# Noatak River Test Fishing Project, 1991

by

Tracy Lingnau

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Alaska Department of Fish and Game
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## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## 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. No projects were operated in 1985 or 1986. Dissatisfaction with set net indices and early sonar counts prompted site feasibility studies in the lower Noatak River in 1984. However, project funding was not made available until 1987. This report represents the result of the fifth year of the drift test fish project at it's present site.

Current management of the Kotzebue commercial salmon fishery is dependent primarily on comparing period and cumulative season catch statistics to prior years. The test drift fishing project was initiated because of its relatively low cost and the need for an inseason escapement index.

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. This is the lowest location on the river where it essentially runs through a single channel. The width of the river was approximately 305 meters and was divided into three stations (Figure 2). Station A designated the western third. The depth of the channel decreased from the upper end to the lower end of the

drift area (7.9 to 4.6 meters). Station B is located at the middle of the river. The upper end of Station B had the deepest part of the river (12.4 meters) becoming shallow towards the end of the drift (7.0 meters). In section C, the eastern third of the river, is where the cut bank is located. The depth near shore remained fairly constant from the upper to the lower end of the drift. The offshore portion at the beginning of the drift was a steady gradient becoming a uniform bottom towards the end of the drift. This station possessed the slowest current.

## Test Fishing

Fishing was scheduled to sample salmon escapement during three different segments of the day at each of the three stations; late morning (1200), mid-day (1700), and late evening (2200). 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 in (14.9 cm) stretched mesh multifilament webbing, 45 meshes deep, and hung at a ratio of 2:1. Scales were collected for age composition data from all salmon caught. During commercial closures all healthy fish were released and any mortalities were given away to nonprofit organizations or individuals for subsistence purposes.

## 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 weighting 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 specific 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.

## RESULTS

Drifting began on 24 July 1991 and continued through 30 August. Budget constraints delayed test fishing which normally began one week prior to the 1991 start up date. CPUE indices were calculated for each drift and station (Table 1). There were 419 chum salmon caught in a total of 225 station drifts (95 drift time periods) producing 707.3 chum salmon CPUE index points (Table 2). Peak catch occurred on July 29 with a catch of 37 salmon in one drift period and a 60.0 CPUE which comprised 8.5% of the seasonal CPUE indices. That same day also produced a daily high CPUE of 24.7 which compromised 10.3% of the seasonal daily CPUE. A total of 40.1, 37.1 and 22.8 percent of the seasonal CPUE indices was caught at 1200, 1700, and 2200 hours (Table 2). A total of 41.9, 40.0 and 18.1 percent of the total seasonal CPUE indices was caught at stations A, B, and C (Table 2).

Scales were analyzed from 419 chum salmon caught in test nets. The age composition was 1.9% Age-0.2, 64.0% Age-0.3, 33.3% Age-0.4 and 0.7% Age-0.5 (Table 3). The age composition of the 1991 Kotzebue commercial catch is shown for comparison.

Of the 419 chum salmon caught in test nets, 315 (75%) were sold. The rest were either released in good condition or given to elderly residents of Kotzebue and charitable organizations (Senior Citizen Center, Women's Crisis Shelter, Group Home, Pre-maternal Home, Day Care Center, etc.).

For comparative purposes, the basic test fishing operation, gear, location and timing did not change from the previous three years. A total of 5 days of test fishing were missed due to regular days off. Only 3 drifts on 3 separate days were missed due to poor weather conditions or equipment failures. Three days (9 drifts) of test fish data were lost. However, these data were at the end of the project when few fish were caught and should not make a difference when comparing 1991 to other years. Climatological data is presented in Table 4. Seasonal test fish data for 1987-1991 is presented for comparison in Tables 5-8 and in Figures 4 and 5. Figure 4 shows test fish CPUE by day and by year. Figure 5 compares cumulative CPUE and cumulative proportions of CPUE indices.

The test fish CPUE indices generated (number of salmon caught) is influenced considerably by commercial fishing activity in 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 indices, may be more accurate for comparison. The mean catch per 100 fathom hour for the 1991 season was 8.2 chum salmon. This was 61.4, 69.0, 76.3 and 6.6 percent lower than the 1987 (21.3), 1988 (26.5), 1989 (34.7) and 1990 (8.8) means respectively (Table 5).

## CONCLUSIONS

The effect of the Kotzebue commercial fishery on the Noatak River test net CPUE is greatest in August, primarily due to the two stock nature of the Kotzebue fishery. Test fish indices, in general, declined steadily after the peak daily CPUE of July 29. The 1991 mean cumulative daily test fish CPUE was 66.1% lower than that of the prior 4 year average. The commercial salmon harvest in 1991 was 47% higher than 1990 but 24% lower than the recent 12 year average.

The 1991 test net data represented a below average chum salmon escapement. However, both the sonar and aerial survey information indicate escapement goals were met. As the season progressed, water clarity increased (Table 9, Figure 6), correlating with the decrease in catch rates. It is thought that net avoidance due to water clarity was the principal cause of low catch rates for 1991. Years with higher catch rates were also years when water turbidity was higher. It was also found through sonar that as clarity increases so does the schooling of fish. If this schooling occurs in the lower portion of the Noatak River, then a situation would exist where an individual drift could either have a high catch rate or a low catch rate. This would in turn lead to information with a high degree of variability. Test fishing with deeper nets may have caught more fish in a lower portion of the water column where the net might not have been as visible. If only test fish indices were used to make management decisions in 1991, the commercial season most likely would have been closed early.

The Kobuk River tends to be more darkly colored than the Noatak River. Even with clear low water years, such as 1991, the Kobuk is more tannic stained. Considering these factors, it is thought test nets would perform more reliably on the Kobuk than they did during the 1991 season on the Noatak. The development of more reliable sonar escapement indices and their deployment on the Noatak River reduces the need for a separate test fishing project there. Currently there is only limited inseason escapement information provided by subsistence fishermen for the Kobuk River. This

information is usually not available in a comprehensive and timely manner due to the fact that most subsistence fishermen are at their fish camps during the season and are hard to contact on a daily basis. Person to person contact with subsistence fishermen for the duration of the fishery is not feasible.

Considering the two stock nature of the Kotzebue commercial fishery, a test fish project on the Kobuk River would provide valuable migratory timing information and run assessment for improved management of the Kobuk River chum salmon stocks.

Table 1. Noatak River drift test fish chum salmon CPUE by day, drift, and station, 1991.[a]

| Date | CPUE by Drift [b] | | | CPUE by Station [c] | | | Daily CPUE | Cum. CPUE |
|---|---|---|---|---|---|---|---|---|
| | #1 | #2 | #3 | A | B | C | | |
| 24-Jul | 7.01 | 5.22 | 13.81 | 10.21 | 8.76 | 7.06 | 8.70 | 8.70 |
| 25-Jul | 6.26 | 6.91 | 12.00 | 3.50 | 12.00 | 10.26 | 8.53 | 17.23 |
| 26-Jul | 3.58 | 5.22 | 0.00 | 6.96 | 1.76 | 0.00 | 2.94 | 20.17 |
| 27-Jul | 5.29 | 5.63 | 17.78 | 7.11 | 17.56 | 3.75 | 9.62 | 29.79 |
| 28-Jul [d] | | | | | | | | 29.79 |
| 29-Jul | 60.00 | 11.83 | 0.00 | 18.33 | 39.72 | 15.65 | 24.73 | 54.52 |
| 30-Jul | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 54.52 |
| 31-Jul | 8.76 | 33.33 | 15.88 | 12.17 | 38.60 | 7.06 | 19.57 | 74.09 |
| 01-Aug | 0.00 | 20.43 | 23.66 | 25.35 | 10.67 | 8.70 | 15.04 | 89.13 |
| 02-Aug | 18.99 | 0.00 | 0.00 | 0.00 | 13.71 | 5.33 | 6.47 | 95.60 |
| 03-Aug | 41.96 | 10.67 | 7.11 | 30.86 | 20.87 | 8.89 | 20.34 | 115.94 |
| 04-Aug [d] | | | | | | | | 115.94 |
| 05-Aug | 40.28 | 6.96 | 0.00 | 35.24 | 12.09 | 0.00 | 16.19 | 132.13 |
| 06-Aug | 10.51 | 10.36 | 1.79 | 12.17 | 5.29 | 5.29 | 7.61 | 139.74 |
| 07-Aug | 12.17 | 24.71 | 5.33 | 10.67 | 27.23 | 3.61 | 14.08 | 153.82 |
| 08-Aug | 17.39 | 1.80 | 0.00 | 14.01 | 0.00 | 5.41 | 6.55 | 160.37 |
| 09-Aug | 8.89 | 1.82 | 0.00 | 5.29 | 5.45 | 0.00 | 3.58 | 163.95 |
| 10-Aug | 0.00 | 0.00 | 15.65 | 10.67 | 0.00 | 5.33 | 5.36 | 169.31 |
| 11-Aug [d] | | | | | | | | 169.31 |
| 12-Aug | 3.40 | 41.10 | 5.29 | 15.00 | 33.33 | 1.78 | 17.02 | 186.33 |
| 13-Aug | 0.00 | 27.43 | 0.00 | 8.82 | 8.76 | 10.67 | 9.41 | 195.74 |
| 14-Aug | 14.12 | 7.06 | 17.78 | 12.09 | 10.83 | 16.00 | 12.97 | 208.71 |
| 15-Aug | 0.00 | 27.23 | 5.41 | 20.43 | 7.16 | 5.45 | 11.20 | 219.91 |
| 16-Aug | 3.56 | 3.58 | 0.00 | 3.53 | 1.79 | 1.79 | 2.38 | 222.29 |
| 17-Aug | 0.00 | 3.58 | 1.80 | 1.79 | 1.76 | 1.82 | 1.80 | 224.09 |
| 18-Aug [d] | | | | | | | | 224.09 |
| 19-Aug | 21.82 | 0.00 | 0.00 | 21.64 | 0.00 | 0.00 | 6.80 | 230.89 |
| 20-Aug | 0.00 | 7.22 | 0.00 | 1.79 | 0.00 | 5.50 | 2.43 | 233.32 |
| 21-Aug | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 233.32 |
| 22-Aug | 0.00 | 0.00 | 10.67 | 10.67 | 0.00 | 0.00 | 3.60 | 236.92 |
| 23-Aug | 0.00 | 0.00 | 5.45 | 0.00 | 5.45 | 0.00 | 1.83 | 238.75 |
| 24-Aug | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 238.75 |
| 25-Aug [d] | | | | | | | | 238.75 |
| 26-Aug | | | | | | | | 238.75 |
| 27-Aug | | | Missing Test Fish Data | | | | | 238.75 |
| 28-Aug | | | | | | | | 238.75 |
| 29-Aug | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 238.75 |
| 30-Aug | 0.00 | 0.00 | 1.83 | 0.00 | 2.73 | 0.00 | 0.91 | 239.66 |

[a] Catch per unit effort is calculated in catch/100fm/hour
[b] Drift 1 begins at 1200, Drift 2 at 1700, Drift 3 at 2200.
[c] Site A is along the West Bank (right bank), Site B is mid-river, Site C is East Bank (left bank).
[d] Regular Day Off

Table 2. Noatak River drift test fish chum salmon CPUE indices, mean CPUE and percent by drift (time of day) and station (location), 1991.

| Drift Period | Season CPUE Indices | No. of Period Drifts | Season Mean CPUE | Percent | Station Period | Season CPUE Indices | No. of Station Drifts | Season Mean CPUE | Percent |
|---|---|---|---|---|---|---|---|---|---|
| 1 1200 hrs. | 284.0 | 29 | 9.8 | 40.1 | A West Bank | 298.3 | 27 | 11.0 | 41.9 |
| 2 1700 hrs. | 262.1 | 28 | 9.4 | 37.1 | B Mid-River | 285.5 | 26 | 11.0 | 40.0 |
| 3 2200 hrs. | 161.2 | 29 | 5.6 | 22.8 | C East Bank | 129.4 | 26 | 5.0 | 18.1 |
| Total | 707.3 | 86 | 8.2 | 100.0 | | 713.2 | 79 | 9.0 | 100.0 |

Table 3. Chum salmon age and sex composition of the Kotzebue District commercial catch and Noatak River drift test fish catch, 1991.

| | | Brood Year and Age Group | | | | |
|---|---|---|---|---|---|---|
| | | 1988 | 1987 | 1986 | 1985 | |
| | | 0.2 | 0.3 | 0.4 | 0.5 | Total |
| Stratum Dates: | 7/11-8/31 | Kotzebue Commercial Catch [a] | | | | |
| Sampling Dates: | 7/12-8/31 | | | | | |
| Sample Size: | 3,292 | | | | | |
| Female | Percent of Sample | 1.3 | 33.9 | 18.1 | 0.4 | 53.7 |
| | Number in Catch | 3,115 | 81,227 | 43,369 | 958 | 128,669 |
| Male | Percent of Sample | 1.6 | 26.5 | 17.7 | 0.5 | 46.3 |
| | Number in Catch | 3,834 | 63,496 | 42,411 | 1,198 | 110,939 |
| Total | Percent of Sample | 2.9 | 60.4 | 35.8 | 0.9 | 100.0 |
| | Number in Catch | 6,949 | 144,723 | 85,780 | 2,156 | 239,608 |
| | Standard Error | 701 | 2,043 | 2,002 | 394 | |
| Stratum Dates: | 7/23-8/29 | Noatak River Drift Test Fish [b] | | | | |
| Sampling Dates: | 7/23-8/29 | | | | | |
| Female | Percent of Sample | 0.5 | 35.9 | 15.1 | 0.5 | 52.0 |
| | Number in Catch | 2 | 150 | 63 | 2 | 218 |
| Male | Percent of Sample | 1.4 | 28.1 | 18.2 | 0.2 | 47.9 |
| | Number in Catch | 6 | 118 | 76 | 1 | 201 |
| Total | Percent of Sample | 1.9 | 64.0 | 33.3 | 0.7 | 100.0 |
| | Number in Catch | 8 | 268 | 140 | 3 | 419 |
| | Standard Error | 1 | 2 | 2 | 0 | |

[a] Does not include 315 salmon sold by the test fish project.
[b] 104 of the 419 salmon caught by test fish nets were not sold due to poor quality.

Table 4. Noatak River climatological data, 1991.

| Date | Time | Secchi (meters) | Wind [a] (mph) | Cloud Cover | Precip. | Temp. [b] (Celsius) |
|---|---|---|---|---|---|---|
| 24-Jul | 1200 | 0.2 | 5 | 2 | 7 | 13 |
| 25-Jul | 1200 | 0.2 | calm | 3 | 1 | 16 |
| 26-Jul | 1200 | 0.3 | 10 | 4 | 7 | 15 |
| 27-Jul | 1200 | 0.5 | calm | 4 | 1 | 14 |
| 28-Jul | | | | | | 13 |
| 29-Jul | 1200 | 0.6 | 15 | 4 | 1 | 13 |
| 30-Jul | 1200 | 0.8 | 5 | 1 | 7 | |
| 31-Jul | 1200 | 1.1 | calm | 2 | 7 | 13 |
| 01-Aug | 1200 | 1.2 | 10 | 1 | 7 | |
| 02-Aug | 1200 | 0.6 | 15 | 1 | 7 | 14 |
| 03-Aug | 1200 | 0.6 | calm | 1 | 7 | 14 |
| 04-Aug | | | | | | 15 |
| 05-Aug | 1200 | 0.9 | 5 | 2 | 7 | 13 |
| 06-Aug | 1200 | 0.9 | 10 | 3 | 7 | |
| 07-Aug | 1200 | 0.8 | calm | 1 | 7 | |
| 08-Aug | 1200 | 0.6 | 10 | 1 | 7 | 11 |
| 09-Aug | 1200 | 0.9 | 5 | 1 | 7 | |
| 10-Aug | 1200 | 0.8 | 10 | 2 | 7 | 12 |
| 11-Aug | | | | | | 12 |
| 12-Aug | 1200 | 1.2 | 10 | 4 | 7 | 13 |
| 13-Aug | 1200 | 1.4 | calm | 2 | 7 | |
| 14-Aug | 1200 | 1.8 | calm | 1 | 7 | 14 |
| 15-Aug | 1200 | 2.4 | calm | 5 | 7 | 15 |
| 16-Aug | 1200 | 3.0 | 5 | 2 | 7 | 15 |
| 17-Aug | 1200 | 1.8 | 10 | 2 | 7 | 13 |
| 18-Aug | | | | | | 15 |
| 19-Aug | 1200 | 1.8 | calm | 1 | 7 | 15 |
| 20-Aug | 1200 | 2.4 | 5 | 2 | 7 | |
| 21-Aug | 1200 | 2.4 | 15 | 2 | 7 | 14 |
| 22-Aug | 1200 | 0.9 | 25 | 4 | 1 | 14 |
| 23-Aug | 1200 | 3.0 | 5 | 1 | 7 | 13 |
| 24-Aug | 1200 | 0.6 | 40 | 1 | 7 | 13 |
| 25-Aug | | | | | | 11 |
| 26-Aug | 1200 | 3.7 | 5 | 1 | 7 | 11 |
| 27-Aug | 1200 | 4.3 | 5 | 1 | 7 | 10 |

[a] Wind direction unavailable.
[b] Data is from the Bendix sonar site approximately 12 mi. up river from the test net site.

Cloud Cover:
0 - No observation
1 - Clear sky; cloud cover less then 1/10th of the sky
2 - Cloud cover not more than 1/2 of the sky
3 - Cloud cover more than 1/2 of the sky
4 - Sky is completely overcast
5 - Fog or thick haze (smoke, dust, etc.)

Precipitation:
0 - No observation
1 - Intermittent rain
2 - Continuous rain
3 - Snow
4 - Snow and rain mix
5 - Hail
6 - Thunderstorm
7 - No precipitation

Table 5. Noatak River drift test fish chum salmon diurnal and spacial distribution expressed as mean CPUE by drift and by station, 1987-1991.

| Year | Diurnal Mean CPUE by Drift Period [a] | | | Yearly Mean CPUE | Percent Mean CPUE by Drift Period | | | Spacial Mean CPUE by Station [b] | | | Yearly Mean CPUE | Percent Mean CPUE by Station | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | | 1 | 2 | 3 | A | B | C | | A | B | C |
| 1987 | 22.9 | 19.7 | 21.6 | 21.3 | 35.7 | 30.7 | 33.6 | 25.7 | 17.1 | 20.8 | 21.2 | 40.4 | 26.9 | 32.7 |
| 1988 | 30.0 | 27.1 | 22.8 | 26.5 | 37.6 | 33.9 | 28.5 | 36.1 | 13.2 | 31.2 | 26.8 | 44.8 | 16.4 | 38.8 |
| 1989 | 37.5 | 36.0 | 30.6 | 34.7 | 36.0 | 34.6 | 29.4 | 42.5 | 23.2 | 40.3 | 35.4 | 40.1 | 21.9 | 38.0 |
| 1990 | 9.3 | 7.5 | 9.7 | 8.8 | 35.0 | 28.2 | 36.8 | 7.7 | 8.2 | 7.7 | 9.0 | 32.7 | 34.7 | 32.7 |
| 1991 | 9.8 | 9.4 | 5.6 | 8.2 | 39.5 | 37.9 | 22.6 | 11.0 | 11.0 | 5.0 | 9.0 | 40.7 | 40.7 | 18.5 |

[a] Drift 1 begins at 1200, Drift 2 at 1700, Drift 3 at 2200.
[b] Station A is along the West Bank (right bank), Station B is mid-river, Station C is East Bank (left bank).

Table 6. Noatak River drift test fish CPUE and cumulative CPUE by drift, 1987-1991.

| | | 1987 | | 1988 | | 1989 | | 1990 | | 1991 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Drift | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. |
| 17-Jul | 1 | | | | | | | | | | |
| | 2 | | | | | | | 3.3 | 3.3 | | |
| | 3 | | | | | | | 1.7 | 5.1 | | |
| 18-Jul | 1 | | | | | 3.2 | 3.2 | 3.5 | 8.6 | | |
| | 2 | | | | | 1.6 | 4.8 | 10.1 | 18.7 | | |
| | 3 | | | | | 3.3 | 8.1 | 28.6 | 47.3 | | |
| 19-Jul | 1 | | | 8.7 | 8.7 | 1.6 | 9.7 | 13.3 | 60.6 | | |
| | 2 | | | 3.6 | 12.2 | 5.9 | 15.6 | 29.4 | 90.0 | | |
| | 3 | | | 5.1 | 17.4 | 6.4 | 22.0 | 22.3 | 112.3 | | |
| 20-Jul | 1 | | | 33.4 | 50.7 | 1.5 | 23.5 | 3.5 | 115.8 | | |
| | 2 | | | 19.8 | 70.5 | 12.4 | 35.9 | 3.5 | 119.3 | | |
| | 3 | | | 6.8 | 77.3 | | 35.9 | 13.1 | 132.3 | | |
| 21-Jul | 1 | | | 1.7 | 79.0 | | 35.9 | 16.4 | 148.8 | | |
| | 2 | | | 13.1 | 92.1 | | 35.9 | 6.8 | 155.6 | | |
| | 3 | | | 1.7 | 93.8 | | 35.9 | 6.8 | 162.4 | | |
| 22-Jul | 1 | | | 0.0 | 93.8 | 10.3 | 46.3 | | 162.4 | | |
| | 2 | | | 0.0 | 93.8 | 14.1 | 60.4 | | 162.4 | | |
| | 3 | | | 0.0 | 93.8 | 1.7 | 62.0 | | 162.4 | | |
| 23-Jul | 1 | | | 1.8 | 95.6 | 19.3 | 81.3 | 6.9 | 169.2 | | |
| | 2 | 3.3 | 3.3 | 1.7 | 97.3 | 17.9 | 99.2 | 17.0 | 186.3 | | |
| | 3 | 11.7 | 15.0 | 32.4 | 129.7 | 15.9 | 115.1 | 6.8 | 193.1 | | |
| 24-Jul | 1 | 0.0 | 15.0 | | 129.7 | 9.5 | 124.6 | 6.9 | 199.9 | 7.0 | 7.0 |
| | 2 | 10.3 | 25.3 | | 129.7 | 9.6 | 134.3 | 5.3 | 205.3 | 5.2 | 12.2 |
| | 3 | 0.0 | 25.3 | | 129.7 | 14.2 | 148.4 | 1.7 | 207.0 | 13.8 | 26.0 |
| 25-Jul | 1 | 48.3 | 73.6 | 12.0 | 141.7 | 37.8 | 186.2 | 6.8 | 213.8 | 6.3 | 32.3 |
| | 2 | 6.2 | 79.8 | 5.0 | 146.7 | 27.7 | 213.8 | 8.6 | 222.4 | 6.9 | 39.2 |
| | 3 | 32.7 | 112.5 | 14.1 | 160.8 | 6.2 | 220.0 | 14.0 | 236.4 | 12.0 | 51.2 |
| 26-Jul | 1 | | 112.5 | 5.2 | 166.0 | 21.9 | 241.9 | 24.0 | 260.4 | 3.6 | 54.8 |
| | 2 | | 112.5 | 3.3 | 169.3 | 44.2 | 286.1 | 10.1 | 270.6 | 5.2 | 60.0 |
| | 3 | | 112.5 | 1.9 | 171.2 | 8.2 | 294.3 | 10.2 | 280.8 | 0.0 | 60.0 |
| 27-Jul | 1 | 27.7 | 140.2 | 0.0 | 171.2 | 47.9 | 342.2 | 17.0 | 297.8 | 5.3 | 65.3 |
| | 2 | 35.1 | 175.3 | 1.7 | 172.9 | 27.5 | 369.7 | 0.0 | 297.8 | 5.6 | 70.9 |
| | 3 | 51.9 | 227.2 | 0.0 | 172.9 | 15.3 | 384.9 | 0.0 | 297.8 | 17.8 | 88.7 |
| 28-Jul | 1 | 15.1 | 242.3 | 15.6 | 188.5 | 16.4 | 401.3 | 1.8 | 299.6 | | 88.7 |
| | 2 | 11.8 | 254.1 | 12.4 | 200.9 | 14.5 | 415.8 | 0.0 | 299.6 | | 88.7 |
| | 3 | 16.0 | 270.1 | 0.0 | 200.9 | 21.6 | 437.4 | 1.8 | 301.3 | | 88.7 |
| 29-Jul | 1 | 8.0 | 278.1 | | 200.9 | 17.4 | 454.8 | | 301.3 | 60.0 | 148.7 |
| | 2 | 27.6 | 305.7 | | 200.9 | 14.8 | 469.6 | | 301.3 | 11.8 | 160.5 |
| | 3 | 11.9 | 317.6 | | 200.9 | 25.2 | 494.8 | | 301.3 | 0.0 | 160.5 |
| 30-Jul | 1 | 40.0 | 357.6 | | 200.9 | | 494.8 | | 301.3 | 0.0 | 160.5 |
| | 2 | 32.0 | 389.6 | 6.7 | 207.6 | | 494.8 | 22.3 | 323.6 | 0.0 | 160.5 |
| | 3 | | 389.6 | | 207.6 | | 494.8 | | 323.6 | 0.0 | 160.5 |
| 31-Jul | 1 | 20.5 | 410.1 | | 207.6 | 39.6 | 534.4 | | 323.6 | 8.8 | 169.3 |
| | 2 | 0.0 | 410.1 | | 207.6 | 32.4 | 566.8 | | 323.6 | 33.3 | 202.6 |
| | 3 | 28.1 | 438.2 | 6.8 | 214.4 | 28.3 | 595.1 | | 323.6 | 15.9 | 218.5 |

Table 6. (Page 2 of 3)

| | | 1987 | | 1988 | | 1989 | | 1990 | | 1991 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Drift | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. |
| 01-Aug | 1 | 22.0 | 460.2 | 50.5 | 264.9 | 13.6 | 608.8 | | 323.6 | 0.0 | 218.5 |
| | 2 | 8.0 | 468.2 | 43.2 | 308.1 | 6.5 | 615.3 | | 323.6 | 20.4 | 238.9 |
| | 3 | 5.8 | 474.0 | 34.2 | 342.3 | 13.0 | 628.2 | 6.8 | 330.4 | 23.7 | 262.6 |
| 02-Aug | 1 | | 474.0 | 16.0 | 358.3 | 23.1 | 651.3 | 35.0 | 365.4 | 19.0 | 281.6 |
| | 2 | | 474.0 | 16.7 | 375.0 | 29.9 | 681.2 | 3.5 | 368.9 | 0.0 | 281.6 |
| | 3 | | 474.0 | 29.9 | 404.9 | 66.8 | 748.0 | 5.3 | 374.2 | 0.0 | 281.6 |
| 03-Aug | 1 | 35.5 | 509.5 | 39.1 | 444.0 | 86.0 | 834.0 | 3.5 | 377.8 | 42.0 | 323.6 |
| | 2 | 0.0 | 509.5 | 83.1 | 527.1 | 70.2 | 904.2 | 0.0 | 377.8 | 10.7 | 334.2 |
| | 3 | 1.7 | 511.2 | 58.1 | 585.2 | 9.7 | 913.9 | 0.0 | 377.8 | 7.1 | 341.3 |
| 04-Aug | 1 | 0.0 | 511.2 | 59.6 | 644.8 | 14.2 | 928.1 | 0.0 | 377.8 | | 341.3 |
| | 2 | 3.4 | 514.6 | 82.8 | 727.6 | 37.6 | 965.7 | 5.2 | 383.0 | | 341.3 |
| | 3 | 19.1 | 533.7 | 85.8 | 813.5 | 12.5 | 978.2 | 0.0 | 383.0 | | 341.3 |
| 05-Aug | 1 | 40.0 | 573.7 | 57.9 | 871.4 | 42.8 | 1021.0 | | 383.0 | 40.3 | 381.6 |
| | 2 | 59.2 | 632.9 | 48.3 | 919.6 | 37.2 | 1058.2 | | 383.0 | 7.0 | 388.6 |
| | 3 | 31.7 | 664.6 | 32.4 | 952.0 | 20.8 | 1079.0 | | 383.0 | 0.0 | 388.6 |
| 06-Aug | 1 | 52.4 | 717.0 | | 952.0 | | 1079.0 | 15.2 | 398.2 | 10.5 | 399.1 |
| | 2 | 26.2 | 743.2 | | 952.0 | | 1079.0 | 0.0 | 398.2 | 10.4 | 409.4 |
| | 3 | 3.5 | 746.7 | | 952.0 | | 1079.0 | 0.0 | 398.2 | 1.8 | 411.2 |
| 07-Aug | 1 | 10.0 | 756.7 | | 952.0 | 21.5 | 1100.5 | 0.0 | 398.2 | 12.2 | 423.4 |
| | 2 | 6.7 | 763.4 | | 952.0 | 21.8 | 1122.3 | 1.7 | 399.9 | 24.7 | 448.1 |
| | 3 | 1.7 | 765.1 | | 952.0 | 23.7 | 1146.0 | 5.1 | 405.0 | 5.3 | 453.4 |
| 08-Aug | 1 | 41.2 | 806.3 | 50.2 | 1002.3 | 63.7 | 1209.7 | 0.0 | 405.0 | 17.4 | 470.8 |
| | 2 | 29.2 | 835.5 | 33.0 | 1035.3 | 51.6 | 1261.3 | 5.1 | 410.2 | 1.8 | 472.6 |
| | 3 | 28.0 | 863.5 | 32.5 | 1067.8 | | 1261.3 | | 410.2 | 0.0 | 472.6 |
| 09-Aug | 1 | | 863.5 | 5.3 | 1073.1 | 93.0 | 1354.3 | 16.8 | 426.9 | 8.9 | 481.5 |
| | 2 | | 863.5 | 0.0 | 1073.1 | 92.4 | 1446.7 | 23.3 | 450.3 | 1.8 | 483.3 |
| | 3 | | 863.5 | 1.8 | 1074.8 | 156.3 | 1603.0 | 45.0 | 495.3 | 0.0 | 483.3 |
| 10-Aug | 1 | 90.2 | 953.7 | 1.8 | 1076.7 | 105.8 | 1708.8 | 8.8 | 504.0 | 0.0 | 483.3 |
| | 2 | 88.0 | 1041.7 | 5.2 | 1081.8 | 31.2 | 1740.0 | 5.3 | 509.3 | 0.0 | 483.3 |
| | 3 | 89.3 | 1131.0 | 14.3 | 1096.1 | 49.1 | 1789.1 | 0.0 | 509.3 | 15.7 | 499.0 |
| 11-Aug | 1 | | 1131.0 | 45.9 | 1142.0 | 20.3 | 1809.4 | 0.0 | 509.3 | | 499.0 |
| | 2 | 135.4 | 1266.4 | 57.6 | 1199.6 | 31.5 | 1840.9 | 0.0 | 509.3 | | 499.0 |
| | 3 | 92.4 | 1358.8 | 87.5 | 1287.2 | 24.9 | 1865.7 | 0.0 | 509.3 | | 499.0 |
| 12-Aug | 1 | 35.4 | 1394.2 | 133.9 | 1421.0 | 19.1 | 1884.9 | | 509.3 | 3.4 | 502.4 |
| | 2 | 33.5 | 1427.7 | 73.4 | 1494.4 | 23.6 | 1908.4 | | 509.3 | 41.1 | 543.5 |
| | 3 | 83.3 | 1511.0 | 18.6 | 1513.0 | 55.8 | 1964.3 | | 509.3 | 5.3 | 548.8 |
| 13-Aug | 1 | 33.9 | 1544.9 | | 1513.0 | | 1964.3 | | 509.3 | 0.0 | 548.8 |
| | 2 | 6.5 | 1551.4 | | 1513.0 | | 1964.3 | 7.0 | 516.3 | 27.4 | 576.2 |
| | 3 | 6.4 | 1557.8 | | 1513.0 | | 1964.3 | 11.6 | 527.9 | 0.0 | 576.2 |
| 14-Aug | 1 | 5.4 | 1563.2 | | 1513.0 | 162.2 | 2126.5 | 19.9 | 547.8 | 14.1 | 590.3 |
| | 2 | 3.5 | 1566.7 | | 1513.0 | 162.0 | 2288.5 | 5.3 | 553.0 | 7.1 | 597.4 |
| | 3 | 20.3 | 1587.0 | | 1513.0 | | 2288.5 | 23.2 | 576.2 | 17.8 | 615.2 |
| 15-Aug | 1 | 18.8 | 1605.8 | | 1513.0 | 80.0 | 2368.5 | | 576.2 | 0.0 | 615.2 |
| | 2 | 3.5 | 1609.3 | 21.4 | 1534.4 | 7.2 | 2375.6 | 3.5 | 579.7 | 27.2 | 642.4 |
| | 3 | 14.8 | 1624.1 | | 1534.4 | 27.7 | 2403.3 | 6.9 | 586.6 | 5.4 | 647.8 |

Table 6. (Page 3 of 3)

| | | 1987 | | 1988 | | 1989 | | 1990 | | 1991 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Drift | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. |
| 16-Aug | 1 | | 1624.1 | 8.7 | 1543.1 | | 2403.3 | 0.0 | 586.6 | 3.6 | 651.4 |
| | 2 | | 1624.1 | 13.3 | 1556.4 | | 2403.3 | 6.9 | 593.5 | 3.6 | 655.0 |
| | 3 | | 1624.1 | | 1556.4 | | 2403.3 | 9.9 | 603.4 | 0.0 | 655.0 |
| 17-Aug | 1 | 5.1 | 1629.2 | 25.5 | 1581.9 | 108.5 | 2511.8 | 0.0 | 603.4 | 0.0 | 655.0 |
| | 2 | 0.0 | 1629.2 | 1.7 | 1583.6 | 50.3 | 2562.1 | | 603.4 | 3.6 | 658.5 |
| | 3 | 0.0 | 1629.2 | 24.9 | 1608.5 | | 2562.1 | 22.0 | 625.4 | 1.8 | 660.3 |
| 18-Aug | 1 | 5.2 | 1634.4 | 86.6 | 1695.1 | 17.8 | 2579.8 | 13.6 | 639.0 | | 660.3 |
| | 2 | 7.0 | 1641.4 | 87.7 | 1782.8 | 45.0 | 2624.8 | 17.4 | 656.4 | | 660.3 |
| | 3 | 5.9 | 1647.3 | 73.2 | 1855.9 | 76.3 | 2701.1 | 10.4 | 666.7 | | 660.3 |
| 19-Aug | 1 | 3.3 | 1650.6 | 69.2 | 1925.1 | 25.0 | 2726.1 | | | 21.8 | 682.2 |
| | 2 | 8.5 | 1659.1 | 75.2 | 2000.3 | 31.5 | 2757.6 | | | 0.0 | 682.2 |
| | 3 | 17.1 | 1676.2 | 11.9 | 2012.2 | 34.9 | 2792.5 | | | 0.0 | 682.2 |
| 20-Aug | 1 | 20.2 | 1696.4 | | 2012.2 | | 2792.5 | | | 0.0 | 682.2 |
| | 2 | 6.8 | 1703.2 | | 2012.2 | | 2792.5 | | | 7.2 | 689.4 |
| | 3 | | 1703.2 | | 2012.2 | | 2792.5 | | | 0.0 | 689.4 |
| 21-Aug | 1 | | 1703.2 | | 2012.2 | 34.4 | 2826.9 | | | 0.0 | 689.4 |
| | 2 | 0.0 | 1703.2 | 40.2 | 2052.4 | 62.6 | 2889.5 | | | 0.0 | 689.4 |
| | 3 | 0.0 | 1703.2 | 33.9 | 2086.3 | 35.6 | 2925.1 | | | 0.0 | 689.4 |
| 22-Aug | 1 | 11.3 | 1714.5 | | 2086.3 | | 2925.1 | | | 0.0 | 689.4 |
| | 2 | 1.6 | 1716.1 | 10.3 | 2096.6 | | 2925.1 | | | 0.0 | 689.4 |
| | 3 | 31.3 | 1747.4 | 7.5 | 2104.0 | | 2925.1 | | | 10.7 | 700.0 |
| 23-Aug | 1 | | 1747.4 | 19.4 | 2123.4 | | 2925.1 | | | 0.0 | 700.0 |
| | 2 | | 1747.4 | 10.7 | 2134.2 | | 2925.1 | | | 0.0 | 700.0 |
| | 3 | | 1747.4 | 12.0 | 2146.1 | 34.9 | 2960.0 | | | 5.5 | 705.5 |
| 24-Aug | 1 | 4.8 | 1752.2 | 21.0 | 2167.2 | | 2960.0 | | | 0.0 | 705.5 |
| | 2 | 15.9 | 1768.1 | 14.0 | 2181.2 | 8.0 | 2968.0 | | | 0.0 | 705.5 |
| | 3 | 10.8 | 1778.9 | 5.4 | 2186.6 | 19.1 | 2987.0 | | | 0.0 | 705.5 |
| 25-Aug | 1 | 0.0 | 1778.9 | 10.6 | 2197.2 | | | | | | 705.5 |
| | 2 | 10.2 | 1789.1 | | 2197.2 | | | | | | 705.5 |
| | 3 | | 1789.1 | 5.3 | 2202.4 | | | | | | 705.5 |
| 26-Aug | 1 | 6.8 | 1795.9 | | | | | | | missing | 705.5 |
| | 2 | 13.7 | 1809.6 | | | | | | | missing | 705.5 |
| | 3 | 3.8 | 1813.4 | | | | | | | missing | 705.5 |
| 27-Aug | 1 | 16.3 | 1829.7 | | | | | | | missing | 705.5 |
| | 2 | 17.3 | 1847.0 | | | | | | | missing | 705.5 |
| | 3 | 6.8 | 1853.8 | | | | | | | missing | 705.5 |
| 28-Aug | 1 | | | | | | | | | missing | 705.5 |
| | 2 | | | | | | | | | missing | 705.5 |
| | 3 | | | | | | | | | missing | 705.5 |
| 29-Aug | 1 | | | | | | | | | 0.0 | 705.5 |
| | 2 | | | | | | | | | 0.0 | 705.5 |
| | 3 | | | | | | | | | 0.0 | 705.5 |
| 30-Aug | 1 | | | | | | | | | 0.0 | 705.5 |
| | 2 | | | | | | | | | 0.0 | 705.5 |
| | 3 | | | | | | | | | 1.8 | 707.3 |

Table 7. Noatak River drift test fish mean daily and cumulative CPUE, 1987-1991.

| | 1987 | | 1988 | | 1989 | | 1990 | | 1991 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. |
| 17-Jul | | | | | 2.7 | 2.7 | 2.5 | 2.5 | | |
| 18-Jul | | | | | 4.6 | 7.3 | 14.1 | 16.6 | | |
| 19-Jul | | | 5.8 | 5.8 | 7.0 | 14.3 | 21.7 | 38.3 | | |
| 20-Jul | | | 20.0 | 25.8 | | 14.3 | 6.7 | 45.0 | | |
| 21-Jul | | | 5.5 | 31.3 | 8.7 | 23.0 | 10.0 | 55.0 | | |
| 22-Jul | | | 0.0 | 31.3 | 17.7 | 40.7 | | 55.0 | | |
| 23-Jul | 7.5 | 7.5 | 12.0 | 43.2 | 11.1 | 51.8 | 10.2 | 65.2 | | |
| 24-Jul | 3.4 | 10.9 | | 43.2 | 23.9 | 75.7 | 4.6 | 69.9 | 8.7 | 8.7 |
| 25-Jul | 29.1 | 40.0 | 10.4 | 53.6 | 24.8 | 100.4 | 9.8 | 79.7 | 8.5 | 17.2 |
| 26-Jul | | 40.0 | 3.5 | 57.1 | 30.2 | 130.6 | 14.8 | 94.5 | 2.9 | 20.2 |
| 27-Jul | 38.2 | 78.2 | 0.6 | 57.6 | 17.5 | 148.1 | 5.7 | 100.1 | 9.6 | 29.8 |
| 28-Jul | 14.3 | 92.5 | 9.3 | 67.0 | 19.2 | 167.3 | 1.2 | 101.3 | | 29.8 |
| 29-Jul | 15.8 | 108.4 | | 67.0 | | 167.3 | | 101.3 | 24.7 | 54.5 |
| 30-Jul | 36.0 | 144.4 | 6.7 | 73.6 | 33.4 | 200.7 | 22.3 | 123.6 | 0.0 | 54.5 |
| 31-Jul | 16.2 | 160.6 | 6.8 | 80.5 | 11.0 | 211.7 | | 123.6 | 19.6 | 74.1 |
| 01-Aug | 11.9 | 172.5 | 42.6 | 123.1 | 39.9 | 251.7 | 6.8 | 130.4 | 15.0 | 89.1 |
| 02-Aug | | 172.5 | 20.9 | 144.0 | 55.3 | 307.0 | 14.6 | 145.0 | 6.5 | 95.6 |
| 03-Aug | 12.4 | 184.9 | 60.1 | 204.1 | 21.4 | 328.4 | 1.2 | 146.2 | 20.3 | 115.9 |
| 04-Aug | 7.5 | 192.4 | 76.1 | 280.1 | 33.6 | 362.0 | 1.7 | 147.9 | | 115.9 |
| 05-Aug | 43.6 | 236.0 | 46.2 | 326.3 | | 362.0 | | 147.9 | 16.2 | 132.1 |
| 06-Aug | 27.4 | 263.4 | | 326.3 | 22.3 | 384.3 | 5.1 | 153.0 | 7.6 | 139.7 |
| 07-Aug | 6.1 | 269.5 | | 326.3 | 57.7 | 442.0 | 2.3 | 155.3 | 14.1 | 153.8 |
| 08-Aug | 32.8 | 302.3 | 38.6 | 364.9 | 113.9 | 555.9 | 2.6 | 157.8 | 6.6 | 160.4 |
| 09-Aug | | 302.3 | 2.3 | 367.3 | 62.0 | 617.9 | 28.4 | 186.2 | 3.6 | 164.0 |
| 10-Aug | 89.2 | 391.5 | 7.1 | 374.4 | 25.6 | 643.5 | 4.7 | 190.9 | 5.4 | 169.3 |
| 11-Aug | 113.9 | 505.4 | 63.7 | 438.0 | 32.9 | 676.3 | 0.0 | 190.9 | | 169.3 |
| 12-Aug | 50.7 | 556.1 | 75.3 | 513.3 | | 676.3 | | 190.9 | 17.0 | 186.3 |
| 13-Aug | 15.6 | 571.7 | | 513.3 | 162.1 | 838.4 | 9.3 | 200.2 | 9.4 | 195.7 |
| 14-Aug | 9.7 | 581.5 | | 513.3 | 35.9 | 874.3 | 16.1 | 216.3 | 13.0 | 208.7 |
| 15-Aug | 11.2 | 592.7 | 21.4 | 534.7 | | 874.3 | 3.5 | 219.7 | 11.2 | 219.9 |
| 16-Aug | | 592.7 | 11.0 | 545.7 | 79.4 | 953.7 | 5.6 | 225.4 | 2.4 | 222.3 |
| 17-Aug | 1.7 | 594.4 | 17.4 | 563.1 | 46.3 | 1,000.0 | 11.0 | 236.3 | 1.8 | 224.1 |
| 18-Aug | 6.0 | 600.4 | 82.5 | 645.6 | 30.5 | 1,030.5 | 13.8 | 250.1 | | 224.1 |
| 19-Aug | 9.6 | 610.0 | 52.1 | 697.6 | | 1,030.5 | | 250.1 | 6.8 | 230.9 |
| 20-Aug | 13.5 | 623.5 | | 697.6 | 44.2 | 1,074.7 | 10.2 | 260.3 | 2.4 | 233.3 |
| 21-Aug | 0.0 | 623.5 | 37.1 | 734.7 | | 1,074.7 | 6.8 | 267.1 | 0.0 | 233.3 |
| 22-Aug | 14.7 | 638.2 | 8.9 | 743.6 | 34.9 | 1,109.6 | 10.1 | 277.2 | 3.6 | 236.9 |
| 23-Aug | 10.5 | 648.7 | 14.0 | 757.6 | 13.5 | 1,123.2 | 8.5 | 285.7 | 1.8 | 238.8 |
| 24-Aug | 5.1 | 653.8 | 13.5 | 771.1 | | | 8.5 | 294.2 | 0.0 | 238.8 |
| 25-Aug | 8.1 | 661.9 | 7.9 | 779.0 | | | | | | 238.8 |
| 26-Aug | 13.5 | 675.4 | | | | | | | missing | 238.8 |
| 27-Aug | | | | | | | | | missing | 238.8 |
| 28-Aug | | | | | | | | | missing | 238.8 |
| 29-Aug | | | | | | | | | 0.0 | 238.8 |
| 30-Aug | | | | | | | | | 0.9 | 239.7 |

Table 8. Noatak River drift test fish daily and cumulative CPUE proportions, 1987-1991.

| | 1987 | | 1988 | | 1989 | | 1990 | | 1991 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. | Daily | Cum. |
| 17-Jul | | | | | 0.002 | 0.002 | 0.009 | 0.009 | | |
| 18-Jul | | | | | 0.004 | 0.007 | 0.048 | 0.056 | | |
| 19-Jul | | | 0.007 | 0.007 | 0.006 | 0.013 | 0.074 | 0.130 | | |
| 20-Jul | | | 0.026 | 0.033 | 0.000 | 0.013 | 0.023 | 0.153 | | |
| 21-Jul | | | 0.007 | 0.040 | 0.008 | 0.020 | 0.034 | 0.187 | | |
| 22-Jul | | | 0.000 | 0.040 | 0.016 | 0.036 | 0.000 | 0.187 | | |
| 23-Jul | 0.011 | 0.011 | 0.015 | 0.056 | 0.010 | 0.046 | 0.035 | 0.222 | | |
| 24-Jul | 0.005 | 0.016 | 0.000 | 0.056 | 0.021 | 0.067 | 0.016 | 0.237 | 0.036 | 0.036 |
| 25-Jul | 0.043 | 0.059 | 0.013 | 0.069 | 0.022 | 0.089 | 0.033 | 0.271 | 0.036 | 0.072 |
| 26-Jul | 0.000 | 0.059 | 0.004 | 0.073 | 0.027 | 0.116 | 0.050 | 0.321 | 0.012 | 0.084 |
| 27-Jul | 0.057 | 0.116 | 0.001 | 0.074 | 0.016 | 0.132 | 0.019 | 0.340 | 0.040 | 0.124 |
| 28-Jul | 0.021 | 0.137 | 0.012 | 0.086 | 0.017 | 0.149 | 0.004 | 0.344 | 0.000 | 0.124 |
| 29-Jul | 0.023 | 0.160 | 0.000 | 0.086 | 0.000 | 0.149 | 0.000 | 0.344 | 0.103 | 0.227 |
| 30-Jul | 0.053 | 0.214 | 0.009 | 0.095 | 0.030 | 0.179 | 0.076 | 0.420 | 0.000 | 0.227 |
| 31-Jul | 0.024 | 0.238 | 0.009 | 0.103 | 0.010 | 0.189 | 0.000 | 0.420 | 0.082 | 0.309 |
| 01-Aug | 0.018 | 0.255 | 0.055 | 0.158 | 0.036 | 0.224 | 0.023 | 0.443 | 0.063 | 0.372 |
| 02-Aug | 0.000 | 0.255 | 0.027 | 0.185 | 0.049 | 0.273 | 0.050 | 0.493 | 0.027 | 0.399 |
| 03-Aug | 0.018 | 0.274 | 0.077 | 0.262 | 0.019 | 0.292 | 0.004 | 0.497 | 0.085 | 0.484 |
| 04-Aug | 0.011 | 0.285 | 0.098 | 0.360 | 0.030 | 0.322 | 0.006 | 0.503 | 0.000 | 0.484 |
| 05-Aug | 0.065 | 0.349 | 0.059 | 0.419 | 0.000 | 0.322 | 0.000 | 0.503 | 0.068 | 0.551 |
| 06-Aug | 0.041 | 0.390 | 0.000 | 0.419 | 0.020 | 0.342 | 0.017 | 0.520 | 0.032 | 0.583 |
| 07-Aug | 0.009 | 0.399 | 0.000 | 0.419 | 0.051 | 0.394 | 0.008 | 0.528 | 0.059 | 0.642 |
| 08-Aug | 0.049 | 0.448 | 0.050 | 0.468 | 0.101 | 0.495 | 0.009 | 0.536 | 0.027 | 0.669 |
| 09-Aug | 0.000 | 0.448 | 0.003 | 0.471 | 0.055 | 0.550 | 0.096 | 0.633 | 0.015 | 0.684 |
| 10-Aug | 0.132 | 0.580 | 0.009 | 0.481 | 0.023 | 0.573 | 0.016 | 0.649 | 0.022 | 0.706 |
| 11-Aug | 0.169 | 0.748 | 0.082 | 0.562 | 0.029 | 0.602 | 0.000 | 0.649 | 0.000 | 0.706 |
| 12-Aug | 0.075 | 0.823 | 0.097 | 0.659 | 0.000 | 0.602 | 0.000 | 0.649 | 0.071 | 0.777 |
| 13-Aug | 0.023 | 0.846 | 0.000 | 0.659 | 0.144 | 0.746 | 0.032 | 0.680 | 0.039 | 0.817 |
| 14-Aug | 0.014 | 0.861 | 0.000 | 0.659 | 0.032 | 0.778 | 0.055 | 0.735 | 0.054 | 0.871 |
| 15-Aug | 0.017 | 0.877 | 0.027 | 0.686 | 0.000 | 0.778 | 0.012 | 0.747 | 0.047 | 0.918 |
| 16-Aug | 0.000 | 0.877 | 0.014 | 0.701 | 0.071 | 0.849 | 0.019 | 0.766 | 0.010 | 0.928 |
| 17-Aug | 0.003 | 0.880 | 0.022 | 0.723 | 0.041 | 0.890 | 0.037 | 0.803 | 0.008 | 0.935 |
| 18-Aug | 0.009 | 0.889 | 0.106 | 0.829 | 0.027 | 0.918 | 0.047 | 0.850 | 0.000 | 0.935 |
| 19-Aug | 0.014 | 0.903 | 0.067 | 0.896 | 0.000 | 0.918 | 0.000 | 0.850 | 0.028 | 0.963 |
| 20-Aug | 0.020 | 0.923 | 0.000 | 0.896 | 0.039 | 0.957 | 0.035 | 0.885 | 0.010 | 0.974 |
| 21-Aug | 0.000 | 0.923 | 0.048 | 0.943 | 0.000 | 0.957 | 0.023 | 0.908 | 0.000 | 0.974 |
| 22-Aug | 0.022 | 0.945 | 0.011 | 0.955 | 0.031 | 0.988 | 0.034 | 0.942 | 0.015 | 0.989 |
| 23-Aug | 0.016 | 0.961 | 0.018 | 0.973 | 0.012 | 1.000 | 0.029 | 0.971 | 0.008 | 0.996 |
| 24-Aug | 0.008 | 0.968 | 0.017 | 0.990 | | | 0.029 | 1.000 | 0.000 | 0.996 |
| 25-Aug | 0.012 | 0.980 | 0.010 | 1.000 | | | | | 0.000 | 0.996 |
| 26-Aug | 0.020 | 1.000 | | | | | | | 0.000 | 0.996 |
| 27-Aug | | | | | | | | | 0.000 | 0.996 |
| 28-Aug | | | | | | | | | 0.000 | 0.996 |
| 29-Aug | | | | | | | | | 0.000 | 0.996 |
| 30-Aug | | | | | | | | | 0.004 | 1.000 |

Table 9. Noatak River drift test fish secchi readings in meters, 1987-1991.

| Date | 1987 [a] | 1988 | 1989 | 1990 | 1991 |
|---|---|---|---|---|---|
| 18-Jul | | | 0.2 | 0.2 | |
| 19-Jul | | 1.7 | 0.2 | 0.2 | |
| 20-Jul | | 2.1 | 0.2 | 0.2 | |
| 21-Jul | | 2.3 | | 0.5 | |
| 22-Jul | | 2.6 | 0.1 | | |
| 23-Jul | | 2.5 | 0.2 | 0.5 | |
| 24-Jul | | | 0.3 | 0.6 | 0.2 |
| 25-Jul | | 2.5 | 0.4 | 0.8 | 0.2 |
| 26-Jul | | 3.0 | 0.6 | 0.9 | 0.3 |
| 27-Jul | | 2.8 | 0.6 | 0.9 | 0.5 |
| 28-Jul | | 3.2 | 0.3 | 1.2 | |
| 29-Jul | | | 0.4 | | 0.6 |
| 30-Jul | | 3.0 | | 1.5 | 0.8 |
| 31-Jul | | 2.9 | | 1.5 | 1.1 |
| 01-Aug | | 1.2 | 0.6 | 1.8 | 1.2 |
| 02-Aug | | 0.2 | 1.0 | 1.8 | 0.6 |
| 03-Aug | 2.8 | 0.0 | 0.8 | 1.8 | 0.6 |
| 04-Aug | 2.2 | 0.0 | 0.9 | 2.1 | |
| 05-Aug | 2.2 | 0.0 | 0.9 | | 0.9 |
| 06-Aug | 2.0 | | | 2.1 | 0.9 |
| 07-Aug | 1.6 | | 0.3 | 2.4 | 0.8 |
| 08-Aug | 1.3 | 0.9 | 0.3 | 2.1 | 0.6 |
| 09-Aug | | 1.0 | 0.3 | 2.4 | 0.9 |
| 10-Aug | 0.7 | 1.0 | 0.2 | 2.1 | 0.8 |
| 11-Aug | 0.4 | 0.9 | 0.4 | 2.1 | |
| 12-Aug | 0.4 | 0.7 | 0.3 | | 1.2 |
| 13-Aug | 0.5 | | | 1.5 | 1.4 |
| 14-Aug | 0.6 | | 0.3 | 2.0 | 1.8 |
| 15-Aug | 0.9 | 0.2 | 0.2 | 2.4 | 2.4 |
| 16-Aug | | 0.2 | | 2.4 | 3.0 |
| 17-Aug | 1.4 | 0.2 | 0.2 | 1.5 | 1.8 |
| 18-Aug | 1.6 | 0.2 | 0.2 | 2.1 | |
| 19-Aug | 1.8 | 0.2 | 0.3 | | 1.8 |
| 20-Aug | 1.9 | | | 1.8 | 2.4 |
| 21-Aug | 1.4 | 0.3 | 0.3 | 1.5 | 2.4 |
| 22-Aug | 1.3 | 0.6 | | 1.8 | 0.9 |
| 23-Aug | | 0.6 | 0.3 | 1.2 | 3.0 |
| 24-Aug | 0.8 | 0.6 | 0.4 | 1.2 | 0.6 |
| 25-Aug | 0.9 | 0.6 | | 1.2 | |
| 26-Aug | 1.4 | | | | 3.7 |
| 27-Aug | 1.2 | | | | 4.3 |
| 28-Aug | | | | | |
| 29-Aug | | | | | |
| 30-Aug | | | | | |

[a] Only partial data available.

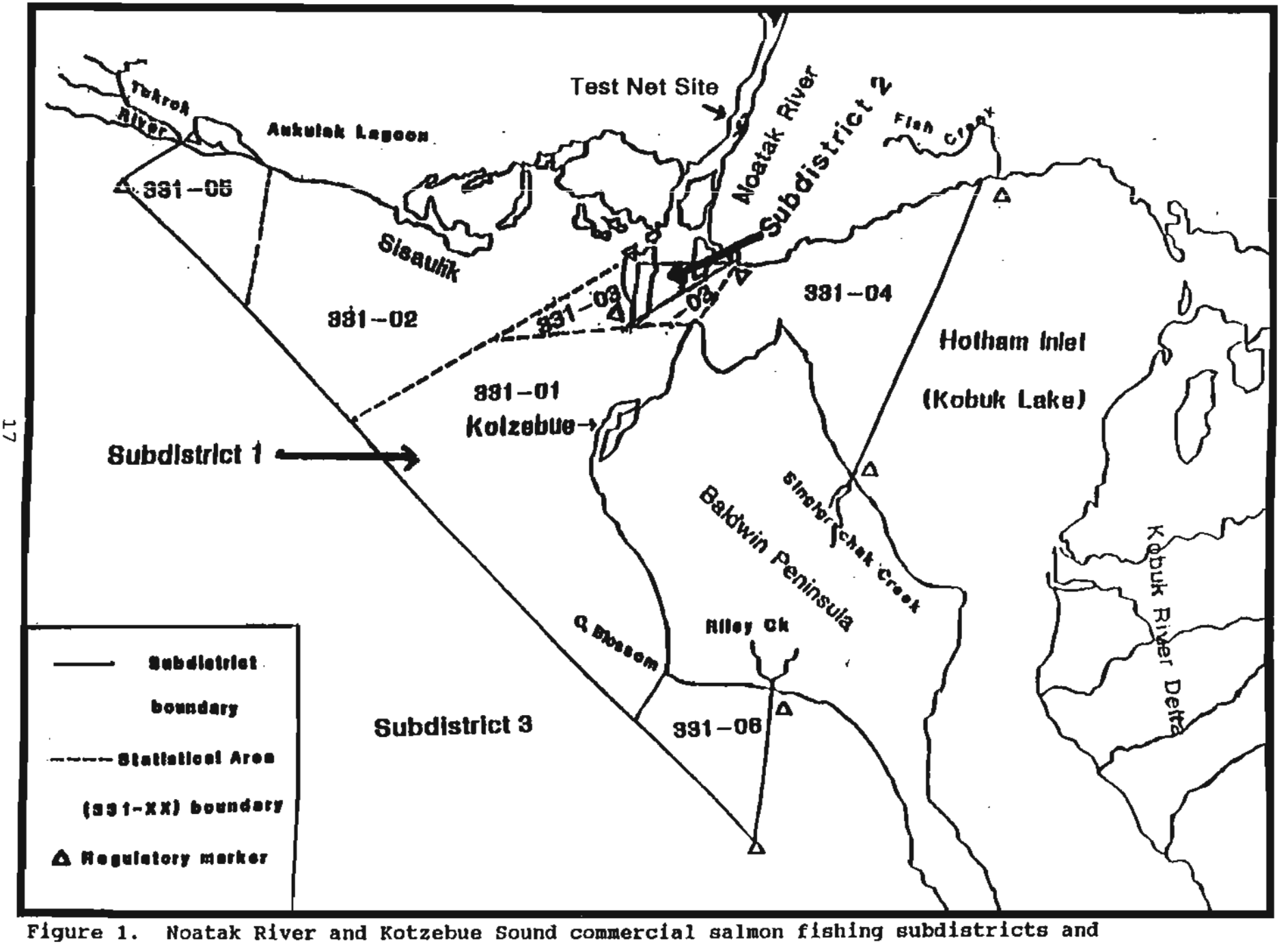



Figure 1. Noatak River and Kotzebue Sound commercial salmon fishing subdistricts and statistical areas.

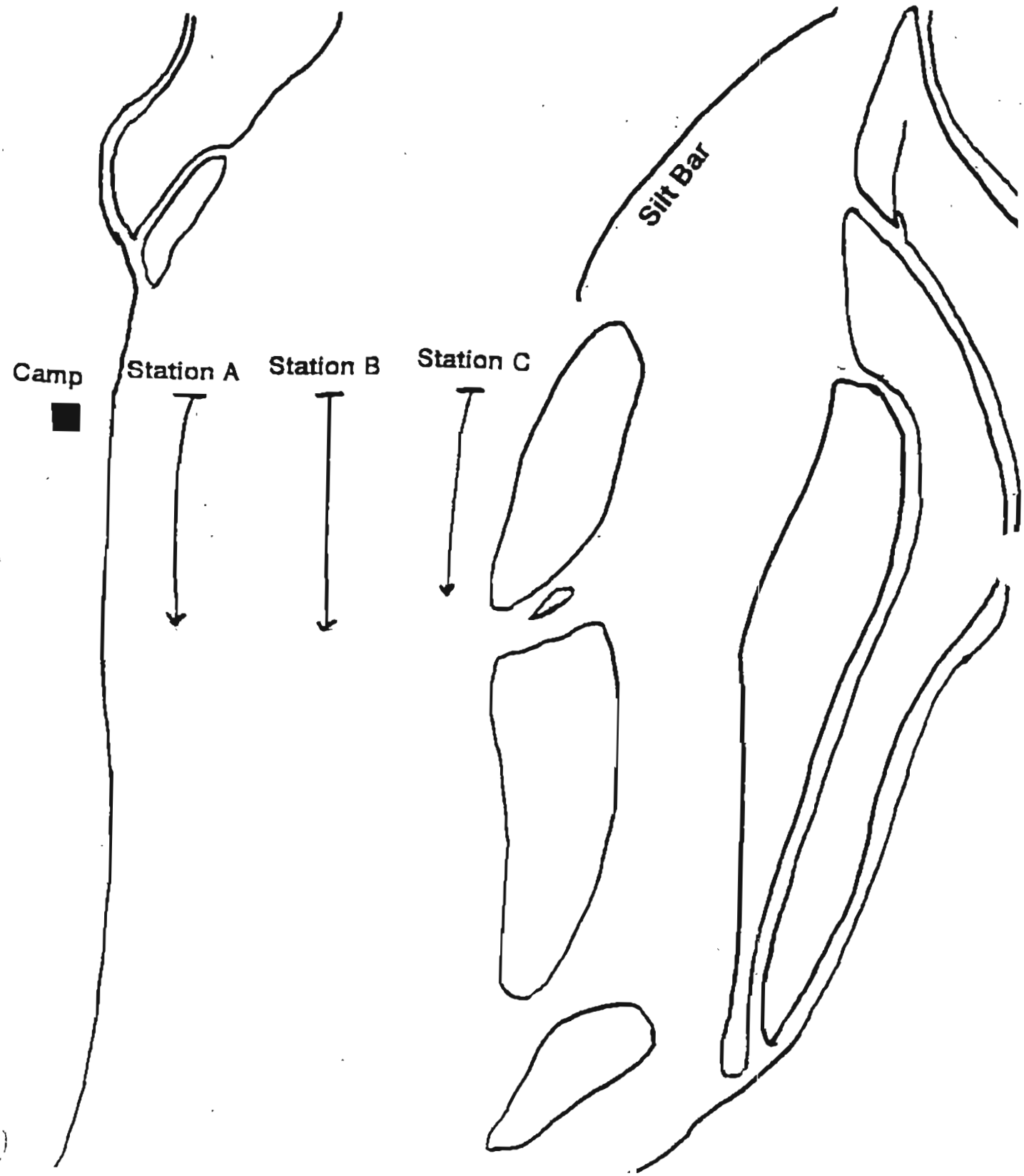
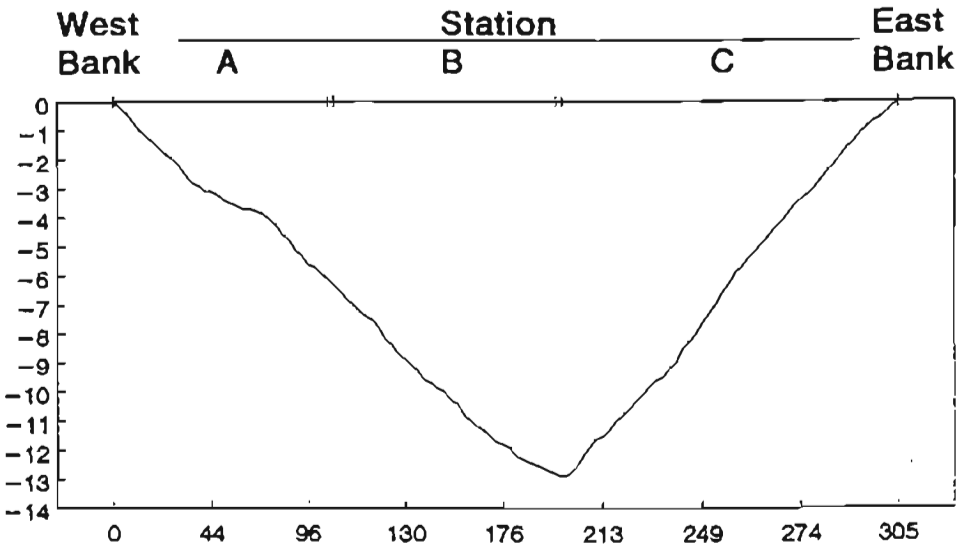
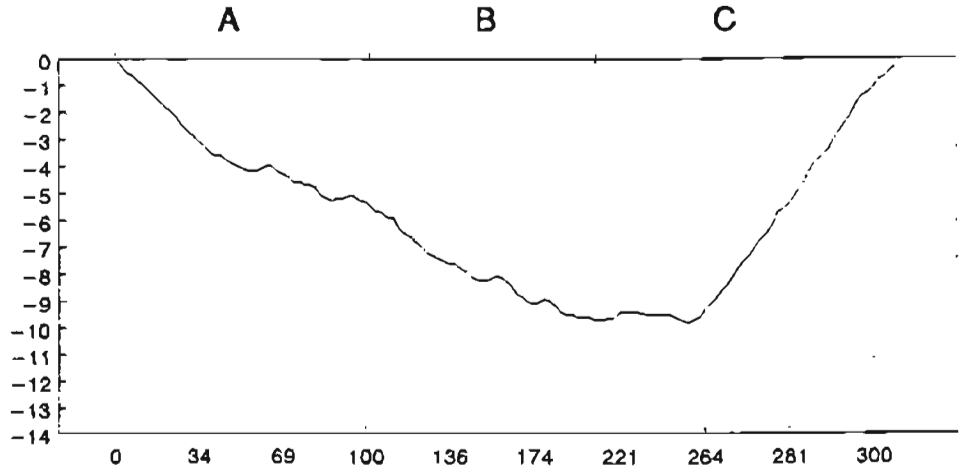



Figure 2. Noatak River drift test fish stations, 1987-1991.

Bottom profile of the **UPPER** portion of the drift in meters.




Bottom profile of the **MIDDLE** portion of the drift in meters.




Bottom profile of the **LOWER** portion of the drift in meters.

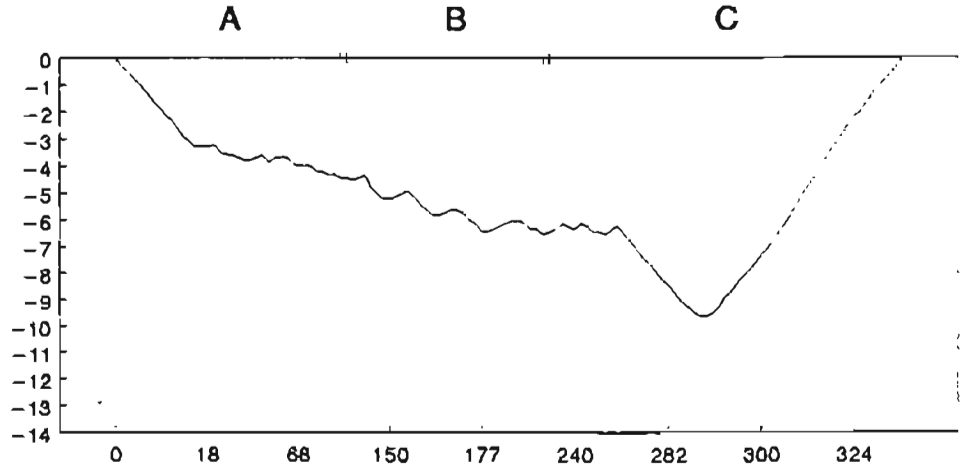



Figure 3. Noatak River drift test fish bottom profile, 1991.

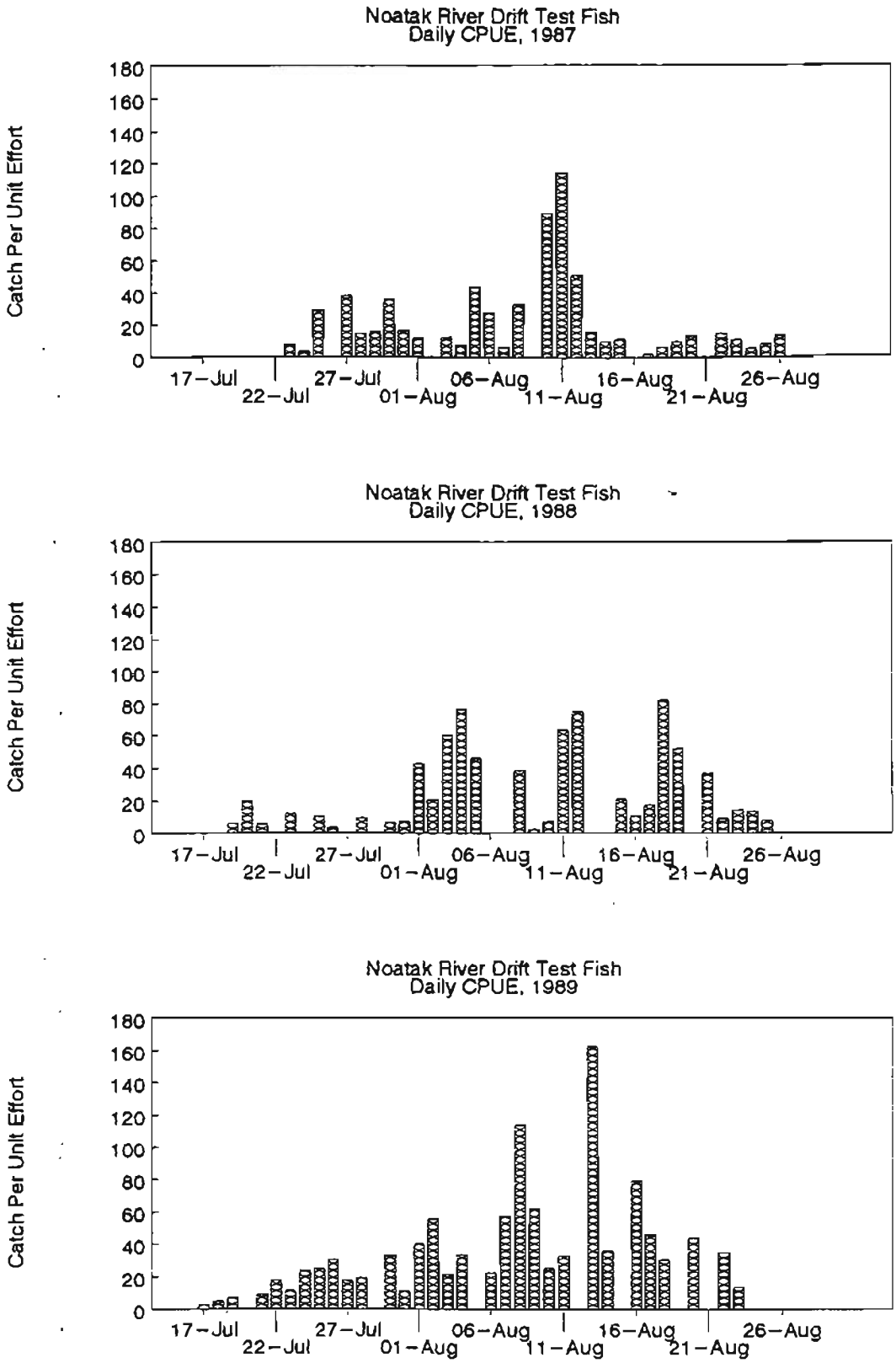



Figure 4. Noatak River drift test fish daily CPUE, 1987-1991.

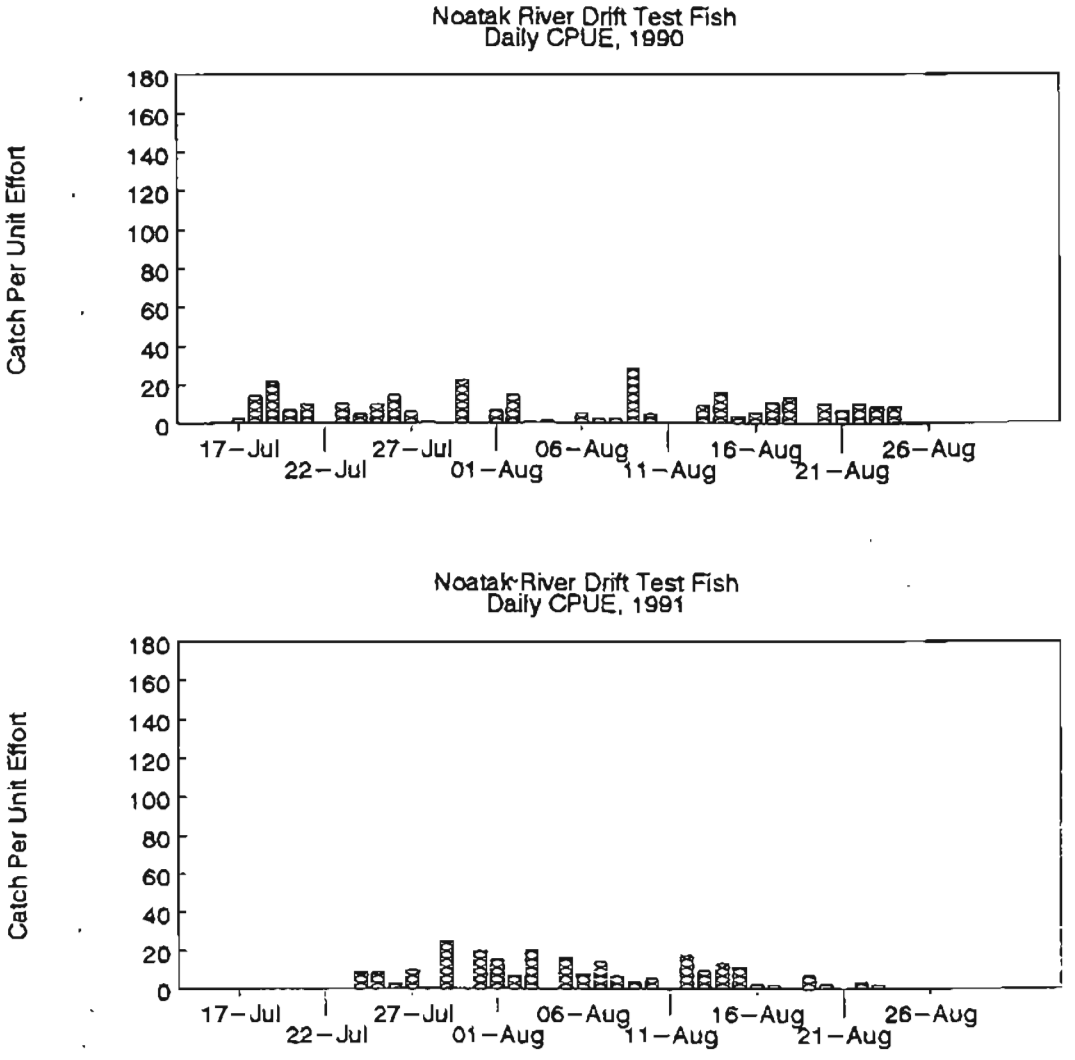



Figure 4. (Page 2 of 2)

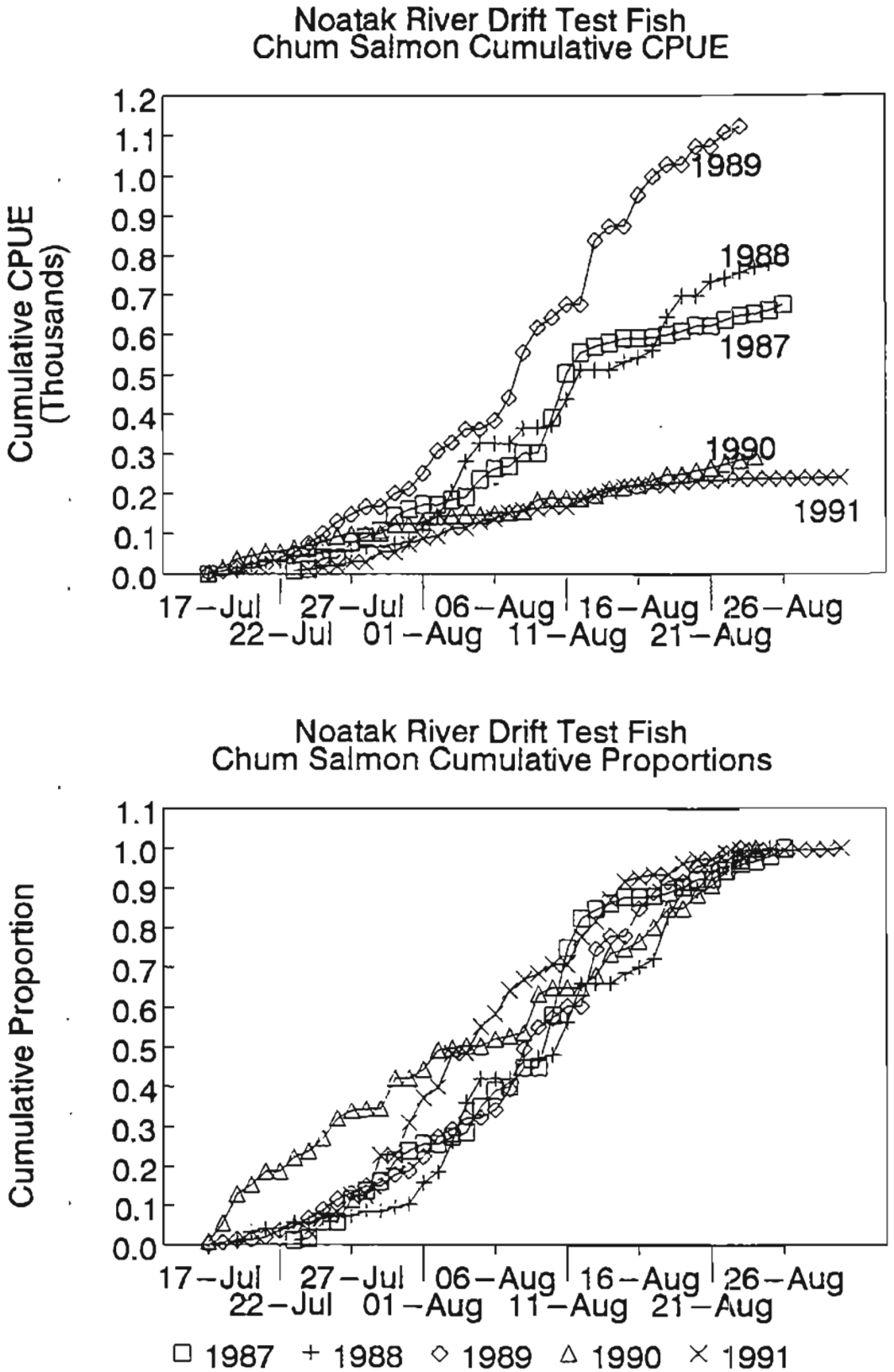



Figure 5. Noatak River drift test fish cumulative CPUE and cumulative proportions, 1987-1991.

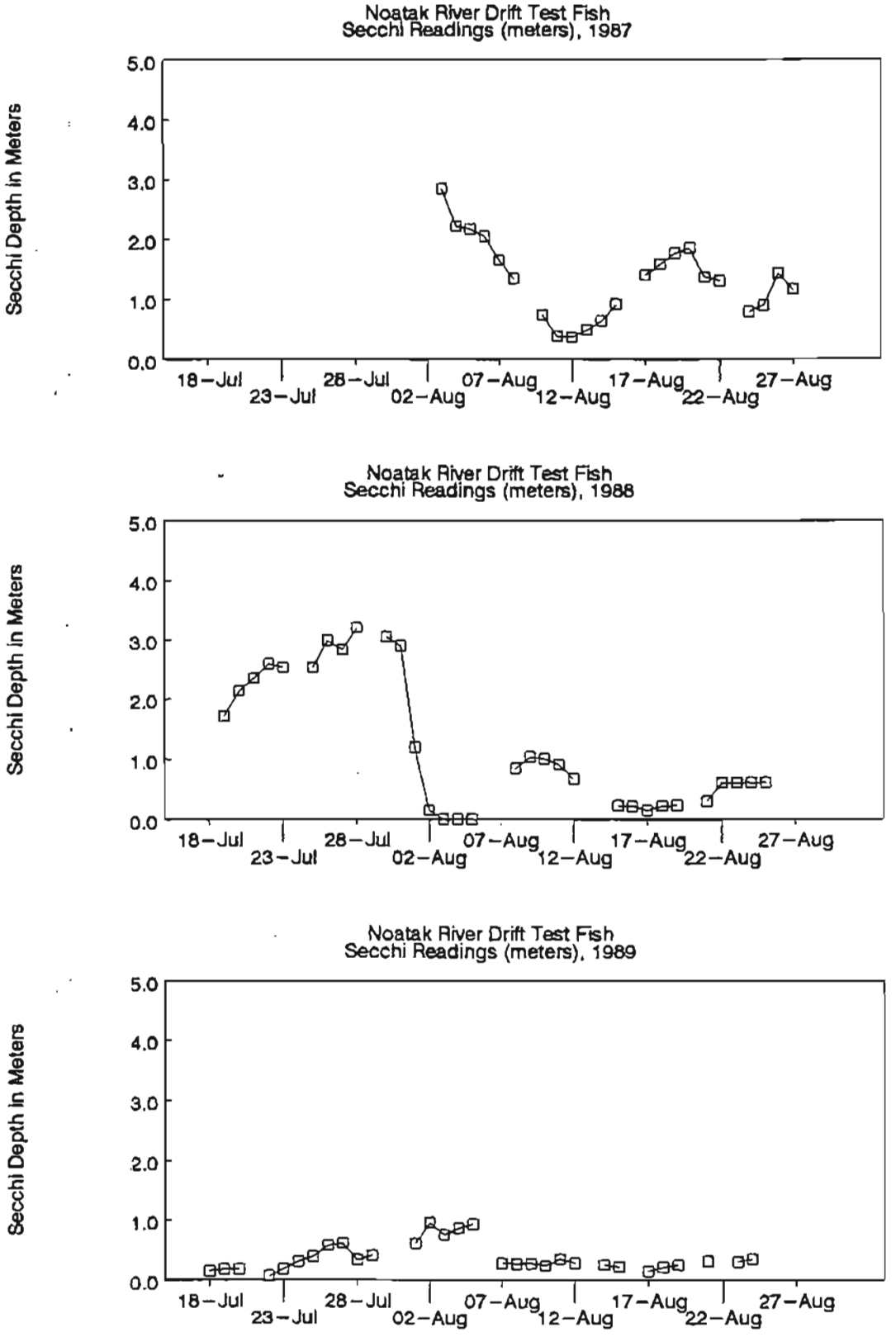
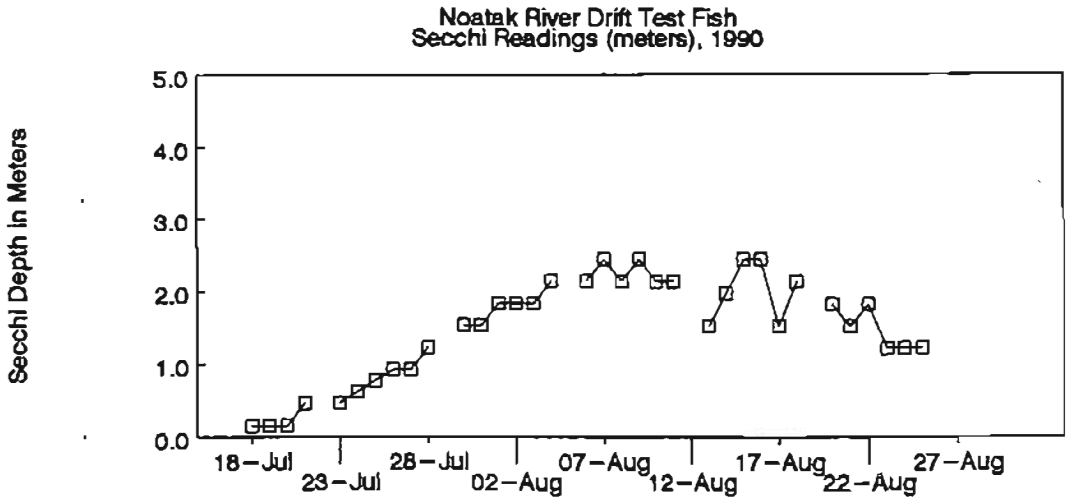



Figure 6. Noatak River drift test fish secchi readings, 1987-1991.



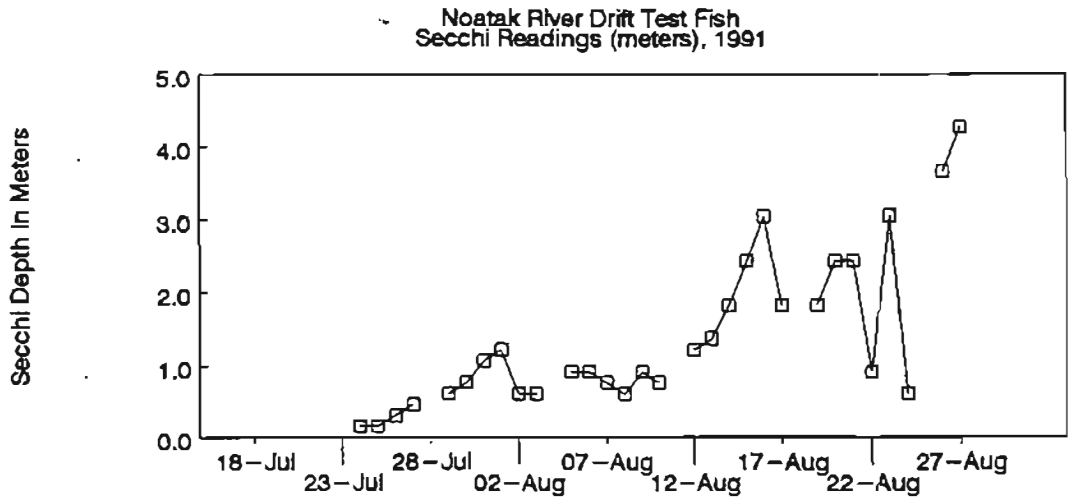




Figure 6. (Page 2 of 2)