 | | |
| 24-Aug | 1 | 4.80 | 1,752.20 | 21.02 | 2,167.16 | | 2,959.99 | | |
| | 2 | 15.90 | 1,768.10 | 14.03 | 2,181.19 | 8.00 | 2,967.99 | | |
| | 3 | 10.80 | 1,778.90 | 5.41 | 2,186.60 | 19.05 | 2,987.04 | | |
| 25-Aug | 1 | 0.00 | 1,778.90 | 10.55 | 2,197.15 | | | | |
| | 2 | 10.20 | 1,789.10 | | 2,197.15 | | | | |
| | 3 | | 1,789.10 | 5.25 | 2,202.40 | | | | |
| 26-Aug | 1 | 6.80 | 1,795.90 | | | | | | |
| | 2 | 13.70 | 1,809.60 | | | | | | |
| | 3 | 3.80 | 1,813.40 | | | | | | |
| 27-Aug | 1 | 16.30 | 1,829.70 | | | | | | |
| | 2 | 17.30 | 1,847.00 | | | | | | |
| | 3 | 6.80 | 1,853.80 | | | | | | |

Table 10. Noatak River test fish mean daily CPUE and cumulative CPUE by day for chum salmon, 1987–1990.

| Date | 1987 Daily | 1987 Cum. | 1988 Daily | 1988 Cum. | 1989 Daily | 1989 Cum. | 1990 Daily | 1990 Cum. | 4 Year Average Daily | 4 Year Average Cum. |
|---|---|---|---|---|---|---|---|---|---|---|
| 17–Jul | | | | | | | 2.54 | 2.54 | 2.54 | 2.54 |
| 18–Jul | | | | | 2.70 | 2.70 | 14.08 | 16.61 | [illegible].39 | 10.92 |
| 19–Jul | | | 5.78 | 5.78 | 4.62 | 7.32 | 21.66 | 38.27 | 10.69 | 21.61 |
| 20–Jul | | | 19.98 | 25.76 | 6.99 | 14.31 | 6.68 | 44.95 | 11.22 | 32.83 |
| 21–Jul | | | 5.51 | 31.27 | | 14.31 | 10.02 | 54.97 | 5.18 | 38.00 |
| 22–Jul | | | 0.00 | 31.27 | 8.70 | 23.01 | | 54.97 | 2.90 | 40.90 |
| 23–Jul | 7.50 | 7.50 | 11.97 | 43.25 | 17.70 | 40.71 | 10.23 | 65.20 | 11.85 | 52.75 |
| 24–Jul | 3.43 | 10.93 | | 43.25 | 11.09 | 51.80 | 4.64 | 69.84 | 6.39 | 59.14 |
| 25–Jul | 29.07 | 40.00 | 10.36 | 53.60 | 23.85 | 75.65 | 9.82 | 79.66 | 18.27 | 77.42 |
| 26–Jul | | 40.00 | 3.46 | 57.06 | 24.76 | 100.42 | 14.78 | 94.44 | 14.34 | 91.75 |
| 27–Jul | 38.23 | 78.23 | 0.57 | 57.63 | 30.22 | 130.64 | 5.67 | 100.11 | 18.67 | 110.42 |
| 28–Jul | 14.30 | 92.53 | 9.34 | 66.97 | 17.48 | 148.11 | 1.17 | 101.28 | 10.57 | 121.00 |
| 29–Jul | 15.83 | 108.37 | | 66.97 | 19.16 | 167.28 | | 101.28 | 17.50 | 138.49 |
| 30–Jul | 36.00 | 144.37 | 6.67 | 73.64 | | 167.28 | 22.29 | 123.57 | 21.65 | 160.15 |
| 31–Jul | 16.20 | 160.57 | 6.82 | 80.46 | 33.43 | 200.71 | | 123.57 | 18.82 | 178.96 |
| 01–Aug | 11.93 | 172.50 | 42.63 | 123.09 | 11.04 | 211.74 | 6.81 | 130.38 | 18.10 | 197.07 |
| 02–Aug | | 172.50 | 20.88 | 143.97 | 39.92 | 251.66 | 14.61 | 144.99 | 25.13 | 222.20 |
| 03–Aug | 12.40 | 184.90 | 60.09 | 204.06 | 55.29 | 306.95 | 1.18 | 146.17 | 32.24 | 254.44 |
| 04–Aug | 7.50 | 192.40 | 76.08 | 280.14 | 21.44 | 328.39 | 1.74 | 147.91 | 26.69 | 281.13 |
| 05–Aug | 43.63 | 236.03 | 46.19 | 326.33 | 33.60 | 361.99 | | 147.91 | 41.14 | 322.27 |
| 06–Aug | 27.37 | 263.40 | | 326.33 | | 361.99 | 5.07 | 152.98 | 16.22 | 338.49 |
| 07–Aug | 6.13 | 269.53 | | 326.33 | 22.33 | 384.32 | 2.28 | 155.26 | 10.25 | 348.74 |
| 08–Aug | 32.80 | 302.33 | 38.59 | 364.93 | 57.67 | 441.98 | 2.58 | 157.81 | 32.90 | 381.64 |
| 09–Aug | | 302.33 | 2.34 | 367.27 | 113.89 | 555.87 | 28.37 | 186.18 | 48.20 | 429.84 |
| 10–Aug | 89.17 | 391.50 | 7.10 | 374.37 | 62.03 | 617.91 | 4.68 | 190.87 | 40.75 | 470.59 |
| 11–Aug | 113.90 | 505.40 | 63.68 | 438.05 | 25.56 | 643.46 | 0.00 | 190.87 | 50.78 | 521.37 |
| 12–Aug | 50.73 | 556.13 | 75.27 | 513.32 | 32.85 | 676.31 | | 190.87 | 52.95 | 574.32 |
| 13–Aug | 15.60 | 571.73 | | 513.32 | | 676.31 | 9.30 | 200.17 | 12.45 | 586.77 |
| 14–Aug | 9.73 | 581.47 | | 513.32 | 162.11 | 838.41 | 16.10 | 216.26 | 62.85 | 649.42 |
| 15–Aug | 11.20 | 592.67 | 21.38 | 534.70 | 35.89 | 874.30 | 3.46 | 219.72 | 17.98 | 667.40 |
| 16–Aug | | 592.67 | 11.02 | 545.71 | | 874.30 | 5.61 | 225.33 | 8.31 | 675.71 |
| 17–Aug | 1.70 | 594.37 | 17.38 | 563.10 | 79.38 | 953.68 | 10.99 | 236.32 | 27.36 | 703.07 |
| 18–Aug | 6.03 | 600.40 | 82.47 | 645.56 | 46.34 | 1,000.02 | 13.79 | 250.11 | 37.16 | 740.23 |
| 19–Aug | 9.63 | 610.03 | 52.08 | 697.64 | 30.47 | 1,030.49 | | | 30.73 | 770.96 |
| 20–Aug | 13.50 | 623.53 | | 697.64 | | 1,030.49 | | | 13.50 | 784.46 |
| 21–Aug | 0.00 | 623.53 | 37.05 | 734.69 | 44.20 | 1,074.68 | | | 27.08 | 811.54 |
| 22–Aug | 14.73 | 638.27 | 8.89 | 743.58 | | 1,074.68 | | | 11.81 | 823.35 |
| 23–Aug | | 638.27 | 14.03 | 757.61 | 34.92 | 1,109.60 | | | 24.48 | 847.83 |
| 24–Aug | 10.50 | 648.77 | 13.49 | 771.10 | 13.53 | 1,123.13 | | | 12.50 | 860.33 |
| 25–Aug | 5.10 | 653.87 | 7.90 | 779.00 | | | | | 6.50 | 866.83 |
| 26–Aug | 8.10 | 661.97 | | | | | | | 8.10 | 874.93 |
| 27–Aug | 13.47 | 675.43 | | | | | | | 13.47 | 888.40 |
| 28–Aug | | | | | | | | | | |
| 29–Aug | | | | | | | | | | |
| 30–Aug | | | | | | | | | | |

Table 11. Noatak River test fish mean daily proportion and cumulative proportion of season total CPUE by day for chum salmon, 1987–1990

| Date | 1987 Daily | 1987 Cum. | 1988 Daily | 1988 Cum. | 1989 Daily | 1989 Cum. | 1990 Daily | 1990 Cum. | 4 Year Average Daily | 4 Year Average Cum. |
|---|---|---|---|---|---|---|---|---|---|---|
| 17–Jul | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0101 | 0.0101 | 0.0029 | 0.0029 |
| 18–Jul | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0024 | 0.0024 | 0.0583 | 0.0684 | 0.0094 | 0.0123 |
| 19–Jul | 0.0000 | 0.0000 | 0.0074 | 0.0074 | 0.0041 | 0.0065 | 0.0866 | 0.1530 | 0.0120 | 0.0243 |
| 20–Jul | 0.0000 | 0.0000 | 0.0258 | 0.0331 | 0.0062 | 0.0127 | 0.0267 | 0.1797 | 0.0126 | 0.0369 |
| 21–Jul | 0.0000 | 0.0000 | 0.0071 | 0.0401 | 0.0000 | 0.0127 | 0.0401 | 0.2198 | 0.0058 | 0.0428 |
| 22–Jul | 0.0000 | 0.0000 | 0.0000 | 0.0401 | 0.0077 | 0.0205 | 0.0000 | 0.2198 | 0.0033 | 0.0460 |
| 23–Jul | 0.0111 | 0.0111 | 0.0154 | 0.0555 | 0.0158 | 0.0362 | 0.0409 | 0.2607 | 0.0133 | 0.0594 |
| 24–Jul | 0.0051 | 0.0162 | 0.0000 | 0.0555 | 0.0099 | 0.0461 | 0.0188 | 0.2792 | 0.0072 | 0.0666 |
| 25–Jul | 0.0430 | 0.0592 | 0.0133 | 0.0688 | 0.0212 | 0.0674 | 0.0392 | 0.3185 | 0.0206 | 0.0871 |
| 26–Jul | 0.0000 | 0.0592 | 0.0044 | 0.0733 | 0.0220 | 0.0894 | 0.0591 | 0.3776 | 0.0181 | 0.1033 |
| 27–Jul | 0.0566 | 0.1158 | 0.0007 | 0.0740 | 0.0269 | 0.1163 | 0.0227 | 0.4003 | 0.0210 | 0.1243 |
| 28–Jul | 0.0212 | 0.1370 | 0.0120 | 0.0860 | 0.0156 | 0.1319 | 0.0047 | 0.4050 | 0.0119 | 0.1362 |
| 29–Jul | 0.0234 | 0.1604 | 0.0000 | 0.0860 | 0.0171 | 0.1489 | 0.0000 | 0.4050 | 0.0197 | 0.1559 |
| 30–Jul | 0.0533 | 0.2137 | 0.0085 | 0.0945 | 0.0000 | 0.1489 | 0.0891 | 0.4941 | 0.0244 | 0.1803 |
| 31–Jul | 0.0240 | 0.2377 | 0.0088 | 0.1033 | 0.0298 | 0.1787 | 0.0000 | 0.4941 | 0.0212 | 0.2014 |
| 01–Aug | 0.0177 | 0.2554 | 0.0547 | 0.1580 | 0.0098 | 0.1885 | 0.0272 | 0.5213 | 0.0204 | 0.2218 |
| 02–Aug | 0.0000 | 0.2554 | 0.0268 | 0.1848 | 0.0355 | 0.2241 | 0.0584 | 0.5797 | 0.0283 | 0.2501 |
| 03–Aug | 0.0184 | 0.2738 | 0.0771 | 0.2620 | 0.0492 | 0.2733 | 0.0047 | 0.5844 | 0.0363 | 0.2864 |
| 04–Aug | 0.0111 | 0.2849 | 0.0977 | 0.3596 | 0.0191 | 0.2924 | 0.0070 | 0.5914 | 0.0300 | 0.3164 |
| 05–Aug | 0.0646 | 0.3495 | 0.0593 | 0.4189 | 0.0299 | 0.3223 | 0.0000 | 0.5914 | 0.0463 | 0.3628 |
| 06–Aug | 0.0405 | 0.3900 | 0.0000 | 0.4189 | 0.0000 | 0.3223 | 0.0203 | 0.6116 | 0.0183 | 0.3810 |
| 07–Aug | 0.0091 | 0.3991 | 0.0000 | 0.4189 | 0.0199 | 0.3422 | 0.0091 | 0.6208 | 0.0115 | 0.3925 |
| 08–Aug | 0.0486 | 0.4476 | 0.0495 | 0.4685 | 0.0513 | 0.3935 | 0.0102 | 0.6310 | 0.0370 | 0.4296 |
| 09–Aug | 0.0000 | 0.4476 | 0.0030 | 0.4715 | 0.1014 | 0.4949 | 0.1134 | 0.7444 | 0.0543 | 0.4838 |
| 10–Aug | 0.1320 | 0.5796 | 0.0091 | 0.4806 | 0.0552 | 0.5502 | 0.0187 | 0.7631 | 0.0459 | 0.5297 |
| 11–Aug | 0.1686 | 0.7483 | 0.0817 | 0.5623 | 0.0228 | 0.5729 | 0.0000 | 0.7631 | 0.0572 | 0.5869 |
| 12–Aug | 0.0751 | 0.8234 | 0.0966 | 0.6589 | 0.0292 | 0.6022 | 0.0000 | 0.7631 | 0.0596 | 0.6465 |
| 13–Aug | 0.0231 | 0.8465 | 0.0000 | 0.6589 | 0.0000 | 0.6022 | 0.0372 | 0.8003 | 0.0140 | 0.6605 |
| 14–Aug | 0.0144 | 0.8609 | 0.0000 | 0.6589 | 0.1443 | 0.7465 | 0.0644 | 0.8647 | 0.0705 | 0.7310 |
| 15–Aug | 0.0166 | 0.8775 | 0.0274 | 0.6864 | 0.0320 | 0.7785 | 0.0138 | 0.8785 | 0.0202 | 0.7512 |
| 16–Aug | 0.0000 | 0.8775 | 0.0141 | 0.7005 | 0.0000 | 0.7785 | 0.0224 | 0.9009 | 0.0094 | 0.7606 |
| 17–Aug | 0.0025 | 0.8800 | 0.0223 | 0.7228 | 0.0707 | 0.8491 | 0.0439 | 0.9449 | 0.0308 | 0.7914 |
| 18–Aug | 0.0089 | 0.8889 | 0.1059 | 0.8287 | 0.0413 | 0.8904 | 0.0551 | 1.0000 | 0.0418 | 0.8332 |
| 19–Aug | 0.0143 | 0.9032 | 0.0669 | 0.8956 | 0.0271 | 0.9175 | | | 0.0346 | 0.8678 |
| 20–Aug | 0.0200 | 0.9232 | 0.0000 | 0.8956 | 0.0000 | 0.9175 | | | 0.0152 | 0.8830 |
| 21–Aug | 0.0000 | 0.9232 | 0.0476 | 0.9431 | 0.0394 | 0.9569 | | | 0.0305 | 0.9135 |
| 22–Aug | 0.0218 | 0.9450 | 0.0114 | 0.9545 | 0.0000 | 0.9569 | | | 0.0133 | 0.9268 |
| 23–Aug | 0.0000 | 0.9450 | 0.0180 | 0.9725 | 0.0311 | 0.9880 | | | 0.0276 | 0.9543 |
| 24–Aug | 0.0155 | 0.9605 | 0.0173 | 0.9899 | 0.0120 | 1.0000 | | | 0.0141 | 0.9684 |
| 25–Aug | 0.0076 | 0.9681 | 0.0101 | 1.0000 | | | | | 0.0073 | 0.9757 |
| 26–Aug | 0.0120 | 0.9801 | | | | | | | 0.0091 | 0.9848 |
| 27–Aug | 0.0199 | 1.0000 | | | | | | | 0.0152 | 1.0000 |
| 28–Aug | | | | | | | | | | |
| 29–Aug | | | | | | | | | | |
| 30–Aug | | | | | | | | | | |

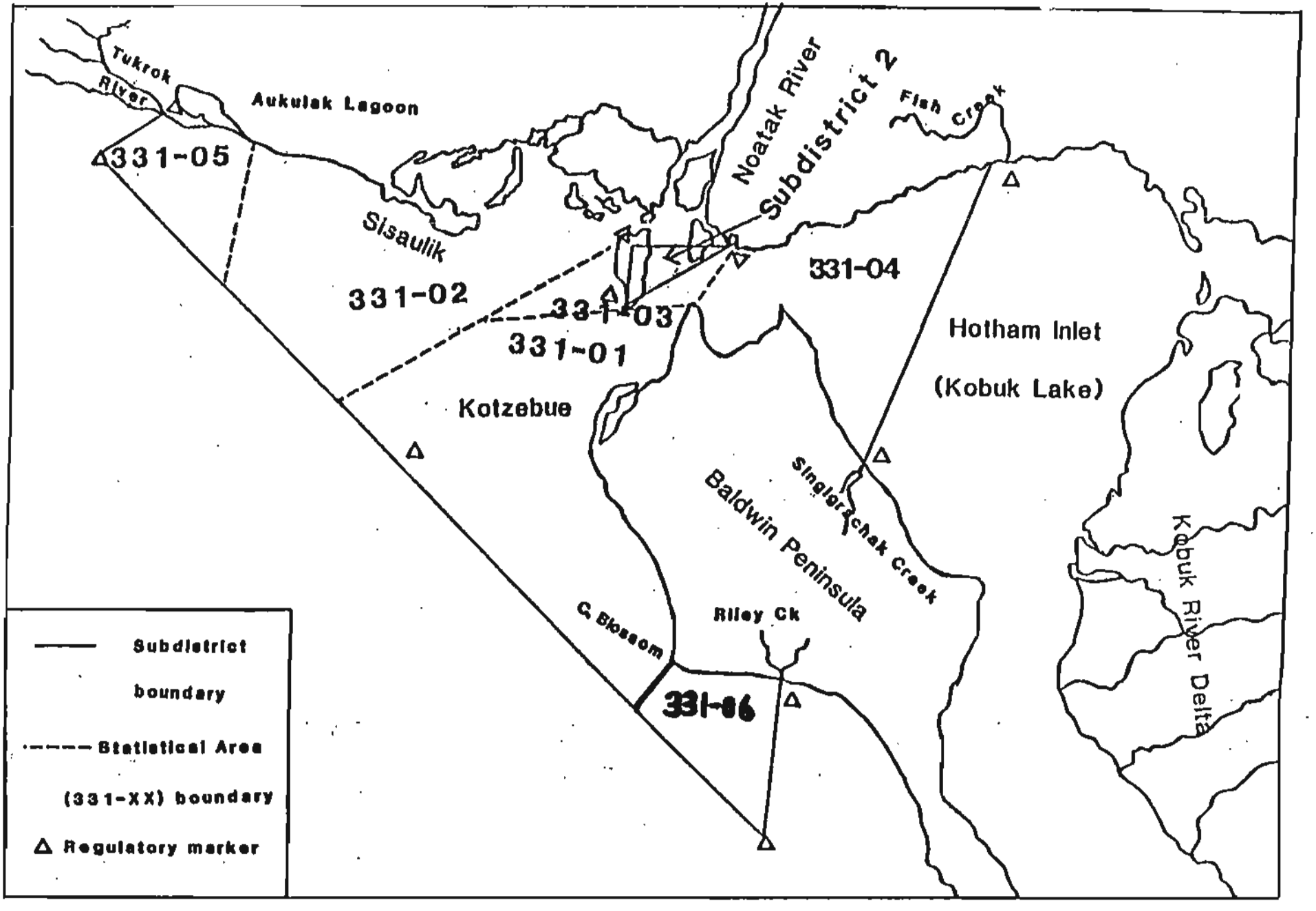



Figure 1. Noatak River and Kotzebue Sound commercial salmon fishing subdistricts.

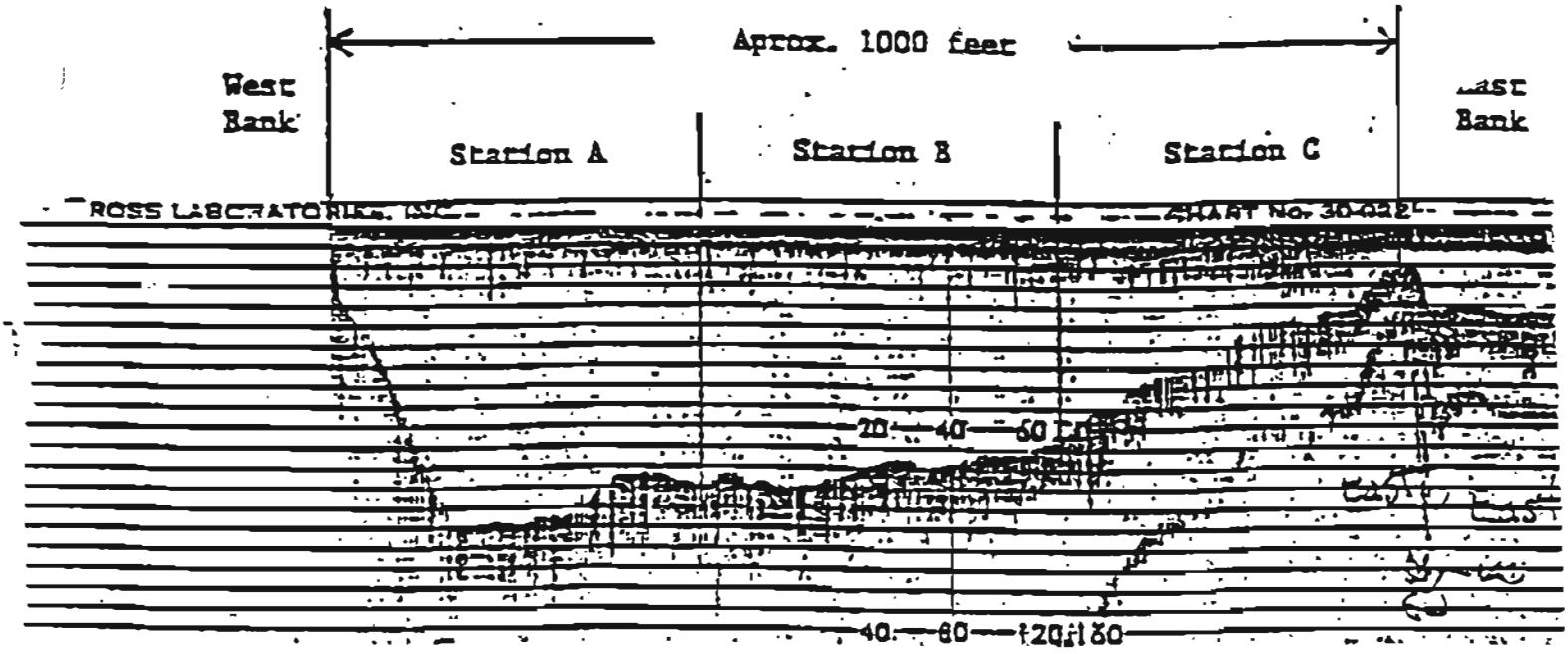



Figure 2. Bottom profile of Noatak River test fish site, 1990.

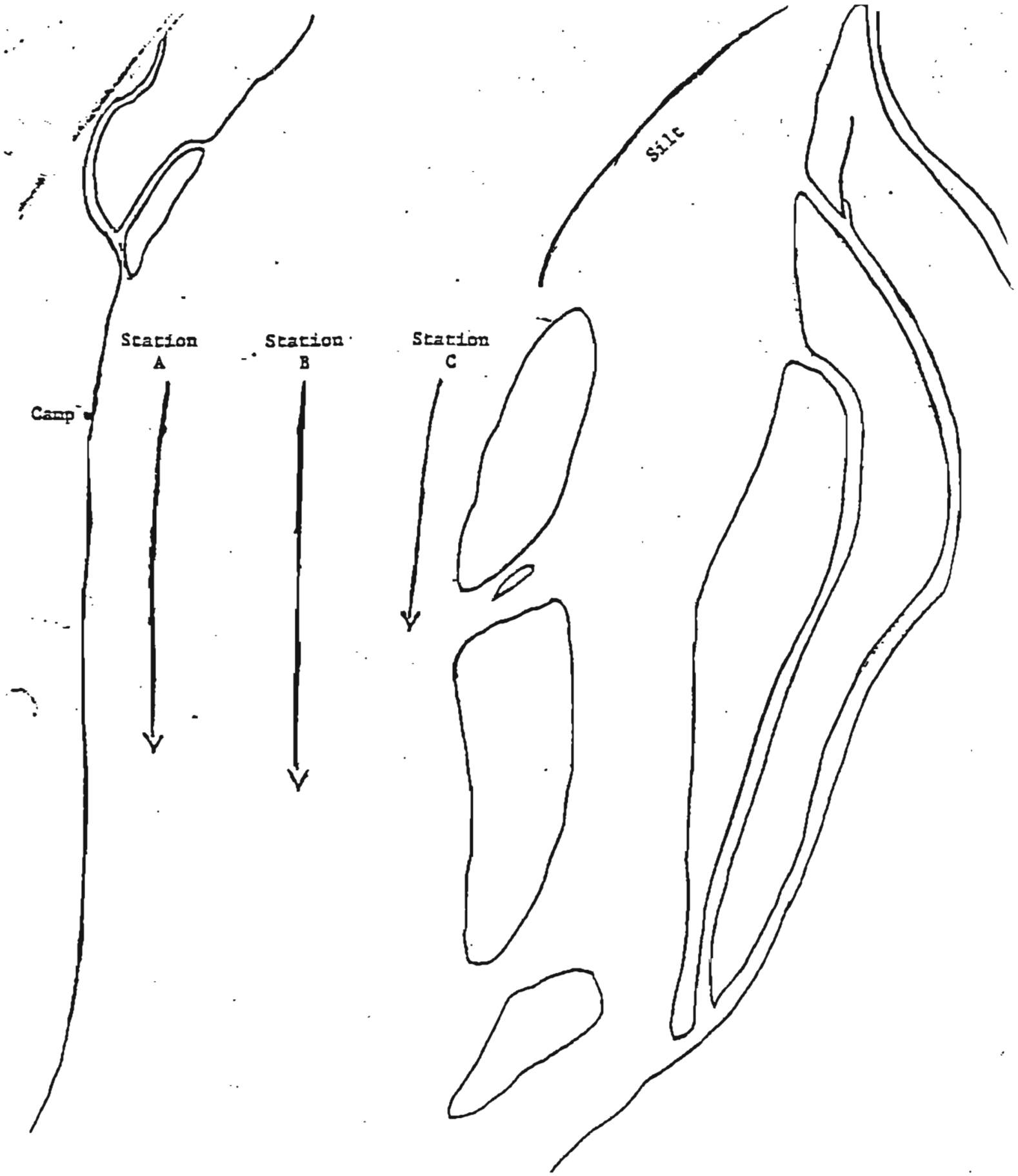



Figure 3. Drifting stations used in the Noatak River test fishery, 1987 - 1990.

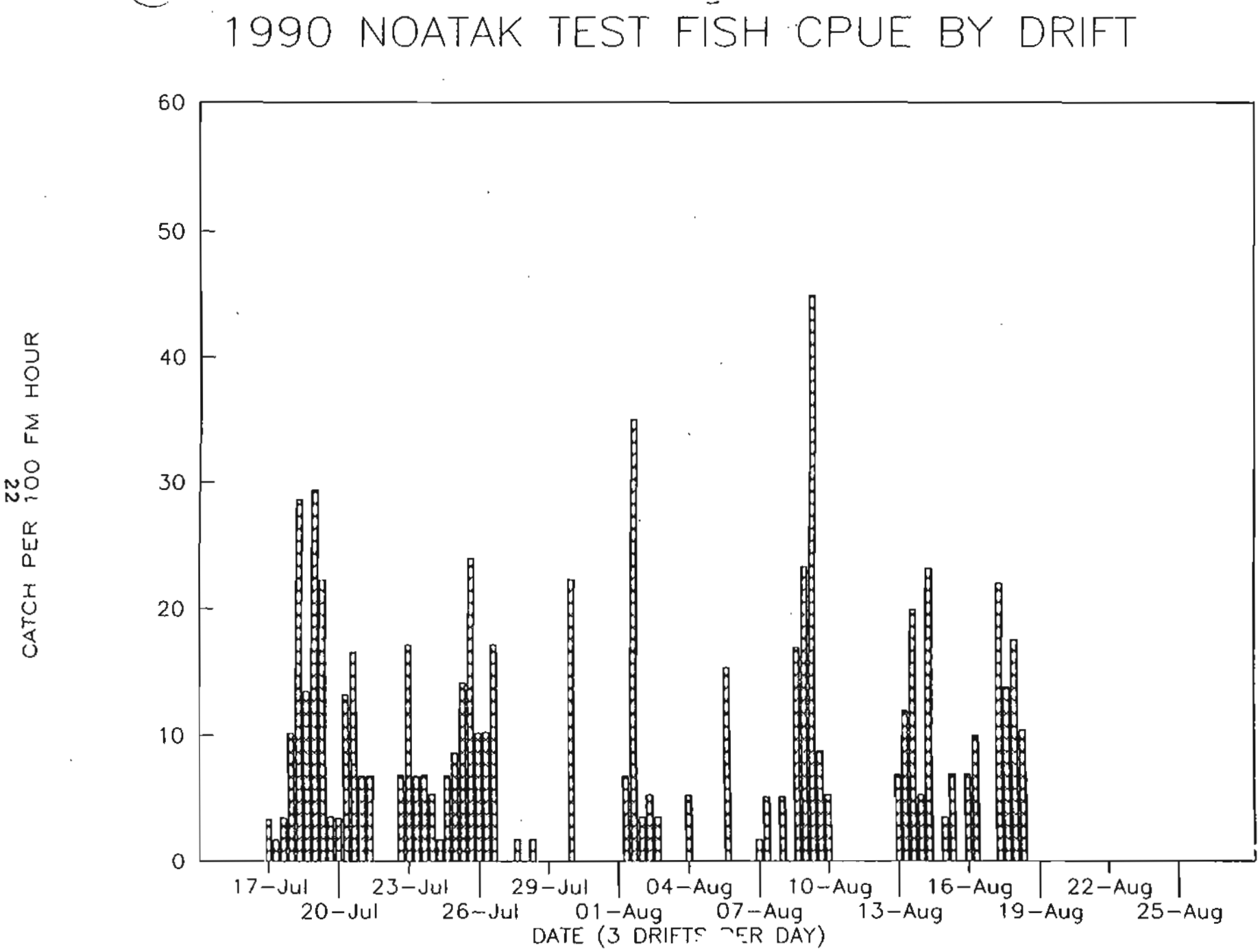
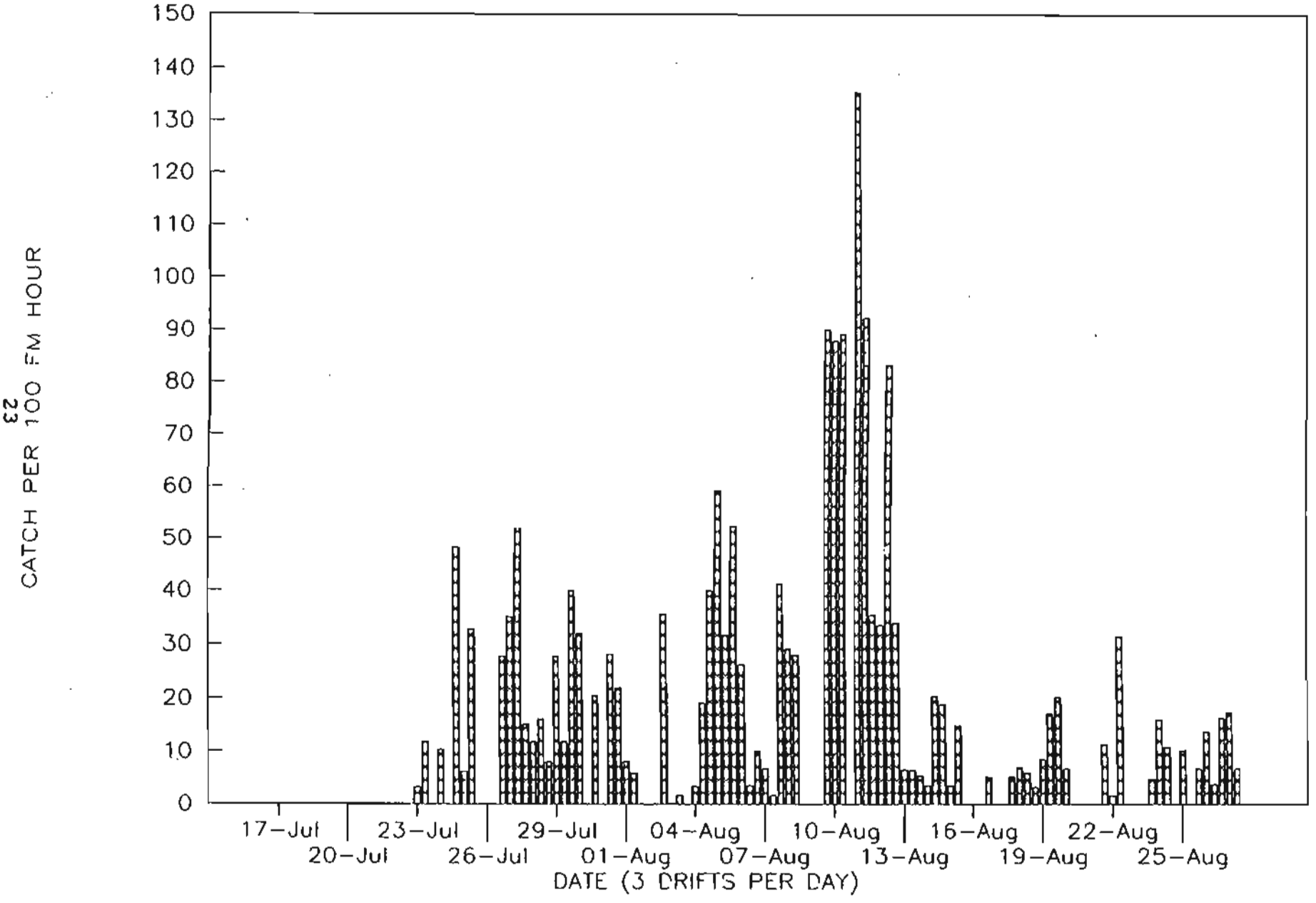



**Figure 4. Noatak River test fish CPUE by drift, 1990.**

# 1987 NOATAK TEST FISH CPUE BY DRIFT




[illegible] CPUE by drift 1987.

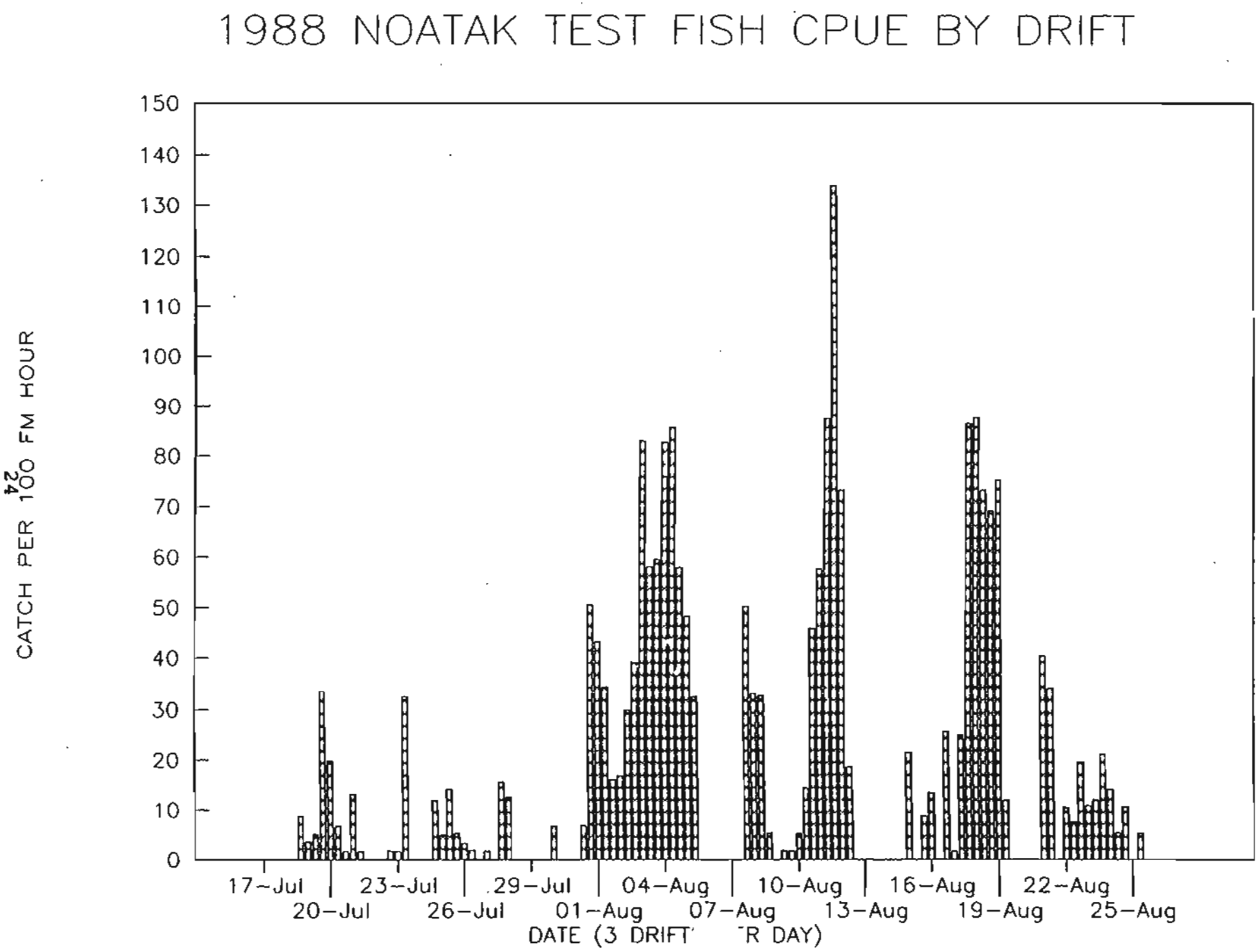
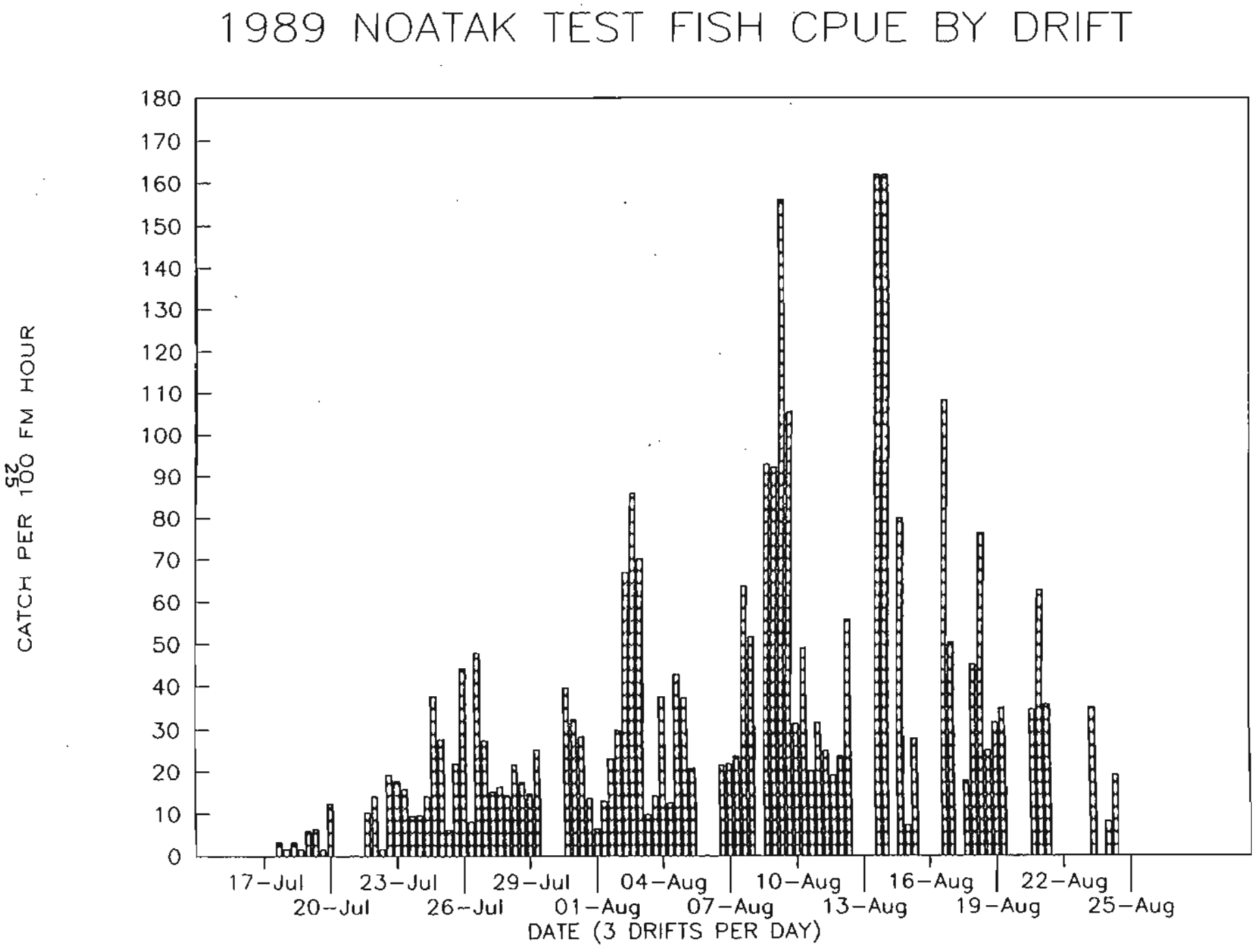



**Figure 6. Noatak River test fish CPUE by drift, 1988.**




River test fish CPUE by drift, 1989.

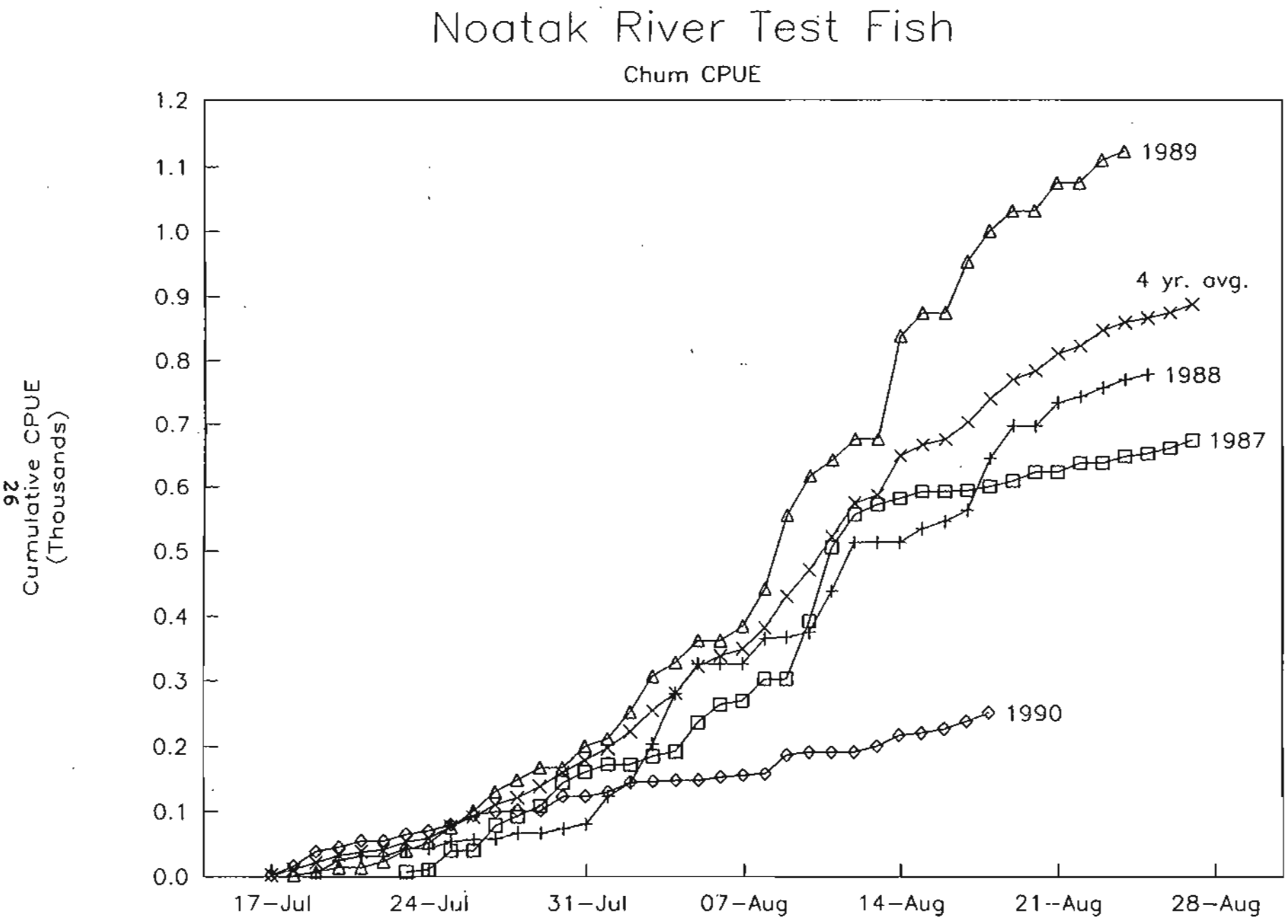



Figure 8. Cumulative mean daily drift CPUE indices, Noatak River test fish, 1987 - 1990.

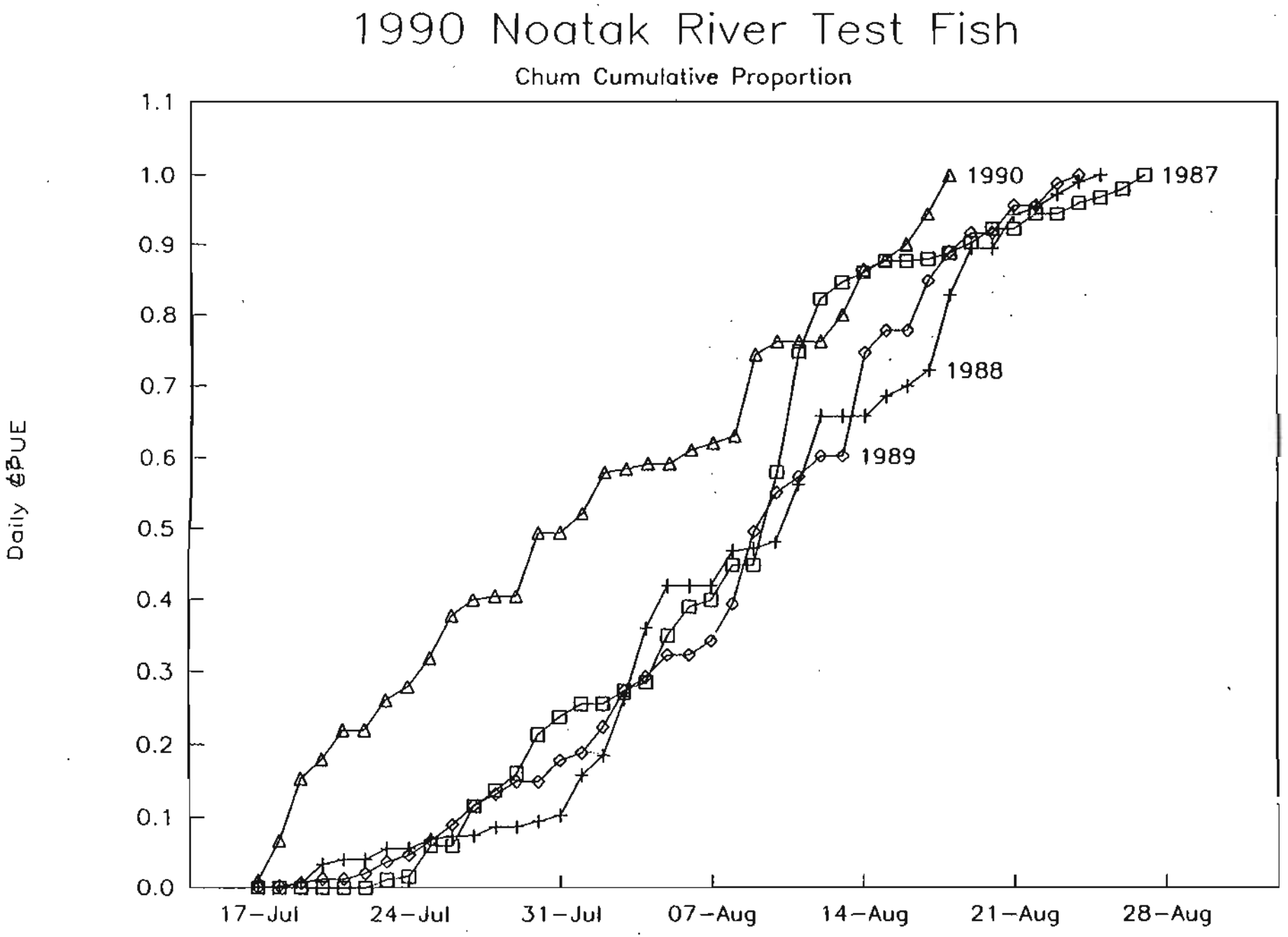



Figure 9. Cumulative proportion of seasonal total CPUE indices.

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