

AYK Region  
Norton Sound/Kotzebue  
Escapement Report #26

1981, Unalakleet River Escapement Studies

Compiled by:

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## Introduction:

A multiphase study of salmon escapement was initiated in Unalakleet in 1981. The previous inability to obtain timely salmon escapement data limited salmon management since the beginning of the salmon fishery in 1969. The Unalakleet area, salmon subdistrict 6, is the most productive salmon fishery in Norton Sound. This research may help improve Management Strategies.

A test fishing program, daily subsistence survey and spawning ground surveys were conducted. The primary objective was to run timing and relative abundance of king, chum and coho salmon in the Unalakleet River and its tributaries. This information will be used to assist in fishery forecasts and fishery management.

Site selections were made for tower sites on the Egavik River and the North River, and for a sonar site in anticipation of two new salmon enumeration projects during the 1982 field season.

The Unalakleet area experiences one flood and one ebb tide per day with flood tide occurring in the morning and ebb tide occurring in the evening. Tidal fluctuations rarely exceed four feet although wind-driven tides, primarily from southwest winds, can be higher.

## Objectives:

1. Determine seasonal timing of the king, chum, pink, and coho salmon runs.
2. Determine whether salmon mill or hold near the river mouth or in the lower five miles of the river.
3. Conduct subsistence surveys to assess the relative strength of the early king run to determine the opening data, and to compare with the test net results in order to recommend appropriate management strategy.
4. Record climatological and river flow data to be used as a base line reference in future years.
5. Determine the relative importance of the major tributaries of the Unalakleet River in regard to salmon spawning and rearing areas by boat and aerial survey.
6. Complete site selections for counting towers and a sonar site.

## METHODS:

### A. TEST FISHING

Set gillnet sites were selected between the mouth of the Unalakleet River and the mouth of South River, the first tributary. No acceptable sites were available between the upper limit of the delta and South River, thus three sites were selected within the delta as shown (Figure 1). Site 1 was the primary site. Site 4 was chosen to sample fish moving through the delta and bypassing the main channel and site 3 was operated primarily as a check and indicator. Site 2 was abandoned as debris affected its fishing.

Set nets were ten fathoms with 5 7/8" stretched mesh and standard floats and lead line, except at Site 1 from June 4 to July 16 when the mesh size was 8 1/4" to facilitate king sampling. All nets were fished on a 24-hour basis unless pulled for repair or because of debris (runoff debris, algae, etc.), or excessive pink salmon catches affecting fishing. Markers identified the sites as ADF&G Test Sites.

Notices were posted requesting local subsistence fishermen to not inhibit the test sites by setting close to them. With one exception, no problems were encountered. Site 1 was directly affected by the placement of a 20 fathom subsistence net by Martha Nanouk's nearby. Daily tabulation of her catch was included in the test net log for Site 1 except for July 17 to August 13 and from September 4 to September 20 when her net was absent.

Climatic and water conditions were recorded daily. The water depth was measured near the end of tidal influence.

Scale samples, sex and size information was recorded for king, chum and coho salmon. Pink salmon were enumerated only. Mid-eye to fork of tail lengths were recorded in mm and mortality weights were recorded in tenths of Kg. Uninjured fish were released after removal of the adipose fin to avoid counting a recaptured fish. Dead or injured salmon were donated to local subsistence fishermen or local non-profit organizations.

### B. SUBSISTENCE SURVEY

Subsistence fishermen were contacted daily and records of fish caught were kept. Fishermen were chosen for reliability in net tending, accuracy in reporting and net location (lower river).

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Subsistence catch calendars were distributed to each fisherman in the hope of easing record keeping and reliability.

#### C. SPAWNING GROUNDS SURVEY

A two man boat crew surveyed the North and South Rivers. Generally poor water conditions precluded aerial survey immediately prior to the river surveys.

A total of ten miles of South River were surveyed, a total of 31 miles of North River and approximately 5 miles of the Chirosky River were surveyed.

Poor water conditions (high water, turbidity) prevented productive surveys on the main river and the Chirosky, Old Woman, North Fork and Ten Mile tributaries.

#### D. SITE SELECTION

Both the North and Egavik Rivers were evaluated for possible tower sites. The project leader and tower crew leader traveled the lower portions of both rivers stopping at any likely sites. The criteria used for evaluation of each site were: width and depth of the river, salmon migration patterns, bottom profile, bottom character, and the availability of suitable campsite.

The sonar site selection required outside expertise. The statewide sonar coordinator, the project leader and the crew leader spent one day recording the bottom profiles in the mile and a half of river above the delta and below the first major tributary. A recording fathometer was used to evaluate the five most promising sites. Width of the river, tidal influence, and current velocity also influenced the decision.

#### RESULTS:

##### A. TEST FISHING

Results of the test fish program are shown in the following graphs. Daily CPUE (catch per 100fm/hr) and cumulative catch data is presented. This data will be used as comparison for future years, comparison with commercial fishing data and model development.

In 1981, peak catches of king salmon occurred on June 16-20, pink salmon on July 17-21, coho salmon on August 15-19 and chum salmon on June 22-24, July 8-11, July 27-29 and August 5-8. Based on test net information and crew observations, four chum stocks or separately timed run segments may have been present.

As each chum stock or segment became more water marked and the catch declined, a new stock, mostly unmarked and a portion having sea lice still attached, appeared in the catch. In general, the chum run was sustained from June 17 to August 20.

A total of 41 (77% male, 23% female) king salmon, 722 (44% male, 56% female) chum salmon, 1463 pink salmon and 702 (59% male, 47% female) coho salmon were captured in test nets (excluding Martha Nanouk's catch). An average of 41% was released with an excellent chance of survival and the remainder was distributed as shown in table 1 .

The age analysis of the scales collected during the project, using the Gilbert - Rich method, indicated the following age compositions: king salmon (4 , 40%; 5 , 31%; 6 , 20%; 7 , 9%) chum salmon (3 , 1%; 4 , 39%; 5 , 60%) coho salmon (3 , 1%; 4 , 99%), (Tables 2,3,4 and 5).

#### B. SUBSISTENCE SURVEY

Daily average catch/fisherman was tabulated and is shown (table 6). In 1981, king salmon catches peaked on June 19-22, pink salmon on July 12-14, coho salmon on August 15-19 and chum salmon on June 20-22, July 7-9 and August 12-15. There was a lack of subsistence data from July 18 to August 13 due to limited fishing.

The number of subsistence fishermen surveyed ranged from one to ten depending on the stage of the runs. The number of fishermen surveyed during the coho run is small as seining becomes the more prevalent method of fishing.

#### C. SPAWNING GROUNDS SURVEY

A Chirosky River survey was done on July 24 via river boat. Survey conditions were very poor because of high water and high turbidity. Totals of 50 chum, 200 live pink and 8 pink carcasses were estimated. The utility of the estimates is minimal, because of the inability to detect salmon in most of the river.

Reports of the South River and North River surveys are included in the appendix

#### D. SITE SELECTION

A preferred site and an alternate tower site was recommended on both the Egavik and North Rivers. The Egavik was recommended because it seems to clear faster than any nearby watershed. The preferred site on the

Egavik was a mile and a quarter from the mouth (figure 2). The counting station could be located on a bluff overlooking the whole river. No scaffolding would be required and suitable campsites were nearby. A jet outboard would be required to move supplies up river to the site.

An alternate site could be situated one-half mile from the mouth. This site would require scaffolding as well as a jet outboard and might have land use problems due to it's proximity to Egavik reindeer station.

The preferred site on the North river is 100 yards from the mouth on the east side of the river. The advantages of this site over one further upstream is that a jet outboard would not be required and the total run could be counted. The alternate site is three miles upstream at the former North River tower site. This site was used for 2 years but chum and pink salmon counts may not be complete due to spawning below the tower site.

The site selection for the sonar was made in late September. The water was low, affording a better indication of the bottom profile. A sounding of the main Unalakleet River at the North River mouth showed the ideal profile. On the advice of the sonar coordinator, we decided on a site one-quarter mile down stream from the North River mouth. Although the bottom profile was not as good, the site should work with a minimal amount of weir on the north bank. The sonar coordinator was concerned about the lack of fast current. The water was exceptionally low; it was assumed that the current would force the fish inshore at normal river levels. The river is about 200 feet wide at the proposed site. This means that two sonar counters can monitor one-third to one-half the river depending on their placement.

#### DISCUSSION:

##### A. TEST FISHING

Site 1 should be maintained preferably with an agreement with Martha Nanouk to not fish this site. All fish captured could be sampled for sex, length and weight and more reliable data could be maintained with the fish being delivered to Martha Nanouk.

Sites 3 and 4 could be maintained as checks for Site 1 data. This is more necessary if subsistence data is not compiled. Side scan sonar will also diminish the need to maintain Sites 3 and 4.

King salmon stocks appear to be highly utilized by the commercial fishery as definite CPUE fluctuations occur in correlation with commercial openings.

No definite correlation between tidal conditions and CPUE was noted. Windy conditions do tend to increase fish movement.

Lag time between fish entering the Unalakleet River and reaching Site 1 appears to be less than three days as indicated by the subsistence results (all of which came from very near the river mouth) and test net data. This can increase utility of test fish data in the fishery management.

#### B. SUBSISTENCE SURVEYS

Reliable information was gathered through personal contact and interviews. As the season progressed it was increasingly difficult to maintain contacts as nets were set and removed fairly rapidly. Set nets became less prevalent during the coho run and seining catches were very difficult to monitor.

The gathering of survey data could be increased with enforcement of the requirement that subsistence fishermen have their names on their buoys.

Special thanks are in order to the following subsistence fishermen who provided the majority of the survey data:

Eva Ryan	Roland Ivanoff
Harry Johnson, Sr.	Roger Nanouk
Joel Ouyoumick	Martha Nanouk
Nancy Hjelm	Emily Nanouk
John Eckels	Tony Haugen

Three verified sockeye salmon were taken in the Unalakleet River: two approximately one mile from the mouth and one approximately eight miles from the mouth. One subsistence fisherman reported catching twelve sockeye with a set gillnet approximately 35 miles from the mouth. Attempts to capture reported sockeye smolt in a side channel near the site were unsuccessful.

#### C. SPAWNING GROUND SURVEYS

Spawning grounds survey efforts were hampered by poor water conditions. Prior aerial surveys could not be flown due to weather. Ground survey results appear in the appendix section.

#### D. SITE SELECTION

Egavik Tower may not provide good correlations with either Shaktoolik or Unalakleet Rivers. The Egavik river seems to have the same salmon species as these two larger systems and its location would indicate

systems and its location would indicate environmental influences would be similar also. Aerial surveys have shown that Shaktoolik River is too turbid in its lower reaches for a successful tower project. To determine if the Egavik tracks with the Shaktoolik several years operation may be needed. Good aerial surveys of the Shaktoolik River will have to be compared to a tower count on the Egavik and fishing effort near the Egavik River mouth to determine if the escapement and catch trends of the two systems can be compared.

The tower on the North River may not be needed if the sonar can be operated below the North River mouth. The sonar site is the only feasible site below the North River mouth and above the influence of tides and the delta. If the sonar site does not work out then a site will have to be found up river in faster current and the North River Tower will become a necessary project.

#### RECOMMENDATIONS:

An agreement should be made with Martha Nanouk where Fish and Game crews could tend the nets, sample fish and then turn the fish over to Martha for her needs. This would eliminate the conflict over this productive fishing site.

A limited study of rearing and outmigrating salmon smolt should be started. coho and king smolt could be caught and aged to find the time spent rearing in fresh water. Important rearing areas could be defined and the red salmon population might be found.

In the future, a more adequate bunkhouse is needed. As many as twelve people stay in the Unalakleet bunkhouse at one time. If Fish and Game had year-round use of a building much of the equipment could be kept there and considerable transportation costs could be avoided.

Subsistence catch calendars specific to the Unalakleet River should be developed and distributed next year to assist participant subsistence fishermen.

#### SUMMARY:

A total of 41 king salmon, 722 chum salmon, 1463 pink salmon and 107 coho salmon were captured in test net fishing in 1981.

Site 1 provided the most reliable and consistent data of all test fish sites selected.

Base-line data collection begun in 1981 can be used to compare subsequent populations and begin building a fishery model.

Subsistence fishermen were surveyed daily and records kept to verify test net data. Salmon run peaks correspond to test net results.

Spawning ground surveys were hampered by poor water and weather conditions.

Site selections were made for two counting tower projects, one on Egavik river and the other on the North river. The sonar site for the coming season was also located.

Table 1.

ADF&G Test Net mortalities were given to:

John Auliye	Gimbo Anagick
Linda Cooper	Weaver Ivanoff
Pete Katongan	Betty Ivanoff
Ada Degnan	Andy Bangs
Ellen Soxie	Nick Riley
Ken Wilson	Covenant High School
Larry Wilson	CHS staff
Sheldon Katchatag	Degnan School staff

Table 2.

AGE, SEX, AND SIZE COMPOSITION OF NORTON SOUND KING SALMON, UNALAKLEET (SUBDISTRICT 6) COMMERCIAL CATCH SAMPLE, 8 1/4" MESH OR LESS, 1981.																
DATE	SEX	COMBINED			4 2			5 2			6 * 2			7 3		
		NO.	PCT.	LENGTH	NO.	PCT.	LENGTH	NO.	PCT.	LENGTH	NO.	PCT.	LENGTH	NO.	PCT.	LENGTH
6/8	MALE	5	56.0	-	-	-	4	44.0	735.3	1	11.0	827.0	-	-	-	
	FEMALE	4	44.0	-	-	-	1	11.0	803.0	3	33.0	839.3	-	-	-	
	TOTAL	9	100.0	-	-	-	5	56.0	748.8	4	44.0	836.2	-	-	-	
6/12	MALE	18	78.3	-	-	-	8	34.8	769.3	10	43.5	889.1	-	-	-	
	FEMALE	5	21.7	-	-	-	1	4.3	765.0	3	13.0	883.3	1	4.3	861.0	
	TOTAL	23	100.0	-	-	-	9	39.1	768.8	13	56.5	887.8	1	4.3	861.0	
6/16	MALE	13	100.0	2	15.4	558.0	3	23.1	781.0	8	61.5	878.3	-	-	-	
	FEMALE	0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	
	TOTAL	13	100.0	2	15.4	558.0	3	23.1	781.0	8	61.5	878.3	-	-	-	
6/17	MALE	9	81.8	-	-	-	3	27.3	750.7	6	54.5	894.7	-	-	-	
	FEMALE	2	18.2	-	-	-	-	-	-	1	9.1	894.0	1	9.1	932.0	
	TOTAL	11	100.0	-	-	-	3	27.3	750.7	7	63.6	894.6	1	9.1	932.0	
6/20	MALE	16	61.5	2	7.7	614.5	7	26.9	716.6	7	26.9	908.3	-	-	-	
	FEMALE	10	38.5	-	-	-	4	15.4	811.5	6	23.1	885.7	-	-	-	
	TOTAL	26	100.0	2	7.7	614.5	11	42.3	751.1	13	50.0	897.9	-	-	-	
6/23	MALE	16	64.0	2	8.0	584.5	6	24.0	771.8	8	32.0	923.1	-	-	-	
	FEMALE	9	36.0	-	-	-	1	4.0	804.0	8	32.0	879.9	-	-	-	
	TOTAL	25	100.0	2	8.0	584.5	7	28.0	776.4	16	64.0	901.5	-	-	-	
TOTAL	MALE	77	72.0	6	5.6	585.7	31	29.0	752.8	40	37.4	896.4	-	-	-	
	FEMALE	30	28.0	-	-	-	7	6.5	802.6	21	19.6	877.2	2	1.9	896.5	
	TOTAL	107	100.0	6	5.6	585.7	38	35.5	762.0	61	57.0	889.8	2	1.9	896.5	

\*ONE 6 INCLUDED ON 6/12.

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Note: The predominant mesh size used to catch king salmon is 8 1/4" mesh ; however 5 1/2" and 5 7/8" mesh does yield some incidental kings.

Table 3.

AGE, WEIGHT, AND SIZE COMPOSITION OF NORTON SOUND KING SALMON, UNALAKLEET RIVER TEST NET CATCH SAMPLE, 1981.															
DATE	SEX	NO.	PCT.	AGE 4			AGE 5			AGE 6			AGE 7		
				NO.	PCT.	LENGTH									
6/4-7/6 8 1/4"															
MESH NET	MALE	9	69.2	1	7.7	509.0	3	23.1	794.3	2	15.4	852.5	3	23.1	832.0
SITE 1	FEMALE	4	30.8	-	-	-	2	15.4	847.0	2	15.4	885.5	-	-	-
	TOTAL	13	100.0	1	7.7	509.0	5	38.5	815.4	4	30.8	869.0	3	23.1	832.0
6/21-9/12 5 7/8"															
MESH NET	MALE	18	81.8	12	54.5	591.7	3	13.6	689.7	3	13.6	836.0	-	-	-
SITES 1, 3, & 4.	FEMALE	4	18.2	1	4.5	837.0	3	13.6	929.3	-	-	-	-	-	-
	TOTAL	22	100.0	13	59.1	610.6	6	27.3	809.5	3	13.6	836.0	-	-	-
TOTAL	MALE	27	77.1	13	37.1	585.3	6	17.1	742.0	5	14.3	842.6	3	8.6	832.0
	FEMALE	8	22.9	1	2.9	837.0	5	14.3	896.4	2	5.7	885.5	-	-	-
	TOTAL	35	100.0	14	40.0	603.3	11	31.4	812.2	7	20.0	854.9	3	8.6	832.0

Table 4.

TABLE 4. AGE, SEX, AND SIZE COMPOSITION OF NORTON SOUND CHUM SALMON, UNALAKLEET RIVER  
TEST NET CATCH SAMPLE, SITES 1, 3, AND 4 COMBINED, 1981.

DATE	COMBINED			3			4			5			6		
	SEX	NO.	PCT.	NO.	PCT.	LENGTH									
6/16-6/21	MALE	19	50.0	-	-	-	12	31.6	616.1	7	18.4	616.7	-	-	-
	FEMALE	19	50.0	-	-	-	5	13.2	580.8	14	36.8	600.8	-	-	-
	TOTAL	38	100.0	-	-	-	17	44.7	605.7	21	55.3	606.1	-	-	-
6/23-7/8*	MALE	26	74.3	-	-	-	8	22.9	604.5	18	51.4	644.4	-	-	-
	FEMALE	9	25.7	-	-	-	4	11.4	583.0	5	14.3	587.0	-	-	-
	TOTAL	35	100.0	-	-	-	12	34.3	597.3	23	65.7	631.9	-	-	-
6/22-6/29	MALE	21	45.7	-	-	-	8	17.4	607.5	13	28.3	625.3	-	-	-
	FEMALE	25	54.3	-	-	-	10	21.7	579.4	15	32.6	598.0	-	-	-
	TOTAL	46	100.0	-	-	-	18	39.1	591.9	28	60.9	610.7	-	-	-
6/30-7/6	MALE	28	48.3	-	-	-	10	17.2	605.7	18	31.0	626.8	-	-	-
	FEMALE	30	51.7	-	-	-	13	22.4	575.3	17	29.3	601.2	-	-	-
	TOTAL	58	100.0	-	-	-	23	39.7	588.5	35	60.3	614.4	-	-	-
7/7-7/13	MALE	37	52.1	-	-	-	9	12.7	596.6	28	39.4	627.3	-	-	-
	FEMALE	34	47.9	1	1.4	565.0	14	19.7	576.3	19	26.8	599.9	-	-	-
	TOTAL	71	100.0	1	1.4	565.0	23	32.4	584.2	47	66.2	616.2	-	-	-
7/14-7/20	MALE	35	47.9	-	-	-	6	8.2	602.2	29	39.7	632.3	-	-	-
	FEMALE	38	52.1	-	-	-	13	17.8	587.8	25	34.2	604.4	-	-	-
	TOTAL	73	100.0	-	-	-	19	26.0	592.3	54	74.0	619.4	-	-	-
7/21-7/27	MALE	52	46.4	1	0.9	562.0	17	15.2	603.1	34	30.4	627.5	-	-	-
	FEMALE	60	53.6	-	-	-	21	18.8	596.0	39	34.8	603.2	-	-	-
	TOTAL	112	100.0	1	0.9	562.0	38	33.9	599.2	73	65.2	614.5	-	-	-
7/28-8/3	MALE	37	36.3	1	1.0	536.0	16	15.7	596.7	20	19.6	607.4	-	-	-
	FEMALE	65	63.7	2	2.0	559.0	31	30.4	576.5	32	31.4	595.9	-	-	-
	TOTAL	102	100.0	3	2.9	551.3	47	46.1	583.4	52	51.0	600.3	-	-	-
8/4-8/10	MALE	29	42.0	1	3.5	569.0	8	11.6	607.1	20	29.0	632.4	-	-	-
	FEMALE	40	58.0	-	-	-	20	29.0	575.0	20	29.0	600.0	-	-	-
	TOTAL	69	100.0	1	3.5	569.0	28	40.6	584.2	40	58.0	616.2	-	-	-
8/11-8/17	MALE	4	16.0	-	-	-	4	16.0	593.0	-	-	-	-	-	-
	FEMALE	21	84.0	1	4.0	534.0	7	28.0	565.9	13	52.0	598.2	-	-	-
	TOTAL	25	100.0	1	4.0	534.0	11	44.0	575.8	13	52.0	598.2	-	-	-
8/18-8/24	MALE	4	14.8	-	-	-	2	7.4	597.0	2	7.4	639.0	-	-	-
	FEMALE	23	85.2	-	-	-	13	48.1	581.5	10	37.0	610.6	-	-	-
	TOTAL	27	100.0	-	-	-	15	55.6	583.6	12	44.4	615.3	-	-	-
8/25-8/31	MALE	4	22.2	-	-	-	1	5.6	516.0	3	16.7	617.3	-	-	-
	FEMALE	14	77.8	1	5.6	535.0	10	55.6	573.5	3	16.7	596.0	-	-	-
	TOTAL	18	100.0	1	5.6	535.0	11	61.1	568.3	6	33.3	606.6	-	-	-
9/1-9/8	MALE	2	28.6	-	-	-	2	28.6	623.0	-	-	-	-	-	-
	FEMALE	5	71.4	1	14.3	598.0	2	28.6	544.0	2	28.6	580.5	-	-	-
	TOTAL	7	100.0	1	14.3	598.0	4	57.1	583.5	2	28.6	580.5	-	-	-
TOTAL	MALE	298	43.8	3	0.4	555.7	103	15.1	603.0	192	28.2	627.5	-	-	-
	FEMALE	383	56.2	6	0.9	558.3	163	23.9	579.4	214	31.4	600.3	-	-	-
	TOTAL	681	100.0	9	1.3	557.3	266	39.1	588.6	406	59.6	613.2	-	-	-

\*8 1/4 INCH MESH NET USED THIS TEST NET PERIOD ONLY; 5 7/8 INCH MESH USED DURING THE REMAINING PERIODS.

Table 5.

TABLE 5. AGE, SEX, AND SIZE COMPOSITION OF NORTON SOUND COHO SALMON, UNALAKLEET RIVER TEST NET CATCH SAMPLE, SITES 1, 3, AND 4 COMBINED, 5 7/8" MESH, 1981.

DATE	SEX	COMBINED			3		4			5		
		NO.	PCT.	NO.	PCT.	NO.	PCT.	LENGTH	NO.	PCT.	LENGTH	NO.
7/13-8/10	MALE	9	75.0	-	-	-	9	75.0	543.7	-	-	-
	FEMALE	3	25.0	-	-	-	3	25.0	595.7	-	-	-
	TOTAL	12	100.0	-	-	-	12	100.0	556.7	-	-	-
8/11-8/24	MALE	14	45.0	-	-	-	14	45.0	574.0	-	-	-
	FEMALE	17	55.0	-	-	-	17	55.0	561.1	-	-	-
	TOTAL	31	100.0	-	-	-	31	100.0	566.9	-	-	-
8/25-9/7	MALE	17	68.0	1	4.0	601.0	16	64.0	586.1	-	-	-
	FEMALE	8	32.0	-	-	-	8	32.0	597.0	-	-	-
	TOTAL	25	100.0	1	4.0	601.0	24	96.0	589.7	-	-	-
9/8-9/21	MALE	8	66.7	-	-	-	8	66.7	565.8	-	-	-
	FEMALE	4	33.3	-	-	-	4	33.3	587.0	-	-	-
	TOTAL	12	100.0	-	-	-	12	100.0	572.9	-	-	-
TOTAL	MALE	48	60.0	1	1.3	601.0	47	58.8	570.9	-	-	-
	FEMALE	32	40.0	-	-	-	32	40.0	576.6	-	-	-
	TOTAL	80	100.0	1	1.3	601.0	79	98.8	573.2	-	-	-



Subsistence Survey, p 2

	<u>Date</u>	<u>No. of Fishermen</u>	<u>King Catch</u>	<u>King CPUE</u>	<u>Chum Catch</u>	<u>Chum CPUE</u>	<u>Pink Catch</u>	<u>Pink CPUE</u>	<u>Coho Catch</u>	<u>Coh U</u>
August	14	1			25	25.0			5	5.
	15	1			28	28.0			13	13.
	16	1			10	10.0			29	29.
	17	1			4	4.0			15	15.
	18	1			6	6.0			16	16.
	19	1			2	2.0			18	18.
	20	1			0	.0			9	9.
	21	2			0	.0			19	9.
	22	3			0	.0			22	7.
	23	3			0	.0			15	5.
	24	3			1	.3			14	4.
	25	4			4	1.0			18	4.
	26	4			0	.0			12	3.
	27	3			4	1.3			6	2.
	28	3			2	.7			4	1.
	29	2			1	.5			5	2.
	30	2			0	.0			3	1.
	31	2			0	.0			1	.
September	1	2							0	.
	2	2							0	.
	3	2							3	1.
	4	1							1	1.

Table 7.

ADF&G TEST NET CATCH DATA

<u>Site 1</u>		<u>Site 4</u>	
King Release Male	5	King Release Male	1
Release Female	0	Release Female	0
King Mortality Male	5	King Mortality Male	2
Mortality Female	6	Mortality Female	2
Chum Release Male	83	Chum Release Male	21
Release Female	93	Release Female	28
Chum Mortality Male	90	Chum Mortality Male	37
Mortality Female	137	Mortality Female	39
Coho Release Male	24	Coho Release Male	4
Release Female	20	Release Female	1
Coho Mortality Male	26	Coho Mortality Male	6
Mortality Female	21	Mortality Female	3
Pink	358	Pink	298
<u>Site 3</u>		<u>Totals</u>	
King Release Male	3	King Release	9
Release Female	0	King Mortality	32
King Mortality Male	16	Chum Release	300
Mortality Female	1	Chum Mortality	422
Chum Release Male	26	Coho Release	50
Release Female	49	Coho Mortality	57
Chum Mortality Male	64	Pink	1463
Mortality Female	55		
Coho Release Male	1		
Release Female	0		
Coho Mortality Male	1		
Mortality Female	0		
Pink	807		

ADFG TEST NET SITES

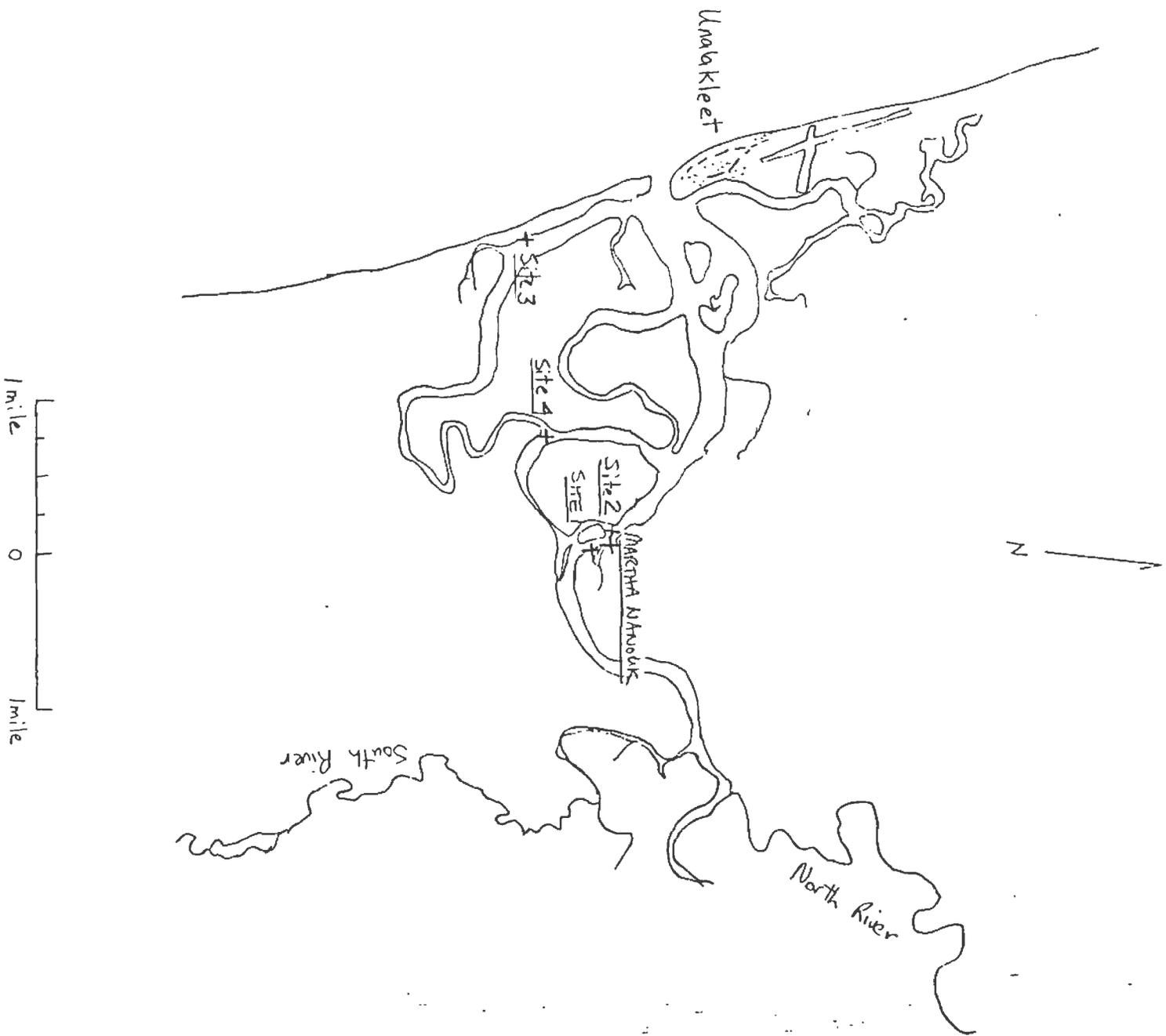


Figure 2. Egavik River Tower site selection, 1981

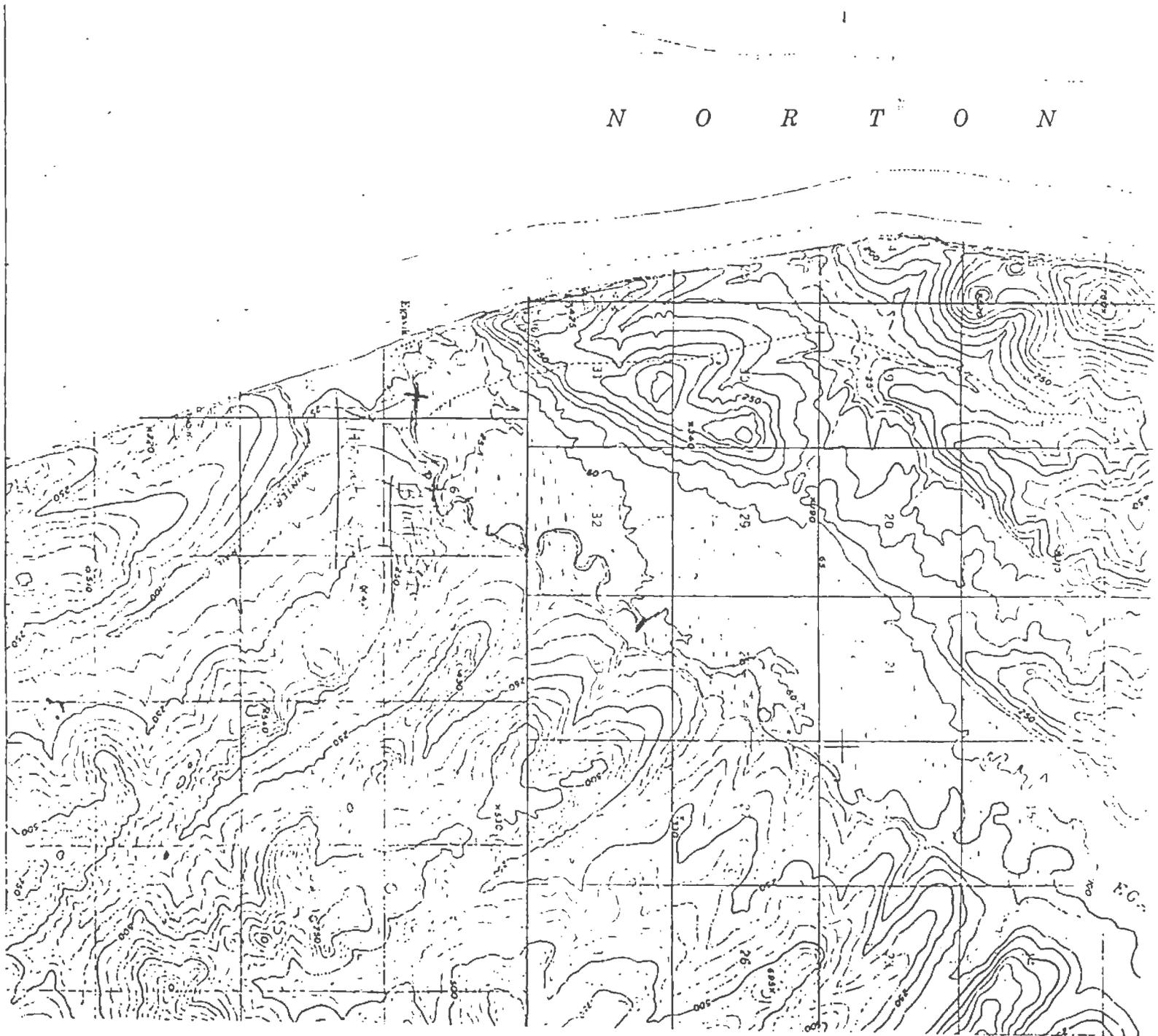


Figure 3.

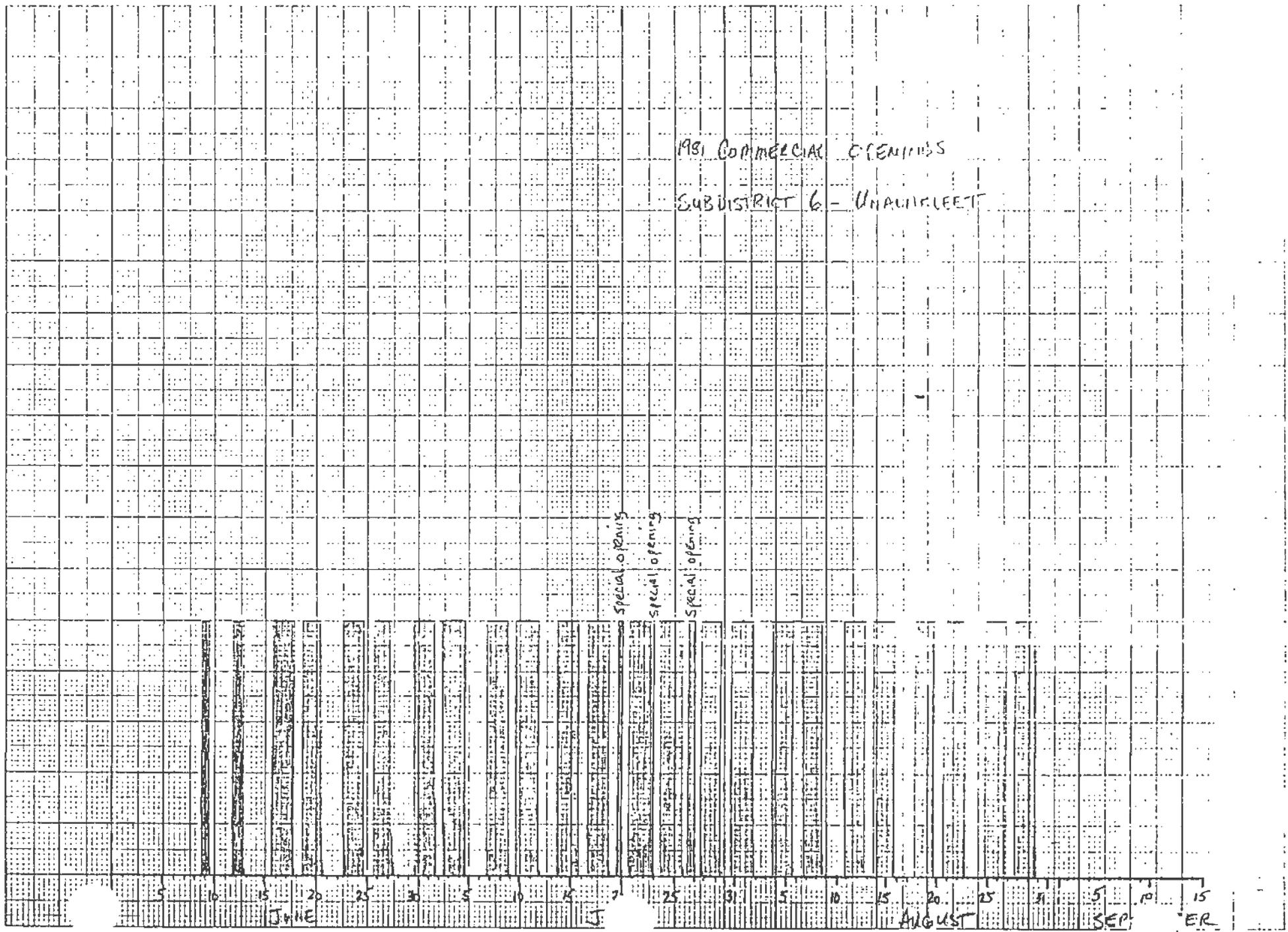


Figure 4.

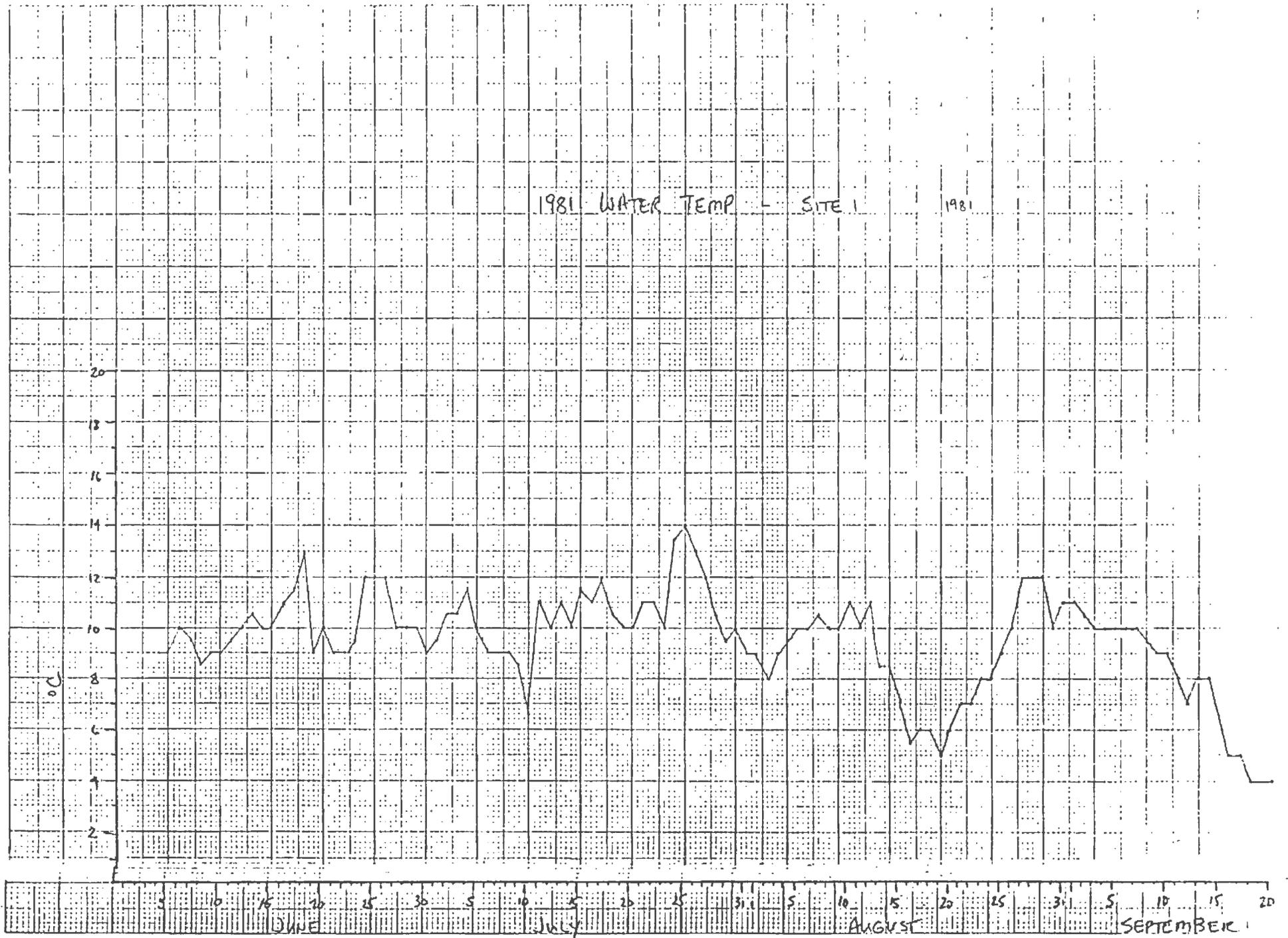
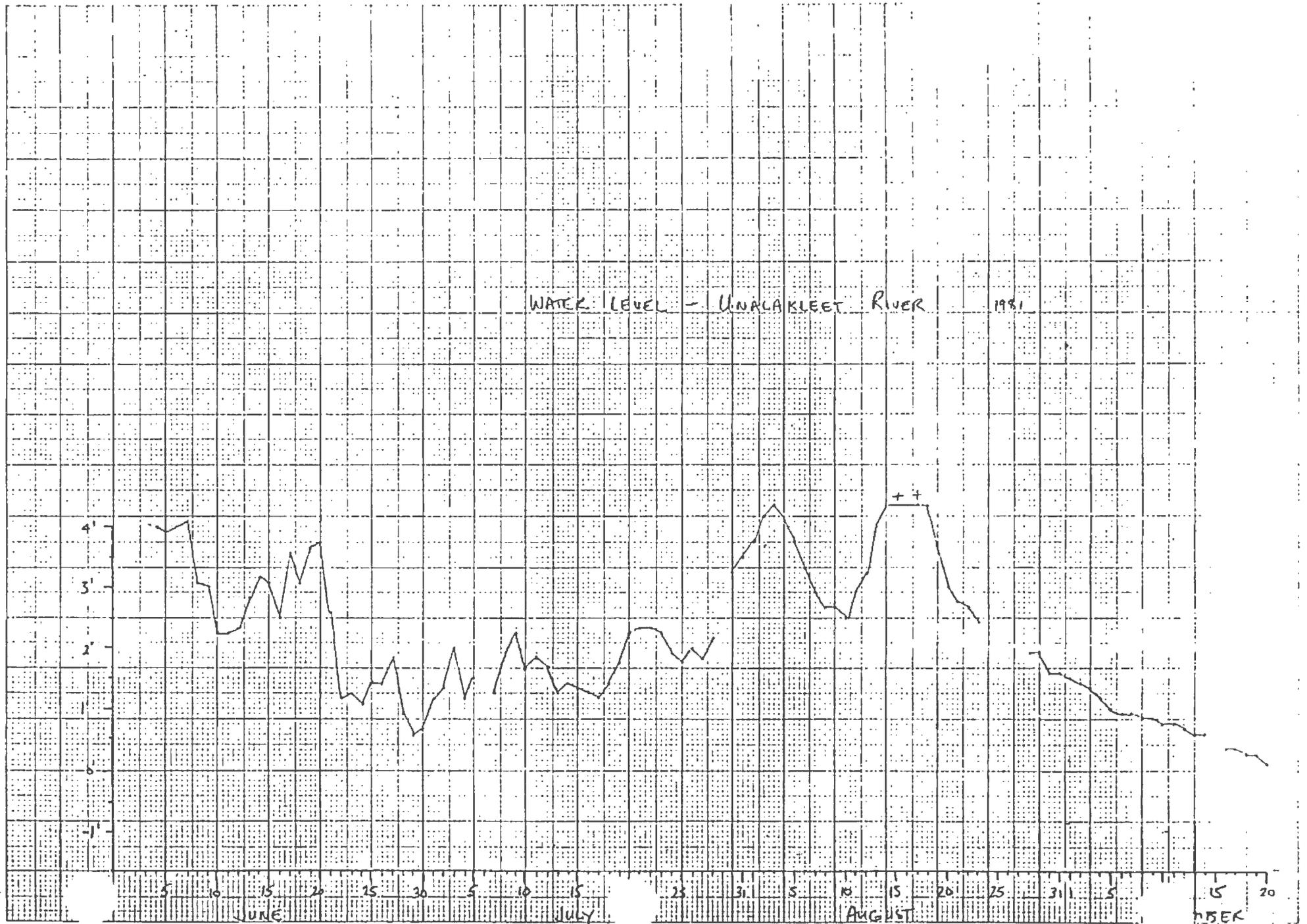


Figure 5.



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Figure 6.

1981 SECCHI DISK READING SITE 1

\* B Denotes Secchi on River Bottom

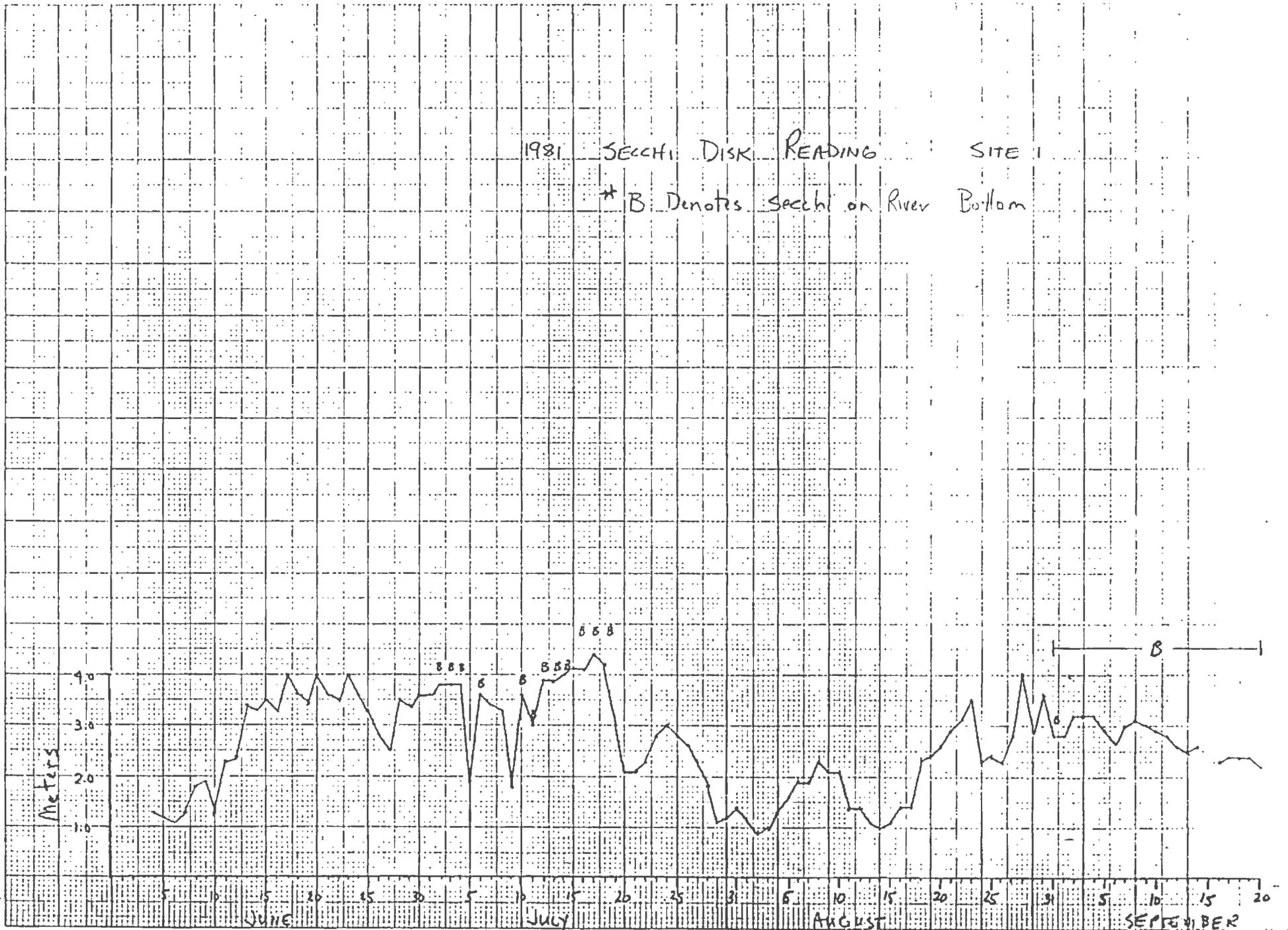
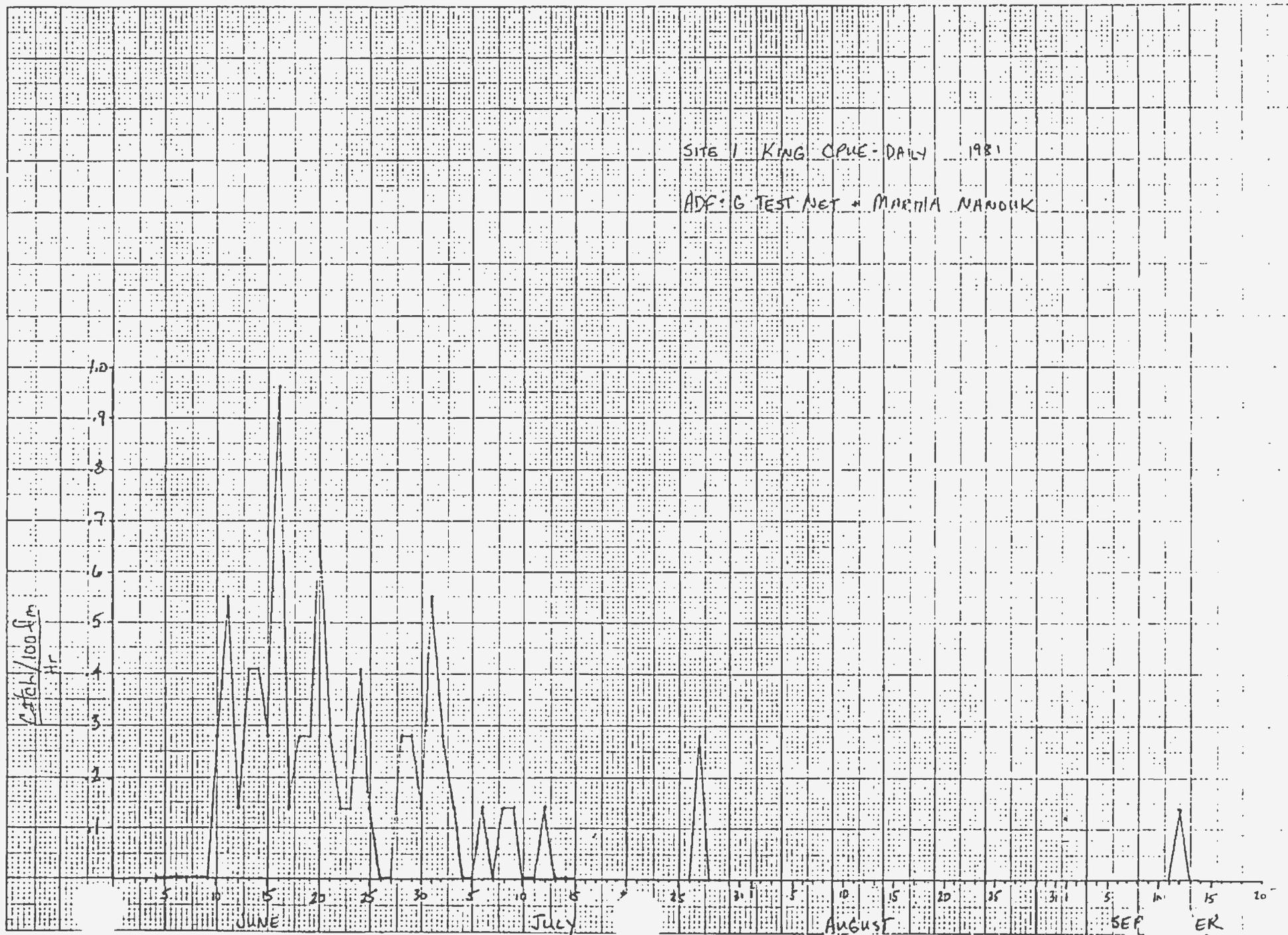
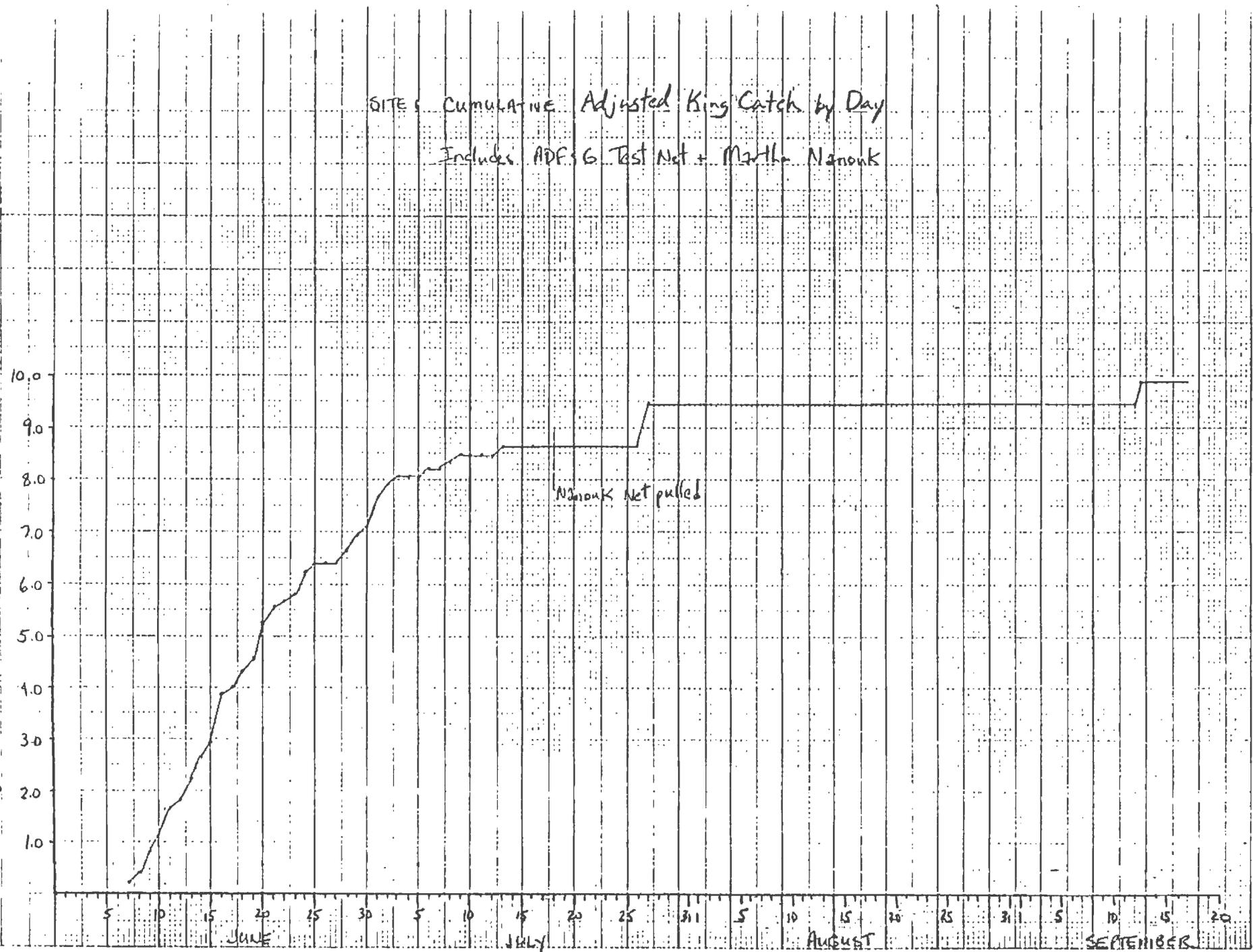


Figure 7.



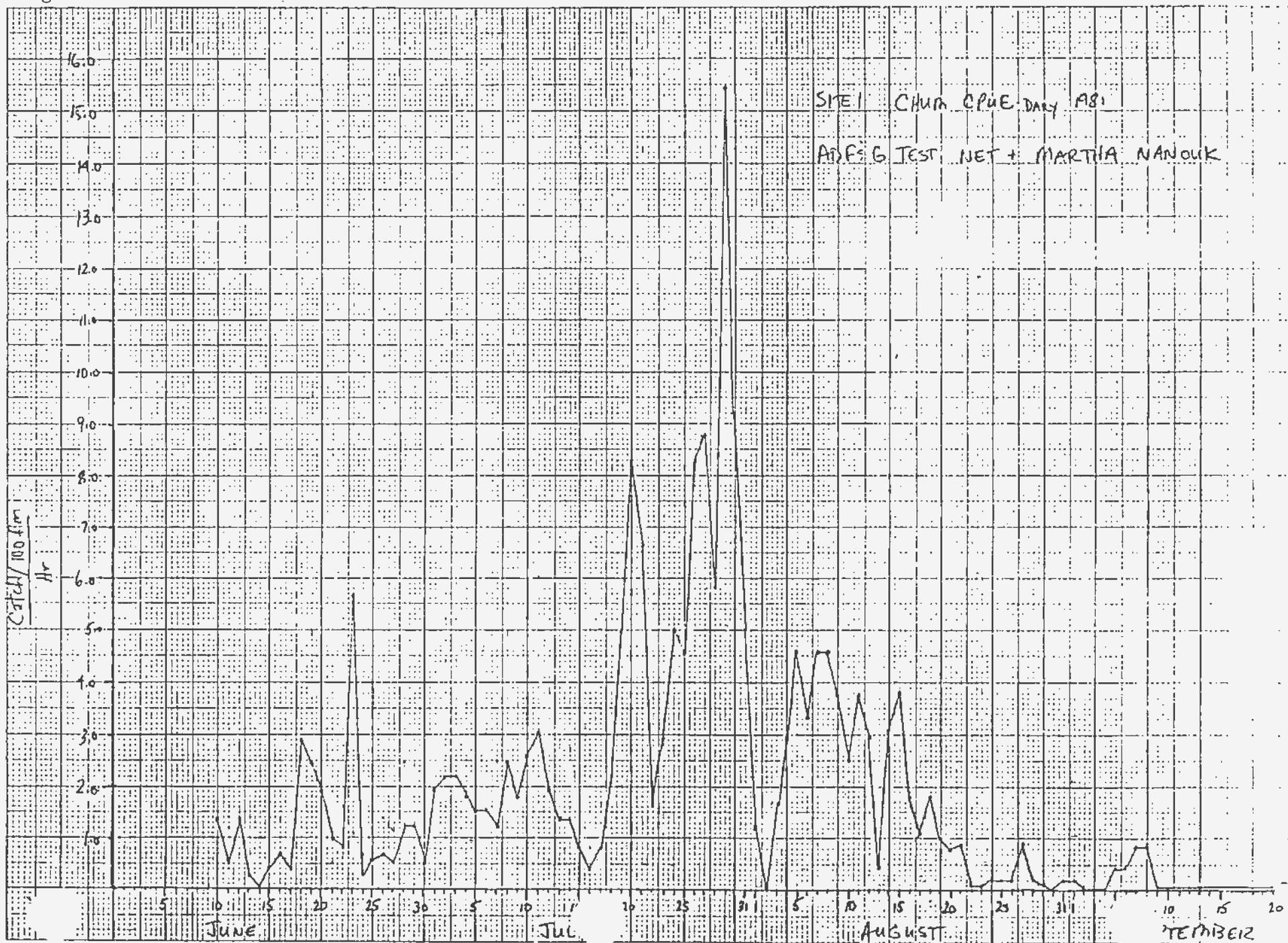
SITE 5 CUMULATIVE Adjusted King Catch by Day  
Includes ADF's 6 Test Net + Martha Nanook

Cumulative CPUE (Catch/1000m<sup>2</sup>/hr)



Nanook Net pulled

Figure 9.



SITE 1. CUMULATIVE Adjusted Chum Catch by Day  
ADFG TEST NET + MARTHA NANOUK

Cumulative CPUE  $\left(\frac{\text{Catch}/100\text{fm}}{\text{hr}}\right)$

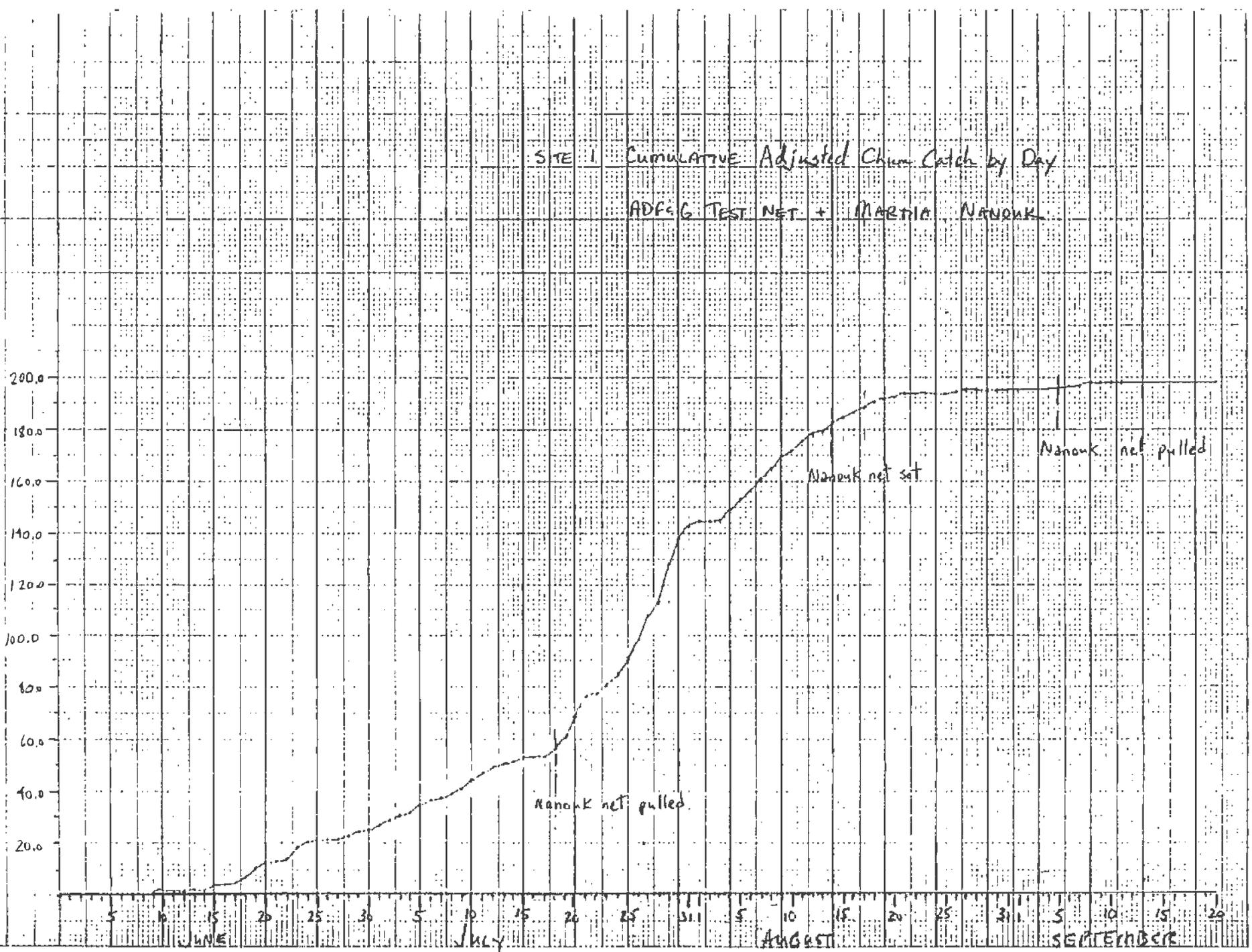
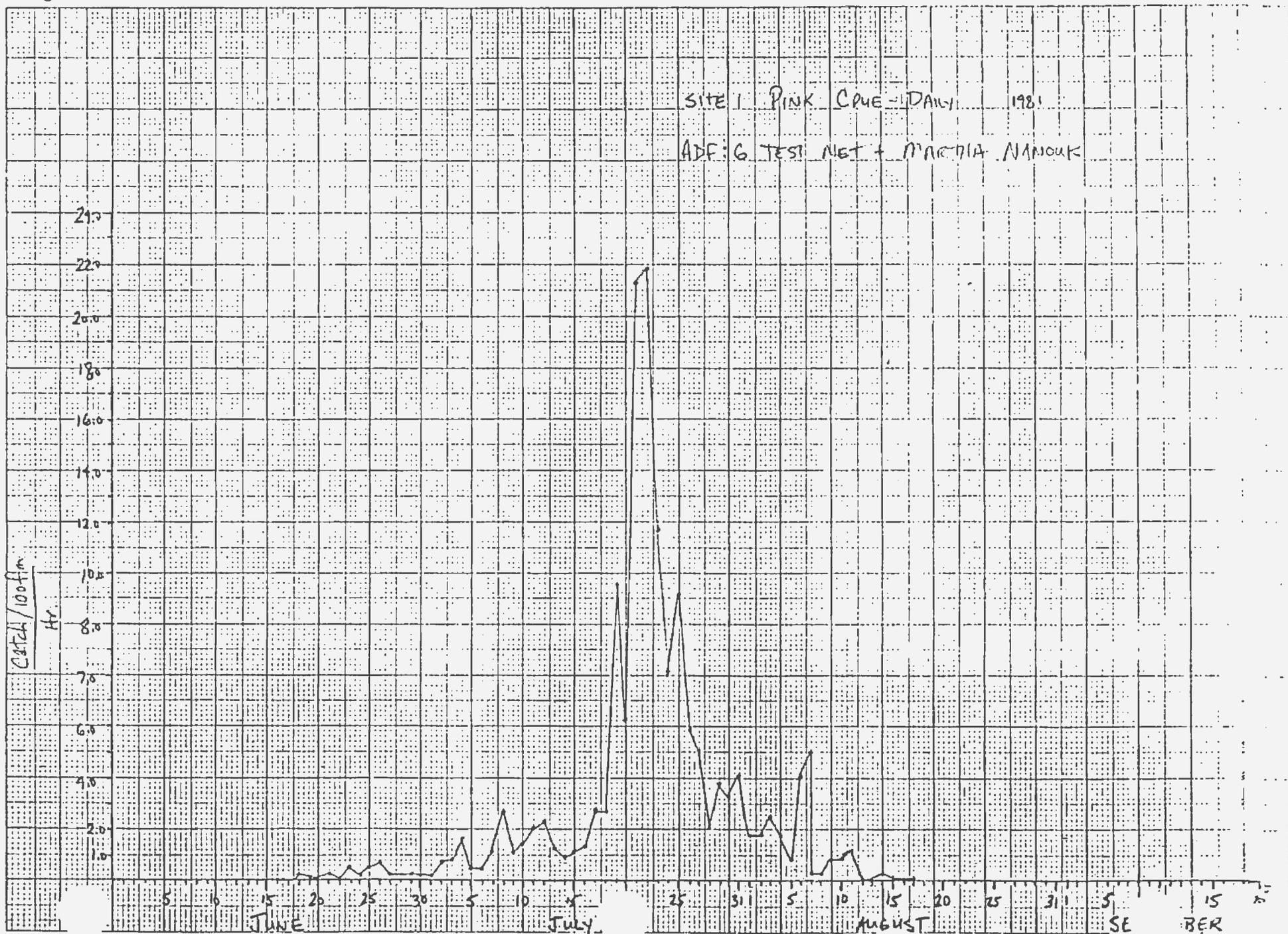


Figure 11.



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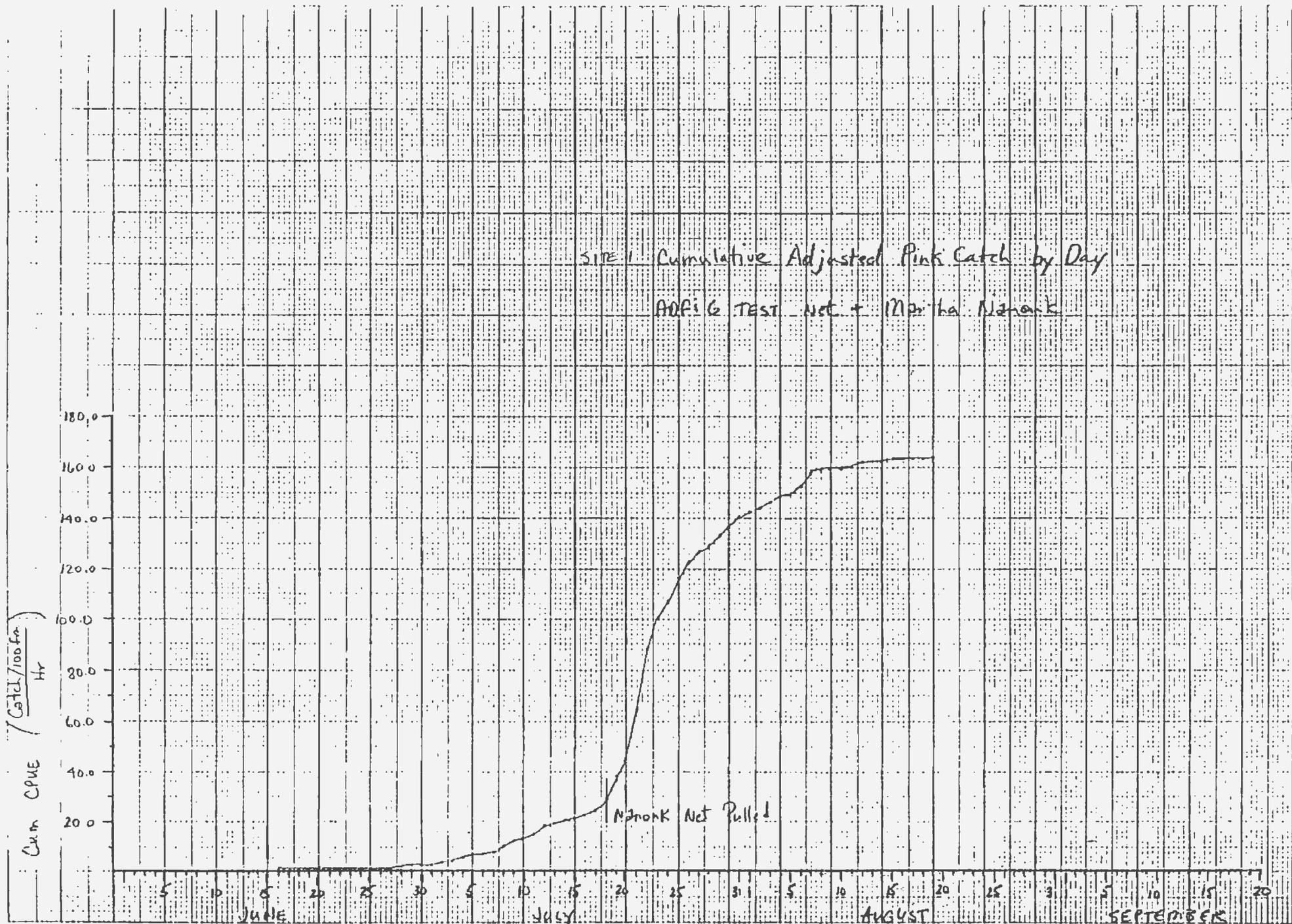
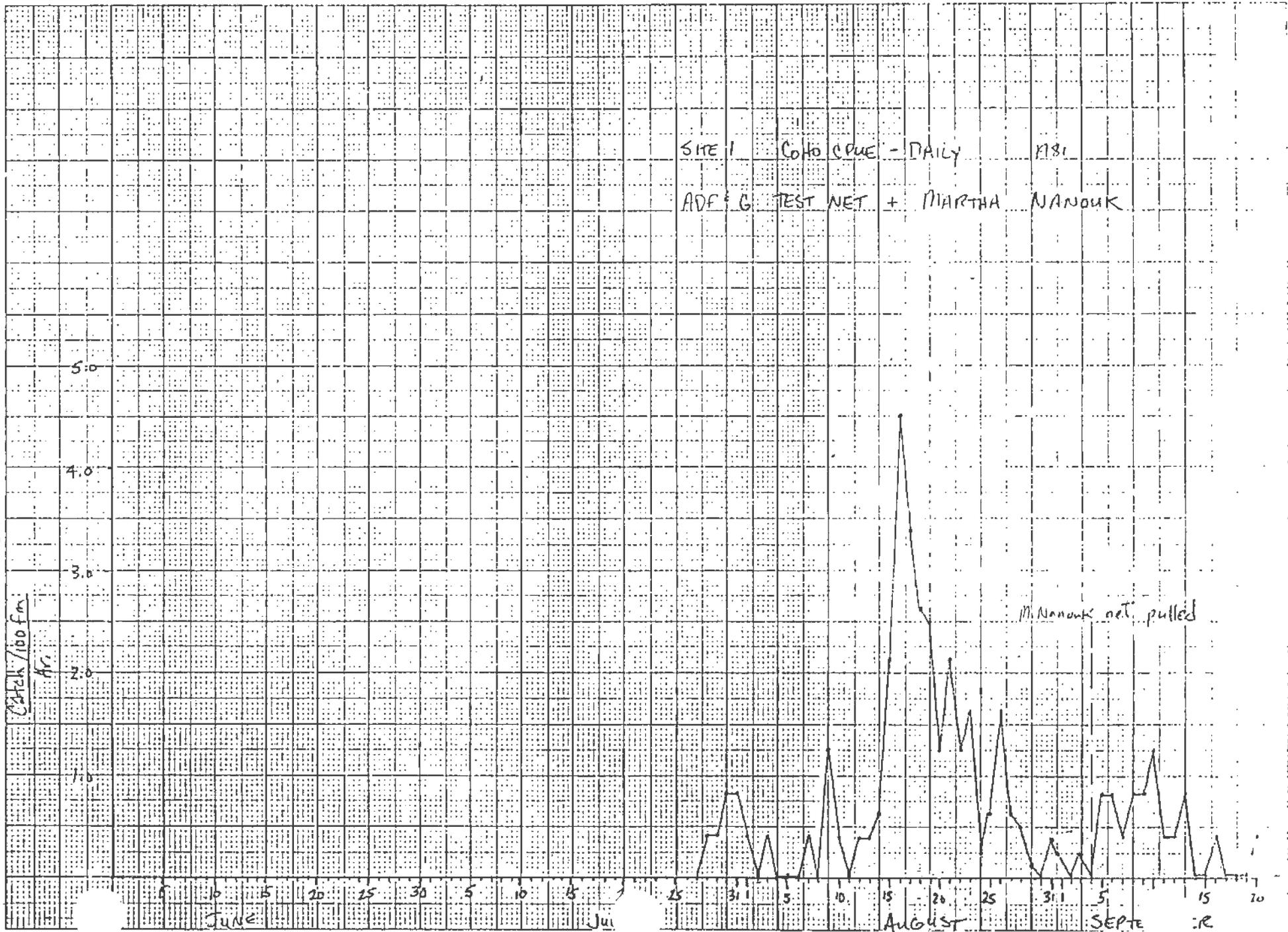
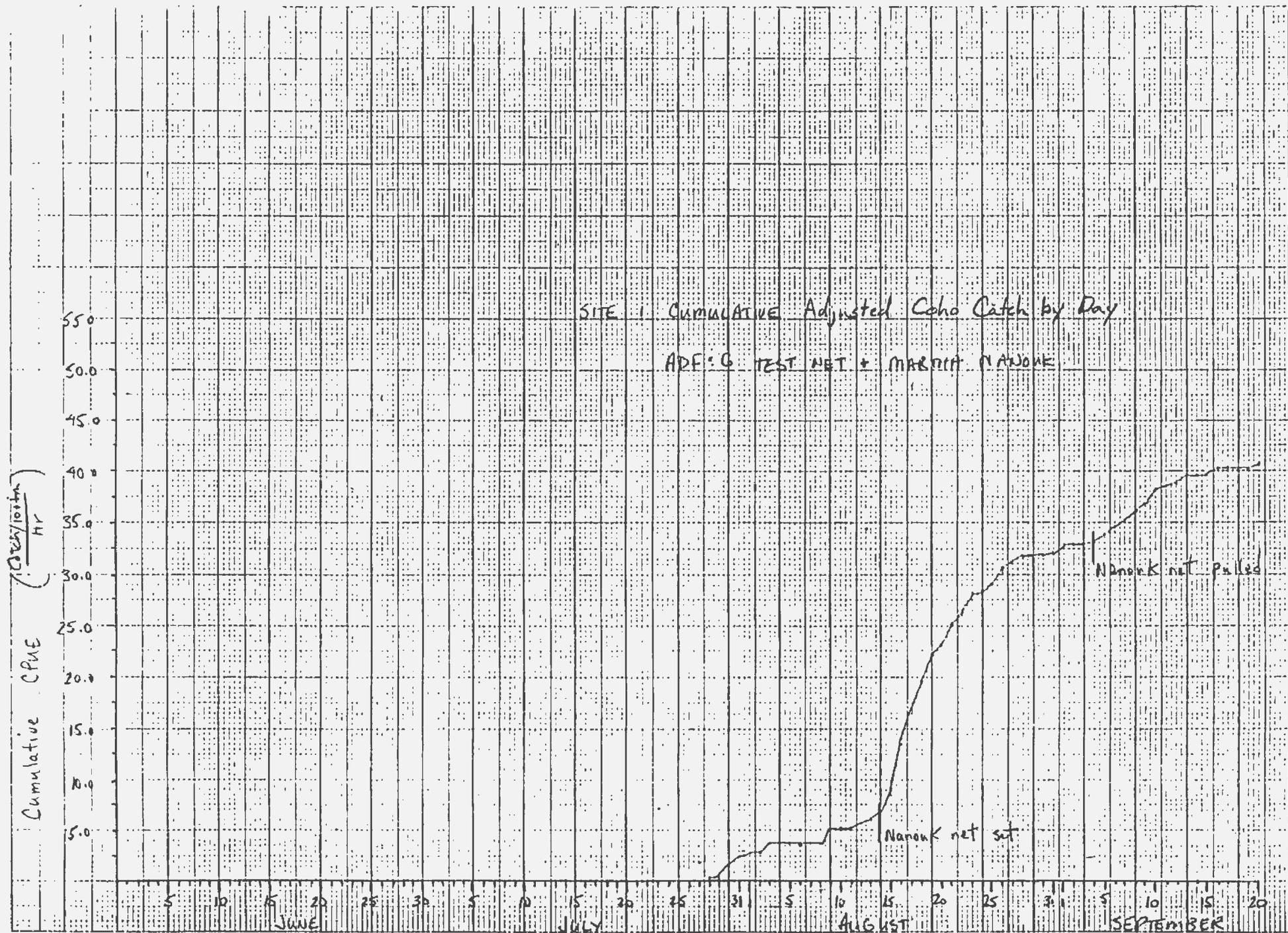


Figure 13.

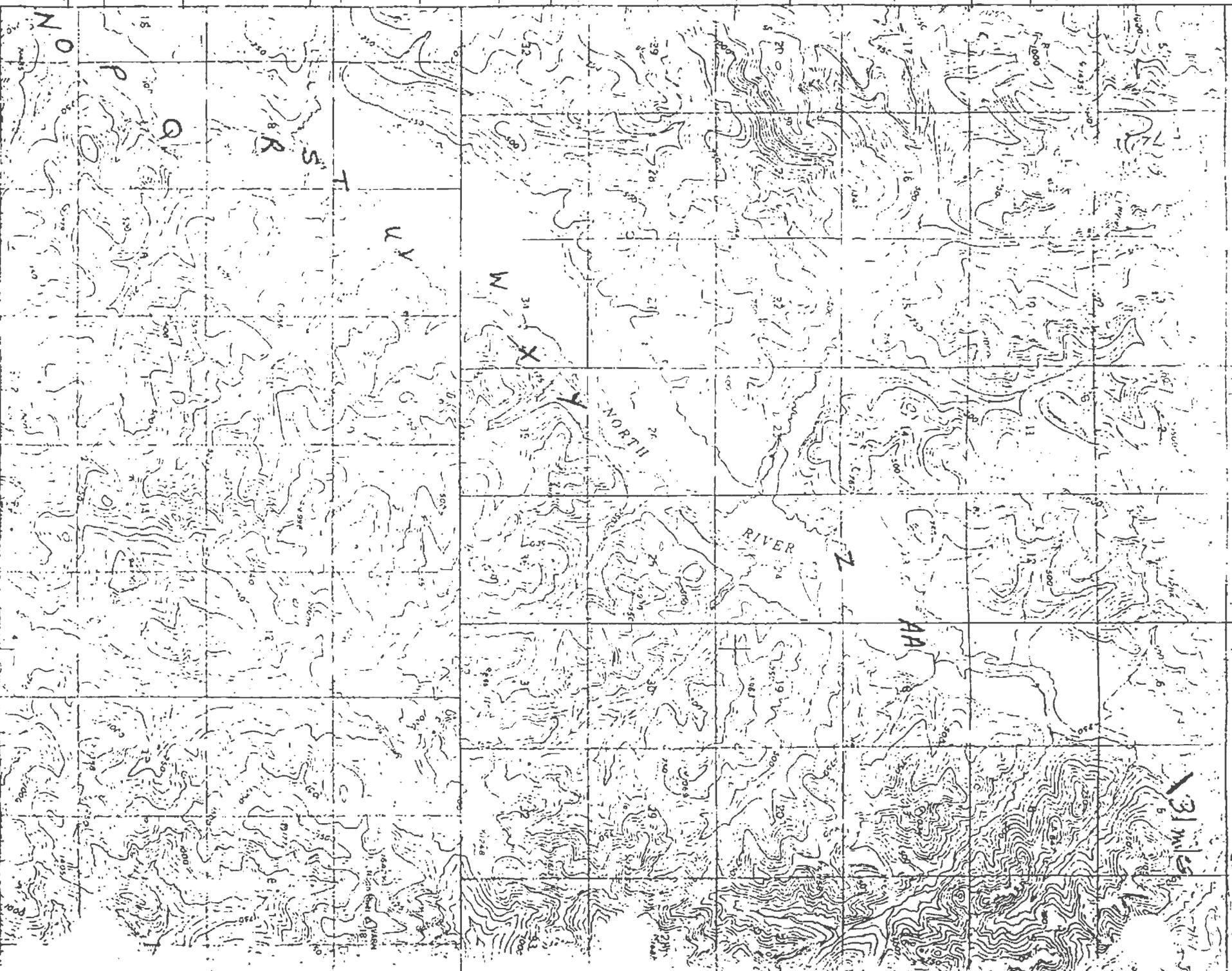


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31 Miles

SOUTH RIVER SURVEY 8/5/81

Don Peterson

Climatic Data:

Air Temp: 16° C  
Cloud Cover: 50-70%  
Ppt: None  
Wind: W 8-12 mph

Water Temp (Mouth): 10° C  
Secchi (Mouth): 2.6m  
Water Temp (Site 1): 11.5° C  
Secchi (Site 1): 1.3m

Fish Identification:

Site 2        5 pink  
Site 3        100 pink  
Site 4        10 pink  
Site 5        5 pink

Site 6        5 pink  
Site 7        30 grayling  
Site 8        5 grayling  
Site 9        10 grayling

Totals:       125 pink  
                 45 grayling

River Substrate:

The river bottom is primarily mud and silt in the area between the mouth and Site 1 (map page 36). At Site 1, the river forks into an ox-bow/slough complex to the east and the main channel to the west. The ox-bow/slough is dark presumably from leaching, limited water movement, etc. The main channel has a large pool at this junction and water clarity improves dramatically. Secchi readings were not taken; however, the river bottom was clearly seen in the deepest pools (approximately 2.5m deep).

The river bottom in the main channel is almost exclusively gravel. Mud and silt was observed only in the small side channels. Aquatic vegetation is absent in the main channel. The gradient increases steadily upstream and it relatively steep (estimated to be 2m in 100m at the survey end) as the hills are approached. Gravel size also increases upstream with small rocks having diameters of 25 cm common.

The survey ended as shown because water depth was inadequate for further travel. In June of this year, boat travel beyond Site 7 was not possible due to water depth and six portages had been necessary to reach Site 7. No portages were necessary up the end of this survey.

River Vegetation:

Submerged vegetation consisted exclusively of *Zostera* sp. and *Elodea* sp. between the river mouth and Site 1. Both types were found in patches ranging from 2m<sup>2</sup> to 15m<sup>2</sup>. Combined coverage was estimated to be 20-40%. No floating or emergent vegetation was noted.

Submerged vegetation consisted exclusively of Zostera and Elodea in the ox-bow/slough with Elodea being dominant. Combined coverage was 80-90%. About 5% of the Elodea was floating; however, no other floating or emergent vegetation was noted.

Vegetation was notably absent from Site 1 to the survey end in the main channel.

Misc.

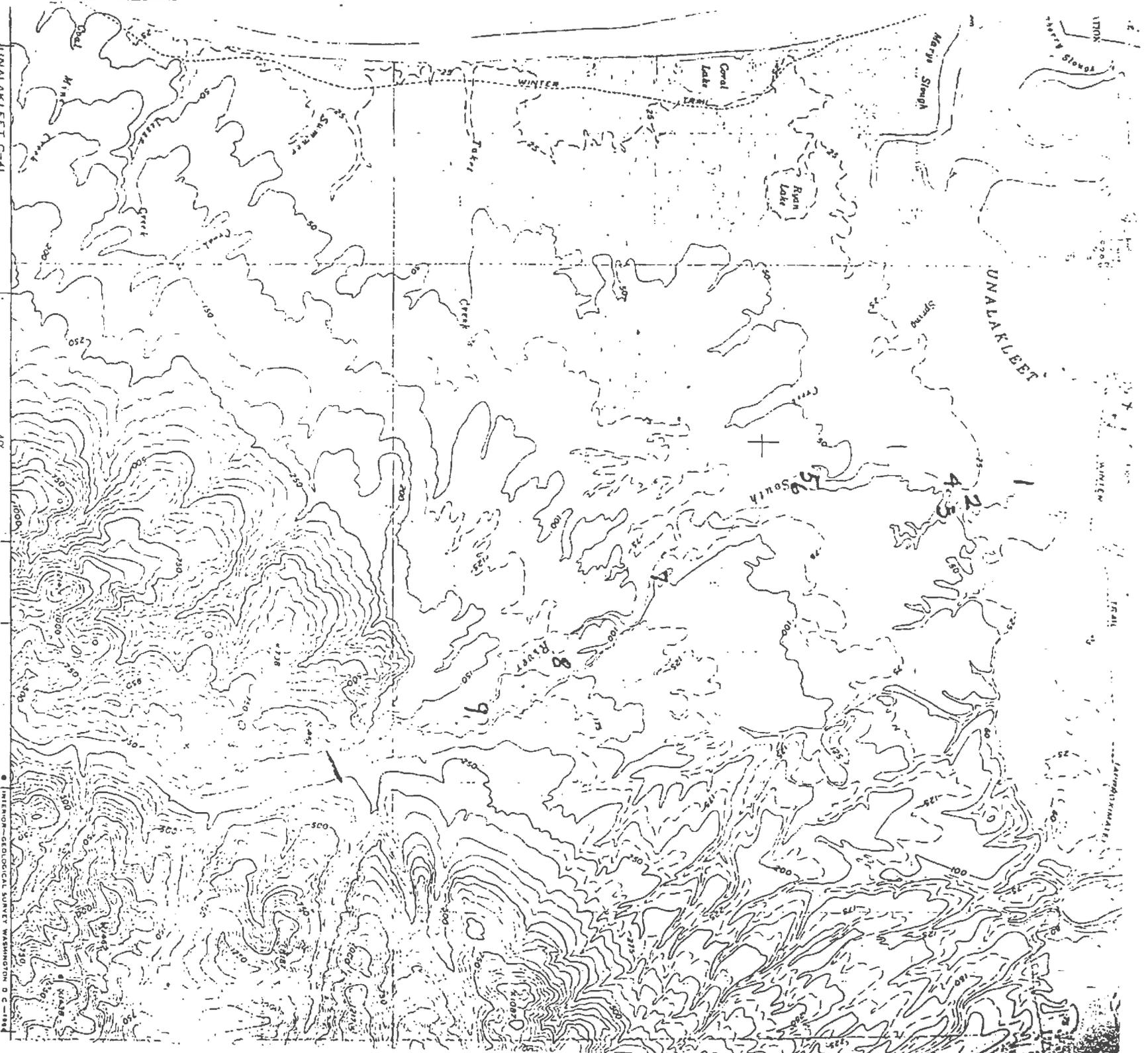
Three active and one inactive beaver colonies were located in small drainages along the main channel.

One set of small bear tracks were seen at Site 1 with no other large mammal tracks being noted.

South River experiences very limited traffic above Site 1 because of generally poor travel conditions and small fish population.

The survey began at 3:10pm at the mouth of South River and ended at 5:30pm as shown on the map. Four gallons of gasoline were used and one-way distance was 10 miles.

Observers: Don Peterson, Rod Corey



UNALAKLEET C-41

40°

INTERIOR- GEOLOGICAL SURVEY WASHINGTON, D. C. - 1954  
425000m. E.



ROAD CLASS  
Unimproved dirt

CONTOUR INTERVAL 50 FEET  
DOTTED LINES REPRESENT 25 FOOT CONTOURS  
DATUM IS MEAN SEA LEVEL  
AND SOUNDINGS IN FEET-DATUM IS MEAN LOWER LOW WATER  
1 SHOWN REPRESENTS THE APPROPRIATE LINE OF MEAN HIGH WATER  
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET



UNALAKLEET (D-4), 1  
N6345-W16030/15X3

1950  
425000m. E. 1953

FOR SALE BY U. S. GEOLOGICAL SURVEY

