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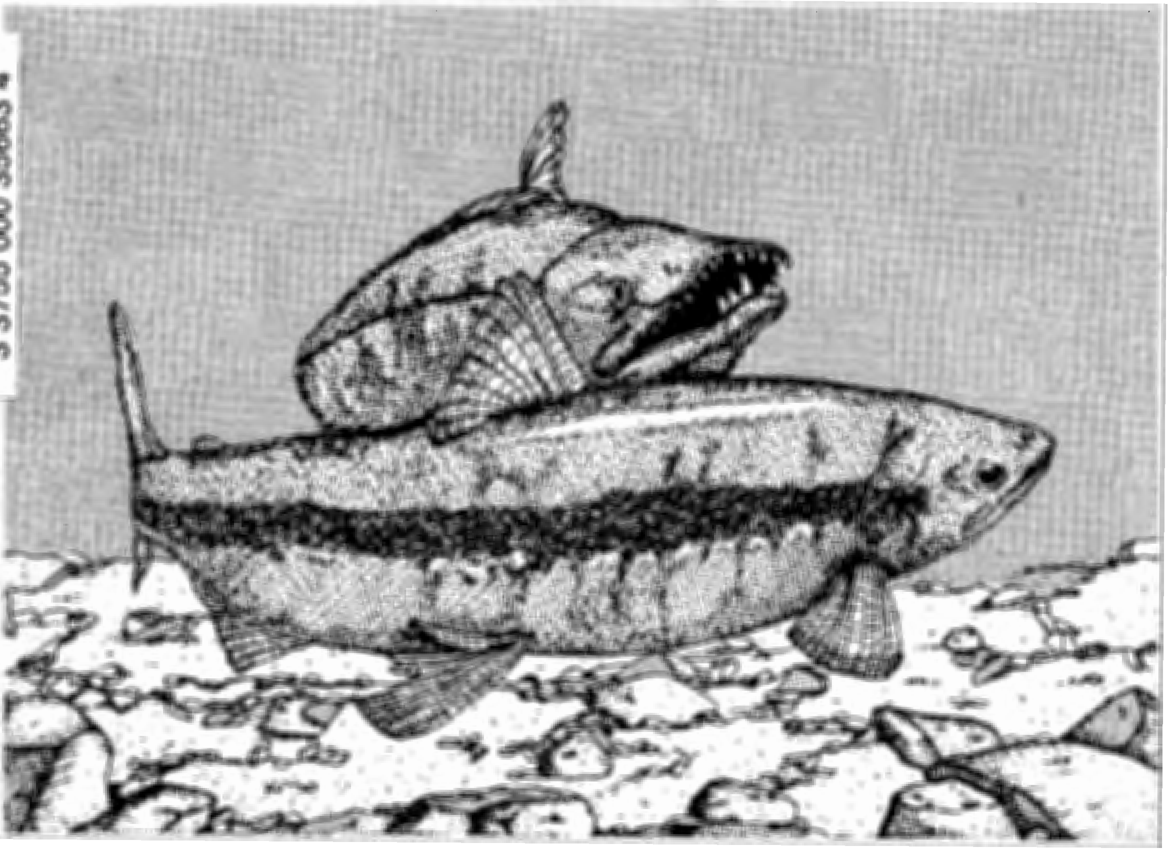

SUSITNA HYDRO AQUATIC STUDIES
PHASE II FINAL DATA REPORT

Volume 2, Adult Anadromous
Fish Studies, 1982.

ALASKA
DEPARTMENT OF FISH AND GAME

598

SUSITNA HYDRO AQUATIC STUDIES
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by

Alaska Department of Fish and Game
Susitna Hydro Aquatic Studies
2207 Spenard Road
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PREFACE

This report is part of a five volume presentation of the fisheries, aquatic habitat, and instream flow data collected by the Alaska Department of Fish and Game (ADF&G) Susitna Hydroelectric (Su Hydro) Feasibility Aquatic Studies Program during the 1981-82 (October-May) ice-covered and 1982 open water (May-October) seasons. It is one of a series of reports prepared for the Alaska Power Authority (APA) and its principal contractor, Acres American (Acres) by the ADF&G and other contractors to evaluate the feasibility of the proposed Susitna Hydroelectric Project. This report is intended for data transmittal to other Susitna Hydroelectric Feasibility Study participants. A preliminary draft was circulated for review in February.

The topics discussed in Volumes Two through Five are illustrated in Figure A. Volume One presents a synopsis of the information contained in the other four volumes. Volume Two also includes a comparison of 1981 and 1982 adult anadromous fisheries data.

An ADF&G data analysis report will include an analysis of the pre-project fishery and habitat relationships derived from this and related reports prepared by other study participants. A review draft will be circulated to study participants on May 1, 1983. The final report will be submitted to the APA on June 30, 1983 for formal distribution to study participants, state and federal agencies, and the public. Also scheduled for completion on June 30, 1983 is the first draft of the ADF&G 1982-83 ice-covered season basic data report. It will include a presentation of 1982-83 incubation and other fishery and habitat data.

These and other ADF&G reports (1974, 1976, 1977, 1978, 1979, 1981a, b, c, d, e, f, 1982) and information reported by others will be summarized and analyzed by the Arctic Environmental Information and Data Center (AEIDC) to evaluate post-project conditions. Woodward

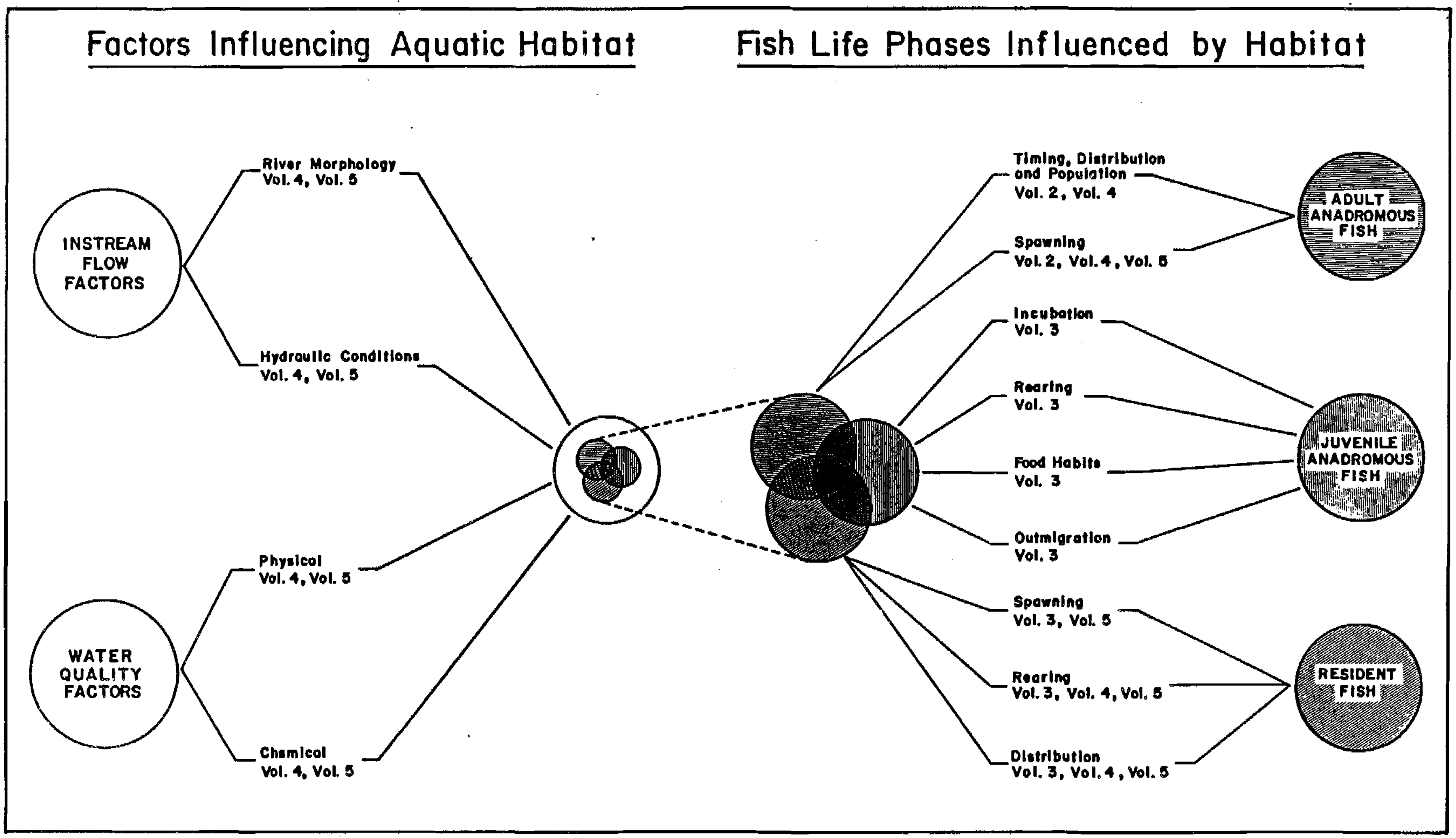

Figure A. Program elements presented in Volumes Two through Five.

Clyde Consultants will, in turn, use this information to support their preparation of the Federal Energy Regulatory Commission License Application for Acres.

The five year (Acres 1980) ADF&G Su Hydro Aquatic Studies program was initiated in November, 1980. It is subdivided into three study sections: Adult Anadromous Fish Studies (AA), Resident and Juvenile Anadromous Fish Studies (RJ), and Aquatic Habitat and Instream Flow Studies (AH).

Specific objectives of the three sections are:

1. AA - determine the seasonal distribution and relative abundance of adult anadromous fish populations produced within the study area (Figure B);

2. RJ - determine the seasonal distribution and relative abundance of selected resident and juvenile anadromous fish populations within the study area; and

3. AH - characterize the seasonal habitat requirements of selected anadromous and resident fish species within the study area and the relationship between the availability of these habitat conditions and the mainstem discharge of the Susitna River.

The 1982 ADF&G portion (Figures C and D) of the overall feasibility project study area (Figure B) was limited to the mainstem Susitna River and the mouths of major tributaries. Portions of tributaries which will be inundated by the proposed impoundments were also evaluated. Descriptions of study sites are presented in each of these volumes including the ADF&G reports (ADF&G 1981a, b, c, d, e, f).

The Susitna River is approximately 275 miles long from its sources in the Alaska Mountain Range to its point of discharge into Cook Inlet. Its drainage encompasses an area of 19,400 square miles. The mainstem

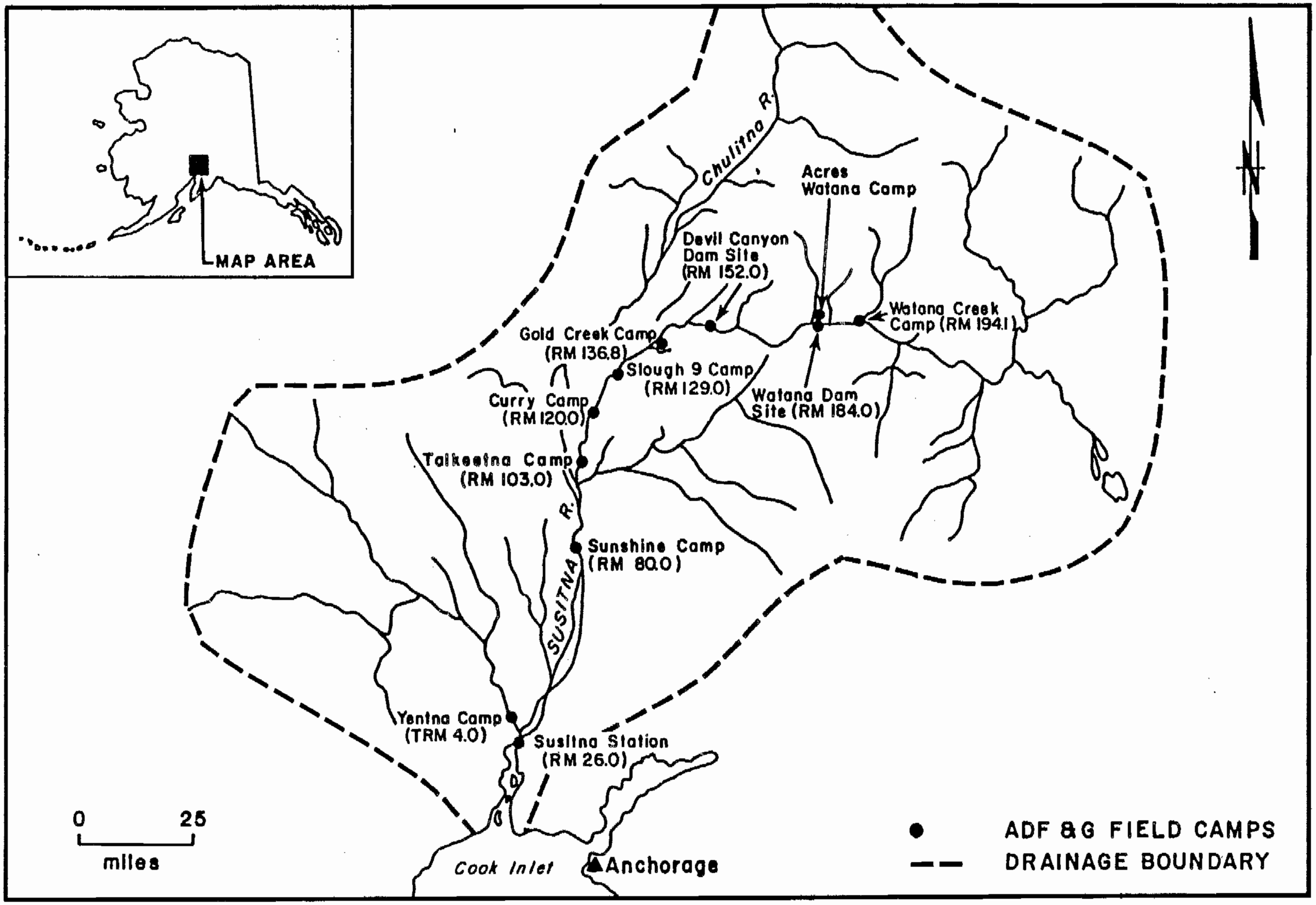

Figure B. Susitna River drainage basin.

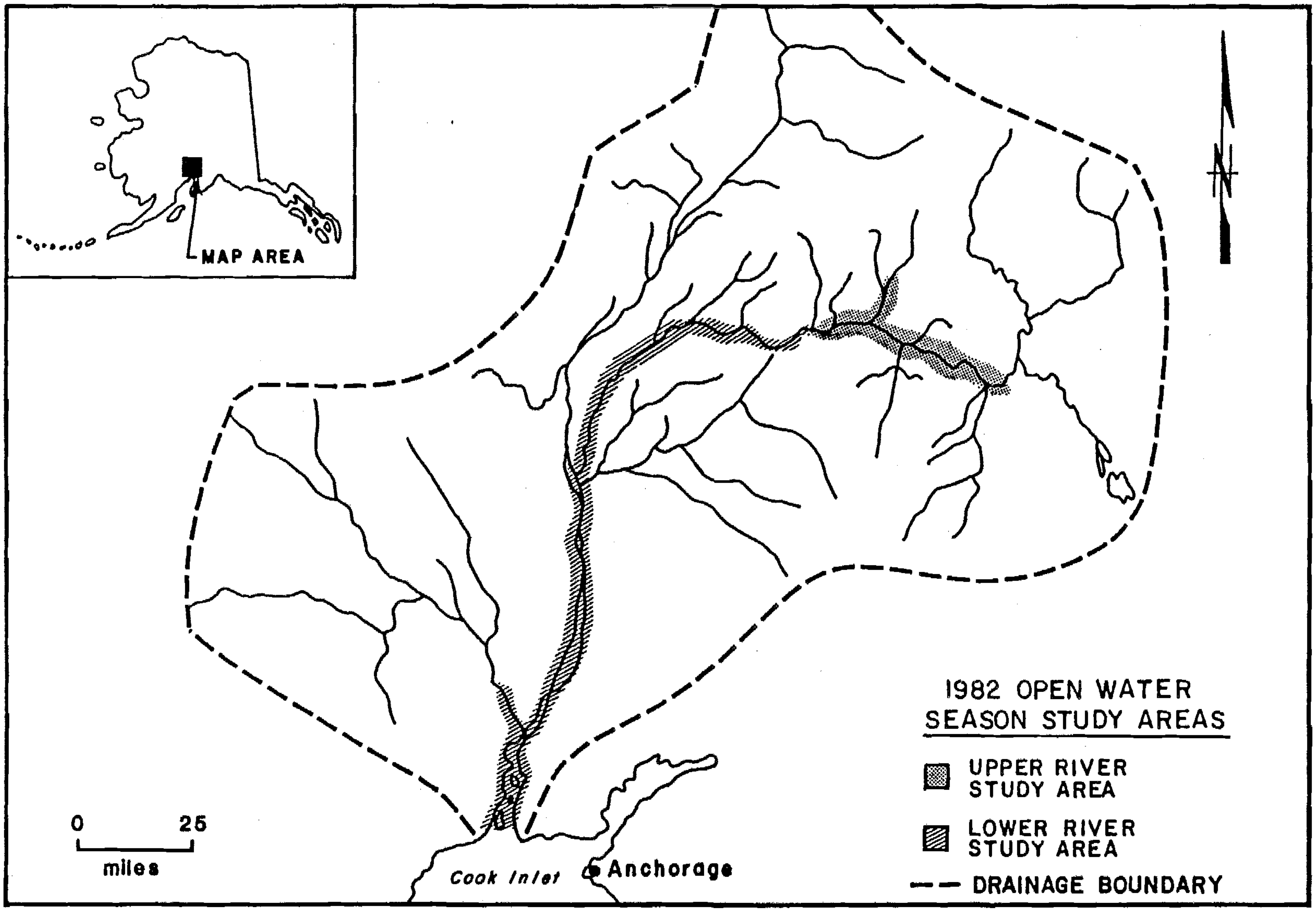

Figure C. 1982 ADF&G open water season (May through October) study area.

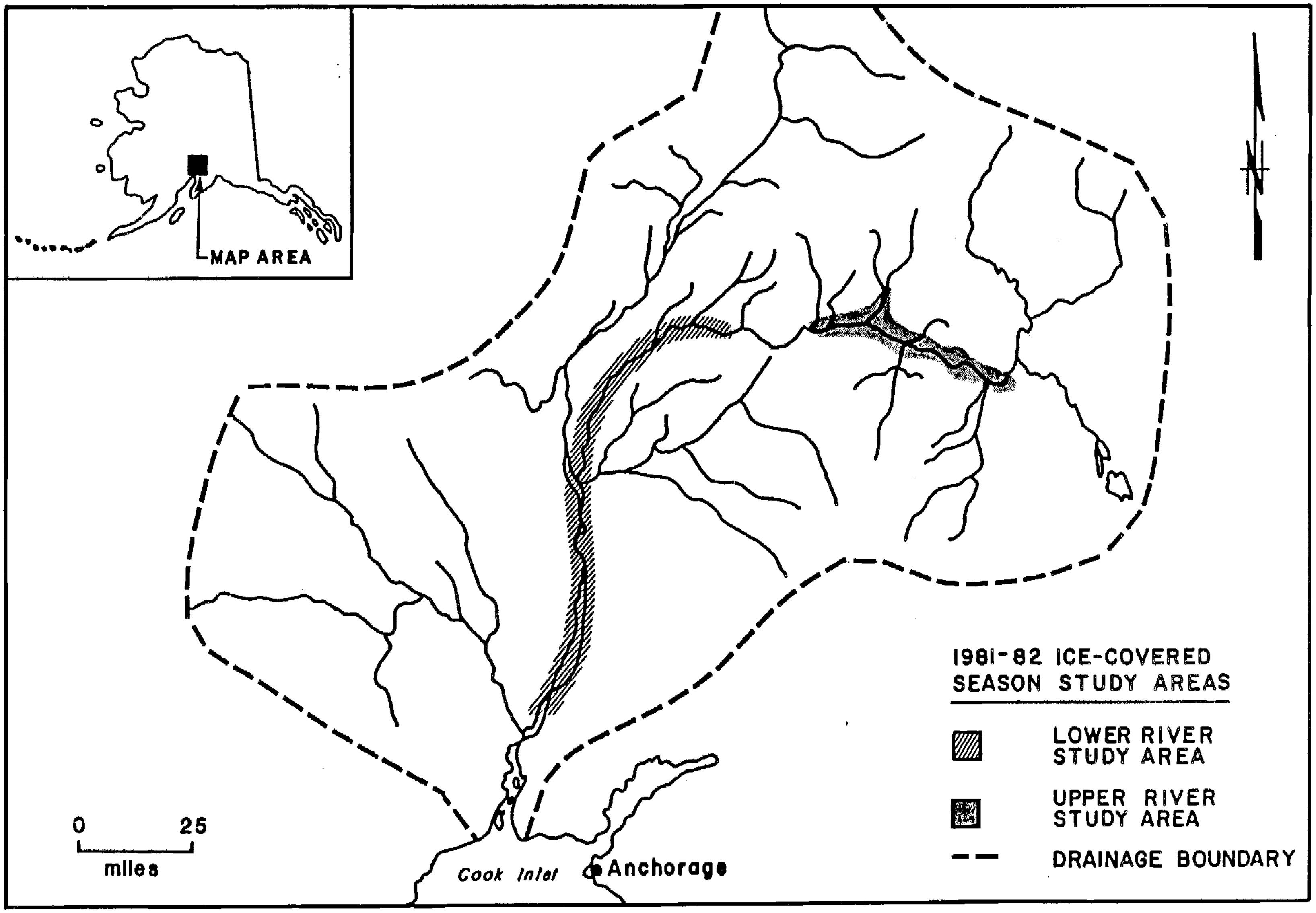

Figure D. 1981-82 ADF&G ice-covered season (October through May) study area.

and major tributaries of the Susitna River, including the Chulitna, Talkeetna and Yentna rivers, originate in glaciers and carry a heavy load of glacial flour during the ice-free months (approximately May through October). There are many smaller tributaries which are perennially clear.

Questions concerning these reports should be directed to:

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______. 1981e. Resident fish investigations on the lower Susitna River. Phase I. Final Draft. ADF&G Su Hydro Aquatic Studies Program. Anchorage, Alaska.

______. 1981f. Resident fish investigations on the upper Susitna River. Phase I. Final Draft. ADF&G Su Hydro Aquatic Studies Program. Anchorage, Alaska.

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ACKNOWLEDGEMENTS

Funding for this study was provided by the State of Alaska, Alaska Power Authority. Personnel support was provided by the following Alaska Department of Fish and Game staff biologists and technicians.

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Special thanks is given to Alaska Department of Fish and Game, Commercial Fisheries biologists Ken Tarbox and Bruce King for operation of Susitna Station and David Benard, Glen Oliver, William Goshert and Bev Cross for providing a sockeye salmon stock separation analysis report.

Appreciation is also extended to those individuals not mentioned here who assisted with this project.

1.0 OBJECTIVE

This study was effected to meet the following objective:

Objective 1.0 Determine seasonal distribution and relative abundance of the anadromous fish population within the study area.

Task 1.1 Emunerate and characterize the escapements.

Task 1.2 Determine timing and nature of migration, milling and spawning activities.

Task 1.3 Identify spawning locations within the study area including main channel associated sloughs, side channels, stream confluences and estimate their comparative importance.

Anadromous fish species investigated under 1.0 Objective above were

Eulachon	*Thaleichthys pacificus*
Pacific Salmon	*Onchorhynchus sp*
Chinook Salmon	*O. tshawytscha*
Sockeye Salmon	*O. nerka*
Pink Salmon	*O. gorbuscha*
Chum Salmon	*O. keta*
Coho Salmon	*O. kisutch*
Bering Cisco	*Coregonus laurettae*

2.0 METHODS

2.1 Eulachon

2.1.1 Estuary

Two set net locations were selected May 16, 1982 in the Susitna River estuary at the locations shown in Figure 2-2-1. Each location was fished with a standard sinking gill net from May 16 through June 9, at a frequency of once every third high tide for the first seven days and once every fifth high tide thereafter. The standard net used was 7.6 meters (m) long, 1.5 m deep with a 3.8 centimeter (cm) stretch mesh. Net deployment was accomplished using a 20 foot (ft) long river boat powered by a 75 horse power (hp) jet outboard. Each net was set perpendicular to the river channel and was anchored by a single, nine kilogram (kg) Navy anchor and marked on the surface by a single 30 cm diameter buoy at each end (Plate 2-2-1).

Both set net locations were fished for a total of 30 minutes starting at site 1, 45 minutes prior to high tide and at site 2, 15 minutes following high tide (Figure 2-2-1). Time of high tide was determined by subtracting a 36 minute correction factor from the 1982 high tide table for the Anchorage District (U.S. Coast Guard, 1982). Fishing time at each location was recorded to the nearest minute, and eulachon catches were sorted and logged as pre-spawners or post-spawners. Pre-spawners were defined as gravid fish and post-spawners as eulachon essentially void of eggs or milt. The determination was made by morphological examination and when necessary, by applying slight hand pressure to the abdominal region.

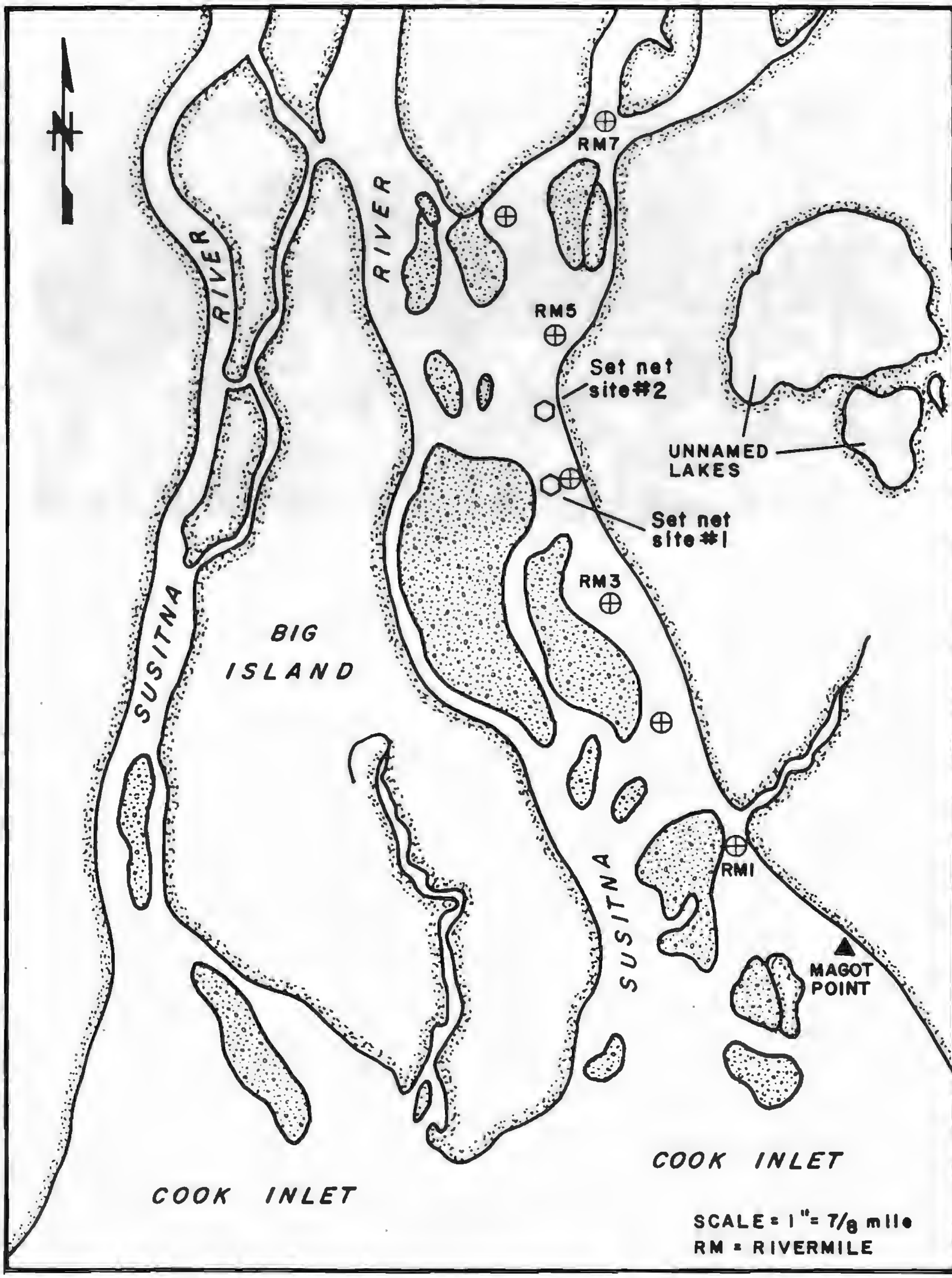


Figure 2-2-1. Susitna River estuary with eulachon set net sites defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Plate 2-2-1. Sinking gill net set in the Susitna River estuary, Adult Anadromous Investigations, Su Hydro Studies, 1982.

2.1.2 Main Channel

Main channel sampling operations in 1982 extended from RM 4.5 in the Susitna River estuary to the Kashwitna River confluence (RM 61) for the period of May 16 through June 9. Daily sampling was conducted using dip nets and electroshocking equipment (Plates 2-2-2 and 2-2-3).

All electroshocking was conducted from a 20 ft. long river boat powered by a 75 hp jet outboard. The electroshocking unit used was a Model VVP-3E Coffelt electroshocker with a 3500 watt Homelite generator as a power source. Input to the electroshocking unit was 230 volts alternating current (A.C.) and output currents available were either: A.C., direct current (D.C.) or pulsating D.C.

Plate 2-2-2. Eulachon dip net sample in the Susitna River estuary, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The power output cord from the electroshocking unit was set up with the anode (+) electrode wired to a hand held dip net and the cathode (-) electrode grounded to the boat. Depression of a foot switch activated the current flow through the water. The activation period ranged from five to 10 seconds followed by a 20 to 40 second pause to avoid possible fish herding. One to 3.5 amps of D.C. or pulsating D.C. was found to be the most effective output mode for electroshocking eulachon. Safety measures followed included the use of rubber boots and gloves by personnel and a kill switch attached to the generator which was in ready reach of the boat operator at all times.

Plate 2-2-3. Electroshocking eulachon in the lower Susitna River, Adult Anadromous Investigations, Su Hydro Studies, 1982.

A sex composition sample from a minimum of 100 eulachon was collected daily. In addition 10 age, length and weight samples per sex were taken daily in the river reach between RM 4.5 and 61.

For age determination, two otoliths per fish were collected and stored in pre-labeled vials containing 50 percent ethanol solution. Eulachon lengths were taken from tip of snout to fork of tail and recorded to the nearest millimeter (mm). The weights were recorded to the nearest decigram (0.1 g) using an Ohaus, Dial-O-Gram balance. Sex was determined by morphological examination.

Eulachon spawning surveys were conducted on a daily basis in conjunction with other scheduled sampling duties. Three separate methods were tested in the attempt to define where eulachon were spawning. The methods in order of trial were:

1. An assumption that eulachon were not spawning at a catch location unless:

   A. Male and female eulachon sampled were freely expelling milt and eggs, respectively, and were all in a vigorous free-swimming condition.

   B. Twenty or more eulachon were caught from a specific location that met criteria A above.

2. Eulachon spawning was occurring or had occurred in areas where substrate samples collected with an Ekman dredge or Surber sampler contained a 'significant' number of eggs identifiable by a hand held magnifying glass and or the application of Rit dye.

3. A single sampling of an area supporting spawning activity would produce a catch of at least one pre-spawning condition female and one post-spawning condition female in addition to male eulachon which were all in a vigorous free-swimming condition.

2.2 Adult Salmon

2.2.1 Main Channel

Escapement monitoring operations on adult salmon were conducted at five stations on the Susitna and Yentna rivers in 1982 as shown in Figure 2-2-2. Individual station maps have been provided in Appendix 2-A. Monitoring gear

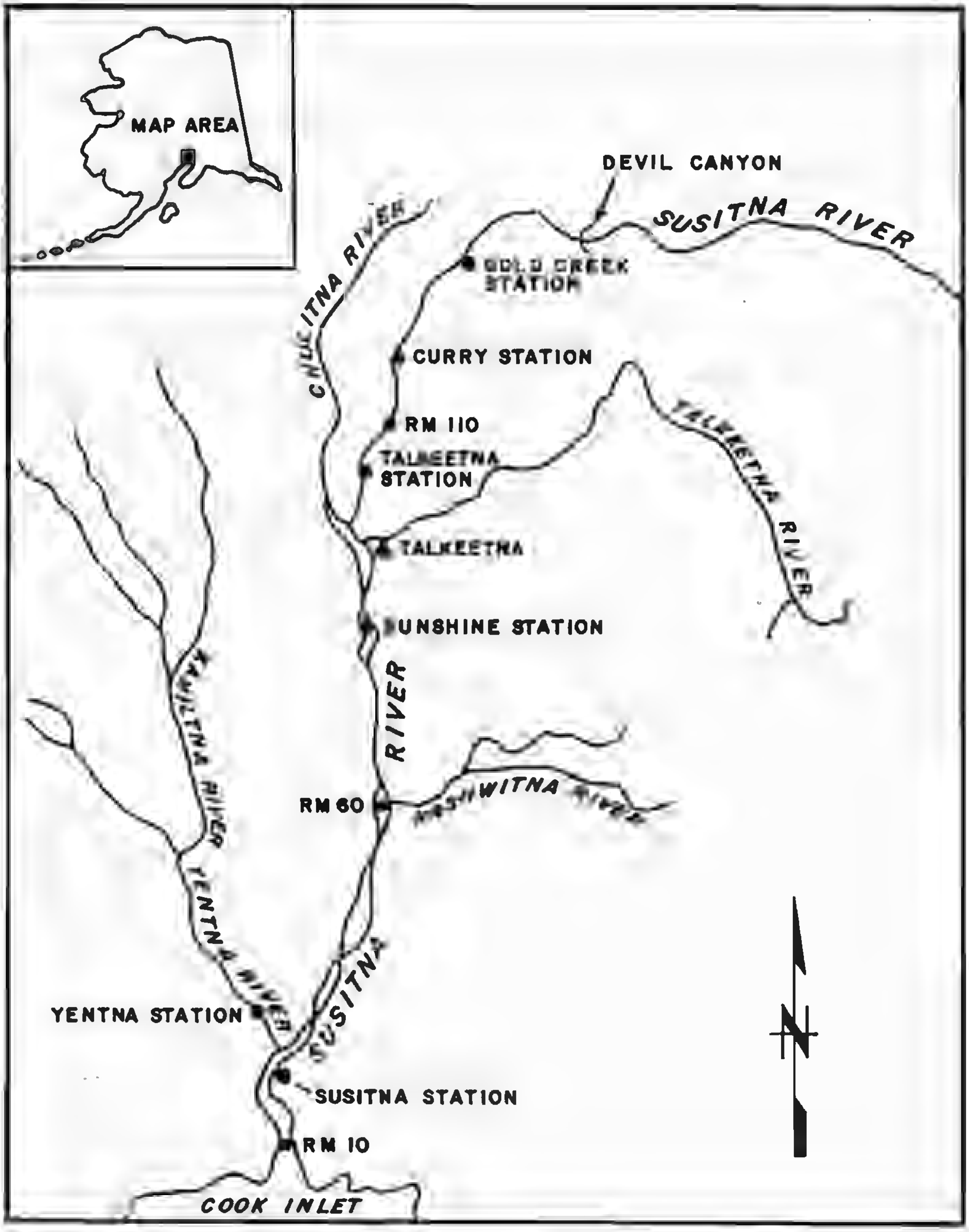


Figure 2-2-2. Susitna River basin map showing field stations and major glacial streams, Adult Anadromous Investigations, Su Hydro Studies, 1982.

used included Bendix Model 1980 side scan sonar (SSS) counters and fishwheels. The specific operating dates, and type and amount of gear deployed at each fish sampling station have been listed in Table 2-2-1. All sampling locations with the exception of Susitna Station (RM 26) were staffed in 1982 by Su Hydro, Adult Anadromous personnel. Susitna Station was staffed by ADF&G personnel from the Region II Soldotna office of the Commercial Fisheries Division.

Table 2-2-1. Anadromous adult salmon sampling location, gear type and operational dates on mainstem Susitna and Yentna Rivers, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Site	Location		Period		Gear Deployed	
	River	River Mile	Begin	End	Sonars	Fishwheels
Susitna Station	Susitna	26	7/1	9/5	2	2
Yentna Station	Yentna	04	6/27	9/5	2	2
Sunshine Station	Susitna	80	6/4	10/1	2	4
Talkeetna Station	Susitna	103	6/5	9/14	2	4
Curry Station	Susitna	120	6/9	9/18	0	2

2.2.1.1 Sonar

Side scan sonar (SSS) counters were deployed at Susitna (RM 23), Yentna (RM 04), Sunshine (RM 80) and Talkeetna (RM 103) stations in accordance with the 1980 Side Scan Sonar Counter Installation and Operation Manual by Bendix Corporation (1980).

At each location SSS counter accuracy was checked daily for four or more 30 minute periods using a Model 323, Sony oscilloscope (Plate 2-2-4). Adjustments were made to a counter when the percent agreement between hand tallied oscilloscope counts and corresponding registered SSS counts was less than 90 percent in three consecutive monitorings (Plate 2-2-5). Attendant to each counter was a nearby fishwheel which was used to apportion SSS counts to species based on the fishwheel catch composition.

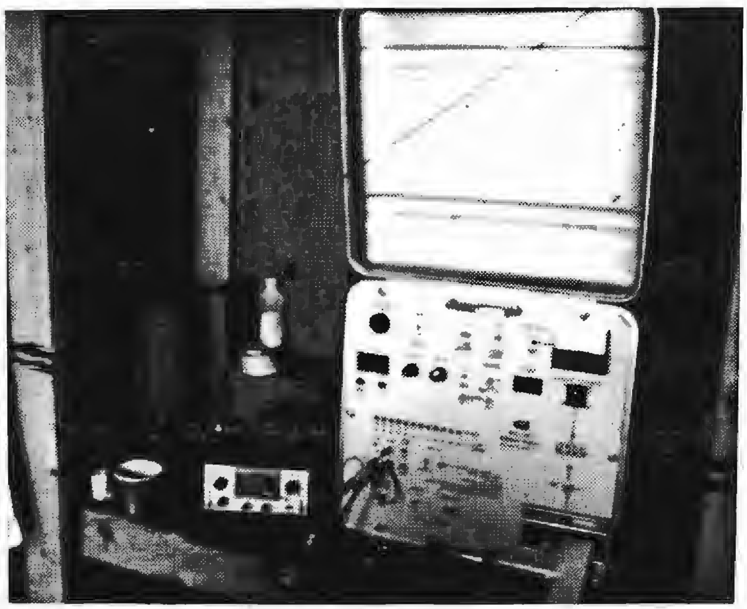


Plate 2-2-4. 1980 Model Bendix SSS counter with Sony oscilloscope monitoring fish passage and corresponding counter accuracy, Adult Anadromous Investigations, Su Hydro Studies, 1982.

2.2.1.2 Fishwheel

Fishwheels were operated at all escapement monitoring stations in 1982 (Table 2-2-1). Fishwheels at Susitna Station (RM 26) were an aluminum conduit design (Barrett, 1974). Fishwheels deployed at Yentna (RM 04), Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations were designed in 1981 by ADF&G/Su Hydro Adult Anadromous staff (Plate 2-2-6). Construction specifications and deployment procedures can be found in the Phase I, ADF&G/Su Hydro, Adult Anadromous Report (1981). The fishwheel design was modified in 1982 by reducing the size of fishwheel baskets to an average length and width of 2.3 m and 1.8 m respectively and building live boxes that were re-sized to 1.0 m width, 1.8 m length and 0.9 m depth at Sunshine, Talkeetna and Curry stations.

Plate 2-2-5. Raising a sonar substrate for debris removal and adjustment, Adult Anadromous Investigations, Su Hydro Studies, 1982.

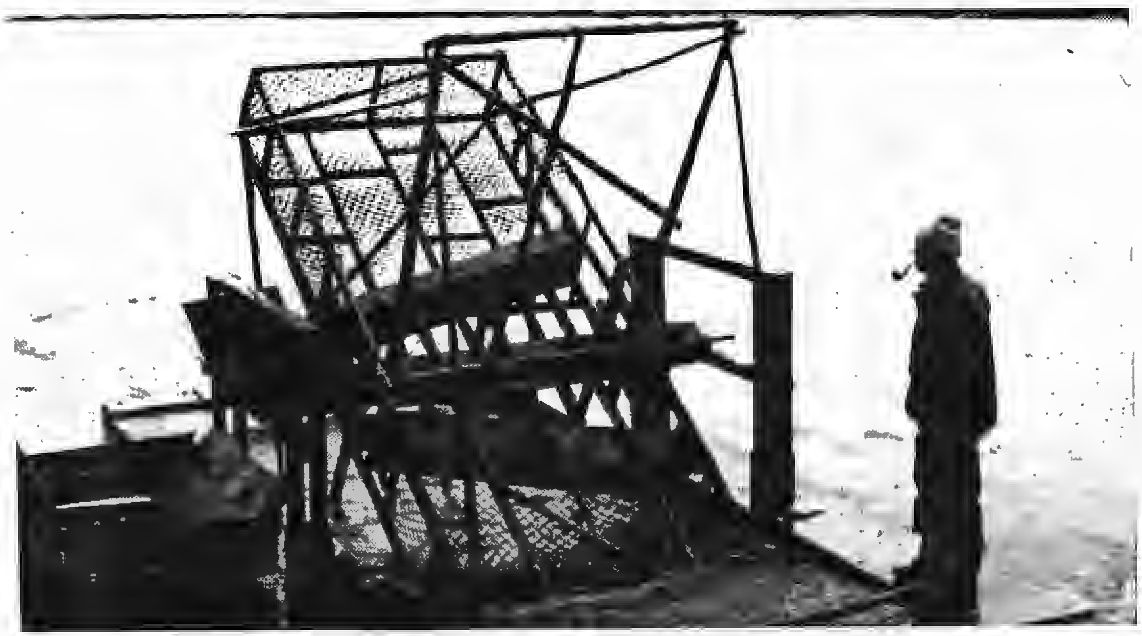


Plate 2-2-6. Fishwheel operating off east bank of the Susitna River at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Fishwheels were operated at Yentna (RM 04) and Susitna (RM 80) stations daily with a minimum catch limit established for sonar apportionment at 150 fish. At Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations fishwheels were operated continuously, 24 hours per day. Variances from this schedule included shut-downs for routine maintenance, debris problems associated with flood events, and occasionally at Sunshine Station, shutdowns due to large catches that could not always be processed due to safety and personnel constraints.

2.2.1.3 Tagging

All fishwheel intercepted chinook (≥ 351 mm length), sockeye, pink, chum and coho salmon at Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations were tagged in 1982. Petersen disc tags, 2.5 cm in diameter, were used to tag chinook salmon ($\geq$ 351 mm length), and at the three stations. These tags were also used for marking sockeye, pink, chum and coho salmon at Curry Station. Floy FT-4 spaghetti tags were used to tag sockeye, pink, chum and coho salmon at Sunshine and Talkeetna stations (Plate 2-2-7). All tags were color coded by respective station and a subsample was numbered (Table 2-2-2).

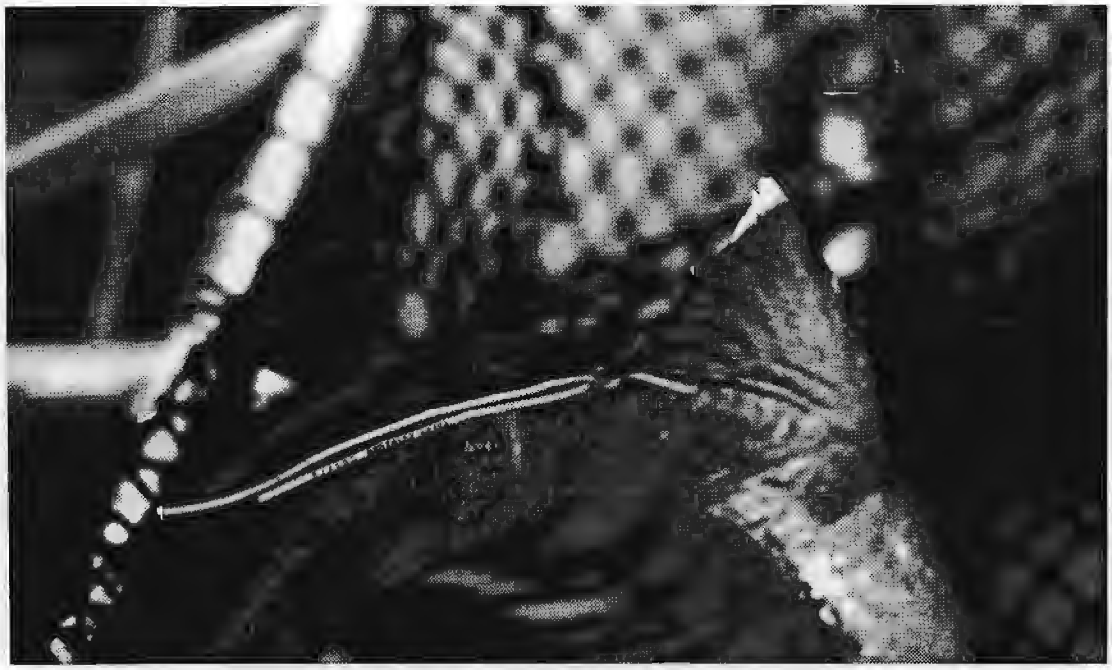


Plate 2-2-7. Chum salmon tagged with Floy FT-4 numbered spaghetti tag, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-2-2. Tag type and color code used at Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Location	River Mile	Tag	
		Type	Color
Sunshine Station	80	FT-4/Spaghetti Petersen Disc	Int. Orange White
Talkeetna Station	103	FT-4/Spaghetti Petersen Disc	Yellow Yellow
Curry Station	120	Petersen Disc	Int. Orange

The procedures that were followed in 1982 for attaching Petersen disc and spaghetti tags on salmon are defined in the Phase I Final Draft Report, Adult Anadromous Fisheries Project, ADF&G/Su Hydro, 1981.

All fish recaptured at upstream sampling stations were released following species identification and recording of tag type, color and number.

2.2.1.4 Age, Length and Sex

Age, length and sex composition samples were collected daily in 1982 from all fishwheel intercepted chinook salmon and from 40 sockeye, 20 chum and 20 coho salmon at each sampling station. Pink salmon, all two year old fish, were sampled at a rate of 20 fish daily at each site. Age samples were obtained by removing the 'preferred scale' located two rows above the lateral line on the diagonal between the posterior insertion of the dorsal fin to the anterior insertion of the anal fin. Sex was determined from morphologic characteristics. Fork length (FL) measurements were taken from mid-eye to fork of tail and recorded to the nearest five mm on all salmon except chinook salmon where recordings were made to the nearest 10 mm. Average processing time for age, length and sex sampling per fish ranged from 20 to 30 seconds. All fish were released immediately following sampling.

2.2.1.5 Radio Telemetry

In 1982, sixteen chinook, 18 chum and 16 coho salmon were intercepted by fishwheels at Talkeetna (RM 103) and Curry (RM 120) stations and implanted with radio transmitters according to the following schedule:

Chinook Salmon	June 22	- July 15
Chum Salmon	July 30	- August 28
Coho Salmon	August 17	- August 29

Two additional chum salmon were radio tagged on August 22 at the entrance of Devil Canyon (RM 150.4).

All transmitters and associated tracking equipment were developed by Smith-Root Incorporated, Vancouver, Washington. Fish selection, processing, transmitter insertion and telemetry procedures were similar to those used in 1981 (ADF&G/Su Hydro, 1981). Variances in 1982 were that no live weights were recorded, and antennas were anchored in chinook and chum salmon by inserting a #2 nickel coated beak hook in the dorsal gum of the mouth instead of along either side of the roof mid-line. The 1981 'heat-to-shrink' method of anchoring transmitter antennas on chum salmon was not used in 1982 (ADF&G, 1981a).

Transmitters implanted in coho salmon in 1982 incorporated a new technique developed by Su Hydro staff and termed the 'mohair modification'. In this procedure, two 0.6 cm wide mohair strips of 'ski skin' were attached with waterproof, quick cure glue opposite each other and lengthwise on the transmitter with the mohair fibers pointing anteriorly. The mohair strips were positioned flush with the distal end of the transmitter and extended anteriorly to within 0.8 cm of the antenna connection. Placement of radio antenna on coho salmon was accomplished by using the hook method defined above for chinook and chum salmon and alternatively using the 'wire modification' (ADF&G, 1981a).

Radio tracking was conducted a minimum of three times weekly from fixed wing aircraft and waterbourne craft. Chinook salmon were tracked from June 22 through August 11; chum salmon were monitored from July 30 through October 4 and coho were tracked from August 17 through October 4. Fish locations were recorded to the nearest 0.1 river mile.

2.2.1.6 Lower Devil Canyon Gill Netting

Two set net locations in the lower Devil Canyon (RM 150 - 151) reach were each fished on an average of two hours weekly from August 7 to September 7 in 1982. One net location was at RM 150.4 and the second at RM 150.2. The standard gill net used measured 15.2 m long and 1.5 m deep with 13.3 cm stretched mesh. The nearshore end of each net was staked to the bank and the offshore net end was held in place on a downstream arc by a single 35 pound Navy anchor. All fish caught were identified to species and released.

2.2.1.7 Stock Separation

For stock separation purposes, age composition data was collected from all second run sockeye salmon caught in fishwheels at Talkeetna (RM 103) and Curry (RM 120) stations in July, August and September. The same data was collected from a sample of 200 second run sockeye salmon from the Tokositna River, tributary to the Chulitna River (RM 98.5) and the outlet stream of Larsen Lake, tributary to the Talkeetna River (RM 97.0) in mid August using a beach seine.

The Statewide Biology Group of ADF&G, Commercial Fisheries Division, analyzed the samples for stock differences by procedures as defined in Appendix 2-H.

2.2.2 Spawning

2.2.2.1 Main Channel

The main channel of the Susitna River was surveyed for spawning areas by three - two member crews based at Yentna (RM 04), Sunshine (RM 80) and Gold Creek (RM 136.7) stations in 1982. The geographic area of responsibility and survey period for each crew were as defined below:

Yentna Crew	RM 0.0 - RM 61.0	August 1 - September 30
Sunshine Crew	RM 61.0 - RM 98.5	August 1 - October 7
Gold Creek Crew	RM 98.5 - RM 151.0	August 7 - October 7

The surveys were conducted by a combination of four methods:

1. Electroshockers, portable and boat mounted
2. Drift gill nets
3. Egg deposition pumps
4. Visual assessment

The main gear used to sample for salmon spawning were boat mounted electrofishing units. Specific models used were the VVP - 3C, VVP - 3E and VVP - 15 Coffelt electroshockers. Each boat mounted unit was powered by a 3500 watt Homelite generator. The operation of this gear was the same as defined in section 2.1.2 of this report. All portable or backpack shockers used were the Coffelt Model BP-IC. All drift gill nets deployed measured 15.2 m long and 1.5 m deep with a 13.3 cm stretch mesh. Each egg deposition pump had a backpack mounted Model XLS1 Homelite two cycle engine, water pump and a standing screen cod end net which sampled a 1,800 cm^2 area of substrate.

Nearly all main channel areas of the Susitna River were electrofished with boat mounted units. Shallow areas which prevented boat access were sampled by portable electroshockers and drift gill nets. Foot surveys were made in areas where water clarity allowed visual observation.

Anadromous fish intercepted by drift net and electrofishing gear in main channel areas were not assumed to be spawning at the catch location unless the following criteria were met:

1. Fish exhibited spawning maturation colors and morphology.

2. Fish expelled eggs or milt when slight pressure was exerted on the abdomen.

3. Fish were in vigorous condition, with 25 percent or more of the eggs or milt remaining in the body cavity.

4. Additional sampling effort produced fish meeting criteria 1 through 3 above.

Fish observed on foot surveys were not assumed to be spawning at a specific location unless: (1) redds were discernible and (2) subsequent site sampling with an egg deposition pump produced eggs.

2.2.2.2 Sloughs and Streams

All known Susitna River sloughs and streams between Chulitna River (RM 98.5) and Devil Canyon (RM 151) were surveyed weekly from August 3 to October 7, 1982.

Streams in the Susitna River reach north of RM 151 to Devil Creek (RM 161) were surveyed as time permitted from the first through fourth week of August. A single survey of all known sloughs and streams between RM 98.5 and 161 was made during the fourth week of October.

All surveys were conducted by foot except for the occasional use of a helicopter and boat. Surveyors wore polaroid sunglasses and enumerated live and dead fish with hand held tally counters.

Tag recovery counts were conducted north of RM 98.5 in conjunction with the scheduled escapement surveys. Tag recovery surveys were also performed south of RM 98.5 to RM 88 in pre-selected spawning areas when visibility conditions allowed accurate distinction between live tagged and untagged fish (Table 2-2-3). These surveys were conducted on foot with the number of live tagged and untagged fish by species recorded.

Table 2-2-3. Survey schedule of selected spawning areas between RM 88 and Chulitna River (RM 98.5), Adult Anadromous Investigations, Su Hydro Studies, 1982.

Spawning Area	Location 1/	Period	Frequency
Birch Creek (lower)	88.4	8/7 - 8/25 9/15 - 9/28	weekly weekly
Fish Creek	97.1	8/15 - 8/28	weekly
Byers Creek	97.8	8/15 - 9/7	weekly
Troublesome Creek	97.8	8/27 - 9/15	weekly
Answer Creek	84.1	9/15 - 9/28	weekly
Question Creek	84.1	9/15 - 9/28	weekly
Cache Creek	95.4	9/15 - 9/28	weekly
Swan Creek	97.8	9/21 - 9/28	once

1/ Confluence of spawning area or its receiving waters with Susitna River mainstem.

2.2.2.2.1 Chinook Salmon Index Surveys

Chinook salmon escapement index surveys were made in the Susitna River basin from July 12 through August 12 on all known and suspected spawning areas north of RM 98.5, and south of RM 98.5 on major streams with known spawning activity. Surveys conducted north of Talkeetna (RM 97.0) were performed by ADF&G Su Hydro Adult Anadromous Project personnel; surveys south of Talkeetna were conducted by ADF&G, Region II, Sport Fish Division staff with minor assistance from ADF&G Su Hydro personnel.

Chinook salmon index surveys were performed either by foot or helicopter with observers wearing polaroid sunglasses and enumerating individual live and dead fish by hand held tally counters.

2.3 Bering Cisco

2.3.1 Main Channel Escapement

Sampling for Bering cisco was done with fishwheels at Susitna (RM 26), Yentna (RM 04), Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations in conjunction with scheduled 1982 adult salmon operations. Additionally, at Sunshine Station the upper east bank fishwheel was operated 24 hours per day through October 1 in 1982 to sample Bering cisco.

All fishwheel catches of Bering cisco were recorded and 20 age and length samples were collected daily when available at each sampling station. Average processing time per fish for age and length sampling was 20 seconds or less. All cisco were released after sampling.

Age samples were collected by removing the 'preferred scale' as identified in report section 2.2.1.4. Lengths were taken from the tip of snout to fork of tail and recorded to the nearest mm.

2.3.2 Main Channel Spawning

The main channel of the Susitna River was surveyed from RM 0.0 to RM 151.0 for Bering cisco spawning areas in 1982 using the same methods and schedule defined in report section 2.2.2.1.

Sex composition samples were collected September 15 through October 13 from all Bering cisco intercepted in the main channel. Sex and spawning ripeness determinations were made by palpitation of the abdomen of each fish to induce milt or egg release. Females were considered ripe when slight abdominal pressure caused egg release. Males were judged to be ripe when a free release of milt occurred when minimal abdominal pressure was applied.

2.4 Data Analysis and Evaluation

2.4.1 Eulachon Length Data

First and second run eulachon length data were tested at the 95 percent confidence level to determine whether significant differences in lengths existed between fish sampled of the two runs. The two tests used were:

1. Students T test (Dixon and Massey, 1969); and

2. Mann-Whitney median test (Daniel, 1978).

2.4.2 Salmon Tag and Recapture Escapement Estimates

Chinook ($>$ 350 mm length), sockeye, pink, chum and coho salmon escapements to Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations were calculated according to the following formula (Ricker, 1975):

$$\hat{N} = (m+1)(c+1)/(r+1)$$

where:

m = Number of fish successfully marked = (number originally tagged)$\cdot$(tag retention (R) factor)

c = Total number of fish examined for marks (tags) during sampling census

r = Total number of marked (tagged) fish observed during sampling census

$\hat{N}$ = Population estimate

The 95 percent confidence limits around $\hat{N}$ were determined by using the formula (Dixon and Massey, 1969):

$$r/c + 1.96\sqrt{\frac{r/c\ (1-r/c)}{c}} < r/c < r/c - 1.96\sqrt{\frac{r/c\ (1-r/c)}{c}} = .95$$

$$r/c_{\text{upper}}\ (1/m) < 1/\hat{N} < r/c_{\text{lower}}\ (1/m)$$

Tag losses were estimated by data collected from repeated surveys in spawning areas where visibility conditions permitted unrestricted identification of shed tags, tagged scarred fish (where applicable) and live tagged fish (Appendix Table 2-F-3). Computation of tag retention by tag type and tagging location was made through the following formula:

$$R = \frac{T}{S + T}$$

where:

T = Number of live tagged fish observed by tag type and tagging station.

S = Number of shed tags by tag type and tagging station and or when applicable number of tagged scarred fish.

R = Tag retention factor

The formula used to estimate the number of chinook salmon length (FL) 350 mm and less migrating to Sunshine, Talkeetna and Curry stations was:

$$J = \frac{\hat{N}b}{e}$$

where:

$\hat{N}$ = Population estimate for fish larger than 350 mm length (FL).

b = number of fish intercepted at tagging location length (FL) 350 mm and less.

e = number of fish intercepted at tagging location larger than 350 mm length (FL).

J = Population estimate of fish length (FL) 350 mm and less.

2.4.3 Presentation of Salmon Escapement Estimates

The SSS counts recorded at Susitna (RM 26) and Sunshine (RM 80) stations have been presented in this report as relative escapement estimates by species for the respective location. The rationale for classifying Susitna Station SSS counts as relative escapement estimates can be found in the 1982 Upper Cook Inlet Data Report, ADF&G, Soldotna, Alaska (Tarbox and King, in press). The basis for classifying Sunshine Station SSS counts in the same manner were: (1) the two sonar counters at Sunshine Station were sited in a braided, non-consolidated main channel reach (Appendix Figure 2-A-3); and electroshocking in the area of Sunshine Station established the presence of adult salmon in channels that were not monitored by SSS gear (Appendix Table 2-F-1); and (2) the two SSS counters at Sunshine Station were not sited directly across from each other (Appendix Figure 2-A-3); one counter was located off the far east bank of the river at RM 79 and the west bank sonar was sited off the far west bank of the river at RM 81; a number (unquantified) of fish probably crossed between the two SSS sites and were not counted or were counted twice.

The SSS counts logged at Yentna Station (RM 04) have been reported as total escapement numbers to the Yentna River (RM 28). The basis for this decision was that: (1) the SSS sector data, collected in 1981 and 1982 at Yentna Station indicated that no significant (≥10%) fish passage occurred offshore of the counting ranges of either sonar (Appendix 2-B); (2) the Yentna River at RM 04 was consolidated with no side channels; (3) the bottom profiles collected at both SSS locations indicated the two sonar substrates were in full contact with the river bottom (Appendix 2-B); (4) the two SSS counters were nearly directly across from one another therein there was probably minimal, if any fish cross-over between the two sonar installations; and (5) no alternate or 'better' escapement monitoring method in use on the Yentna River.

A factor which should be considered when reviewing Yentna Station (RM 04) SSS counts was that the counts were apportioned by unadjusted fishwheel catch (relative abundance) data. Inasmuch as fishwheels have been shown to be species selective (Thompson and Barrett, in press), the Yentna Station apportioned SSS counts may be biased. It is probable that the counts recorded at Yentna Station were over apportioned for pink salmon and under apportioned for chum salmon due to general selectivity of fishwheels for pink salmon and against chum salmon and the migrational overlap of the two species in timing at Yentna Station (Thompson and Barrett, in press).

The two SSS counters at Talkeetna Station (RM 103) were: (1) sited in a non-braided main channel reach; (2) sited off opposite banks nearly in direct line with one another (Appendix 2-A); (3) sited where bottom profiles indicated that complete stream bed contact occurred with the sonar substrates (Appendix 2-B); and (4) sited at a location on the main channel where the resultant sector distribution data did not indicate significant (≥ 10%) fish migration offshore of the two counting ranges (Appendix 2-B). Talkeetna Station SSS counts, however, were not used to report Susitna River escapement to RM 103 due to: (1) probable misapportionment of the SSS counts due to fishwheel selectivity; and (2) an escapement estimate obtained by the Petersen method for RM 103 which was not biased by fishwheel selectivity.

The Petersen population estimates have been reported as total escapement numbers by species. The estimates, however, do not represent just the number of fish by species that spawned above each of the particular tagging sites. Adult salmon milling activity occurs in the Susitna River main channel. It is common for adult salmon to migrate upstream beyond their respective spawning area and then descend and enter a system to spawn (Barrett 1974, Friese 1975). The Petersen population estimates presented in this report were the number of fish, by species, that migrated to the respective tagging sites. This includes the milling fish and the fish that spawned upstream.

Six basic assumptions were made in calculating the Petersen population estimates for Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations presented in this report. These assumptions listed in Begon (1979) were: (1) fishwheel catches were random with respect to the population; (2) there was no mortality due to the tagging process; (3) tagged salmon had the same natural mortality as untagged salmon; (4) tagged salmon mixed randomly within the population; (5) tagged salmon were recognized during surveys; and (6) tag losses did not occur or were determined. Violation of one or more of these assumptions would bias toward an over estimate of the escapement. In an attempt to minimize this probability several preventive measurements were followed. At Sunshine, Talkeetna and Curry stations equal numbers of fishwheels were operated off each bank of the river. All wheels were operated at the same efficiency from the beginning of the season to the end. Only fish in robust conditions were tagged. Fish which appeared stressed or were lethargic were not tagged. Sampling for tag recoveries was continuous through the spawning period and was not conducted closer than five miles to the tagging location to insure random mixing of tagged and untagged fish. Tag losses were monitored and numbers adjusted to account for losses (Appendix Table 2-F-3). And lastly, tag recovery surveys were conducted only when survey conditions permitted unrestricted visibility to insure accurate distinction between tagged and untagged fish.

The 1981 and 1982 Petersen population estimates reported for Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations should be considered quite reliable or 'good' for estimating the salmon escapements at these locations. Exceptions in the 1981 Petersen population estimates were: (1) the pink salmon estimate for Talkeetna Station which was 'average'; and (2) the pink salmon and coho salmon estimates for Curry Station which were 'poor' and 'less than poor' respectively. The 1982 exceptions were: (1) the chinook and coho salmon escapement estimates for Talkeetna Station which both were 'average'; and (2) the Curry Station chinook and coho salmon estimates which were 'average' and 'poor' respectively. These ratings were based on a 95 percent confidence interval of 20 percent, 40 percent and 60 percent of the estimated value for ratings of 'good', 'average' and 'poor', respectively (Cousens et al., 1982).

2.4.4. Calculation of Main Channel Escapement Timing

Escapement timing by species was determined for each of the main channel stations through interpretation of fishwheel catch rate data wherein the migration was defined to have 'started', 'reached a midpoint' and 'ended' on the date when 5.0 percent, 50.0 percent and 95.0 percent respectively of the cumulative daily mean hourly fishwheel catch was attained at the respective station.

2.4.5 Age Determination

Age determination was made by standard scale analysis techniques using a portable microfiche reader. Age classes were described using the Gilbert-Rich notation. By this notation, age 5_2 fish are those fish which return to spawn in their fifth year of life having migrated or smolted from freshwater to the marine environment in their second year of life after having spent one winter rearing in fresh water.

3.0 RESULTS AND DISCUSSION

3.1 Eulachon

3.1.1. Estuary

Eulachon were intercepted on the first day fished with set gill nets in the estuary on May 16, 1982. This was also the day the Susitna River main channel was first ice-free. The catch of eulachon per net minute (CPUE) fished on May 16 was 1.1 pre-spawners (Table 2-3-1). From May 17 through May 22 the catches in the estuary were relatively stable with CPUE's recorded between 1.2 and 1.5 eulachon. Over the next eight days eulachon catches declined to a 0.1 CPUE on May 30.

A second run of eulachon entered the Susitna River estuary on or about June 1, 1982 (Table 2-3-1). On June 2, a CPUE of 17.9 pre-spawning eulachon was recorded, a 17,900 percent increase over the 0.1 CPUE recorded three days earlier. On June 5 and 7 CPUE values were 2.6 and 2.5 eulachon, respectively. The migration of second run eulachon was over by June 9 based on a recorded CPUE on that date of 0.0 eulachon.

Second run eulachon were approximately 4.5 times more abundant than first run fish, as determined by set net catch data reported in Table 2-3-1.

Eulachon set net catches in the estuary and water temperatures recorded at RM 26 are graphed in Figure 2-3-1. There is no correlation apparent between the two variables.

Table 2-3-1. Eulachon set net catches in Susitna River estuary, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	Tide 1/ Ht.	Tide 1/ Time 2/	Location Site No. 3/	Location RM 4/	Fishing Time 2/ Net In	Fishing Time 2/ Net Out	Fishing Time 2/ Total Min.	Eulachon Catch Pre-Spawners	Eulachon Catch Post-Spawners	Eulachon Catch Total	C.P.U.E. 5/
5/16	22.6	1214	1	4.0	1320	1350	30	42	0	42	1.1
5/16	22.6	1214	2	4.5	1200	1230	30	24	0	24	
5/17	23.0	1333	1	4.0	1248	1322	34	72	0	72	1.5
5/17	23.0	1333	2	4.5	1348	1418	30	22	0	22	
5/19	27.8	0344	1	4.0	0257	0327	30	47	0	47	1.2
5/19	27.8	0344	2	4.5	0359	0429	30	27	0	27	
5/20	28.0	1642	1	4.0	1557	1627	30	31	0	31	1.4
5/20	28.0	1642	2	4.5	1704	1734	30	50	0	50	
5/22	31.5	0532	1	4.0	0447	0517	30	60	0	60	1.3
5/22	31.5	0532	2	4.5	0546	0614	28	15	0	15	
5/23	30.8	1906	1	4.0	1821	1852	31	38	8	46	0.7
5/23	30.8	1906	2	4.5	1921	1951	30	7	18	25	
5/26	32.0	0825	1	4.0	0740	0810	30	32	1	33	1.0
5/26	32.0	0825	2	4.5	0840	0910	30	25	15	40	
5/28	28.7	1014	1	4.0	0929	1000	31	2	3	5	0.4
5/28	28.7	1014	2	4.5	1029	1059	30	24	48	72	
5/30	25.4	1245	1	4.0	1200	1230	30	1	4	5	0.1
5/30	25.4	1245	2	4.5	1300	1330	30	6	23	29	
6/2	28.6	0344	1	4.0	0259	0303	4	98	1	99	17.9
6/2	28.6	0344	2	4.5	0359	0403	4	45	0	45	

Table 2-3-1. Continued.

Date	Tide 1/		Location		Fishing Time 2/			Eulachon Catch			C.P.U.E. 5/
	Ht.	Time 2/	Site No. 3/	RM 4/	Net In	Net Out	Total Min.	Pre-Spawners	Post-Spawners	Total	
6/5	28.2	1753	1	4.0	1711	1741	30	30	11	41	2.6
6/5	28.2	1753	2	4.5	1820	1850	30	124	94	218	
6/7	29.4	0634	1	4.0	0549	0619	30	4	63	67	2.5
6/7	29.4	0634	2	4.5	0649	0719	30	143	148	291	
6/9	28.6	0741	1	4.0	0640	0710	30	0	2	2	
6/9	28.6	0741	2	4.5	0736	0802	26	1	16	17	0.0

1/ High Tide in feet

2/ Military Time

3/ Site No:1 (T14N R7W Section 5 DAC)
Site No:2 (T14N R7W Section 5 AAC)

4/ River Mile

5/ C.P.U.E.: Mean number of pre-spawners/net/minute

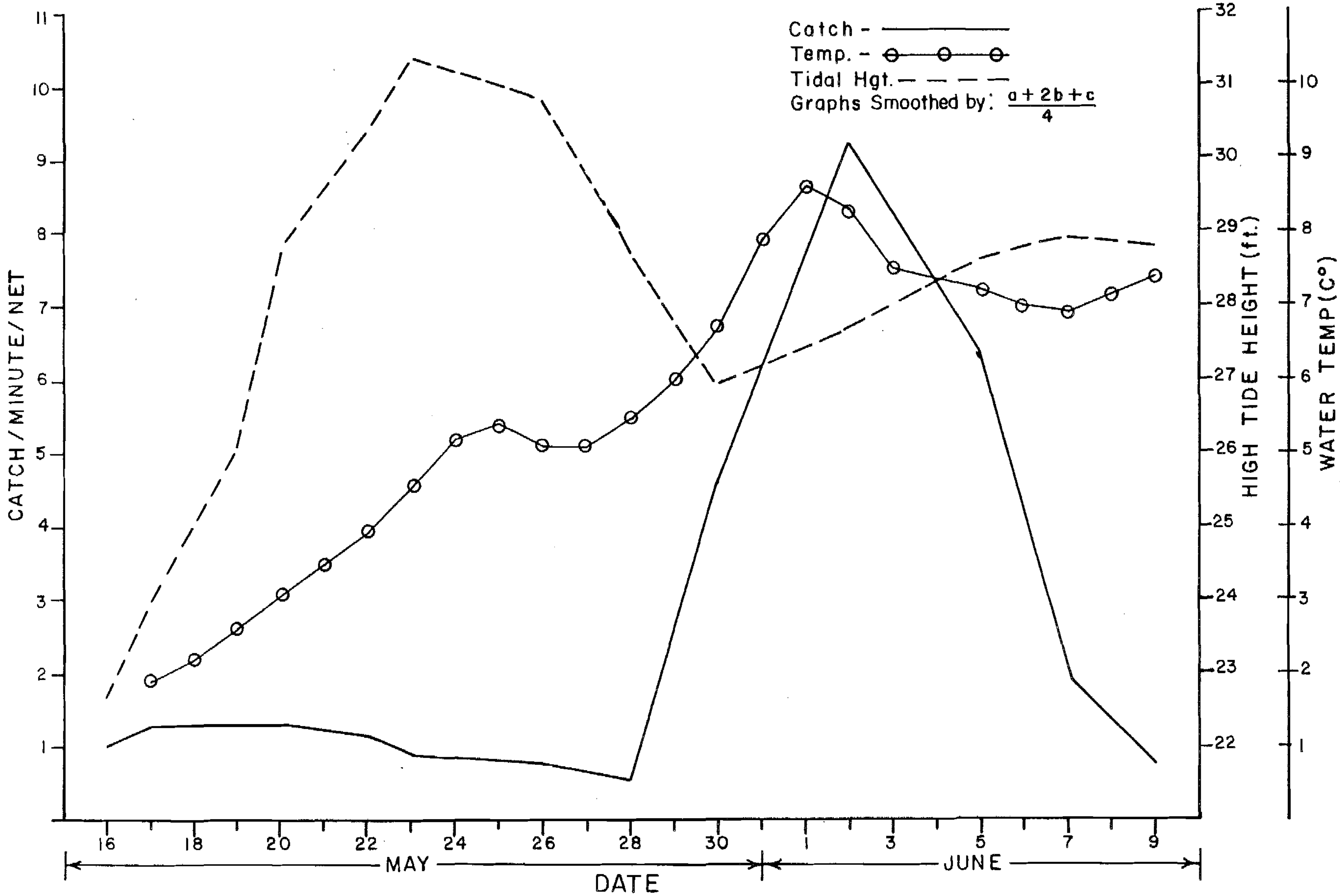


Figure 2-3-1. Mean number of pre-spawning eulachon intercepted per net minute in the Susitna River estuary and corresponding high tide ranges and temperatures, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The first run of eulachon (May 16-30) entered the estuary at high tides ranging from 22.6 to 32.9 feet. The second run (June 1-8) entered the estuary at high tides ranging from 25.5 to 29.4 feet. A plot of daily high tide levels and eulachon catches as provided in Figure 2-3-1 does not indicate a correlation between the two variables.

Post-spawning condition eulachon were first intercepted in the estuary May 23 when 26 fish were caught in 61 net minutes (Table 2-3-1 and Plate 2-3-1.). Five days later on May 28 the catches peaked and then began a decline. An inseason low was reached on June 2. Catches then began to increase and on June 7 a season high was reached when 211 post-spawners were caught in 60 net minutes. By June 9 the catch had dropped to one-tenth the June 7 catch. Based on these catch patterns two distinct downstream movements of

Plate 2-3-1. Eulachon escapement sampling with gill net at Susitna River mile 4.5.

post-spawners occurred between May 23 and June 9. The first movement occurred between May 23 and June 2, and the second began June 5 and ended on June 9, approximately.

3.1.2 Main Channel

The results of sampling the Susitna River main channel from the estuary to RM 53.8 for eulachon presence, spawning condition and sex composition are summarized in Tables 2-3-2 and 2-3-4 (Plates 2-3-2 and 2-3-3).

The first run of eulachon which entered the estuary between May 16 and May 30 began spawning in the Susitna River mainstem on or about May 21 in 1982 (Tables 2-3-2 and 2-3-3). Spawning by first run fish was essentially over by May 31. The furthest point first run fish ascended was RM 40.5, approximately (Table 2-3-2). The majority of the spawning occurred below RM 28.1 (Table 2-3-4 and Figure 2-3-2).

The second run of eulachon which passed through the estuary between June 1 and June 8, 1982 first initiated main channel spawning on or about June 4. Spawning by second run fish was essentially over by June 9 (Table 2-3-3). The upper limit of migration of second run fish in the Susitna River was approximately RM 48.0 (Table 2-3-2). The majority of the second run fish spawned below RM 28.1 (Table 2-3-4).

Both first and second run eulachon entered the Yentna River (RM 28). The extent and nature of their migration in the Yentna River was not determined in accordance with the Phase II project scope.

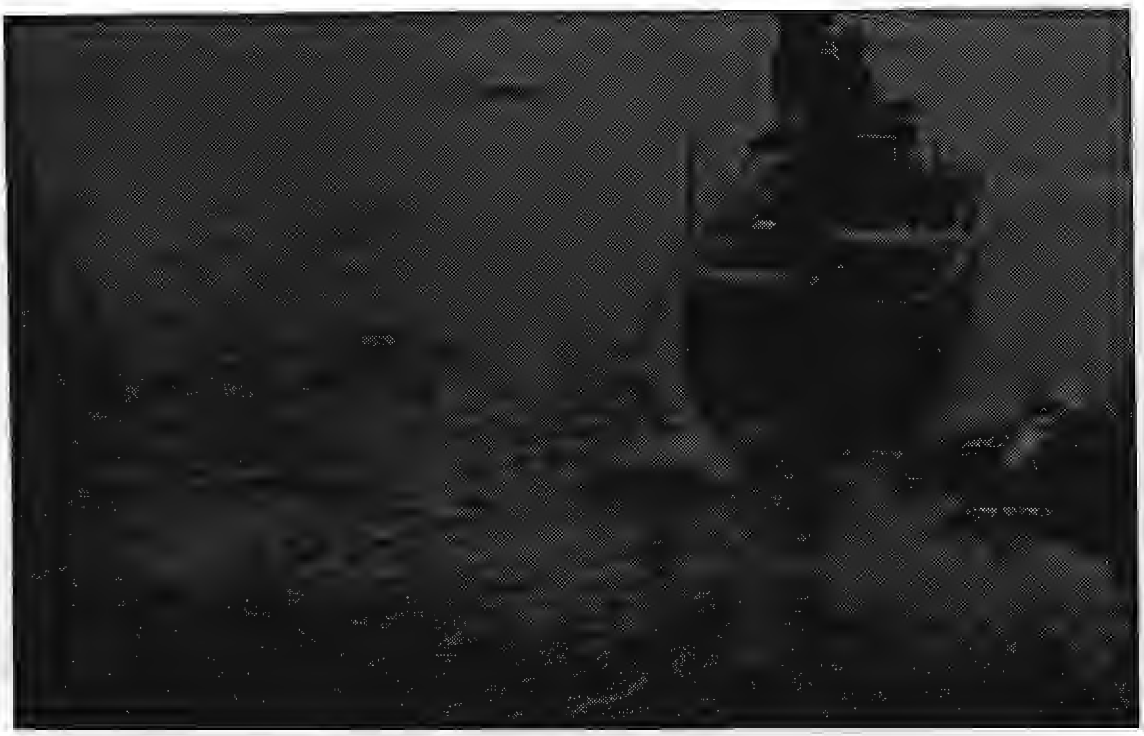


Plate 2-3-2. Electroshocking the Susitna River for eulachon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Plate 2-3-3. Eulachon escapement sampling with dipnet at Susitna River mile 4.5, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-2. Presence and spawning condition of eulachon in Susitna River mainstem, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	River Mile	Sampling Method[1]		Eulachon	Spawning Condition	
		D/N	Elect.	Present	Pre.	Post.[2]
5/16	4.5	X		X	X	
5/17	4.5	X		X	X	
5/18	25.5		X	X	X	
5/18	28.0		X	X	X	
5/18	25.5		X	X	X	
5/19	4.5	X		X	X	
5/19	25.5	X		X	X	
5/20	4.5	X		X	X	
5/20	36.7	X	X	X	X	
5/20	40.4		X	X	X	
5/20	40.5		X	X	X	
5/20	40.8		X			
5/21	25.5	X		X	X	2
5/21	46.9		X			
5/21	47.0		X			
5/21	47.1		X			
5/21	48.4		X			
5/21	48.5		X			
5/21	48.8		X			
5/21	48.9		X			
5/21	49.0		X			
5/21	49.4		X			
5/21	49.5		X			
5/21	49.0-49.8		X			
5/21	49.1-49.3		X			
5/22	25.5	X		X	X	3
5/23	16.3-16.5	X		X	X	3
5/23	20.1		X	X	X	2
5/23	21.9		X	X	X	
5/23	22.0		X	X	X	
5/24	25.5	X		X	X	2
5/24	27.8-28.2		X			
5/24	33.3		X			
5/24	33.9-34.2		X			
5/24	35.7		X			
5/24	36.9		X			
5/24	38.3		X			
5/24	40.0		X			
5/24	40.3		X	X		
5/24	40.5		X			
5/24	43.3		X			
5/25	25.5	X		X		
5/25	26.4-26.5		X	X	X	3
5/25	27.0	X	X	X	X	3
5/25	30.7-31.0		X			
5/25	28.7-29.2		X			
5/25	30.4-30.5		X			
5/26	4.5	X		X	X	3
5/26	7.5		X			
5/26	8.5		X	X	X	3
5/26	10.8		X	X	X	3
5/26	13.5		X	X	X	1
5/26	16.3		X	X	X	1
5/26	18.3	X		X	X	3
5/26	19.5	X		X	X	3
5/26	22.5	X		X	X	3
5/27	22.5	X		X	X	1
5/28	16.3	X		X	X	1
5/28	18.5	X		X	X	3
5/28	25.5	X		X	X	3
5/29	27.0	X		X	X	3
5/29	36.6-36.7		X			
5/29	43.0-43.6		X			
5/29	43.6-43.7		X			
5/29	43.7-43.8		X			
5/29	44.5		X			
5/29	46.6		X			
5/29	48.8-48.9		X			
5/29	48.9		X			
5/29	52.9		X			
5/29	53.0		X			
5/30	19.8	X		X	X	3
5/30	16.3	X		X	X	3
5/30	18.5	X		X	X	1
5/30	22.8		X	X	X	3
5/30	24.8		X	X	X	1
5/31	25.5	X		X	X	1
5/31	25.8		X	X	X	1

Table 2-3-2. Continued.

Date	River Mile	Sampling Method 1/		Eulachon		
					Spawning Condition	
		D/N	Elect.	Present	Pre.	Post. 2/
5/31	25.8-26.0		X	X	X	3
5/31	26.5	X		X		
6/1	16.3	X		X	X	1
6/1	18.5	X		X	X	
6/1	19.5	X		X	X	
6/1	21.0	X		X	X	3
6/1	21.0	X		X	X	3
6/1	25.5	X		X	X	1
6/2	25.5	X		X	X	1
6/2	30.1	X		X	X	1
6/2	36.8	X		X	X	1
6/2	41.4	X		X	X	1
6/2	45.8	X		X	X	1
6/2	47.9	X		X	X	1
6/2	48.7	X				
6/2	50.4	X				
6/3	25.5	X		X	X	2
6/3	36.8	X		X	X	1
6/3	38.4	X		X	X	1
6/3	41.4	X		X	X	1
6/3	44.0	X		X	X	1
6/3	45.0	X				
6/3	45.7	X				
6/3	46.0	X				
6/3	49.1	X				
6/3	49.2	X				
6/3	53.8	X				
6/4	25.5	X		X	X	1
6/4	36.8		X	X	X	1
6/4	41.4		X	X	X	
6/4	45.0	X		X	X	3
6/4	45.8		X			
6/4	47.8		X			
6/4	48.0	X		X	X	2
6/4	49.1		X			
6/4	53.1		X			
6/4	50.7-50.9		X			
6/5	9.5	X		X	X	3
6/5	15.0	X		X	X	3
6/5	25.5	X		X	X	3
6/5	27.9	X		X	X	3
6/5	31.0	X		X	X	1
6/5	31.8	X		X	X	1
6/6	15.0	X		X	X	3
6/6	16.3	X		X	X	3
6/6	25.5	X		X	X	3
6/7	35.5	X		X	X	3
6/7	45.6	X				
6/7	45.9	X				
6/7	47.3	X		X	X	1
6/7	47.4	X				
6/7	49.2	X				
6/7	49.7	X				
6/7	50.8	X				
6/8	18.3	X		X	X	3
6/8	20.0	X		X	X	1
6/8	21.7	X		X	X	2
6/8	31.2	X		X	X	1
6/8	31.3	X				
6/8	32.4	X				
6/8	34.6	X				
6/8	34.9	X				
6/8	35.0	X				
6/8	36.1	X				
6/8	36.7	X				
6/9	15.0	X		X	X	3

1/ D/N = Dip Net; Elect. = Electrofishing
2/ 1 = Male post spawners present; 2 = Female post spawners present; 3 = Male and female post spawners present

Table 2-3-3. Sex composition and spawning condition of eulachon sampled at various Susitna River locations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	Location (R.M.) 1/	Sample Size	Number		Sex Ratio (M:F)	Spawning Condition 2/ (%)			
						Males		Females	
			Males	Females		Pre.	Post.	Pre.	Post.
5/16	4.5	110	74	36	2.1:1	100	0	100	0
5/17	4.5	173	98	75	1.3:1	100	0	100	0
5/18	25.5	11	9	2	4.5:1				
5/18	28.0	53	42	11	3.8:1				
5/18	28.5	106	85	21	4.1:1				
5/19	4.5	103	51	52	1.0:1	100	0	100	0
5/19	25.5	117	61	56	1.1:1				
5/20	4.5	151	82	69	1.2:1	100	0	100	0
5/20	36.7	47	37	10	3.7:1	100	0	100	0
5/20	40.4	8	6	2	3.0:1	100	0	100	0
5/20	40.5	16	12	4	3.0:1	100	0	100	0
5/21	25.5	360	211	149	1.4:1	100	0	98.0	2.0
5/22	25.5	100	42	58	0.7:1	92.9	7.1	84.5	15.5
5/23	20.5	119	22	97	0.2:1	100	0	88.7	11.3
5/23	21.9	144	132	12	11.0:1				
5/23	16.3	148	112	36	3.1:1	96.4	3.6	94.4	5.6
5/24	25.5	139	87	52	1.7:1	100	0	53.9	46.1
5/25	25.5	104	80	24	3.3:1	76.2	23.8	79.2	20.8
5/25	27.0	356	352	4	88.0:1	92.3	7.7	75.	25
5/25	26.5	84	78	6	13.0:1	79.5	20.5	50	50
5/26	4.5	114	52	62	0.8:1	94.2	5.8	88.7	11.3
5/26	8.5	32	10	22	0.5:1	90	10	59.1	40.9
5/26	10.8	66	34	32	1.1:1	91.2	8.8	96.9	3.1
5/26	13.15	15	12	3	4.0:1	66.7	33.3	100	0
5/26	16.35	203	119	84	1.4:1	88.2	11.8	100	0
5/26	18.3	222	200	22	9.1:1	85.5	14.5	95.5	4.5
5/26	19.5	112	92	20	4.6:1	56	44	80	20
5/26	22.5	100	49	51	1.0:1	75.5	24.5	98	2
5/27	25.5	105	40	65	0.6:1	47.5	52.5	100	0
5/28	16.3	105	73	32	2.3:1	38.4	61.6	100	0
5/28	18.5	115	113	2	56.5:1	70.8	29.2	50	50
5/28	25.5	145	77	68	1.1:1	84.4	15.6	91.2	8.8
5/29	27.0	244	236	8	29.5:1	80.1	19.9	50	50
5/30	22.8	73	38	35	1.1:1	65.8	34.2	97.1	2.9
5/30	24.8	10	10	0		40	60		
5/30	16.3	103	92	11	8.4:1	68.5	31.5	90.9	9.1
5/30	18.5	117	117	0		83.8	16.2		
5/30	19.8	25	16	9	1.8:1	68.7	31.3	33.3	66.7
5/31	25.5	65	59	6	9.8:1				
5/31	26.5	124	123	1	123.0:1				
5/31	25.8	46	45	1	45.0:1	80	20	100	0
5/31	25.9	45	43	2	21.5:1	48.8	51.2	0	100

Table 2-3-3. Continued.

Date	Location (R.M.) 1/	Sample Size	Number		Sex Ratio (M:F)	Spawning Condition 2/ (%)			
						Males		Females	
			Males	Females		Pre.	Post.	Pre.	Post.
6/1	16.3	486	255	231	1.1:1	98.8	1.2	100	
6/1	18.5	214	112	102	1.1:1	98.2	1.8	100	
6/1	19.5	209	112	97	1.2:1	100	0	100	0
6/1	21.0	259	174	85	2.1:1	97.1	2.9	98.8	1.2
6/1	21.0	265	174	91	1.9:1	97.1	2.9	98.9	1.1
6/1	25.5	143	103	40	2.6:1	97.1	2.9	100	0
6/2	25.5	109	55	54	1.0:1	96.4	3.6	100	0
6/2	30.1	179	84	95	0.9:1	100	0	100	0
6/2	36.8	104	49	55	0.9:1	100	0	100	0
6/2	41.4	236	105	131	0.8:1	100	0	100	0
6/2	45.8	6	3	3	1.0:1	100	0	100	0
6/2	47.9	17	9	8	1.1:1				
6/3	25.5	216	106	110	1.0:1	100	0	98.2	1.8
6/3	36.8	155	93	62	1.5:1	100	0	100	0
6/3	38.4	3	2	1	2.0:1				
6/3	41.4	139	71	68	1.0:1	100	0	100	0
6/3	44.0	143	85	58	1.5:1	100	0	100	0
6/4	36.8	156	85	71	1.2:1	95.3	4.7	100	0
6/4	41.4	136	88	48	1.8:1	100	0	100	0
6/4	25.5	187	111	76	1.5:1	100	0	100	0
6/4	45.0	147	106	41	2.6:1	99.1	0.9	97.6	2.4
6/4	48.0	145	99	46	2.2:1	100	0	97.8	2.2
6/5	9.5	156	71	85	0.8:1	33.8	66.2	70.6	29.4
6/5	15.0	104	82	22	3.7:1	85.4	14.6	86.4	13.6
6/5	25.5	167	68	99	0.7:1	75.0	25.0	76.7	30.3
6/5	27.9	177	112	65	1.7:1	77.7	22.3	32.3	67.7
6/5	31.0	145	72	73	1.0:1				
6/5	31.8	193	92	101	0.9:1				
6/6	15.0	314	288	26	11.1:1	81.6	18.4	61.5	38.5
6/6	16.3	212	142	70	2.0:1	82.4	17.6	92.9	7.1
6/6	25.5	143	85	58	1.5:1	44.7	55.3	55.2	44.8
6/7	35.5	161	98	63	1.6:1	63.3	36.7	95.2	4.8
6/7	47.3	17	15	2	7.5:1	0	100	100	0
6/8	18.3	150	144	6	24.0:1	51.4	48.6	83.3	16.7
6/8	20	94	90	4	22.5:1	48.9	51.1	100	
6/8	21.7	62	59	3	19.7:1	0	100	66.7	33.3
6/8	31.2	7	5	2	2.5:1				
6/9	15.0	156	145	11	13.2:1	26.9	73.1	0	100

1/ River Mile
2/ Pre-spawning condition: gravid
Post-spawning condition: spent

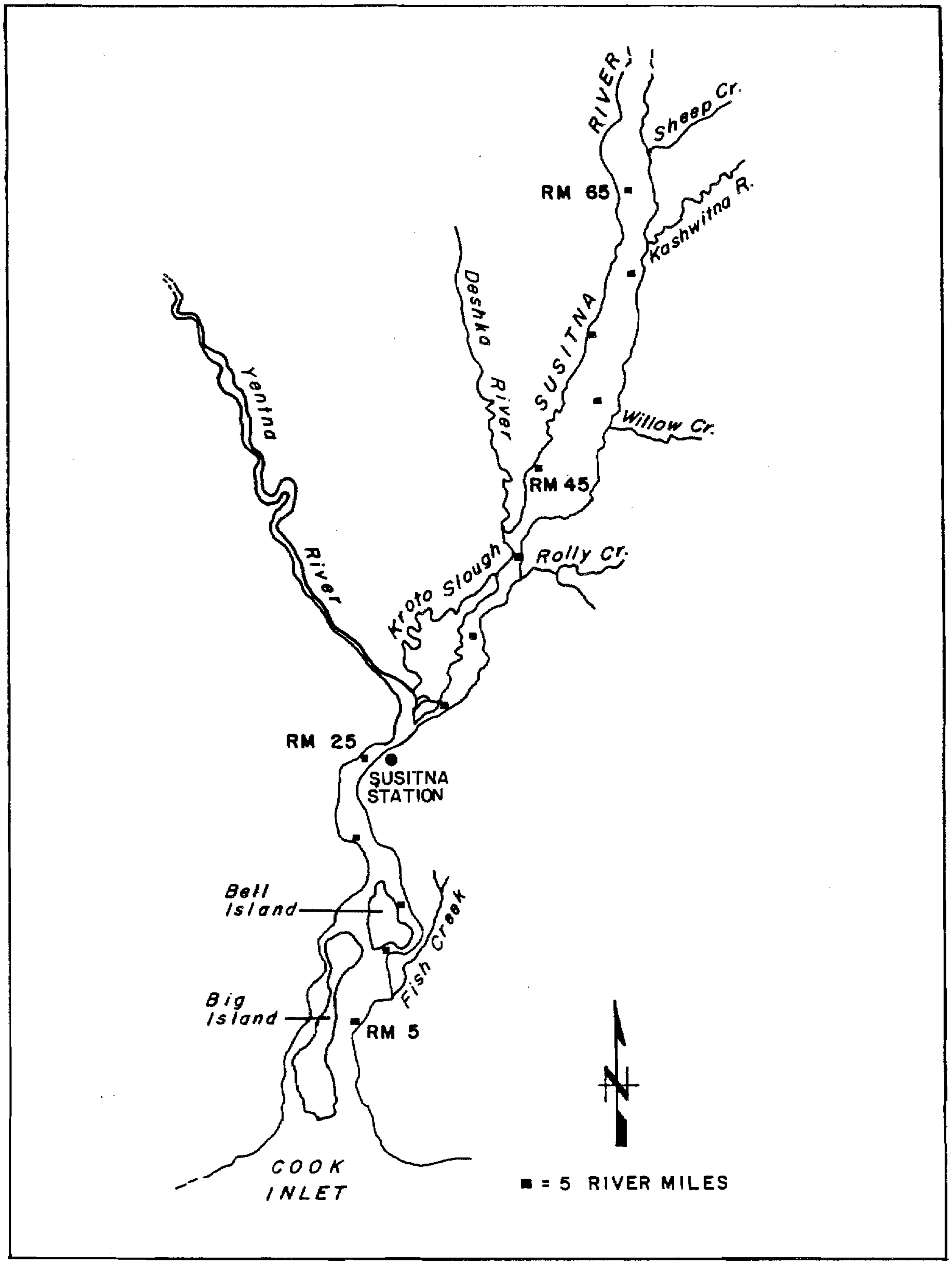


Figure 2-3-2. Lower Susitna River reach from estuary to Sheep Creek, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-4. Incidence of eulachon in Susitna River by date and river mile sector, Adult Anadromous Investigations, Su Hydro Studies, 1982.

River Mile Sector	Eulachon Periodicity 1/																						
	May														June								
	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9
5.1-7.0																							
7.1-9.0									±														
9.1-11.0									±										±				
11.1-13.0																							
13.1-15.0									+										±	±			±
15.1-17.0						±			+		+		±		+					±			
17.1-19.0									±		±		+		+							±	
19.1-21.0					±				±				±		±							+	
21.1-22.0					+																	±	
22.1-24.0									±				±										
24.1-26.0	+	+		±	±		±	±		+	±		+	±	+	+	±	+	±	±			
26.1-28.0	+						/	±			+	±	+					±					
28.1-30.0	+							/															
30.1-32.0								/								+			+			+	
32.1-34.0							/															/	
34.1-36.0							/														±	/	
36.1-38.0			+				/									+	+	+				/	
38.1-40.0							/										+						
40.1-42.0			+				+									+		+					
42.1-44.0							/										+						
44.1-46.0												/				+	+	±			/		
46.1-48.0				/								/				+		±			+		
48.1-50.0				/								/				/	/	/			/		
50.1-52.0																/		/			/		
52.1-54.0												/					/	/					

1/ Periodicity Code: + = Present
± = Pre and post spawning condition eulachon present
/ = Absent

Spawning occurred in the Susitna River at water temperatures ranging from 3.0 to 9.5°C as recorded at RM 26 in 1982 (Figure 2-3-3). The lower limits of spawning in the Susitna River of first and second run eulachon were not established but can be estimated to be somewhere between RM 4.5 and 8.5 (Table 2-3-2).

The 1982 Susitna River eulachon migration was comprised of age 3_1 and 4_1 fish based on 496 age samples (Table 2-3-5). First run males sampled were 73.6 percent age 3_1 and 26.4 percent age 4_1. First run female eulachon sampled were 88.5 percent age 3_1 and 11.5 percent age 4_1 (Figure 2-3-4). Second run eulachon males sampled were 76.7 and 23.3 percents age 3_1 and 4_1, respectively. Second run females sampled had identical age composition as second run males sampled at 76.7 percent age 3_1 and 23.3 percent age 4_1.

Table 2-3-5. Age composition of male and female Susitna River eulachon in percent by sampling period, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Period	Male Sample Size	Male Age 3 yr.	Male Age 4 yr.	Female Sample Size	Female Age 3 yr.	Female Age 4 yr.
5/16 - 5/31	159	73.6	26.4	157	88.5	11.5
6/1 - 6/9	90	76.7	23.3	90	76.7	23.3

Length (TL) and associated weight data collected from first and second run eulachon during 1982 are presented in Table 2-3-6.

Mean length and weight of male first and second run eulachon sampled were 214.3 mm and 74.0 g, and 217.6 mm and 75.9 g, respectively. First run females sampled averaged 209.7 mm in length and 69.2 g in weight. Second run females averaged 213.0 mm and 70.1 g.

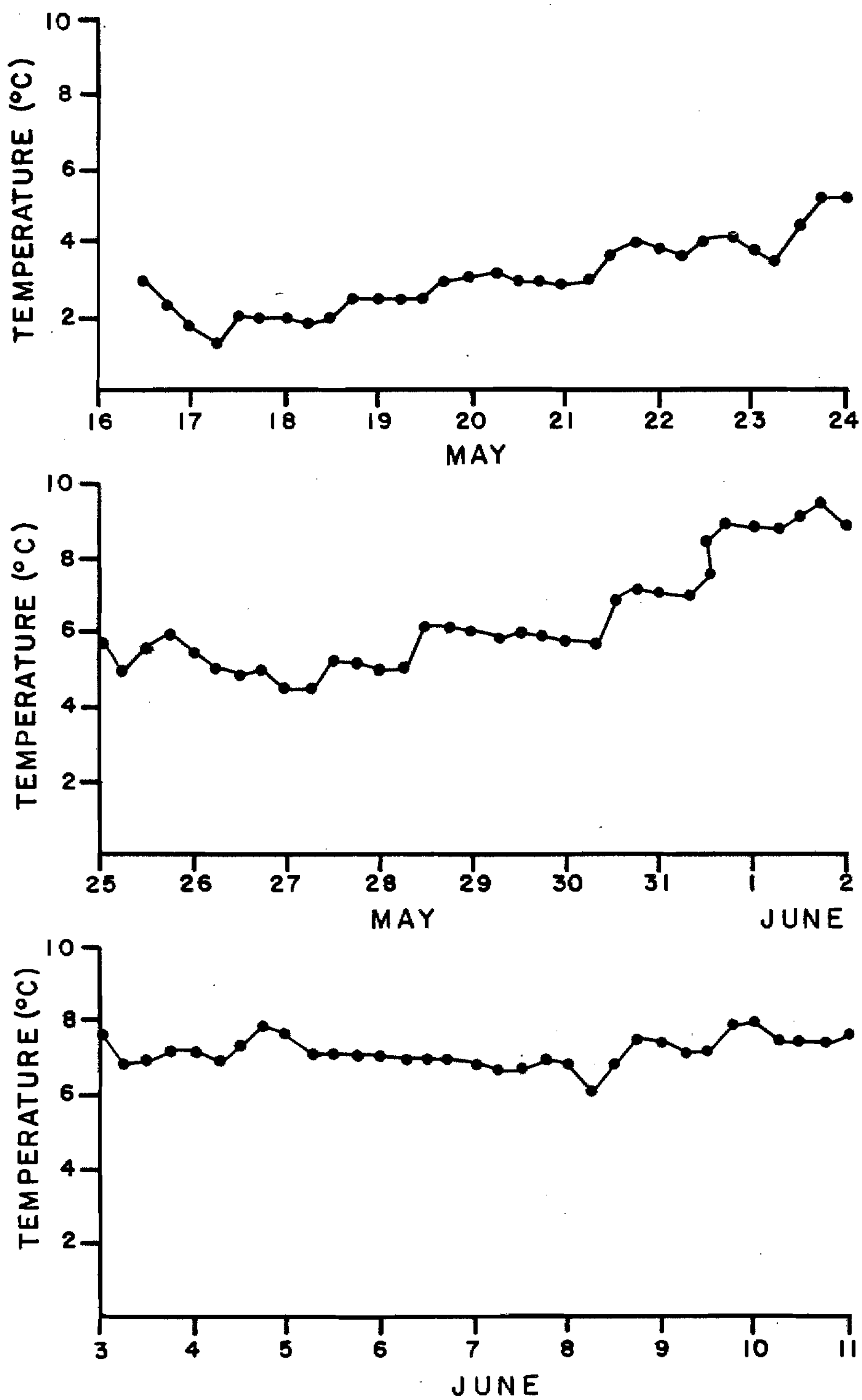


Figure 2-3-3. Daily temperature data (^{O}C) by six hour increments for main channel Susitna River at RM 26, May 16 - June 10, 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

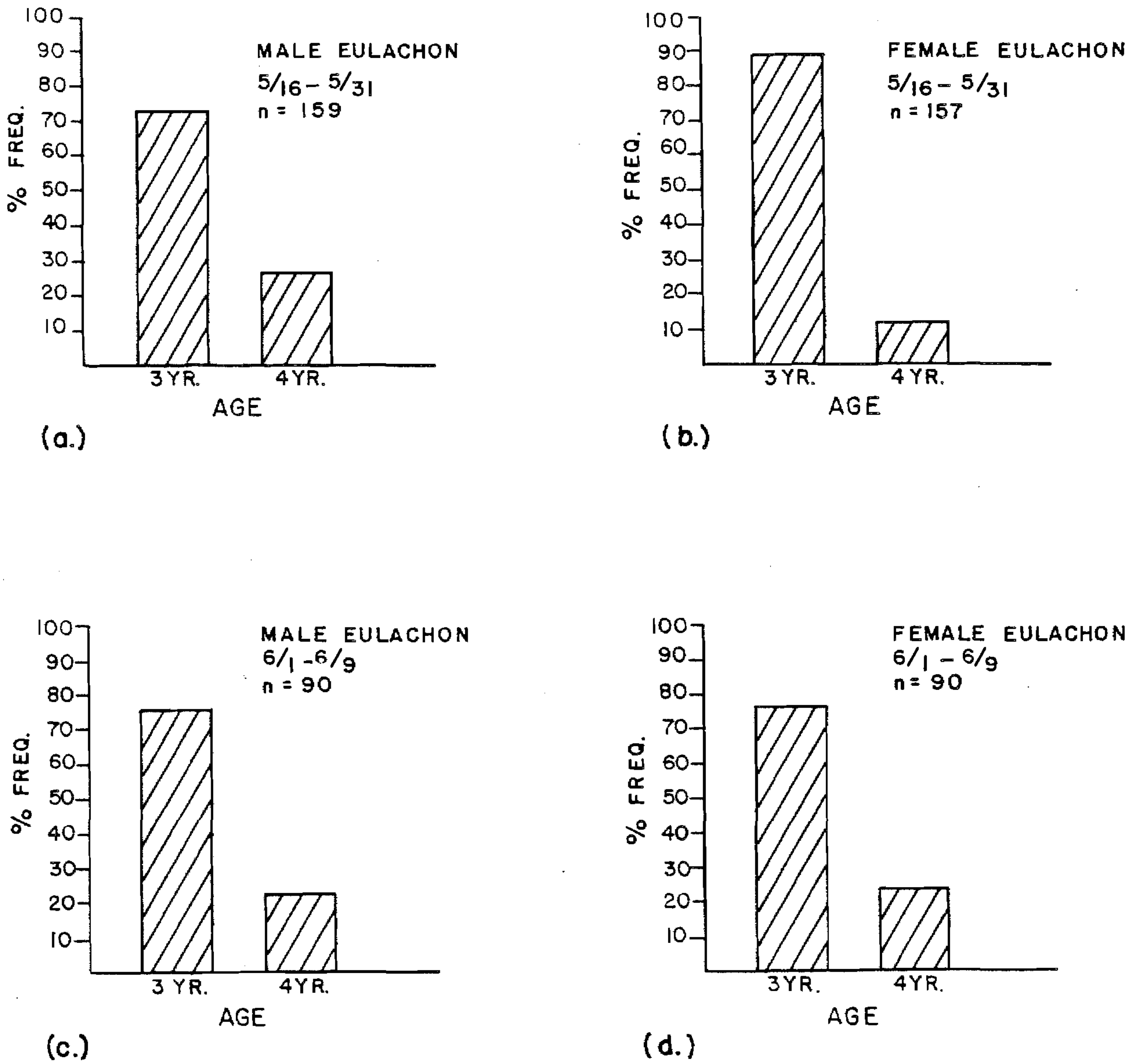


Figure 2-3-4. Age composition of (a-b) first period 5/16-5/31 intercepted male and female eulachon and (c-d) second period 6/1-6/9 intercepted male and female eulachon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-6. Eulachon length and weight data collected by age, sex and sampling period, Adult Anadromous Investigations, Su Hydro Studies, 1982.

			Length (mm)					Weight (g)				
Age	Sex	Sample Period	Sample Size	Range Limits	Mean	95% Conf. Limits 1/	Median	Sample Size	Range Limits	Mean	95% Conf. Limits 1/	Median
3	M	5/16-5/31	117	180-230	212.7	210.7-214.7	215.0	109	44.60-102.40	71.73	69.53-73.92	73.00
3	F	5/16-5/31	139	174-234	209.0	207.0-211.2	209.0	132	36.90-99.20	68.60	66.31-70.89	69.70
3	M	6/1-6/9	69	192-238	216.1	213.7-218.4	216.0	69	48.70-95.15	74.40	71.87-76.92	73.60
3	F	6/1-6/9	69	197-226	212.3	210.9-213.8	213.0	69	45.00-87.05	68.80	66.58-71.02	69.45
4	M	5/16-5/31	42	202-235	218.3	216.0-220.6	219.5	40	59.90-99.80	79.65	76.37-82.93	79.40
4	F	5/16-5/31	18	202-229	216.3	212.6-220.0	217.5	17	47.60-93.00	75.46	69.48-81.44	75.70
4	M	6/1-6/9	21	210-234	222.5	219.8-225.3	223.0	21	65.65-90.80	80.70	77.15-84.43	83.35
4	F	6/1-6/9	21	195-230	215.1	210.4-219.8	215.0	21	53.00-92.30	74.17	68.56-79.78	76.40
Unclassified 2/	M	5/16-5/31	160	180-235	214.3	212.6-215.9	216.5	150	44.60-102.40	73.96	72.06-75.86	75.23
Unclassified 2/	F	5/16-5/31	158	174-234	209.7	207.8-211.7	210.0	150	36.90-99.20	69.18	67.01-71.35	70.03
Unclassified 2/	M	6/1-6/9	90	192-238	217.6	215.6-219.5	218.0	90	48.70-95.15	75.89	73.73-78.04	75.30
Unclassified 2/	F	6/1-6/9	90	195-230	213.0	211.4-214.5	213.0	90	45.00-92.30	70.05	67.91-72.19	70.43
Unclassified 2/	M	5/16-6/9	250	180-238	215.4	214.2-216.7	217.0	240	44.60-102.40	74.68	73.26-76.11	75.23
Unclassified 2/	F	5/16-6/9	248	74-234	210.9	209.6-212.3	211.0	240	36.90-99.20	69.51	67.95-71.07	70.23

1/ Confidence limits

2/ Includes composite of age 3 and 4 year old eulachon.

First run eulachon segregated by sex and age were smaller in length (TL) than same age and sex second run eulachon sampled (Table 2-3-6). An exception was the age four females which did not have statistically different lengths at the 95 percent confidence level. The differences in length between same age and sex first and second run fish cannot fully be explained by a difference in marine rearing time which averaged less than 10 days based on the difference in estuary timing. Two reasons for this are: (1) a 3.3 mm to 4.2 mm mean length difference between same age and sex first and second run fish, which was determined to be significant by Student's "t" and Mann-Whitney tests; and (2) age 4_1 fish sampled with one additional growth year averaged only a six mm larger length than age 3_1 fish sampled. If the recorded differences in length of age 3_1 fish were due solely to 10 additional days of marine rearing time, it would have been reasonable to expect that the age 4_1 eulachon sampled would have been significantly larger in length than observed. It can therefore be postulated that the length differences observed between first and second run, age 3_1 eulachon may have been due to other factors including possible differences in genetics and marine rearing areas.

Male to female eulachon ratios, non-segregated to run timing or age, ranged from 0.2:1 to 123:1 from 80 samples of 10,547 eulachon (Table 2-3-3). Male eulachon outnumbered female eulachon in 94.7 percent of the samples. Highest male to female ratios were recorded in samples comprised of post-spawning fish (Table 2-3-3).

The maturation data collected in conjunction with sex composition sampling, indicate that individual male eulachon spawn over a several day period whereas individual female eulachon spawn shortly after ripening and generally within one day (Table 2-3-3). It was also interpreted that individual male eulachon did not outmigrate or die immediately after spawning but remained in the river several days thereafter. Individual female eulachon, in contrast, either outmigrated immediately or died within approximately one day following culmination of spawning. These differences were further supported by post-spawning condition male and female eulachon intercepted in the estuary and main channel. The post-spawning males characteristically had severely frayed pectoral and pelvic fins and a dull body coloration or absence of sheen while the females had not lost their spawning coloration or sheen and showed no visual signs of fin erosion.

The difference in male and female eulachon spawning life as earlier defined would explain why male eulachon sampled were substantially more abundant than female eulachon sampled once spawning began (Tables 2-3-3 and 2-3-7). A near true sex ratio of Susitna River eulachon would therefore likely be reflected in samples collected prior to significant spawning. Given this conclusion, 1982 first run male to female eulachon ratio was 1.6:1 based on samples from May 16 through May 20 (Table 2-3-3). Comparatively, the male to female ratio of second run eulachon was 1.3:1 from samples from June 1 through June 4.

Nearly all the male eulachon that were sampled in the Susitna River between RM 4.5 and 48.0 were found to be either ripe (freely expelling milt) or in the post-spawning condition (Tables 2-3-2 and 2-3-3). In comparison, the females intercepted were generally all in pre-spawning condition with few in post-spawning condition and even fewer in actual spawning condition

Table 2-3-7. Sex ratios 1/ of Susitna River eulachon recorded by river mile sector and date, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	River Mile Sector 0-5.0	5.1-10.0	10.1-15.0	15.1-20.0	20.1-25.0	25.1-30.0	30.1-35.0	35.1-40.0	40.1-45.0	45.1-50.0
May										
16	2.1:1									
17	1.3:1									
18						3.6:1				
19	1.0:1					1.1:1				
20	1.2:1							3.7:1	3.0:1	
21						1.4:1				
22						0.7:1				
23				3.1:1	1.2:1					
24						1.7:1				
25						8.6:1				
26	0.8:1	0.5:1	1.9:1	3.3:1	1.0:1					
27						0.6:1				
28				5.2:1		1.1:1				
29						29.5:1				
30				5.4:1	3.2:1					
31						21.9:1				
June										
1				1.1:1	1.4:1	2.6:1				
2						1.0:1	0.9:1	0.9:1	0.8:1	1.1:1
3						1.0:1		1.6:1	1.2:1	
4						1.5:1		1.2:1	2.2:1	2.2:1
5		0.8:1	3.7:1			1.1:1	0.9:1			
6			11.1:1	2.0:1		1.5:1				
7								1.5:1		7.5:1
8				23.3:1	19.6:1		2.5:1			
9			13.2:1							

1/ Male:Female

(freely expelling eggs). Given the problem of not being able to collect a significant number of female eulachon freely expelling eggs at any specific location, and the relative scarcity of post-spawning condition females, an inseason decision was made to define where spawning was occurring by the presence of eggs in substrate samples. Samples were collected over a variety of suspected spawning areas and only an occasional egg was found. Eggs that were located were opaque and comparable in size to large grains of sand and adhesive to debris and sand particles, all of which made their identification nearly impossible with equipment available. An attempt was made to make the eggs more eye visible by addition of a dye. In a test, several substrate samples containing planted eulachon eggs were mixed in various Rit dye concentrations. The results did not prove useful. Having been unsuccessful in classifying spawning habitat by the previous methods, a final criteria was chosen which was that if a location were a spawning area a single sample would contain both ripe and spent (post spawning condition) female eulachon in conjunction with male eulachon. It was this criteria that was used to report general spawning habitat characteristics presented below.

Areas in which 1982 electroshock and dip net sampling did not produce suspected spawning eulachon were clear water streams and their mixing zones, and semi-placid main channel areas including slough habitats. Spawning preference areas were near cut banks and where the bottom composition included unconsolidated sand and gravels, and riffle zones or bars with relatively moderate velocity (0.2 - 0.6 m/sec) and unconsolidated sands and gravels.

Total 1982 Susitna River eulachon escapement was not empirically calculated. However, from carcass observations the 1982 escapement was estimated to be in the range of millions of fish (Plate 2-3-4).

Plate 2-3-4. Eulachon carcasses located at RM 15.0, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Total 1982 eulachon sport catch from unrecorded staff observations was estimated at 3,000 to 5,000 fish. Sport fishing mainly occurred between RM 10 and 30 including the Yentna River (RM 28). The only gear observed being used by sport fisheries was hand held dip nets.

3.2 Adult Salmon

3.2.1 Chinook Salmon

3.2.1.1 Estuary to Talkeetna

3.2.1.1.1 Main Channel Escapement

At Yentna (RM 04) and Susitna (RM 26) stations, fishwheels and SSS counters were operational on June 27 and July 1, 1982, respectively, which was after the majority of the chinook salmon had already past these locations (ADF&G, 1982). A total of 925 chinook salmon were counted over the SSS counters at Susitna Station (RM 26) from July 1 to September 5 and there was 25 chinook salmon caught in the fishwheels between these dates (Tables 2-3-8 and 2-3-9). On the Yentna River (RM 28) at Yentna Station (RM 04) 493 chinook salmon were counted from June 27 to September 5, 1982. Approximately 80 percent of the 127 chinook salmon caught with fishwheels at Yentna Station occurred on the south side of the river. The highest daily fishwheel catch at the station was made on July 1, 1982. The chinook salmon migration was essentially over by July 8 at Yentna Station based on fishwheel catches (Figure 2-3-5).

Table 2-3-8. Apportioned sonar counts of chinook salmon by sampling location, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	Sonar Operating Period	Chinook Salmon Counted
Susitna Station	1 July - 5 September	925
Yentna Station	27 June - 5 September	1,193
Sunshine Station	6 July - 12 September	2,924
Talkeetna Station	4 July - 14 September	2,850

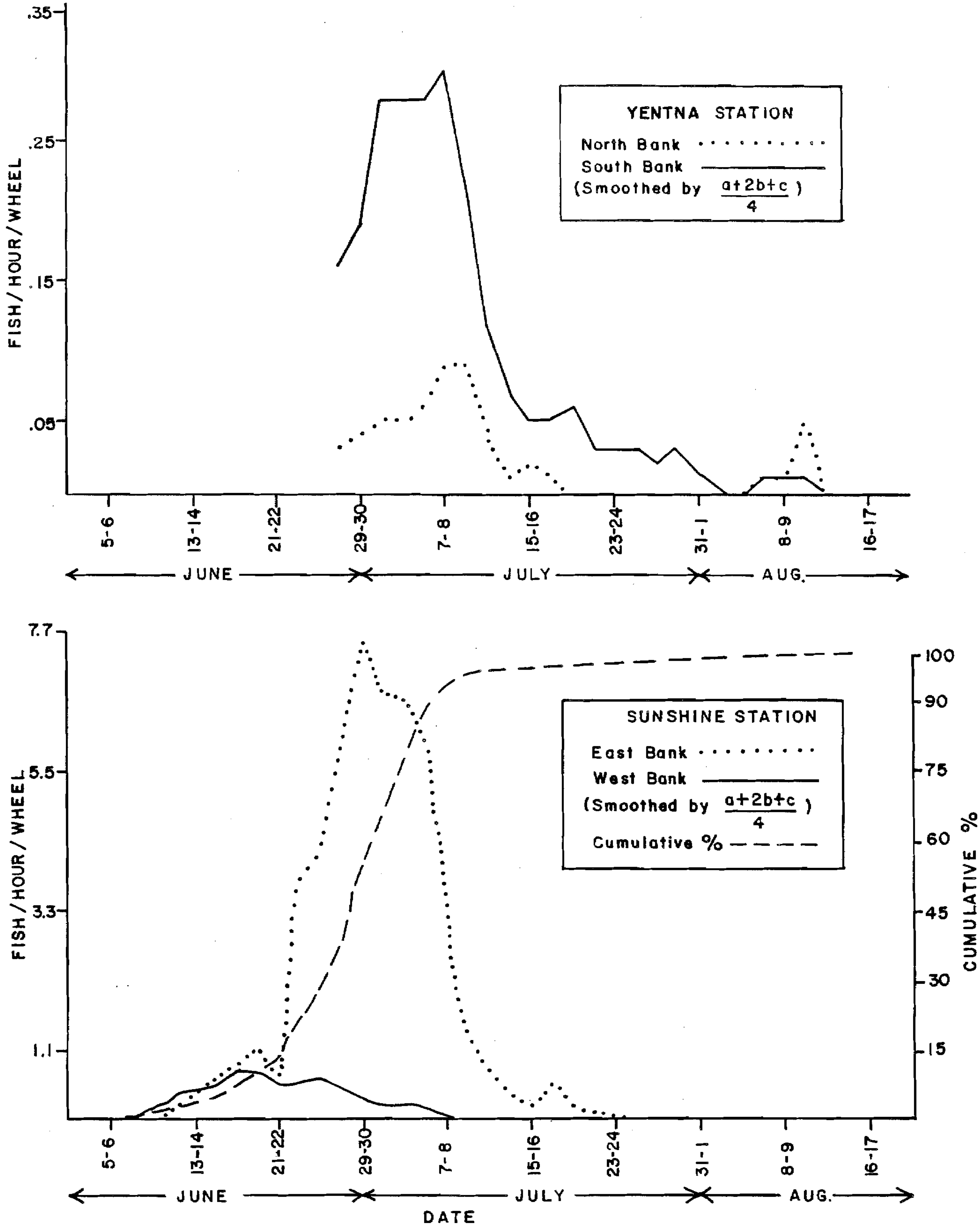


Figure 2-3-5. Mean hourly and cumulative percent fishwheel catch of chinook salmon by two day periods at Yentna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-9. Summary of fishwheel catches by species and sampling locations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	River Mile	Catch Chinook	Sockeye	Pink	Chum	Coho
Susitna Station	26	25	1,382	5,174	382	470
Yentna Station	04	127	3,386	16,627	1,261	1,203
Sunshine Station	80	5,653	18,604 1/	47,671	36,335	8,227
Talkeetna Station	103	881	509	13,781	2,942	619
Curry Station	120	791	161	7,302	1,736	229

1/ Total is comprised of 1,196 first run sockeye and 17,408 second run sockeye salmon.

The chinook salmon escapement to Sunshine Station (RM 80) in 1982 was estimated at 52,900 fish by the Petersen method (Table 2-3-10). Approximately 49,600 of these fish were larger than 350 mm in length (FL) and 3,300 of them were 350 mm or less in length (Tables 2-3-11 and 2-3-12).

Fishwheels operated at Sunshine Station intercepted a total of 5,653 chinook salmon in 1982 (Table 2-3-9). Based on the catch rates, the chinook salmon migration at Sunshine Station began on June 18, reached a midpoint on June 30 and ended on July 9. The peak of the migration occurred on June 29 approximately (Figure 2-3-5).

Table 2-3-10. Susitna River escapements by species and sampling location, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	River Mile	Escapement 1/					
		Chinook	Sockeye 3/	Pink	Chum	Coho	Total
Yentna Station	04	2/	113,847	447,257	27,830	34,089	623,023
Sunshine Station	80	52,900	151,485	443,198	430,442	45,735	1,123,707
Talkeetna Station	103	10,900	3,123	73,038	49,118	5,111	141,274
Curry Station	120	11,300	1,261	58,835	29,413	2,438	103,254

1/ Escapement numbers are derived from Petersen population estimates with the exception of the Yentna Station escapements which are determined by SSS.

2/ Yentna Station was not operated during the entire chinook migration and therefore escapement numbers are not available.

3/ Second run fish.

The age class composition of the 1982 chinook salmon escapement at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations was determined by escapement sampling, the results are reported in Table 2-3-13.

An insufficient number of chinook salmon were caught at Susitna Station (RM 26) and aged to define possible stock characteristics. At Yentna Station (RM 04) 43.3 percent of the chinook salmon sampled were age 3_2, 29.9 percent age 4_2, 14.9 percent age 5_2 and 11.9 percent were age 6_2. All adult chinook salmon sampled at Yentna Station had smolted in the second year of life. At Sunshine Station (RM 80) 14.8 percent of the escapement sample was age 3_2, 27.2 percent age 4_2, 20.5 percent age 5_2 and 36.1 percent age 6_2 fish.

Approximately 99.2 percent of the chinook salmon sampled at this station smolted in the second year of life. The remaining 0.8 percent were fish that had migrated to sea in their first year of life.

Table 2-3-11. Petersen population estimates and corresponding 95% confidence intervals of adult salmon migrating to Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Population Estimate Location	Parameter 1/	Species				
		Chinook 2/	Sockeye 3/	Pink	Chum	Coho
Sunshine Station	m	5,038	15,760	4,390	32,990	6,769
	c	3,254	3882	48,447	14,912	2,708
	r	330	403	479	1,142	400
	$\hat{N}$	49,552	151,485	443,198	430,442	45,735
	95%C.I.	44,962-55,188	138,684-166,889	406,971-486,506	407,728-455,835	41,946-50,278
Talkeetna Station	m	619	394	12,807	2,427	536
	c	1,436	2,126	13,936	9,588	1,065
	r	88	268	2,443	473	111
	$\hat{N}$	10,011	3,123	73,038	49,118	5,111
	95%C.I.	8,334-12,532	2,809-3,516	70,500-75,766	45,155-53,844	4,349-6,197
Curry Station	m	610	109	4,789	1,356	164
	c	642	1,970	4,470	7,802	398
	r	35	171	363	359	26
	$\hat{N}$	10,913	1,261	58,835	29,413	2,438
	95%C.I.	8,284-15,987	1,103-1,470	53,562-65,261	26,717-32,713	1,787-3,835

1/ m = Number of fish marked (adjusted for tag loss)
c = Total fish examined for marks during sampling census
r = Total number of marked fish observed during sampling census
$\hat{N}$ = Population estimate
C.I. = Confidence interval around $\hat{N}$

2/ Chinook salmon escapement estimates do not include fish 350mm and less in length (FL).

3/ Sockeye salmon escapement estimate for Sunshine Station does not include the population estimate for first run sockeye.

Table 2-3-12. Estimated escapement of chinook salmon 350mm or less in length at Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	River Mile	Number of chinook salmon intercepted 350mm	350mm	Estimate of Chinook 350mm
Sunshine Station	80	5,301	352	3,300
Talkeetna Station	130	810	71	900
Curry	120	763	28	400

Length (FL) composition data of chinook salmon sampled in 1982 at Susitna (RM 26), Yentna (RM 04) and Susitna (RM 80) stations are presented in Table 2-3-14.

Table 2-3-13. Analysis of chinook salmon age data by percent from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	n	Age Class 1/ 3_1	3_2	4_1	4_2	5_1	5_2	6_2	7_2
Susitna Station	10	-	40.0	-	40.0	-	10.0	10.0	-
Yentna Station	67	-	43.3	-	29.9	-	14.9	11.9	-
Sunshine Station	1351	0.2	14.8	0.2	27.2	0.4	20.5	36.1	0.4
Talkeetna Station	358	0.6	20.1	0.6	35.2	1.1	19.5	22.3	0.6
Curry Station	441	1.1	15.9	0.8	28.5	2.5	20.0	30.8	0.5

1/ Gilbert-Rich Notation

An insufficient number of chinook salmon were sampled for length (FL) at Susitna and Yentna stations to define possible stock characteristics. At Sunshine Station the age 3_2 males sampled averaged 368 mm in length. Male and female age 4_3 fish averaged 585 mm and 592 mm, age 5_2 742 mm and 782 mm, and age 6_2 951 mm and 911 mm, respectively.

Chinook salmon sex composition data were collected at Yentna (RM 04) and Sunshine (RM 80) stations in 1982 and the results are summarized in Table 2-3-14 and illustrated in Figure 2-3-6. The overall male to female ratio recorded at Yentna Station was 6.4:1, and at Sunshine Station the ratio was 1.2:1.

3.2.1.1.2 Main Channel Spawning

In 1982, 811 Susitna River main channel sites between RM 7 and 98.5 were surveyed for chinook salmon spawning activity from August 1 through October 13 (Appendix 2-F). No chinook salmon spawning areas were found during the survey period in this main channel river reach in 1982.

3.2.1.2 Talkeetna to Upper Devil Canyon

3.2.1.2.1 Main Channel Escapement

The 1982 chinook salmon escapement to Talkeetna Station (RM 103) was estimated at 10,900 fish (Table 2-3-10). Approximately 10,000 of these fish were larger than 350 mm in length (FL) and 900 of them were 350 mm or less in length (Tables 2-3-10 and 2-3-11).

An estimated 11,300 chinook salmon migrated to Curry Station (RM 120) in 1982 (Table 2-3-10). Approximately 10,900 of the fish reaching Curry Station were larger than 350 mm in length (FL) and 400 were 350 mm or smaller in length (Tables 2-3-11 and 2-3-12).

Table 2-3-14. Analysis of chinook salmon lengths, in millimeters, by age class from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Susitna Station	3_2	3	1	348-430	419	398	419	-	-	417	419
	4_2	1	3	565	510-582	565	552	-	-	565	565
	5_2	0	1	-	842	-	842	-	-	-	842
	6_2	0	1	-	871	-	871	-	-	-	871
Yentna Station	3_2	29	0	266-447	-	347	-	330.8,363.7	-	341	-
	4_2	17	3	461-632	468-645	568	567	-	-	561	588
	5_2	8	2	609-938	719-828	784	774	-	-	791	774
	6_2	4	4	899-989	862-912	954	891	-	-	963	895
Sunshine Station	3_1	2	1	600-630	570	615	570	-	-	615	570
	3_2	200	1	230-510	450	368	450	362.6,373.8	-	370	450
	4_1	1	2	720	610-880	-	745	-	-	-	745
	4_2	272	94	440-740	480-880	585	592	578.5,592.1	-	590	580
	5_1	1	4	970	830-1020	970	900	-	-	970	875
	5_2	119	157	400-920	520-1030	742	782	723.1,759.9	768.3,795.5	750	800
	6_2	142	345	430-1160	710-1150	951	911	933.7,967.6	904.7,917.7	950	910
	7_2	1	5	920	840-1040	920	958	-	-	920	990
Talkeetna Station	3_1	2	0	610-630	-	620	-	-	-	620	-
	3_2	71	1	280-600	390	383	390	371.0,394.0	-	380	390

Table 2-3-14. Continued.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Talkeetna Station	4_1	1	1	940	820	-	820	-	-	-	820
Cont.	4_2	112	14	340-730	330-880	567	575	551.7,581.3	-	580	546
	5_1	0	4	-	855-940	-	891	-	-	-	885
	5_2	31	39	300-1000	610-950	761	808	-	-	780	810
	6_2	31	49	510-1100	490-1050	916	883	-	-	945	900
	7_2	1	1	1020	880	1020	880	-	-	1020	880
Curry Station	3_1	3	2	490-615	610-665	572	638	-	-	610	638
	3_2	69	1	270-470	360	370	360	360.7,380.0	-	370	360
	4_1	1	2	750	835-845	750	840	-	-	750	840
	4_2	92	34	495-695	540-675	604	621	594.3,612.7	609.1,632.6	600	625
	5_1	5	6	835-1040	890-975	935	939	-	-	930	943
	5_2	40	48	555-960	625-975	799	820	-	-	813	818
	6_2	52	84	760-1200	780-1010	988	918	-	908.2,928.4	995	920
	7_2	2	0	1015-1030	-	1023	-	-	-	1023	-

1/ Males

2/ Females

3/ Confidence Limits on Mean

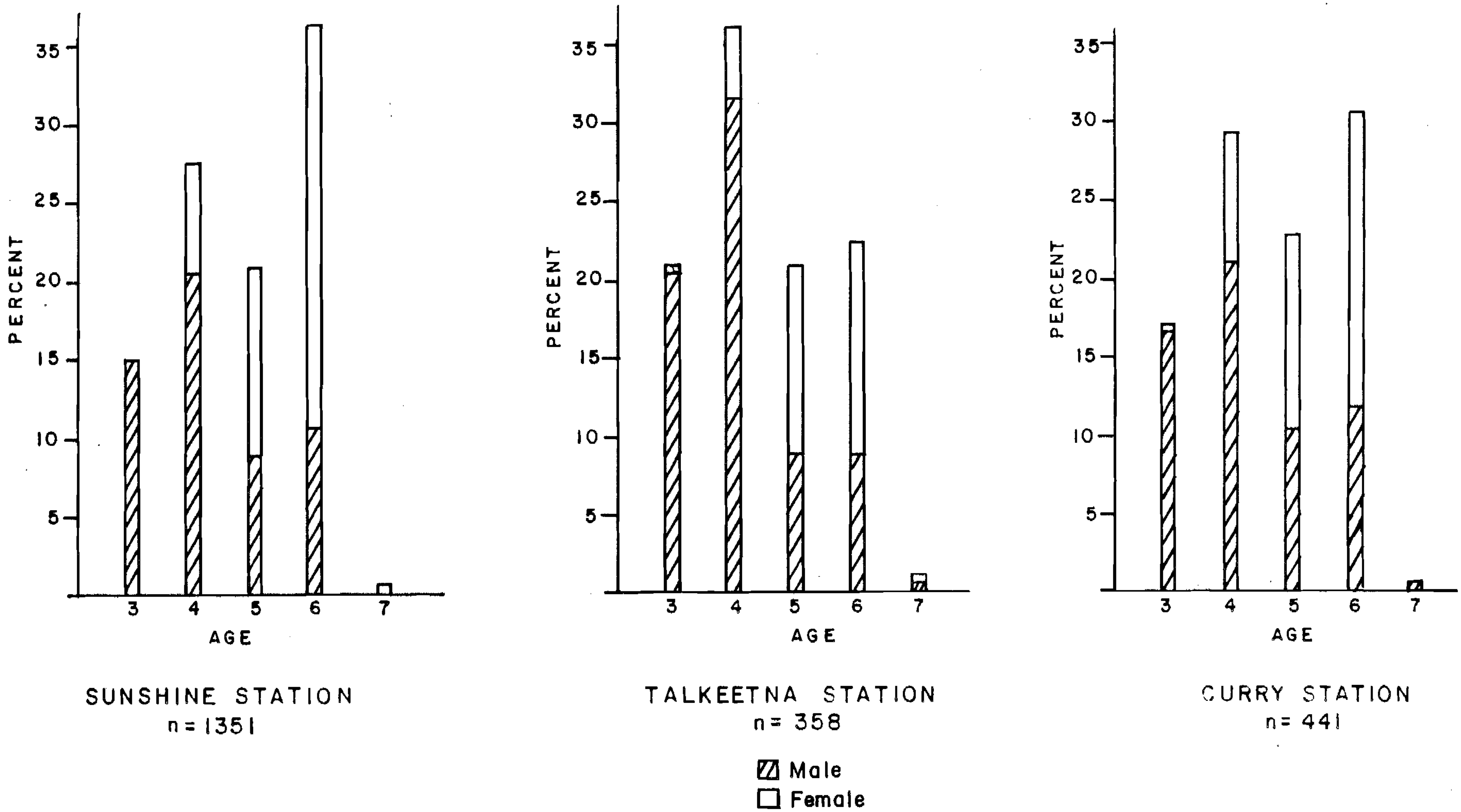


Figure 2-3-6. Age composition of fishwheel intercepted chinook salmon at Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The difference of approximately 400 fish in the two population estimates for Talkeetna (RM 103) and Curry (RM 120) stations should not be considered significant. The 95 percent confidence limits on both estimates have range limits exceeding 4,000 fish (Table 2-3-11). It should be considered that approximately the same number of chinook salmon migrated to Talkeetna Station as migrated to Curry Station in 1982.

Fishwheels operated at Talkeetna Station (RM 103) caught a total of 881 chinook salmon in 1982 (Table 2-3-9). From fishwheel catch rate data the 1982 migration began on June 26, reached a midpoint on July 4 and terminated on July 23 (Figure 2-3-7). The peak fishwheel catch occurred on July 1. Approximately 55.3 percent of the catch was made by east bank fishwheels. The remaining 44.7 percent of the catch was made by west bank fishwheels.

The total number of SSS chinook salmon counts recorded at Talkeetna Station (RM 103) from July 4 when the counters were first installed to September 14 was 2,850 (Table 2-3-8). This count was considered a measure of the relative abundance of the chinook salmon escapement reaching RM 103 from July 4 through September 14 (Section 2.4.3).

The total fishwheel catch of chinook salmon at Curry Station (RM 120) in 1982 was 791 fish (Table 2-3-9). From fishwheel catch rate data, the chinook salmon migration at Curry Station began on June 25, reached a midpoint on July 3 and ended on July 19 in 1982 (Figure 2-3-7). The peak catches occurred on July 1 and July 4 (Appendix 2-C). At Curry Station, the east bank fishwheel caught 55.1 percent of the catch and the balance, 44.9 percent, was intercepted by the west bank fishwheel.

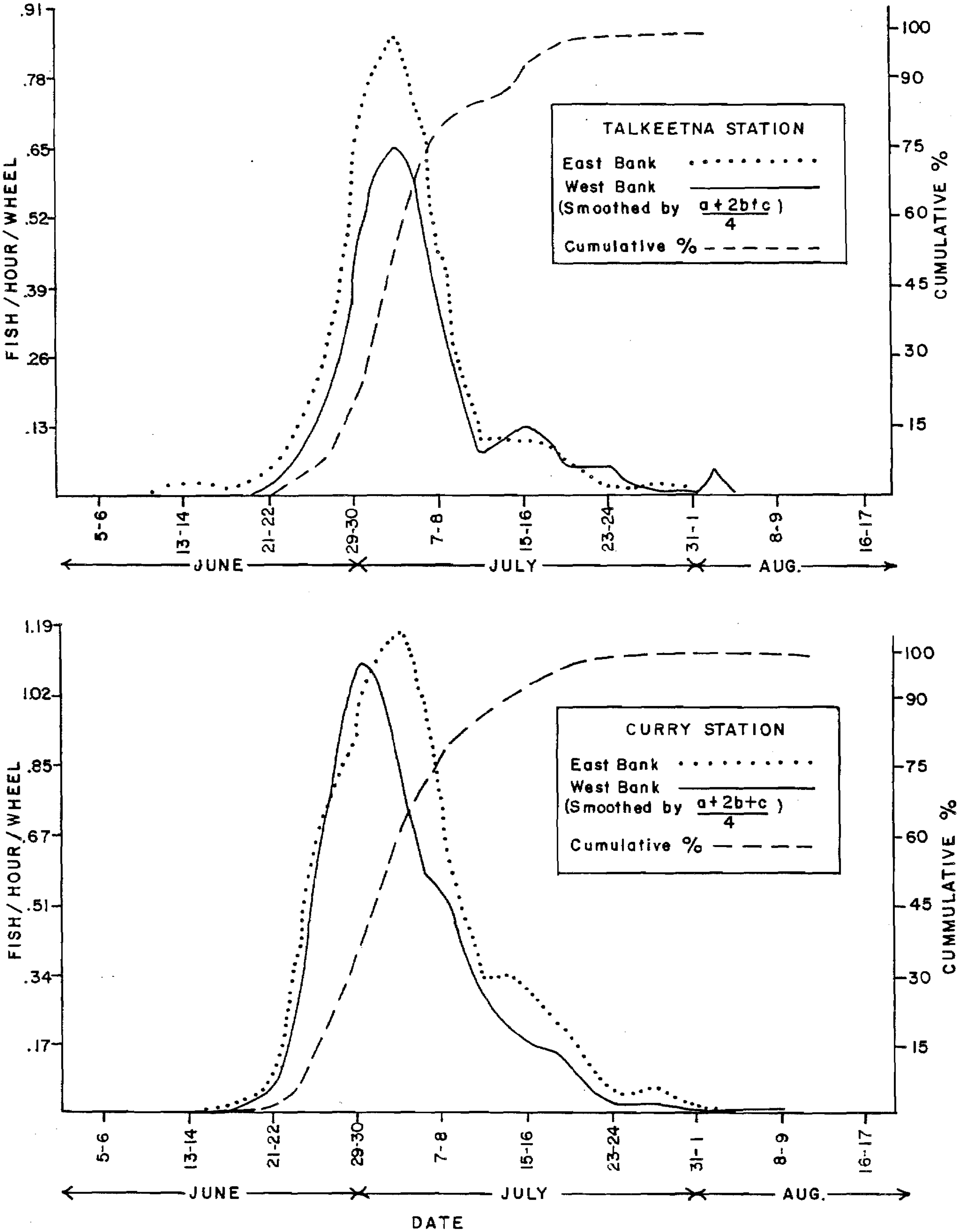


Figure 2-3-7 Mean hourly and cumulative percent fishwheel catch of chinook salmon by two day periods at Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Recapture data indicates that chinook salmon in 1982 averaged 11.2 days of travel time between Sunshine (RM 80) and Talkeetna (RM 103) stations for an average speed of 2.1 miles per day (mpd) (Figure 2-3-8). The average travel time between Talkeetna and Curry stations was 7.7 days. Average travel speed was 2.2 mpd. Between Sunshine and Curry stations the average travel time was 13.0 days. Average speed was 3.1 mpd.

Approximately 35.2 percent of the chinook salmon sampled at Talkeetna Station (RM 103) were age 4_2, 23.3 percent age 6_2, 19.5 percent age 5_2 and 20.1 percent age 3_2 fish (Table 2-3-13). Other age classes represented in the escapement sampled were: 3_1, 4_1, 5_1 and 7_2. Nearly 98 percent of the chinook salmon caught at Talkeetna Station in 1982 were fish that had smolted in the second year of life and 2.3 percent were fish that had smolted in the first year of life.

At Curry Station (RM 120) approximately 30.8 percent of the chinook salmon sampled were age 6_2, 28.5 percent age 4_2, 20.0 percent age 5_2 and 15.9 percent age 3_2 fish (Table 2-3-13). The remaining 4.9 percent of the escapement sample were age 4_1, 5_1 and 7_2 fish. Approximately 95.7 percent of the chinook salmon aged from Curry Station had smolted in the second year of life and 4.3 percent had smolted in the first year of life (Table 2-3-13).

Length (FL) composition data of chinook salmon sampled at Talkeetna (RM 103) and Curry (RM 120) stations in 1982 are summarized in Table 2-3-14.

Chinook salmon males were more abundant than females sampled in 1982 at Talkeetna Station (RM 103) by a male to female ratio of 2.3:1 (Table 2-3-15).

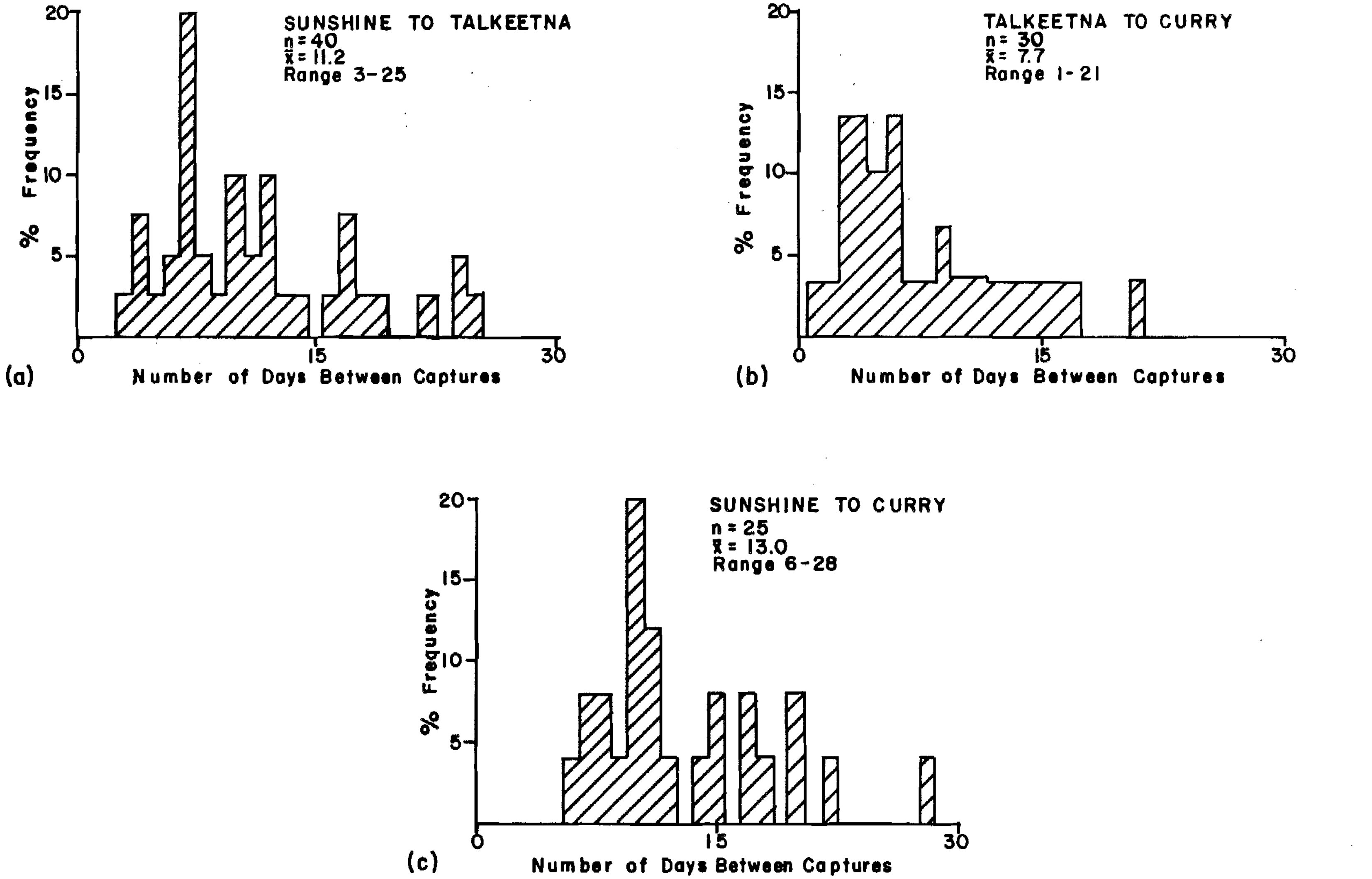


Figure 2-3-8. Migrational rates of chinook salmon between (a) Sunshine and Talkeetna stations, (b) Talkeetna and Curry stations and (c) Sunshine and Curry stations based on fishwheel recaptures, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-15. Sex ratio of male and female chinook salmon by age from escapement samples collected at Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Yentna Station	3	29	29	0	-
	4	20	17	3	5.7:1
	5	10	8	2	4.0:1
	6	8	4	4	1.0:1
Sunshine Station	3	204	202	2	101.0:1
	4	370	274	96	2.9:1
	5	282	120	162	0.7:1
	6	489	142	347	0.4:1
	7	6	1	5	0.2:1
Talkeetna Station	3	74	73	1	73.0:1
	4	128	113	15	7.5:1
	5	74	31	43	0.7:1
	6	80	31	49	0.6:1
	7	2	1	1	1.0:1
Curry Station	3	75	72	3	24.0:1
	4	129	93	36	2.6:1
	5	99	45	54	0.8:1
	6	136	52	84	0.6:1
	7	2	2	0	-

Females sampled were more abundant than males sampled at Talkeetna Station among five and six year old fish. Males were more abundant than females among three and four year old fish sampled (Figure 2-3-6).

At Curry Station (RM 120), the overall chinook salmon male to female ratio in 1982 was 1.5:1 (Table 2-3-15). Males outnumbered females among three, four and seven year old fish, and females outnumbered males among five and six year old fish sampled at Curry Station (Figure 2-3-6).

3.2.1.2.2 Radio Telemetry

Seven chinook salmon were radio tagged at Talkeetna Station (RM 103) in 1982 (Table 2-3-16). Of the seven fish tagged five eventually entered spawning streams downstream or south of Talkeetna Station. The remaining two fish migrated upstream and eventually spawned in Indian River (RM 138.6) (Appendix 2-E).

Four of the seven radio tagged chinook salmon at Talkeetna Station (RM 103) in 1982 descended after being released and milled in the confluence of the Chulitna, Talkeetna and Susitna rivers (RM 98±) several days before re-initiating upstream migration (Figure 2-3-9). Another two of the seven fish tagged at RM 103 migrated upstream as far as lower Devil Canyon and then descended and entered spawning streams below Talkeetna Station. One radio tagged fish migrated directly upstream and entered Indian River (RM 138.6) (Appendix 2-E).

Table 2-3-16. Tagging location, transmitter frequency and physical characteristics of radio tagged chinook salmon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Tag and Release		Transmitter		Petersen			
Date	Location (RM) 1/	Frequency (MHz) Pulse/Second	Size 2/	Disc Tag Number	Sex (M/F)	Length 3/ (cm)	Coloration 4/ (Dorsal/Ventral)
6/22	103.0	40.701-1	M	302	M	84.5	Gray-Pink/Gray
6/23	119.5	40.610-2	M	347	M	67.5	Silver-Gray/Silver-Pink
6/24	119.5	40.670-1	M	348	F	82.0	Gray-Pink/Silver-Pink
6/24	103.0	40.720-3A	M	349	F	89.0	Silver/Silver-Gray
6/24	103.0	40.731-1	L	326	M	94.5	Gray/Pink
6/25	119.5	40.731-3	L	344	F	96.5	Silver-Gray/Silver-Gray
6/25	103.0	40.681-3	M	336	M	80.0	Gray-Pink/Pink
6/26	103.0	40.660-1	M	345	F	80.0	Silver-Gray/Silver-Gray
6/28	119.5	40.741-2	L	154	F	87.5	Gray/Silver-Pink
6/29	119.5	40.731-2	L	333	F	94.0	Silver-Gray/Pink
6/30	119.5	40.620-1	M	155	M	67.5	Silver-Gray/Pink
7/2	103.0	40.600-2	M	156	F	91.5	Gray/Red
7/6	120.7	40.740-3	L	158	M	104.0	Gray/Pink-Red
7/7	103.0	40.711-3	M	161	F	90.0	Gray-Red/Gray
7/8	120.7	40.721-1	M	159	F	81.5	Gray/Pink-Gray
7/9	119.5	40.720-3B	L	160	F	96.5	Gray/Pink-Gray

1/ River Mile: Talkeetna Station RM 103, Curry Station RM 120.
2/ Transmitter sizes: S = 5.2 cm long, 1.6 cm wide, 18.0 cm antennae
M = 7.6 cm long, 1.6 cm wide, 13.0 cm antennae
3/ Length: mid-eye to fork of tail.
4/ Coloration: Predominate color underlined.

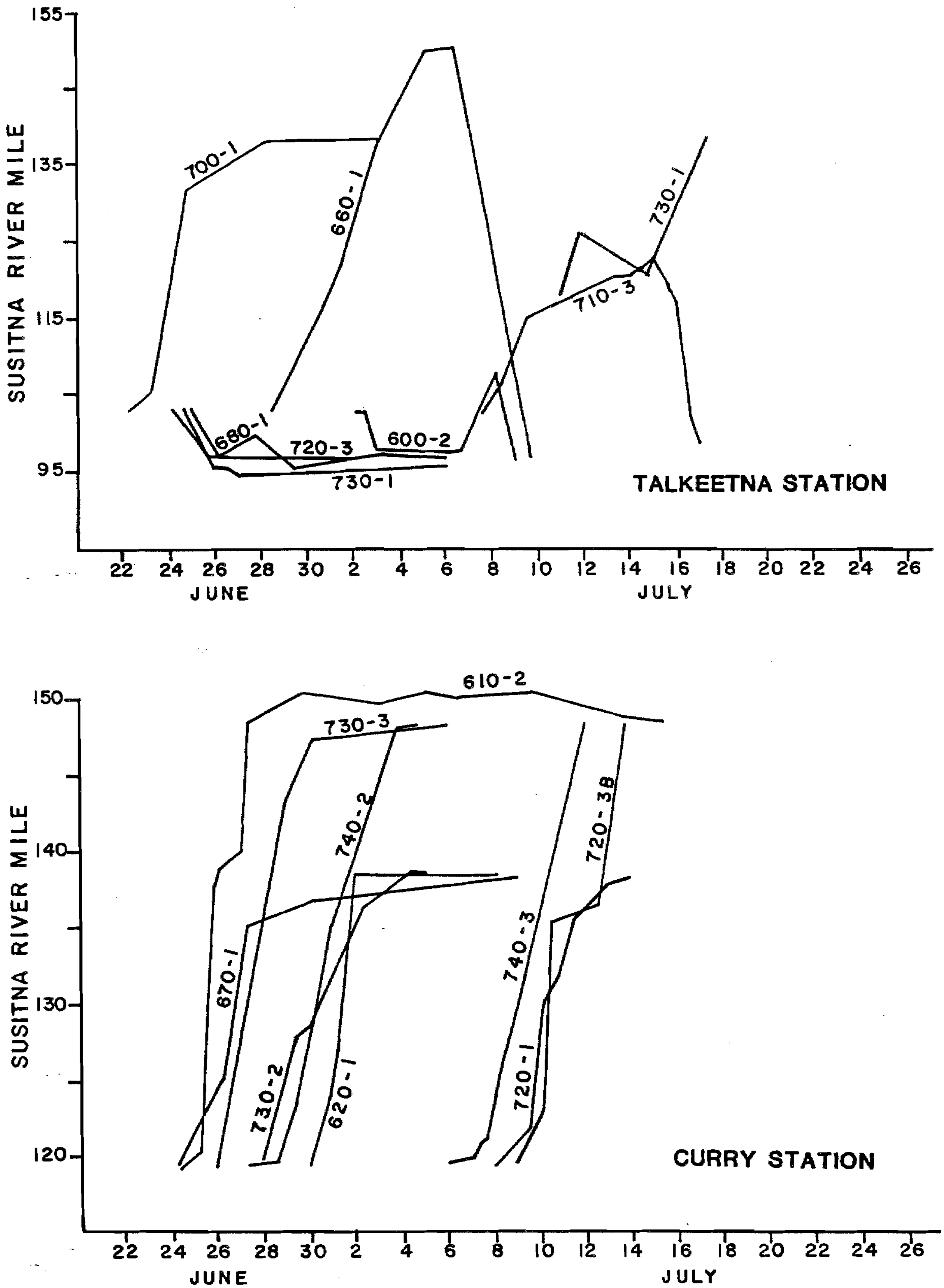


Figure 2-3-9 Movements of Talkeetna and Curry stations radio tagged chinook salmon in the Susitna River during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The two radio tagged chinook salmon released at Talkeetna Station (RM 103) in 1982 which spawned above the station did so in the Indian River (RM 138.6). The migrational movements of these fish were dissimilar. For example fish 700-1, which was tagged on June 22 at Talkeetna Station migrated past Curry Station (RM 120) between June 24 and June 25, and was in the mouth of Indian River (RM 138.6) on June 26, four days after release at RM 103. Fish 730-1, which was tagged on June 24 at Talkeetna Station, displayed intra drainage milling behavior before entering Indian River. After being radio tagged, this fish descended and milled in the confluence of the Chulitna, Talkeetna and Susitna rivers (RM 98±) for approximately nine days (June 26 - July 3), then migrated up the Chulitna River 11.4 miles (July 5 - 9), and later moved out of the Chulitna River and re-entered the Susitna River and was in the mouth of Indian River on July 17, twenty-three days after being tagged (Appendix 2-E).

The maximum (upstream) migrational speed recorded in 1982 of a chinook salmon radio tagged at Talkeetna Station (RM 103) was 19.3 mpd (Table 2-3-17).

Nine chinook salmon were radio tagged in 1982 at Curry Station (RM 120) (Table 2-3-16). All nine fish migrated upstream after being tagged (Figure 2-3-9). Five of the fish selected Indian River (RM 138.6) and the remaining four fish selected Portage Creek (RM 148.9) as their final destination. Seven of the nine radio tagged fish migrated directly to these streams. One of the five chinook salmon which spawned in Indian River migrated beyond Indian River and milled in Portage Creek about six days before descending and entering Indian River. Three of the remaining four chinook salmon which (presumably) spawned in Portage Creek migrated directly to Portage Creek.

Table 2-3-17. Twenty fastest radio tagged chinook salmon movements, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Speed Traveled (mpd) 1/	Distance Traveled (miles)	Hours Elapsed	Location of Movement (RM - RM) 2/	Observation Dates	Transmitter Number
26.4	1.1	1.0	138.4-139.5	6/25	610-2
22.6	4.8	5.1	119.5-124.3	7/9	720-3B
19.3	4.1	5.1	114.1-118.2	6/24	700-1
18.8	1.8	2.3	130.8-132.6	6/25	700-1
18.0	0.9	1.2	135.4-136.3	7/2	730-2
17.8	2.0	2.7	131.0-133.0	7/2	660-1
16.6	18.0	26.1	120.4-138.4	6/24-25	610-2
16.1	11.9	17.7	123.1-135.0	6/30-7/1	740-2
14.7	1.9	3.1	125.3-127.2	6/25	670-1
14.7	5.5	9.0	112.0-117.5	6/30	660-1
14.0	13.8	23.6	124.8-138.6	7/1-2	620-1
13.6	12.6	22.2	118.2-130.8	6/24-25	700-1
13.2	9.1	16.6	105.0-114.1	6/23-24	700-1
12.0	12.2	24.5	120.2-132.4	6/25-26	730-3
11.3	5.3	11.3	123.0-128.3	7/9	720-1
11.2	10.0	21.5	124.3-134.3	7/9-10	720-3B
10.8	8.8	19.6	140.1-148.9	7/2-3	740-2
10.3	0.3	0.7	136.7-137.0	7/11	720-3B
9.5	9.6	24.3	120.8-130.4	7/15-16	730-1
8.0	5.4	16.2	131.0-136.4	7/9-10	740-3

1/ mpd: Miles per day
2/ Movement: River mile to river mile

The fourth fish entered Portage Creek after spending approximately 15 days in lower Devil Canyon between RM 150.5 and 151.5 (Appendix 2-E).

The number of days required of a radio tagged chinook salmon released at Curry Station (RM 120) to reach Indian River (RM 138.6) and Portage Creek (RM 148.9) in 1982 ranged from three to six days. The maximum (upstream) migrational speed displayed by chinook salmon tagged at Curry Station was 26.4 mpd (Table 2-3-17).

Individual movements of radio tagged chinook salmon released at Talkeetna (RM 103) and Curry (RM 120) station are further described in Appendix 2-E.

3.2.1.2.3 Lower Devil Canyon Milling

The results of set netting at RM 150.2 and 150.4 locations, which are identified in Figure 2-3-10, are summarized in Table 2-3-18. No chinook salmon set net catches were made in the 19.6 net hours fished from August 10 through September 12.

The area in the proximity of the set net site at RM 150.4 was electroshocked four times between August 11 and September 23 in 1982. No chinook salmon were caught (Table 2-3-19).

Radio telemetry investigations outlined under Section 3.2.1.2.2 established chinook salmon milling activity in the lower Devil Canyon reach RM 150.4 to 151.5 from June 26 to July 14 in 1982. One of the seven and one of nine radio tagged chinook salmon released at Talkeetna (RM 103) and Curry (RM 120) stations, respectively, entered lower Devil Canyon in 1982.

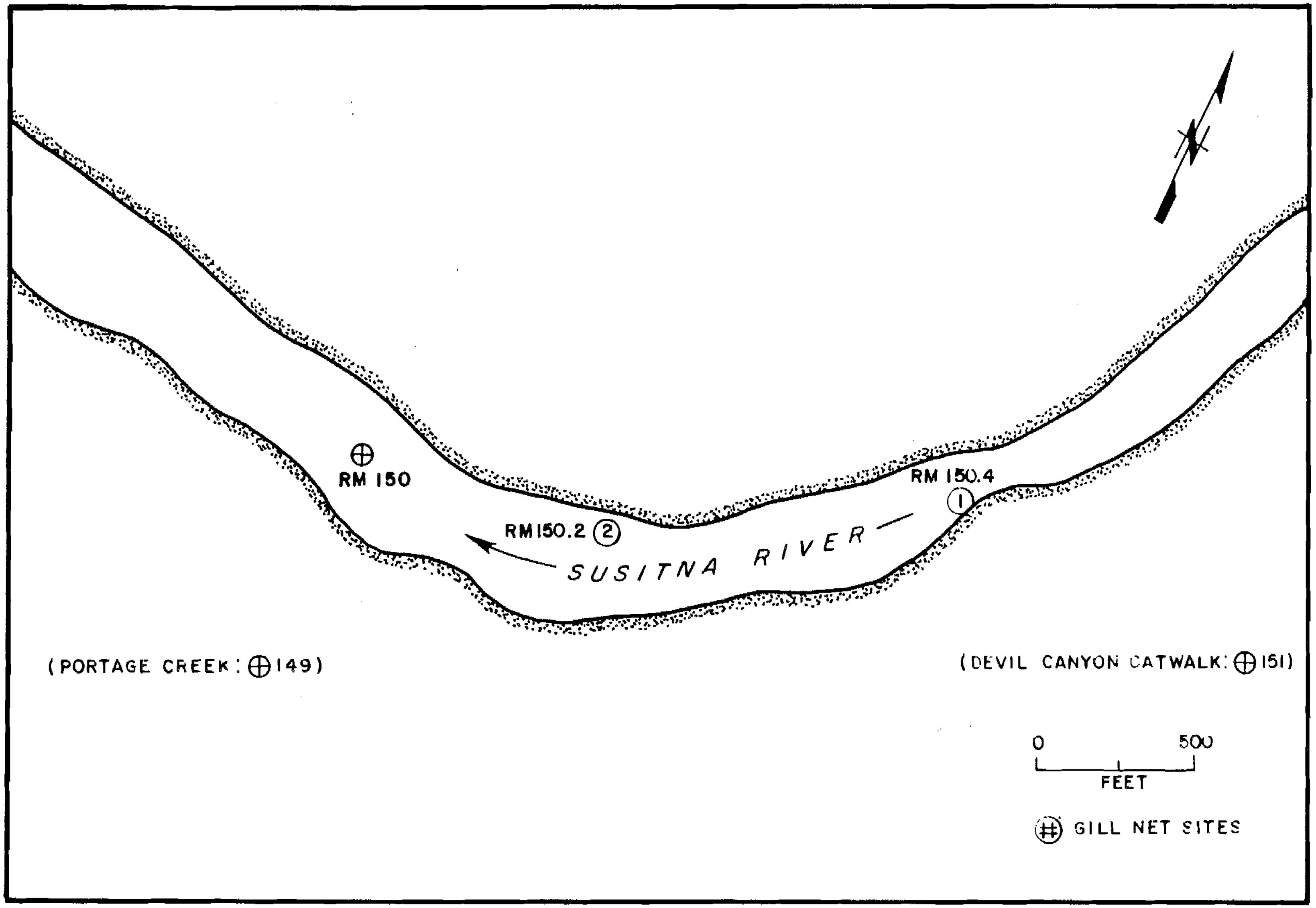


Figure 2-3-10. Set gill net fishing locations on main channel Susitna River in lower Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-18. Results of set gill netting in Susitna River mainstem between Devil Canyon and Portage Creek, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	Location		Fishing Time[1]			Catch					Remarks
	Site No.	River Mile	Begin	End	Total Hours	Sockeye	Pink	Chum	Coho	Other	
8/10	1	150.4	1100	1300	2.0	0	1	0	0	0	Net fished excellent; pink was tagged at RM 103 on 8/6/82.
8/10	2	150.2	1115	1315	2.0	0	0	0	0	0	Net fished well (good).
8/16	1	150.4	1230	1330	1.0	0	0	2	0	0	Net fished excellent; all fish in pre-spawning condition.
8/16	2	150.2	1230	1400	1.5	0	0	1	0	0	Net fished well; chum in excellent pre-spawning condition.
8/16	1	150.4	1400	1800	4.0	0	0	7	0	0	Net fished excellent; all fish in pre-spawning condition; 1 chum tagged RM 103 on 8/3/82; 1 chum tagged RM 120 on 8/6/82.
8/16	2	150.2	1430	1830	4.0	0	0	0	0	0	Net fished well.
8/22	1	150.4	1140	1200	0.3	0	0	14	0	0	Net fished excellent; fish in pre-spawning condition.
8/22	2	150.2	1130	1200	0.5	0	0	1	0	0	Net fished well; fish in pre-spawning condition.
8/28	1	150.4	1115	1130	0.2	0	0	0	3	0	Net fished excellent; fish in pre-spawning condition; 1 coho was tagged at RM 120 on 8/12/82, another was tagged RM 80,no tag number.
9/12	1	150.4	1300	1705	4.1	0	0	0	0	0	Net fished excellent.

[1] Time in military hours.

Table 2-3-19. Electroshocking catch results in lower Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	River Mile	Distance Shocked (Yards)	Catch				
			Chinook	Sockeye	Pink	Chum	Coho
8/11	150.4	150	0	0	2	5	0
8/18	150.4	200	0	0	1	12	0
9/5	150.4	200	0	0	0	0	1
9/23	150.4	100	0	0	0	0	0

3.2.1.2.4 Spawning

3.2.1.2.4.1 Main Channel

A total of 397 Susitna River main channel sites between RM 98.5 and 150 were surveyed for chinook salmon spawning activity in 1982 (Appendix 2-F). No chinook salmon spawning areas were found in the Susitna River main channel between RM 98.5 and 150 in 1982.

3.2.1.2.4.2 Sloughs and Streams

In 1982, 34 sloughs were examined for chinook salmon from RM 98.6 to 161.0 between July 28 and October 25 (Appendix 2-G). No chinook salmon were observed in any slough habitat surveyed except on August 6 when a single chinook salmon was recorded milling in Moose Slough (RM 123.5).

Between RM 98.6 and 161.0 chinook salmon were observed in the following 11 Susitna River streams in 1982 (Appendix 2-G):

1. Chase Creek (RM 106.9)
2. Lane Creek (RM 113.6)
3. Fifth of July Creek (RM 123.7)
4. Sherman Creek (RM 130.8)
5. Fourth of July Creek (RM 131.1)
6. Gold Creek (RM 136.7)
7. Indian River (RM 138.6)
8. Jack Long Creek (RM 148.9)
9. Portage Creek (RM 148.9)
10. Cheechako Creek (RM 152.4)
11. Chinook Creek (RM 157.0)

The total of the peak survey counts of live and dead chinook salmon in 1982 for these 11 streams was 2,474 fish (Appendix 2-G). This number may represent no more than 52 percent of the total chinook salmon escapement to these streams (Neilsen and Geen, 1981).

The distribution of chinook salmon in the 11 streams in respective order was: Portage Creek (50.6%), Indian River (42.6%), Fourth of July Creek (2.2%), Lane Creek (1.9%), Gold Creek (0.8%), Cheechako Creek (0.6%), Chase Creek (0.6%), Chinook Creek (0.2%), Fifth of July Creek (0.1%), Sherman Creek (0.1%) and Jack Long Creek (0.1%). The peak of chinook salmon spawning occurred during the the last week of July and the first week of August in 1982 (Appendix 2-G).

Cheechako (RM 152.4) and Chinook (RM 157.0) creeks previously unknown as salmon spawning streams were found to contain chinook salmon by ADF&G Su Hydro Adult Anadromous staff in 1982 (Figure 2-3-11). Fish were first observed in these streams on August 4 and 5, respectively.

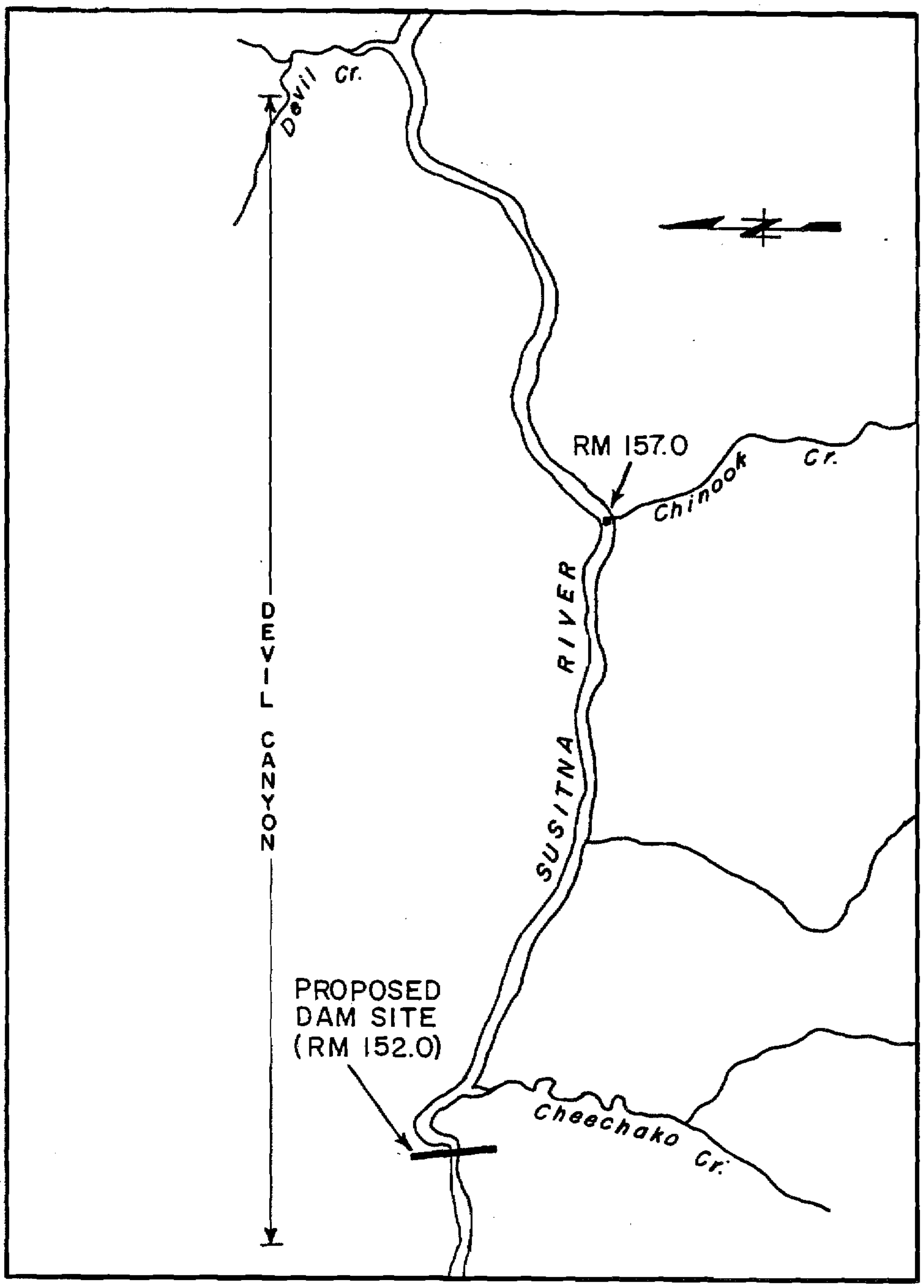


Figure 2-3-11. Map illustrating location of Cheechako Creek and Chinook Creek in relationship to Susitna River Devil Canyon reach, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Two observations that were made on August 5, 1982 during surveys of Cheechako (RM 152.4) and Chinook (RM 157.0) creeks were:

1. In excess of 50 percent of all fish observed spawning and or ripening in Cheechako and Chinook creeks on August 5 were in the glacial, clear water mixing or transitional zone with the main channel Susitna River (Plates 2-3-5 and 2-3-6).

2. Two chinook salmon redds had been vacated on a semi-dewatered cobble shoal extending downstream 200± yards from the upper point of the Cheechako Creek confluence with main channel Susitna River. Both redds contained live eggs on August 5.

Plate 2-3-5. Cheechako Creek chinook salmon spawning area at Susitna River confluence, August 5, Adult Anadromous Investigations, Su Hydro Studies, 1982.

These observations indicate that at least some chinook salmon spawning had already occurred in Cheechako Creek (RM 152.4) and that spawning habitat at the mouth of Cheechako Creek is subject to the influence of main channel Susitna River flow. Additionally, it is probable that not all fish present at the Cheechako and Chinook creeks confluences on August 5 were counted due to restricted visibility in the clear-glacial water transition zones.

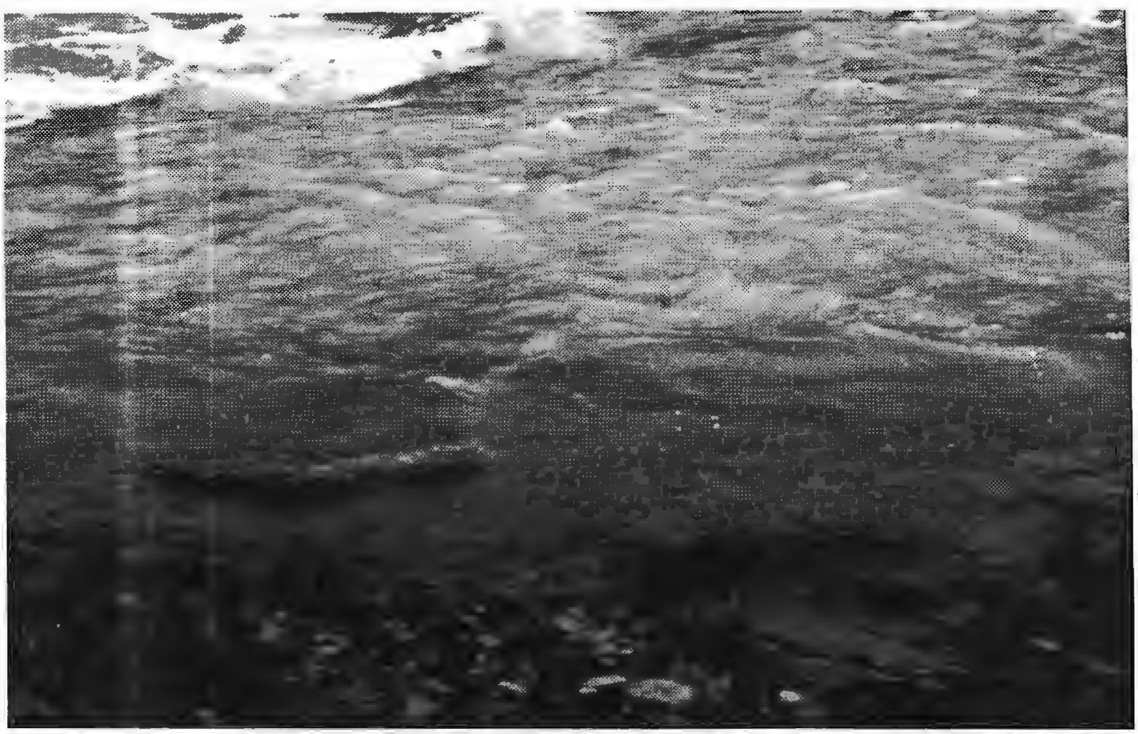


Plate 2-3-6. Chinook salmon in Devil Canyon spawning at the confluence of Cheechako Creek and Susitna River August 5, Adult Anadromous Investigations, Su Hydro Studies, 1982.

3.2.1.3 Escapement Index Surveys

Thirty-four chinook salmon spawning streams were surveyed in the Susitna River basin in 1982. Twenty-five streams were surveyed below RM 98.5 and nine above RM 98.6. The escapement counts recorded on these streams have been presented in Table 2-3-20.

Twenty-one of the 34 chinook salmon spawning streams surveyed in 1982 are classified as index streams that normally are surveyed annually for comparison of between year escapements. The location of the index streams are identified in Figure 2-3-12. The peak chinook salmon counts recorded on the index stream are listed in Table 2-3-21. Each peak count represents probably not more than 52 percent of the total stream escapement including age 3_1 and 3_2 precocious fish (Neilsen and Geen, 1981).

Nine of 21 chinook salmon index streams surveyed in 1982 were surveyed during the peak of spawning (Table 2-3-21). These nine systems were considered the 1982 chinook salmon escapement index. Based on this index, the Susitna River chinook salmon escapement for 1982 was approximately 80 percent higher than in the previous year and above the mean average for years 1976 through 1981 (Table 2-3-21). West side Susitna River streams below RM 97 had an approximately 45 percent higher chinook salmon escapements in 1982 than in 1981 but lower than the mean average escapements for years 1976 through 1981. East side Susitna River streams below RM 97 were not surveyed during the peak of spawning in 1982 and therefore no comparisons can be given (Table 2-3-21).

Table 2-3-20. 1982 chinook salmon escapement surveys of Susitna River Basin streams, Adult Anadromous Investigations, Su Hydro Studies, 1982.

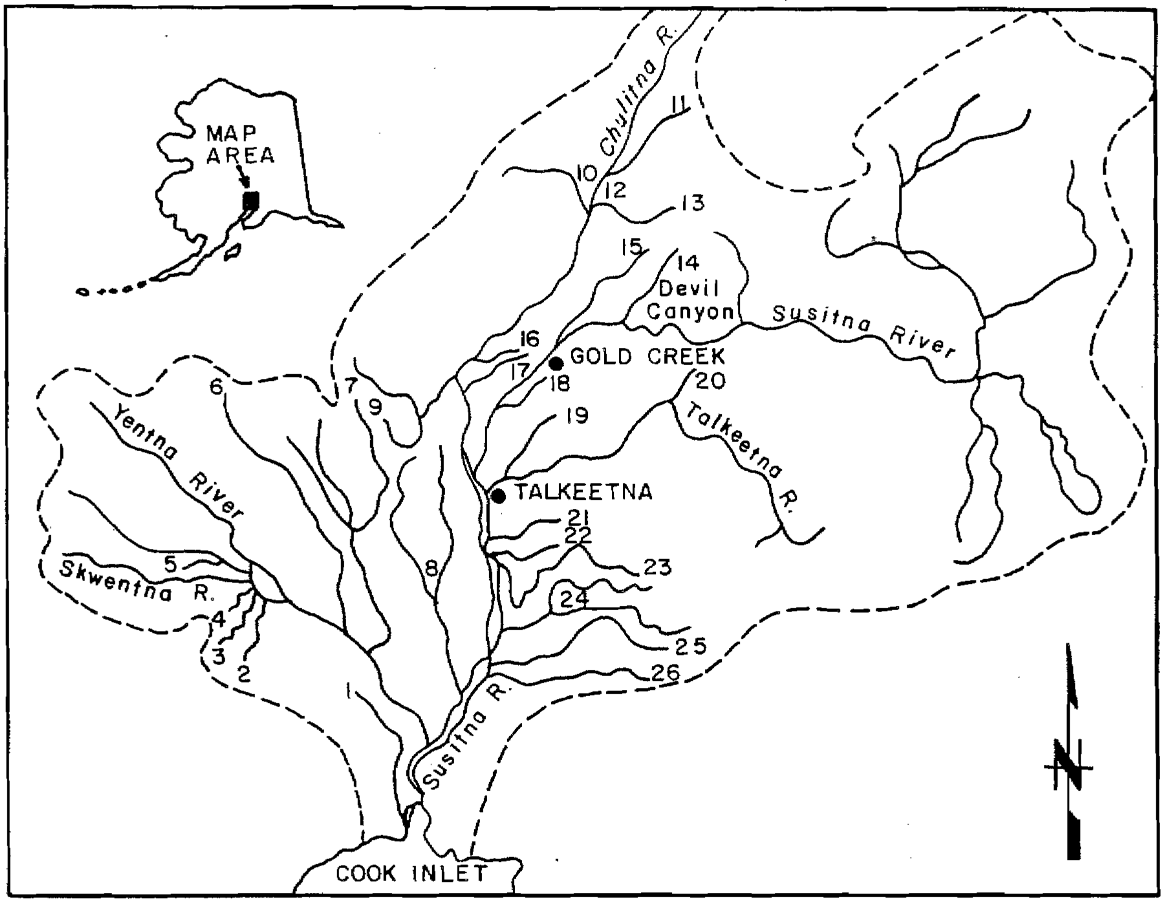
Stream Surveyed	Date	Survey Method	Conditions	Chinook Salmon Counted Live	Dead	Total
Alexander Creek (Mouth to Lake)	7/31	Hel.	Good	1,687	0	1,687
Wolverine Creek (Alexander Creek drainage)	7/28	Hel.	Good	537	0	537
Sucker Creek (Alexander Creek drainage)	7/28	Hel.	Good	322	0	322
Bunco Creek	8/7	Hel.	Fair	168	30	198
Byers Creek	8/12	Hel.	Excellent	7	0	7
Chase Creek	8/11	Foot	Good	8	7	15
Cheechako Creek (Devil Canyon)	8/6	Hel.	Good	16	0	16
Chinook Creek (Devil Canyon)	8/6	Hel.	Good	5	0	5
Chulitna River	8/12	Hel.	Excellent	49	51	100
Chulitna River (East Fork)	8/12	Hel.	Excellent	67	52	119
Chulitna River (Middle Fork)	8/12	Hel.	Excellent	385	259	644
Clear Creek	7/21	Hel.	Fair	978	4	982
Deshka River 1/	8/5-9	Hel.	Fair 2/	10,471	200	10,671
4th of July Creek	7/29	Foot	Good	55	1	56
Gold Creek	8/3	Hel.	Good	20	1	21
Goose Creek	8/7	Hel.	Good	98	42	140
Honolulu Creek	8/12	Hel.	Excellent	11	16	27
Indian River	7/21	Hel.	Good	1,049	4	1,053
Jack Long Creek	8/4	Foot	Excellent	2	0	2
Kashwitna River (North Fork)	8/10	Hel.	Excellent	128	28	156

Table 2-3-20. Continued.

Stream Surveyed	Date	Survey Method	Conditions	Chinook Salmon Counted Live	Dead	Total
Lake Creek	8/2	Hel.	Good	2,267	50	2,317
Camp Creek (Lake Creek drainage)	8/2	Hel.	Excellent	517	0	517
Sunflower Creek (Lake Creek drainage)	8/2	Hel.	Excellent	743	0	743
Lane Creek	7/12	Foot	Excellent	47	0	47
	7/28	Foot	Excellent	40	1	41
Little Willow Creek	8/7	Hel.	Good	190	126	316
Montana Creek	8/5	Foot	Good	829	58	887
Portage Creek	7/21	Hel.	Excellent	955	0	955
	8/3	Hel.	Excellent	1,198	55	1,253
Praire Creek	7/31	Hel.	Excellent	3,782	62	3,844
Sheep Creek	8/7	Hel.	Good	316	211	527
Spink Creek	8/7	Hel.	Excellent	12	0	12
Talachulitna River	8/1	Hel.	Excellent	3,101	0	3,101
Troublesome Creek	8/12	Hel.	Excellent	34	2	36
Willow Creek	8/6	Foot	Fair	506	86	592
Deception Creek (Willow Creek Drainage)	8/6	Foot	Fair	212	17	229

1/ Partial count; Mainstem Deshka from Trapper Creek to Forks; Trapper Creek not surveyable.

2/ Survey conditions on Deshka River and tributaries ranged from good to poor.



1. ALEXANDER CREEK
2. TALACHULITNA
3. QUARTZ CREEK
4. CANYON CREEK
5. RED CREEK
6. LAKE CREEK
7. PETERS CREEK
8. DESHKA RIVER
9. BUNCO CREEK
10. CHULITNA MIDDLE FORK
11. CHULITNA EAST FORK
12. CHULITNA RIVER
13. HONOLULU CREEK
14. PORTAGE CREEK
15. INDIAN RIVER
16. BYERS CREEK
17. TROUBLESOME CREEK
18. LANE CREEK
19. CLEAR CREEK
20. PRAIRIE CREEK
21. MONTANA CREEK
22. GOOSE CREEK
23. SHEEP CREEK
24. KASHWITNA RIVER NORTH FORK
25. LITTLE WILLOW CREEK
26. WILLOW CREEK

Figure 2-3-12. Susitna River basin with chinook salmon index streams defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-21. Chinook salmon escapement counts of Susitna River Basin streams from 1976 to 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Year 1/						
Stream	1976	1977	1978	1979	1980	1981	1982
Alexander Creek	5,412	9,246	5,854	6,215	a/	a/	2,546
Deshka River	21,693	39,642	24,639	27,385	a/	a/	16,000 e/
Willow Creek	1,660	1,065	1,661	1,086	a/	1,357	592 d/
Little Willow Creek	833	598	436	324 c/	a/	459	316 d/
Kashwitna River (North Fork)	203	336	362	457	a/	557	156 d/
Sheep Creek	455	630	1,209	778	a/	1,013	527 d/
Goose Creek	160	133	283	b/	a/	262	140 d/
Montana Creek	1,445	1,443	881	1,094 c/	a/	814	887 d/
Lane Creek	b/	b/	b/	b/	b/	40	47
Indian River	537	393	114	285	a/	422	1,053
Portage Creek	702	374	140	190	a/	659	1,253
Prairie Creek	6,513	5,790	5,154	a/	a/	1,900	3,844
Clear Creek	1,237	769	997	864 c/	a/	a/	982
Chulitna River (East Fork)	112	168	59	a/	a/	a/	119 d/
Chulitna River (MF)	1,870	1,782	900	a/	a/	a/	644 d/
Chulitna River	124	229	62	a/	a/	a/	100 d/
Honolulu Creek	24	36	13	37	a/	a/	27 d/
Byers Creek	53	69	a/	28	a/	a/	7 d/
Troublesome Creek	92	95	a/	a/	a/	a/	36 d/
Bunco Creek	112	136	a/	58	a/	a/	198
Peters Creek	2,280	4,102	1,335	a/	a/	a/	a/
Lake Creek	3,735	7,391	8,931	4,196	a/	a/	3,577
Talachulitna River	1,319	1,856	1,375	1,648	a/	2,129	3,101
Canyon Creek	44	135	b/	b/	b/	84	b/
Quartz Creek	b/	8	b/	b/	b/	8	b/
Red Creek	b/	1,511	385	b/	b/	749	b/

1/ 1976-1980 counts - (ADF&G/Kubik, S.W.)
a/ No total count due to high turbid water
b/ Not counted
c/ Poor counting conditions
d/ Counts conducted after peak spawning
e/ Estimated peak spawning count - (ADF&G/Delaney, K.)

The 1982 chinook salmon escapement above RM 98.6 exceeded the 1981 escapement by approximately 85 percent and the six year (1976-81) mean average by more than 200 percent. Several chinook salmon spawning streams upstream of RM 103 including Lane Creek (RM 113.6), Indian River (RM 138.6) and Portage Creek (RM 148.9) supported escapements above the historic high for years 1976 through 1981 (Table 2-3-21).

3.2.2 Sockeye Salmon

3.2.2.1 Estuary to Talkeetna

3.2.2.1.1 Main Channel Escapement

3.2.2.1.1.1 First Run

In accordance with Phase II studies, escapement sampling of first run sockeye salmon was conducted at Sunshine Station (RM 80) in 1982. No escapement sampling was conducted at Susitna (RM 26) and Yentna (RM 04) stations.

Approximately 5,800 first run sockeye salmon reached Sunshine Station (RM 80) in 1982 (Table 2-3-22). The 95 percent confidence interval of this estimate calculated at 4,900 to 7,300 fish (Table 2-3-22).

The migration of first run sockeye salmon at Sunshine Station (RM 80) began on June 9, reached a midpoint on June 13 and was essentially over by June 21 as determined by fishwheel catches (Appendix 2-C). Approximately 99.9 percent of the escapement of first run fish migrated along the east bank at Sunshine Station (RM 80) and 0.1 percent migrated along the west bank based on fishwheel catches (Appendix 2-C).

Table 2-3-22. Petersen population estimate of Susitna River first run sockeye salmon migrating past Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Population Estimate Location	River Mile	Tagged (m)	Number Examined For Tags (c)	Recaptures (r)	Population Estimates 1/ (n)	95% Confidence Limits
Sunshine Station	80	1,099	423	79	5,830	4,869 - 7,264

1/ Migration period of first run sockeye extended from June 6 through June 28.

Age and length (FL) composition data of first run sockeye salmon sampled at Sunshine Station (RM 80) are summarized in Tables 2-3-23 and 2-3-24, respectively. Age 5_2 fish comprised 89.5 percent of the escapement sample followed by age 4_2 and age 6_3 fish at 6.4 and 4.1 percents, respectively. Approximately 95.9 percent of the fish sampled had smolted in the second year of life and 4.1 percent in the third year of life. The average lengths (FL) of male and female age 4_2 fish were 462.9 mm and 460 mm, age 5_2 fish 567.1 mm and 529.5 mm and age 6_3 fish 557.5 mm and 527.9 mm, respectively (Table 2-3-24).

Sex composition data collected at Sunshine Station (RM 80) established that first run sockeye salmon males were more numerous than females among age 4_2 fish and less numerous than the females among age 5_2 and 6_3 fish in 1982 (Table 2-3-25). Overall, males were less numerous than females by a male to female ratio of 0.6:1.

Table 2-3-23. Analysis of sockeye salmon age data by percent from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	n	Age Class 1/										
		3_1	3_2	4_1	4_2	4_3	5_1	5_2	5_3	6_2	6_3	7_3
Susitna Station	966	0.1	0.4	0.1	22.4	0.2	0.1	65.8	2.1	-	8.8	-
Yentna Station	708	0.4	3.5	0.4	27.7	0.4	-	52.7	4.0	0.6	10.3	-
Sunshine Station												
First run	314				6.4	-	-	89.5	-	-	4.1	-
Second run	648	0.3	2.8	1.2	22.1	0.5	-	69.8	0.9	0.3	2.0	0.2
Talkeetna Station	373	-	4.3	-	21.2	2.1	-	70.8	0.8	-	0.8	-
Curry Station	105	1.0	21.9	-	30.5	9.5	-	32.4	4.8	-	-	-

1/ Gilbert-Rich Notation

3.2.2.1.1.2 Second Run

Second run sockeye salmon escapement estimates were obtained at Yentna (RM 04) and Sunshine (RM 80) stations in 1982 (Table 2-3-10). No total escapement estimate was available for Susitna Station (RM 26) for reasons defined in Section 2.4.3.

The Yentna River (RM 28) escapement of second run sockeye salmon in 1982 was approximately 113,800 fish as determined by SSS counters at Yentna Station (RM 04) (Table 2-3-10). At Sunshine Station (RM 80) the escapement was approximately 151,000 fish as determined by the Petersen method (Table 2-3-11).

The 1982 Susitna River escapement of second run sockeye salmon was approximately 265,000 fish not including escapements to spawning systems between RM 6 and 77 excluding the Yentna River (RM 28). The estimate

Table 2-3-24. Analysis of sockeye salmon lengths, in millimeters, by age class from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Susitna Station	3_1	1	0	531	-	531	-	-	-	531	-
	3_2	4	0	295-432	-	340	-	-	-	317	-
	4_1	0	1	-	572	-	572	-	-	-	572
	4_2	143	73	385-561	390-587	452	477	447.1,456.7	466.2,487.0	450	478
	4_3	1	1	380	416	380	416	-	-	380	416
	5_1	0	1	-	610	-	610	-	-	-	610
	5_2	284	351	412-663	340-671	584	564	579.9,587.7	561.1,566.9	590	567
	5_3	11	9	422-573	445-533	500	482	-	-	516	470
	6_3	36	49	434-630	472-603	568	556	-	-	574	562
Yentna Station	3_1	1	2	510	425-572	510	499	-	-	510	499
	3_2	18	3	277-313	445-549	297	502	-	-	296	511
	4_1	3	0	520-601	-	573	-	-	-	598	-
	4_2	150	46	306-626	400-590	477	496	467.5,486.8	482.6,508.4	458	496
	4_3	3	0	394-437	-	422	-	-	-	434	-
	5_2	243	130	430-637	447-601	582	554	577.6,586.5	548.8,558.8	589	559
	5_3	15	13	432-604	441-557	516	490	-	-	522	485
	6_2	3	1	594-601	590	597	590	-	-	597	590
	6_3	37	35	456-630	445-584	570	536	-	525.1,546.1	577	538

Table 2-3-24. Continued.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Sunshine Station	4_2	12	8	365-590	410-570	463	460	-	-	440	453
First Run	5_2	103	178	420-615	410-650	567	530	-	525.2,533.8	570	530
	6_3	6	7	510-600	495-560	558	528	-	-	560	525
Sunshine Station	3_1	2	0	435-600	-	518	-	-	-	518	-
Second Run	3_2	17	1	290-400	345	330	345	-	-	325	345
	4_1	2	6	580-610	510-645	595	568	-	-	595	553
	4_2	70	73	385-656	375-650	472	502	457.1,487.7	488.8,515.5	453	500
	4_3	2	1	315-405	380	360	380	-	-	360	380
	5_2	203	249	425-725	410-690	596	559	591.1,601.4	554.4,564.2	600	560
	5_3	4	2	450-595	485-490	546	488	-	-	570	488
	6_2	1	1	570	560	570	560	-	-	570	560
	6_3	9	4	590-610	535-570	590	555	-	-	610	558
	7_3	1	0	610	-	610	-	-	-	610	-
Talkeetna Station	3_2	16	0	300-410	-	340	-	-	-	343	-
	4_2	53	26	370-630	410-600	524	505	504.9,542.6	485.5,524.9	530	515
	4_3	7	1	310-370	335	349	335	-	-	350	335
	5_2	134	130	450-655	420-650	590	566	584.0,596.0	559.8,571.3	600	570
	5_3	2	1	490-580	500	535	500	-	-	535	500
	6_3	1	2	440	540-600	440	570	-	-	440	570

Table 2-3-24. Continued.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Curry Station	3_1	1	0	385	-	385	-	-	-	385	-
	3_2	23	0	220-550	-	350	-	-	-	340	-
	4_2	22	10	330-620	420-590	496	503	457.4,533.5	-	515	493
	4_3	9	1	310-390	580	338	580	-	-	330	580
	5_2	14	20	450-620	420-605	573	555	-	-	580	563
	5_3	2	3	410-580	415-540	495	475	-	-	495	470

1/ Male

2/ Female

3/ Confidence Limits on Mean

Table 2-3-25. Sex ratio of male and female sockeye salmon by age from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Susitna Station	3	5	5	0	-
	4	219	144	75	1.9:1
	5	656	295	361	0.8:1
	6	85	36	49	0.7:1
Yentna Station	3	24	19	5	3.8:1
	4	202	156	46	3.4:1
	5	401	258	143	1.8:1
	6	76	40	36	1.1:1
Sunshine Station					
First Run	4	20	12	8	1.5:1
	5	281	103	178	0.6:1
	6	13	6	7	0.9:1
Second Run	3	20	19	1	19.0:1
	4	154	74	80	0.9:1
	5	458	207	251	0.8:1
	6	15	10	5	2.0:1
	7	1	1	0	-
Talkeetna Station	3	16	16	0	-
	4	87	60	27	2.2:1
	5	267	136	131	1.0:1
	6	3	1	2	0.5:1
Curry Station	3	21	21	0	-
	4	44	33	11	3.0:1
	5	40	17	23	0.7:1

represents the combined escapements of second run sockeye salmon to Yentna Station (RM 04) and Sunshine Station (RM 80) in 1982 (Table 2-3-10).

A total of 123,913 second run sockeye salmon were enumerated by SSS counters at Susitna Station (RM 26) and 75,925 were counted at Sunshine Station (RM 80) in 1982 (Table 2-3-26). These counts represent an index of escapement (Section 2.4.3).

Table 2-3-26. Apportioned sonar counts by species and sampling location, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	River Mile	Apportioned Sonar Counts					
		Chinook 1/	Sockeye	Pink	Chum	Coho	Total
Susitna Station	26	925	123,913	493,156	20,245	33,137	680,376
Yentna Station	04	1,193	113,847	447,257	27,830	34,089	624,216
Sunshine Station	80	2,924	75,925	352,014	178,434	42,415	651,712
Talkeetna Station	103	2,850	3,297	85,377	28,823	7,189	127,536

1/ Chinook migrations were underway prior to the installation of sonar equipment. The counts should be considered as indices of abundance for the portion of the migration that the sonar equipment was operational.

Determined from fishwheel catch data, the second run of sockeye salmon at Susitna Station (RM 26) in 1982 began, reached a midpoint and ended on or about July 18, July 24 and August 5, respectively (Figure 2-3-13). In the Yentna River (RM 28) at Yentna Station (RM 04), the migration began on July 18, reached a midpoint on July 24 and terminated on August 6 (Figure 2-3-14). At Sunshine Station (RM 80), the second run escapement began, reached a midpoint and ended on July 20, July 27 and August 3, respectively.

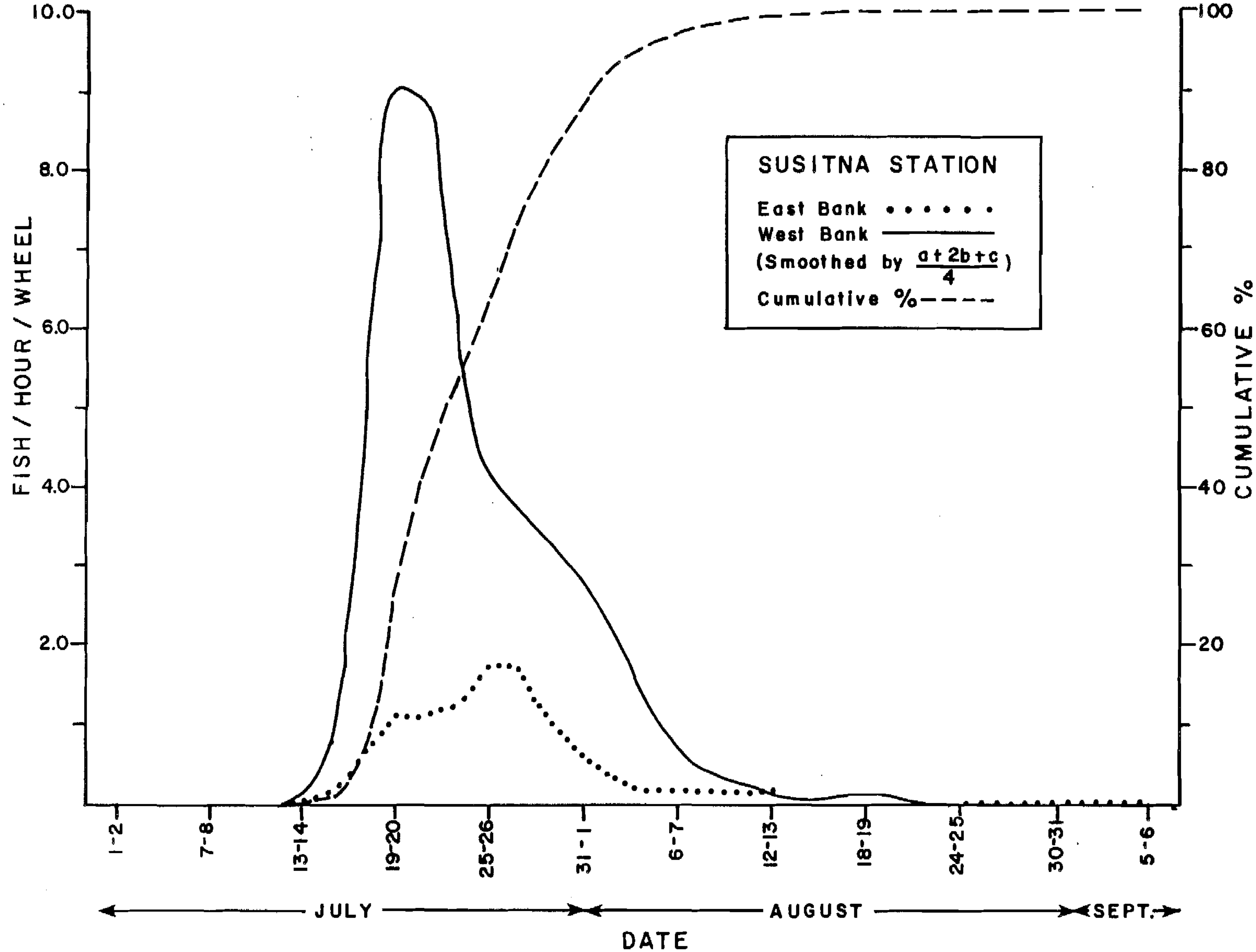


Figure 2-3-13. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

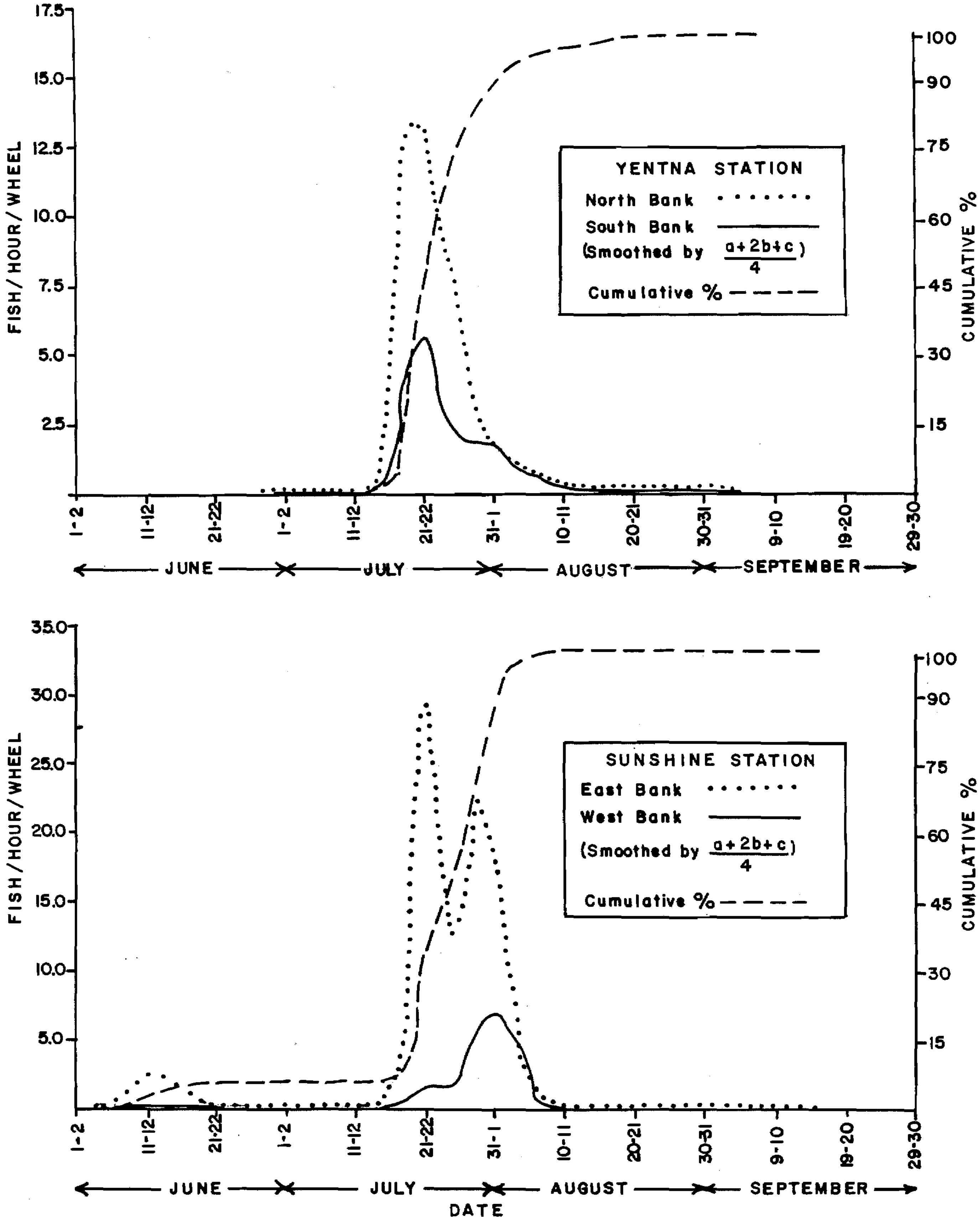


Figure 2-3-14. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Yentna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Second run sockeye salmon were caught in fishwheels at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982. Daily and cumulative catch data have been presented in Appendix 2-C.

A total of 1,382, 3,386 and 17,408 second run sockeye salmon were intercepted with fishwheels at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 (Table 2-3-9). Peak fishwheel catches occurred on July 19 at Susitna Station, July 20 at Yentna Station and on July 22 at Sunshine Station (Appendix 2-C).

A sharp inseason reduction in fishwheel catches of sockeye salmon occurred at Sunshine Station (RM 80) on July 26, 1982 (Appendix 2-C and Figure 2-3-14). The reduction can be attributed, at least in part, to high water conditions. USGS gauging station #15292780 (RM 83.8) recorded a peak discharge of 99,300 cfs on July 26 (USGS provisional, 1982). Flows three days preceding and following this event were 66,200 and 67,900 cfs, respectively. It was suspected that the high water event on July 26 slowed migration of second run fish and to a lesser extent, reduced fishwheel efficiency.

Based on fishwheel catches, second run sockeye salmon averaged one day or less travel for the six miles between Susitna (RM 26) and Yentna (RM 04) stations, and approximately 2.3 days travel for the 54 miles between Susitna (RM 26) and Sunshine (RM 80) stations (Appendix 2-C). These travel times were computed under the assumption of no fundamental difference in timing between stocks.

Second run sockeye salmon displayed migrational preference in 1982 to the west bank at Susitna Station (RM 26), south bank at Yentna Station (RM 04) and east bank at Sunshine Station (RM 80) based on fishwheel catches (Figures 2-3-13 and 2-3-14). These preferences may be attributed to specific site characteristics including channel configuration, velocity and water depth.

Age composition data collected from second run sockeye salmon at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 are summarized in Table 2-3-23 and Figure 2-3-15. Age 5_2 fish comprised 65.8, 52.7 and 69.8 percent of the escapement sample from Susitna, Yentna and Sunshine stations, respectively. Next abundant were age 4_2 sockeye salmon which represented 22.4 percent of the age sample at Susitna Station, 27.7 percent at Yentna Station and 22.1 percent at Sunshine Station.

Based on scale growth patterns 88.6 percent of the sockeye salmon sampled for age from Susitna Station (RM 26) in 1982 had smolted in the second year, 11.1 percent the third year and 0.3 percent in the first year of life. At Yentna Station (RM 04) these percentages in order were 84.5, 14.7 and 0.8 percent, and at Sunshine Station (RM 80) 95.0, 3.6 and 1.5 percent (Table 2-3-23).

Length (FL) composition data were collected of second run sockeye salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations. The results are summarized in Table 2-3-24 and Appendix 2-D.

The average (FL) length of age 5_2 male and female second run fish sampled were: 584 mm and 564 mm at Susitna Station (RM 26); 582 mm and 554 mm at Yentna Station; and 586 mm and 547 mm at Sunshine Station (RM 80), respectively. Age 4_2 male and female average lengths were: 452 mm and 477 mm at Susitna Station; 477 mm and 496 mm at Yentna Station; and 471 mm and 498 mm at Sunshine Station, respectively.

Sex composition data from 1982 second run fish sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations are reported in Table 2-3-25. At Susitna Station, males outnumbered females among three and four year old fish while females outnumbered males among five and six year old fish. At Yentna Station, males outnumbered females in all ages sampled. Males were more numerous than females in all but four and five year old fish sampled at Sunshine Station (Figure 2-3-15).

Overall male to female sex ratios in 1982 were 1.0:1, 2.1:1 and 0.9:1 at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations, respectively.

3.2.2.1.2 Spawning

3.2.2.1.2.1 Main Channel

The main channel of the Susitna River from RM 7 to 98.5 was surveyed for sockeye spawning areas in 1982. A total of 811 main channel sites were examined between August 1 and October 13 (Appendix 2-F). No sockeye salmon spawning was found at any of the locations.

3.2.2.1.2.2 Streams and Sloughs

3.2.2.1.2.2.1 First Run

Spawning ground surveys were conducted to provide tag recapture data for determining the escapement of first run escapement to Sunshine Station (RM 80) in 1982. The survey results are presented in Table 2-3-27.

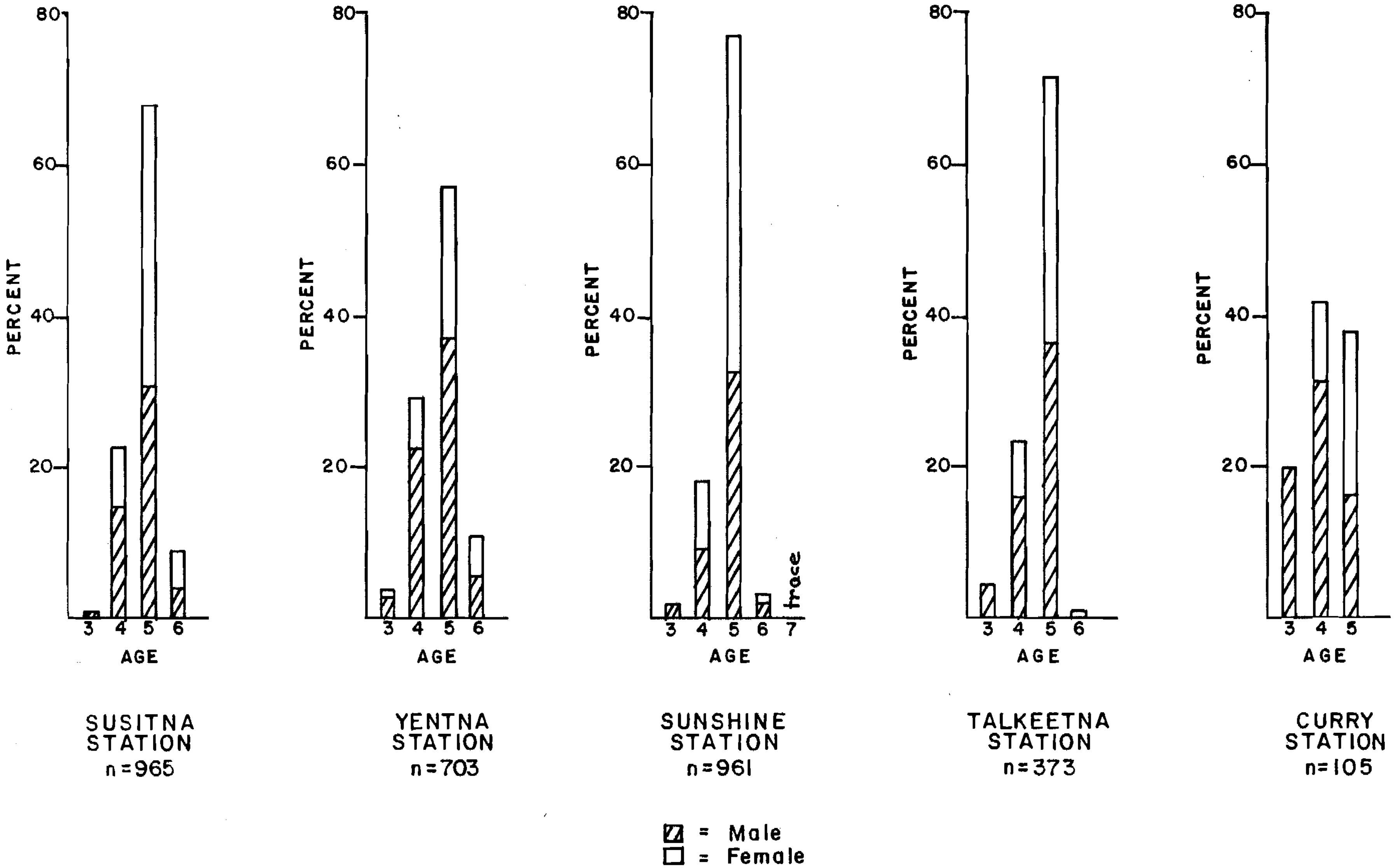


Figure 2-3-15. Age composition of fishwheel intercepted sockeye salmon at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-27. Escapement survey counts of tagged and untagged first run sockeye salmon tagged at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Area Surveyed	River Mile 1/	Date	Survey Conditions	Sunshine Tags Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Papa Bear Lake Inlet Creek	97.1	8/2	Excell.	56	276	332	5.9
Fish Creek	97.1	6/24	Good	21	57	78	3.7

1/ Confluence of stream or receiving system with Susitna River mainstem.

Aerial and ground surveys in the Chulitna River drainage (RM 98.5), Susitna River basin above RM 80 and Talkeetna River system (RM 97.0) were conducted between mid July and mid August in association with 1982 scheduled chinook salmon spawning surveys. No area above RM 80, other than the Fish Creek subdrainage of Chunilna (Clear) Creek a Talkeetna River stream (RM 97.0), was found to be a spawning area of first run sockeye salmon (Figure 2-3-16).

The approximate spawning period of first run sockeye salmon in the Fish Creek drainage was July 21 through August 7, 1982.

3.2.2.1.2.2.2 Second Run

Second run sockeye salmon surveys were conducted for tag recovery data. The results are presented in Appendix 2-G.

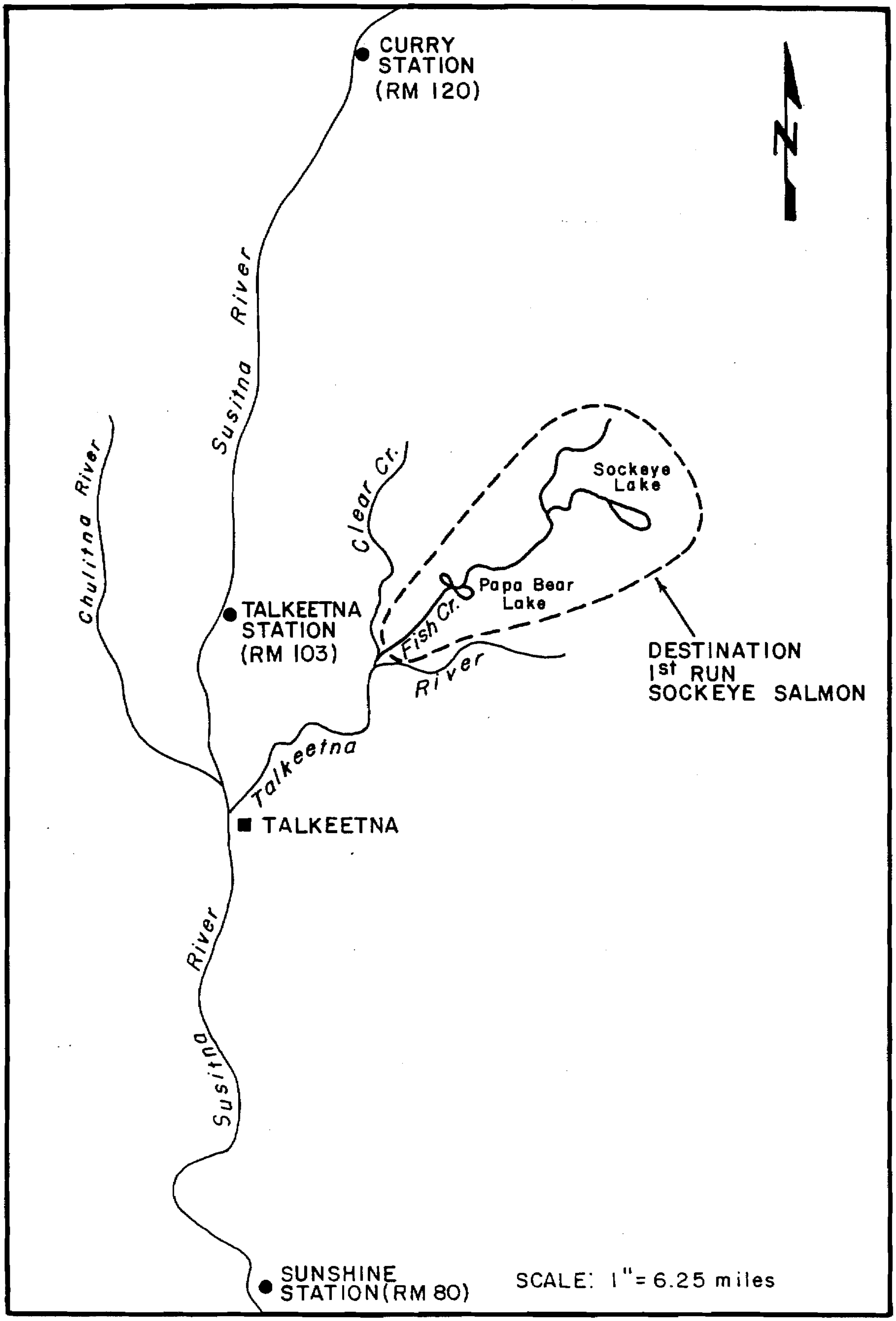


Figure 2-3-16. Destination of first run sockeye salmon tagged at Sunshine station on the Susitna River, Adult Anadromous Investigations, Su Hydro Studies, 1982.

3.2.2.2 Talkeetna to Upper Devil Canyon

3.2.2.2.1 Main Channel Escapement

3.2.2.2.1.1 First Run

At Talkeetna Station (RM 103), nine sockeye salmon were intercepted in fishwheels between June 7 and 18, 1982 (Appendix 2-C). The peak catch occurred on June 9. In the 19 days from June 19 to July 7 no sockeye salmon were caught at Talkeetna Station. Data indicates that all nine sockeye salmon intercepted at Talkeetna Station between June 7 and 18 were probably first run fish.

No estimate of 1982 first run sockeye salmon escapement to Talkeetna Station was made due to the absence of any known spawning areas above RM 103 or any recaptures of first run fish at Curry Station (RM 120).

At Curry Station (RM 120) there were no sockeye salmon caught in the station fishwheels between June 9 and July 15, 1982 (Appendix 2-C). Based on this observation it was probable that minimal, if any, first run sockeye salmon reached or extended upstream of RM 120 in 1982.

3.2.2.2.1.2 Second Run

In 1982 approximately 3,100 second run sockeye salmon migrated to Talkeetna Station (RM 103) as determined by the Petersen method. The 95 percent confidence interval on this estimate was calculated at 2,800 to 3,500 fish (Table 2-3-11).

A total of 3,297 second run sockeye salmon were enumerated over the SSS counters at Talkeetna Station (RM 103) in 1982 (Table 2-3-26). This number was considered an escapement index as defined in Section 2.4.3.

The escapement of second run sockeye salmon to Curry Station (RM 120) was approximately 1,300 fish by the Petersen method. The 95 percent confidence interval of this estimate calculated at 1,100 to 1,500 fish (Table 2-3-11).

The migration of second run sockeye salmon to Talkeetna Station (RM 103) began on July 27, reached a midpoint on August 1 and ended on August 18 in 1982 as derived from fishwheel catches (Figure 2-3-17). At Curry Station (RM 120) the migration began on July 27, reached a midpoint on August 5 and ended on August 28 (Appendix 2-C). Peak 1982 fishwheel catches of second run sockeye salmon occurred at Talkeetna Station (RM 103) on July 29 and at Curry Station (RM 120) on August 5 (Figure 2-3-17).

The average migration time of second run sockeye salmon between Sunshine (RM 80) and Talkeetna (RM 103) stations in 1982 was 8.5 days based on 57 recaptures (Figure 2-3-18). Eleven sockeye salmon averaged 2.3 days of travel between Talkeetna (RM 103) and Curry (RM 120) stations (Figure 2-3-18). The minimum and maximum days travelled was one and four days respectively. Twelve recaptured fish averaged 11.7 days travelling time between Sunshine (RM 80) and Curry (RM 120) stations (Figure 2-3-18). The range was 4 to 40 days.

A total of 509 and 161 second run sockeye salmon were intercepted in 1982 by fishwheels at Talkeetna (RM 103) and Curry (RM 120) stations respectively

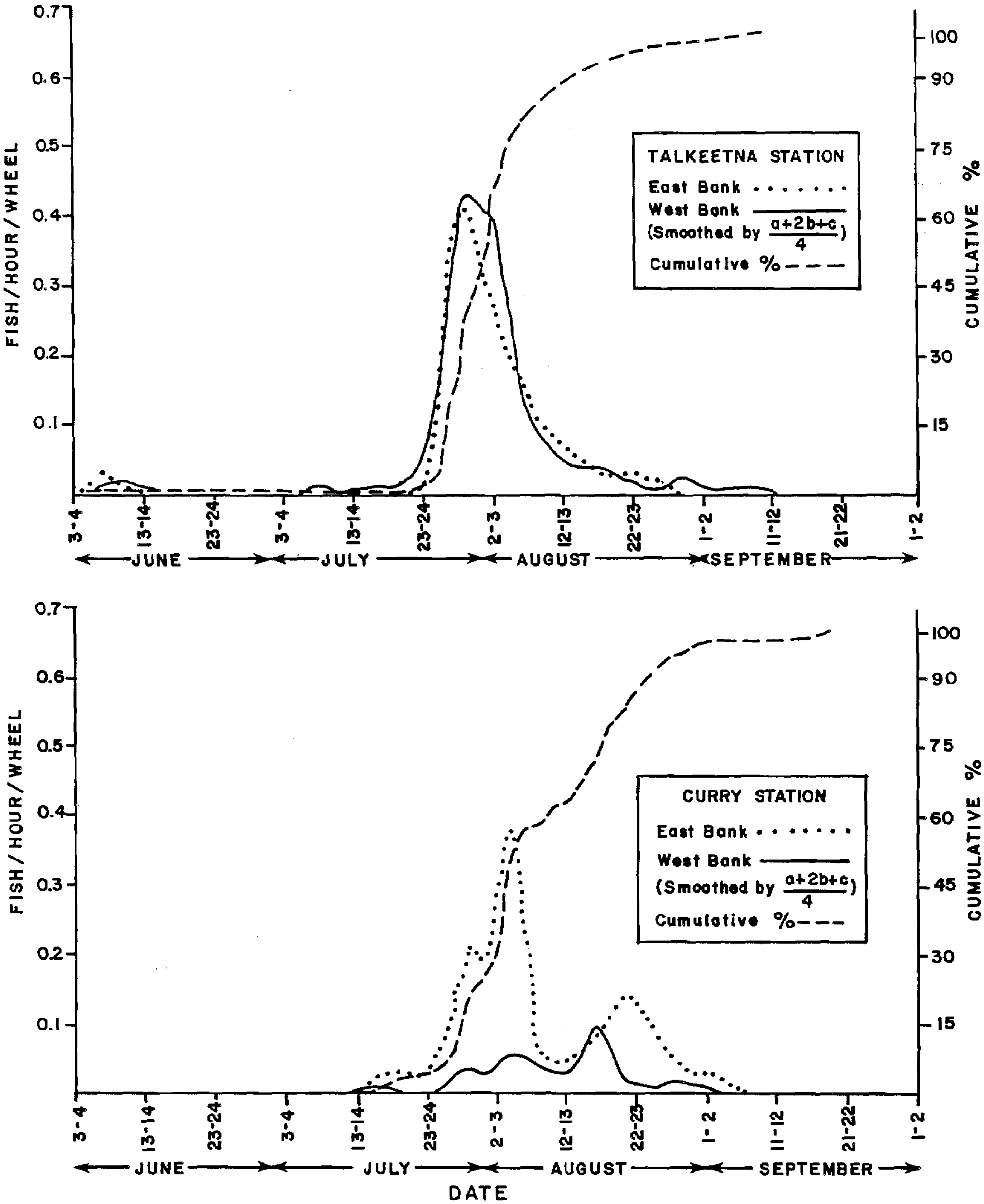


Figure 2-3-17. Mean hourly and cumulative percent fishwheel catch of sockeye salmon by two day periods at Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

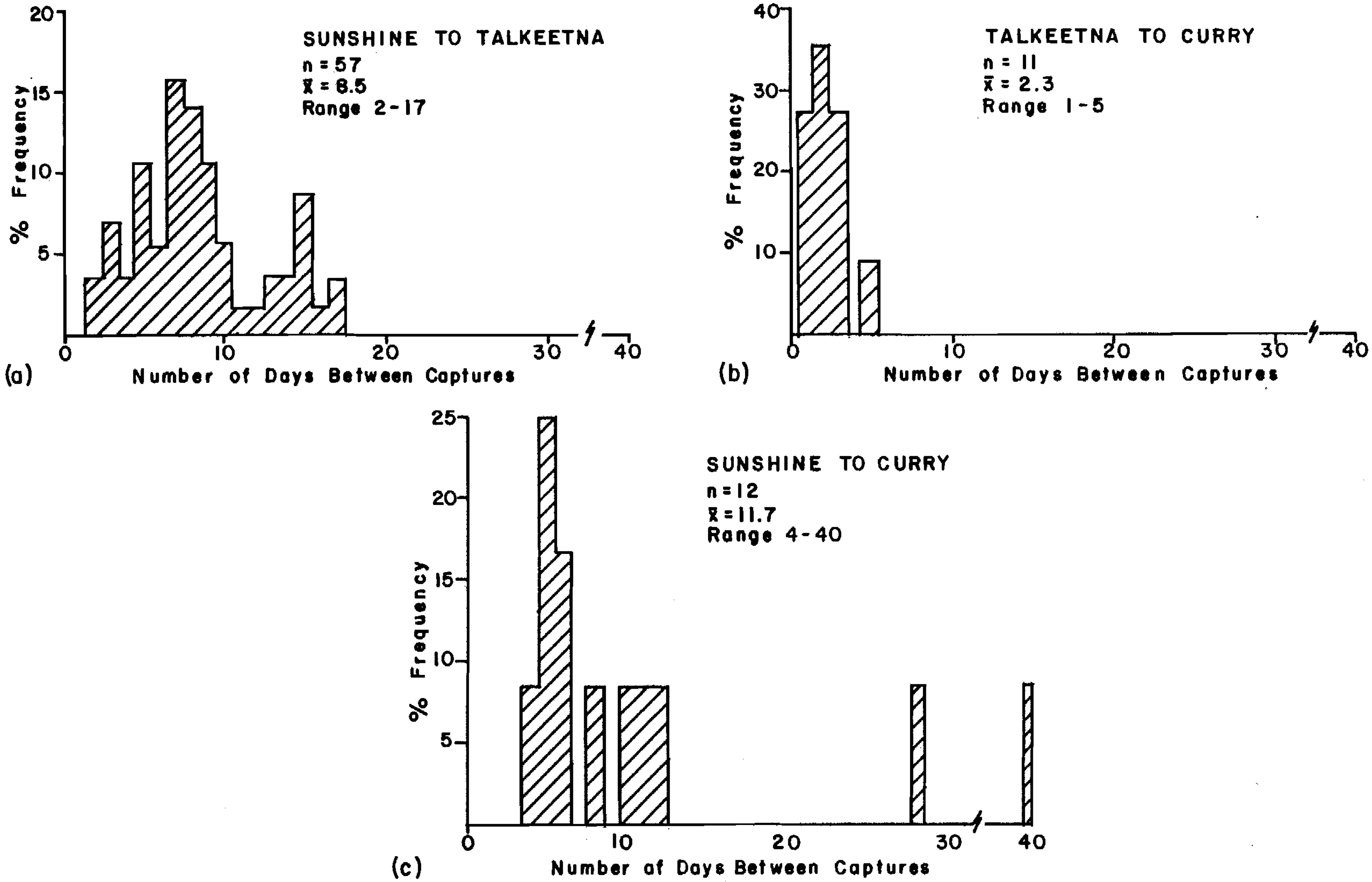


Figure 2-3-18. Migrational rates of sockeye salmon between (a) Sunshine and Talkeetna stations, (b) Talkeetna and Curry stations and (c) Sunshine and Curry stations based on fishwheel recaptures, Adult Anadromous Investigations, Su Hydro Studies, 1982.

(Table 2-3-9). Based on these catches, 53.0 percent of the escapement migrated offshore of the west bank at Talkeetna Station and 47.0 percent travelled off the east bank at RM 103 (Appendix 2-C). At Curry Station 79.5 percent of the escapement migrated along the east bank and 20.5 percent travelled along the west bank.

Age and length (FL) composition data of second run sockeye salmon sampled at Talkeetna (RM 103) and Curry (RM 120) stations are summarized in Tables 2-3-23 and 2-3-24, respectively.

At Talkeetna Station (RM 103) approximately 70.8 percent of the escapement sampled were age 5_2 fish followed by age 4_2 fish at 21.2 percent. Based on scale growth characteristics, 96.3 percent of the fish sampled had smolted in the second year of life and 3.7 percent had smolted in the third year of life. The average length (FL) of age 4_2 males and females was 524 mm and 505 mm while age 5_2 males and females sampled at Talkeetna Station averaged 590 mm and 566 mm respectively (Table 2-3-24).

At Curry Station (RM 120) age 3_2, 4_2 and 5_2 sockeye salmon comprised 21.9, 30.5 and 32.4 percents respectively of the age sample (Table 2-3-23 and Figure 2-3-15). Approximately 84.9 percent of the fish aged from Curry Station (RM 120) had smolted in the second year of life followed by 14.3 percent in the third year of life and 1.0 percent in the first year of life.

Age 3_2 male sockeye salmon sampled for length (FL) at Curry Station (RM 120) averaged 350 mm and age 4_2 males and females averaged 496 mm and 503 mm, respectively. Age 5_2 males averaged 573 mm and females averaged 555 mm (Table 2-3-24).

Results of 1982 sex composition sampling at Talkeetna (RM 103) and Curry (RM 120) stations are reported in Table 2-3-25 and Figure 2-3-15. At Talkeetna Station sockeye salmon males were more abundant than females among the three, four and five year old fish and less abundant than females among six year old fish sampled. Overall male to female ratio was 1.3:1. At Curry Station (RM 120) males outnumbered females among the three and four year old fish sampled and were less numerous than females among five year old fish sampled. Overall male to female ratio was 2.1:1.

3.2.2.2.2 <u>Lower Devil Canyon Milling</u>

Set net fishing results for 1982 in lower Devil Canyon are summarized in Table 2-3-18. No sockeye salmon were caught in the 19.6 net hours fished at RM 150.2 and 150.4 from August 10 through September 12, 1982 (Plate 2-3-7).

Plate 2-3-7. Preparing to deploy gill net in lower Devil Canyon near RM 150.4, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Electroshocking was conducted four times at RM 150.4 between August 11 and September 23, 1982 and did not produce a sockeye salmon catch (Table 2-3-19).

Based on gill netting and electroshocking in lower Devil Canyon minimal, if any, sockeye salmon were present in lower Devil Canyon (RM 150 to 151) from August 10 through September 23, 1982.

3.2.2.2.3 Spawning

3.2.2.2.3.1 Main Channel

Surveys for sockeye salmon spawning were conducted in the Susitna River reach from RM 98.5 to 150 between August 7 and October 7, 1982. A total of 397 sites were examined for sockeye salmon spawning activity (Appendix 2-F). Survey results indicated sockeye salmon did not spawn in the main channel reach between RM 98.5 and 150.

3.2.2.2.3.2 Sloughs and Streams

In 1982, 34 sloughs between RM 98.6 and 161.0 were surveyed (Appendix 2-G). The following 10 sloughs were found to contain sockeye salmon:

1. Slough 8C (RM 121.9)
2. Slough 8B (RM 122.2)
3. Moose Slough (RM 123.5)
4. Slough 8A (RM 125.1)
5. Slough B (RM 126.3
6. Slough 9 (RM 128.3)
7. Slough 9B (RM 129.2)
8. Slough 9A (RM 133.8)
9. Slough 11 (RM 135.3)
10. Slough 21 (RM 141.1)

All sockeye salmon surveyed between RM 98.6 to 161.0 were second run fish as determined from escapement sampling at Talkeetna (RM 103) and Curry (RM 120) stations (Section 3.2.2.2.1.1).

The total of the peak survey counts of live and dead sockeye salmon for all sloughs was 607 fish in 1982 (Appendix 2-G). This count represents the minimum level of escapement to the 10 referenced sloughs.

Based on peak survey counts, sockeye salmon in 1982 were most abundant in sloughs: 11 (75.1%), 8A (11.2%), and 21 (8.7%).

Peak of spawning by second run sockeye salmon in slough habitats occurred during the last week of August and the first three weeks in September, 1982 (Appendix 2-G).

Slough B (RM 126.3) was identified as a new anadromous fish spawning habitat by ADF&G Su Hydro Adult Anadromous staff on August 12, 1982 (Appendix 2-G). Slough B supported a peak survey count of eight sockeye salmon on September 5, 1982 (Appendix 2-G).

A total of 19 streams were surveyed between RM 98.6 and 161.0 in 1982. Four sockeye salmon were observed at the mouth of Portage Creek (RM 148.9) on August 29. These were the only sockeye salmon observed in any stream habitat in 1982 (Appendix 2-G).

The four sockeye salmon recorded at Portage Creek (RM 148.9) on August 29, 1982 were considered milling fish as there were no further sightings of these fish in subsequent surveys (Appendix 2-G).

3.2.2.2.4 Stock Separation

Phase II investigations were subcontracted to the Statewide Stock Biology Group of ADF&G Commercial Fisheries Division to determine: (1) separatability of second run sockeye salmon stocks sampled at Curry (RM 120) and Talkeetna (RM 103) stations, from Larson Lake outlet stream a Talkeetna River (RM 97.0) tributary, and from the Tokositna River a Chulitna River (RM 98.5) tributary; and (2) the probable fate of second run sockeye fry spawned upstream of Curry Station.

Results of the stock separation work are presented in Appendix 2-H.

3.2.3 Pink Salmon

3.2.3.1 Estuary to Talkeetna

3.2.3.1.1 Main Channel Escapement

Pink salmon escapement estimates were obtained for Yentna (RM 04) and Sunshine (RM 80) stations in 1982 (Table 2-3-10). No total escapement estimate was available for Susitna Station (Section 2.4.3).

Sonar counters operated at Susitna Station (RM 26) counted 493,156 pink salmon between July 1 and September 5, 1982 (Table 2-3-26). These counts were considered an index of the escapement to RM 26 (Section 2.4.3). Daily and cumulative SSS counts have been presented in Appendix 2-B.

The Yentna River (RM 28) pink salmon escapement in 1982 was approximately 447,300 fish based on SSS monitoring at Yentna Station (RM 04) (Table 2-3-10). Daily and cumulative SSS counts recorded at Yentna Station have been presented in Appendix 2-B.

At Sunshine Station (RM 80) the pink salmon escapement was approximately 443,200 fish estimated by the Petersen method with a 95 percent confidence interval of 407,000 to 486,500 fish (Table 2-3-11).

The Susitna River pink salmon escapement in 1982 was approximately 890,500 fish. This estimate does not reflect escapement to systems between RM 6 and 77 excluding the Yentna River (RM 28) and represents the combined number of pink salmon counted by sonar at Yentna Station (RM 04) and the estimate of the pink salmon migrating to Sunshine Station (RM 80) by the Peterson method (Table 2-3-10).

A total of 352,014 pink salmon were counted with SSS counters at Sunshine Station (RM 80) in 1982 (Table 2-3-26). This count was considered an index of the pink salmon escapement to RM 80 (Section 2.4.3). Daily and cumulative SSS counts recorded at Sunshine Station are provided in Appendix 2-B.

Pink salmon were caught in fishwheels at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982. Daily and cumulative fishwheel catch data are presented in Appendix 2-C.

Fishwheels operated at Susitna Station (RM 26) intercepted a total of 5,174 pink salmon in 1982. The east bank fishwheel caught 59.8 percent of the catch and the 40.2 percent remainder was caught with the west bank fishwheel (Table 2-3-9). Based on fishwheel catches, the pink salmon migration at Susitna Station began on July 23, reached a midpoint on July 28 and terminated on August 6 (Figure 2-3-19).

At Yentna Station (RM 04) 16,627 pink salmon were caught in fishwheels in 1982. The south bank fishwheel caught 54.5 percent of the catch and the north bank fishwheel caught 45.5 percent of the catch. Based on catch rates, the migration at Yentna Station began, reached a midpoint and ended on July 23, on July 29 and August 7, respectively (Figure 2-3-20). Approximately 85 percent of the pink salmon escapement at Yentna Station in 1982 migrated within 15 feet of the north and south shore based on SSS sector counts (Appendix 2-B).

At Sunshine Station (RM 80) 47,671 pink salmon were intercepted by fishwheels in 1982 (Table 2-3-9). The migration, as indicated by fishwheel catches began July 29 and ended on August 10 with the midpoint occurring on approximately August 3 (Figure 2-3-20). Based on fishwheel catches the majority (91.7%) of the pink salmon migrated along the east bank.

Pink salmon averaged approximately one travel day for the six miles between Susitna (RM 26) and Yentna (RM 04) stations in 1982 from fishwheel catch data interpretation (Figures 2-3-19 and 2-3-20). The average travel time for pink salmon between Susitna and Sunshine (RM 80) stations, a distance of approximately 54 miles, was approximately eight days. Estimated travel rates assume no differential timing between stocks.

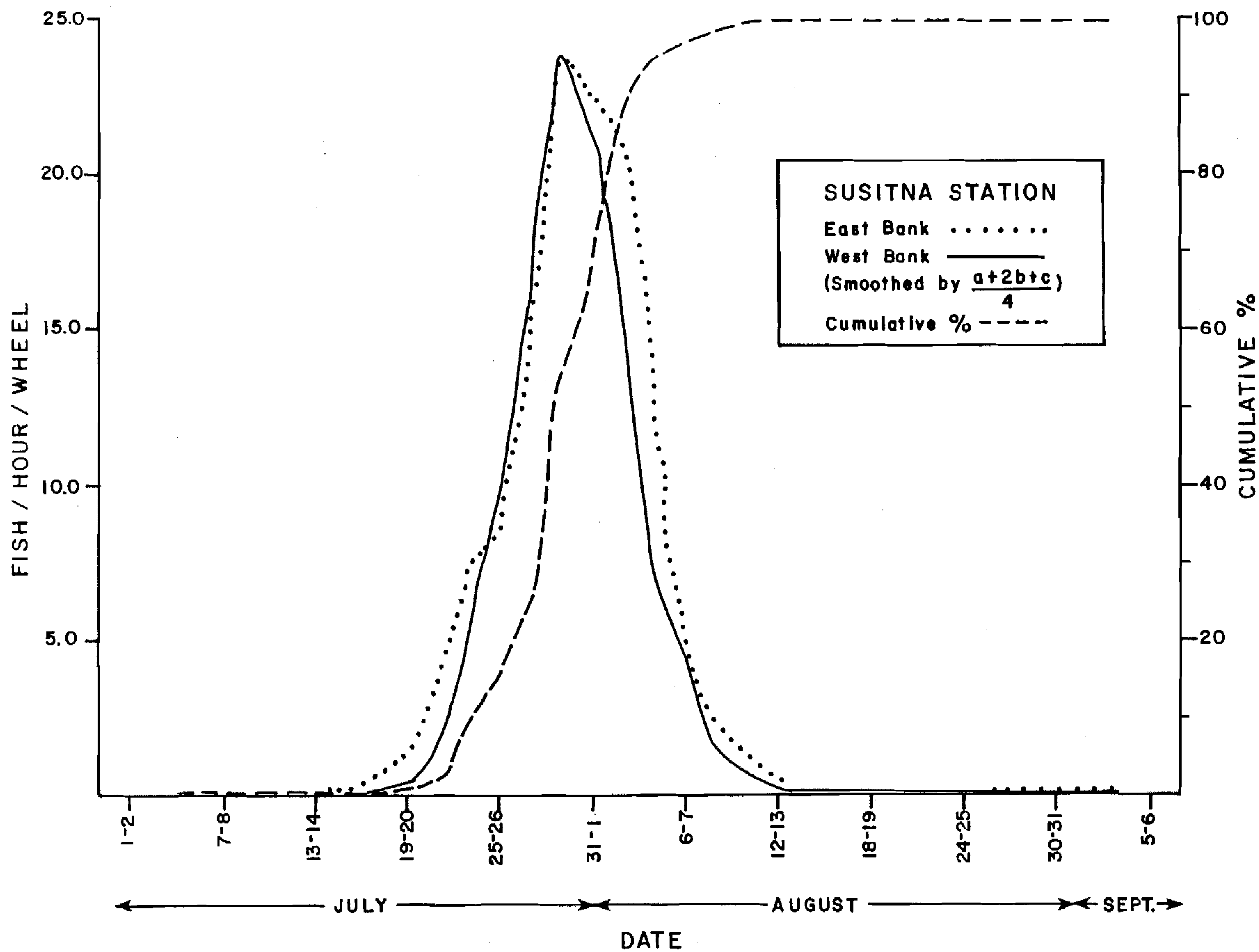


Figure 2-3-19. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies 1982.

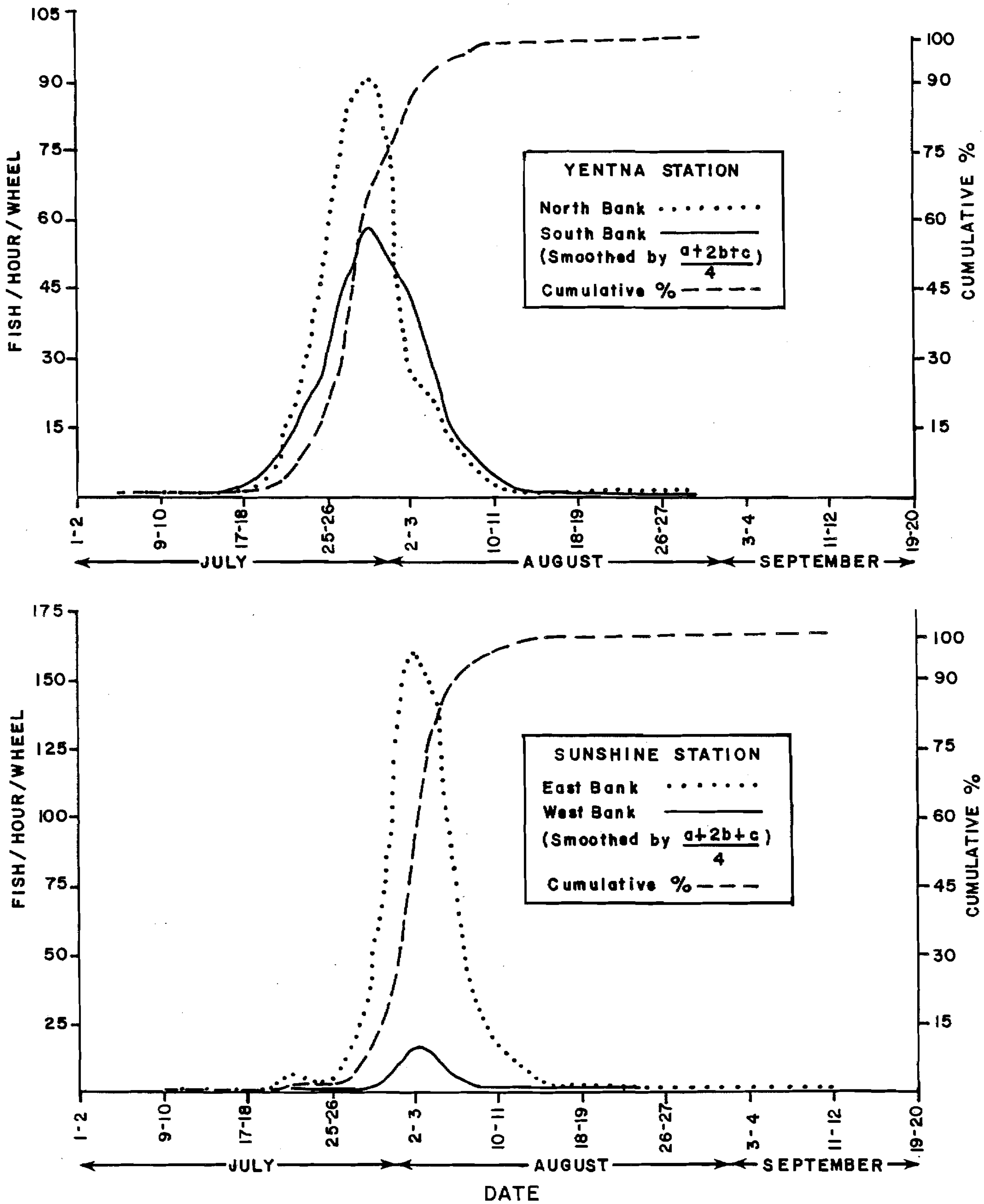


Figure 2-3-20. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Yentna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Length (FL) composition data of pink salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 are summarized in Table 2-3-28 and Appendix 2-D.

Pink salmon ranged in length (FL) at Susitna Station (RM 26) from 245 mm to 516 mm, at Yentna Station (RM 04) from 240 mm to 593 mm and at Sunshine Station (RM 80) from 275 mm to 580 mm. Male pink salmon averaged 432 mm at Susitna Station, 433 mm at Yentna Station and 441 mm in length at Sunshine Station. Female pink salmon had average lengths of 412 mm, 422 mm and 423 mm at Susitna, Yentna and Sunshine stations, respectively.

At Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations the male to female pink salmon ratios recorded from escapement sampling were 0.9:1, 1.0:1 and 1.8:1, respectively (Table 2-3-28).

3.2.3.1.2 Main Channel Spawning

In 1982, 811 Susitna River main channel sites between RM 7 and 98.6 were investigated for pink salmon spawning between August 1 and October 13 (Appendix 2-F). Survey results indicate that no pink salmon spawning occurred in the subject river reach in 1982.

3.2.3.2 Talkeetna to Devil Canyon

3.2.3.2.1 Main Channel

In 1982 approximately 73,000 pink salmon migrated to Talkeetna Station (RM 103), as calculated by the Petersen method (Table 2-3-10). The 95 percent

Table 2-3-28. Analysis of pink salmon lengths in millimeters from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	n		Sex Ratio (M:F)	Range Limits		Mean		95% Conf. Limits 3/		Median	
	m 1/	f 2/		m	f	m	f	m	f	m	f
Susitna Station	130	137	0.9:1	293-516	245-491	432	412	425-439	405-420	435	422
Yentna Station	638	632	1.0:1	321-593	240-539	433	422	431-436	420-424	431	423
Sunshine Station	618	342	1.8:1	275-580	275-500	441	423	438-445	420-426	440	425
Talkeetna Station	587	361	1.6:1	340-590	320-640	425	428	422-428	425-431	420	430
Curry Station	483	322	1.5:1	270-525	325-480	417	421	414-420	418-423	415	420

1/ Male

2/ Female

3/ Confidence Limits on Mean

confidence interval for the escapement estimate was calculated at 70,500 to 75,800 fish (Table 2-3-11).

The escapement of pink salmon to Curry Station (RM 120) in 1982 was estimated at 58,800 pink salmon by the Petersen method (Table 2-3-10). The 95 percent confidence interval was 53,600 to 65,300 fish (Table 2-3-11).

Fishwheels at Talkeetna Station (RM 103) caught a total of 13,781 pink salmon in 1982 with 55.6 percent of the catch being made with the two east bank fishwheels (Appendix 2-C). Based on fishwheel catch rates the pink salmon migration began on August 2, reached a midpoint on August 6 and terminated on August 13 (Figure 2-3-21).

Side scan sonars at Talkeetna Station (RM 103) registered 85,377 pink salmon counts in 1982 (Table 2-3-26). The east and west SSS counters registered 41.8 percent and 58.2 percent of the counts respectively (Appendix 2-B). The SSS count of pink salmon at Talkeetna Station was considered an index of the escapement as discussed in Section 2.4.3.

The two fishwheels at Curry Station (RM 120) intercepted a total of 7,302 pink salmon in 1982 (Table 2-3-9). From fishwheel catch rate interpretation the migration began on August 2, reached a midpoint on August 6 and terminated on August 13. Approximately 51.8 percent of the pink salmon migrated along the east bank of the Susitna River at Curry Station and the remaining 48.2 percent migrated along the west bank as indicated by fishwheel catches.

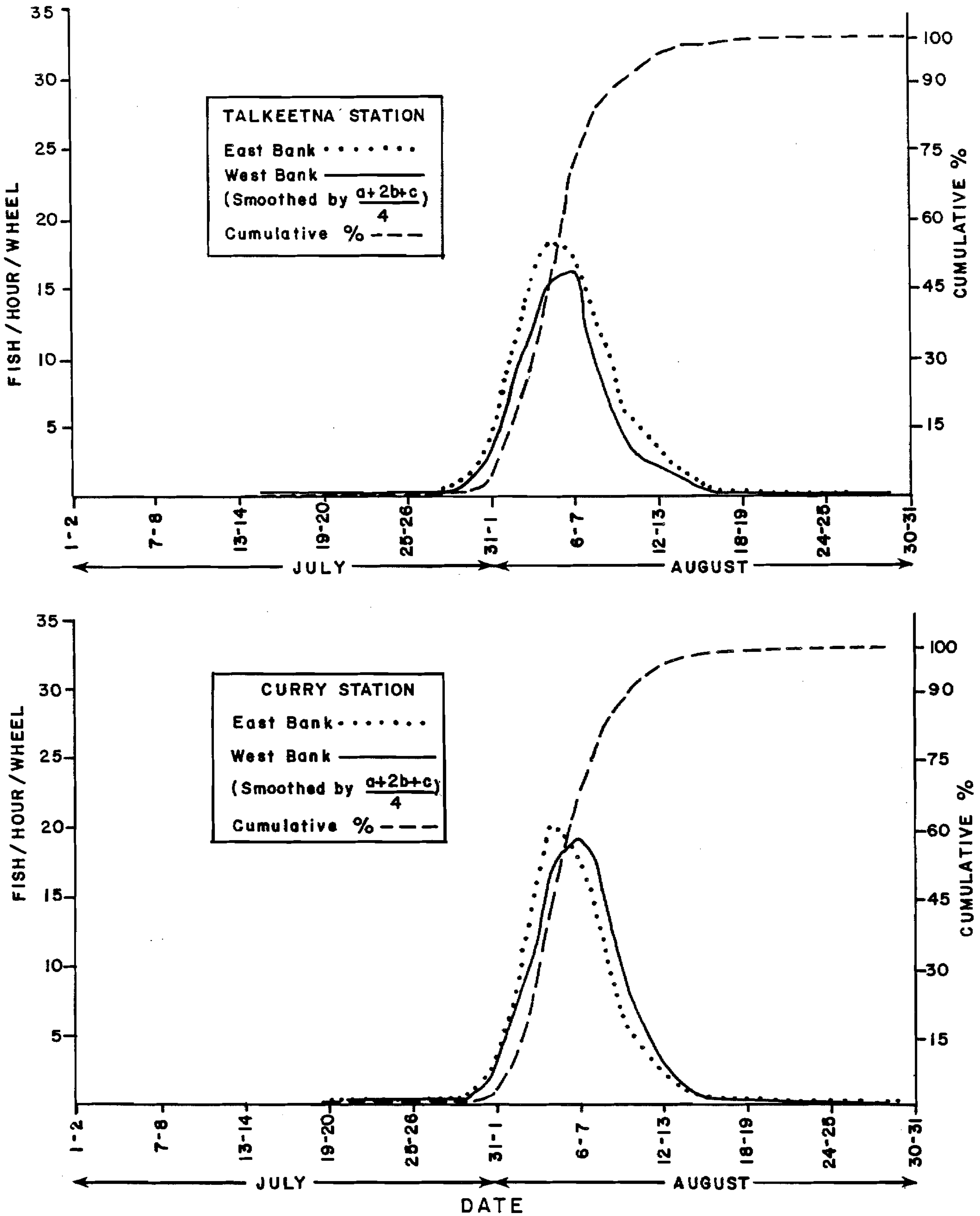


Figure 2-3-21. Mean hourly and cumulative percent fishwheel catch of pink salmon by two day periods at Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

In 1982, pink salmon travelled the 23 miles between Sunshine Station (RM 80) and Talkeetna Station (RM 103) in an average of 3.1 days based on tagged fish recaptures. The range was 1 to 11 days (Figure 2-3-22). The travel time between Sunshine (RM 80) and Curry (RM 120) stations, a distance of 40 miles, averaged 5.6 days with a range of 2 to 18 days. The 17 miles between Talkeetna and Curry stations was travelled in an average of 1.7 days. The minimum was less than one day and the maximum was 20 days.

Pink salmon length (FL) data collected at Talkeetna (RM 103) and Curry (RM 120) stations in 1982 have been summarized in Table 2-3-28 and Appendix 2-D. At Talkeetna Station (RM 103) male pink salmon ranged in length from 340 mm to 590 mm. The average was 425 mm. Females ranged in length from 320 mm to 640 mm and the average was 428 mm. At Curry Station (RM 120) male pink salmon averaged 417 mm and females averaged 421 mm in length.

Male pink salmon sampled in 1982 at Talkeetna (RM 103) and Curry (RM 120) stations were more abundant than females by a male to female ratio of 1.6:1 and 1.5:1, respectively (Table 2-3-28).

3.2.3.2.2 Lower Devil Canyon Milling

Two set net locations in lower Devil Canyon (RM 150-151) were fished 19.6 net hours between August 10 and September 12, 1982 (Figure 2-3-10 and Table 2-3-18). The effort produced a single pink salmon. The catch occurred on August 10 at RM 150.4. The pink salmon had been tagged on August 6 at Talkeetna Station (RM 103) and had averaged a travel speed of 11.9 mpd between RM 103 and 150.4.

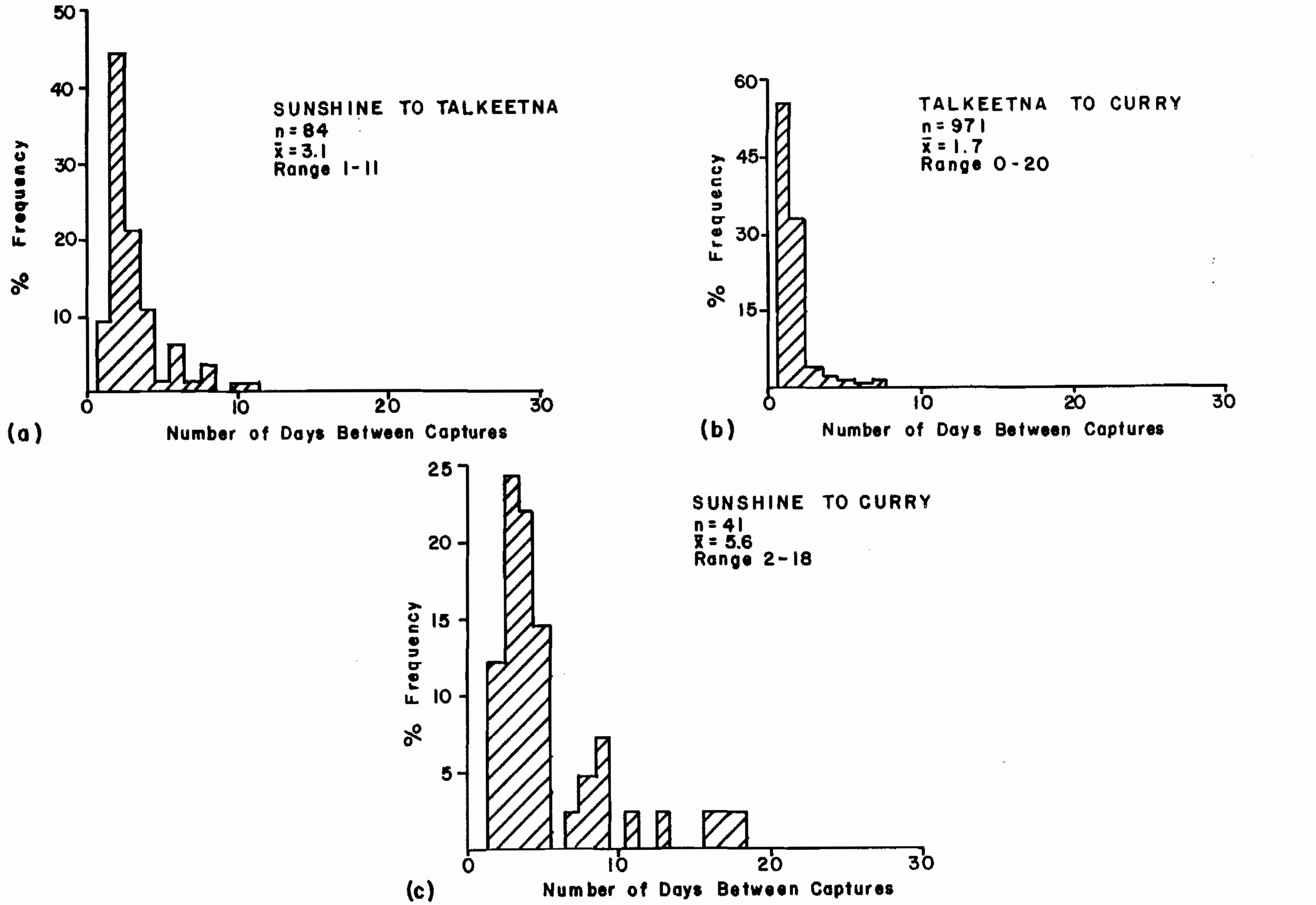


Figure 2-3-22. Migrational rates of pink salmon between (a) Sunshine and Talkeetna stations, (b) Talkeetna and Curry stations and (c) Sunshine and Curry stations based on fishwheel recaptures, Adult Anadromous Investigations, Su Hydro Studies, 1982.

In lower Devil Canyon (RM 150-151) electroshocking was conducted four times between August 11 and September 23, 1982. Three pink salmon were captured. Two fish were intercepted on August 11 and a single pink salmon was caught on August 18 (Table 2-3-19).

Set net and electroshocking results indicate that pink salmon were present in lower Devil Canyon (RM 150-151) from August 10 through 18, 1982.

3.2.3.2.3 Spawning

3.2.3.2.3.1 Main Channel

From August 7 to October 7, 397 main channel areas between RM 98.6 and 150 were surveyed for pink salmon spawning in 1982 (Appendix 2-F). Based on these survey results no pink salmon spawning occurred in the referenced main channel reach.

3.2.3.2.3.2 Sloughs and Streams

Between RM 98.6 and 151, 34 sloughs were surveyed for salmon presence from July 28 to October 25, 1982 (Appendix 2-G). Ten of the sloughs contained pink salmon and these were:

1.	6A (RM 112.3)	6.	11 (RM 135.3)
2.	Moose (RM 123.5)	7.	15 (RM 137.2)
3.	8A (RM 125.1)	8.	19 (RM 139.7)
4.	B (RM 126.3)	9.	20 (RM 140.0)
5.	9 (RM 128.3)	10.	21 (RM 141.1)

A total of 507 pink salmon were counted in the peak surveys of the 10 sloughs listed above (Appendix 2-G). Pink salmon were most abundant in sloughs: 15 (26.0%), 11 (25.8%), 20 (12.6%), 21 (12.6%), 6A (6.9%) and B (6.3%). The peak of spawning by pink salmon in slough habitats occurred during the third and fourth weeks of August in 1982.

Nineteen streams were surveyed for salmon in 1982. The following 14 streams were found to contain pink salmon:

1. Whiskers Creek (RM 101.4)
2. Chase Creek (RM 106.9)
3. Lane Creek (RM 113.6)
4. L. McKenzie Creek (RM 116.2)
5. McKenzie Creek (RM 116.7)
6. L. Portage Creek (RM 117.7)
7. Fifth of July Creek (RM 123.7)
8. Skull Creek (RM 124.7)
9. Sherman Creek (RM 130.8)
10. Fourth of July Creek (RM 131.1)
11. Gold Creek (RM 136.7)
12. Indian River (RM 138.6)
13. Jack Long Creek (RM 144.5)
14. Portage Creek (RM 148.9)

The combined peak spawning count of the 14 listed streams was 2,855 pink salmon (Appendix 2-G). It should be recognized this count does not represent the total number of pink salmon that spawned in these streams due to only a portion (index) of each stream being counted, and early and late spawning fish generally not being present when peak counts are made. The highest peak spawning counts of pink salmon were made in Indian River (25.9%), Fourth of July Creek (24.6%), Lane Creek (22.4%) and Portage Creek (5.9%) in 1982.

The peak of pink salmon spawning in stream habitats occurred between August 11 and August 23, 1982. Spawning in streams by pink salmon was approximately one week earlier than the peak of spawning in the sloughs in 1982 (Appendix 2-G).

3.2.4 Chum Salmon

3.2.4.1 Estuary to Talkeetna

3.2.4.1.1 Main Channel Escapement

Susitna River chum salmon escapement estimates were obtained for Yentna (RM 04) and Sunshine (RM 80) stations in 1982 (Table 2-3-10). No total escapement estimate was available for Susitna Station as defined in Section 2.4.3.

The number of chum salmon that were counted over the SSS counters in 1982 at Susitna Station (RM 26) was 29,245 fish (Table 2-3-8 and Appendix 2-B). This count was considered an index of the chum salmon escapement to Susitna Station (Section 2.4.3).

The 1982 escapement of chum salmon to the Yentna River (RM 28) as recorded by SSS counters at Yentna Station (RM 04) was approximately 27,800 fish (Table 2-3-10). Daily and cumulative Yentna Station SSS counts have been presented in Appendix 2-B. At Sunshine Station (RM 80) escapement was approximately 430,400 fish as determined by the Petersen method (Table 2-3-10). The 95 percent confidence interval of the estimate was calculated at 407,700 to 455,800 fish (Table 2-3-11).

The Susitna River chum salmon escapement in 1982 was approximately 458,000 fish not including escapements to spawning systems above RM 6 and below RM

77, excluding the Yentna River (RM 28) (Table 2-3-10). This estimate was derived by summation of the SSS count of chum salmon at Yentna Station (RM 04), and the Petersen estimate of chum salmon to Sunshine Station (RM 80).

The SSS counters at Sunshine Station (RM 80) recorded 178,434 chum salmon counts in 1982 (Table 2-3-26). This number was considered an index of the chum salmon escapement to Sunshine Station (Section 2.4.3).

Chum salmon returning to the Susitna River drainage in 1982 were caught by fishwheels at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations. Daily and cumulative catch data have been presented in Appendix 2-C.

Fishwheels at Susitna Station (RM 26) intercepted 382 chum salmon in 1982 (Table 2-3-9). The onset, midpoint and end of the chum salmon migration to Susitna Station derived from fishwheel catch data were approximately July 19, July 31 and August 10, respectively (Figure 2-3-23). Peak fishwheel catches occurred on August 3.

At Yentna Station (RM 04) on the Yentna River (RM 28) 1,261 chum salmon were caught in fishwheels in 1982 (Table 2-3-9). From catch rate data, the chum salmon migration began on July 20, reached a midpoint on August 2 and ended on August 18 (Figure 2-3-24). Fishwheel catches peaked on August 1 (Appendix 2-C).

At Sunshine Station (RM 80), the 1982 chum salmon migration began on July 29, was at midpoint on August 7 and ended on August 21 based on fishwheel catches

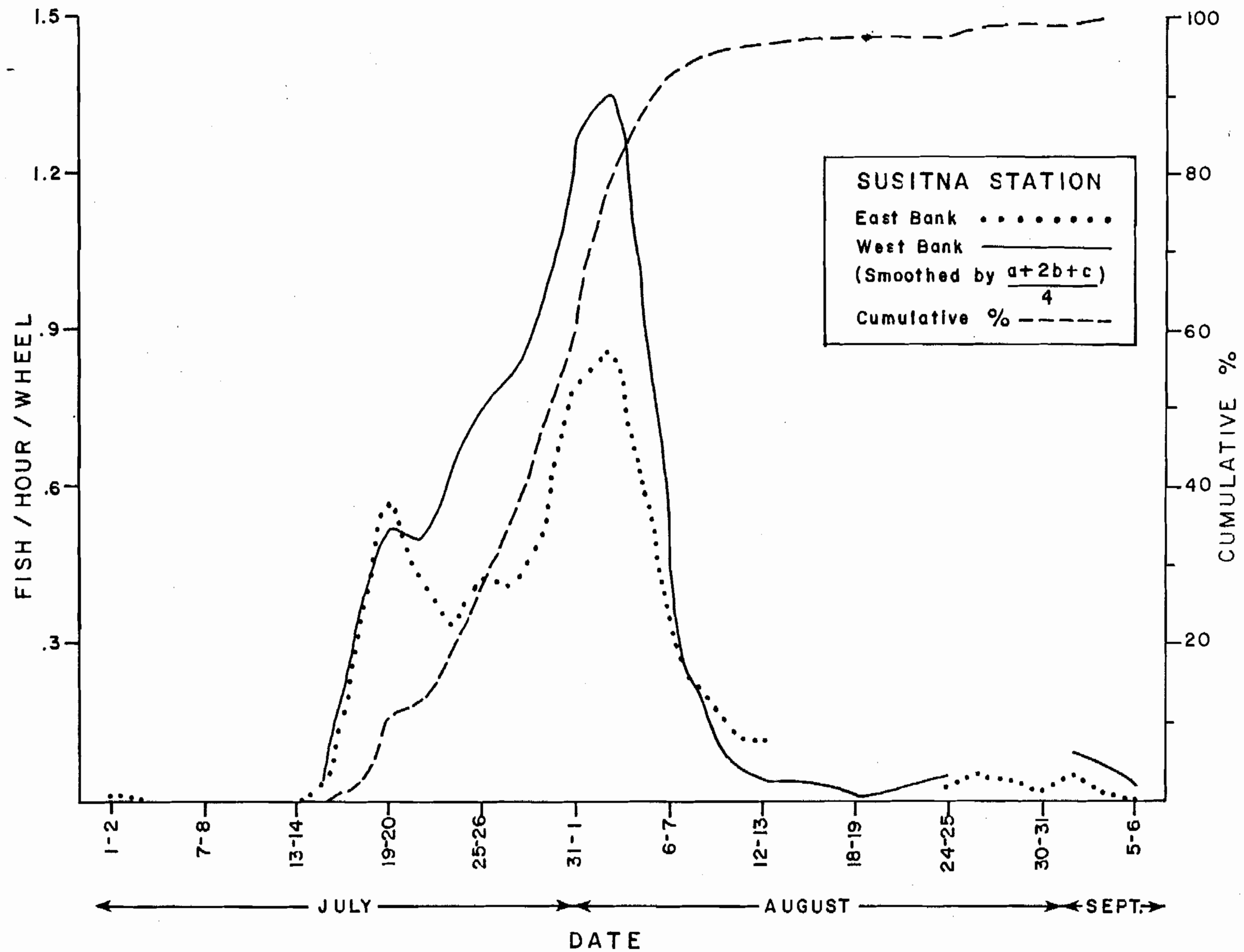


Figure 2-3-23. Mean hourly and cumulative percent catch of chum salmon by two day periods at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

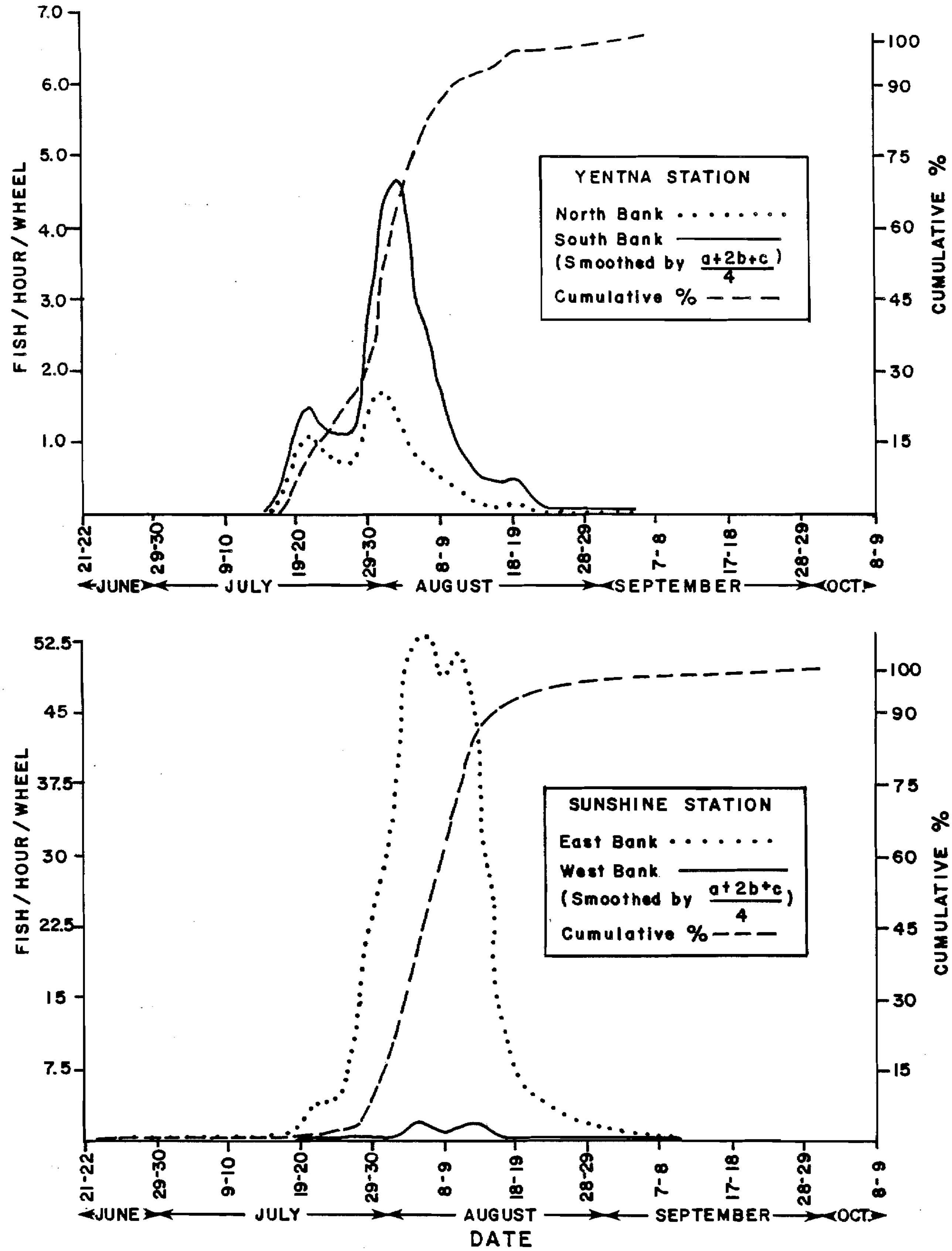


Figure 2-3-24. Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Yentna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

(Figure 2-3-24). The total fishwheel catch of chum salmon at Sunshine Station in 1982 was 36,335 fish. The peak catch occurred on August 5, 1982 (Appendix 2-C).

Fishwheel catches at Susitna Station (RM 26) indicated that approximately 55.5 percent of the chum salmon salmon escapement migrated off the west bank at that location and the 44.5 percent remainder migrated off the east bank in 1982 (Appendix 2-C). In the Yentna River (RM 28) at Yentna Station (RM 04) approximately 70.8 percent of the fish migrated off the north bank and 29.2 percent travelled of the south bank. At Sunshine Station (RM 80) 96.7 percent of the chum salmon migrated on the east side of the river and 3.3 percent passed on the west side.

Fishwheel data indicates that chum salmon spent less than one day travelling between Susitna (RM 26) and Yentna (RM 04) stations, and 7.5 days between Susitna and Sunshine (RM 80) stations in 1982 (Appendix 2-C). These estimates are valid under an assumption of no differential timing between stocks.

Chum salmon age samples were collected at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982. The results are summarized in Table 2-3-29. Age 4_1 chum salmon represented 84.4 percent, 90.3 percent and 91.1 percent of the fish sampled at the respective stations. Other age classes represented were age 3_1 and 5_1 fish.

Table 2-3-29. Analysis of chum salmon age data by percent from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry Stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	n	Age Class 1/		
		3_1	4_1	5_1
Susitna Station	333	4.5	84.4	11.1
Yentna Station	629	3.3	90.3	6.3
Sunshine Station	906	5.5	91.1	3.4
Talkeetna Station	526	4.9	87.1	8.0
Curry Station	480	2.1	85.8	12.1

1/ Gilbert-Rich Notation

Length (FL) composition data of chum salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) station in 1982 are presented in Table 2-3-30. Age 4_1 males averaged 602 mm, 604 mm and 614 mm in length at Susitna, Yentna and Sunshine stations, respectively. Females of the same age class and station order averaged 594 mm, 591 mm and 600 mm lengths, respectively.

Sex composition data of chum salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 are presented in Table 2-3-31. Data indicates that females were more abundant than males in all age classes sampled at Susitna Station. Males outnumbered females in age 4_1 and 5_1 samples and were less numerous than females in age 3_1 samples at Yentna Station. At Sunshine Station females outnumbered males in age 3_1 and 4_1 samples and males outnumbered females in age 5_1 samples (Figure 2-3-25).

Table 2-3-30. Analysis of chum salmon lengths, in millimeters, by age class from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Susitna Station	3_1	3	12	556-620	456-624	583	571	-	-	573	578
	4_1	116	165	482-679	506-657	602	594	595.0,608.0	590.3,598.6	607	597
	5_1	16	21	583-682	577-649	630	612	-	603.7,621.0	628	616
Yentna Station	3_1	5	16	535-590	515-599	559	557	-	-	560	554
	4_1	323	245	398-696	500-680	604	591	600.6,608.0	587.2,594.4	605	591
	5_1	28	12	582-694	528-651	625	606	613.9,635.1	-	623	613
Sunshine Station	3_1	19	31	465-620	455-630	558	569	-	-	570	580
	4_1	401	424	440-710	475-690	614	600	610.6,617.5	596.8,602.8	615	600
	5_1	4	27	585-715	415-675	633	621	-	-	630	630
Talkeetna Station	3_1	14	12	540-670	540-595	588	568	-	-	580	565
	4_1	297	161	500-680	495-680	610	601	606.5,613.8	596.1,605.3	610	600
	5_1	35	7	600-700	550-690	643	637	628.9,657.1	-	640	650
Curry Station	3_1	5	5	545-660	540-585	583	565	-	-	570	560
	4_1	218	193	530-650	420-665	603	596	600.0,606.7	591.6,600.0	605	600
	5_1	33	25	585-680	575-680	631	627	622.0,639.2	618.8,636.0	630	630

1/ Male

2/ Female

3/ Confidence Limits on Mean

Table 2-3-31. Sex ratio of male and female chum salmon by age from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Susitna Station	3	15	3	12	0.3:1
	4	281	116	165	0.7:1
	5	37	16	21	0.8:1
Yentna Station	3	21	5	16	0.3:1
	4	568	323	245	1.3:1
	5	40	28	12	2.3:1
Sunshine Station	3	50	19	31	0.6:1
	4	826	402	424	0.9:1
	5	69	42	27	1.6:1
Talkeetna Station	3	26	14	12	1.2:1
	4	458	297	161	1.8:1
	5	43	36	7	5.1:1
Curry Station	3	10	5	5	1.0:1
	4	412	218	194	1.1:1
	5	58	33	25	1.3:1

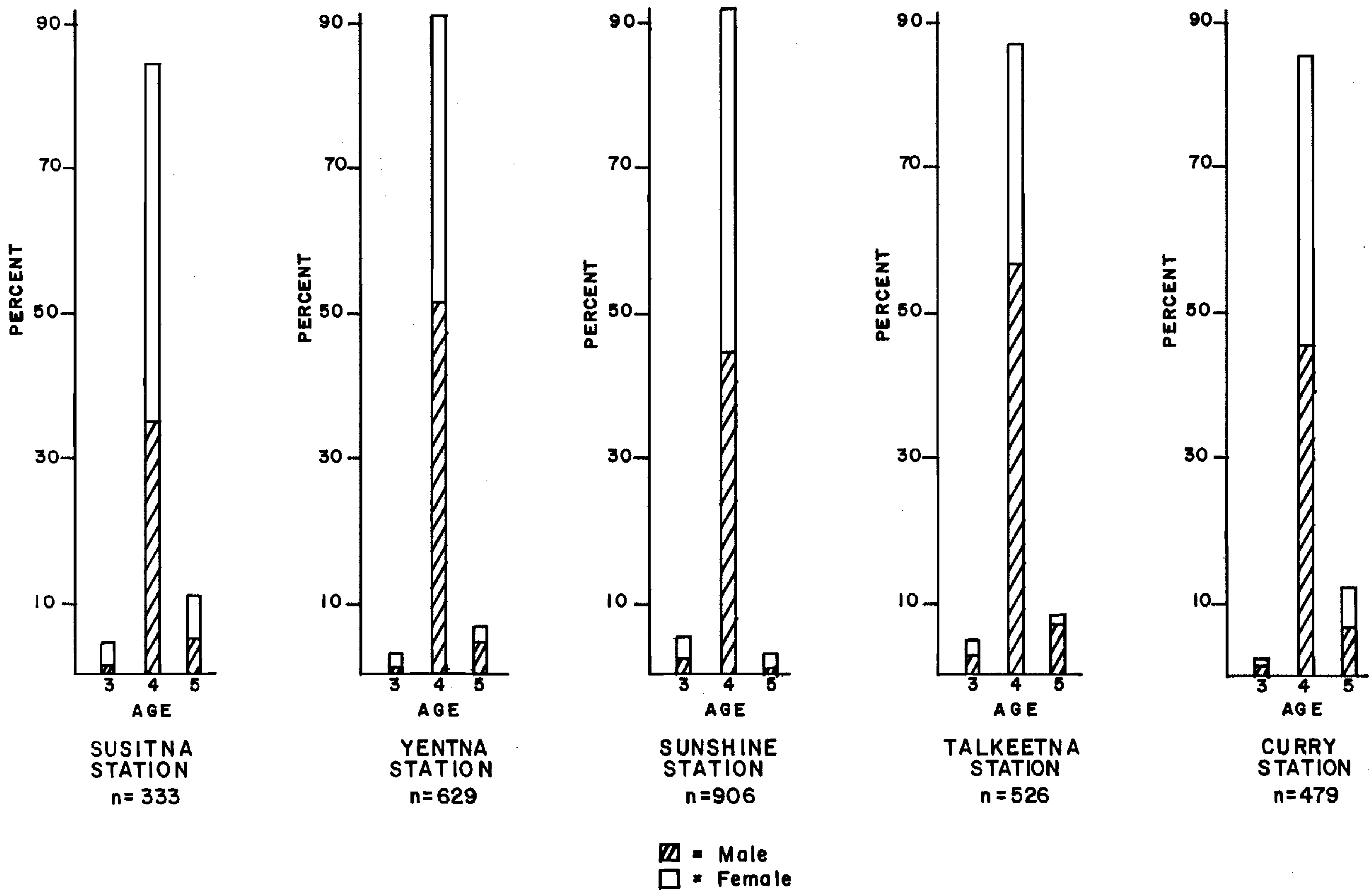


Figure 2-3-25. Age composition of fishwheel intercepted chum salmon at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

In 1982 the overall male to female chum salmon ratio at Susitna Station (RM 26) was 0.7:1. At Yentna (RM 04) and Sunshine (RM 80) stations the male to female ratios were 1.3:1 and 1.0:1, respectively (Table 2-3-31).

3.2.4.1.2 Main Channel Spawning

A total of 811 Susitna River main channel sites were evaluated for chum salmon spawning activity in 1982 between RM 7 and 98.5 (Appendix 2-F). Survey results indicate that chum salmon did not spawn in the Susitna River main channel between RM 7 and 98.5 in 1982.

3.2.4.2 Talkeetna to Upper Devil Canyon

3.2.4.2.1 Main Channel Escapement

The 1982 chum salmon escapement to Talkeetna Station (RM 103) was approximately 49,100 fish estimated by the Petersen method. The 95 percent confidence interval calculated at 45,200 to 53,900 fish (Table 2-3-11).

At Curry Station (RM 120) the chum salmon escapement in 1982 was approximately 29,400 fish with a 95 percent confidence interval of 26,700 to 32,700 fish. The estimate was calculated by the Petersen method (Table 2-3-11).

Side scan sonar counters at Talkeetna Station (RM 103) recorded 29,245 chum salmon counts between July 4 and September 14, 1982 (Table 2-3-26). The count was 59.6 percent of the 1982 station Petersen escapement estimate of approximately 49,100 chum salmon (Table 2-3-10). The Talkeetna Station SSS chum salmon count was considered an index of escapement as defined in Section 2.4.3.

Fishwheels at Talkeetna Station (RM 103) intercepted 2,942 chum salmon between July 5 and September 14, 1982 (Table 2-3-9). Based on catch rates, the chum salmon migration at Talkeetna Station began on August 2, reach a midpoint on August 8 and terminated on August 22 (Figure 2-3-26). Peak fishwheel catches occurred on August 7.

At Curry Station 1,736 chum salmon were caught in fishwheels between June 9 and September 18, 1982 (Table 2-3-9). Catch rate data indicated the chum salmon migration essentially began on August 3, reached a median on August 12 and ended on August 26. The peak fishwheel catches occurred on August 9 (Figure 2-3-26).

During 1982 chum salmon migrated in higher numbers on the west side of the river at Talkeetna Station (RM 103) than on the east side. At Curry Station (RM 120) the majority of the chum salmon migrated on the east side of the river. The fishwheels operating off the west bank at Talkeetna Station caught 58.4 percent of the total catch, and at Curry Station the east bank fishwheel intercepted 77.5 percent of the total catch (Appendix 2-C).

Chum salmon averaged 3.1 days travelling between Sunshine (RM 80) and Talkeetna (RM 103) stations in 1982 as determined from 122 recaptures (Figure 2-3-27). The minimum recorded travel time between these stations was one day and the maximum 20 days. Average speed travelled was 7.4 mpd. Chum salmon

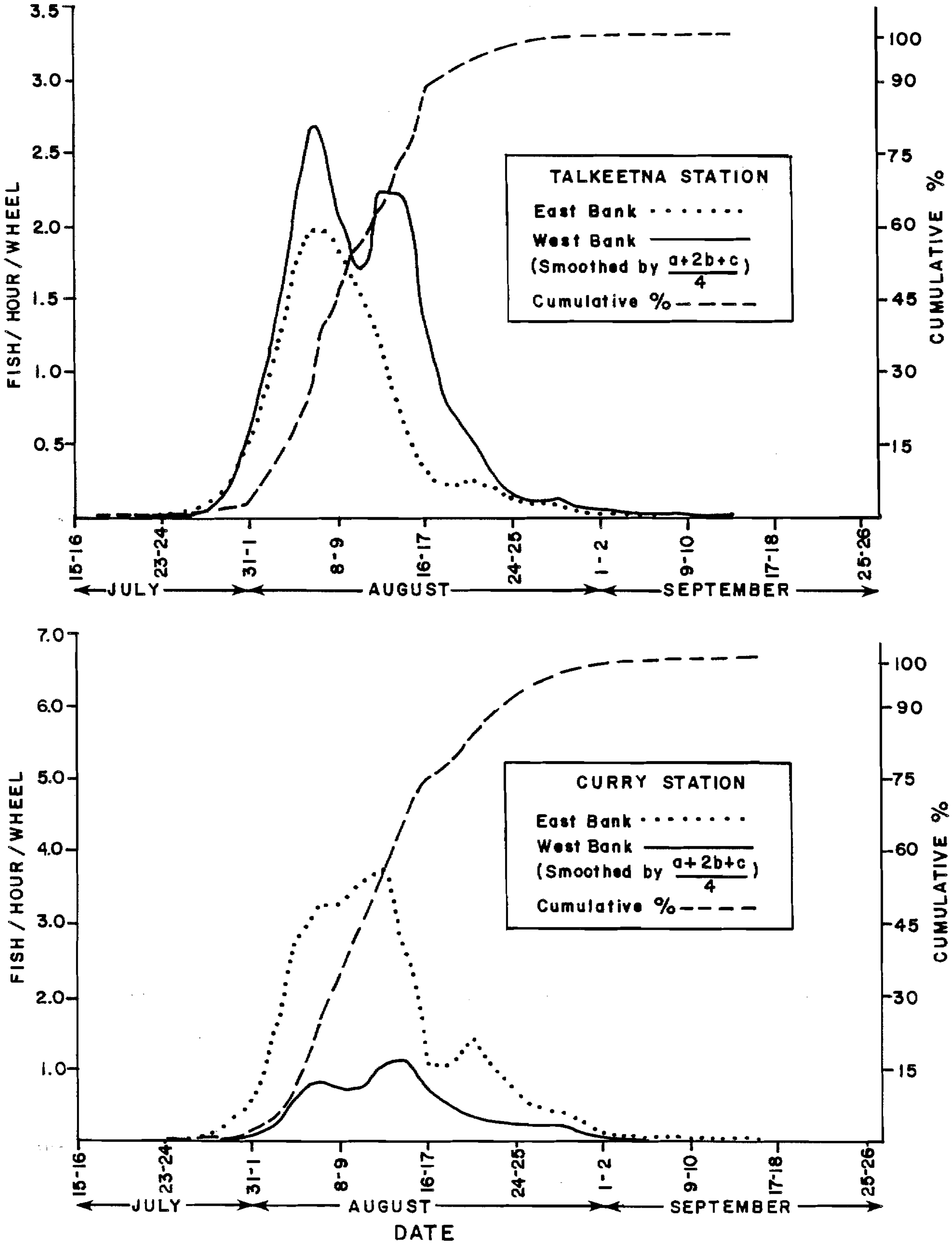


Figure 2-3-26. Mean hourly and cumulative percent fishwheel catch of chum salmon by two day periods at Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

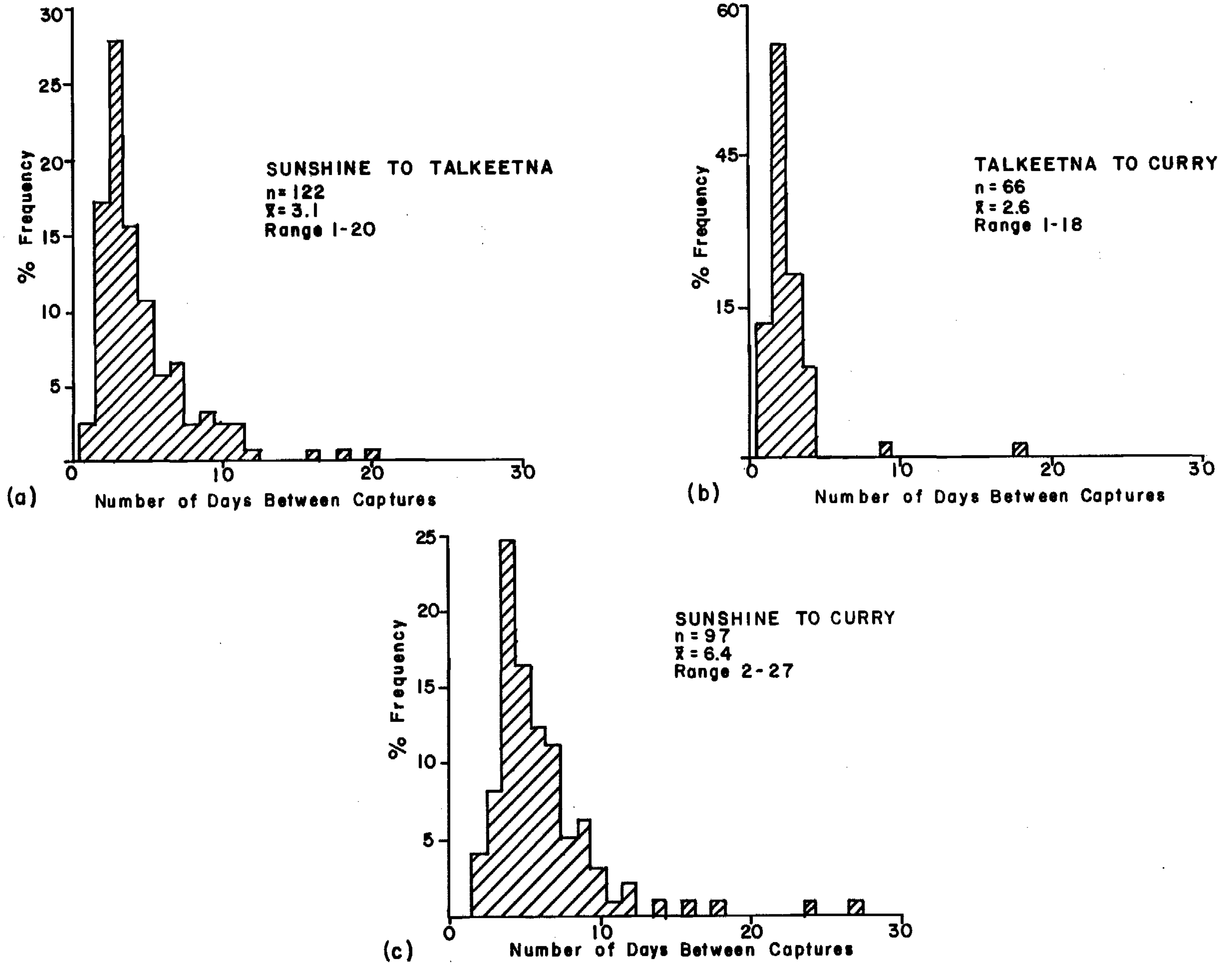


Figure 2-3-27. Migrational rates of chum salmon between (a) Sunshine and Talkeetna stations, (b) Talkeetna and Curry stations and (c) Sunshine and Curry stations based on fishwheel recaptures, Adult Anadromous Investigations, Su Hydro Studies, 1982.

averaged 6.4 days between Sunshine (RM 80) and Curry (RM 120) stations for an average speed of approximately 6.3 mpd. The minimum and maximum number of days spent between these stations was two and 27, respectively from a sample of 97 recaptures. The average time travelled between Talkeetna and Curry stations was 2.6 days based on 66 recaptures. The minimum migration time was one day and the maximum was 18 days.

Chum salmon age samples were collected at Talkeetna (RM 103) and Curry (RM 120) stations. The majority of the chum salmon caught were age 4_1 fish (Table 2-3-29). At Talkeetna Station age 4_1 fish represented 87.1 percent and at Curry Station 85.8 percent of the escapement sample. Age 5_1 chum salmon were represented in 8.0 percent and 12.1 percent, and age 3_1 fish 4.9 percent and 2.1 percent of the Talkeetna and Curry stations sample, respectively.

A total of 526 and 479 chum salmon were sampled for length (FL) and sex at Talkeetna (RM 103) and Curry (RM 120) stations, respectively (Tables 2-3-30 and 2-3-31). Age 4_1 males averaged 610 mm and 603 mm and females 601 mm and 596 mm lengths, respectively at Talkeetna and Curry stations. Age 5_1 males sampled at Talkeetna Station averaged 643 mm and females averaged 637 mm. At Curry Station age 5_1 males and females averaged 631 mm and 627 mm, respectively.

Male chum salmon in 1982 were generally more abundant than females at Talkeetna (RM 103) and Curry (RM 120) stations (Table 2-3-31). The overall male to female ratio was 1.9:1 at Talkeetna Station and at Curry Station the ratio was 1.1:1 as determined from escapement samples.

3.2.4.2.2 Radio Telemetry

Ten chum salmon were radio tagged at Talkeetna Station (RM 103) in 1982 (Table 2-3-32). Four of the ten radio tagged fish migrated downstream and entered the Talkeetna River (RM 97.0) within three to six days (Figure 2-3-28). Another two migrated upstream beyond Curry Station (RM 120) and then descended and entered the Talkeetna River (RM 97.0). Four of the remaining sample entered spawning streams and sloughs above Talkeetna Station including Slough 9 (RM 128.3), Fourth of July Creek (RM 131.1), Slough 21 (RM 140.0) and Portage Creek (RM 148.9).

Eight chum salmon were radio tagged and released at Curry Station (RM 120) in 1982 (Table 2-3-32 and Figure 2-3-28). Two of the eight fish tagged migrated directly upstream and presumably spawned in Indian River (RM 138.6). One of the eight fish migrated ten miles above Curry Station, then descended 2.2 miles below Curry Station and later spawned in Slough 8A, 5.7 miles above Curry Station. Another radio tagged fish migrated beyond Slough 21 (RM 140.0) and entered lower Devil Canyon (RM 150.3) and then Portage Creek (RM 148.9) before descending and finally spawning in Slough 21. One of the eight radio tagged fish spawned above the station in Slough 8C (RM 121.9) after 24 days at other locations, including the Indian River confluence (RM 138.6).

Three of the eight chum salmon radio tagged at Curry Station (RM 120) migrated upstream to as far as the Indian River confluence (RM 138.6) and then descended (Appendix 2-E). One of the three fish entered the Talkeetna River (RM 97.0), and the second and third fish were last located below Curry Station at RM 96.0 and RM 110.6, respectively.

Table 2-3-32. Tagging location, transmitter frequency and physical characteristics of radio tagged chum salmon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Tag and Release		Transmitter	Petersen		
Date	Location (RM) 1/	Frequency (MHz) Pulse/Second	Disc Tag Number	Sex (M/F)	Length 2/ (cm)
7/30	103.0	40.662-2	161	M	65.0
7/30	119.5	40.710-2	162	M	62.0
7/31	103.0	40.670-2	163	M	63.0
8/2	120.7	40.680-2	164	M	64.0
8/2	103.0	40.620-2	165	F	58.5
8/4	103.0	40.630-2	166	M	67.5
8/4	119.5	40.699-2	167	F	66.5
8/7	103.0	40.640-2	168	M	61.0
8/7	119.5	40.720-1	169	F	65.0
8/9	103.0	40.601-3	170	F	60.0
8/9	119.5	40.620-3	171	M	59.0
8/12	119.5	40.650-2	173	F	62.0
8/13	103.0	40.660-1	172	-	61.0
8/15	103.0	40.629-3	000	M	66.0
8/16	103.0	40.710-3	175	M	57.0
8/19	119.5	40.610-3	179	F	65.0
8/22	150.4	40.700-3	182	M	63.5
8/22	150.4	40.670-3	183	M	65.0
8/26	119.5	40.670-2	189	F	65.0
8/28	103.0	40.630-3	193	M	66.0

1/ River Mile: Talkeetna Station RM 103, Curry Station RM 120
2/ Length: mid-eye to fork of tail.

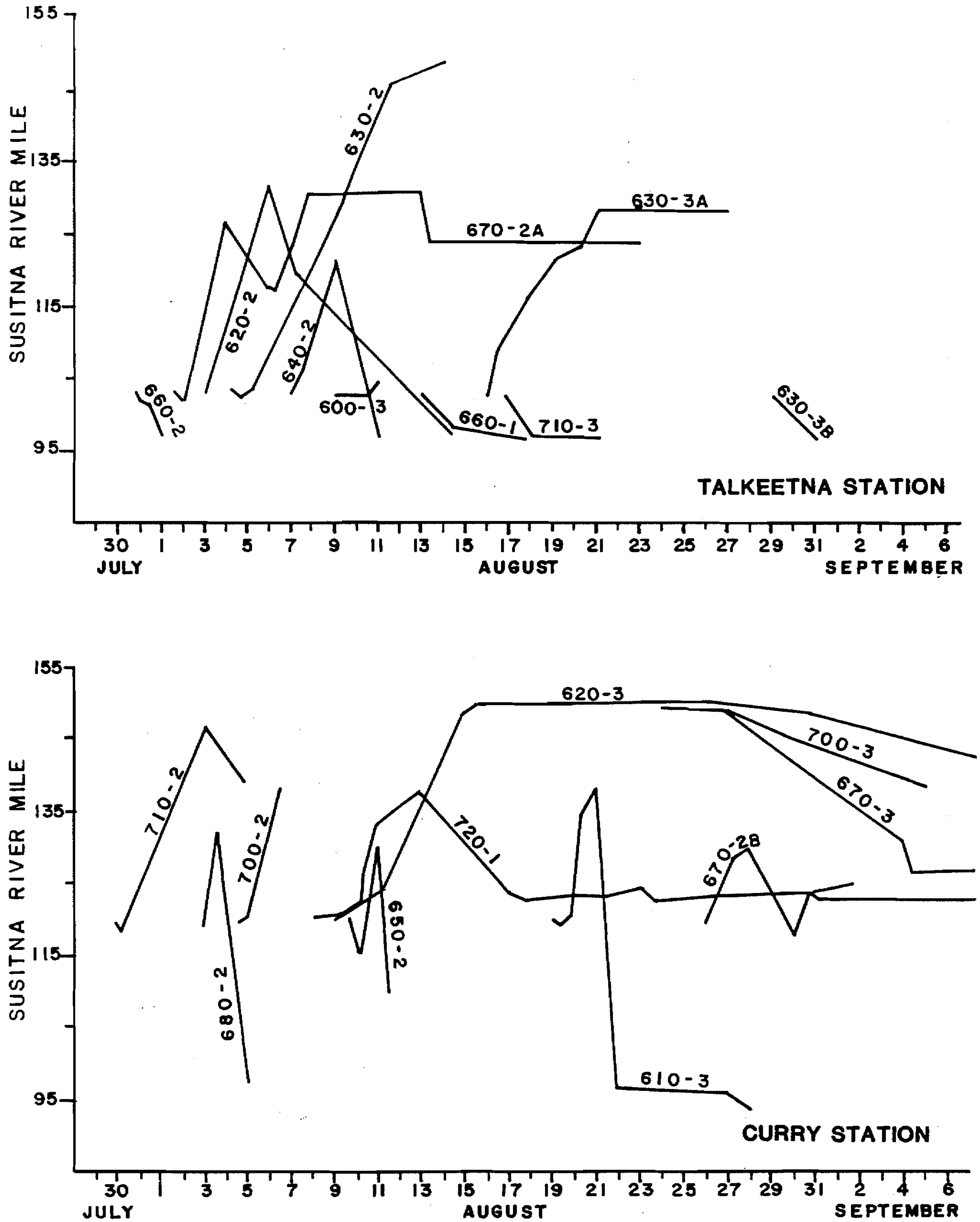


Figure 2-3-28. Movements of Talkeetna and Curry stations radio tagged chum salmon in the Susitna River during July, August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The two fastest recorded (upstream) travel speeds of a radio tagged chum salmon were 54.2 mpd over a distance of seven miles and 29.8 mpd over a 16 miles reach. The fastest recorded travel speed of a radio tagged chum salmon for a period of time not less than 24 hours was 12.5 mpd (Table 2-3-33).

Chum salmon radio tagged at Talkeetna Station (RM 103) in 1982 arrived at upstream spawning destinations between 6 and 11 days after being tagged. Curry Station (RM 120) tagged chum salmon reached spawning destinations from 2 to 30 days after being tagged (Appendix 2-E).

Two chum salmon were caught in a set net in lower Devil Canyon at RM 150.4 on August 22, 1982 and released with radio tags (Appendix 2-E). Both fish moved downstream after tagging and entered Portage Creek (RM 148.9) within four days. Sometime between August 26 and September 5, the two fish exited Portage Creek and re-entered the Susitna River main channel at RM 148.9. On September 5, one of the two fish entered Indian River (RM 138.6) and remained there through at least September 9 and presumably spawned in the river. The second fish after exiting Portage Creek migrated downstream and was last detected at RM 92.0 on September 24.

Individual movements of radio tagged chum salmon are further described in Appendix 2-E.

3.2.4.2.3 Lower Devil Canyon Milling

Twenty-five chum salmon were caught from August 10 through September 12, 1982 in 19.6 net hours fished at RM 150.2 and 150.4 (Table 2-3-18). Ten fish were

Table 2-3-33. Twenty fastest radio tagged chum salmon movements, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Speed Traveled (mpd) 1/	Distance Traveled (miles)	Hours Elapsed	Location of Movement (RM - RM) 2/	Observation Dates	Transmitter Number
54.2	7.0	3.1	103.0-110.0	8/15	630-3A
29.8	16.0	12.9	105.8-121.8	8/7-8	640-2
21.6	2.7	3.0	124.6-127.3	8/4	620-2
19.4	2.1	2.6	115.8-117.9	8/4	630-2
19.0	3.8	4.8	116.7-120.5	8/17	630-3A
18.0	0.9	1.2	136.0-136.9	8/21	610-3
17.5	0.8	1.1	130.2-131.0	8/11	620-3
17.2	13.8	19.3	122.2-136.0	8/20-21	610-3
15.6	1.3	2.0	129.0-130.3	8/27	670-2B
14.5	2.3	3.8	119.9-122.2	8/20	610-3
14.4	2.4	4.0	117.9-120.3	8/6	630-2
13.4	7.6	13.6	120.2-127.8	8/4-5	700-2
12.5	13.7	26.4	123.8-137.5	7/31-8/1	710-2
12.4	10.6	20.5	103.0-113.6	8/2-3	620-2
11.6	1.6	3.3	136.9-138.5	8/21	610-3
11.6	11.0	22.7	120.7-131.7	8/2-3	680-2
11.6	11.6	24.0	102.0-113.6	7/31-8/1	670-2A
11.4	1.0	2.1	120.2-121.2	8/9	720-1
11.4	3.5	7.4	126.7-130.2	8/11	620-3
10.5	12.8	29.3	103.0-115.8	8/5-6	630-2

1/ mpd: Miles per day
2/ Movement: River mile to river mile

caught on August 16, and 15 on August 22. No catches were made August 10, 28 or September 12.

Electroshocking efforts at RM 150.4 on four occasions between August 11 and September 23, 1982 produced 17 chum salmon (Table 2-3-19). Five fish were captured August 11, and 12 fish on August 18. No chum salmon catches were made on September 5 and 23.

Gill net and electroshocking catches indicate chum salmon were present in lower Devil Canyon (RM 150-151) from August 11 through 22, 1982 and particularly abundant in the lower canyon area from August 16 through 22 (Tables 2-3-18 and 2-3-19).

Two chum salmon that were caught at RM 150.4 on August 16, 1982 had been tagged at downstream locations (Table 2-3-18). One fish had been tagged at Talkeetna Station (RM 103) on August 3 and the second fish had been tagged and released at Curry Station (RM 120) on August 6. The average migrational speeds of these fish were 3.6 mpd and 3.0 mpd, respectively.

Further information on chum salmon migrational behavior in lower Devil Canyon can be found in report section 3.2.4.2.2.

3.2.4.2.4 Spawning

3.2.4.2.4.1 Main Channel

A total of 397 main channel sites between RM 98.5 and 150 were investigated for chum salmon spawning from August 7 to October 7, 1982 (Appendix 2-F).

Main channel surveys revealed nine chum salmon spawning sites in 1982 (Table 2-3-34). Maps of these sites are provided in Appendix 2-G.

The nine chum salmon spawning areas were located at RM 114.4, 128.6, 129.8, 131.3, 136.0, 137.4, 138.9, 143.3 and 148.2. Spawning at these sites occurred between September 2 and September 12, 1982.

3.2.4.2.4.2 Sloughs and Streams

A total of 34 sloughs were examined between July 28 and October 25 for chum salmon presence in 1982 (Appendix 2-G). Seventeen of the sloughs had chum salmon present. These were:

1. 5 (RM 107.5)
2. 6A (RM 112.3)
3. 8D (RM 121.8)
4. 8C (RM 121.9)
5. 8B (RM 122.2)
6. Moose (RM 123.5)
7. 8A (RM 125.1)
8. B (RM 126.3)
9. 9 (RM 128.3)
10. 9B (RM 129.2)
11. 9A (RM 133.8)
12. 10 (RM 133.8)
13. 11 (RM 135.3)
14. 15 (RM 137.2)
15. 17 (RM 138.9)
16. 20 (RM 140.0)
17. 21 (RM 141.1)

A total of 2,244 chum salmon were counted in the peak spawning surveys of the 17 sloughs listed above. The highest level of spawning occurred in sloughs 21 (32.8%), 11 (20.5%), 8A (15.0%), 9 (13.4%) and 9A (5.3%) between August 7 and September 25, 1982 (Plate 2-3-8).

Table 2-3-34. Mainstem Susitna River salmon spawning locations with survey and egg deposition sampling results, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Location		Survey							Egg Deposition Sampling					Remarks
					No. Caught/Observed						Egg			
River Mile	Legal	Date	Method	Distance	Sockeye	Pink	Chum	Coho	Date	No. Plots	Live	Dead	Total	
114.4	S28N04W06	9/2	Electroshock	200	0	0	8	1	10/5	4	0	0	0	Chum salmon observed spawning 9/2. Redds silted over 10/5.
	CAB	9/2	Visual	200	0	0	10	0						
128.6	S30N03W16	9/5	Visual	200	0	0	10	0	10/4	4	6	0	6	Chum salmon spawning and redds observed 9/5.
	BCA	9/7	Visual	200	0	0	7	0						
129.8	S30N03W09 DAB	9/12	Visual	800	0	0	5	0	10/4	1	2	0	2	Chum salmon spawning and redds observed 9/12
131.3	S30N03W03	8/19	Electroshock	80	0	0	3	0	10/4	2	2	0	2	Chum salmon spawning and redds observed 9/4.
	DAD	9/4	Visual	100	0	0	12	0						
136.0	S31N02W19	8/12	Electroshock	400	0	20	14	4	10/3	3	2	0	2	Chum salmon spawning and redds observed 9/4. Silted over 9/20.
	AD-	9/4	Visual	150	0	0	50	0						
137.4	S31N02W17 DBB	8/19	Electroshock	200	0	0	25	0	9/6	1	6	0	6	Chum salmon spawning and redds observed 9/5.
138.2	S31N02W16 BBB	9/27	Visual	200	0	0	0	0	10/2	3	1	2	3	Live egg eyed up.
138.9	S31N02W09 DBD	9/4	Visual	200	0	0	16	0	10/2	2	27	0	27	Chum salmon spawning and redds observed 9/4.
143.3	S32N01W31 BCB	9/4	Visual	100	0	0	22	0	9/6	1	6	0	6	Chum salmon spawning and redds observed 9/4.
148.2	S32N01W26	8/18	Electroshock	125	0	0	400	0						Spawning chum salmon intercepted on 8/18 and 9/5.
	DCA	9/5	Electroshock	100	1	0	4	1						

Spawning ground surveys indicated the peak of chum salmon spawning in slough habitats occurred between the third week of August and the third week of September, 1982. Peak spawning in sloughs 8A, 9, 9A, 11 and 21 occurred the last week of August and the first week of September.

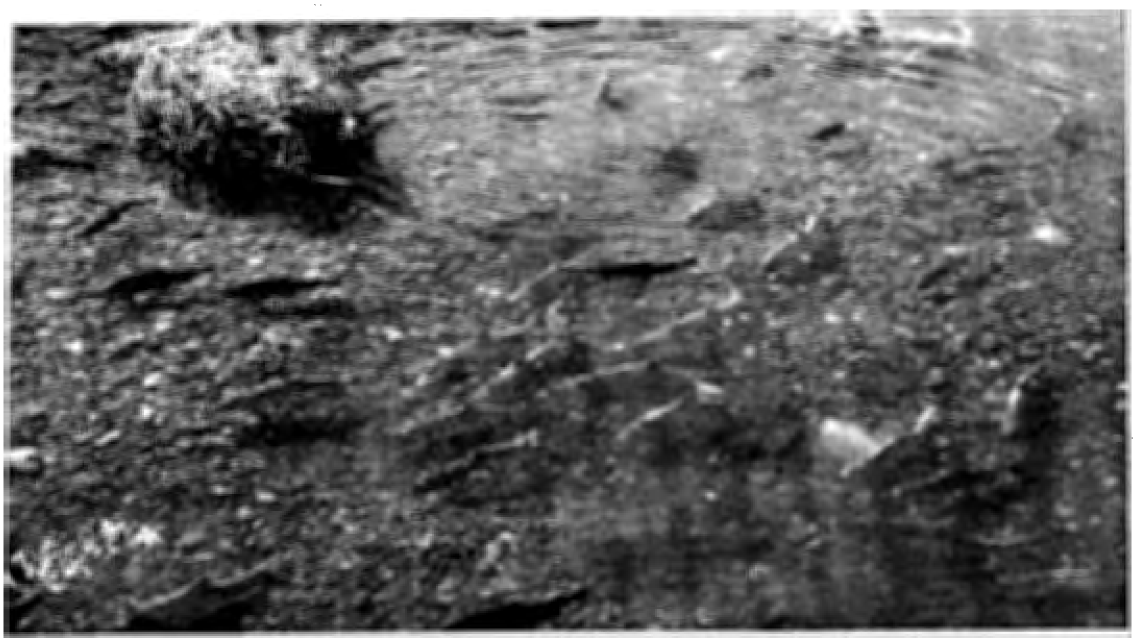


Plate 2-3-8. Chum and sockeye salmon spawning in Slough 11 in early September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

In 1982, 19 streams were surveyed and eight were found to contain chum salmon. These were:

1. Lane Creek (RM 113.6)
2. Little Portage Creek (RM 117.7)
3. Fifth of July Creek (RM 123.7)
4. Skull Creek (RM 124.7)
5. Fourth of July Creek (131.1)
6. Indian River (138.6)
7. Jack Long Creek (144.5)
8. Portage Creek (RM 148.9)

Survey results are presented in Appendix 2-G.

A combined total of 1,748 chum salmon were counted at the peak of spawning in the index areas of the eight streams listed. The majority of the chum salmon were recorded in Indian River (77.0%), Fourth of July Creek (10.9%) and Portage Creek (8.8%).

Based on stream surveys, the peak of chum salmon spawning occurred from the last week of August through the first week of September in 1982 (Appendix 2-G).

3.2.5. Coho Salmon

3.2.5.1 Estuary to Talkeetna

3.2.5.1.1 Main Channel Escapement

Coho salmon escapement estimates were obtained for Yentna (RM 04) and Sunshine (RM 80) stations in 1982 (Table 2-3-10). No total escapement estimate was available for Susitna Station (RM 26) for reasons defined in Section 2.4.3.

The Yentna River (RM 28) escapement of coho salmon in 1982 was approximately 34,100 fish as determined by SSS at Yentna Station (RM 04) (Table 2-3-10). Daily and cumulative counts are presented in Appendix 2-B.

The coho salmon escapement to Sunshine Station (RM 80) in 1982 was approximately 45,700 fish with a 95 percent confidence interval calculated at 41,900 to 50,300 fish (Table 2-3-11). The estimate was calculated by the Petersen method.

The escapement of coho salmon to the Susitna River was approximately 80,000 fish (Table 2-3-10). This escapement estimate does not include those coho salmon spawning in Susitna River streams above RM 6 and below RM 77 excluding the Yentna River (RM 28). The estimate was formulated by combining the Yentna Station (RM 04) sonar count and the Sunshine Station (RM 80) estimate of the coho salmon escapement.

Coho salmon returning to the Susitna River drainage in 1982 were intercepted by fishwheels located at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations. Daily and cumulative catch data have been presented in Appendix 2-C.

Susitna Station (RM 26) fishwheels intercepted 470 coho salmon in 1982 (Table 2-3-9). Daily fishwheel catches indicate that the coho salmon migration began, reached a midpoint and ended on July 19, July 31 and August 9, respectively at Susitna Station (Figure 2-3-29). The majority (72.5%) of the captures occurred with the west bank fishwheel.

Yentna Station (RM 04) fishwheels captured 1,203 coho salmon in 1982 (Table 2-3-9). From catch data interpretation the migration at Yentna Station began on July 20, reached a median on August 2 and terminated on August 24. Coho salmon showed a slight preference for movement along the south bank as indicated by 56.1 percent of the catch occurring with the south bank fishwheel (Figure 2-3-30).

Fishwheels at Sunshine Station (RM 80) intercepted 8,227 coho salmon (Table 2-3-9). The coho salmon migration at Sunshine Station essentially began,

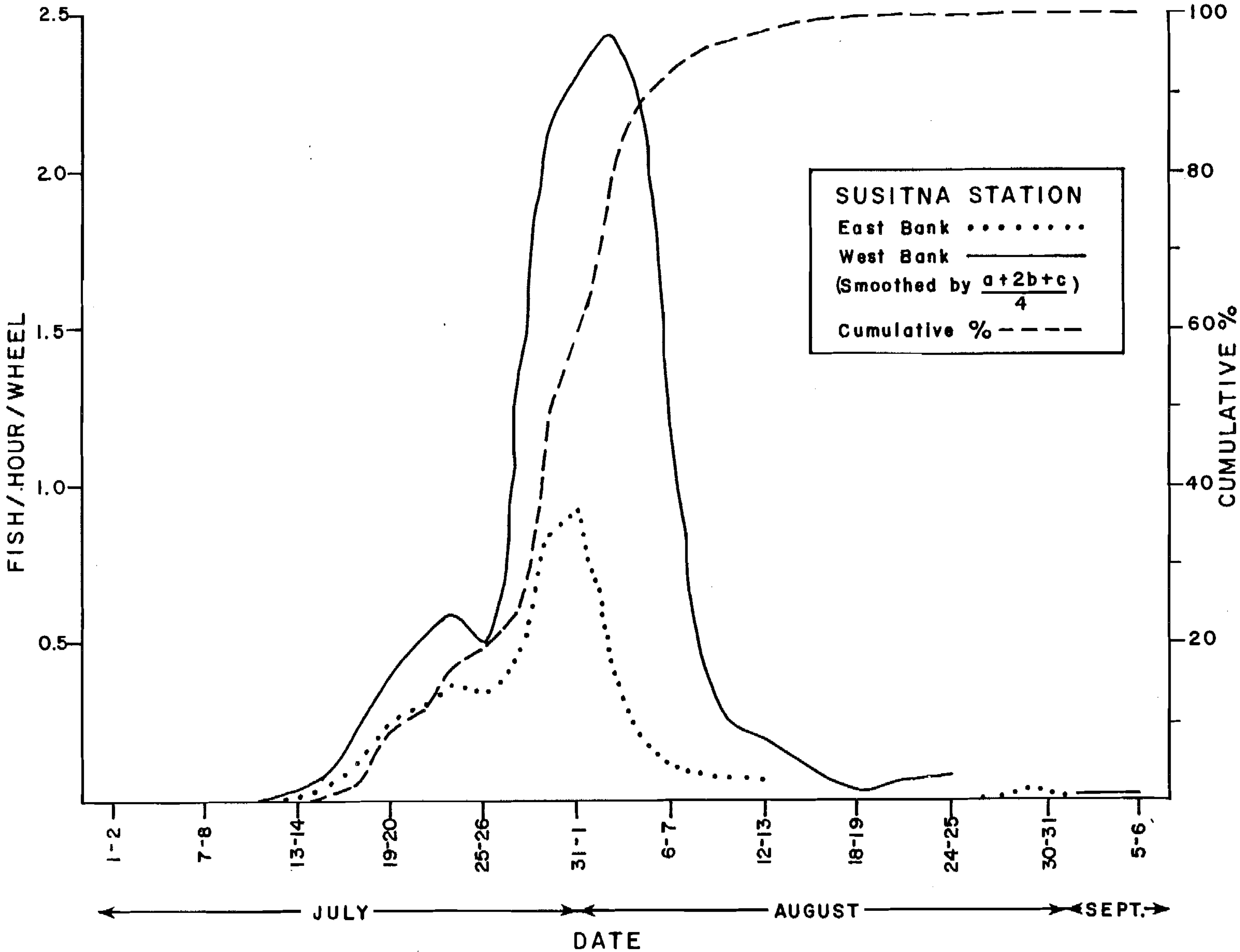


Figure 2-3-29. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

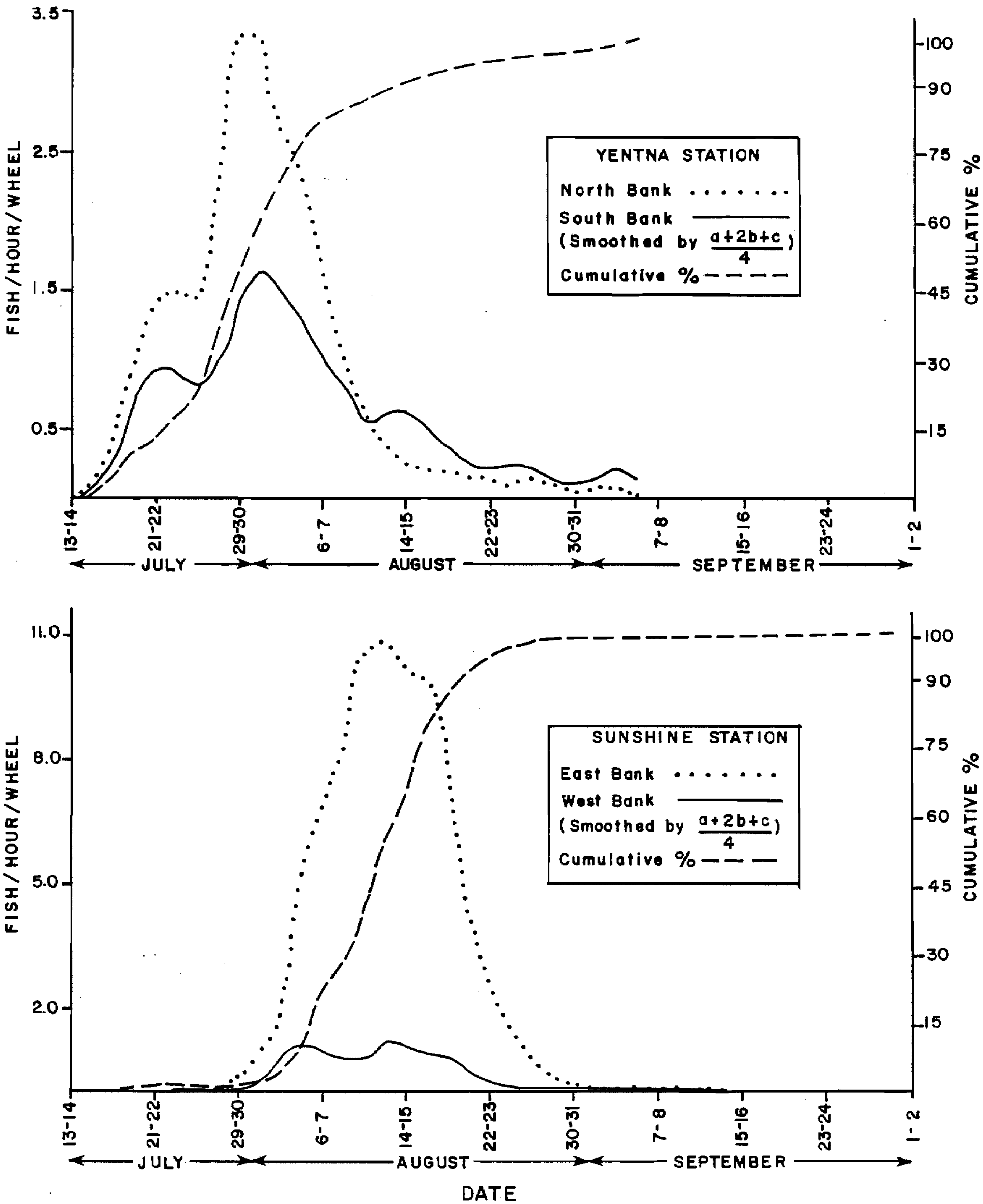


Figure 2-3-30. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Yentna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

reached a midpoint and terminated on August 3, August 12 and August 23, respectively from catch data. Coho salmon displayed an affinity for movement along the east bank at Sunshine Station as 89.0 percent of the captures occurred with east bank fishwheels.

The 1982 coho salmon age class composition was determined from the escapement sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations. The results have been summarized in Table 2-3-35.

Table 2-3-35. Analysis of coho salmon age data by percent from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	n	Age Class 1/			
		3_2 1.1	4_3 2.1	4_4	5_4
Susitna Station	299	33.8	64.6	-	1.7
Yentna Station	422	31.8	66.8	-	1.4
Sunshine Station	342	49.3	50.1	0.3	0.3
Talkeetna Station	212	59.0	41.0	-	-
Curry Station	98	54.0	46.0	-	-

1/ Gilbert-Rich Notation

A total of 299 coho salmon from Susitna Station (RM 26) were examined for age in 1982 (Table 2-3-35). Four year old (4_3) coho represented the largest age class totalling 64.6 percent of those sampled followed by age class 3_2 fish at 33.8 percent and age 5_4 fish at 1.7 percent.

Four year old (4_3) coho salmon made up 66.8 percent of the escapement sampled at Yentna Station (RM 04). Age 3_2 and 5_4 coho salmon comprised the remaining 33.2 percent of the sample at 31.8 and 1.4 percents, respectively.

At Sunshine Station (RM 80), 50.1 percent of the coho salmon scales examined for age in 1982 represented four year old (4_3) fish followed by age classes 3_2, 4_4 and 5_4 with 49.3, 0.3 and 0.3 percents, respectively. The one coho salmon determined to be age 4_4 was an anomaly as it did not overwinter in the ocean environment.

Coho salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations smolted after spending up to three years in freshwater. The majority 64.6, 66.8 and 50.1 percents at Susitna, Yentna and Sunshine stations smolted after two winters spent in freshwater while 33.8, 31.8 and 49.3 percents smolted following one winter in freshwater. Less than five percent of the fish sampled at all stations remained three winters in the freshwater.

Coho salmon length (FL) data collected at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 were tabulated by age class and sex (Table 2-3-36).

Male coho salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations non-segregated by age were: (1) consistently larger in length (FL) than females at all stations in 1982 (Appendix 2-D); and (2) generally more abundant than females except at Susitna Station (Figure 2-3-31). The overall male to female sex ratios in 1982 were 0.6:1, 2.4:1 and 1.4:1 at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations, respectively (Table 2-3-36).

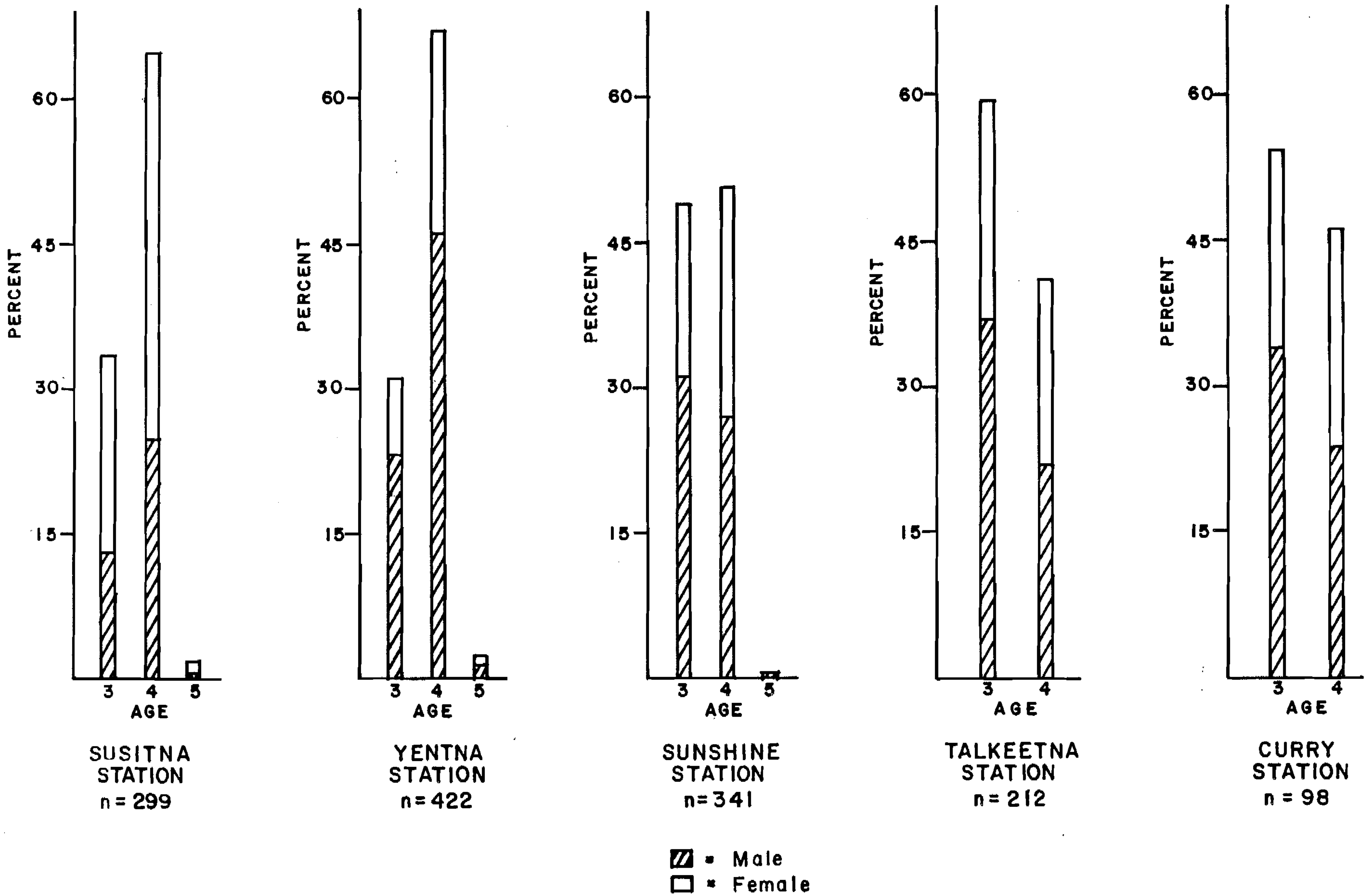


Figure 2-3-31. Age composition of fishwheel intercepted coho salmon at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Table 2-3-36. Analysis of coho salmon lengths, in millimeters, by age class from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age Class	n		Range Limits		Mean		95% Conf. Limits 3/		Median	
		m 1/	f 2/	m	f	m	f	m	f	m	f
Susitna Station	3_2	39	62	432-628	402-620	545	525	528.2,560.9	513.0,536.9	556	528
	4_3	74	119	421-680	371-638	561	544	550.0,571.5	534.5,553.5	570	557
	5_4	2	3	513-625	577-602	569	591	-	-	569	594
Yentna Station	3_2	99	35	338-631	399-611	539	524	527.8,549.5	507.4,540.1	550	535
	4_3	194	88	350-656	400-626	549	544	541.2,556.7	534.3,553.7	565	555
	5_4	4	2	559-617	496-575	578	536	-	-	569	536
Sunshine Station	3_2	106	62	425-685	445-620	546	540	535.2,556.1	529.6,551.1	558	545
	4_3	91	80	325-680	375-645	564	551	551.3,575.8	540.2,561.9	575	560
	4_4	1	0	340	-	340	-	-	-	340	-
	5_4	1	0	550	-	550	-	-	-	550	-
Talkeetna Station	3_2	79	46	390-640	440-665	546	555	533.9,558.8	543.1,567.5	550	555
	4_3	47	40	430-650	390-650	562	554	-	-	570	558
Curry Station	3_2	33	20	300-620	415-595	501	534	-	510.3,556.7	540	548
	4_3	23	22	335-625	460-620	544	558	-	-	565	565

1/ Male

2/ Female

3/ Confidence Limits on Mean

3.2.5.1.2 Main Channel Spawning

The main channel Susitna River from RM 7 to 98.5 was surveyed for coho salmon spawning activity in 1982 with 811 sites examined from August 1 to October 13 (Appendix 2-F). Coho salmon did not spawn in the main channel between RM 7 and 98.5 in 1982 based on survey results.

3.2.5.2 Talkeetna to Upper Devil Canyon

3.2.5.2.1 Main Channel Escapement

The coho salmon escapement to Talkeetna Station (RM 103) in 1982 was approximately 5,100 fish determined by the Petersen method (Table 2-3-10). The 95 percent confidence interval for this escapement estimate calculated at 4,300 to 6,200 fish (Table 2-3-11).

Sonar counters operated at Talkeetna Station (RM 103) recorded a total of 7,189 coho salmon in 1982 (Table 2-3-26). These counts were considered an index of escapement to RM 103 per report Section 2.4.3.

The 1982 coho salmon escapement to Curry Station (RM 120) was approximately 2,400 fish from the Petersen method (Table 2-3-10). The 95 percent confidence limit calculated at 1,800 to 3,800 fish (Table 2-3-11).

Fishwheels operated at Talkeetna Station (RM 103) intercepted 619 coho salmon in 1982 (Table 2-3-9). The majority, 60.3 percent, were captured with west bank fishwheels (Figure 2-3-32). Daily fishwheel catches established the coho salmon migration beginning, midpoint and completion at August 5, August 13 and September 2, respectively (Appendix 2-C).

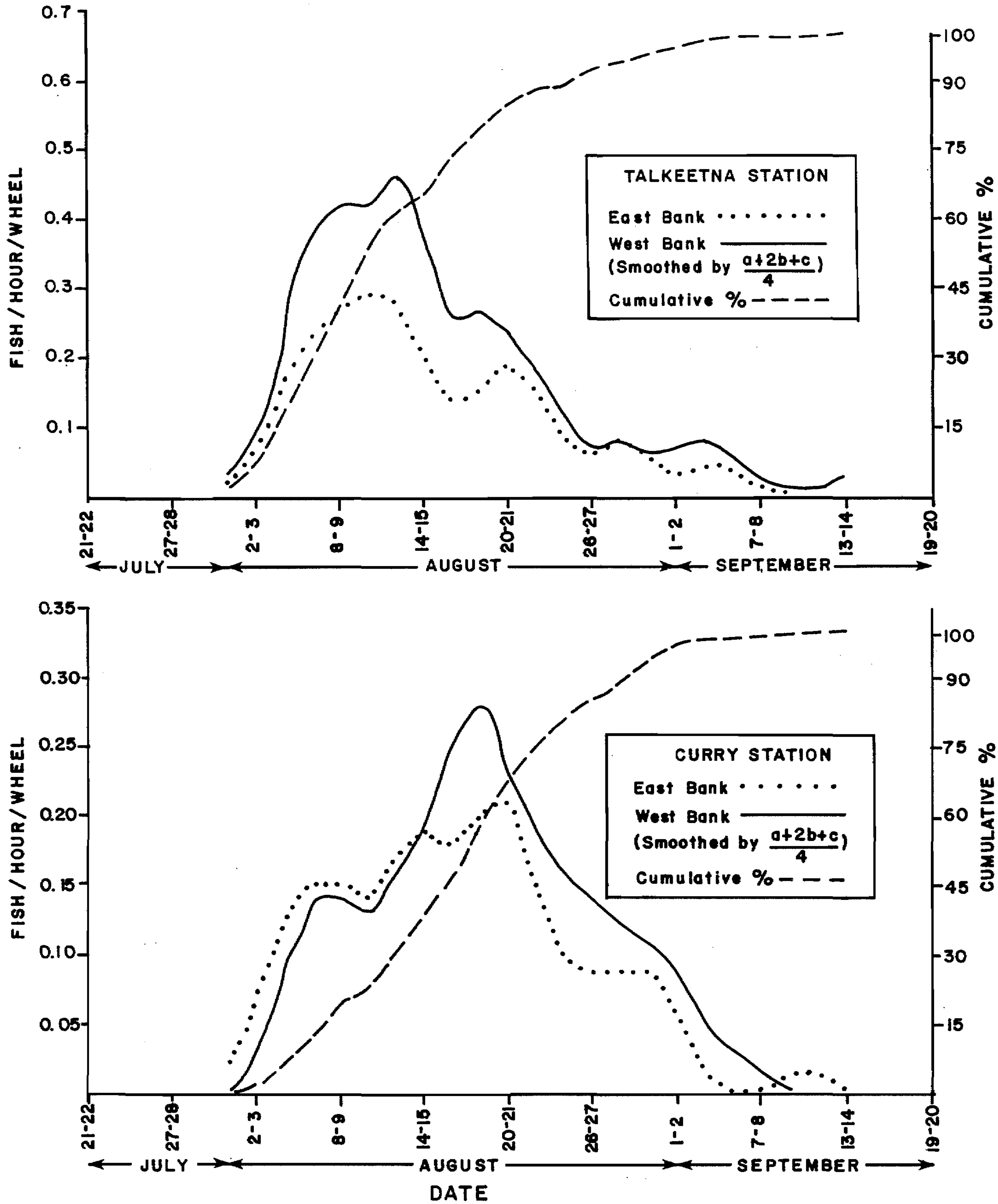


Figure 2-3-32. Mean hourly and cumulative percent fishwheel catch of coho salmon by two day periods at Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Curry Station (RM 120) fishwheels captured 229 coho salmon in 1982 (Table 2-3-9). Fishwheel catch data indicated the migration began, reached a midpoint and terminated on August 5, August 18 and September 2, respectively (Figure 2-3-32). Coho salmon migrating past Curry Station displayed essentially no bank preference as evidenced by 53.3 percent of the total catch with the west bank fishwheel and 46.7 percent with the east bank fishwheel (Appendix 2-C).

Coho salmon scales from fish sampled at Talkeetna (RM 103) and Curry (RM 120) stations in 1982 were analyzed to determine age class composition (Table 2-3-35). Talkeetna Station coho salmon were represented by two age classes 3_2 and 4_3 comprising 59.4 and 40.6 percent of those examined, respectively. Age 3_2 coho salmon also dominated the fish sampled at Curry Station comprising 57.1 percent of the sample while four year old (4_3) fish constituted the remaining 42.9 percent.

Scale analysis also indicated that 59.4 and 57.1 percent of the coho salmon at Talkeetna (RM 103) and Curry (RM 120) stations in 1982 had smolted after rearing one winter in freshwater. The remaining 40.6 and 42.9 percent of the fish sampled at Talkeetna and Curry stations reared in freshwater two winters before outmigrating (Table 2-3-35).

Length (FL) composition data of coho salmon sampled at Talkeetna (RM 103) and Curry (RM 120) stations have been summarized in Table 2-3-36. Talkeetna Station male and female coho salmon, age class 3_2 averaged 546 mm and 555 mm in length while age 4_3 males and females had average lengths of 501 mm and

534 mm, respectively. Age 3_2 male and female coho salmon sampled at Curry Station averaged 501 mm and 534 mm in length, respectively, while four year old (4_3) fish averaged 544 mm and 558 mm, respectively.

Sex composition data of coho salmon sampled from Talkeetna (RM 103) and Curry (RM 120) stations indicated males occurred in equal or larger numbers than females (Figure 2-3-31). Age 3_2 and 4_3 coho salmon examined at Talkeetna Station had male to female sex ratios of 1.7:1 and 1.2:1, respectively (Table 2-3-37). Curry Station three year old (3_2) male coho salmon were also more abundant than females by a ratio of 1.6:1 while age 4_3 males and females were equally abundant 1.0:1. The overall male to female coho salmon ratio at Talkeetna Station was 1.5:1 and at Curry Station the ratio was 1.3:1.

Fishwheel recaptures of coho salmon at Talkeetna (RM 103) and Curry (RM 120) stations were not sufficient to define migration rates in 1982. An approximate estimate of the migrational rate can be made by comparing fishwheel catches at Sunshine (RM 80), Talkeetna and Curry stations. From these observations it is estimated that coho salmon required an average of 11 days or a travel rate of 6.2 miles per day (mpd) to travel from Sunshine Station to Talkeetna Station and an average of 5.7 additional days to Curry Station, for an overall rate of 7.0 mpd. Fishwheel catches show the distance between Talkeetna and Curry stations to be travelled in an average 1.7 days for a rate of 10.0 mpd (Figures 2-3-30 and 2-3-32). These estimates assumed no differential migration between Susitna River coho salmon stocks.

3.2.5.2.1.2 Radio Telemetry

In 1982, eleven coho salmon were radio tagged and released at Talkeetna

Table 2-3-37. Sex ratio of male and female coho salmon by age from escapement samples collected at Susitna, Yentna, Sunshine, Talkeetna and Curry stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age	Sample Size	Number		Sex Ratio (M:F)
			Males	Females	
Susitna Station	3	101	39	62	0.6:1
	4	193	74	119	0.6:1
	5	5	2	3	0.7:1
Yentna Station	3	131	97	34	2.8:1
	4	282	194	88	2.2:1
	5	9	6	3	2.0:1
Sunshine Station	3	168	106	62	1.7:1
	4	172	92	80	1.2:1
	5	1	1	0	-
Talkeetna Station	3	125	79	46	1.7:1
	4	87	47	40	1.2:1
Curry Station	3	53	33	20	1.6:1
	4	45	23	22	1.0:1

Station (RM 103) and, similarly, five were tagged at Curry Station (RM 120) (Table 2-3-38). Ten of the 11 coho salmon tagged at Talkeetna Station (RM 103) presumably spawned below the station. Three of these fish spawned in Whiskers Creek (RM 101.2); another three descended to spawning areas in the Talkeetna River drainage (RM 97.0); two others were last detected in Birch Creek (RM 88.4); and another two were last located at RM 97.6 and 105.6, respectively (Figures 2-3-33 and Appendix 2-E).

Only one coho salmon (fish 620-3A) tagged at Talkeetna Station (RM 103) in 1982 was known to have spawned above RM 103. After being tagged and released at RM 103, fish 620-3A migrated upstream to the Chase Creek confluence (RM 106.9), then ascended to the confluence of Slough 5 (RM 107.6) and finally entered Gash Creek (RM 111.6) to spawn approximately 24 days after being released at Talkeetna Station (Appendix 2-E).

A typical example of the movements of a coho salmon tagged at Talkeetna Station (RM 103) which was suspected to have spawned in the Talkeetna River system (RM 97.0) was as follows. Tagged on August 27, 1982, fish 600-2 descended from Talkeetna Station to RM 100.9 within 16.5 hours after its release. Four days later it entered the Talkeetna River (RM 97.0). Fish 600-2 continued to ascend the Talkeetna River and was last detected 15.5 miles upstream in the river on September 9, 13 days after its initial release. A second example of intra-drainage milling behavior was the movements of fish 640-3 which spawned in Whiskers Creek (RM 101.2). Fish 640-3 was tagged on August 25 at RM 103. By August 31, this fish had moved downstream and had entered the Talkeetna River (RM 97.0). On September 1 the fish was located 2.2 miles upstream in the Talkeetna River. By September 3

Table 2-3-38. Tagging location, transmitter frequency and physical characteristics of radio tagged coho salmon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Tag and Release		Transmitter		Petersen			
Date	Location (RM) 1/	Frequency (MHz) Pulse/Second	Size 2/	Disc Tag Number	Sex (M/F)	Length 3/ (cm)	Coloration 4/ (Dorsal/Ventral)
8/17	103.0	40.650-1	M	176	F	58.0	Silver/Silver
8/17	119.5	40.699-1	M	174	M	65.0	Red/Red
8/18	103.0	40.641-1	M	177	M	58.0	Red-Pink/Red
8/19	120.7	40.650-4	M	178	F	58.5	Silver-Pink/Silver-Gray
8/19	103.0	40.711-2	M	180	M	61.0	Red-Pink/Silver-Pink
8/21	103.0	40.721-2	M	181	M	56.5	Silver-Pink/Silver-Pink
8/22	119.5	40.611-1	M	184	M	61.5	Silver-Gray/Pink
8/25	103.0	40.640-3	M	185	M	60.0	Red-Pink/Gray-Red
8/25	119.5	40.660-3	M	186	F	59.0	Silver/Silver-Pink
8/25	119.5	40.601-3	S	187	F	58.5	Silver/Silver-Pink
8/26	103.0	40.619-3	S	188	F	58.5	Silver/Silver-Pink
8/27	103.0	40.600-2	S	190	M	58.5	Pink/Pink
8/28	103.0	40.680-3	M	194	M	61.5	Red/Red
8/28	103.0	40.630-1	M	191	M	61.0	Gray/Red-Pink
8/28	103.0	40.610-3	M	192	F	59.5	Gray/Gray-Pink
8/28	103.0	40.600-1	M	195	M	66.0	Red-Pink/Red-Pink

1/ River Mile: Talkeetna Station RM 103, Curry Station RM 120.
2/ Transmitter sizes: S = 5.2 cm long, 1.6 cm wide, 18.0 cm antennae
M = 7.6 cm long, 1.6 cm wide, 13.0 cm antennae
3/ Length: mid-eye to fork of tail.
4/ Coloration: Predominate color underlined.

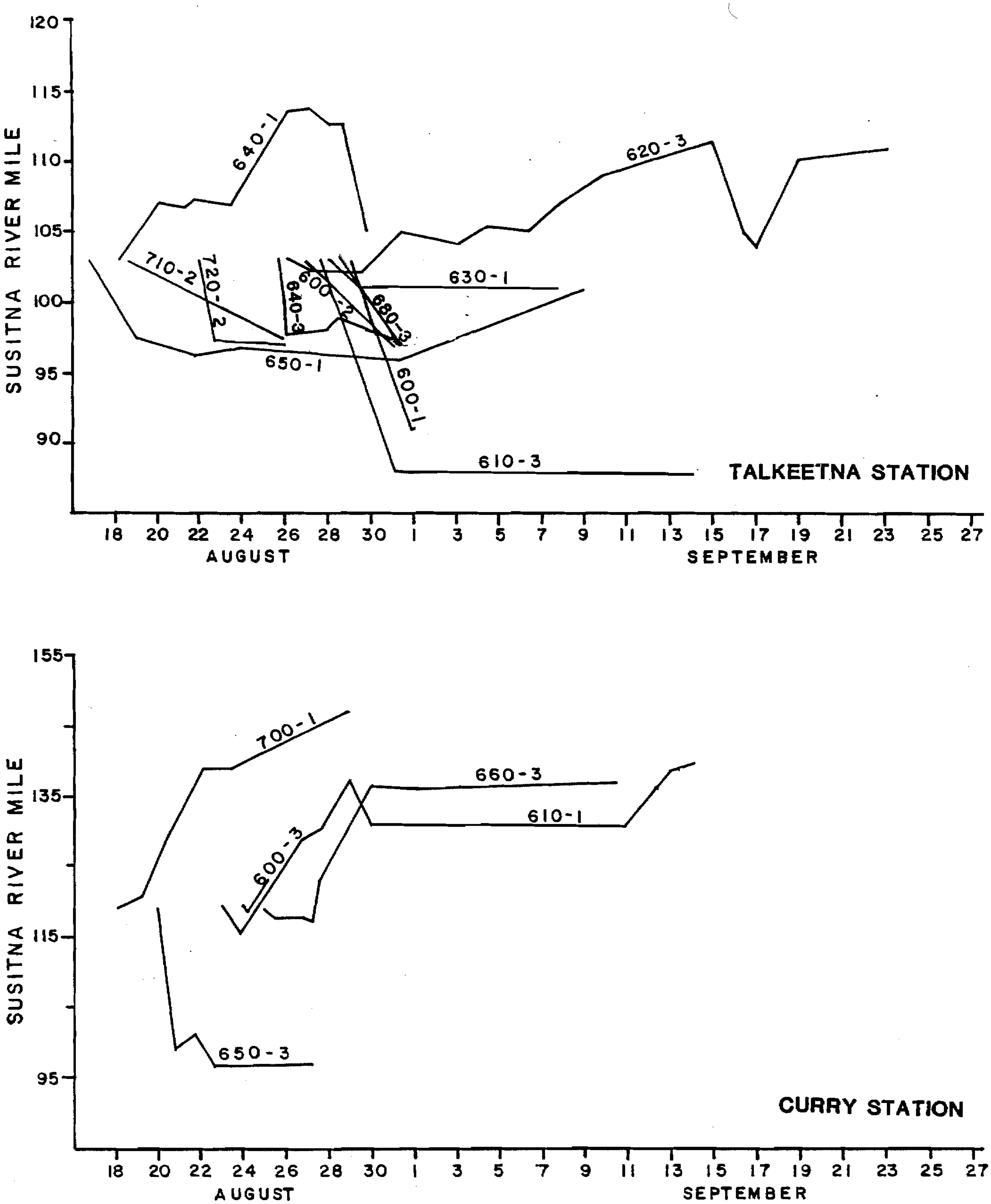


Figure 2-3-33. Movements of Talkeetna and Curry stations radio tagged coho salmon in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

fish 640-3 had moved out of the Talkeetna River and was in the Susitna River at RM 98.0. The fish was next located in the Chulitna River (RM 98.6) where it remained through at least September 9. By September 13 fish 640-3 had returned to the Susitna River where it was located on that date at RM 97.5. Between September 18 and 24, fish 640-3 migrated upstream and entered Whiskers Creek (RM 101.2). This fish was last detected 0.5 miles upstream in Whiskers Creek on September 27 (Appendix 2-E).

Of the five radio tagged coho salmon released at Curry Station in 1982, one spawned below RM 120 presumably in the Talkeetna River (RM 97.0). The other four fish spawned upstream of RM 120 in Indian River (RM 138.6) and Portage Creek (RM 148.9) (Figure 2-3-33 and Appendix 2-E).

The one radio tagged coho salmon which presumably spawned below Curry Station in 1982, exhibited the following migrational movements. Released at RM 120 on August 19 fish 650-4 descended to RM 112.8 within approximately 8.4 hours. The next day it was at RM 100.5 near the Talkeetna River confluence (RM 97.0). It remained in the general area of RM 98 through at least August 23. On August 26, fish 650-4 was located in the Talkeetna River where it remained through September 9, the last day monitored (Appendix 2-E).

The migrational behavior of fish 610-1 can be considered illustrative of the milling behavior of coho salmon radio tagged at Curry Station (RM 120), which spawned upstream of the station in 1982. Fish 610-1 was tagged on August 22. On August 26 the fish was at RM 129.6 and two days later at RM 135.8. Fish 610-1 descended to RM 131.1 on or about August 29 and remained there at the confluence of Fourth of July Creek through September 7. On September 8 the fish moved further downstream to RM 126.5 and on the following day migrated upstream, again, to RM 131.1. By September 13, fish 610-1 had moved upstream to the mouth of Slough 15 at RM 137.3. Between September 14 and 18, fish 610-1 entered Indian River (RM 138.6) and was last detected on September 22, 2.5 miles upstream in Indian River, 31 days after its initial release at RM 120 (Appendix 2-E).

In 1982 the fastest (upstream) movement recorded of a radio tagged coho salmon released at Curry Station (RM 120) was 18.1 mpd (Table 2-3-39).

A common migrational pattern exhibited by several salmon released at Talkeetna and Curry stations in 1982 was the tendency for the fish to mill or hold, for up to several days in semi-placid areas of the main channel like the mouths of clear water streams and sloughs prior to resuming migration. Examples of this behavior can be found in the tracking reports of coho salmon 610-1, 620-3A, 640-1, 650-1, 660-3 and 740-3 provided in Appendix 2-E.

Further information on coho salmon migrational behavior can be found in Appendix 2-E.

3.2.5.2.3 Lower Devil Canyon Milling

Three coho salmon were caught in 19.6 hours of set netting at RM 150.2 and 150.4 from August 10 to September 12 (Table 2-3-17). The three salmon were caught on August 28. One of the three fish had been tagged at Curry Station (RM 120) on August 12 (Plate 2-3-9).

Table 2-3-39. Twenty fastest radio tagged coho salmon movements, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Speed Traveled (mpd) 1/	Distance Traveled (miles)	Hours Elapsed	Location of Movement (RM - RM) 2/	Observation Dates	Transmitter Number
21.1	4.3	4.9	118.0-122.3	8/27	660-3
11.5	2.4	5.0	128.7-131.1	8/19	700-1
9.1	1.6	4.2	137.0-138.6	8/21	700-1
8.5	8.5	23.9	122.3-130.8	8/27-28	660-3
7.2	7.4	24.6	121.3-128.7	8/18-19	700-1
6.1	4.5	17.6	126.5-131.0	9/8-9	610-1
5.8	3.4	14.0	97.5-100.9	9/13-14	640-3
5.4	5.6	24.7	130.2-135.8	8/27-28	610-1
4.9	4.2	20.6	130.8-135.0	8/28-29	660-3
4.6	4.3	22.5	103.0-107.3	8/18-19	640-1
3.5	3.1	21.1	133.9-137.0	8/20-21	700-1
3.1	6.6	51.9	107.0-113.6	8/23-25	640-1
2.8	1.8	15.7	119.5-121.3	8/17-18	700-1
2.8	5.4	46.3	101.2-106.6	8/29-31	620-3
2.6	2.8	25.4	131.1-133.9	8/19-20	700-1
2.2	2.0	22.8	119.3-121.3	8/25-26	600-3
1.6	1.6	23.3	98.0-99.6	8/27-28	640-3
1.6	1.6	23.5	107.6-109.2	9/6-7	620-3
1.4	1.3	22.7	137.3-138.6	9/13-14	610-1
1.0	0.9	21.2	100.5-101.4	8/20-21	650-3

1/ mpd: Miles per day
2/ Movement: River mile to river mile

Plate 2-3-9. Tag recaptured coho salmon in lower Devil Canyon from Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Electroshocking was conducted four times at RM 150.4 between August 11 and September 23, 1982. The total catch was one coho salmon on September 5 (Table 2-3-19).

Gill netting and electroshocking data indicate that coho salmon were present in lower Devil Canyon (RM 150-151) from August 28 through September 5, 1982 (Tables 2-3-18 and 2-3-19).

3.2.5.2.4 Spawning

3.2.5.2.4.1 Main Channel

A total of 397 main channel sites were investigated for coho salmon spawning activity in 1982 (Appendix 2-G). The sites surveyed were located between RM 98.5 and 150.

No Susitna River main channel habitats between RM 98.5 and 150 were found to support coho salmon spawning (Appendix 2-G).

3.2.5.2.4.2 Sloughs and Streams

In 1982, 34 sloughs between RM 98.6 and 161.0 were surveyed for coho salmon from July 28 to October 24, 1982 (Appendix 2-G).

Coho salmon were observed in three of the 34 sloughs surveyed. The three sloughs were: 6A (RM 112.3), 8A (RM 125.1) and 15 (RM 137.2). The peak survey count of live and dead coho salmon in Slough 6A was 35 fish, in Slough 8A 4 fish and in Slough 15, 14 fish. These counts were recorded on August 19, October 2 and August 11, respectively.

Based on survey observations coho salmon spawned only in Slough 8A. The peak of spawning in Slough 8A occurred between the fourth week of September and the first week of October, 1982. The coho salmon observed in sloughs 6A and 15 were milling fish and did not spawn in these sloughs.

Nineteen streams between RM 98.6 and 161.0 were surveyed for coho salmon in 1982 (Appendix 2-G). Twelve streams contained coho salmon. These were:

1. Whiskers Creek (RM 101.4)
2. Chase Creek (RM 106.9)
3. Slash Creek (RM 111.2)
4. Gash Creek (RM 111.6)
5. Lane Creek (RM 113.6)
6. Lower McKenzie Creek (RM 116.2)
7. Little Portage Creek (RM 117.7)
8. Fourth of July Creek (RM 131.1)
9. Gold Creek (RM 136.7)
10. Indian River (RM 138.6)
11. Jack Long Creek (RM 144.5)
12. Portage Creek (RM 148.9)

Peak survey counts of coho salmon were recorded in the 12 listed streams between August 23 and October 2, 1982. The combined peak survey count of live and dead coho salmon for these streams was 633 fish. The majority of the fish were observed in Whiskers Creek (27.8%), Lower McKenzie Creek (21.0%), Indian River (16.0%) and Portage Creek (13.9%). It should be recognized that peak survey counts do not represent the total number of coho salmon that spawned in the streams surveyed. Early and late spawning fish are normally absent when peak counts are recorded and only a portion (index) of each stream habitat was surveyed in this study (Appendix 2-G).

Survey observations indicated that the peak of coho salmon spawning activity in stream habitats took place between the last week of August and the first week of October in 1982. Peak of coho salmon spawning in Whiskers Creek, Lower McKenzie Creek and Indian River were between August 23 and September 21, September 21 and October 2, and September 18 and September 30, respectively.

3.3 Bering Cisco

3.3.1 Estuary to Talkeetna

3.3.1.1 Main Channel Escapement

Bering cisco were captured at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in fishwheels in 1982. Daily and cumulative catch records are presented in Appendix 2-C.

At Susitna Station (RM 26) 42 Bering cisco were intercepted with fishwheels in 1982. Based on these catches, the migration started at Susitna Station on August 7 and concluded sometime after September 5, the last day the station was operated (Figure 2-3-34). The majority (75%) of the Bering cisco migrated along the east shore of the Susitna River at Susitna Station based on fishwheel catch data.

Yentna Station (RM 04) fishwheels caught four Bering cisco in 1982, one per day on August 21, 29, September 2 and 3. The north bank fishwheel intercepted 75.0 percent of the total catch while the south bank fishwheel captured the remaining 25.0 percent. The Bering cisco catch at Yentna Station was not sufficient to establish migrational timing.

Fishwheels at Sunshine Station (RM 80) intercepted 165 Bering cisco in 1982. From catch data, the migration can be determined to have started on September 4 and to have ended sometime after October 1, the last day fishwheels were operated. The entire catch at Sunshine Station was made with fishwheels operating off the east bank.

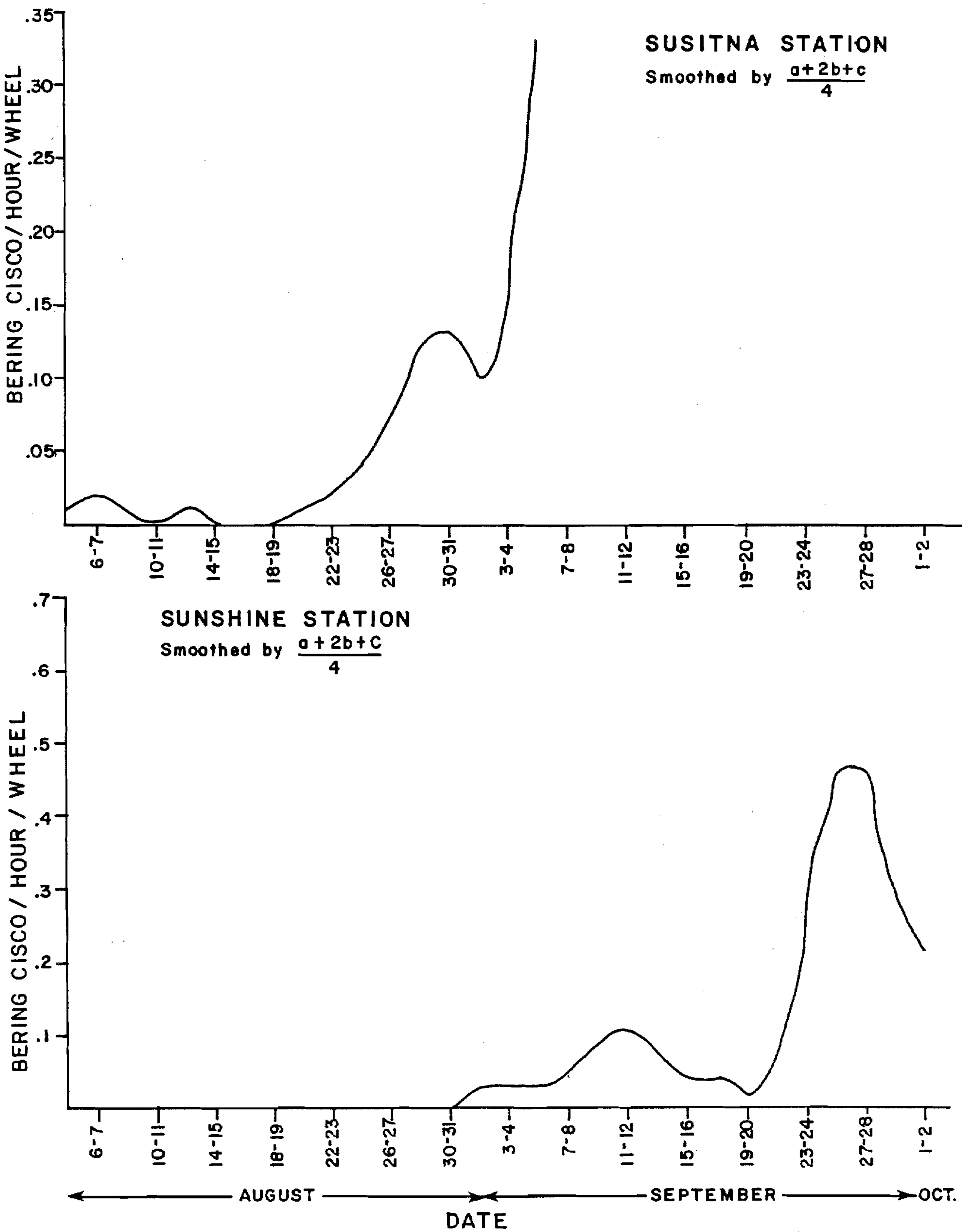


Figure 2-3-34. Mean hourly fishwheel catch of Bering cisco by two day periods at Susitna and Sunshine stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

All subsequently reported age and length data of Bering cisco are based on a composite of fish captures at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations (Tables 2-3-40 and 2-3-41).

Table 2-3-40. Analysis of Bering cisco age data by percent from escapement samples collected at all sampling locations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Sample Size	Age Class 1/			Brood Year		
		4_1	5_1	6_1	1977	1978	1979
All Locations	100	34	62	4	4	62	34

1/ Gilbert-Rich notation

Approximately 62.0 percent of the Susitna River Bering cisco escapement were age 5_1 fish followed by age 4_1 fish at 34.0 percent and age 6_1 fish at 4.0 percent (Table 2-3-40). Age 4_1 Bering cisco had a mean length (TL) of 318.9 mm and age 5_1 and 6_1 fish had mean lengths of 342.3 mm and 365.0 mm, respectively (Table 2-3-41).

Table 2-3-41. Analysis of Bering cisco lengths, in millimeters, by age class from all escapement samples, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Collection Site	Age Class 1/	n	Limits	Mean	95% Confidence Limits 2/	Median
All Sampling Locations	4_1	34	235-365	318.9	310.7-237.2	231.5
	5_1	62	305-383	342.3	338.0-346.7	343.0
	6_1	4	330-405	365.0	313.4-416.6	362.5

1/ Gilbert-Rich notation.
2/ Confidence Limits on Mean.

All Bering cisco intercepted in fishwheels at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations were in pre-spawning condition. No sex determinations were made due to homogenity in physical appearance of both sexes.

3.3.1.2 Main Channel Spawning

Main channel spawning surveys began August 1 and ended on October 13, 1982. A total of 518 Bering cisco were caught or observed during this time period (Appendix 2-F).

Sex composition data of Bering cisco were collected from 62 fish during the spawning surveys. It was found that prior to October 13, the male to female ratio was 3.0:1 (Table 2-3-42). The last day sampled, October 13, 18 Bering cisco were examined and 15 were females and 3 were males, for a sex ratio of 0.2:1. Assuming that electroshocking, as a method of capture, was random the incidence of males was then a function of presence and not capture avoidance. It follows, then, that male Bering cisco left the spawning locations earlier than females. Alternatively, it may also be possible that gravid females preparing to or actually spawning were more susceptible to capture which could also cause a change in the sex ratio.

Ripe female Bering cisco, as defined in Section 2.3.2, were first observed on October 2 with encounters continuing through October 13, the final day of sampling. Of the fifteen females examined on October 13 for spawning condition: 10 fish were considered to be actively spawning; 4 fish were determined by necropsy to have already spawned and 1 fish was a pre-spawner. The data would indicate that peak of spawning in 1982 occurred on or before October 13.

Table 2-3-42. Sex ratios of Bering cisco collected during mainstem spawning surveys, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Location (River Mile)	Date	Sample Size	Males	Females	Sex Ratio (m:f)
79.4	10/3	12	11	1	11.0:1
34.0	10/4	5	3	2	1.5:1
34.1	10/6	1	1	0	1:0
83.4	10/6	5	4	1	4.0:1
88.0	10/6	1	0	1	0:1
71.5	10/8	1	1	0	1:0
72.7	10/8	3	2	1	2.0:1
75.0	10/8	3	1	2	0.5:1
77.6	10/8	13	10	3	3.3:1
75.5	10/13	7	2	5	.4:1
77.6	10/13	9	0	9	0:9
85.2	10/13	2	1	1	1.0:1

Main channel spawning investigations established a probable Bering cisco spawning site located on a relatively shallow gravel shoal extending from RM 76.8 to 77.6 (Appendix 2-G). On October 13, nine females captured at this site were all ripe. The site was classified probable as verification was not possible due to ice flows after October 13 which precluded further investigations.

A sampling drift of RM 81.2 established the presence of 'high' numbers (15-20) of Bering cisco at this location on October 13, 1982 (Appendix 2-G). The site was a probable spawning area. However, verification was not possible due to ice and snow conditions which prevented further sampling after October 13.

A previously tagged Bering cisco was recaptured on September 13, 1982 at RM 31.1. The fish had been tagged on October 5, 1981 at a confirmed spawning area located at RM 77.0 (Phase I, ADF&G/Su Hydro, Resident Fish Investigation on the Lower Susitna River, 1981). An analysis of several scales from the recaptured fish revealed that it was age 4_1 in 1981 and age 5_1 in 1982. The lengths (TL) of the fish at capture and recovery were 340 mm and 352 mm, respectively translating into a 1981-82 growth rate of 12 mm. Sex was not determined. Based on the incidence of no immature Bering cisco in any catch sample, the recaptured individual was a probable 1981 spawner and ascending the river in 1982 as a potential repeat spawner. The significance of this tag recovery cannot be understated as no known occurrence of Bering cisco repeat spawning has been reported. Scale analysis of Bering cisco stocks from the Yukon and Kuskokwim rivers indicate that repeat spawning does not occur (Alt, 1973).

3.3.2 Talkeetna to Upper Devil Canyon

3.3.2.1 Main Channel Escapement

A summary of the 1982 fishwheel catches of Bering cisco at Talkeetna (RM 103) and Curry (RM 120) stations are provided in Appendix 2-C.

Fishwheels operating at Talkeetna Station (RM 103) from June 5 through September 14 intercepted one Bering cisco on September 13, 1982. This was the only Bering cisco intercepted at this station in 1982.

Curry Station (RM 120) fishwheels operated from June 9 through September 18, 1982. There were no reported Bering cisco captures during this period.

3.3.2.2 Main Channel Spawning

Main channel surveys investigated 397 sites between RM 98.5 and 150 in 1982. The results of these investigations have been summarized in Appendix 2-G.

No Bering cisco spawning was found from RM 98.5 to 150 in 1982. A single capture on October 1 at RM 101.9 represented the only Bering cisco caught in this river reach in 1982.

4.0 SUMMARY

4.1 Eulachon

The Susitna River supported two eulachon runs in 1982. The first run of fish migrated through the Susitna River estuary from May 16 to May 30, approximately. The second run of fish entered the estuary between June 1 and 8.

There was no correlation found between timing of estuary entrance of first and second run eulachon in 1982 with changes in water temperature or Cook Inlet tide levels.

In 1982 the upper limit of migration by the first run eulachon in the Susitna River was RM 40.5 approximately. The upper limit of migration by second run fish was approximately RM 48.5.

Spawning by first run eulachon began on or about May 21 and extended through May 31, 1982. Second run fish spawned between June 4 and 9, approximately.

First and second run eulachon principally spawned in the Susitna River main channel from RM 8.5 to the Yentna River confluence (RM 28).

The major spawning areas by first and second run eulachon were located off cut banks and in riffle zones in the Susitna River main channel where the bottom substrates were mainly unconsolidated sands and gravels. Areas that were not utilized were clear water streams including their confluences, semi-placid main channel reaches and slough habitats.

The spawning life of male and female eulachon differed. In 1982 male eulachon spawned over a several day period whereas female eulachon spawned within approximately one day upon ripening. Additionally, male eulachon did not outmigrate or die after completing spawning unlike female eulachon which either died or outmigrated within approximately one day after spawning.

The 1982 first and second eulachon runs were both comprised of age 3_1 and 4_1 fish. Nearly 80 percent of both runs were age 3_1 fish. Male eulachon outnumbered female eulachon in both the first and second run by male to female ratios of 1.6:1 and 1.3:1, respectively.

First run eulachon were, by Student's t and Mann-Whitney tests at the 95 percent level, significantly smaller in length (TL) and weight than second run fish.

The 1982 Susitna River combined escapement of first and second run eulachon was estimated in the range of millions of fish.

The 1982 eulachon sport harvest was estimated at 3,000 to 5,000 fish. Sport fishing mainly occurred from RM 10 to 30 including the Yentna River (RM 28).

4.2 Adult Salmon

The estimated salmon escapements in the Susitna River for 1981 and 1982 are reported in Table 2-4-1. A summary of the number of salmon migrating to Yentna (RM 04), Sunshine (RM 80), Talkeetna (RM 103) and Curry (RM 120) stations in 1981 and 1982 are provided in Table 2-4-2. All references to 1981 data presented in the following subsections can be found in the Phase I Final Draft Report, Adult Anadromous Fisheries Project, ADF&G/Su Hydro, 1981.

Table 2-4-1. Susitna River drainage escapement estimates by species for 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Year	Escapement Estimate 1/			
	Sockeye 2/	Pink	Chum	Coho
1981	272,500	85,600	282,700	36,800
1982	265,200	890,500	458,200	79,800

1/ Defined as the summation of the Yentna River escapement recorded at Yentna Station and the Susitna River escapement recorded at Sunshine Station. These estimates do not include escapements to Susitna River tributaries above RM 6 and below RM 77 excluding the Yentna River (RM 28).

2/ Sockeye salmon escapement estimates do not include first run sockeye salmon escapements.

4.2.1 Chinook Salmon

4.2.1.1 Estuary to Talkeetna

4.2.1.1.1 Main Channel Escapement

In accordance with Phase I and II studies, chinook salmon were investigated incidental to other salmon species at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1981 and 1982. The exception in 1982 was at Sunshine Station where chinook salmon received equal study emphasis.

Table 2-4-2. Escapement by species and sampling location for 1981 and 1982. Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sampling Location	River Mile	Escapement 1/									
		Chinook		Sockeye 4/		Pink		Chum		Coho	
		1981 2/	1982	1981	1982	1981	1982	1981	1982	1981	1982
Yentna Station	04		3/	139,400	113,800	36,100	447,300	19,800	27,800	17,000	34,100
Sunshine Station	80		52,900	133,500	151,500	49,500	443,200	262,900	430,400	19,800	45,700
Talkeetna Station	103		10,900	4,800	3,100	2,300	73,000	20,800	49,100	3,300	5,100
Curry Station	120		11,300	2,800	1,300	1,000	58,800	13,100	29,400	1,100	2,400

1/ Escapement estimates are derived from Petersen population estimates with the exception of the Yentna Station escapements which are represented by sonar counts.

2/ Chinook salmon were not monitored for escapement in 1981.

3/ Yentna Station sonar equipment was installed after the onset of chinook migration and total escapement was not estimated.

4/ Second run sockeye salmon escapement.

The 1982 chinook salmon escapement to Sunshine Station (RM 80) was estimated at 52,800 fish by the Petersen method. Approximately 93.8 percent of these fish were larger than 350 mm in length. The 1982 chinook salmon escapement to Sunshine Station was more than twice the 1981 escapement level based upon a between year comparison of fishwheel catch rates. In 1981, the chinook salmon migration began on or before June 22 and ended on approximately July 7. In 1982, the migration began, reached a midpoint and ended on June 18, June 30 and July 9, respectively.

Chinook salmon appear to have a migrational preference for movement along the east bank at Sunshine Station (RM 80) as indicated by 87.6 percent in 1981 and 90.1 percent in 1982 of the catch occurring with the east bank fishwheels.

Chinook salmon sampled for age at Sunshine Station (RM 80) in 1981 were 25.6 percent age 3_2, 30.5 percent age 4_2, 21.8 percent age 5_2 and 16.6 percent age 6_2 fish. In 1982, 14.8 percent of the escapement sample was age 3_2, 27.2 percent age 4_2, 20.5 percent age 5_2 and 36.1 percent age 6_2. From freshwater growth characteristics, approximately five percent of the fish sampled in 1981 and one percent in 1982 had smolted in the first year of life. The balance had smolted in the second year of life.

Chinook salmon sampled for length at Sunshine Station (RM 80) averaged 22 mm more in length in 1982 than in 1981 by respective age class and sex.

At Sunshine Station (RM 80) in 1981 and 1982 male chinook salmon were more abundant than females among the three and four year old fish sampled and females were more numerous than males among the six year old fish sampled.

Among five year old fish, males were more abundant than females in 1981 and less abundant than females in 1982. The overall male to female ratio, non segregated to age, in 1981 was 3.5:1 and in 1982, 1.2:1.

4.2.1.1.2 Main Channel Spawning

A total of 280 and 811 Susitna River main channel sites between RM 7 and 98.5 were surveyed for chinook salmon spawning in 1981 and 1982, respectively. The surveys were conducted from July 15 to October 15, 1981 and from August 1 to October 13, 1982. Survey results indicated that chinook salmon did not spawn in the main channel between RM 7 and 98.5 in 1981 or 1982.

4.2.1.2 Talkeetna to Upper Devil Canyon

4.2.1.2.1 Main Channel Escapement

Under Phase I investigations chinook salmon escapement estimates were not obtained for Talkeetna (RM 103) and Curry (RM 120) stations in 1981. They were obtained in 1982 under Phase II studies.

An estimated 10,900 and 11,300 chinook salmon migrated to Talkeetna (RM 103) and Curry (RM 120) stations in 1982, respectively. Both estimates were calculated by the Petersen method and the 400 fish discrepancy between estimates was considered insignificant based on the 95 percent confidence intervals of the two estimates. Approximately 80 percent of the chinook salmon migrating to Talkeetna Station and 95 percent to Curry Station were larger than 350 mm in length (FL).

A comparison of 1981 and 1982 chinook salmon fishwheel catches at Talkeetna (RM 103) and Curry (RM 120) stations indicated that the 1982 escapement was more than twice the 1981 escapement level at each of the two stations.

The chinook salmon migration occurred earlier in 1981 than in 1982 at Talkeetna (RM 103) and Curry (RM 120) stations. At Talkeetna Station the 1981 migration began on or before June 22, peaked on June 25 and ended approximately on July 10. In 1982 these dates were June 26, July 4 and July 23, respectively. At Curry Station (RM 120), the 1981 migration began June 17, reached a midpoint June 24 and terminated July 24. The respective dates in 1982 were June 25, July 3 and July 19 (Figure 2-4-1).

Tagged recaptures were made at Talkeetna (RM 103) and Curry (RM 120) stations in 1982. The average migrational time of chinook salmon between Sunshine and Talkeetna stations, a distance of 23 miles, was 11.2 days (2.1 mpd). Between Talkeetna and Curry stations, 17 miles, the average travelling time was 7.7 days (2.2 mpd).

Age composition sampling at Talkeetna Station (RM 103) established that the majority of the chinook salmon in 1981 were age classes 3_2 (12.6%), 4_2 (27.1%), 5_2 (21.4%) and 6_2 (24.4%) fish. In 1982 the major age classes were 3_2 (20.1%), 4_2 (35.2%), 5_2 (19.5%) and 6_2 (23.3%) fish.

At Curry Station (RM 120) in 1981 age 3_2 fish represented 14.8 percent, age 4_2 fish 29.8 percent, age 5_2 fish 25.7 percent and age 6_2 fish 18.0 percent of the escapement sampled. These same age classes registered 15.9, 28.5, 20.0 and 30.8 percents respectively in 1982.

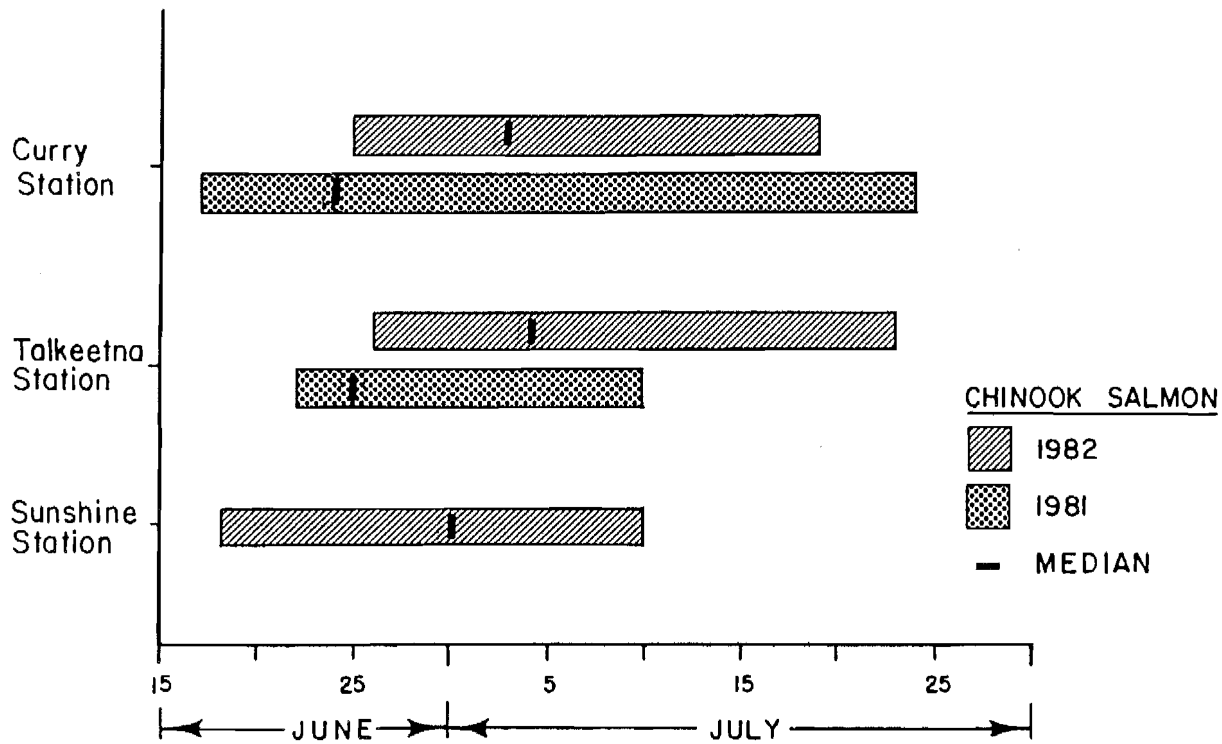


Figure 2-4-1. Migrational timing of chinook salmon at selected sampling locations in the Susitna River basin in 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

All adult chinook salmon sampled for age at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 and 1982 were fish that had migrated to sea (smolted) after spending no more than one winter as fry in freshwater. Approximately 88.7 percent in 1981 and 97.7 percent in 1982 of the escapement sampled at Talkeetna Station were fish that had smolted after spending one winter in freshwater. The balance, 11.3 percent (1981) and 2.3 percent (1982), had smolted before their first winter. At Curry Station, 88.3 percent in 1981 and 95.6 percent in 1982 of the adults, as fry, had smolted after one winter in freshwater. The remainder, 11.7 percent in 1981 and 4.4 percent in 1982 had smolted before their first winter.

Age samples collected from Susitna River locations downstream of Talkeetna Station (RM 103) in both 1981 and 1982 indicate an essential absence of adult chinook salmon that, as fry, had migrated to sea with less than one winter in freshwater. Nearly all the returning adults sampled at downstream locations had spent one winter as fry in freshwater before smolting. The presence at Talkeetna and Curry (RM 120) stations in 1981 and 1982 of returning adults that, as fry, had smolted before their first winter may be indicative of 'high' food availability in the Susitna River reach north of RM 103. A study conducted in 1980 indicates that early chinook salmon fry outmigration is related to food availability; when food is plentiful some young-of-year fry reach smolt size early and outmigrate in the fall of their first year (Delaney et al., 1981).

Chinook salmon sampled for length (FL) at Talkeetna Station (RM 103) in 1981 averaged 11 mm larger, segregated by age and sex, than in 1982. At Curry Station (RM 120) they averaged 20 mm smaller in 1981 than in 1982.

Chinook salmon intercepted with fishwheels at Talkeetna Station were shorter in length than at Curry Station by an average of 3 mm in 1981 and 32 mm in 1982.

Chinook salmon males outnumbered females in 1981 at Talkeetna (RM 103) and Curry (RM 120) stations by ratios of 2.6:1 and 1.9:1, respectively. Males were more abundant than females at both stations in 1981 among three and four year old fish and generally less abundant than females among five and six year old fish. The same was true in 1982 at both stations. The overall male to female ratio at Talkeetna Station in 1982 was 2.3:1 and at Curry Station 1.5:1.

4.2.1.2.2 Radio Telemetry

Migrational movements of chinook salmon radio tagged at Talkeetna Station (RM 103) were generally similar between 1981 and 1982. The Chulitna, Susitna and Talkeetna river confluences (RM 98±) was used as a milling area in both years. In 1981, all four of the radio tagged fish released at Talkeetna Station and four of the seven fish in 1982 remained there up to two weeks before re-initiating upstream migration. One difference between years was that a higher percentage of the fish tagged at Talkeetna Station in 1982 spawned below the station than in 1981. Only one of four fish tagged in 1981 spawned below Talkeetna Station while in 1982 five of the seven radio tagged fish spawned below.

In 1981 and 1982, Curry Station (RM 120) tagged chinook salmon displayed similar migrational movements. Nearly all of the 21 radio tagged chinook salmon released at Curry Station in 1981 and 1982 migrated upstream after tagging and entered spawning streams. Two of the 12 fish tagged at Curry Station in 1981 and one of the nine fish tagged in 1982 spent up to 15 days in lower Devil Canyon (RM 150.5 - RM 151.7) before selecting a spawning stream.

Radio tagged chinook salmon released at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 and 1982 spawned mainly in two streams, Indian River (RM 138.6) and Portage Creek (RM 148.9).

Chinook salmon tagged at Curry Station (RM 120) migrated to their respective spawning stream in less time in 1982 than in 1981. For example, radio tagged fish were first detected at the confluence of, or in, Indian River within 2 to 11 days after being released in 1981 versus 3 to 6 days in 1982. Radio tagged fish were first detected in, or near, Portage Creek 5 to 14 days after being tagged at Curry Station in 1981 compared to 3 to 6 days in 1982.

In both 1981 and 1982 a radio tagged chinook salmon spent several days in both Portage Creek (RM 148.9) and Indian Creek (RM 138.6). The significance of multi-stream occupancy is not known. However, it may be one example of milling. Numerous radio tracking observations were recorded in 1981 and 1982 of chinook salmon ascending the Susitna River main channel several miles and then later descending and entering a spawning stream.

An additional behavior difference was noted between chinook salmon tagged in 1981 and 1982 at Talkeetna (RM 103) and Curry (RM 120) stations. In 1981 two radio tagged fish occupied a mainstem pool at RM 123.5 for 3 to 10 days prior to migrating upstream. Another fish in 1981 remained at the mouth of Sherman Creek (RM 130.8) for about three days before resuming upstream movement. In 1982 no radio tagged chinook salmon were detected holding positions at the above or other main channel locations, excluding confluence zones of spawning streams, lower Devil Canyon and the confluence of the Chulitna, Talkeetna and Susitna rivers.

4.2.1.2.3 Lower Devil Canyon Milling

In 1981, gill nets were fished 30.2 hours in lower Devil Canyon locations between RM 150.1 and 150.4 from July 29 through September 9. No chinook salmon were caught with this effort. In 1982, 19.6 hours were fished with the same gear at RM 150.2 and 150.4 from August 10 through September 12. As in 1981, there were no chinook salmon caught. In addition to set netting, electroshocking was also conducted in lower Devil Canyon four times at RM 150.4 between August 11 and September 23, 1982. Again, no chinook salmon catches were made. From these observations it can be concluded that there were minimal, if any, chinook salmon in lower Devil Canyon after July 28 in 1981 and after August 10 in 1982.

Radio telemetry investigations under Section 4.2.1.2.2 documented chinook salmon milling activity in the lower Devil Canyon reach between RM 150 and 151.7 in 1981 and 1982. In 1981, 2 of 16 radio tagged fish at Talkeetna (RM 103) and Curry (RM 120) stations milled in lower Devil Canyon. The same event was documented in 1982 where 2 of the 16 radio tagged fish released at these stations milled in lower Devil Canyon. Dates of observed milling activity in 1981 were from July 5 to 7, and in 1982 from June 26 to July 14.

4.2.1.2.4 Spawning

4.2.1.2.4.1 Main Channel

Chinook salmon spawning surveys in the Susitna River main channel were conducted from July 15 to October 15, 1981 and from August 7 to October 7, 1982. A total of 37 and 397 sites between RM 98.5 and 150 were surveyed for spawning in 1981 and 1982, respectively. Survey results indicate that chinook salmon did not spawn in the Susitna River main channel in 1981 or 1982.

4.2.1.2.4.2 Sloughs and Streams

In 1981 and 1982, 33 and 34 slough habitats respectively were surveyed for chinook salmon presence. Based on two years of survey data, chinook salmon do not use slough habitats between RM 98.6 and 161.0 for spawning.

Three streams between RM 98.6 and 161.0 in 1981 were surveyed for chinook salmon presence. These were: Portage Creek (RM 148.9), Indian River (RM 138.6) and Lane Creek (RM 113.6). The peak numbers of fish recorded in these streams were: 659, 422 and 40 chinook salmon respectively. In 1982, 19 streams were surveyed between RM 98.6 and 161.0 and 11 were found to support chinook salmon. The peak numbers of fish recorded in the four major streams were: 1,253 fish in Portage Creek (RM 148.9), 1,053 fish in Indian River (138.6), 56 fish in Fourth of July Creek (RM 131.1) and 47 fish in Lane Creek (RM 113.6).

The combined peak survey count of chinook salmon in Portage Creek (RM 148.9), Indian River (RM 138.6) and Lane Creek (RM 113.6) was 1,121 fish in 1981 and 2,353 fish in 1982. Based on these figures, the chinook salmon escapement above RM 98.5 in 1982 was approximately twice the 1981 escapement level. This conclusion is also supported by fishwheel catches at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 and 1982 (Section 4.2.1.2.1).

In 1982 two new chinook salmon spawning habitats were located. These were Cheechako (RM 152.4) and Chinook (RM 157.0) creeks, which enter as streams in the Devil Canyon reach (RM 151-161) of the Susitna River. Based on peak survey counts Cheechako Creek supported approximately 0.6 percent and Chinook Creek 0.2 percent of the 1982 chinook salmon escapement to the Susitna River reach above RM 98.6.

4.2.1.3 Escapement Index Surveys

In 1981, 14 chinook salmon escapement index streams were surveyed in the Susitna River basin. In 1982, 21 index streams were surveyed.

Based on comparative year index counts, the chinook salmon escapement to the Susitna River basin was near average in 1981 relative to previous year escapements. In 1982, the escapement was approximately 80 percent higher than the 1981 escapement and above the mean average for years 1976 through 1981.

In 1982, the west side streams entering the Susitna River below RM 97 supported approximately 45 percent higher chinook salmon escapements than in 1981 but lower than mean average escapements for the years 1976 through 1981. East side Susitna River streams downstream of RM 97 in 1982 were not surveyed during peak spawning due to high turbidity and therefore no comparison can be made. The chinook salmon escapement above RM 98.6 in 1982 exceeded 1981 escapement level by approximately 85 percent and the six year mean average by more than 200 percent. Several of the chinook salmon spawning streams upstream of RM 98.6 including Lane Creek (RM 113.6), Indian River (RM 138.6) and Portage Creek (RM 148.9) supported escapements above the historic high for years 1976 through 1981.

4.2.2 Sockeye Salmon

4.2.2.1 Estuary to Talkeetna

4.2.2.1.1 Main Channel Escapement

4.2.2.1.1.1 First Run

First run sockeye salmon were not investigated under Phase I 1981 Adult Anadromous Studies, but were monitored in 1982 at Sunshine Station (RM 80) in conjunction with Phase II studies.

An estimated 5,800 first run sockeye salmon migrated in 1982 to Sunshine Station (RM 80) as determined by the Petersen method. The 95 percent confidence interval of this estimate calculated at 4,900 to 7,300 fish.

The migration of first run sockeye salmon at Sunshine Station (RM 80) began in 1982 on June 4, reached a midpoint on June 13 and was over by June 26. Based on fishwheel catches, approximately 99.9 percent of the fish migrated along the east bank of the Susitna River at RM 80.

The age composition of first run sockeye salmon at Sunshine Station (RM 80) in 1982 was 89.5 percent age 5_2, 6.4 percent age 4_2, and 4.1 percent age 6_3. Approximately 95.9 percent of the adults had migrated, as fry, to sea in their second year of life and 4.1 percent in their third year as determined by scale characteristics.

The average length (FL) of age 4_2 first run sockeye males and females sampled at Sunshine Station (RM 80) was 463 mm and 460 mm, respectively. The age 5_2 males averaged 567 mm and females 530 mm while the age class 6_3 fish averaged 558 mm for males and 528 mm for females.

Sex composition results indicate the males outnumbered the females among age 4_2 second run sockeye salmon sampled in 1982 at Sunshine Station (RM 80) by a 1.5:1 ratio, while the females outnumbered the males among age 5_2 and 6_3 fish sampled by 0.6:1 and 0.9:1 ratios, respectively.

4.2.2.1.1.2 Second Run

The Susitna River escapement of second run sockeye salmon was approximately 273,000 fish in 1981 and 265,000 fish in 1982 not including, in both years, escapement returns to tributaries between RM 6 and 77 with exception of the Yentna River (RM 28) (Table 2-4-1). These estimates represent the combined number of sockeye salmon, by respective year, counted by sonar at Yentna Station (RM 04) and estimated by the Petersen method at Sunshine Station (RM 80).

The Yentna River (RM 28) averaged escapements of second run sockeye salmon in excess of 100,000 fish in 1981 and 1982 but smaller escapements than were recorded in both years for the Susitna River at Sunshine Station (RM 80) (Table 2-4-2). The Yentna River escapement recorded with SSS counts at Yentna Station (RM 04) was approximately 139,400 fish in 1981 and 113,800 fish in 1982. At Sunshine Station, the escapements were approximately 133,500 fish in 1981 and 151,500 fish in 1982 calculated by the Petersen method.

The migration of second run sockeye salmon occurred earlier in the Susitna River basin in 1981 than in 1982. At Susitna Station (RM 26) the migration began on July 4, was midway on July 21 and terminated on July 31. In 1982 the migration began, reached a midpoint and ended on July 18, July 24 and August 5, respectively. In the Yentna River (RM 28) at Yentna Station (RM 04), the 1981 migration began on July 10, reached a midpoint on July 18 and ended on July 30. In 1982, the respective dates were July 18, July 24 and August 6. At Sunshine Station (RM 80) in 1981, the migration began, reached a midpoint, and ended on July 16, July 22 and August 8, respectively. At this station in 1982 the dates were July 20, July 27 and August 3.

The peak fishwheel catches of second run sockeye salmon also occurred earlier in 1981 than in 1982. The peak catches in 1981 were recorded on July 16 at

Susitna Station (RM 26), July 15 at Yentna Station (RM 04) and July 22 at Sunshine Station. In 1982, peak catches were recorded on July 19, July 20 and July 22 respectively.

Second run sockeye salmon can generally considered to be abundant in the Susitna River main channel from RM 26 to 80 in any year from July 4 through August 8 as determined by escapement sampling in 1981 and 1982 at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations (Figure 2-4-2).

Fishwheel catches and SSS counts recorded in 1981 and 1982 at main channel sampling locations indicate a preference by second run sockeye salmon to migrate along the west bank at Susitna Station (RM 26), south bank at Yentna Station (RM 04) and east bank at Sunshine Station (RM 80).

The migrational time for second run sockeye salmon to travel between sampling stations in 1981 and 1982 was nearly identical in one instance and substantially different in another. Fish travelling between Susitna (RM 26) and Yentna (RM 04) stations averaged the six mile trip in one day or less in both years. However, between Susitna and Sunshine (RM 80) stations, second run fish in 1981 had an average travel time of 6.8 days whereas in 1982, the average was 2.3 days for the 54 miles between RM 26 and 80.

The results of sockeye salmon age sampling indicated that the majority (70.2-83.9%) of the second run escapement at Susitna (RM 26), Yentna (RM 04) and Sunshine stations in 1981 were age 5_2 fish followed by age 4_2 fish (7.5-21.0%). The same age ranking occurred in 1982 at these locations.

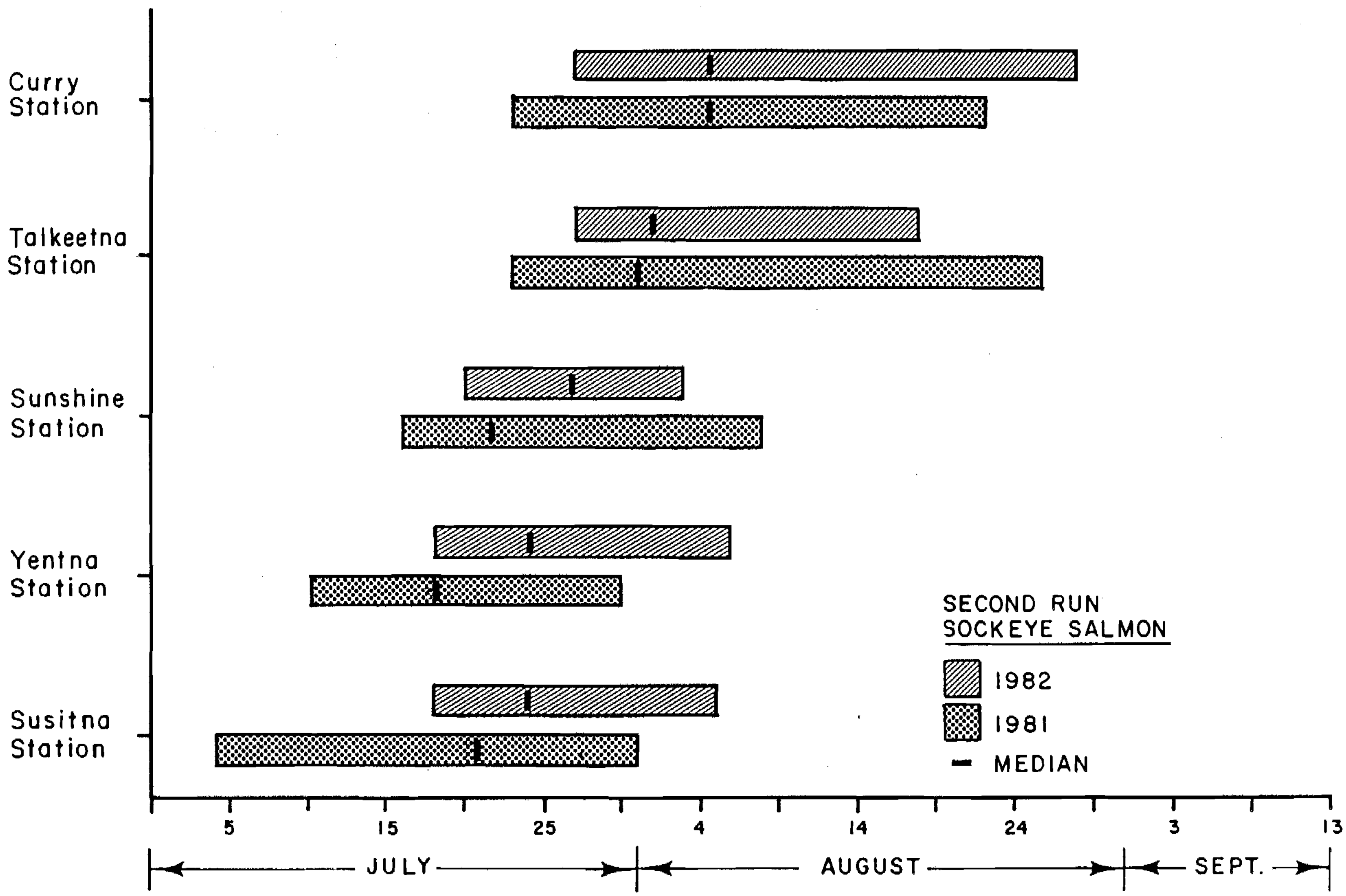


Figure 2-4-2. Migrational timing of second run sockeye salmon at selected sampling locations in the Susitna River basin in 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Distinct differences between years were the contribution of age 5_2 fish which were less abundant by percent composition in 1982 than in 1981. For example, at Susitna Station, 1981 second run age 5_2 and 4_2 fish were 83.9 and 8.4 percents of the escapement sample respectively whereas, in 1982 age 5_2 fish comprised 65.8 percent and age 4_2 fish were represented at 22.4 percent.

Nearly all of the adult second run sockeye salmon sampled for age at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1981 and 1982 had smolted as fry in their second year of life. The percent of the escapement sample in this category in 1981 was 93.0 percent at Yentna Station, 91.4 percent at Yentna Station and 92.5 percent at Sunshine Station. In 1982, the levels were 88.6, 85.4 and 95.0 percents by station order.

Second run sockeye salmon were smaller in length (FL) in 1981 than in 1982 among a composite of four and five year old fish sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations. In 1981, four year old males averaged 477 mm and the females averaged 520 mm, and five year old males and females averaged 600 mm and 566 mm, respectively. In 1982 four and five year old males and females measured 467 mm and 490 mm, and 584 and 555 mm, respectively.

Sex composition data indicated that the overall male to female sex ratio of second run sockeye salmon sampled at Susitna Station (RM 26) was 0.9:1 and 1.0:1, at Yentna Station (RM 04) 1.2:1 and 2.1:1, and at Sunshine Station (RM 80) 1.0:1 and 0.9:1 in 1981 and 1982, respectively.

4.2.2.1.2 Spawning

4.2.2.1.2.1 Main Channel

A total of 280 and 811 Susitna River main channel sites between RM 7 and 98.5 were investigated for sockeye salmon spawning in 1981 and 1982, respectively. Surveys were conducted between July 15 and October 15 in 1981 and August 7 and October 7 in 1982. The two years of investigations indicate that sockeye salmon do not utilize the Susitna River main channel between RM 7 and 98.5 for spawning.

4.2.2.1.2.2 Sloughs and Streams

4.2.2.1.2.2.1 First Run

The first run of sockeye salmon that was intercepted at Sunshine Station (RM 80) in 1982 spawned in the Fish Creek subdrainage of Chunilna (Clear) Creek, tributary to Talkeetna River (RM 97.0). No other stream or slough habitat in 1982 provided spawning habitat for these fish.

4.2.2.1.2.2.2 Second Run

Selected streams and sloughs were surveyed below RM 98.5 only as required to formulate Petersen population estimates of the 1981 and 1982 escapements of second run sockeye salmon to Sunshine Station (RM 80).

4.2.2.2 Talkeetna to Upper Devil Canyon

4.2.2.2.1 Main Channel Escapement

4.2.2.2.1.1 First Run

First run sockeye salmon were not investigated under 1981 Phase I studies.

In 1982, a total of nine (suspected) first run sockeye salmon were intercepted in fishwheels at Talkeetna Station (RM 103). These nine fish, caught between June 7 and 18, were considered stays or milling fish as no second run fish were sampled upstream of RM 103 including Curry Station (RM 120).

4.2.2.2.1.2 Second Run

The escapement of second run sockeye to Talkeetna Station (RM 103) in 1981 was approximately 4,800 fish and in 1982, 3,100 fish. At Curry Station (RM 120), the estimated escapement was 2,800 fish in 1981 and 1,300 fish in 1982. These estimates were calculated by the Petersen method.

The migration of the second run sockeye salmon to Talkeetna (RM 103) and Curry (RM 120) stations began earlier in 1981 than in 1982. In 1981 at Talkeetna Station the migration began on July 23, reached a midpoint on July 31 and ended on August 26. The migration started in 1982 on July 27, reached a midpoint on August 1 and ended on August 18. At Curry Station (RM 120), the 1981 migration began, reached a midpoint and terminated on July 23, August 5 and August 22, respectively. In 1982, these dates were July 27, August 5 and August 28.

Combined fishwheel catch data, indicated that second run sockeye salmon were generally abundant in the Susitna River main channel from RM 103 to 120 between July 23 and August 28 of any year as indicated by escapement timing data recorded in 1981 and 1982 at Talkeetna (RM 103) and Curry (RM 120) stations (Figure 2-4-2).

Based on 1981 and 1982 fishwheel catch data, second run sockeye salmon have no strong migrational preference to either the east or west bank at Talkeetna Station (RM 103). At Curry Station (RM 120) a strong preference to migrate along the east bank is evident based upon approximately 82 percent of the total fishwheel catch at Curry Station being made in the east bank fishwheel in 1981 and 1982.

The migration speeds of second run sockeye salmon between Sunshine (RM 80) and Talkeetna (RM 103) stations, from fishwheel recaptures, averaged 4.6 mpd in 1981 and 2.7 mpd in 1982. Between Talkeetna and Curry (RM 120) stations, second run sockeye salmon averaged a travel speed of 3.5 mpd in 1981 and 2.4 mpd in 1982.

Second run sockeye salmon milling activity occurred between RM 80 and 120 in 1981 and 1982 based on tagged fish recaptures. Minimum and maximum recorded travel times of tagged fish between Sunshine (RM 80) and Talkeetna (RM 103) stations were 3 and 44 days in 1981 and 2 and 17 days, in 1982.

Travel times between Talkeetna (RM 103) and Curry (RM 120) stations in 1981 ranged from 1 to 28 days and from 1 to 5 days in 1982. Between Sunshine (RM 80) and Curry (RM 120) stations the range in travel time was 5 and 41 days in 1981, and 4 and 40 days in 1982.

The majority of the second run sockeye salmon sampled for age at Talkeetna (RM 103) and Curry (RM 120) stations were age 5_2 and 4_2 fish. At Talkeetna Station age 5_2 fish comprised 70.2 percent of the sample in 1981 and 70.8 percent in 1982. The age 4_2 fish represented 22.8 percent in 1981 and 21.2 percent in 1982. At Curry Station (RM 120), age 5_2 fish comprised 65.9 percent and 32.4 percent in 1982. The age 4_2 fish represented 27.4 percent in 1981 and 30.5 percent in 1982.

Approximately 95.6 percent of the second run sockeye salmon adults sampled for age from Talkeetna (RM 103) and Curry (RM 120) station were fish that had smolted in their second year of life. In 1982, this percentage was 89.5. The balance of the adults sampled from these stations in 1981 and 1982 were fish that had smolted their first and third years of life.

Second run sockeye salmon sampled for length (FL) at Talkeetna (RM 103) and Curry (RM 120) stations measured larger in 1981 than in 1982. At Talkeetna Station, five year old males averaged 571 mm in 1981 and 590 mm in 1982. The females averaged 551 mm in 1981 and 566 mm in 1982. At Curry Station five year old males averaged 584 mm in 1981 and 573 mm in 1982. The females averaged 560 mm and 555 mm in 1981 and 1982, respectively. Four year old males sampled at Talkeetna and Curry stations had a average length of 502 mm in 1981 and 510 mm in 1982. The four year old females had a average length of 525 mm in 1981 and 505 mm in 1982.

Sex composition data established male second run sockeye salmon to be more abundant than females at Talkeetna (RM 103) and Curry (RM 120) stations by a average ratio of 0.7:1 in 1981 and 1.7:1 in 1982. Among four year old second run sockeye salmon sampled at both stations in both years males outnumbered females, and among five year old fish females outnumbered males.

4.2.2.2.2 Lower Devil Canyon Milling

In 1981, gill nets were fished in lower Devil Canyon (RM 150-151) on July 29, August 5 and 26, September 2, 10 and 19 for a total of 30.2 hours. This effort produced a catch of two sockeye salmon. Both fish were intercepted on August 26, 1981. In 1982 gill nets were fished on August 10, 16, 22 and 28 and September 12 at RM 150.2 and 150.4. No sockeye salmon were caught in the 19.6 hours fished. Electroshocking conducted on August 11 and 18 and September 5 and 23 in the same area in 1982 also produced no sockeye salmon.

The 1981 and 1982 set net and 1982 electroshocking efforts indicate sockeye salmon are not commonly present in lower Devil Canyon (RM 150-151) in late July, August or early September.

4.2.2.2.3 Spawning

4.2.2.2.3.1 Main Channel

The Susitna River main channel was surveyed from July 15 to October 15, 1981 and from August 7 to October 7, 1982 for sockeye salmon spawning. A total of 37 and 397 main channel locations were examined in 1981 and 1982, respectively from RM 98.5 to 150. Data indicates that sockeye salmon spawning did not occur in the Susitna River main channel between RM 98.5 and 150 in 1981 or 1982.

4.2.2.2.3.2 Sloughs and Streams

Spawning ground surveys were conducted between RM 98.6 and 161.0 in 33 sloughs in 1981 and in 34 sloughs in 1982 with the addition of Slough B (RM 126.3) a newly located habitat. Sockeye salmon were observed in 12 of the 33 and 10 of the 34 slough habitats, respectively in years 1981 and 1982.

Sockeye salmon were nearly twice as abundant in slough habitats in 1981 than in 1982. The peak survey counts of live and dead sockeye salmon totalled 1,241 fish in 1981 and 607 fish in 1982. These numbers represent a relative index of the sockeye salmon escapement to slough habitats between RM 98.6 and 161.0.

In 1981, sockeye salmon were most abundant in sloughs: 11 (72.0%), 8A (14.3%), 9B (6.5%), 21 (3.1%), 19 (1.9%), 9 (0.8%), 3A (0.6%), 17 (0.5%), 9A (0.2%) and 20 (0.2%), 3B(0.1%), and 6A (0.1%). And in 1982, these sloughs were: 11 (75.0%), 8A (11.2%), 21 (8.7%), Moose (1.3%) and B (1.3%), 8B (0.8%) and 9 (0.8%), 8C (0.3%), 9B (0.2%) and 9A (0.2%).

Not all sloughs occupied by adult sockeye salmon in 1981 were occupied in 1982. Sloughs 3B, 3A, 6A, 17, 19 and 20 occupied by sockeye salmon in 1981 were not occupied in 1982. Conversely, sockeye salmon were recorded in 8C, 8B, and Moose sloughs in 1982 but not in 1981. Sockeye salmon were observed in Slough B in 1982, a new located fish habitat.

Peak spawning of sockeye salmon occurred in slough habitats during the last week of August and first three weeks of September in 1981 and 1982 (Figure 2-4-3).

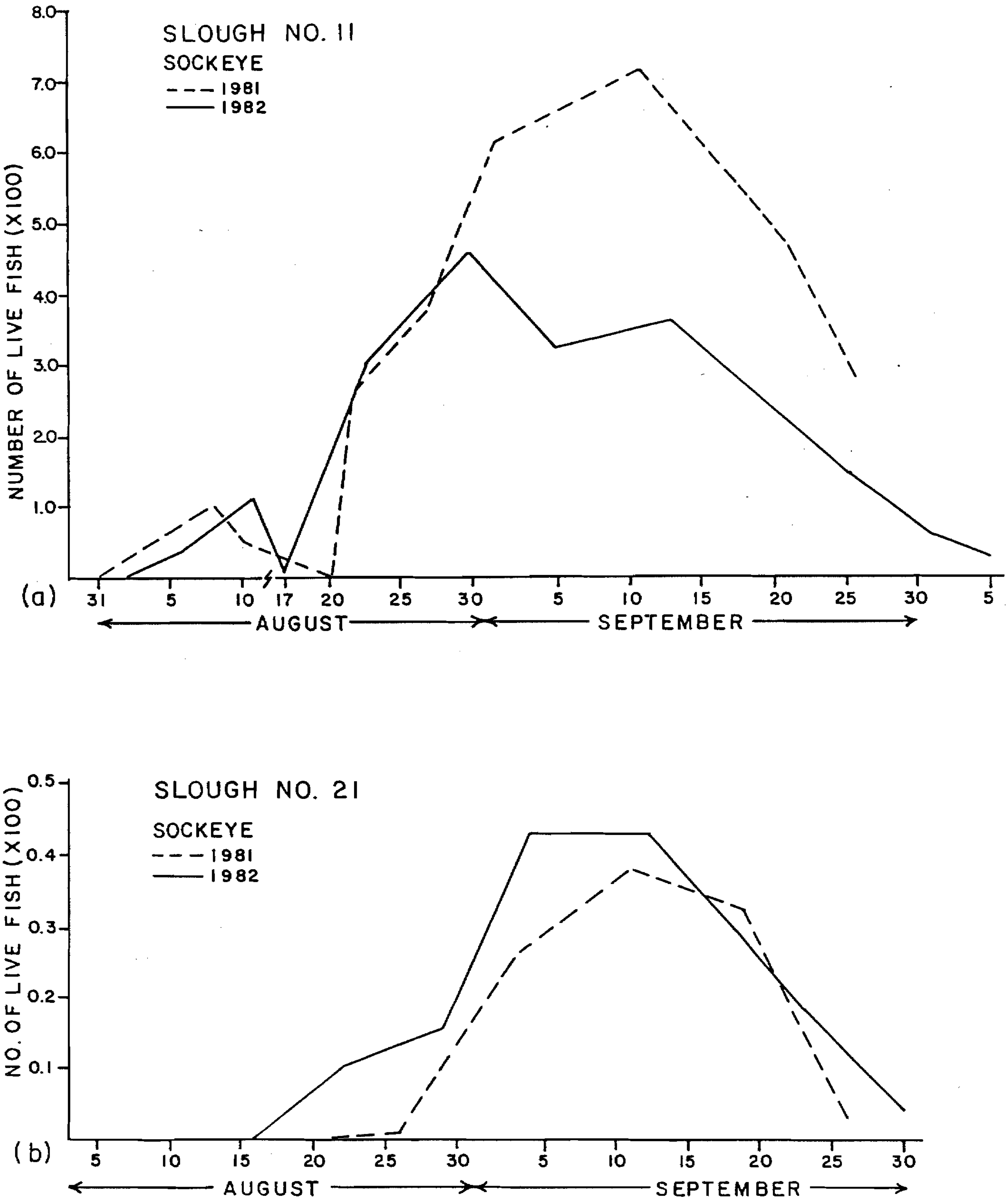


Figure 2-4-3. Sockeye salmon live counts by date in (a) Slough No. 11 and (b) Slough No. 21 for 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

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Fifteen streams between RM 98.6 and 161.0 were surveyed for adult sockeye salmon in 1981 and 19 streams were surveyed in 1982. Only one stream in each year had sockeye salmon present. In 1981, a single sockeye salmon was observed on August 23 in lower McKenzie Creek (RM 116.2) and in 1982 four were counted in Portage Creek on August 29. These fish were not observed spawning and were considered strays or milling fish.

Chase Creek (RM 106.9) and Indian River (RM 138.6) lake systems were not surveyed in 1981 and 1982 in accordance with 1981 Phase I and 1982 Phase II project scopes. These areas will require investigation before sockeye salmon can be disassociated with stream systems in the RM 98.6 to 161.0 Susitna River reach.

4.2.2.2.4 Stock Separation

The sockeye salmon that migrated to Curry Station (RM 120) in 1982 may not be a discrete stock of fish but strays from the Talkeetna (RM 97.0) and Chulitna (RM 98.5) rivers in 1982. Based on a stock separation analysis, the sockeye salmon fry produced from spawning habitats upstream of Curry Station (RM 120) most likely die or rear in areas in the Susitna River basin below RM 98.5 (Bernard et al, 1983).

4.2.3 Pink Salmon

4.2.3.1 Estuary to Talkeetna

4.2.3.1.1 Main Channel Escapement

The Susitna River escapement of pink salmon was approximately 85,500 fish in 1981 and 890,500 fish in 1982 not including returns in both years to systems between RM 6 and 77, with the exception of the Yentna River (RM 28) (Table 2-4-1). These escapement estimates represent the combined number of pink salmon by respective year counted by sonar at Yentna Station (RM 04) and estimated by the Petersen method at Sunshine Station (RM 80).

The pink salmon escapement to the Yentna River (RM 28) in 1981 was approximately 36,100 fish and in 1982, 447,300 fish as determined by SSS counters. At Sunshine Station (RM 80) the escapement in 1981 was an estimated 49,500 fish and in 1982, 443,200 fish as determined by the Petersen method.

Fishwheels used for escapement sampling at Susitna Station (RM 26) intercepted 691 pink salmon in 1981 and 5,174 fish in 1982. The peak catches occurred on July 28 in 1981 and July 29 in 1982. Based on fishwheel catch rates the 1981 migration began on July 18, reached a midpoint on July 28 and ended on August 2. These dates for 1982 were July 23, July 28 and August 6.

At Yentna Station (RM 04) the total fishwheel catch of pink salmon was 2,729 fish in 1981 and 16,627 fish in 1982. The peak catches occurred on July 30 in 1981 and on July 29 in 1982. Fishwheel catch rates established that the 1981 migration began, reached a midpoint and ended on July 10, July 30 and August 24. In 1982 these dates were July 23, July 29 and August 7.

Sunshine Station (RM 80) fishwheels caught 7,099 and 47,671 pink salmon in the 1981 and 1982 seasons, respectively. The peak 1981 catch occurred on August 1 and in 1982 on August 3. The migration at Sunshine Station in 1981 began on July 26, reached a midpoint on August 1 and ended on August 14. In

1982 the migration began, reached a midpoint and ended on July 29, August 3 and August 10, respectively (Figure 2-4-4).

Based on fishwheel catches pink salmon at Susitna (RM 26) and Sunshine (RM 80) stations in 1981 and 1982 displayed a migrational preference to travel along the east bank of the Susitna River at these locations. In 1981 at Susitna Station the east bank fishwheel intercepted 57.5 percent of the pink salmon caught at this station and 59.8 percent in 1982. The Sunshine Station (RM 80) east bank fishwheels caught 91.3 percent in 1981 and 91.7 percent in 1982 of the station catch. At Yentna Station (RM 04) 54.5 percent in 1981 and 63.2 percent in 1982 of the station catch was made with the south bank fishwheel indicating a general preference by pink salmon for travelling along the south bank.

Pink salmon measured for length (FL) at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations averaged 4 mm to 49 mm larger in 1981 than in 1982. In 1981 the male and female pink salmon lengths at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations averaged 444 mm and 433 mm; 478 mm and 471 mm; and 445 mm and 449 mm, respectively. The same stations in 1982 averaged 432 mm and 412 mm; 433 mm and 422 mm; and 441 mm and 423 mm, respectively for male and female pink salmon lengths.

Sex composition sampling established that female pink salmon outnumbered male pink salmon in 1981 at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations by a 0.4:1, 0.8:1 and 0.8:1 male to female ratio, respectively. In 1982 the male to female ratios recorded at Susitna and Yentna stations, 1.0:1

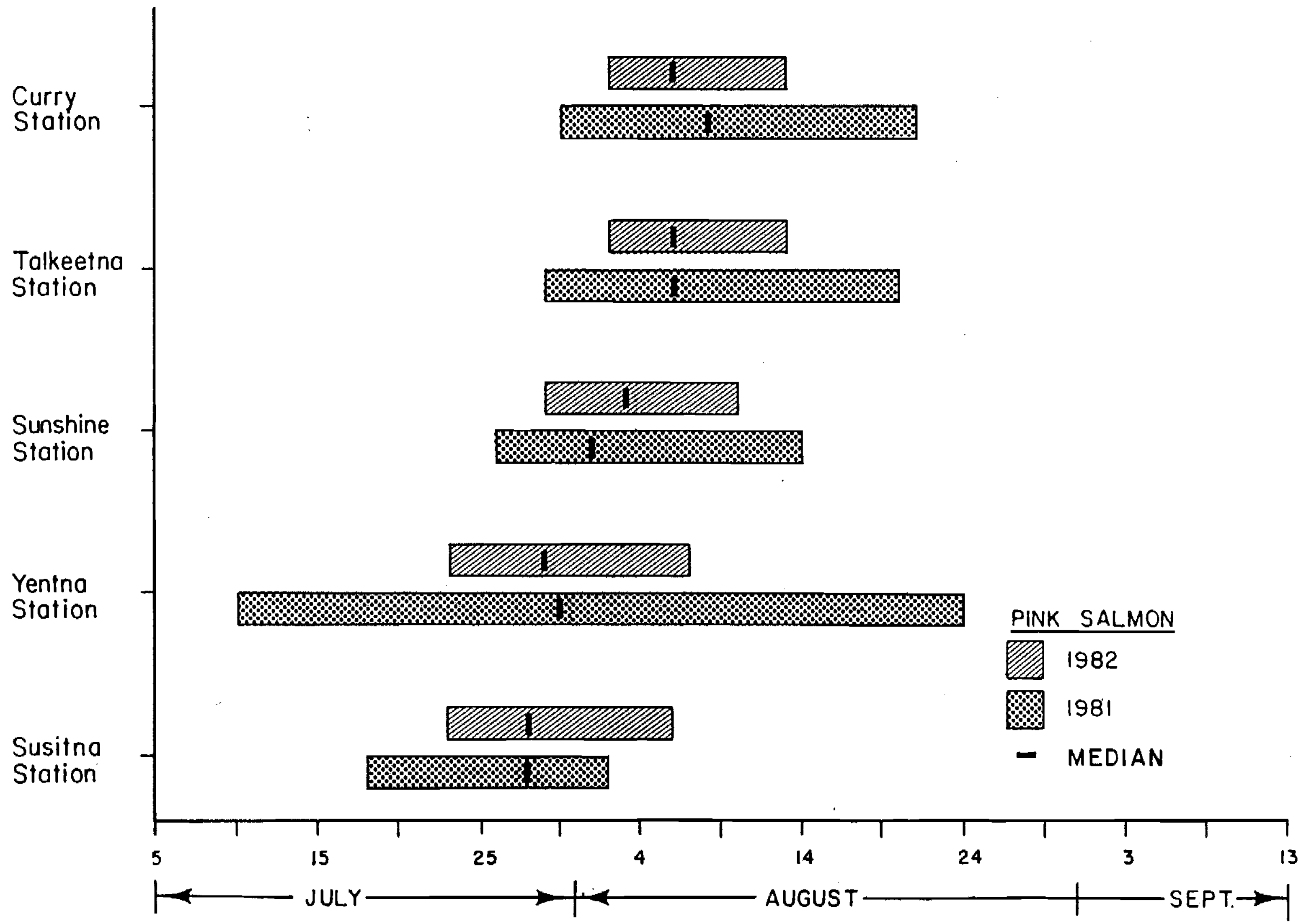

Figure 2-4-4. Migrational timing of pink salmon at selected sampling locations in the Susitna River basin in 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

and 1.0:1 respectively, showed that male and female pink salmon were equally abundant whereas at Sunshine Station the males outnumbered the females by a 1.8:1 ratio.

4.2.3.1.2 Main Channel Spawning

The Susitna River main channel between RM 7 and 98.5 was surveyed for pink salmon spawning from July 15 to October 7, 1981 and from August 1 to October 13, 1982. Surveys were conducted at 280 sites in 1981 and 811 sites in 1982. Both years of survey data indicate that pink salmon do not spawn in the Susitna River main channel between RM 7 and 98.5 as no spawning areas were found.

4.2.3.2 Talkeetna to Upper Devil Canyon

4.2.3.2.1 Main Channel Escapement

The 1982 escapements of pink salmon to Talkeetna (RM 103) and Curry (RM 120) stations exceeded the 1981 escapements. At Talkeetna Station in 1981 the escapement calculated by the Petersen method was approximately 2,300 pink salmon while in 1982 the escapement was estimated at 73,000 fish. At Curry Station the escapement was approximately 1,000 and 58,800 pink salmon in 1981 and 1982, respectively.

Based on fishwheel catch rates, the 1981 pink salmon migration at Talkeetna Station (RM 103) began, reached a midpoint and terminated on July 29, August 6 and August 20, respectively. In 1982 the migrational beginning, midpoint and end was on August 2, August 6 and August 13 respectively (Figure 2-4-4).

The peak fishwheel catches were on August 8 in 1981 and on August 6 in 1982. At Curry Station (RM 120) the 1981 pink salmon migration began, reached a midpoint and ended on July 30, August 8 and August 21, and in 1982 on August 2, August 6 and August 13, respectively. The peak fishwheel catches at Curry Station occurred on August 8 and August 5 respectively in 1981 and 1982.

Fishwheel catches at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 and 1982 indicate that pink salmon prefer to travel along the east side of the Susitna River at both locations. In 1981, 59.4 and 69.9 percent of the pink salmon were caught with east side fishwheels at Talkeetna and Curry stations, respectively. In 1982, these percentages were 55.6 and 51.8 by station order.

Based on tagged recaptures, pink salmon migrated between Sunshine (RM 80) and Curry (RM 120) stations at a slower rate in 1981 than in 1982. Between Sunshine Station and Talkeetna Station (RM 103), and between Talkeetna Station and Curry Station the average travel speed in 1981 was 2.6 mpd and 6.0 mpd, respectively. In 1982 the average speed between Sunshine and Talkeetna stations was 7.4 mpd and between Talkeetna and Curry stations 10.0 mpd. The faster migration rate exhibited in 1982 may be due in part to between year differences in water temperature and or water velocity (flow).

Pink salmon had larger average lengths (FL) in 1981 than in 1982 at both Talkeetna (RM 103) and Curry (RM 120) stations. Male and female pink salmon both averaged 434 mm in 1981 at Talkeetna Station and averaged 432 mm at Curry Station. In 1982 at Talkeetna Station males averaged 425 mm and the females 428 mm. And at Curry Station the males averaged 417 mm and the females 421 mm.

Sex composition sampling established that male pink salmon were more abundant than females in both 1981 and 1982 at Talkeetna Station (RM 103) by a 1.2:1 and 1.6:1 male to female ratio, respectively. In 1981 at Curry Station (RM 120) males were less numerous than females by a ratio of 0.8:1 while in 1982, males outnumbered females by a 1.5:1 ratio.

4.2.3.2.2 Lower Devil Canyon Milling

In 1981, gill nets were fished in lower Devil Canyon on July 29, August 5 and 26, September 2, 10 and 19, between RM 150.1 and 150.4. There were no pink salmon catches made on any of these dates. In 1982, the same gear was fished at RM 150.2 and 150.4 and one pink salmon was caught on August 10 and none were caught on August 16, 22 and 28 or September 12. Electroshocking gear was also used at RM 150.4 in 1982 on August 11, 18, September 5 and 23. Two pink salmon were caught on August 11 and one was caught on August 18. There were no pink salmon caught on September 5 or 23.

Catch results indicate that in 1981 pink salmon were not present in lower Devil Canyon from July 29 to September 19. In 1982, pink salmon were present only at relatively minimum levels between August 10 and 18.

4.2.3.2.3 Spawning

4.2.3.2.3.1 Main Channel

The Susitna River main channel between RM 98.5 and 150.0 was surveyed for pink salmon spawning from July 15 to October 15, 1981 and from August 1 to October 13, 1982. A total of 37 and 397 sites were examined in 1981 and

1982, respectively. Both years of survey data indicate that pink salmon do not spawn in the Susitna River main channel between RM 98.5 and 150.0 as no spawning habitat was found.

4.2.3.2.3.2 Sloughs and Streams

In 1981 and 1982, 33 and 34 sloughs, respectively between RM 98.6 and 161.0 were surveyed for salmon presence. Pink salmon were found in 3 of 33 (9.1%) sloughs surveyed in 1981 and 10 of 34 (29.4%) surveyed in 1982.

The total peak counts of live and dead pink salmon in slough habitats in 1982 was 28 fish and in 1982 507 fish. The fish were most abundant in sloughs 8 (89.3%) and A (7.1%) in 1981, and sloughs 15 (26.0%), 11 (25.8%), 20 (12.6%), 21 (12.6%), 6A (6.9%) and B (6.3%) in 1982. The peak of spawning occurred in the third and fourth weeks of August in 1981 and 1982.

Stream habitats were surveyed for the presence of salmon and pink salmon were found in 9 of the 15 streams (60.0%) surveyed in 1981 and 14 of the 19 (73.7%) in 1982. Peak survey counts of live and dead pink salmon in the stream index areas totalled 378 and 2,855 fish in 1981 and 1982, respectively. The pink salmon were most abundant in the index areas of Lane Creek (77.0%), Chase Creek (10.1%) and Fourth of July Creek (7.7%) in 1981, and Indian River (25.9%), Fourth of July Creek (24.6%), Lane Creek (22.4%) and Portage Creek (5.9%) in 1982.

The peak of spawning by pink salmon in stream habitats, including Lane Creek, occurred in the third and fourth weeks of August in 1981 and the second and third weeks of August in 1982 as determined by index counts (Figure 2-4-5).

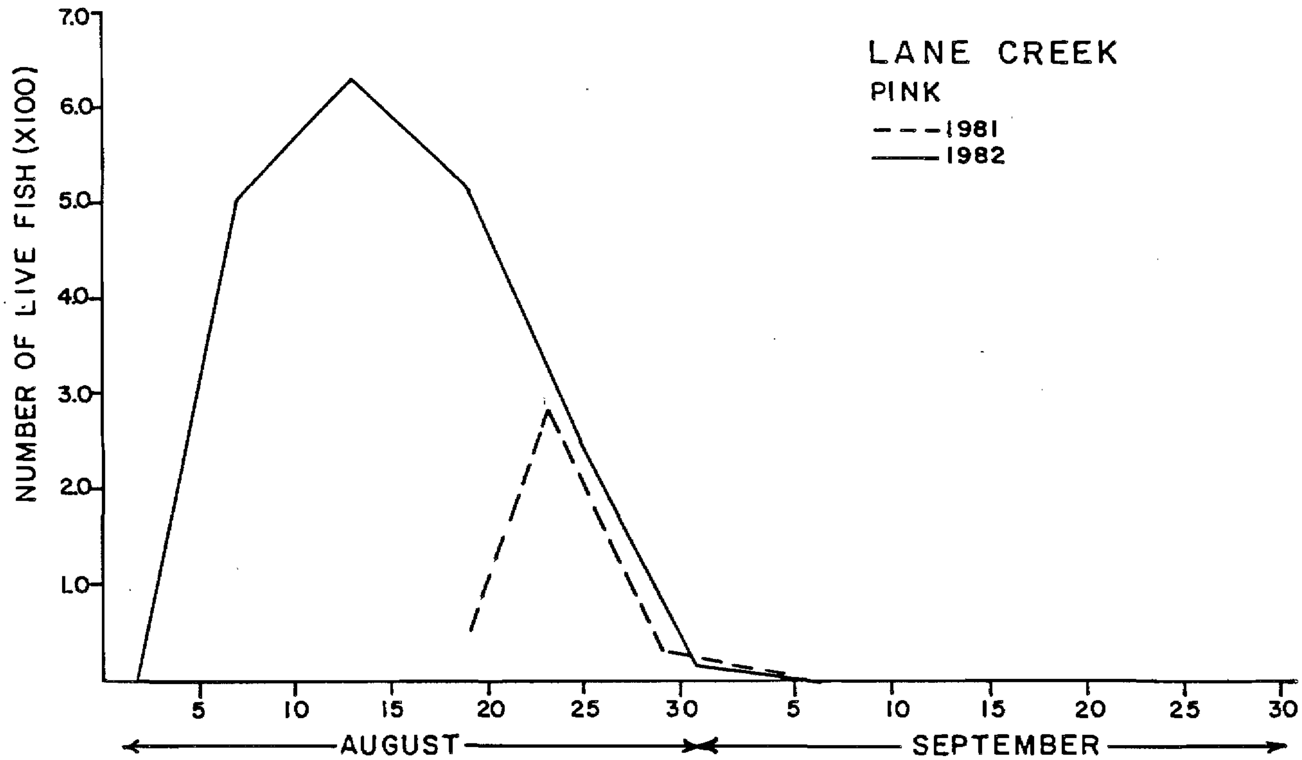

Figure 2-4-5. Pink salmon live counts by date in Lane Creek for 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

4.2.4 Chum Salmon

4.2.4.1 Estuary to Talkeetna

4.2.4.1.1 Main Channel Escapement

The Susitna River escapement of chum salmon was approximately 283,000 fish in 1981 and 458,000 fish in 1982, not including escapement returns in both years to systems between RM 6 and 77 with exception of the Yentna River (RM 28) (Table 2-4-1). These escapement estimates represent the combined number of chum salmon counted by sonar at Yentna Station (RM 04) and estimated by the Petersen method to Sunshine Station (RM 80) for each year (Table 2-4-2).

The Yentna River (RM 28) chum salmon escapement was approximately 19,800 fish in 1981 and 27,800 fish in 1982 as determined by SSS counters at Yentna Station (RM 04) (Table 2-4-2). The chum salmon escapement to Sunshine Station (RM 80) was estimated at 262,900 fish in 1981 and in 1982 at 430,400 fish by the Petersen method.

Fishwheels used for escapement sampling at Susitna Station (RM 26) intercepted 250 chum salmon in 1981 and 382 in 1982. The peak catches occurred on July 31 in 1981 and on August 3 in 1982. Based on catch rates the migration of chum salmon in 1981 began on July 10, reached a midpoint on July 31 and ended on August 24 at Susitna Station. In 1982 these dates were July 19, July 31 and August 10, respectively (Figure 2-4-6).

In the Yentna River (RM 28) at Yentna Station (RM 04) a total of 1,415 and 1,261 chum salmon were caught with fishwheels respectively in 1981 and 1982. The peak fishwheel catches occurred on July 23 in 1981 and on August 1 in 1982.

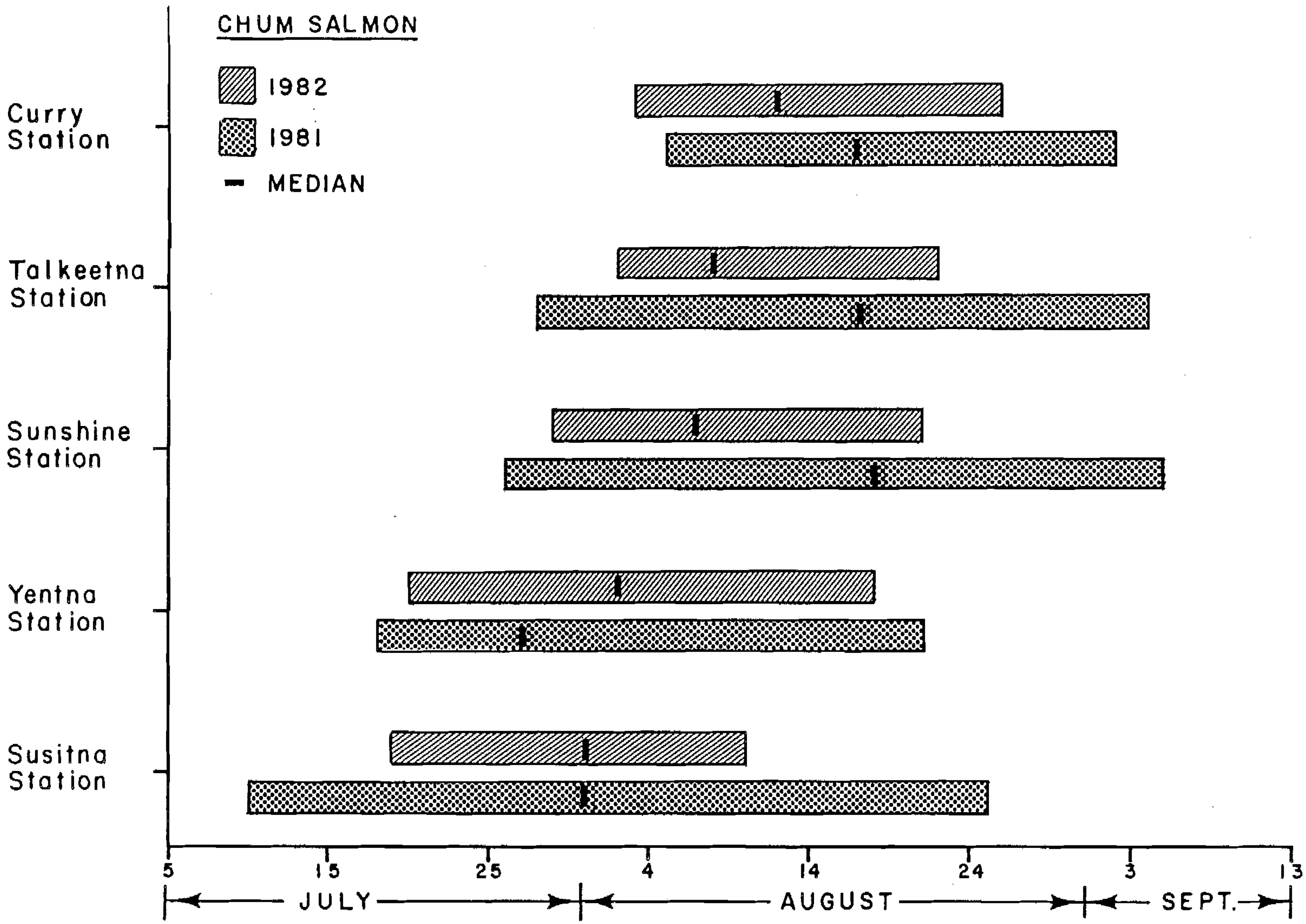

Figure 2-4-6. Migrational timing of chum salmon at selected sampling locations in the Susitna River basin in 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

As determined from fishwheel catches, the chum salmon migration in 1981 at Yentna Station began on July 18, reached a midpoint on July 27 and terminated on August 21. In 1982 the migration began on July 20, reached a midpoint on August 2 and ended August 18 (Figure 2-4-6).

Sunshine Station (RM 80) fishwheels intercepted a total of 9,168 chum salmon in 1981 and 36,335 in 1982. The peak catches were recorded on August 19 in 1981 and August 5 in 1982. Based on fishwheel catch rates the migration at Sunshine Station in 1981 began, reached a midpoint and ended on July 26, August 18 and September 5. The 1982 dates were July 29, August 7 and August 21 (Figure 2-4-6).

The majority (60.0%) of the chum salmon migrated past Susitna Station (RM 26) along the east bank in 1981 while in 1982 the majority (55.5%) migrated along the west bank, based upon fishwheel catches. In the Yentna River (RM 28) at Yentna Station (RM 04), 66.3 percent of the fish in 1981 and 70.8 percent in 1982 migrated off the north bank. And at Sunshine Station (RM 80) 90.8 percent in 1981 and 96.7 percent in 1982 of the chum salmon migrated along the east side of the river as indicated by fishwheel catches.

Three age classes (3_1, 4_1 and 5_1) of chum salmon were sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in both 1981 and 1982. The majority of the fish aged in both years were age 4_1 fish. At Susitna, Yentna and Sunshine stations in 1981 the percent composition of age class 4_1 fish were 88.6, 84.1 and 88.7 percents; and in 1982, 84.4, 90.3 and 91.1, respectively.

Chum salmon lengths (FL) generally averaged less in 1981 at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations than in 1982. At Susitna Station in 1981, chum salmon ranged in length from 500 mm to 658 mm; age 4_1 males averaged 593 mm and females 581 mm. In 1982, lengths ranged from 458 mm to 682 mm with age 4_1 males averaging 602 mm and females, 594 mm. In 1981 at Yentna Station lengths ranged from 436 mm to 697 mm; age 4_1 males averaged 601 mm and females 585 mm. Lengths ranged from 398 mm to 696 mm in 1982 with age 4_1 males averaging 604 mm and females 591 mm. In 1981 at Sunshine Station lengths ranged from 455 mm to 718 mm with age 4_1 males averaging 624 mm and females 588 mm. Lengths in 1982 ranged from 440 mm to 715 mm with age 4_1 males averaging 614 mm and females 600 mm.

Sex composition analysis established that chum salmon males were generally less numerous than females at Susitna (RM 26), Yentna (RM 26) and Sunshine (RM 80) stations. Male to female ratios were 0.6:1, 1.0:1 and 0.8:1, respectively. In 1982 the male to female ratio at Susitna Station was 0.6:1, at Yentna Station 1.3:1 and at Sunshine Station 1.0:1.

4.2.3.1.2 Main Channel Spawning

The Susitna River main channel from RM 7 to 98.5 was surveyed for chum salmon spawning from July 15 to October 7, 1981 and from August 1 to October 13, 1982. A total of 280 and 811 sites were examined in 1981 and 1982, respectively.

Six chum salmon spawning sites between RM 7 and 98.5 were located in 1981. The locations were at RM 68.3, 76.6, 83.3, 92.2, 96.8 and 97.0. The earliest recorded spawning was September 5 at RM 83.3 and the latest recorded spawning was October 9 at RM 92.2 in 1981.

All main channel chum salmon spawning sites located in 1981 were examined in 1982. The results indicated that chum salmon did not use these or any other main channel areas from RM 7 to 98.5 for spawning in 1982.

4.2.4.2 Talkeetna to Upper Devil Canyon

4.2.4.2.1 Main Channel Escapement

The 1981 and 1982 estimated chum salmon escapements to Talkeetna Station (RM 103) were 20,800 and 49,100 fish, respectively (Table 2-4-2). Both estimates were calculated by the Petersen method. At Curry Station (RM 120) the chum salmon escapement was estimated, by the Petersen method, in 1981 at 13,100 fish and in 1982, 29,400 fish.

Fishwheels were operated at Talkeetna Station (RM 103) in 1981 and 1982 for escapement sampling. A total of 1,285 and 2,942 chum salmon were caught respectively at this station in 1981 and 1982. The fishwheel peak catches occurred on August 7 in both years. An evaluation of catches established that the 1981 migration of chum salmon at Talkeetna Station began July 28, reached a midpoint on August 17 and ended on September 4. The respective dates in 1982 were August 2, August 8 and August 22 (Figure 2-4-6).

Curry Station (RM 120) fishwheels intercepted 1,276 and 1,736 chum salmon respectively in 1981 and 1982. The peak catches occurred on August 6 in 1981 and on August 9 in 1982. Based on fishwheel catches, the chum salmon migration in 1981 began, reached a midpoint and terminated on August 5, August 17 and September 2. In 1982 the respective dates were August 3, August 12 and August 26 (Figure 2-4-6).

Chum salmon were more abundant on the west side of the river than on the east side at Talkeetna Station (RM 103) in both 1981 and 1982. The west bank fishwheels caught 51.3 percent and 58.4 percent of the Talkeetna Station catches in 1981 and 1982, respectively. At Curry Station (RM 120) the majority of the chum salmon migrated on the east side of the river. In 1981 and 1982, 89.6 percent and 77.5 percent of the respective year catch was made with the east bank fishwheel at RM 120.

Chum salmon took more time to migrate between Sunshine (RM 80) and Talkeetna (RM 103) stations and between Talkeetna and Curry (RM 120) stations in 1981 than in 1982. Chum salmon spent an average 4.5 days travelling the 23 miles between Sunshine and Talkeetna stations in 1981 and 3.1 days in 1982. Between Talkeetna and Curry, the average travel time was 4.5 days in 1981 and 2.6 days in 1982. The average migration time spent travelling between Sunshine and Curry stations (40 miles) in 1981 was not determined due to an insufficient number of recaptures. In 1982, a sufficient number of recaptures were made to determine the average travel time for chum salmon to be 6.4 days between Sunshine and Curry stations.

Three age classes of chum salmon were represented in both the 1981 and 1982 chum salmon escapements sampled at Talkeetna (RM 103) and Curry (RM 120) stations. The majority of the fish were age 4_1 representing 85.2 percent in 1981 and 87.1 percent in 1982 of the Talkeetna Station escapement sample, and

84.0 percent in 1981 and 85.8 percent in 1982 of the Curry Station escapement sample. The remainder of the fish were in age classes 3_1 and 5_1.

The average length (FL) of chum salmon was smaller in 1981 than in 1982 among the fish sampled at Talkeetna (RM 103) and Curry (RM 120) stations. The age 4_1 males averaged 586 mm in 1981 at Talkeetna Station and 610 mm in 1982. The females, age 4_1, averaged 578 mm and 601 mm in 1981 and 1982, respectively. At Curry Station males averaged 593 mm in 1981 and 603 mm in 1982; females averaged 614 mm and 596 mm respectively.

Male chum salmon were more abundant than female chum salmon in both 1981 and 1982 at Talkeetna (RM 103) and Curry (RM 120) stations. The male to female ratio was 1.3:1 at Talkeetna Station and 1.1:1 at Curry Station in 1981. In 1982, the ratios were 1.9:1 and 1.1:1, respectively.

4.2.4.2.2 Radio Telemetry

Four chum salmon were radio tagged at Talkeetna Station (RM 103) in 1981 and ten were tagged there in 1982.

One of the four radio tagged fish released at Talkeetna Station (RM 103) in 1981 and six of the ten fish released in 1982 spawned below Talkeetna Station mainly in the Talkeetna River (RM 97.0). These findings indicated that a major percentage of the chum salmon reaching RM 103 were not destined to upstream spawning areas but were fish milling above their spawning areas. No common milling or holding areas, however, were identified in the Susitna River mainstem among the radio tagged fish released at RM 103 in either year.

Seven chum salmon were tagged at Curry Station (RM 120) in 1981 and eight were tagged at the station in 1982. Six of the radio tagged fish in 1981 and five of the fish released in 1982 migrated to upstream spawning destinations. The remainder, one fish in 1981 and 3 fish in 1982, descended the Susitna River and presumably spawned in systems below Talkeetna Station (RM 103) including an unnamed slough at RM 98.5 and the Talkeetna River (RM 97.0).

The numbers of radio tagged chum salmon that spawned below Talkeetna (RM 103) and Curry (RM 120) stations indicated a greater degree of milling activity among chum salmon migrating to Talkeetna Station than to Curry Station in both 1981 and 1982.

Chum salmon migration speeds recorded in years 1981 and 1982 indicate that radio tagged chum salmon migrated upstream faster in 1982 than in 1981. For example, in 1982 a Talkeetna Station (RM 103) tagged fish was monitored moving at 29.8 mpd and a Curry Station (RM 120) fish was recorded travelling at 17.3 mpd. Comparatively, the fastest recorded speed of a Talkeetna and Curry station tagged chum salmon in 1981 was 16.4 mpd and 12.0 mpd, respectively. The between year differences in travel speed were probably related to main channel flow differences.

In 1982, two chum salmon were radio tagged in lower Devil Canyon at RM 150.4. Both fish moved downstream from the release site within four days and entered Portage Creek (RM 148.9). These fish later departed Portage Creek and re-entered the Susitna River mainstem and continued a downstream movement. One fish entered and presumably spawned in Indian River (RM 138.6) and the second fish descended to RM 92.0 where radio contact was lost. The milling behavior demonstrated by the movements of these two fish was considered typical. From 1981 and 1982 radio tracking observations of fish released at Talkeetna and Curry stations, chum salmon commonly exhibit such migrational movements before spawning.

4.2.4.2.3 Lower Devil Canyon Milling

In 1981, gill nets were fished 30.2 hours in lower Devil Canyon (RM 150-151) between July 29 and September 19. The total catch was two chum salmon. These were caught on July 29. There were no catches made on August 5 and 26, September 2, 10 or 19. In 1982, 25 chum salmon were caught between August 10 and September 12 in 19.6 net hours. Ten fish were caught August 16, and 15 fish on August 22. No catches were made on August 10 and 28 or September 12 in 1982. Electroshocking was also conducted in lower Devil Canyon in 1982. The effort produced five chum salmon on August 11, and 12 fish on August 18. No chum salmon were caught by electroshocking on September 5 or 23.

Based on 1981 and 1982 set net and 1982 electroshocking catches, chum salmon occupy lower Devil Canyon, particularly during the last three weeks of August.

None of the 11 radio tagged fish released at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 nor any of the 18 fish released at these locations in 1982 entered lower Devil Canyon (RM 150-151) (Section 4.2.4.2.2). In 1982 two chum salmon caught in gill nets in lower Devil Canyon were released with radio tags. The results are reported in section 4.2.4.2.2.

4.2.4.2.4 Spawning

4.2.4.2.4.1 Main Channel

A total of 37 and 397 main channel Susitna River sites were surveyed for chum salmon spawning in 1981 and 1982, respectively. These sites were distributed from RM 98.5 to 150. The surveys were conducted from July 15 to October 15 in 1981 and from August 7 to October 7 in 1982.

Four main channel chum salmon spawning sites were located in 1981. The locations were at RM 129.2, 130.5, 131.1 and 135.2 where 2, 3, 3 and 6 chum salmon respectively were observed spawning between September 6 and 8.

In 1982 main channel surveys identified nine chum salmon spawning sites. These sites were located at RM 114.4, 128.6, 129.8, 131.3, 136.0, 137.4, 138.9, 143.3 and 148.2. Chum salmon spawning activity was observed at all sites between September 2 and 12.

4.2.4.2.4.2 Sloughs and Streams

Chum salmon escapement surveys were conducted in 33 sloughs in 1981 and with the addition of the newly identified Slough B (RM 126.3) 34 sloughs were surveyed in 1982. Chum salmon were observed in 20 of 33 sloughs (60.6%) surveyed in 1981 and 17 of 34 (50.0%) in 1982.

Peak survey counts of live and dead chum salmon indicate that the escapement to slough habitats was slightly higher in 1981 than in 1982. The 1981 peak count totalled 2,567 and in 1982, 2,244 fish. In 1981 chum salmon were most abundant in sloughs 8A (24.2%), 11 (15.0%), 8 (11.8%), 21 (10.7%) and 9 (10.1%). And in 1982 sloughs 21 (32.8%), 11 (20.5%), 8A (15.0%) and 9 (13.4%) supported the majority of the fish.

Not all sloughs used by chum salmon in 1981 were used in 1982. Chum salmon were observed in sloughs 1, 2, 8, A[1], A, 13, 16, 19 and 21A in 1981 but not in 1982. Conversely, chum salmon were observed in sloughs 8D, 8C, 8B and 10 in 1982 but not in 1981. Chum salmon were also observed in the newly located Slough B in 1982.

Slough survey results indicated peak chum salmon spawning in sloughs occurred during the last week of August and the first week of September in 1981 and 1982 (Figures 2-4-7 and 2-4-8).

Chum salmon were observed in 8 of the 15 streams (53.3%) surveyed in 1981 and 8 of the 19 streams (42.1%) surveyed in 1982. Peak spawning counts in 1981 established that chum salmon were most abundant in Fourth of July Creek (RM 131.0), Lane Creek (RM 113.6) and Indian River (RM 138.6) where the respective index counts were 90, 76 and 40 fish. In 1982 chum salmon were most abundant in Indian River, Fourth of July Creek and Portage Creek (RM 148.9) where 1,346, 191 and 153 fish, respectively were counted.

Based on stream surveys the peak of chum salmon spawning occurred from the second week of August to the second week of September in 1981 and during the last week of August and the first week of September in 1982.

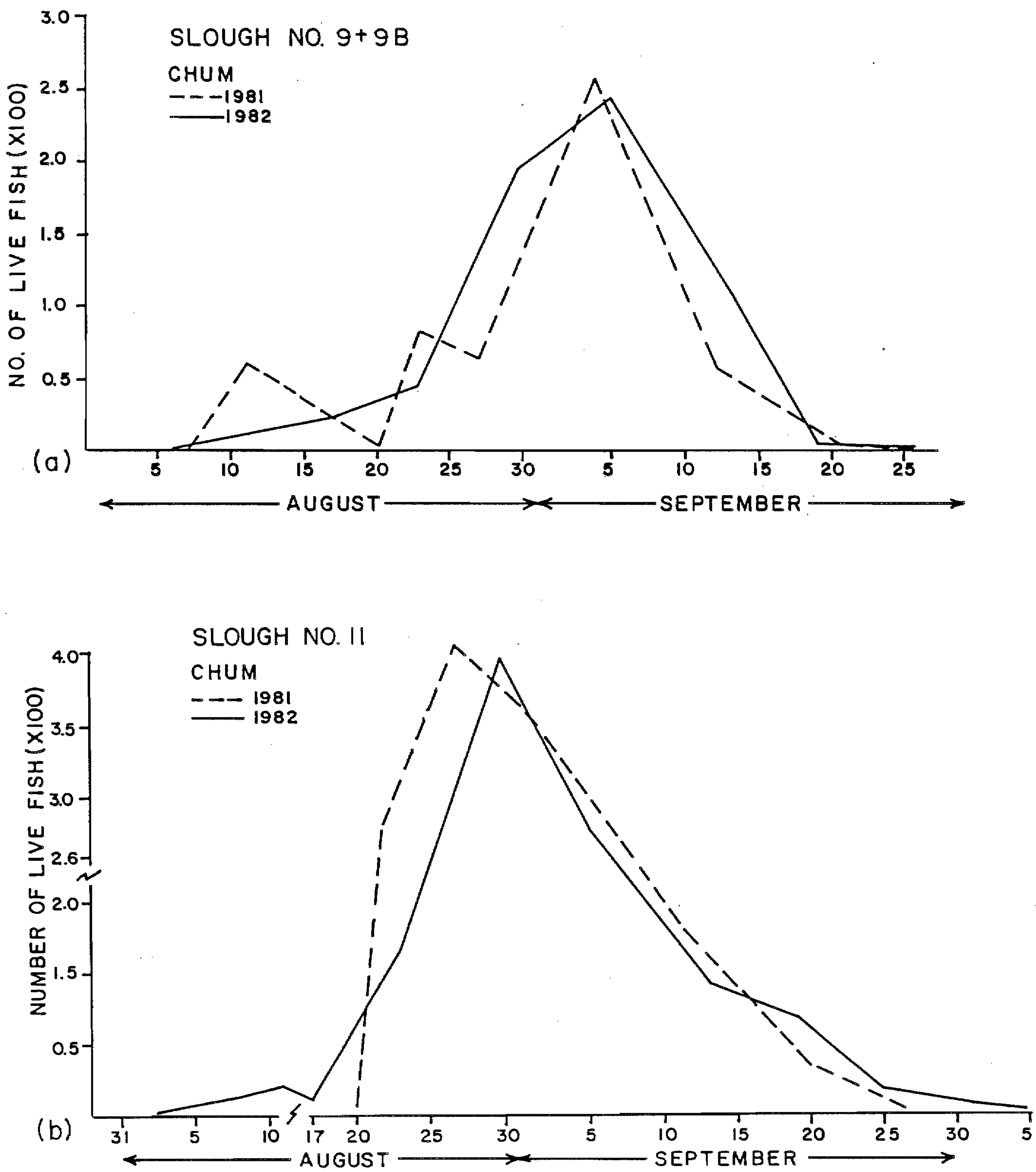

Figure 2-4-7. Chum salmon live counts by date in (a) Slough No. 9+9B and (b) Slough No. 11 for 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

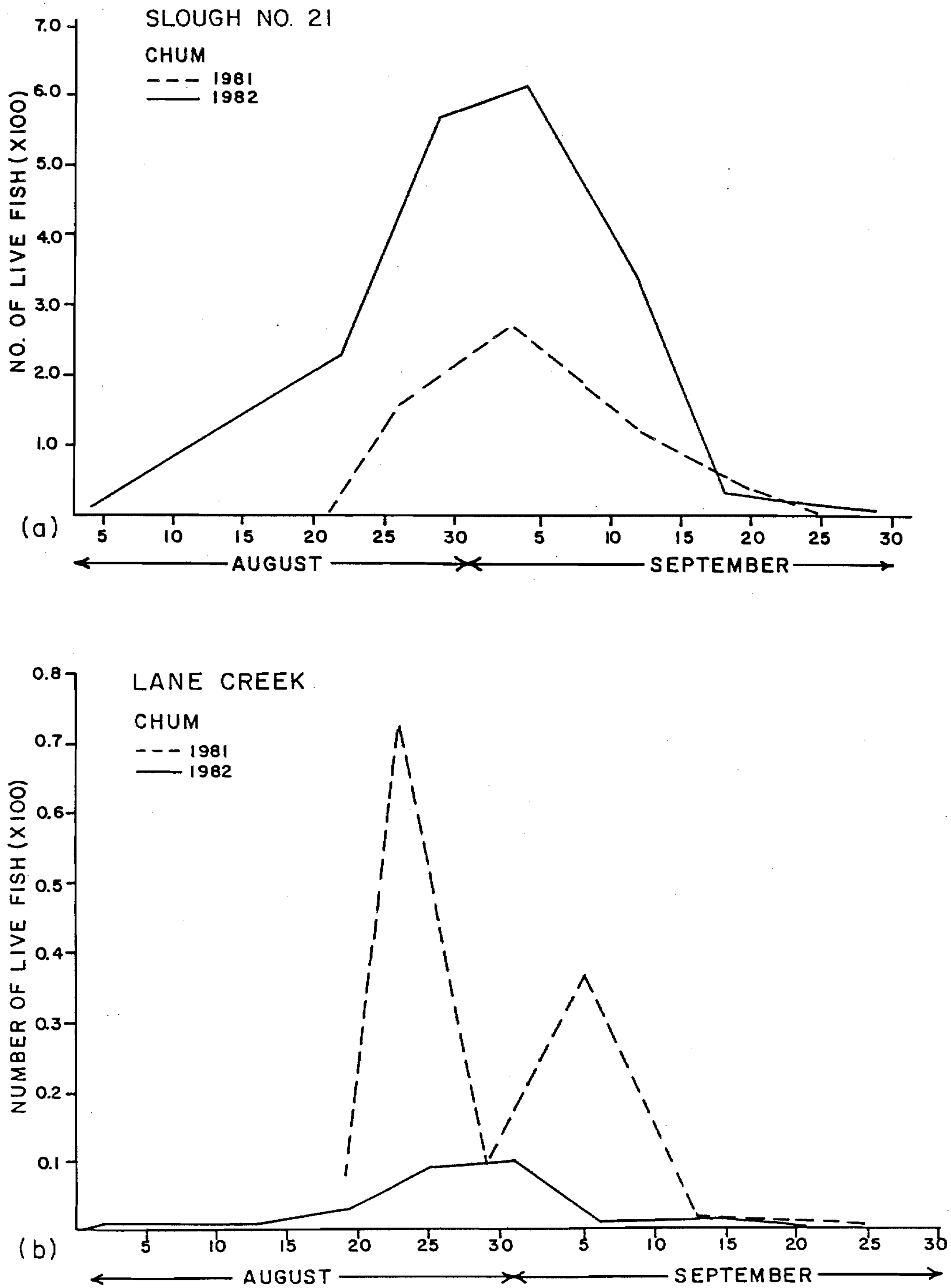

Figure 2-4-8. Chum salmon live counts by date in (a) Slough No. 21 and (b) Lane Creek for 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

The 1982 peak survey count of live and dead chum salmon for all sloughs totalled 2,244 fish. This was 334 chum salmon less than the 1,910 fish recorded in 1981. However, the 1982 chum salmon escapement to Talkeetna Station (RM 103) was approximately 2.4 times greater than in 1981 (Section 4.2.4.2.1). An explanation for difference in chum salmon escapement and slough utilization may be the large increase of chum salmon observed in streams in 1982. In 1981 the peak index count for all streams totalled 245 chum salmon and in 1982 this total was 1,748, approximately 7.2 times greater than in 1981.

4.2.5 Coho Salmon

4.2.5.1 Estuary to Talkeetna

4.2.5.1.1 Main Channel Escapement

Susitna River and Yentna River coho salmon stocks were monitored at three sampling locations in 1981 and 1982: Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations.

Susitna Station (RM 26) SSS counts in 1981 and 1982 were considered index counts and were not used in total escapement computations per report Section 2.4.3.

Yentna Station (RM 04) SSS counters recorded an escapement of 17,000 coho salmon into the Yentna River in 1981, approximately 2.0 times less than the 34,100 fish counted in 1982.

The Sunshine Station (RM 80) escapement in 1981, calculated by the Petersen method, was 19,800 coho salmon with a 95 percent confidence interval of

18,100 to 22,000 fish. The 1982 escapement was estimated at 45,700 coho salmon with a 95 percent confidence interval of 41,900 to 50,300 fish.

The Susitna River coho salmon escapement was an estimated 37,000 fish in 1981 and 80,000 fish in 1982, not including escapement returns between RM 6 and 77 excluding the Yentna River (RM 28) in both years. These estimates represent the total number of coho salmon by respective year counted by sonar at Yentna Station (RM 04) and estimated by the Petersen method to Sunshine Station (RM 80) (Table 2-4-1).

In 1981 fishwheels operated for escapement sampling at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations caught respectively 329, 1,122 and 2,928 coho salmon. In 1982 470, 1,203 and 8,227 coho salmon were caught at the respective stations.

Fishwheel interceptions at Susitna Station (RM 26) identified the coho salmon migration onset, midpoint and end to be on July 23, July 28 and August 9 in 1981 and on July 19, July 21 and August 9 in 1982. Coho salmon migrating past Susitna Station exhibited a strong west bank preference evidenced by 76.3 percent and 72.5 percent of the catch occurring in west bank fishwheels in 1981 and 1982, respectively.

Yentna Station (RM 04) fishwheel catches indicated that the coho salmon migration in 1981 and 1982 began on July 22 and July 20, reached a midpoint on July 31 and August 2 and ended on August 17 and August 24, respectively.

The coho salmon migration was predominately (75.7%) along the south bank in 1981 and near equally distributed in 1982 with 56.1 percent moving along the south bank and 43.9 percent along the north bank.

Based on fishwheel captures at Sunshine Station (RM 80) the coho salmon migration start, midpoint and endpoint in 1981 was on August 1, August 20 and August 28, respectively while the corresponding dates in 1982 was on August 3, August 12 and August 23. The 1981 coho salmon migration past Sunshine Station showed little bank preference with 51.6 and 48.4 percents migrating along the east and west bank, respectively. However, in 1982 a definite east bank preference occurred as indicated by 89.0 percent of the catch recorded with east bank fishwheels.

Combined fishwheel catch data, indicated that coho salmon were generally abundant in the river reach between RM 26 to 80 from July 23 to August 28 in 1981 and from July 19 to August 23 in 1982 (Figure 2-4-9).

The average coho salmon migration rate between Susitna Station (RM 26) and Yentna Station (RM 04) on the Yentna River (RM 28) in 1981 was 3.0 mpd, one half the 1982 rate of 6.0 mpd. The 54 miles between Susitna and Sunshine (RM 80) stations were travelled at the same rate, 3.9 mpd in both 1981 and 1982.

Age class composition data indicated that a majority of the coho salmon sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in both 1981 and 1982 were age 3_2 and 4_3 fish. In 1981 age class 3_2 fish comprised 22.0 percent at Susitna Station, 16.1 percent at Yentna Station and 31.8 percent of the escapement sample at Sunshine Station. In 1982 these percentages were 33.8, 31.8 and 49.3 respectively. Age 4_3 coho salmon in

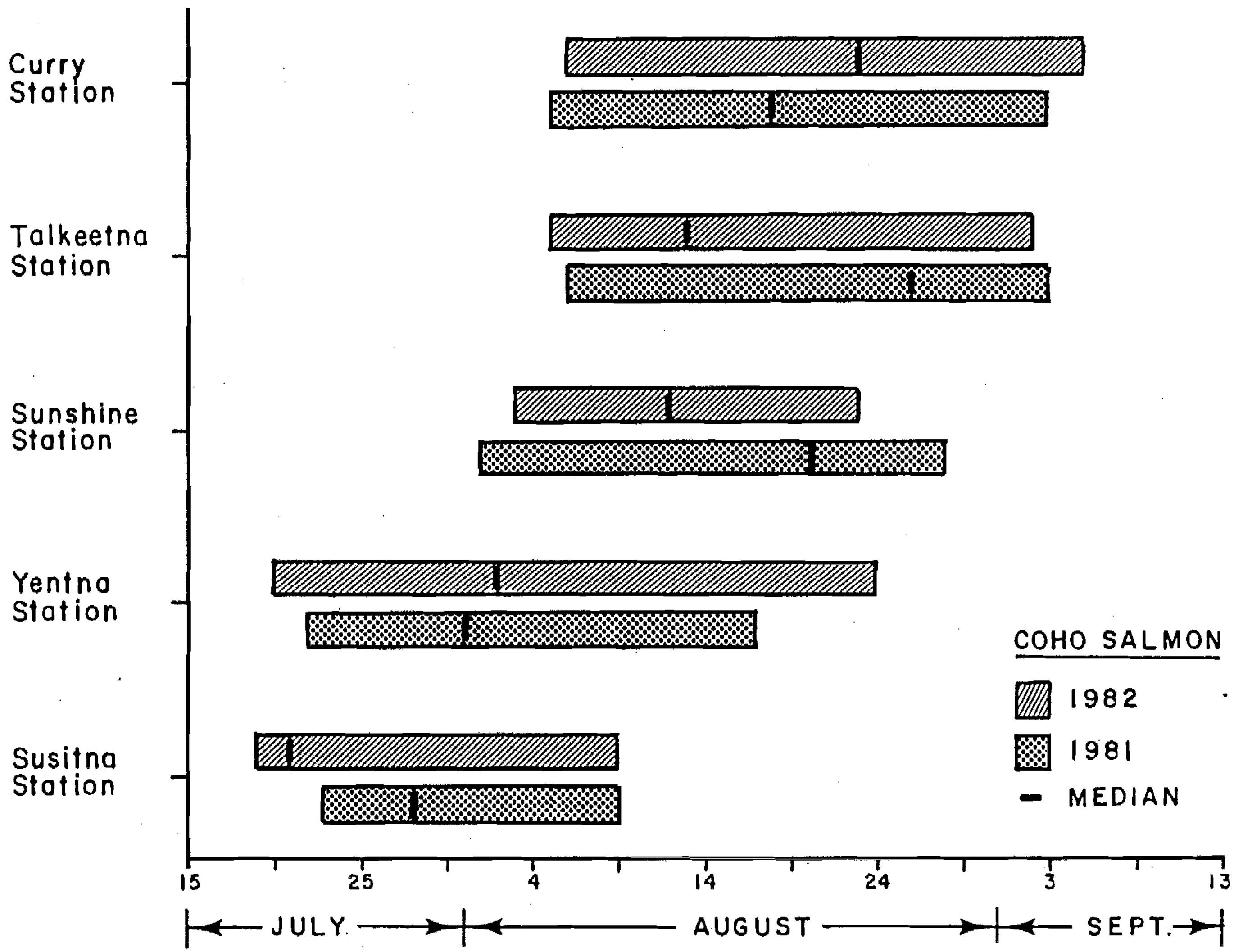

Figure 2-4-9. Migrational timing of coho salmon at selected sampling locations in the Susitna River basin in 1981 and 1982, Adult Anadromous Investigations, Su Hydro Studies, 1982.

1981 represented 68.8 percent at Susitna Station, 82.9 percent at Yentna Station and 65.1 percent of the escapement sample at Sunshine Station. In 1982 the percentages were 64.6, 66.8 and 50.1, respectively.

Less than 10 percent of the coho salmon escapements at Susitna, Yentna and Sunshine stations were comprised of other age class fish.

Scale analysis of the coho salmon escapement sampled at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1981 indicated that 22.0, 16.1 and 31.8 percents of the adult fish respectively had, as fry, migrated to sea after rearing one winter in freshwater. In the above station order, 33.8, 31,8 and 49.3 percent outmigrated after one winter and 64.6, 66.8 and 50.1 percent after two winters in 1982.

Analysis of length (FL) data indicated that the coho salmon were larger in 1982 than in 1981. Age 4_3 fish, the dominate age class, averaged in 1981 males 519 mm and females 530 mm at Susitna Station (RM 26). In 1982, the average length was 561 mm and 544 mm respectively. At Yentna Station (RM 04) the male and female age 4_3 fish averaged, in 1981, respectively 541 mm and 540 mm; in 1982 the males averaged 549 mm and the females 544 mm. The age 4_3 males and females sampled at Sunshine Station (RM 80) in 1981 averaged 541 mm and 542 mm respectively while in 1982 the males averaged 564 mm and the females 551 mm. Larger lengths also exhibited for other age class coho salmon in 1982 suggests that the ocean rearing environment in 1981 was more favorable than in 1980 with a greater growth rate for these coho salmon returning to spawn in 1982.

Sex composition data indicated that females were generally more abundant than males at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1981 than in 1982. The 1981 male to female ratios were 0.8:1, 0.9:1 and 1.2:1, respectively. In 1982, the corresponding ratios were 0.6:1, 2.4:1 and 1.4:1.

4.2.5.1.2 Main Channel Spawning

The Susitna River main channel from RM 7 to 98.5 was surveyed for coho spawning at 280 and 811 sites respectively in 1981 and 1982. These sites were surveyed between July 15 and October 7 in 1981 and between August 1 and October 13 in 1982. Coho salmon catches and observations indicated that main channel spawning did not occur between RM 7 and 98.5 in 1981 or 1982.

4.2.5.2 Talkeetna to Upper Devil Canyon

4.2.5.2.1 Main Channel Escapement

The coho salmon escapement to Talkeetna Station (RM 103) was an estimated 3,300 fish in 1981 and 5,100 fish in 1982 (Table 2-4-2). At Curry Station (RM 120) the 1981 escapement was approximately 1,100 coho salmon and in 1982, 2,400 coho salmon. These estimates were calculated by the Petersen method.

The coho salmon migration at Talkeetna Station (RM 103) occurred earlier in 1982 than in 1981 as determined by fishwheel catches. The 1981 migration began on August 4, reached a midpoint on August 26 and ended on September 3. In 1982, these dates were August 5, August 13 and September 2.

Fishwheel catch data established the migration timing of coho salmon at Curry Station. In 1981 the migration started on August 6, reached a midpoint on August 23 and ended on September 5. These dates in 1982 were August 5, August 18 and September 2.

The migrational preference by coho salmon in 1981 and 1982 was for movement along the west bank at Talkeetna Station (RM 103) and based on a 60 percent average catch for both years with the west bank fishwheel. Bank preference could not be established at Curry Station with the highest percentage of fishwheel catches occurring with the east bank fishwheel (64.8%) in 1981 and the west bank fishwheel (53.3%) in 1982.

The average coho salmon travel rate between Sunshine (RM 80) and Talkeetna (RM 103) stations increased from 4.0 mpd in 1981 to 5.3 mpd in 1982. The 17 mile distance between Talkeetna and Curry (RM 120) stations was travelled by coho salmon at an average rate of 10.0 miles per day (mpd) in 1982. In 1981 the same distance was travelled in an average of 1.5 days for a mean speed of 11.3 mpd.

Age analysis of the escapement sampled at Talkeetna Station (RM 103) indicated the percent contribution of age 3_2 coho salmon increased from 11.6 percent in 1981 to 59.0 percent in 1982. Age 4_3 fish comprised 84.8 percent of those sampled in 1981 and 41.0 percent in 1982.

Curry Station (RM 120) coho salmon age analysis revealed the percent contribution of age 3_2 fish increased from 27.3 percent in 1981 to 54.0 percent in 1982. Age 4_3 coho salmon totalled 68.8 percent of those sampled in 1981 and 46.0 percent in 1982.

Coho salmon scale analysis of the escapement sampled at Talkeetna Station (RM 103) in 1981 indicated that 12.8 percent and 85.4 percent respectively of the adults had smolted after rearing one and two winters in freshwater. In 1982 these percentages were 59.0 and 41.0, respectively.

Curry Station (RM 120) coho salmon age analysis indicated that in 1981 27.3 percent and 68.8 percent of the escapement sampled had smolted after rearing one and two winters respectively in freshwater. In 1982 the percentages were 54.0 and 46.0, respectively.

Length (FL) analysis of coho salmon from Talkeetna (RM 103) and Curry (RM 120) station indicated that in all age classes the fish were larger in 1982 than in 1981. At Talkeetna Station in 1981 the age 3_2 males and females averaged respectively 484 mm and 510 mm; in 1982 these average lengths for age 3_2 males and females were 546 mm and 555 mm. The age 4_3 fish at Talkeetna Station in 1981 averaged males 534 mm and females 538 mm; and in 1982 the males averaged 562 mm and females 554 mm. At Curry Station in 1981 the age 3_2 fish averaged males 484 mm and females 492 mm; in 1982 males averaged 501 mm and females 534 mm. The age 4_3 fish at Curry Station in 1981 averaged 519 mm males and 541 females; in 1982 the males averaged 544 mm and females 558 mm.

Male coho salmon were more abundant than females at Talkeetna (RM 103) and Curry (RM 120) stations in both 1981 and 1982. The male to female ratio in 1981 was 1.5:1 at Talkeetna Station and 1.9:1 at Curry Station. In 1982 the ratios were 1.5:1 and 1.3:1, respectively.

4.2.5.2.2 Radio Telemetry

In 1981 and 1982 the majority of radio tagged coho salmon released at Talkeetna Station (RM 103) were fish that were milling as evident by 3 of 6 fish released there in 1981 and 10 of 11 fish in 1982 that descended to spawning areas downstream of Talkeetna Station including Birch Creek (RM 88.4), Talkeetna River (97.0), Chulitna River (RM 98.5), and Whiskers Creek (RM 101.3). The remaining fish, 3 of 6 in 1981 and 1 of 11 1982, spawned above Talkeetna Station in tributaries including Gash Creek (RM 111.6) Fourth of July Creek (RM 131.1) and Indian River (RM 138.6).

In 1981, spawning destinations were not determined on all radio tagged coho salmon released at Curry Station (RM 120). Evidence was that at least three of the four fish tagged at Curry Station in 1981 spawned in tributaries below Curry Station, primarily in Gash Creek (RM 111.6). Eighty percent of the five fish sample released at the station in 1982 spawned above Curry Station in tributaries including Portage Creek (RM 148.9) and Indian River (RM 138.6). The one remaining coho salmon entered the Talkeetna River (97.0) and presumably spawned in that drainage.

In 1981 and 1982, the most common habitats used by radio tagged coho salmon that milled in the Susitna River main channel were semi-placid areas and tributary confluences including slough habitats such as Wiggle Slough (RM 98.0), Slough 5 (RM 107.6), Slough 6A (RM 112.3), Slough 11 (RM 135.3) and Slough 15 (RM 137.2).

None of the radio tagged coho salmon released at Talkeetna (RM 103) and Curry (RM 120) stations in 1981 (14 fish) or 1982 (16 fish) entered lower Devil Canyon (RM 150-151) based on radio tracking observations.

4.2.5.2.3 Lower Devil Canyon Milling

In 1981, gill nets were fished a of 30.2 hours in lower Devil Canyon (RM 150-150) from July 29 through September 9. A total of two coho salmon were caught. One fish was caught on August 26 and the second fish on September 2. No coho salmon were caught on July 29, August 5, September 2, 10 or 19. In 1982, 19.6 net hours were fished in in lower Devil Canyon from August 10 through September 12. The effort produced three coho salmon. The three fish were caught on August 28. No catches were made on August 10, 16 and 22 or September 12. Electroshocking was also conducted in lower Devil Canyon on August 8, 18, September 5 and 23, 1982. Only one coho salmon was caught. The catch occurred on September 5.

The test fishing results in 1981 and 1982 indicated that coho salmon generally occupy lower Devil Canyon (RM 150-151) in the last week of August and the first week of September.

4.2.5.2.4. Spawning

4.2.5.2.4.1 Main Channel

The Susitna River main channel was surveyed for coho salmon spawning from July 15 to October 15 in 1981 and from August 7 to October 7 in 1982. A total of 37 sites were monitored in 1981 and 397 were surveyed in 1982.

In 1981 two main channel coho salmon spawning sites were reported. The sites were at RM 117.6 and RM 129.2.

In 1982 no main channel spawning sites were identified. Spawning was observed at RM 117.6, a site defined in 1981 as a main channel spawning habitat. The site was misclassified in 1981. The area, although used for coho salmon spawning, is within the influence of Little Portage Creek and therefore it is not a true main channel Susitna River habitat any more than known spawning areas below the mouth of Fourth of July Creek (RM 131.0) or Indian River (RM 138.6).

4.2.5.2.4.2 Sloughs and Streams

A total of 33 and 34 sloughs were surveyed for coho salmon respectively in 1981 and 1982. Survey results indicated that adult coho salmon did not occupy slough habitats in 1981. In 1982, coho salmon were observed in three of the 34 (8.8%) sloughs surveyed. These were sloughs: 6A (RM 112.3), 8A (RM 125.1) and 15 (RM 137.2).

In 1982, coho salmon spawning was recorded only in Slough 8A (RM 125.1). Coho salmon observed in sloughs 6A (RM 112.3) and 15 (RM 136.2) were milling fish and did not spawn in these sloughs. Peak spawning in slough 8A occurred between the fourth week of September and the first week of October.

Stream surveys found coho salmon occupying 8 of the 15 streams (53.3%) surveyed in 1981 and 12 of the 19 streams (63.2%) surveyed in 1982. In 1981 coho salmon were observed in Whiskers Creek (RM 101.4), Chase Creek (RM 106.9), Gash Creek (RM 111.6), Lane Creek (RM 113.6), Lower McKenzie Creek

(RM 116.2), Fourth of July Creek (RM 131.0), Indian River (RM 138.6) and Portage Creek (RM 148.9). In addition to the above streams, coho salmon were observed in Slash Creek (RM 111.2), Little Portage Creek (RM 117.7), Gold Creek (RM 136.7) and Jack Long Creek (RM 144.5) in 1982.

Peak spawning counts of live and dead coho salmon for streams habitats totalled 458 and 633 fish in 1981 and 1982, respectively. Based on percent contribution, coho salmon were most abundant in Gash Creek (30.8%), Indian River (18.6%), Chase Creek (17.5%), Whiskers Creek (15.3%) and Lower McKenzie Creek (12.2%) in 1981, and Whiskers Creek (27.8%), Lower McKenzie Creek (21.0%), Indian River (16.0%), Portage Creek (13.9%) and Gash Creek (11.5%) in 1982. Survey counts were index counts and did not reflect the total number of spawning coho salmon present in the streams surveyed.

Survey results indicated the peak coho salmon spawning occurred in stream habitats during the second and third weeks of September in 1981. In 1982 the peak coho salmon spawning occurred between the second week of September and the first week of October.

4.3 Bering Cisco

4.3.1 Estuary to Talkeetna

4.3.1.1 Main Channel Escapement

Bering cisco were originally documented in the Susitna River basin by ADF&G Su Hydro staff in 1981. Discovery of this species in late August allowed escapement sampling only at Sunshine Station (RM 80) in 1981, however, in 1982 escapement sampling was conducted at Susitna (RM 26), Yentna (RM 04) and Sunshine stations.

Susitna Station (RM 26) fishwheels intercepted a total of 42 Bering cisco in 1982. The migration essentially began August 7. Migration midpoint and termination were not determined as fishwheels were removed for winter storage prior to their occurrence. A Bering cisco movement preference along the east bank was evident with 76.2 percent and 23.8 percent of the catches distributed in east and west bank fishwheels, respectively. The 1981 whitefish catch were recorded only to the taxonomic level of Family and therefore Bering cisco catch data were not available.

Yentna Station (RM 04) fishwheels captured four Bering cisco in 1982. It is probable that these captures represented milling activity and not spawning migration. Again, 1981 fishwheel whitefish catches were recorded only to the taxonomic level of Family.

Sunshine Station (RM 80) fishwheels intercepted 165 and 392 Bering cisco in 1982 and 1981, respectively. The entire catch was made with east bank fishwheels in both years. The Bering cisco migration began at Sunshine Station on September 4 in 1982 and on September 8 in 1981 as determined by fishwheel catches. The peak fishwheel catches occurred on September 21 and September 27 in 1981 and 1982, respectively. In 1981 and 1982 the Bering cisco migration extended beyond October 1; the last day of fishwheel operations at Sunshine Station.

The Bering cisco relative abundance using Sunshine Station (RM 80) fishwheel catches as an index, was approximately 2.4 times greater in 1981 than 1982.

Bering cisco scale samples collected from fishwheel catches at Susitna (RM 26), Yentna (RM 04), and Sunshine (RM 80) stations in 1982 were analyzed collectively and the 1981 age composition was derived from only Sunshine Station fishwheel catches. In 1982 Bering cisco age class composition segregated to 62.0 percentage age 5_1, 34.0 percentage 4_1 and 4.0 percent age 6_1 fish. Observations during scale analysis suggested the occasional presence of a developing annulus on the scale's outer margin. This partially developed outer annulus was considered to represent the beginning of the current winters growth. Based on these findings 1981 Bering cisco ages were redetermined and the results presented in Table 2-4-3. This analysis of 1981 scales revealed that 74.4 percent were age 5_1, 16.5 percent age 4_1 and 9.1 percent age 6_1 fish.

Table 2-4-3. Analysis of Bering cisco age data by percent from escapement samples collected at all sampling locations in 1981, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Year	Collection Site	Sample Size	Age Class 1/ 4_1	5_1	6_1	Brood Year 1976	1977	1978	1979
1981	All locations	121	16.5	74.4	9.1	9.1	74.4	16.5	--
1982	All locations	100	34.0	62.0	4.0	--	4.0	62.0	34.0

1/ Gilbert-Rich Notation

Fishwheel caught Bering cisco were measured for length (TL) at Susitna (RM 26), Yentna (RM 04) and Sunshine (RM 80) stations in 1982 and Sunshine Station in 1981. Lengths, non-segregated by age class or sex averaged 335.3 mm and 337.6 mm, in 1982 and 1981, respectively. Age 4_1 and 5_1 Bering cisco had mean lengths of 318.9 mm and 342.3 mm in 1982 and 304.9 mm and 337.5 mm in 1981. Age 6_1 Bering cisco mean lengths remained constant at 365.0 mm for both years.

The Bering cisco male to female (m:f) sex ratio remained relatively stable for the two year period 1.0:1 and 1.4:1 in 1981 and 1982, respectively.

4.3.1.2 Main Channel Spawning

Main channel surveys for Bering cisco extended from RM 7.0 to 98.5 in 1981 and 1982. These surveys resulted in the identification of five spawning and probable spawning areas. Three Bering cisco spawning areas were documented in 1981. They were located at RM 75, RM 76-77.5 and RM 78-79. Main channel surveys in 1982 established two probable Bering cisco spawning sites; one located at RM 76.8-77.6; and the other located at RM 81.2. The 1982 main channel survey observations also indicated that small concentrations of Bering cisco spawned throughout the RM 75-85.2 reach although not in numbers required to be called, by definition as discrete spawning sites.

Peak spawning occurred during the second week of October in 1981 as substantiated by 100 percent of the females examined between October 13 and October 16 being completely spawned out. Peak spawning in 1982 also occurred during essentially the same time period. On October 13, 66.7 percent, 26.7 percent and 6.6 percent of the females were ripe, spawned out and not ripe, respectively.

ADF&G, Su Hydro staff tagged 713 Bering cisco in 1981. A 1982 main channel survey crew recovered one tagged Bering cisco at RM 31.1 on September 13.

Records indicated this Bering cisco had been tagged on October 5 at RM 77, a documented spawning area. A discussion of the significance of this recapture, as being a potential repeat spawner, is presented in report Section 3.3.1.2.

4.3.2 Talkeetna to Upper Devil Canyon

4.2.3.1 Main Channel Escapement

In 1982 Talkeetna Station (RM 103) fishwheels intercepted a single Bering cisco on September 13. The 1981 fishwheel catch of whitefish were recorded to the taxonomic level of Family and no Bering cisco catch data were available.

Curry Station (RM 120) fishwheels did not intercept any Bering cisco in 1982. Fishwheel catches of whitefish were recorded to the taxonomic level of Family in 1981 and no Bering cisco catch data were available.

4.3.2.2 Main Channel Spawning

A total of 37 and 421 Susitna River main channel sites were examined for Bering cisco spawning in 1981 and 1982, respectively. The sites were surveyed between July 15 and October 16 in 1981 and August 1 and October 13 in 1982.

No Bering cisco spawning was observed between RM 98.5 and 150 in 1981 or 1982. A single Bering cisco catch at RM 101.9 on October 1 in 1982 and captures of one Bering cisco at RM 99.6 and 100.5 in 1981 were the only catches recorded in the Susitna River main channel, RM 98.5 to 150.0 in both years.

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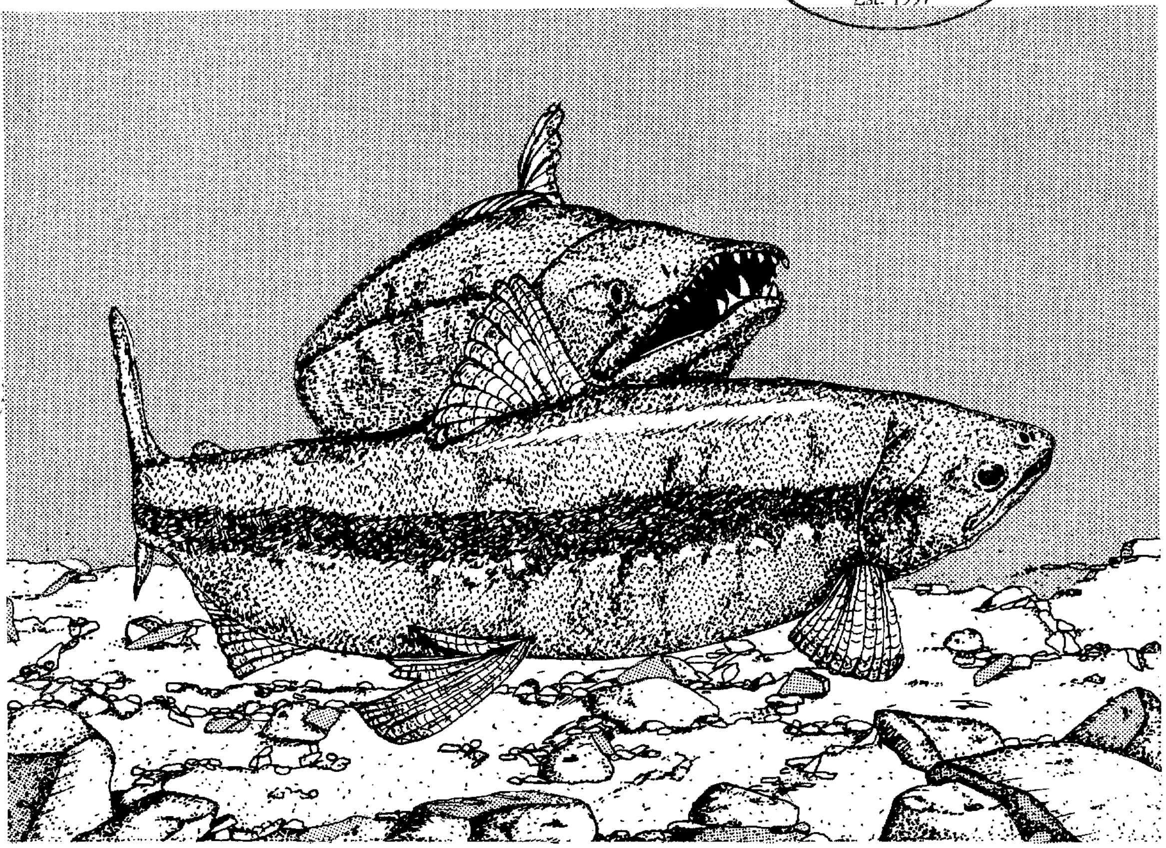

ALASKA
DEPARTMENT OF FISH AND GAME

SUSITNA HYDRO AQUATIC STUDIES
PHASE II FINAL REPORT

Volume 2. Adult Anadromous
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PART B: APPENDICES A-H

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SUSITNA AND YENTNA RIVERS
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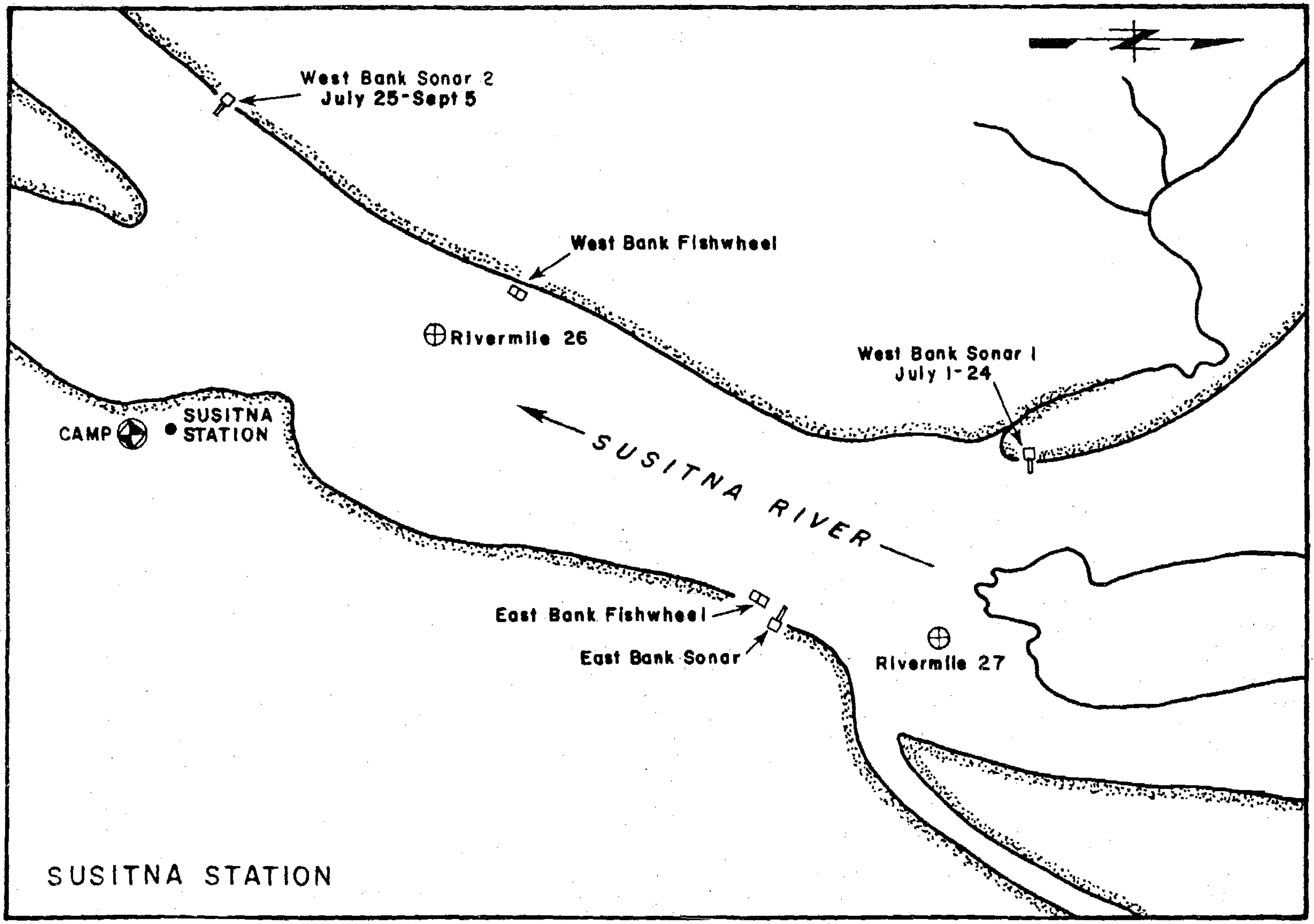
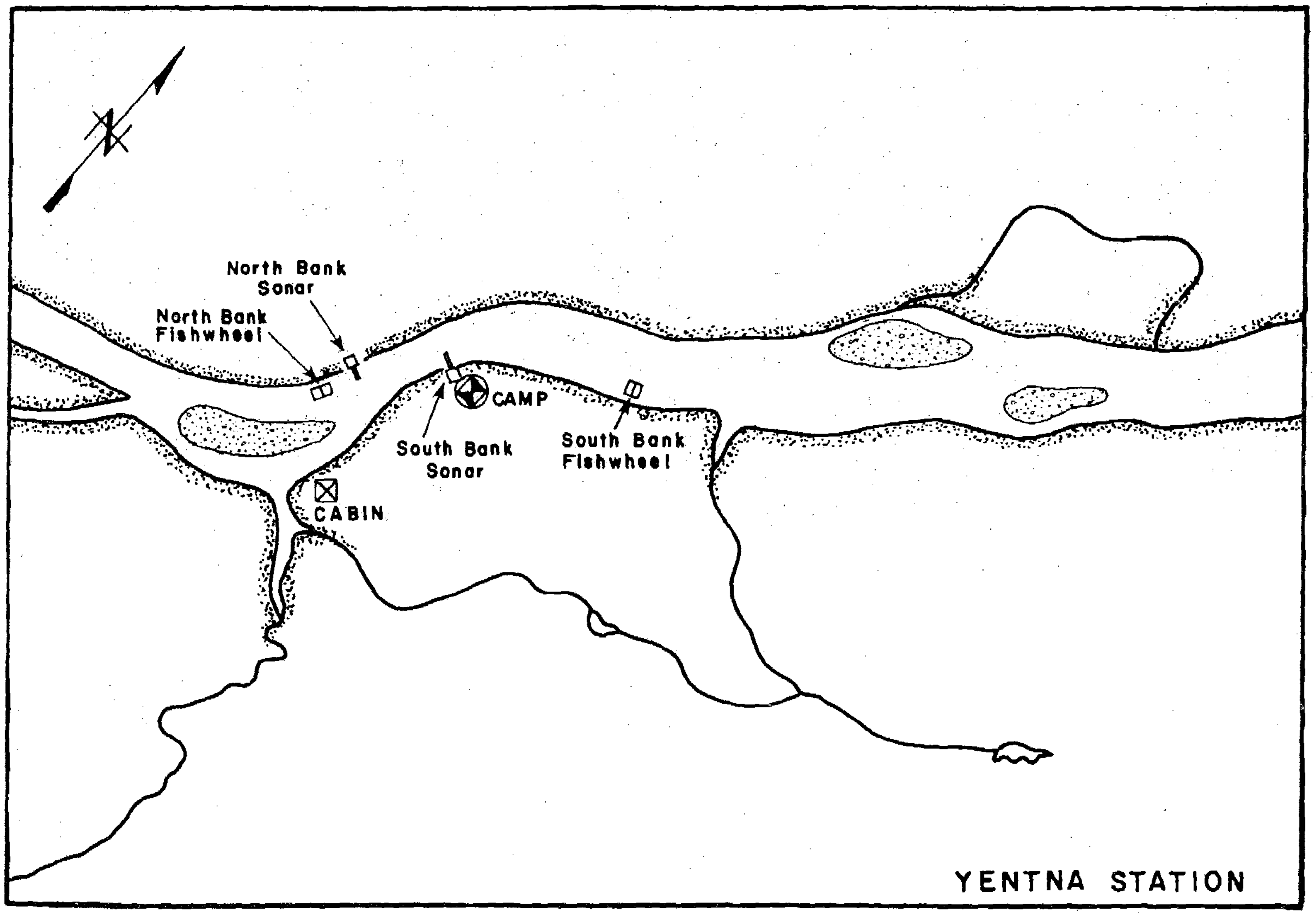
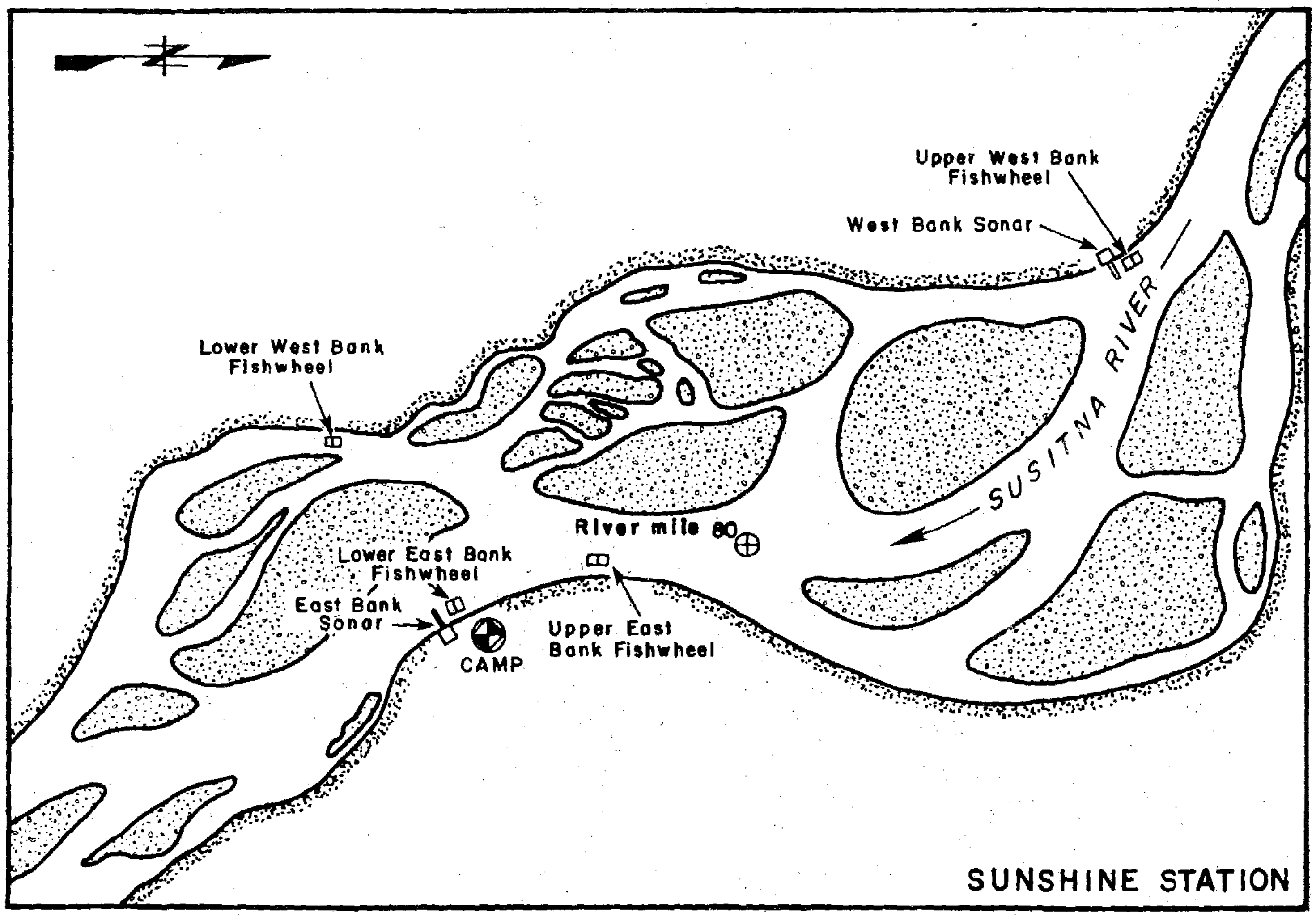


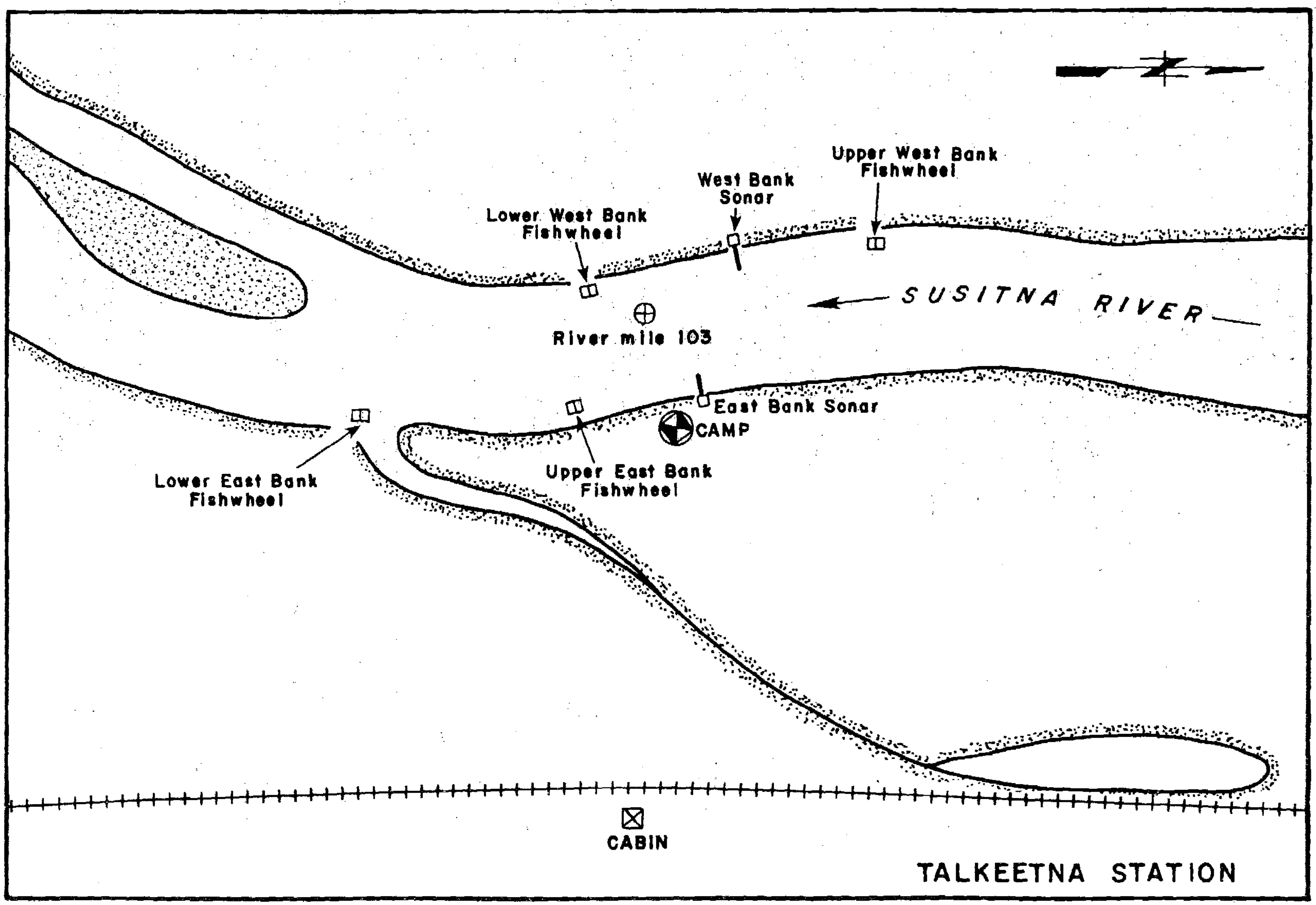
Appendix Figure 2-A-1. Susitna Station with sonar and fishwheel locations defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.



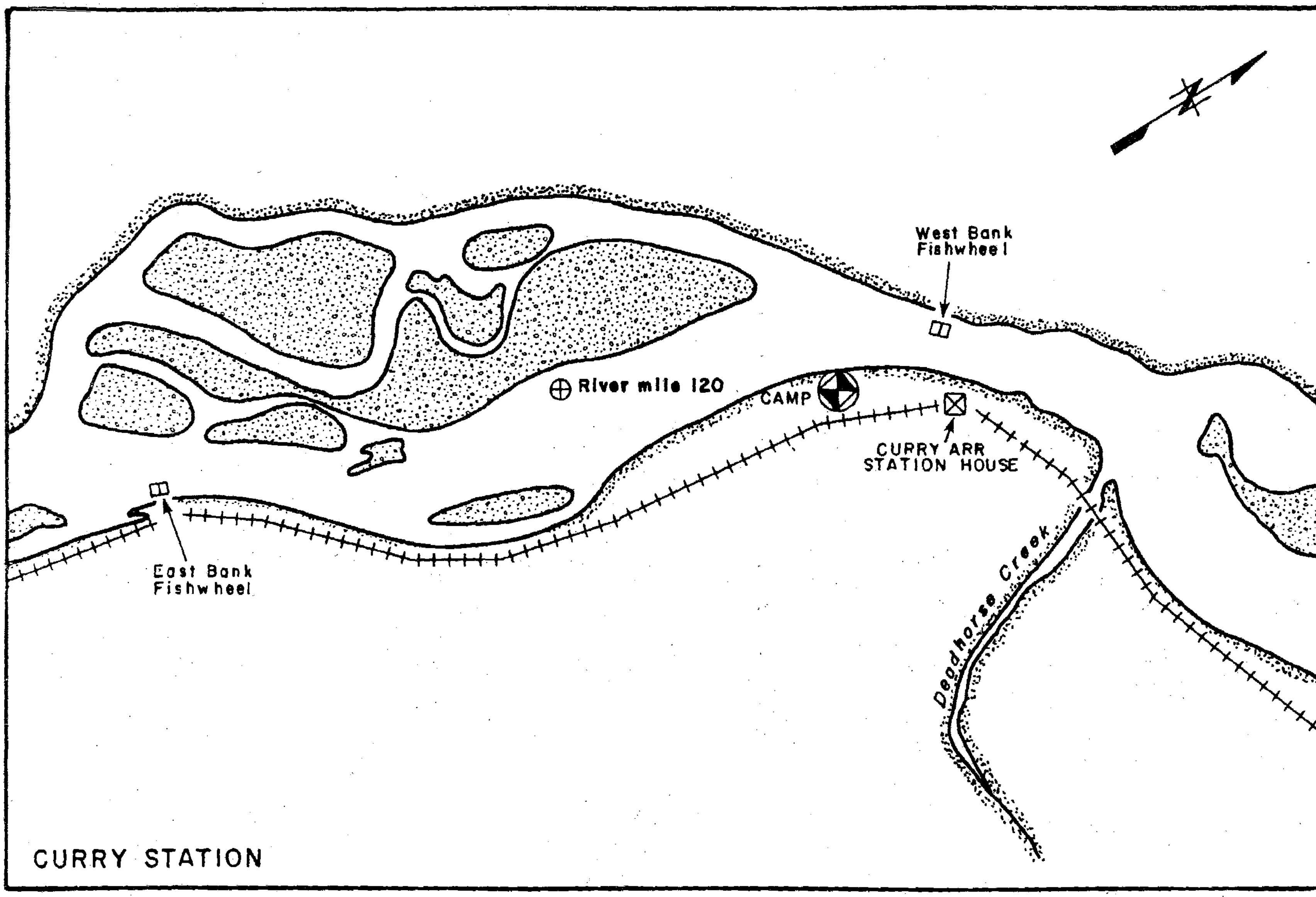
Appendix Figure 2-A-2. Yentna Station with sonar and fishwheel locations defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-A-3. Sunshine Station with sonar and fishwheel locations defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-A-4. Talkeetna Station with sonar and fishwheel locations defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.

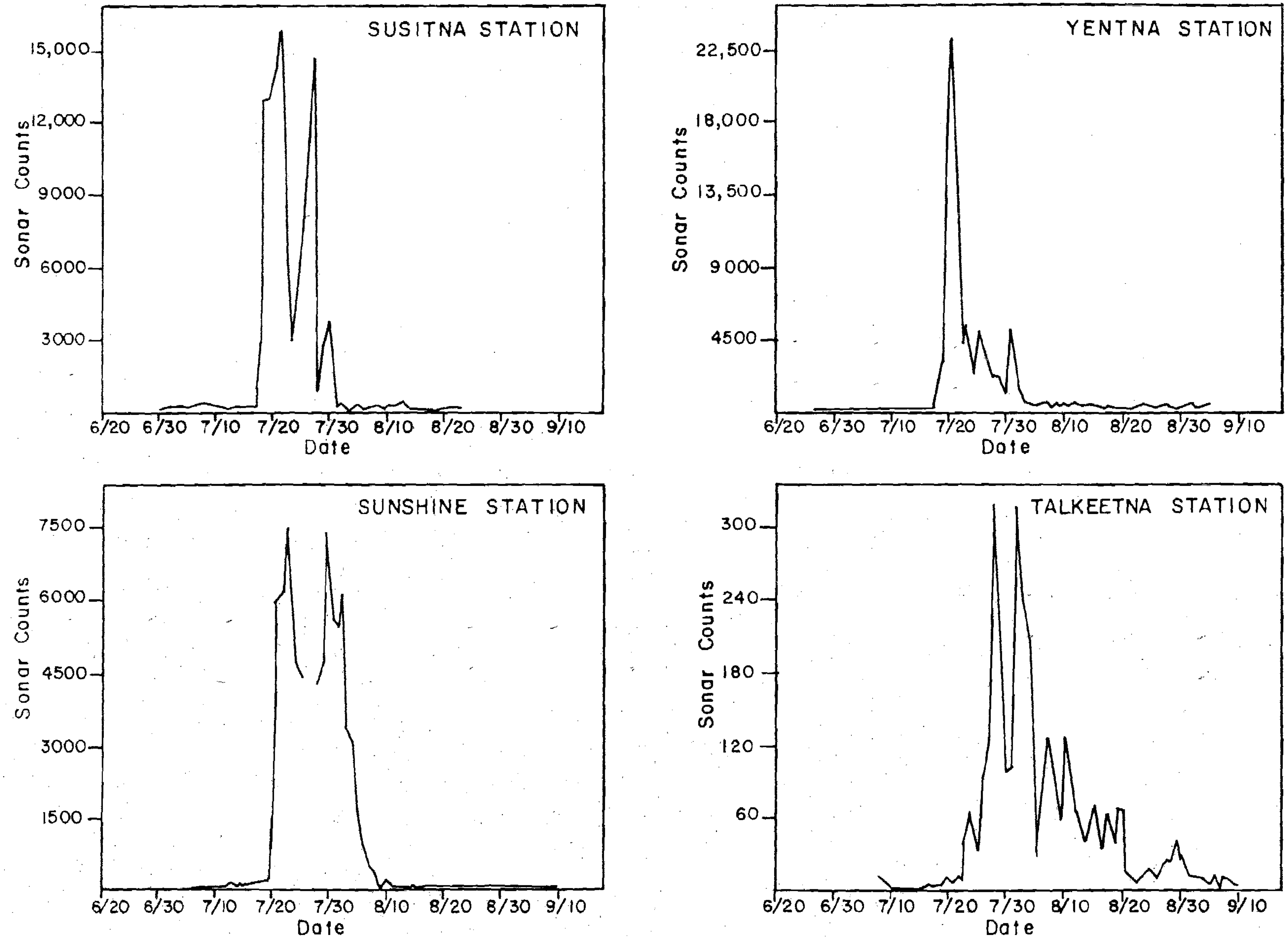


Appendix Figure 2-A-5. Curry Station with fishwheel locations defined, Adult Anadromous Investigations, Su Hydro Studies, 1982.

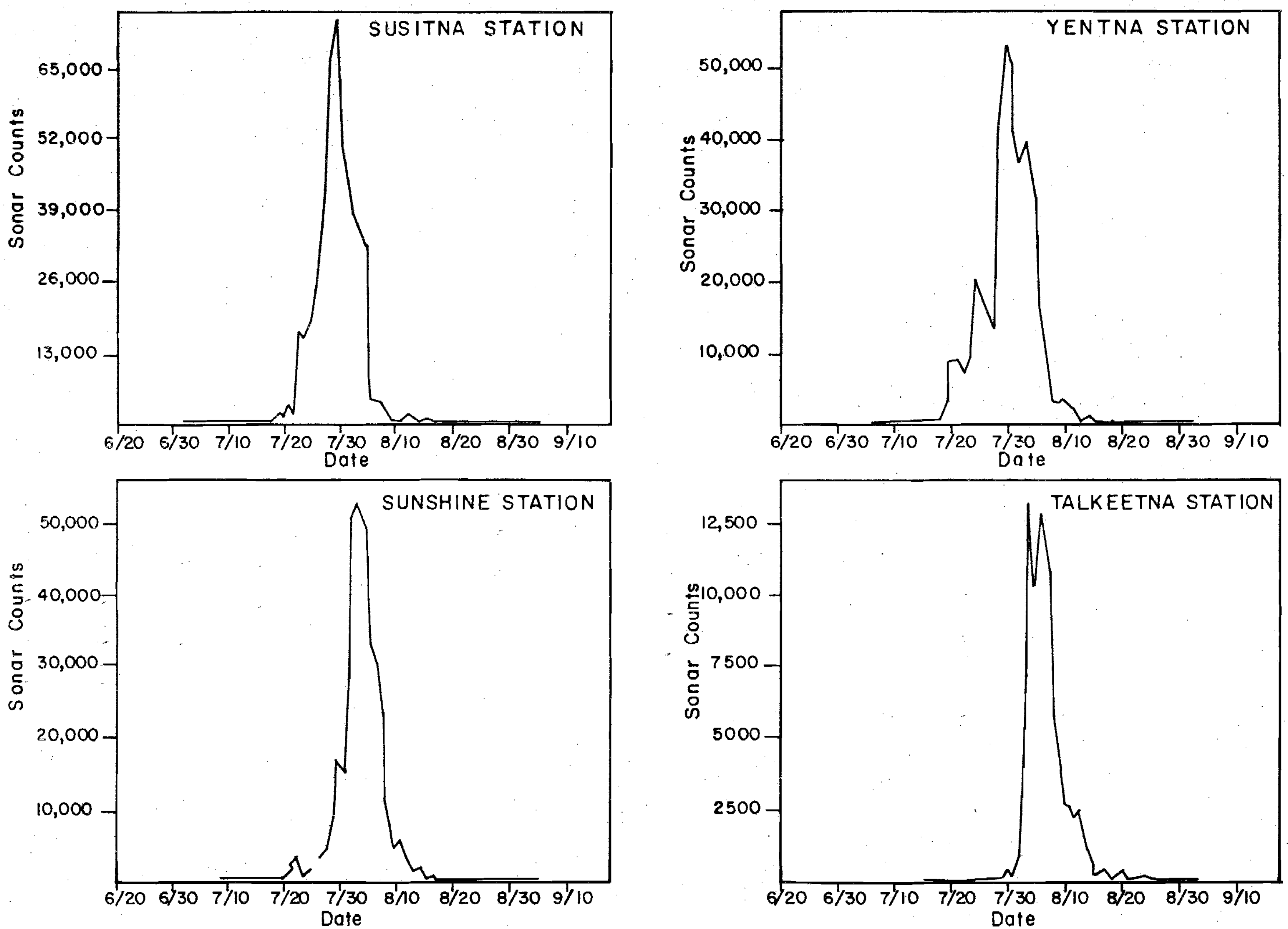
APPENDIX 2-B

SONAR

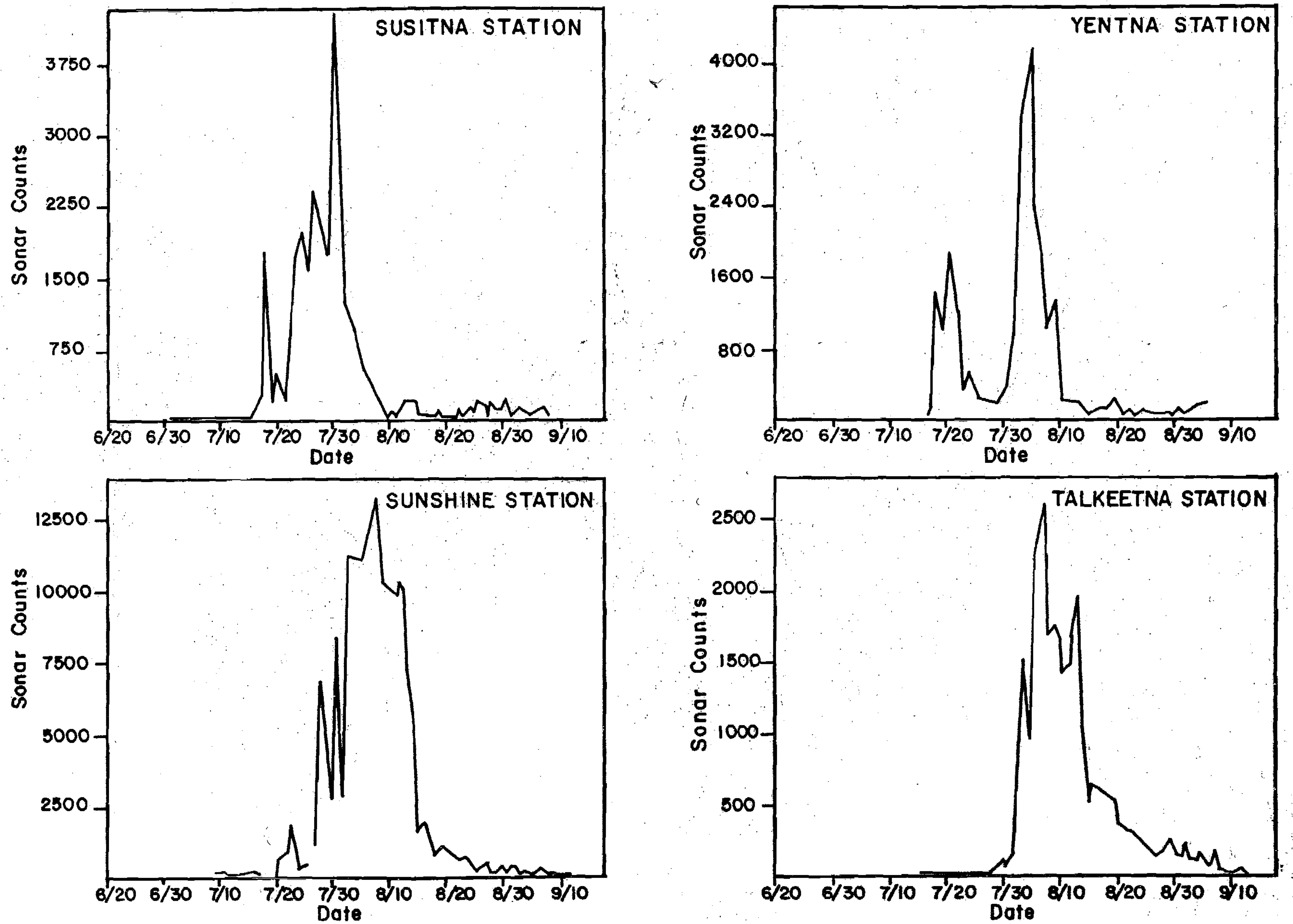
1. FIGURES OF DAILY SIDE SCAN SONAR COUNTS BY SPECIES
2. FIGURE OF CUMULATIVE PERCENT OF SONAR COUNTS BY SPECIES
3. DAILY SONAR COUNTS BY STATION
4. SECTOR DISTRIBUTION OF SONAR COUNTS
5. BOTTOM PROFILES OF 1982 SONAR SITES



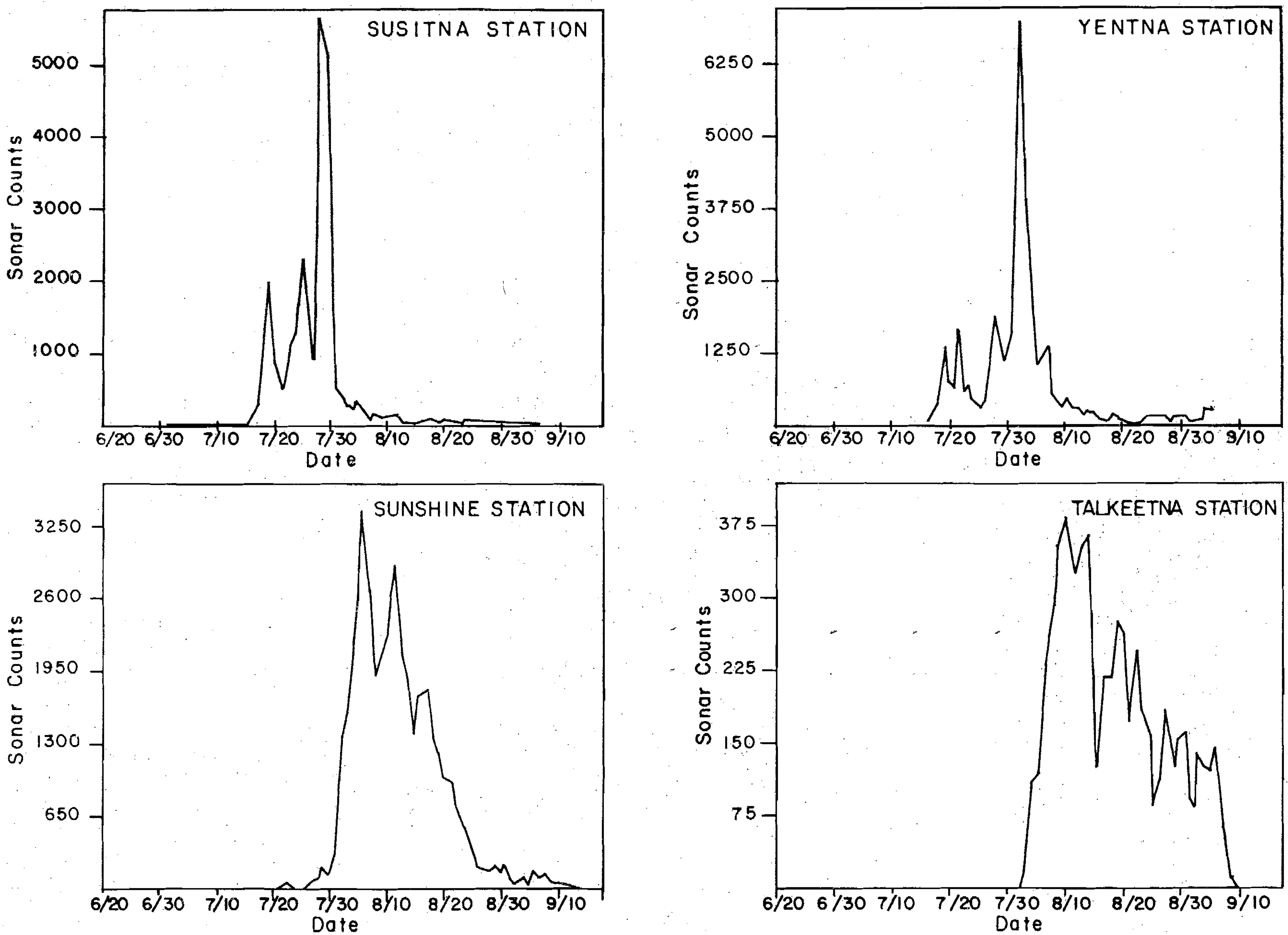
Appendix Figure 2-B-1. Daily sonar counts of sockeye salmon at Susitna, Yentna, Sunshine, and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.



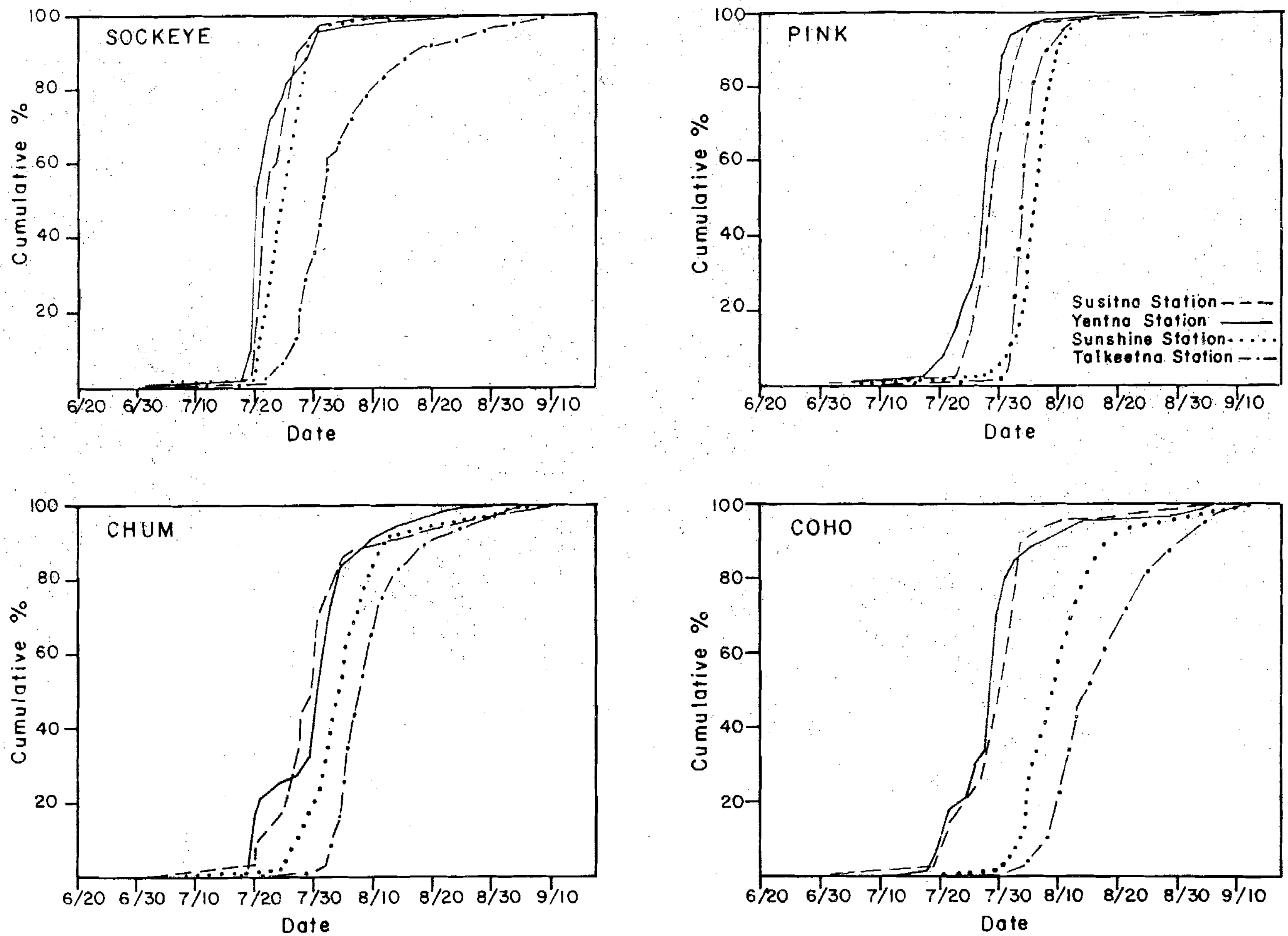
Appendix Figure 2-B-2. Daily sonar counts of pink salmon at Susitna, Yentna, Sunshine, and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-B-3. Daily sonar counts of chum salmon at Susitna, Yentna, Sunshine and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-B-4. Daily sonar counts of coho salmon at Susitna, Yentna, Sunshine, and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-B-5. Cumulative percent of sonar counts by species at Susitna, Yentna, Sunshine and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Appendix Table 2-B-1. Yentna station north bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820628	00008	008	0008	00000	000000	00000	000000	0000	00000	0000	00000	000	0000
820629	00024	024	0032	00000	000000	00000	000000	0000	00000	0000	00000	000	0000
820630	00026	026	0058	00000	000000	00000	000000	0000	00000	0000	00000	000	0000
820701	00074	042	0100	00016	000016	00000	000000	0000	00000	0000	00000	016	0016
820702	00046	026	0126	00010	000026	00000	000000	0000	00000	0000	00000	010	0026
820703	00093	052	0178	00021	000047	00000	000000	0000	00000	0000	00000	020	0046
820704	00079	044	0222	00018	000065	00000	000000	0000	00000	0000	00000	017	0063
820705	00082	025	0247	00021	000086	00011	000011	0000	00000	0000	00000	025	0088
820706	00045	014	0261	00012	000098	00005	000016	0000	00000	0000	00000	014	0102
820707	00019	006	0267	00005	000103	00002	000018	0000	00000	0000	00000	006	0108
820708	00012	004	0271	00003	000106	00001	000019	0000	00000	0000	00000	004	0112
820709	00004	002	0273	00001	000107	00000	000019	0000	00000	0000	00000	001	0113
820710	00024	010	0283	00004	000111	00001	000020	0000	00000	0000	00000	009	0122
820711	00036	015	0298	00006	000117	00002	000022	0000	00000	0000	00000	013	0135
820712	00026	011	0309	00005	000122	00001	000023	0000	00000	0000	00000	009	0144
820713	00015	001	0310	00009	000131	00004	000027	0000	00000	0001	00001	000	0144
820714	00023	002	0312	00012	000143	00006	000033	0000	00000	0002	00003	001	0145
820715	00058	005	0317	00030	000173	00015	000048	0000	00000	0005	00008	003	0148
820716	00019	002	0319	00010	000183	00004	000052	0000	00000	0002	00010	001	0149
820717	00100	000	0319	00033	000216	00043	000095	0015	00015	0007	00017	002	0151
820718	00276	000	0319	00091	000307	00117	000212	0043	00058	0019	00036	006	0157
820719	01100	000	0319	00364	000671	00468	000680	0169	00227	0074	00110	025	0182
820720	05008	000	0319	02559	003230	01783	002463	0386	00613	0255	00365	025	0207
820721	07906	000	0319	03534	006764	03360	005823	0751	01364	0261	00626	000	0207
820722	03235	000	0319	01074	007838	01686	007509	0281	01645	0194	00820	000	0207
820723	01474	000	0319	00153	007991	01225	008734	0046	01691	0050	00870	000	0207

Appendix Table 2-B-1. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC DAILY	MISC CUM
820724	00514	000	0319	00053	008044	00415	009149	0026	01717	0020	00890	000	0207
820725	00575	000	0319	00068	008112	00461	009610	0020	01737	0024	00914	002	0209
820726	00302	000	0319	00024	008136	00259	009869	0013	01750	0002	00916	004	0213
820727	01224	000	0319	00089	008225	01097	010966	0028	01778	0010	00926	000	0213
820728	04324	000	0319	00052	008277	04069	015035	0121	01899	0082	01008	000	0213
820729	07751	000	0319	00171	008448	07185	022220	0171	02070	0224	01232	000	0213
820730	09830	000	0319	00167	008615	09103	031323	0413	02483	0147	01379	000	0213
820731	11910	000	0319	00453	009068	10409	041732	0893	03376	0155	01534	000	0213
820801	13834	000	0319	00719	009787	10666	052398	1785	05161	0664	02198	000	0213
820802	11386	000	0319	00204	009991	09872	062270	0911	06072	0399	02597	000	0213
820803	07248	000	0319	00080	010071	06393	068663	0580	06652	0188	02785	007	0220
820804	07411	000	0319	00170	010241	06240	074903	0778	07430	0208	02993	015	0235
820805	03983	000	0319	00147	010388	02768	077671	0849	08279	0183	03176	036	0271
820806	01122	000	0319	00021	010409	00753	078424	0220	08499	0113	03289	015	0286
820807	01018	000	0319	00056	010465	00709	079133	0166	08665	0077	03366	010	0296
820808	01288	002	0321	00041	010506	01061	080194	0111	08776	0063	03429	010	0306
820809	01659	000	0321	00030	010536	01238	081432	0260	09036	0108	03537	023	0329
820810	01323	000	0321	00049	010585	00893	082325	0277	09313	0081	03618	023	0352
820811	01012	000	0321	00110	010695	00583	082908	0168	09481	0120	03738	031	0383
820812	00875	000	0321	00096	010791	00504	083412	0145	09626	0103	03841	027	0410
820813	00787	000	0321	00055	010846	00458	089370	0106	09732	0110	03951	058	0468
820814	00394	000	0321	00028	010874	00229	084099	0053	09785	0055	04006	029	0497
820815	00271	000	0321	00035	010909	00086	084185	0054	09839	0086	04092	010	0507
820816	00308	000	0321	00040	010949	00097	084282	0062	09901	0097	04189	012	0519
820817	00441	000	0321	00057	011006	00140	084422	0088	09989	0139	04328	017	0536
820818	00408	000	0321	00053	011059	00129	084551	0082	10071	0129	04457	016	0552
820819	00344	000	0321	00035	011094	00067	084618	0118	10189	0083	04540	041	0593

Appendix Table 2-B-1. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820820	00247	000	0321	00025	011119	00048	084666	0085	10274	0060	04600	029	0622
820821	00100	000	0321	00010	011129	00020	084686	0034	10308	0024	04624	012	0634
820822	00178	000	0321	00018	011147	00035	084721	0061	10369	0043	04667	021	0655
820823	00141	000	0321	00016	011163	00013	084734	0021	10390	0038	04705	053	0708
820824	00135	000	0321	00016	011179	00013	084747	0020	10410	0036	04741	050	0758
820825	00155	000	0321	00018	011197	00014	084761	0024	10434	0041	04782	058	0816
820826	00239	000	0321	00028	011225	00022	084783	0036	10470	0064	04846	089	0905
820827	00167	000	0321	00012	011237	00000	084783	0031	10501	0027	04873	097	1002
820828	00165	000	0321	00012	011249	00000	084783	0030	10531	0027	04900	096	1098
820829	00078	000	0321	00006	011255	00000	084783	0014	10545	0013	04913	045	1143
820830	00135	000	0321	00010	011265	00000	084783	0025	10570	0022	04935	078	1221
820831	00158	000	0321	00007	011272	00000	084783	0029	10599	0079	05014	043	1264
820901	00101	000	0321	00005	011277	00000	084783	0018	10617	0051	05065	027	1291
820902	00394	000	0321	00018	011295	00000	084783	0072	10689	0197	05262	107	1398
820903	00326	000	0321	00015	011310	00000	084783	0059	10748	0163	05425	089	1487
820904	00164	000	0321	00000	011310	00000	084783	0016	10764	0099	05524	049	1536

Appendix Table 2-B-2. Yentna station south bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies. 1982.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820627	00044	029	0029	00015	000015	00000	000000	0000	00000	0000	00000	000	0000
820628	00064	043	0072	00021	000036	00000	000000	0000	00000	0000	00000	000	0000
820629	00028	019	0091	00009	000045	00000	000000	0000	00000	0000	00000	000	0000
820630	00008	005	0096	00003	000048	00000	000000	0000	00000	0000	00000	000	0000
820701	00020	015	0111	00005	000053	00000	000000	0000	00000	0000	00000	000	0000
820702	00002	001	0112	00001	000054	00000	000000	0000	00000	0000	00000	001	0001
820703	00106	078	0190	00027	000081	00000	000000	0000	00000	0000	00000	001	0002
820704	00101	074	0264	00026	000107	00000	000000	0000	00000	0000	00000	017	0019
820705	00064	038	0302	00009	000116	00000	000000	0000	00000	0000	00000	010	0029
820706	00038	023	0325	00005	000121	00000	000000	0000	00000	0000	00000	010	0029
820707	00016	010	0335	00002	000123	00000	000000	0000	00000	0000	00000	004	0033
820708	00191	115	0450	00027	000150	00000	000000	0000	00000	0000	00000	049	0082
820709	00066	038	0488	00017	000167	00003	000003	0000	00000	0000	00000	008	0090
820710	00016	009	0497	00004	000171	00001	000004	0000	00000	0000	00000	002	0092
820711	00012	007	0504	00003	000174	00001	000005	0000	00000	0000	00000	001	0093
820712	00020	012	0516	00005	000179	00001	000006	0000	00000	0000	00000	002	0095
820713	00033	004	0520	00019	000198	00004	000010	0000	00000	0003	00003	003	0098
820714	00074	009	0529	00044	000242	00009	000019	0000	00000	0005	00008	007	0105
820715	00071	009	0538	00042	000284	00009	000028	0000	00000	0005	00013	006	0111
820716	00154	019	0557	00090	000374	00019	000047	0000	00000	0011	00024	015	0126
820717	01694	014	0571	01257	001631	00203	000250	0080	00080	0127	00151	013	0139
820718	03928	031	0602	02915	004546	00471	000721	0185	00265	0295	00446	031	0170
820719	18288	165	0767	12436	016982	03072	003793	1262	01527	1262	01708	091	0261
820720	21748	000	0767	17225	034207	03349	007142	0609	02136	0500	02208	065	0326
820721	25350	000	0767	18987	053194	04867	012009	1040	03176	0456	02664	000	0326
820722	18261	000	0767	10336	063530	05606	017615	0913	04089	1406	04070	000	0326
820723	13831	027	0794	04163	067693	08755	026370	0277	04366	0609	04679	000	0326

Appendix Table 2-B-2. Continued.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC	
	DAILY COUNT	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820724	27237	000	0794	05230	072923	20782	047152	0517	04883	0708	05387	000	0326
820725	18856	000	0794	02508	075431	15613	062765	0282	05165	0453	05840	000	0326
820726	18896	019	0813	05253	080684	13171	075936	0170	05335	0283	06123	000	0326
820727	22918	000	0813	03369	084053	18976	094912	0183	05518	0390	06513	000	0326
820728	40728	000	0813	02281	086334	37511	132423	0081	05599	0855	07368	000	0326
820729	48963	049	0862	01665	087999	45144	177567	0294	05893	1763	09131	048	0374
820730	45035	000	0862	01126	089125	42468	220035	0540	06433	0901	10032	000	0374
820731	37653	000	0862	03163	092288	30650	250685	2410	08843	1430	11462	000	0374
820801	38630	000	0862	04133	096421	25689	276374	2550	11393	6258	17720	000	0374
820802	36424	000	0862	01493	097914	30014	306388	1493	12886	3424	21144	000	0374
820803	29191	000	0862	00700	098614	25630	332018	1226	14112	1635	22779	000	0374
820804	12527	000	0862	00626	099240	10636	342654	0313	14425	0902	23681	050	0424
820805	08070	000	0862	00283	099523	06069	348723	0564	14989	1098	24779	056	0480
820806	04122	000	0862	00144	099667	03100	351823	0289	15278	0561	25340	028	0508
820807	03399	000	0862	00313	099980	02587	354410	0071	15349	0394	25734	034	0542
820808	03171	010	0872	00161	100141	02626	357036	0098	15447	0266	26000	010	0552
820809	02588	000	0872	00274	100415	01750	358786	0238	15685	0326	26326	000	0552
820810	01771	000	0872	00236	100651	01091	359877	0140	15825	0253	26579	051	0603
820811	01066	000	0872	00142	100793	00657	360534	0084	15909	0152	26731	031	0634
820812	00696	000	0872	00066	100859	00485	361019	0057	15966	0084	26815	004	0638
820813	00794	000	0872	00075	100934	00554	361573	0065	16031	0095	26910	005	0643
820814	00783	000	0872	00215	101149	00333	361906	0073	16104	0155	27065	007	0650
820815	00294	000	0872	00081	101230	00125	362031	0028	16132	0058	27123	002	0652
820816	00193	000	0872	00053	101283	00082	362113	0018	16150	0038	27161	002	0654
820817	00230	000	0872	00063	101346	00098	362211	0021	16171	0046	27207	002	0656
820818	00198	000	0872	00051	101397	00026	362237	0059	16230	0059	27266	003	0659
820819	00273	000	0872	00071	101468	00035	362272	0081	16311	0081	27347	005	0664

Appendix Table 2-B-2. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820820	00257	000	0872	00067	101535	00033	362305	0076	16387	0076	27423	005	0669
820821	00089	000	0872	00023	101558	00012	362317	0026	16413	0026	27449	002	0671
820822	00050	000	0872	00020	101578	00002	362319	0009	16422	0016	27465	003	0674
820823	00195	000	0872	00079	101657	00006	362325	0037	16459	0061	27526	012	0686
820824	00265	000	0872	00108	101765	00008	362333	0050	16509	0083	27609	016	0702
820825	00219	000	0872	00089	101854	00007	362340	0041	16550	0069	27678	013	0715
820826	00170	000	0872	00058	101912	00016	362356	0011	16561	0080	27758	005	0720
820827	00182	000	0872	00063	101975	00017	362373	0011	16572	0085	27843	006	0726
820828	00232	000	0872	00080	102055	00022	362395	0014	16586	0109	27952	007	0733
820829	00286	000	0872	00098	102153	00027	362422	0018	16604	0134	28086	009	0742
820830	00222	000	0872	00066	102219	00013	362435	0052	16656	0065	28151	026	0768
820831	00135	000	0872	00040	102259	00008	362443	0032	16688	0040	28191	015	0783
820901	00213	000	0872	00062	102321	00013	362456	0050	16738	0063	28254	025	0808
820902	00294	000	0872	00086	102407	00018	362474	0069	16807	0086	28340	035	0843
820903	00243	000	0872	00051	102458	00000	362474	0103	16910	0089	28429	000	0843
820904	00302	000	0872	00064	102522	00000	362474	0127	17037	0111	28540	000	0843
820905	00069	000	0872	00015	102537	00000	362474	0029	17066	0025	28565	000	0843

Appendix Table 2-B-3. Sunshine station east bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies. 1982.

DATE	TOTAL DAILY	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC DAILY	MISC CUM
820706	00369	362	0362	00003	000003	00000	000000	000003	000003	0000	00000	001	0001
820707	00470	456	0818	00014	000017	00000	000000	000000	000003	0000	00000	000	0001
820708	00434	421	1239	00013	000030	00000	000000	000000	000003	0000	00000	000	0001
820709	00433	420	1659	00005	000035	00004	000004	000004	000007	0000	00000	000	0001
820710	00413	401	2060	00004	000039	00004	000008	000004	000011	0000	00000	000	0001
820711	00216	210	2270	00002	000041	00002	000010	000002	000013	0000	00000	000	0001
820712	00219	213	2483	00002	000043	00002	000012	000002	000015	0000	00000	000	0001
820713	00116	064	2547	00019	000062	00016	000028	000012	000027	0000	00000	005	0006
820714	00089	049	2596	00014	000076	00013	000041	000009	000036	0000	00000	004	0010
820715	00116	064	2660	00019	000095	00016	000057	000012	000048	0000	00000	005	0015
820716	00089	049	2709	00014	000109	00013	000070	000009	000057	0000	00000	004	0019
820717	00060	002	2711	00055	000164	00003	000073	000000	000057	0000	00000	000	0019
820718	00056	002	2713	00052	000216	00002	000075	000000	000057	0000	00000	000	0019
820719	00222	007	2720	00204	000420	00011	000086	000000	000057	0000	00000	000	0019
820720	01024	023	2743	00788	001208	00161	000247	000049	000106	0000	00000	003	0022
820721	06716	013	2756	05716	006924	00443	000690	000537	000643	0007	00007	000	0022
820722	07408	022	2778	05593	012517	01008	001698	000770	001413	0015	00022	000	0022
820723	11686	000	2778	07000	019517	02980	004678	001659	003072	0046	00068	000	0022
820724	05032	010	2788	04177	023694	00720	005398	000125	003197	0000	00000	000	0022
820725	04832	000	2788	03817	027511	00797	006195	000218	003415	0000	00000	000	0022
820726													
820727	08643	017	2805	04080	031591	03535	009730	001011	004426	0000	00000	000	0022
820728	12625	000	2805	04217	035808	04027	013757	004356	008782	0025	00093	000	0022
820729	21596	000	2805	05680	041488	08639	022396	007191	015973	0086	00179	000	0022
820730	25301	000	2805	04580	046068	16446	038842	004174	020147	0101	00280	000	0022
820731	19842	000	2805	03175	049243	14544	053386	002083	022230	0040	00320	000	0022
820801	38510	000	2805	03851	053094	26957	080343	007509	029739	0193	00513	000	0022

Appendix Table 2-B-3. Continued.

DATE	TOTAL DAILY	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC DAILY	MISC CUM
820802	53689	000	2805	01503	054597	40911	121254	010953	040692	0322	00835	000	0022
820803	57200	000	2805	01316	055913	45302	166556	009781	050473	0801	01636	000	0022
820804	51505	000	2805	00618	056531	40277	206833	009632	060105	0978	02614	000	0022
820805	37138	000	2805	00371	056902	26591	233424	009136	069241	1040	03654	000	0022
820806	39593	000	2805	00317	057219	25933	259357	011443	080684	1900	05554	000	0022
820807	32792	000	2805	00262	057481	18692	278049	011444	092128	2394	07948	000	0022
820808	21372	000	2805	00107	057588	10451	288500	008784	100912	2030	09978	000	0022
820809	14934	000	2805	00119	057707	05421	293921	007930	108842	1464	11442	000	0022
820810	13422	000	2805	00134	057841	04107	298028	007342	116184	1839	13281	000	0022
820811	15074	000	2805	00060	057901	04070	302098	008939	125123	2005	15286	000	0022
820812	13042	000	2805	00065	057966	02778	304876	008165	133288	2008	17294	026	0048
820813	08701	000	2805	00043	058009	01523	306399	005717	139005	1375	18669	043	0091
820814	07851	008	2813	00047	058056	01814	308213	004703	143708	1256	19925	023	0114
820815	02377	004	2817	00036	058092	00378	308591	001198	144906	0761	20686	000	0114
820816	02918	000	2817	00038	058130	00376	308967	001243	146149	1261	21947	000	0114
820817	02510	000	2817	00020	058150	00186	309153	001024	147173	1275	23222	005	0119
820818	01713	000	2817	00022	058172	00154	309307	000655	147828	0882	24104	000	0119
820819	02003	000	2817	00030	058202	00272	309579	000916	148744	0785	24889	000	0119
820820	01542	000	2817	00006	058208	00171	309750	000884	149628	0463	25352	018	0137
820821	01156	000	2817	00000	058208	00094	309844	000701	150329	0326	25678	035	0172
820822	01001	000	2817	00000	058208	00075	309919	000511	150840	0373	26051	042	0214
820823	01011	000	2817	00000	058208	00076	309995	000516	151356	0377	26428	042	0256
820824	00778	000	2817	00020	058228	00055	310050	000466	151822	0207	26635	030	0286
820825	00680	000	2817	00018	058246	00048	310098	000407	152229	0181	26816	026	0312
820826	00559	000	2817	00006	058252	00015	310113	000394	152623	0086	26902	058	0370
820827	00583	000	2817	00006	058258	00016	310129	000411	153034	0089	26991	061	0431
820828	00438	000	2817	00005	058263	00011	310140	000309	153343	0067	27058	046	0477

Appendix Table 2-B-3. Continued.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC	
	DAILY	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820829	00333	000	2817	00004	058267	00006	310146	000253	153596	0033	27091	037	0514
820830	00367	000	2817	00004	058271	00007	310153	000278	153874	0037	27128	041	0555
820831	00235	000	2817	00003	058274	00005	310158	000178	154052	0023	27151	026	0581
820901	00393	000	2817	00005	058279	00007	310165	000298	154350	0039	27190	044	0625
820902	00449	000	2817	00003	058282	00003	310168	000346	154696	0026	27216	071	0696
820903	00428	000	2817	00003	058285	00003	310171	000330	155026	0025	27241	067	0763
820904	00222	000	2817	00002	058287	00002	310173	000171	155197	0013	27254	034	0797
820905	00250	000	2817	00002	058289	00002	310175	000192	155389	0015	27269	039	0836
820906	00336	000	2817	00003	058292	00000	310175	000256	155645	0030	27299	047	0883
820907	00334	000	2817	00003	058295	00000	310175	000255	155900	0030	27329	046	0929
820908	00250	000	2817	00002	058297	00000	310175	000191	156091	0023	27352	034	0963
820909	00177	000	2817	00001	058298	00000	310175	000135	156226	0016	27368	025	0988
820910	00132	000	2817	00000	058298	00000	310175	000074	156300	0005	27373	053	1041
820911	00127	000	2817	00000	058298	00000	310175	000071	156371	0005	27378	051	1092
820912	00013	000	2817	00000	058298	00000	310175	000007	156378	0001	27379	005	1097

Appendix Table 2-B-4. Sunshine station west bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC	
	DAILY	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820706	00012	012	0012	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820707	00011	011	0023	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820708	00016	016	0039	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820709	00013	013	0052	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820710	00001	001	0053	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820711	00002	002	0055	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820712	00004	004	0059	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820713	00008	008	0067	00000	000000	00000	000000	000000	000000	0000	00000	000	0000
820714	00012	008	0075	00002	000002	00001	000001	000001	000001	0000	00000	000	0000
820715	00004	002	0077	00001	000003	00001	000002	000000	000001	0000	00000	000	0000
820716	00016	011	0088	00003	000006	00001	000003	000001	000002	0000	00000	000	0000
820717	00019	012	0100	00003	000009	00002	000005	000002	000004	0000	00000	000	0000
820718	00029	001	0101	00025	000034	00003	000008	000000	000004	0000	00000	000	0000
820719	00032	001	0102	00028	000062	00003	000011	000000	000004	0000	00000	000	0000
820720	00105	001	0103	00092	000154	00010	000021	000001	000005	0000	00000	001	0001
820721	00285	004	0107	00249	000403	00028	000049	000002	000007	0000	00000	002	0003
820722	00653	000	0107	00564	000967	00063	000112	000022	000029	0000	00000	004	0007
820723	00561	000	0107	00485	001452	00054	000166	000019	000048	0000	00000	003	0010
820724	00513	000	0107	00449	001901	00050	000216	000007	000055	0007	00007	000	0010
820725	00607	000	0107	00531	002432	00060	000276	000008	000063	0008	00015	000	0010
820726													
820727	00272	000	0107	00238	002670	00026	000302	000004	000067	0004	00019	000	0010
820728	00819	000	0107	00569	003239	00143	000445	000103	000170	0004	00023	000	0010
820729	02385	000	0107	01657	004896	00415	000860	000301	000471	0012	00035	000	0010
820730	02189	000	0107	01101	005997	00571	001431	000460	000931	0057	00092	000	0010
820731	04276	000	0107	02151	008148	01116	002547	000898	001829	0111	00203	000	0010
820801	04679	000	0107	02354	010502	01221	003768	000983	002812	0121	00324	000	0010

Appendix Table 2-B-4. Continued.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC	
	DAILY	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820802	12069	000	0107	02064	012566	07748	011516	001654	004466	0603	00927	000	0010
820803	11006	000	0107	01882	014448	07066	018582	001508	005974	0550	01477	000	0010
820804	10584	000	0107	01080	015528	07398	025980	001651	007625	0455	01932	000	0010
820805	09841	000	0107	00650	016178	06239	032219	002057	009682	0895	02827	000	0010
820806	06888	000	0107	00413	016591	04505	036724	001247	010929	0723	03550	000	0010
820807	04902	000	0107	00113	016704	02274	038998	001598	012527	0917	04467	000	0010
820808	02212	000	0107	00066	016770	00615	039613	000940	013467	0591	05058	000	0010
820809	01582	000	0107	00048	016818	00440	040053	000672	014139	0422	05480	000	0010
820810	01430	000	0107	00077	016895	00288	040341	000619	014758	0446	05926	000	0010
820811	02022	000	0107	00109	017004	00406	040747	000876	015634	0631	06557	000	0010
820812	02452	000	0107	00069	017073	00414	041161	001118	016752	0851	07408	000	0010
820813	02512	000	0107	00030	017103	00236	041397	001432	018184	0804	08212	010	0020
820814	01729	000	0107	00024	017127	00133	041530	000965	019149	0598	08810	009	0029
820815	00940	000	0107	00037	017164	00037	041567	000319	019468	0547	09357	000	0029
820816	00877	000	0107	00034	017198	00034	041601	000298	019766	0511	09868	000	0029
820817	00929	000	0107	00036	017234	00036	041637	000316	020082	0541	10409	000	0029
820818	00601	000	0107	00029	017263	00020	041657	000099	020181	0453	10862	000	0029
820819	00671	000	0107	00032	017295	00023	041680	000111	020292	0505	11367	000	0029
820820	00696	000	0107	00033	017328	00024	041704	000115	020407	0524	11891	000	0029
820821	00790	000	0107	00038	017366	00027	041731	000130	020537	0595	12486	000	0029
820822	00546	000	0107	00066	017432	00043	041774	000066	020603	0371	12857	000	0029
820823	00259	000	0107	00031	017463	00021	041795	000031	020634	0176	13033	000	0029
820824	00292	000	0107	00035	017498	00023	041818	000035	020669	0199	13232	000	0029
820825	00264	000	0107	00032	017530	00021	041839	000032	020701	0179	13411	000	0029
820826	00295	000	0107	00030	017560	00000	041839	000103	020804	0148	13559	014	0043
820827	00230	000	0107	00023	017583	00000	041839	000081	020885	0115	13674	011	0054
820828	00214	000	0107	00021	017604	00000	041839	000075	020960	0107	13781	011	0065

Appendix Table 2-B-4. Continued.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC	
	DAILY	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820829	00232	000	0107	00023	017627	00000	041839	000081	021041	0116	13897	012	0077
820830	00282	000	0107	00000	017627	00000	041833	000113	021154	0113	14010	056	0133
820831	00170	000	0107	00000	017627	00000	041839	000068	021222	0068	14078	034	0167
820901	00319	000	0107	00000	017627	00000	041839	000128	021350	0128	14206	063	0230
820902	00291	000	0107	00000	017627	00000	041839	000116	021466	0117	14323	058	0288
820903	00094	000	0107	00000	017627	00000	041839	000038	021504	0050	14373	006	0294
820904	00342	000	0107	00000	017627	00000	041839	000137	021641	0182	14555	023	0317
820905	00253	000	0107	00000	017627	00000	041839	000101	021742	0135	14690	017	0334
820906	00239	000	0107	00000	017627	00000	041839	000096	021838	0127	14817	016	0350
820907	00175	000	0107	00000	017627	00000	041839	000052	021890	0053	14870	070	0420
820908	00181	000	0107	00000	017627	00000	041839	000054	021944	0054	14924	073	0493
820909	00117	000	0107	00000	017627	00000	041839	000035	021979	0035	14959	047	0540
820910	00102	000	0107	00000	017627	00000	041839	000031	022010	0031	14990	040	0580
820911	00128	000	0107	00000	017627	00000	041839	000038	022048	0038	15028	050	0630
820912	00027	000	0107	00000	017627	00000	041839	000008	022056	0008	15036	011	0641

Appendix Table 2-B-5. Talkeetna station east bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820704	00075	074	0074	00000	000000	00000	000000	0000	00000	0000	00000	001	0001
820705	00194	191	0265	00000	000000	00000	000000	0000	00000	0000	00000	003	0004
820706	00185	182	0447	00000	000000	00000	000000	0000	00000	0000	00000	003	0007
820707	00187	184	0631	00000	000000	00000	000000	0000	00000	0000	00000	003	0010
820708	00070	066	0697	00000	000000	00000	000000	0000	00000	0000	00000	004	0014
820709	00071	067	0764	00000	000000	00000	000000	0000	00000	0000	00000	004	0018
820710	00089	084	0848	00000	000000	00000	000000	0000	00000	0000	00000	005	0023
820711	00050	047	0895	00000	000000	00000	000000	0000	00000	0000	00000	003	0025
820712	00038	038	0933	00000	000000	00000	000000	0000	00000	0000	00000	000	0025
820713	00021	021	0954	00000	000000	00000	000000	0000	00000	0000	00000	000	0025
820714	00019	019	0973	00000	000000	00000	000000	0000	00000	0000	00000	000	0025
820715	00010	010	0983	00000	000000	00000	000000	0000	00000	0000	00000	000	0025
820716	00016	013	0996	00001	000001	00002	000002	0000	00000	0000	00000	000	0025
820717	00023	018	1014	00002	000003	00003	000005	0000	00000	0000	00000	000	0025
820718	00011	008	1022	00001	000004	00002	000007	0000	0C000	0000	00000	000	0025
820719	00017	013	1035	00001	000005	00003	000010	0000	00000	0000	00000	000	0025
820720	00028	021	1056	00000	000005	00000	000010	0000	00000	0000	00000	007	0032
820721	00022	017	1073	00000	000005	00000	000010	0000	00000	0000	00000	005	0037
820722	00026	020	1093	00000	000005	00000	000010	0000	00000	0000	00000	006	0043
820723	00023	017	1110	00000	000005	00000	000010	0000	00000	0000	00000	006	0049
820724	00023	000	1110	00015	000020	00007	000017	0001	00001	0000	00000	000	0049
820725	00021	000	1110	00014	000034	00006	000023	0001	00002	0000	00000	000	0049
820726	00015	000	1110	00010	000044	00004	000027	0001	00003	0000	00000	000	0049
820727	00072	000	1110	00047	000091	00023	000050	0002	00005	0000	00000	000	0049
820728	00082	000	1110	00022	000113	00048	000098	0012	00017	0000	00000	000	0049
820729	00269	000	1110	00073	000186	00158	000256	0038	00055	0000	00000	000	0049
820730	00338	000	1110	00091	000277	00199	000455	0048	00103	0000	00000	000	0049

Appendix Table 2-B-5. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC DAILY	MISC CUM
820731	00248	000	1110	00067	000344	00146	000601	0035	00138	0000	00000	000	0049
820801	00514	000	1110	00032	000376	00400	001001	0081	00219	0001	00001	000	0049
820802	01853	000	1110	00115	000491	01443	002444	0291	00510	0004	00005	000	0049
820803	03165	000	1110	00070	000561	02684	005128	0386	00896	0025	00030	000	0049
820804	06705	000	1110	00080	000641	05719	010847	0872	01768	0034	00064	000	0049
820805	04643	000	1110	00009	000650	04077	014924	0488	02256	0069	00133	000	0049
820806	07272	000	1110	00051	000701	05868	020792	1273	03529	0080	00213	000	0049
820807	06449	000	1110	00077	000778	04889	025681	1354	04883	0129	00342	000	0049
820808	03202	000	1110	00016	000794	02395	028076	0737	05620	0054	00396	000	0049
820809	02063	000	1110	00025	000819	01108	029184	0780	06400	0150	00546	000	0049
820810	01469	000	1110	00018	000837	00789	029973	0555	06955	0107	00653	000	0049
820811	01624	000	1110	00015	000852	00916	030889	0586	07541	0107	00760	000	0049
820812	01803	000	1110	00033	000885	01078	031967	0593	08134	0099	00859	000	0049
820813	01939	000	1110	00027	000912	01204	033171	0549	08683	0159	01018	000	0049
820814	01397	000	1110	00020	000932	00868	034039	0395	09078	0114	01132	000	0049
820815	00868	000	1110	00037	000969	00306	034345	0405	09483	0120	01252	000	0049
820816	00517	000	1110	00022	000991	00183	034528	0241	09724	0071	01323	000	0049
820817	00708	000	1110	00030	001021	00250	034778	0330	10054	0098	01421	000	0049
820818	00693	000	1110	00029	001050	00245	035023	0323	10377	0096	01517	000	0049
820819	00563	000	1110	00006	001056	00169	035192	0242	10619	0146	01663	000	0049
820820	00509	000	1110	00005	001061	00153	035345	0219	10838	0132	01795	000	0049
820821	00291	000	1110	00003	001064	00087	035432	0125	10963	0076	01871	000	0049
820822	00262	000	1110	00002	001066	00079	035511	0113	11076	0068	01939	000	0049
820823	00299	000	1110	00009	001075	00055	035566	0163	11239	0063	02002	009	0058
820824	00197	000	1110	00006	001081	00036	035602	0107	11346	0042	02044	006	0064
820825	00131	000	1110	00004	001085	00024	035626	0071	11417	0028	02072	004	0068
820826	00130	000	1110	00004	001089	00024	035650	0071	11488	0027	02099	004	0072

Appendix Table 2-B-5. Continued.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC.	
	DAILY COUNT	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820827	00148	000	1110	00007	001096	00000	035650	0085	11573	0053	02152	003	0075
820828	00215	000	1110	00010	001106	00000	035650	0123	11696	0077	02229	005	0080
820829	00178	000	1110	00008	001114	00000	035650	0102	11798	0064	02293	004	0084
820830	00184	000	1110	00009	001123	00000	035650	0105	11903	0066	02359	004	0088
820831	00192	000	1110	00000	001123	00000	035650	0134	12037	0058	02417	000	0088
820901	00096	000	1110	00000	001123	00000	035650	0067	12104	0029	02446	000	0088
820902	00086	000	1110	00000	001123	00000	035650	0060	12164	0026	02472	000	0088
820903	00122	000	1110	00000	001123	00000	035650	0085	12249	0037	02509	000	0088
820904	00126	000	1110	00000	001123	00000	035650	0070	12319	0056	02565	000	0088
820905	00107	000	1110	00000	001123	00000	035650	0059	12378	0048	02613	000	0088
820906	00207	000	1110	00000	001123	00000	035650	0115	12493	0092	02705	000	0088
820907	00114	000	1110	00000	001123	00000	035650	0063	12556	0051	02756	000	0088
820908	00091	000	1110	00000	001123	00000	035650	0051	12607	0040	02796	000	0088
820909	00062	000	1110	00000	001123	00000	035650	0034	12641	0028	02824	000	0088
820910	00076	000	1110	00000	001123	00000	035650	0042	12683	0034	02858	000	0088
820911	00057	000	1110	00000	001123	00000	035650	0032	12715	0025	02883	000	0088
820912	00053	000	1110	00000	001123	00000	035650	0000	12715	0000	02883	053	0141
820913	00052	000	1110	00000	001123	00000	035650	0000	12715	0000	02883	052	0193
820914	00000	000	1110	00000	001123	00000	035650	0000	12715	0000	02883	000	0193

Appendix Table 2-B-6. Talkeetna station west bank daily and cumulative sonar counts by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

DATE	TOTAL	CHINOOK		SOCKEYE		PINK		CHUM		COHO		MISC.	
	DAILY COUNT	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM	DAILY	CUM
820704	00131	130	0130	00000	000000	00000	000000	0000	00000	0000	00000	001	0001
820705	00235	233	0363	00000	000000	00000	000000	0000	00000	0000	00000	002	0003
820706	00274	272	0635	00000	000000	00000	000000	0000	00000	0000	00000	002	0005
820707	00166	165	0800	00000	000000	00000	000000	0000	00000	0000	00000	001	0006
820708	00191	179	0979	00012	000012	00000	000000	0000	00000	0000	00000	000	0006
820709	00141	132	1111	00009	000021	00000	000000	0000	00000	0000	00000	000	0006
820710	00080	075	1186	00005	000026	00000	000000	0000	00000	0000	00000	000	0006
820711	00048	045	1231	00003	000029	00000	000000	0000	00000	0000	00000	000	0006
820712	00031	031	1262	00000	000029	00000	000000	0000	00000	0000	00000	000	0006
820713	00048	048	1310	00000	000029	00000	000000	0000	00000	0000	00000	000	0006
820714	00079	079	1389	00000	000029	00000	000000	0000	00000	0000	00000	000	0006
820715	00113	113	1502	00000	000029	00000	000000	0000	00000	0000	00000	000	0006
820716	00044	037	1539	00003	000032	00002	000002	0002	00002	0000	00000	000	0006
820717	00045	038	1577	00003	000035	00002	000004	0002	00004	0000	00000	000	0006
820718	00032	028	1605	00002	000037	00001	000005	0001	00005	0000	00000	000	0006
820719	00032	028	1633	00002	000039	00001	000006	0001	00006	0000	00000	000	0006
820720	00047	017	1650	00011	000050	00018	000024	0001	00007	0000	00000	000	0006
820721	00024	009	1659	00005	000055	00009	000033	0001	00008	0000	00000	000	0006
820722	00055	020	1679	00012	000067	00021	000054	0002	00010	0000	00000	000	0006
820723	00050	018	1697	00011	000078	00019	000073	0002	00012	0000	00000	000	0006
820724	00040	003	1700	00022	000100	00014	000087	0001	00013	0000	00000	000	0006
820725	00088	006	1706	00048	000148	00032	000119	0002	00015	0000	00000	000	0006
820726	00034	002	1708	00017	000165	00012	000131	0001	00016	0000	00000	000	0006
820727	00108	007	1715	00059	000224	00039	000170	0002	00018	0000	00000	000	0006
820728	00240	003	1718	00101	000325	00113	000283	0022	00040	0000	00000	001	0007
820729	00495	006	1724	00207	000532	00234	000517	0045	00085	0000	00000	003	0010
820730	00579	007	1731	00243	000775	00274	000791	0052	00137	0000	00000	003	0013

Appendix Table 2-B-6. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC DAILY	MISC CUM
820731	00242	003	1734	00033	000808	00173	000964	0033	00170	0000	00000	000	0013
820801	00527	006	1740	00072	000880	00377	001341	0072	00242	0000	00000	000	0013
820802	02570	000	1740	00216	001096	01984	003325	0355	00597	0015	00015	000	0013
820803	05502	000	1740	00170	001266	14655	007980	0622	01219	0055	00070	000	0013
820804	08376	000	1740	00126	001392	07538	015518	0637	01856	0075	00145	000	0013
820805	06813	000	1740	00020	001412	06268	021786	0484	02340	0041	00186	000	0013
820806	08321	000	1740	00075	001487	07106	028892	1007	03347	0133	00319	000	0013
820807	07408	000	1740	00015	001502	05956	034848	1304	04651	0133	00452	000	0013
820808	05297	000	1740	00037	001539	04053	038901	0969	05620	0238	00690	000	0013
820809	04073	000	1740	00102	001641	02827	041728	0941	06561	0203	00893	000	0013
820810	03190	000	1740	00048	001689	01895	043623	0973	07534	0274	01167	000	0013
820811	02779	000	1740	00042	001731	01651	045274	0847	08281	0239	01406	000	0013
820812	02073	000	1740	00006	001737	00962	046236	0877	09258	0228	01634	000	0013
820813	02672	000	1740	00037	001774	01264	047500	1176	10434	0195	01829	000	0013
820814	02302	000	1740	00016	001790	00495	047995	1542	11976	0249	02078	000	0013
820815	01198	000	1740	00023	001813	00405	048400	0671	12647	0099	02177	000	0013
820816	00580	000	1740	00011	001824	00196	048596	0325	12972	0048	02225	000	0013
820817	00670	000	1740	00036	001860	00216	048812	0297	13269	0121	02346	000	0013
820818	00681	000	1740	00037	001897	00219	049031	0302	13571	0123	02469	000	0013
820819	00685	000	1740	00008	001905	00196	049227	0355	13926	0126	02595	000	0013
820820	00715	000	1740	00008	001913	00205	049432	0370	14296	0132	02727	000	0013
820821	00500	000	1740	00006	001919	00143	049575	0259	14555	0092	02819	000	0013
820822	00420	000	1740	00010	001929	00026	049601	0203	14758	0176	02995	005	0018
820823	00306	000	1740	00008	001937	00019	049620	0147	14905	0128	03123	004	0022
820824	00286	000	1740	00007	001944	00018	049638	0138	15043	0120	03243	003	0025
820825	00260	000	1740	00007	001951	00016	049654	0126	15169	0107	03350	004	0029
820826	00176	000	1740	00016	001967	00008	049662	0087	15256	0057	03407	008	0037

Appendix Table 2-B-6. Continued.

DATE	TOTAL DAILY COUNT	CHINOOK DAILY	CHINOOK CUM	SOCKEYE DAILY	SOCKEYE CUM	PINK DAILY	PINK CUM	CHUM DAILY	CHUM CUM	COHO DAILY	COHO CUM	MISC. DAILY	MISC. CUM
820827	00185	000	1740	00017	001984	00009	049671	0090	15346	0060	03467	009	0046
820828	00349	000	1740	00032	002016	00016	049687	0171	15517	0114	03581	016	0062
820829	00183	000	1740	00017	002033	00009	049695	0089	15606	0059	03640	009	0071
820830	00195	000	1740	00017	002050	00008	049704	0085	15691	0085	03725	000	0071
820831	00230	000	1740	00020	002070	00010	049714	0100	15791	0100	03825	000	0071
820901	00166	000	1740	00014	002084	00007	049721	0073	15864	0072	03897	000	0071
820902	00145	000	1740	00013	002097	00006	049727	0063	15927	0063	03960	000	0071
820903	00206	000	1740	00013	002110	00000	049727	0053	15980	0100	04060	040	0111
820904	00148	000	1740	00010	002120	00000	049727	0038	16018	0071	04131	029	0140
820905	00155	000	1740	00010	002130	00000	049727	0040	16058	0075	04206	030	0170
820906	00099	000	1740	00006	002136	00000	049727	0026	16084	0048	04254	019	0189
820907	00048	000	1740	00012	002148	00000	049727	0006	16090	0012	04266	018	0207
820908	00053	000	1740	00013	002161	00000	049727	0007	16097	0013	04279	020	0227
820909	00027	000	1740	00007	002168	00000	049727	0003	16100	0007	04286	010	0237
820910	00026	000	1740	00006	002174	00000	049727	0003	16103	0007	04293	010	0247
820911	00010	000	1740	00000	002174	00000	049727	0001	16104	0002	04295	007	0254
820912	00025	000	1740	00000	002174	00000	049727	0002	16106	0006	04301	017	0271
820913	00021	000	1740	00000	002174	00000	049727	0002	16108	0005	04306	014	0285

Appendix Table 2-B-7. Sector distribution of sonar counts, adjusted for debris, east bank, Susitna station, Adult Anadromous Investigations, Su Hydro Studies. 1982.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
1 1/	33	25	8	4	2	4	5	10	8	18	17	19	153
2	19	16	20	6	3	5	6	3	11	14	18	15	136
3	40	9	15	15	11	7	14	20	16	38	26	29	240
4	38	25	9	14	5	3	6	8	6	13	20	19	166
5	76	34	19	10	2	3	78	15	4	19	34	35	329
6	63	26	9	7	1	0	3	4	13	15	30	40	211
7	48	35	10	8	5	1	9	2	3	20	60	36	237
8	67	28	18	3	2	1	1	1	10	17	38	58	244
9	60	33	22	5	3	1	3	6	3	7	35	55	233
10	72	38	19	5	2	2	3	11	5	19	22	17	215
11	56	37	33	9	4	2	0	2	5	6	32	13	199
12	59	43	15	17	3	2	3	3	8	3	24	7	187
13	51	14	18	7	0	0	6	6	6	16	23	51	198
14	50	22	1	3	2	1	6	8	5	11	23	10	142
15	21	33	16	6	5	1	4	3	10	19	36	36	190
16	32	18	34	12	8	4	14	12	13	30	28	30	235
17	94	80	61	42	60	43	97	91	91	173	145	209	1186
18	122	68	55	79	49	54	74	75	102	150	131	140	1099
19	290	412	333	248	264	277	389	402	365	609	601	716	4906
20	197	162	183	111	114	126	181	222	201	393	423	694	3007
21	447	83	123	56	75	101	131	282	317	932	655	1382	4584
22	201	111	97	76	94	82	149	215	239	878	800	1243	4185
23	952	389	533	405	32	166	376	454	595	1491	1941	3254	10588
24	2895	1646	2115	1507	1057	235	453	358	337	563	993	842	13001
25	2499	1881	3071	2815	2672	1190	1405	1733	1734	2617	3087	3616	28320
26	9791	7297	7610	3153	1562	141	597	662	418	1451	1246	860	34788
27	3786	4437	6923	4490	4332	2078	3919	3830	3393	6082	5057	4349	52676
28	2973	3044	5198	4798	4800	2074	5713	7202	6850	13423	12827	14927	83829
29	1570	2760	4355	3753	2607	1365	5773	6286	5953	11891	19370	8896	74579
30	1511	4384	7322	5858	3470	1199	5095	5853	4319	8953	6667	6034	60665
31	5724	8903	9774	6662	3023	779	2334	2804	2524	5703	5234	4990	58454
August													
1	1770	4627	5804	3968	1919	697	2093	2975	2291	5659	6137	4797	42737
2	1058	2758	3445	2812	1451	692	2759	3065	2416	5157	6689	6702	39004

Appendix Table 2-B-7. Continued.

Date	Sector												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
3	781	1660	1996	1803	880	445	1976	2050	1878	3741	4213	3453	24876
4	818	1162	1268	861	312	156	703	568	785	1443	1100	1299	10475
5	615	511	635	322	153	40	222	229	315	592	477	562	4673
6	567	484	418	247	87	43	142	172	205	442	354	479	3640
7	488	511	472	216	53	24	172	180	238	414	347	535	3650
8	274	290	317	159	46	18	96	133	199	312	235	451	2530
9	258	184	127	101	50	13	67	75	84	162	114	135	1370
10	278	209	146	77	32	22	47	60	60	186	121	133	1371
11	165	112	102	46	32	16	56	55	82	132	153	114	1065
12	134	153	101	66	23	17	43	54	54	112	255	165	1177
13	148	166	190	62	31	20	37	57	53	112	146	92	1114
14	118	96	58	51	28	20	43	59	64	142	96	101	876
15	126	114	89	51	23	17	33	43	61	114	65	61	797
16	124	117	80	34	21	14	40	41	54	74	34	41	674
17	66	51	47	32	23	10	32	52	51	82	55	52	553
18	83	67	45	39	19	10	23	44	24	50	40	29	473
19	85	53	31	37	15	21	15	41	32	85	33	27	475
20	102	67	41	36	33	11	18	34	27	50	42	33	494
21	60	53	52	38	26	13	29	31	38	37	39	30	446
22	68	47	30	41	26	14	14	14	18	28	31	38	369
23	60	43	60	43	31	18	25	37	41	32	59	37	486
24	62	43	48	25	17	15	28	21	33	45	53	37	427
25	53	24	21	26	18	5	24	26	21	22	42	34	316
26	35	33	35	40	25	7	22	16	25	23	33	33	327
27	63	41	36	23	19	17	26	26	15	23	25	28	342
28	38	49	26	49	29	13	26	17	24	41	42	54	407
29	33	44	32	20	21	7	28	20	20	22	23	32	302
30	34	31	23	25	12	12	24	22	27	38	50	47	345
31	40	32	33	10	11	5	16	36	31	40	27	29	310
September													
1	40	31	42	24	13	12	32	34	37	59	32	40	396
2	46	37	36	18	30	9	32	18	25	33	44	35	363

Appendix Table 2-B-7. Continued.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
3	23	19	23	14	21	13	34	21	22	28	30	24	272
4	29	31	20	11	8	9	13	28	14	33	39	24	259
5	30	27	32	22	12	10	23	34	19	33	37	24	303
TOTAL	42609	50070	63980	45633	29819	12432	35859	40971	36947	75172	80955	72429	586876
PERCENT	7.3	8.5	10.9	7.8	5.1	2.1	6.1	7.0	6.3	12.8	13.8	12.3	

1/ 60 foot substrate deployed.

Appendix Table 2-B-8. Sector distribution of sonar counts, adjusted for debris, west bank, Susitna station, Anadromous Adult Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
1 1/	41	10	1	0	0	0	0	0	0	6	1	0	59
2	44	6	2	8	4	1	0	0	0	4	4	7	80
3	23	16	2	4	5	2	2	4	2	2	2	13	77
4	52	8	0	0	0	0	1	0	4	4	0	11	80
5	72	22	5	0	0	0	0	0	0	0	3	4	106
6	43	14	2	0	0	0	0	0	0	2	2	7	70
7	86	29	4	2	0	0	0	0	0	0	0	0	121
8	108	19	0	0	1	0	0	0	1	1	0	0	130
9	73	32	6	5	5	5	0	0	0	0	2	1	129
10	41	6	6	7	6	6	0	1	0	0	3	2	78
11	45	5	0	0	0	0	1	0	0	1	0	2	54
12	53	4	1	1	0	0	1	0	0	4	0	1	65
13	23	2	3	1	0	0	0	7	3	0	1	2	42
14	50	11	1	0	0	0	2	8	4	6	1	5	88
15	35	12	0	1	0	0	0	0	0	1	0	4	53
16	91	37	2	3	0	0	0	3	7	10	1	3	157
17	305	133	54	46	30	30	29	25	40	64	54	29	839
18	673	334	218	158	83	83	171	186	233	577	547	353	3616
19	5559	2459	1022	505	79	29	228	303	743	1575	1098	763	14363
20	5575	1805	1020	403	63	15	177	170	576	1418	1068	718	13008
21	7607	2207	1635	533	299	269	116	146	242	353	227	174	13808
22	10797	2152	787	229	109	3	53	77	36	39	32	75	14389
23	3352	2613	629	141	112	111	121	127	135	241	217	218	8017
24	3074	1889	219	49	38	76	3	15	42	35	56	122	5618
25 2/	180	232	36	6	0	0	0	4	0	12	18	10	498
26	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-
August													
1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix Table 2-B-8. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
3	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-
5 3/	112	60	39	3	6	1	5	1	6	5	30	124	392
6	242	122	94	11	5	7	11	6	3	14	28	104	647
7	173	111	68	7	4	1	5	2	2	2	7	22	404
8	172	78	73	9	3	2	4	4	2	4	5	11	367
9	36	47	20	11	11	10	2	0	0	1	1	0	139
10	66	31	25	8	10	7	2	2	1	0	6	2	160
11	60	36	39	5	1	2	2	1	0	0	7	0	153
12	141	57	19	5	0	1	2	1	0	0	1	52	279
13	111	43	26	2	3	1	0	3	3	10	31	27	260
14	117	51	2	0	0	0	0	2	3	19	16	20	230
15	65	13	2	1	0	0	0	0	3	1	8	27	120
16	57	12	2	0	0	0	0	0	0	4	2	7	87
17	12	10	2	0	0	0	0	0	0	8	12	14	58
18	45	26	2	0	0	0	0	0	0	3	5	4	85
19	49	15	4	0	0	0	0	0	0	2	6	14	90
20	62	24	0	0	0	0	0	0	0	0	0	8	94
21	48	15	1	0	0	0	0	0	0	1	1	5	71
22	53	35	2	0	0	0	0	0	1	0	3	10	104
23	32	30	2	0	0	0	0	0	0	4	5	15	88
24	19	22	4	4	4	4	2	2	3	8	2	8	82
25	38	33	0	0	0	0	0	0	0	0	1	8	80
26	23	29	1	0	0	0	0	0	0	0	0	13	66
27	71	38	5	0	0	0	0	0	0	0	3	7	124
28	42	39	10	0	0	0	0	0	0	0	0	5	96
29	52	22	0	0	0	0	0	0	0	0	1	10	85
30	36	28	3	0	0	0	0	0	0	0	3	11	81
31	56	33	1	0	0	0	0	0	0	0	0	2	92
September													
1	31	19	0	0	0	0	0	0	0	0	0	3	53
2	36	27	0	0	0	0	0	0	0	5	1	5	74

Appendix Table 2-B-8. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
3	19	24	0	0	0	0	0	0	0	0	4	9	56
4	33	27	7	0	0	0	0	0	0	0	0	6	73
5	20	35	3	0	0	0	0	0	0	0	1	9	68
TOTAL	40131	15249	6111	2168	881	666	940	1103	2095	4446	3527	3086	80403
PERCENT	49.9	19.0	7.6	2.7	1.1	0.8	1.2	1.4	2.6	5.5	4.4	3.8	

1/ 60 foot substrate deployed.

2/ Electronics pulled at 1200, substrate to be moved.

3/ New location 1.6 miles downstream.

Appendix Table 2-B-9. Sector distribution of sonar counts, adjusted for debris, north bank, Yentna station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
June													
28 1/	1	2	0	0	0	0	0	0	0	4	0	1	8
29	11	7	0	0	0	0	0	0	0	0	0	4	22
30	8	3	2	0	0	0	0	1	2	1	7	1	25
July													
1	26	8	3	0	0	0	1	3	2	7	8	17	75
2	24	10	0	0	0	0	0	1	1	0	0	11	47
3	23	13	2	0	0	0	2	1	0	6	23	31	101
4	15	1	2	1	1	0	0	14	0	1	10	30	75
5	19	12	0	0	0	0	0	0	0	0	1	34	66
6	5	6	0	0	0	0	7	0	8	0	8	1	35
7 2/	3	1	0	0	0	0	0	0	0	0	0	24	28
9	7	0	0	0	0	0	0	0	0	0	0	0	7
10	19	4	1	0	0	0	0	0	0	0	0	7	31
11	19	13	2	1	0	0	0	0	0	0	0	1	36
12	6	14	1	0	0	0	0	0	0	2	2	1	26
13	13	2	0	0	0	0	0	0	0	0	0	0	15
14	12	3	1	0	0	0	0	0	0	0	7	0	23
15	47	7	4	0	0	0	0	0	0	0	0	0	58
16	15	2	2	0	0	0	0	0	0	0	0	0	19
17	71	12	0	0	0	0	0	0	0	0	0	1	84
18	209	54	11	0	0	0	0	0	0	0	0	2	276
19	641	250	72	0	0	0	0	0	0	2	6	81	1052
20	3665	1018	148	1	1	0	0	0	0	0	11	97	4941
21	6182	1478	160	4	0	0	0	0	0	0	1	69	7894
22	2436	645	93	5	0	0	0	0	0	0	0	13	3192
23	597	535	192	8	1	0	2	0	1	6	33	97	1472
24	213	174	33	0	0	0	0	1	0	1	11	46	479
25	301	126	30	1	0	0	0	0	0	3	28	79	568
26	247	45	0	0	0	0	0	0	0	0	1	0	293
27	506	340	254	54	13	10	0	1	0	0	4	38	1220
28	1775	1176	933	272	46	26	5	1	0	0	2	86	4322

Appendix Table 2-B-9. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
29	3186	1285	1457	422	102	43	15	9	6	6	7	31	6569
30	2193	3217	3084	934	159	35	200	96	24	35	81	49	10107
August													
1	2508	4050	3737	1626	348	74	258	192	74	50	266	666	13849
2	3366	7750	2846	1081	205	50	165	108	41	22	254	321	16199
3	4385	2041	459	95	15	0	2	0	0	0	14	154	7165
4	3903	182	729	117	7	3	2	1	3	0	81	102	5130
5	2463	967	319	65	4	0	2	0	0	0	28	222	4070
6	836	207	47	9	0	0	0	0	0	0	5	18	1122
7	720	206	70	5	0	0	0	0	0	0	2	6	1009
8	862	239	69	14	0	1	12	5	7	14	34	31	1288
9	912	188	117	30	3	1	22	27	36	104	103	116	1659
10	699	190	86	24	5	2	13	30	24	72	77	101	1323
11	435	163	70	15	4	1	26	32	16	92	47	111	1012
12	510	130	30	4	1	0	16	7	25	54	29	67	873
13	364	111	54	9	2	0	14	19	19	38	87	89	806
14	315	45	5	0	0	0	5	5	3	12	5	9	404
15	164	37	29	1	0	0	5	5	2	1	2	22	268
16	161	65	36	3	0	0	4	4	2	23	10	0	308
17	202	97	38	5	0	0	2	10	6	12	29	40	441
18	168	99	42	5	0	0	1	7	11	14	31	30	408
19	178	82	34	12	0	0	7	4	1	5	7	14	344
20	164	30	18	2	0	0	2	3	0	14	10	10	253
21	115	24	1	0	0	0	0	0	0	0	0	0	140
22	135	21	4	1	0	0	0	0	0	2	11	5	179
23	110	18	0	0	0	0	0	0	0	8	16	4	156
24	86	36	3	0	0	0	2	1	0	0	6	0	134
25	96	38	11	0	0	0	0	1	0	0	2	7	155
26	197	29	9	0	0	0	0	1	0	0	1	2	239
27	158	22	2	1	0	0	0	0	0	0	1	1	185
28	157	17	4	0	0	0	2	0	0	2	1	0	183
29	74	6	3	0	0	0	0	0	1	0	0	0	84
30	109	24	0	0	0	0	0	0	0	0	0	2	135
31	137	26	1	0	0	0	0	0	0	0	0	2	166

Appendix Table 2-B-9. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
1	78	18	3	1	0	0	0	0	0	0	0	0	100
2	237	47	13	0	0	0	0	0	0	1	32	113	443
3	274	22	10	0	0	0	0	0	0	0	2	46	354
4	62	18	0	0	0	0	0	0	0	1	5	6	92
TOTAL	47835	27708	15386	4828	917	236	794	590	315	615	1449	3169	103842
PERCENT	46.1	26.7	14.8	4.6	0.9	0.2	0.8	0.6	0.3	0.6	1.4	3.0	

1/ 60 foot substrate deployed.

2/ Data off due to electronic malfunction from 2300 7/7 to 2000 7/9.

Appendix Table 2-B-10. Sector distribution of sonar counts, adjusted for debris, south bank, Yentna station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
June													
27 1/	13	2	6	4	3	0	3	0	1	0	1	10	43
28	20	13	7	2	2	0	2	6	2	0	1	4	59
29	19	5	0	0	0	0	0	0	0	0	0	0	24
30	4	1	1	0	0	0	1	0	1	0	0	0	8
July													
1	3	1	1	0	0	0	0	0	5	16	1	3	30
2	2	0	0	0	0	0	0	0	0	0	0	0	2
3	7	1	0	0	0	0	7	3	4	31	14	37	104
4	14	1	0	0	0	0	5	4	8	18	5	46	101
5	20	1	0	0	0	0	4	1	3	7	6	22	64
6	17	0	0	0	0	0	1	0	2	0	0	19	39
7	27	0	0	1	0	0	0	0	0	0	9	3	40
8	159	25	7	3	0	0	0	0	0	2	0	0	196
9	56	0	3	0	0	0	0	0	0	4	3	0	66
10	16	0	0	0	0	0	0	0	0	0	0	0	16
11	12	0	0	0	0	0	0	0	0	0	0	0	12
12	18	1	0	0	0	0	0	1	0	0	0	0	20
13	19	10	0	1	0	0	1	0	1	0	0	1	33
14	42	10	5	0	0	0	0	0	9	0	3	5	74
15	29	18	7	0	2	0	1	4	6	0	2	2	71
16	38	76	15	4	4	1	0	4	2	3	5	2	154
17	459	605	246	96	22	1	50	19	50	58	41	40	1687
18	1078	1354	633	232	40	2	69	66	80	144	123	107	3928
19	5010	7241	2711	868	199	18	316	285	437	447	448	308	18288
20	7983	9037	2360	615	84	8	146	189	235	363	325	403	21748
21	12524	10450	1768	299	30	3	39	43	24	79	40	51	25350
22	4291	10797	2305	311	30	1	31	14	18	22	17	14	17751
23	1985	8717	2386	350	34	1	57	45	44	70	71	71	13831
24	15937	9232	1673	217	19	1	29	17	22	31	43	16	27237
25	11686	4996	1533	208	21	0	37	46	87	84	68	90	18856
26	10046	6610	1773	125	19	1	32	21	36	74	71	88	18896
27	5371	8766	4535	858	281	65	504	460	506	552	483	526	22907
28	12591	13952	6250	1100	394	107	936	869	1059	552	483	425	40728

Appendix Table 2-B-10. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
29	18491	16089	6745	1021	396	133	992	797	876	1278	1228	827	48873
30	23047	14966	5047	526	118	20	248	186	135	296	283	163	45035
31	13046	16146	6494	544	132	38	184	170	205	335	155	154	37603
August													
1	6336	13820	10776	1430	406	136	925	1068	1104	694	481	578	37754
2	7578	12160	7932	1416	455	156	967	890	1062	1285	821	861	35583
3	9416	9419	4026	1212	344	88	555	522	556	910	698	635	28381
4	1562	2119	1107	497	416	219	733	657	461	698	838	1029	10336
5	1584	1556	852	527	273	150	467	457	381	457	541	825	8070
6	825	699	553	267	121	97	350	310	162	207	187	344	4122
7	757	622	477	233	123	89	292	202	139	83	175	207	3399
8	611	560	465	264	128	71	279	160	112	135	149	237	3171
9	544	377	301	149	86	56	162	103	74	134	121	481	2588
10	2641	291	185	118	56	41	115	76	33	47	67	270	3940
11	421	207	149	59	38	14	31	47	30	18	15	57	1086
12	316	154	103	27	15	11	20	9	7	6	17	11	696
13	390	115	36	19	6	0	11	3	14	25	40	135	794
14	497	102	27	8	2	0	16	21	18	19	53	35	798
15	152	46	25	5	3	0	4	6	5	8	8	32	294
16	137	16	24	0	1	0	4	1	1	1	3	5	193
17	143	31	19	4	3	0	5	4	6	4	6	5	230
18	100	20	25	4	2	0	9	0	3	10	22	3	198
19	130	29	22	6	3	0	10	6	6	11	26	24	273
20	78	68	29	4	0	1	6	10	3	25	10	23	257
21	74	41	9	0	0	0	1	0	0	0	9	4	138
22	37	16	1	1	0	0	1	0	4	1	14	1	76
23	118	30	11	2	1	0	8	5	5	5	5	5	195
24	166	37	29	4	0	0	5	1	2	1	6	14	265
25	118	52	17	4	3	0	1	5	1	5	0	13	219
26	111	13	20	3	1	0	0	0	0	0	0	22	170
27	103	33	2	0	0	0	0	1	5	6	0	32	182
28	157	37	16	3	0	0	1	4	0	0	0	14	232
29	192	19	13	1	0	0	1	0	0	0	1	61	288
30	43	15	3	3	1	0	0	0	0	0	0	157	222
31	67	42	10	1	0	0	0	0	0	0	0	0	120

Appendix Table 2-B-10. Continued.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
1	175	18	5	1	1	0	0	0	2	2	0	9	213
2	187	35	7	1	0	0	5	0	0	0	8	31	274
3	127	48	19	3	0	0	2	0	0	1	0	47	247
4	101	10	6	3	0	0	1	0	0	2	3	205	331
5	39	11	11	3	0	0	0	2	0	0	0	4	70
TOTAL	180113	181991	73723	13667	4318	1529	8682	7820	8054	10161	8838	10383	509279
PERCENT	35.4	35.7	14.5	2.7	0.9	0.3	1.7	1.5	1.6	2.0	1.7	2.0	

1/ 60 foot substrate deployed.

Appendix Table 2-B-11. Sector distribution of sonar counts, adjusted for debris, east bank, Sunshine station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
6 1/	6	16	31	11	29	26	26	31	9	15	13	9	222
7	12	22	42	51	62	72	81	52	25	18	17	8	462
8	21	25	70	52	65	70	54	30	14	14	5	5	425
9	23	32	47	49	72	61	61	35	23	19	5	6	433
10	12	27	60	28	39	59	61	44	34	17	3	13	397
11	14	28	24	11	28	31	36	25	8	6	3	2	216
12	12	14	20	21	19	49	39	22	11	6	3	3	219
13	4	10	7	10	7	26	12	14	10	4	5	3	112
14	11	11	4	5	2	11	22	10	5	3	3	0	87
15	14	16	18	5	17	12	14	10	6	1	2	1	116
16	13	13	22	5	6	10	6	7	3	4	0	0	89
17	17	10	6	8	1	4	3	2	6	0	3	0	60
18	12	17	11	7	2	1	0	1	1	1	1	2	56
19	15	41	63	32	18	18	11	13	7	4	0	0	222
20	71	210	284	128	80	63	92	32	21	13	7	12	1013
21	994	1313	1316	798	753	545	349	268	157	105	46	72	6716
22	706	1075	1355	771	1233	631	593	474	232	198	157	123	7548
23	1831	2221	2473	1266	807	718	645	503	391	379	212	135	11581
24	2486	1001	665	369	118	113	28	57	49	101	28	80	5095
25	2067	466	314	141	385	40	22	28	55	32	22	29	3601
27	4879	383	118	127									5507
28	9432	1299	523	425									11679
29	16326	2676	873	1582									21457
30	20608	2192	580	728									24108
31	14960	922	332	908									17122
August													
1	30386	4561	1722	802									37471
2	35156	10513	1650	573									47892
3	47332	7519	2001	341									57193
4	39607	8934	2574	390									51505
5	26551	6782	3045	760									37138
6	26244	7590	3310	2449									39593

Appendix Table 2-B-11. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
7	20069	6353	3481	2861									32764
8	11071	4250	2868	3183									21372
9	7593	3285	1527	2288									14693
10	5104	2221	1431	4962									13718
11	5857	2811	2144	10664									21476
12	6008	2959	2132	1943									13042
13	4308	2645	1198	550									8701
14	4548	1990	840	473									7851
15	1424	450	1213	694									3781
16	1258	795	604	261									2918
17	1149	786	344	236									2515
18	804	435	301	115	45								1700
19	1161	464	208	77	93								2003
20	872	346	165	56	65								1504
21	513	307	158	48	108								1134
22	345	405	142	83	25								1000
23	354	378	177	64	38								1011
24	338	229	83	56	72								778
25	353	133	82	34	68								670
26	260	136	73	56	31								556
27	253	123	101	54	47								578
28	161	123	85	47	18								434
29	176	83	59	15									333
30	199	61	40	60									360
31	144	43	7	10									204
September													
1	250	60	29	24									363
2	728	121	36	47									932
3	299	91	27	11									428
4	33	36	19	10									98
5	152	63	20	15									250
6	220	76	21	16									333
7	233	52	19	17									321
8	179	49	8	9									245

Appendix Table 2-B-11. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
9	127	41	5	4									177
10	97	21	1	2									121
11	82	22	4	6									114
12	9	2	2	0									13
TOTAL[2+3]	369953	95887	41262	40114	610								547826
PERCENT	67.5	17.5	7.6	7.3	0.1								

1/ 20 foot substrate deployed.

2/ Twelve sector counts are adjusted to be compatible with 4 sector counts for percent total calculations.

3/ When sonar substrate consists of 5 instead of 4 sectors the distance counted per sector decreases by a factor of 0.2.

Appendix Table 2-B-12. Sector distribution of sonar counts, adjusted for debris, west bank, Sunshine station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
6 1/	3	2	0	0	0	2	1	1	0	1	0	0	10
7	4	5	0	0	0	0	0	0	0	0	0	2	11
8	3	10	0	1	1	0	0	0	0	0	0	0	15
9	7	4	2	0	0	0	0	0	0	0	0	0	13
10	0	0	1	0	0	0	1	0	0	0	0	0	2
11	1	0	1	0	0	0	0	0	0	0	0	0	2
12	1	3	0	0	0	0	0	0	0	0	0	0	4
13	2	0	3	0	0	0	1	2	0	0	0	0	8
14	6	1	0	0	0	0	0	0	0	0	0	0	7
15	0	1	3	0	0	0	0	0	0	0	0	0	4
16	7	6	2	0	0	0	0	0	0	0	0	1	16
17	7	3	3	0	0	1	0	0	0	1	0	0	15
18	15	9	3	2	0	0	0	0	0	0	0	0	29
19	13	14	4	1	0	0	0	0	0	0	0	0	32
20	36	45	22	0	0	0	0	0	0	0	1	1	105
21	64	100	89	17	1	0	2	3	1	1	2	5	285
22	184	252	160	26	8	0	1	3	5	6	0	7	652
23	299	127	266	25	4	0	3	2	2	1	1	3	733
24	331	94	43	1	0	0	2	0	0	0	0	0	471
25	485	120	15	3	0	0	4	0	0	0	2	0	629
26 2/	-	-	-	-	-	-	-	-	-	-	-	-	-
27	252	4	2	0	0	0	0	0	0	0	0	2	260
28	458	243	24	7	2	1	2	1	1	1	3	15	758
29	987	993	325	51	5	0	6	2	2	4	1	11	2387
30	1477	556	128	4	0	0	3	1	1	0	1	18	2189
31	3617	342	80	8	0	0	2	2	0	0	0	1	4052
August													
1	2714	973	331	28	3	0	8	4	6	9	2	17	4095
2	6086	3846	1487	234	47	0	63	31	28	63	59	125	12069
3	3369	3706	2386	355	208	39	207	94	97	142	135	272	11010
4	4791	2551	1358	468	346	110	162	141	86	106	161	415	10695

Appendix Table 2-B-12. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
5	4661	2558	1327	273	68	8	175	112	61	85	160	353	9841
6	3057	1888	1046	264	73	5	100	77	65	52	62	157	6846
7	1625	1488	973	225	59	5	96	56	52	61	85	177	4902
8	900	674	392	113	20	0	23	13	8	7	22	41	2213
9	591	451	313	100	18	0	24	18	7	9	18	33	1582
10	512	442	252	80	13	0	20	14	12	14	18	57	1434
11	667	464	353	135	40	2	70	55	32	45	61	102	2026
12	746	398	428	189	81	8	130	111	64	69	94	232	2550
13	700	353	295	184	78	9	214	158	90	87	105	256	2529
14	541	286	213	137	62	4	109	95	68	57	66	92	1730
15	599	200	151	57	9	2	14	8	5	7	6	28	1086
16	243	207	197	64	22	0	38	25	9	9	11	56	881
17	310	217	156	73	25	2	36	15	9	16	6	71	936
18	164	145	92	51	23	0	39	25	14	9	21	18	601
19	211	145	126	49	24	3	34	14	17	11	15	37	686
20	217	122	98	53	25	3	52	37	18	13	23	33	694
21	243	217	112	68	25	3	55	12	10	13	18	22	798
22	138	144	74	31	23	2	33	20	8	17	12	49	551
23	108	43	30	30	12	3	11	3	2	3	5	9	259
24	120	64	24	6	3	1	15	7	10	6	20	13	289
25	129	49	26	13	4	0	11	4	3	6	14	0	259
26	117	40	22	16	20	0	26	10	8	15	11	5	290
27	81	27	15	9	8	0	9	17	9	13	17	28	233
28	117	23	15	14	7	1	7	10	4	8	9	5	220
29	136	20	10	17	7	1	9	12	6	1	4	6	229
30	146	56	37	4	0	0	7	5	3	5	4	3	270
31	146	26	10	5	2	0	0	0	1	0	1	0	191
September													
1	170	72	30	7	4	0	2	9	3	2	1	9	309
2	137	51	19	11	1	0	4	0	1	4	0	2	230
3	78	4	4	2	5	0	0	0	0	1	0	0	94
4	189	33	17	8	8	0	5	5	8	1	2	10	286
5	162	37	22	12	1	0	4	4	1	4	0	4	251
6	132	45	21	12	2	0	3	1	3	1	16	2	238
7	91	32	21	9	6	0	3	0	2	7	3	1	175

Appendix Table 2-B-12. Continued.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
8	95	60	13	3	2	0	2	3	1	1	0	0	180
9	72	21	19	3	2	0	4	2	0	0	1	4	128
10	73	8	8	2	4	0	0	2	0	0	4	1	102
11	92	16	5	4	2	0	1	4	1	0	0	8	133
12	18	8	0	1	0	0	0	0	0	0	0	0	27
TOTAL	43753	25144	13704	3565	1413	215	1853	1250	844	994	1283	2819	96837
PERCENT	45.2	26.0	14.1	3.7	1.5	0.2	1.9	1.3	0.9	1.0	1.3	2.9	

1/ 40 foot substrate deployed.

2/ No data, electronics pulled due to high water.

Appendix Table 2-B-13. Sector distribution of sonar counts, adjusted for debris, east bank, Talkeetna station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
July 1/													
4	32	8	13	3	0	0	2	3	2	1	3	8	75
5	80	36	32	6	4	0	10	6	2	4	7	7	194
6	84	35	18	3	6	1	5	7	7	4	5	10	185
7	70	65	23	9	3	1	9	3	1	3	0	0	187
8	23	14	13	2	0	1	3	4	3	4	1	1	69
9	36	12	14	2	1	1	2	0	0	1	1	1	71
10	26	25	19	10	1	0	0	1	0	0	0	7	89
11	21	5	10	3	0	0	1	0	0	0	0	4	44
12	18	11	5	3	1	0	0	0	0	0	0	0	38
13	8	0	5	1	0	1	1	1	1	1	1	6	26
14	15	2	1	0	1	0	0	0	0	0	0	0	19
15	4	2	4	0	0	0	0	0	0	0	0	0	10
16	11	2	3	0	0	0	0	0	0	0	0	0	16
17	11	2	7	1	0	0	0	2	0	0	0	0	23
18	7	0	1	1	0	0	0	1	0	1	0	0	11
19	12	4	0	0	0	0	0	1	0	0	0	0	17
20	10	6	6	1	0	2	0	0	0	0	0	0	25
21	17	6	2	1	1	0	0	0	0	1	0	0	28
22	20	2	3	0	0	0	0	1	0	0	0	0	26
23	12	7	2	0	0	0	2	0	0	0	0	0	23
24	14	4	1	2	0	0	0	3	0	0	0	0	23
25	9	5	5	0	0	0	0	0	0	0	3	0	22
26	3	7	2	2	0	0	1	0	0	0	0	0	15
27	22	34	9	1	0	0	2	2	1	0	0	1	72
28	16	33	12	11	0	1	1	2	3	2	1	0	82
29	65	105	42	16	5	0	15	7	3	8	2	1	269
30	79	154	50	15	3	3	16	8	2	3	2	1	336
31	72	96	29	0	2	0	12	6	2	0	0	1	220
August													
1	166	207	65	14	19	1	25	11	3	3	0	0	514
2	546	897	227	54	23	2	61	11	10	13	3	6	1853
3	1136	1325	396	119	29	8	48	54	21	17	9	3	3165
4	1252	2245	757	212	49	5	35	37	23	14	5	9	4643

Appendix Table 2-B-13. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
5	1841	3386	1006	244	60	12	64	54	10	9	7	12	6705
6	1412	3736	1272	332	68	13	129	82	53	32	12	27	7168
7	1025	3509	1312	295	74	12	91	58	22	15	9	27	6449
8	399	1742	655	208	56	9	61	35	8	9	6	14	3202
9	209	961	398	128	37	10	35	28	10	6	6	19	1847
10	157	695	340	135	34	4	46	22	12	3	5	16	1469
11	110	784	448	138	33	0	35	20	8	4	6	17	1603
12	110	756	560	195	37	6	43	23	5	2	8	16	1761
13	312	772	493	151	32	2	46	20	9	9	8	15	1869
14	373	546	228	67	11	1	18	5	3	5	6	11	1274
15	218	373	181	34	10	1	10	4	3	0	4	13	851
16	160	195	122	28	3	0	5	0	1	2	0	1	517
17	185	306	150	38	7	0	11	3	0	0	2	6	708
18	259	268	127	21	4	0	3	4	1	2	1	3	693
19	161	220	111	37	4	2	10	1	1	1	1	7	556
20	95	211	127	45	6	1	5	3	5	2	0	3	503
21	39	96	92	27	5	0	5	5	0	0	1	1	271
22	57	95	78	26	0	0	3	0	1	0	1	0	262
23	71	133	71	12	2	1	3	2	1	0	0	3	299
24	40	83	55	10	0	0	2	0	1	2	2	1	196
25	16	25	39	13	0	0	2	0	0	0	2	1	98
26	33	64	27	2	0	0	2	0	1	1	0	0	130
27	26	70	40	6	2	0	0	2	0	1	0	1	148
28	44	113	42	6	0	1	5	1	0	1	1	0	214
29	30	98	33	10	3	0	1	0	0	0	0	0	175
30	26	103	40	11	1	0	3	0	0	0	0	0	184
31	40	108	29	10	1	0	0	0	0	0	0	0	188
September													
1	18	25	8	4	0	0	2	0	0	0	0	0	57
2	26	45	9	2	0	0	0	0	0	0	0	0	82
3	29	60	12	3	1	2	1	0	0	0	0	0	108
4	50	52	18	5	0	0	1	0	0	0	0	0	126
5	34	48	15	7	0	0	3	0	0	0	0	0	107
6	90	87	14	6	2	1	7	0	0	0	0	0	207
7	45	44	12	8	0	0	3	0	0	0	0	0	112
8	34	31	15	5	2	0	1	0	0	0	1	1	90

Appendix Table 2-B-13. Continued.

Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
9	20	17	10	2	0	0	1	2	1	0	0	0	53
10	23	38	15	0	1	0	0	0	0	0	1	0	78
11	14	21	15	4	0	0	0	0	0	0	0	0	54
12	16	21	7	5	0	1	2	0	0	0	0	0	52
13	10	31	11	1	0	0	0	0	0	0	0	0	53
TOTAL	11754	25323	10013	2774	644	106	910	545	240	186	133	281	52909
PERCENT	22.2	47.9	18.9	5.2	1.2	0.2	1.7	1.0	0.5	0.4	0.3	0.5	

1/ 40 foot substrate deployed

Appendix Table 2-B-14. Sector distribution of sonar counts, adjusted for debris, west bank, Talkeetna station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
July													
4 1/	11	10	5	13	10	20	16	17	12	9	3	5	131
5	15	23	16	10	26	19	25	29	17	18	18	17	233
6	4	14	23	17	52	29	41	37	19	14	9	15	274
7	3	9	5	13	17	19	28	19	24	20	5	4	166
8	8	11	18	23	25	20	17	28	12	10	11	7	190
9	11	6	20	18	21	10	10	13	9	5	1	1	125
10	18	26	12	7	7	1	4	3	0	1	1	0	80
11	4	9	12	9	5	2	1	4	2	0	0	0	48
12	3	14	4	3	4	1	0	1	0	0	1	0	31
13	10	8	10	1	2	10	1	2	1	2	0	1	48
14	12	26	14	11	4	6	2	1	2	1	0	0	79
15	32	27	13	8	14	12	1	3	0	1	1	1	113
16	8	19	2	2	7	2	3	0	0	1	0	0	44
17	19	11	1	0	5	3	4	2	0	0	0	0	45
18	6	9	6	3	3	2	1	0	0	1	0	1	32
19	14	4	5	1	2	2	2	0	1	0	0	1	32
20	33	9	4	2	2	0	0	0	0	0	0	0	50
21	8	7	3	1	3	0	1	1	0	0	0	0	24
22	6	19	8	1	2	2	5	0	8	3	0	1	55
23	4	20	13	2	3	6	1	1	0	0	0	0	50
24	2	7	8	12	4	4	2	1	0	0	0	0	40
25	28	18	16	10	4	1	2	4	1	0	0	0	84
26	7	20	12	4	6	0	0	0	0	1	0	0	50
27	29	19	30	15	7	4	3	3	1	0	0	0	111
28	10	61	102	33	9	6	8	7	2	2	0	0	240
29	76	176	133	30	15	22	23	15	2	2	1	0	495
30	70	195	172	74	28	14	11	9	3	0	1	0	577
31	12	51	84	49	26	10	2	6	2	0	0	0	242
August													
1	34	92	228	84	34	17	18	13	5	2	0	0	527
2	603	727	608	226	233	77	38	32	4	2	0	0	2550
3	1097	2049	1165	423	410	169	101	45	7	18	14	4	5502
4	1582	3512	1664	673	511	193	96	81	31	14	8	11	8376
5	1026	2316	1872	768	452	156	111	68	19	17	5	3	6813
6	1126	2213	2749	1287	454	232	103	78	38	18	10	13	8321

Appendix Table 2-B-14. Continued.

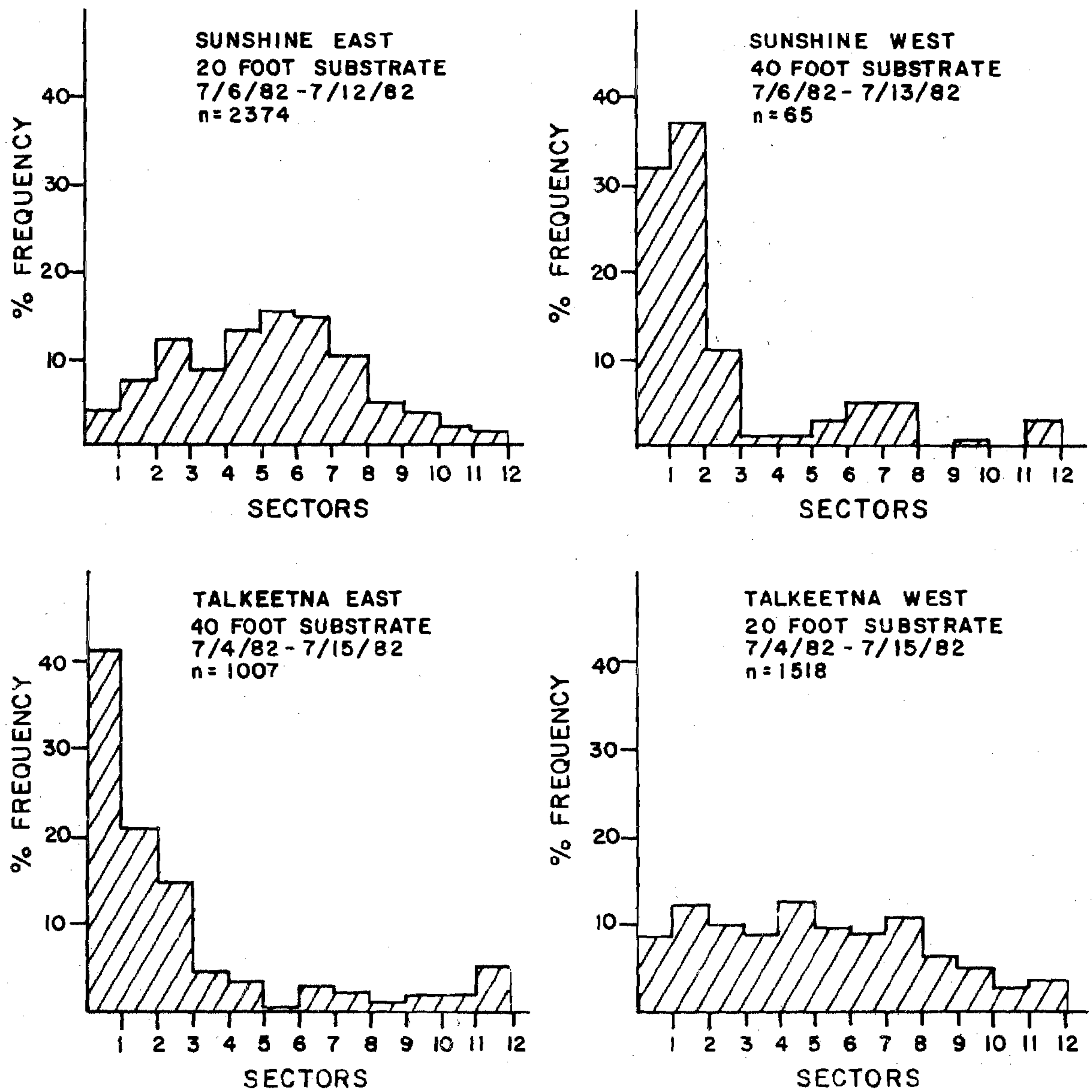
Date	Sector 1	2	3	4	5	6	7	8	9	10	11	12	Total
August													
7	847	1770	2379	1289	634	242	90	92	35	9	7	14	7408
8	609	1152	1719	919	521	203	60	57	33	14	3	7	5297
9	348	783	1298	706	638	145	64	38	36	11	3	3	4073
10	342	530	974	581	495	140	36	44	24	11	7	6	3190
11	189	395	718	608	531	138	51	68	37	23	12	9	2779
12	110	242	583	433	399	125	65	63	24	10	6	5	2065
13	127	255	594	559	590	211	108	105	64	33	16	10	2672
14	101	258	602	453	490	151	70	85	47	24	11	10	2302
15	66	161	308	244	218	100	42	36	8	12	2	1	1198
16	41	68	185	135	82	26	18	17	4	2	1	1	580
17	39	63	170	152	150	53	20	13	4	6	0	0	670
18	25	64	140	119	116	45	32	20	10	10	4	1	586
19	27	59	140	148	114	37	12	30	8	6	3	1	585
20	20	102	198	129	125	62	30	21	14	9	2	3	715
21	23	84	160	85	74	34	13	17	3	4	2	1	500
22	50	82	114	64	40	38	13	7	6	4	0	0	418
23	25	47	92	59	28	23	20	10	2	0	0	0	306
24	51	47	79	37	26	19	10	11	4	2	1	0	287
25	34	43	63	45	33	19	6	9	3	1	2	2	260
26	23	35	44	23	21	11	10	6	3	0	0	0	176
27	26	21	43	32	23	15	10	10	3	0	1	1	185
28	92	33	61	51	55	30	18	6	3	0	0	0	349
29	26	19	45	46	23	12	8	3	1	0	0	0	183
30	20	46	56	28	12	16	6	8	2	1	0	0	195
31	9	29	100	50	23	6	7	5	0	1	0	0	230
September													
1	16	41	52	23	20	4	5	1	0	0	1	0	163
2	15	36	41	25	19	2	2	0	0	1	2	0	143
3	22	39	82	42	14	1	3	1	1	0	0	0	205
4	25	27	49	27	11	2	6	0	0	1	0	0	148
5	33	24	38	28	11	13	4	1	2	0	1	0	155
6	11	28	29	16	7	6	1	0	1	0	0	0	99
7	2	6	13	13	5	6	1	1	1	0	0	0	48
8	7	21	19	3	2	1	0	0	0	0	0	0	53
9	4	6	6	4	2	3	2	0	0	0	0	0	27
10	4	9	4	3	3	0	1	1	1	0	0	0	26

Appendix Table 2-B-14. Continued.

	Sector												
Date	1	2	3	4	5	6	7	8	9	10	11	12	Total
September													
11	0	0	2	2	1	2	2	1	0	0	0	0	10
12	4	4	3	4	3	2	3	2	0	0	0	0	25
13	2	5	5	2	3	1	2	1	0	0	0	0	21
14	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9346	18371	20245	11020	7969	3015	1532	1313	606	357	176	160	74110
PERCENT	12.6	24.8	27.3	14.9	10.7	4.1	2.1	1.8	0.8	0.5	0.2	0.2	

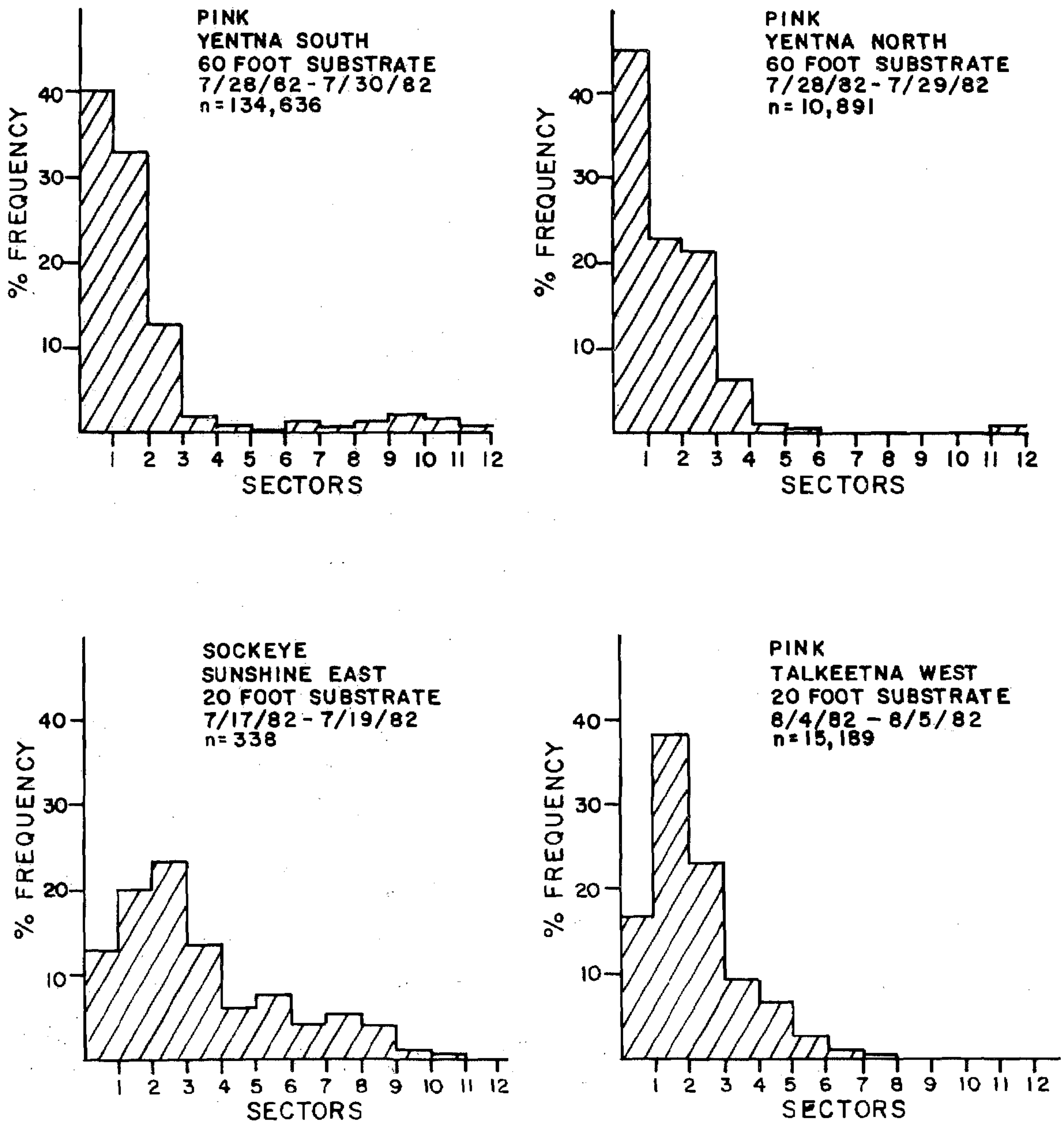
1/ 20 foot substrate deployed.

20 FOOT SUBSTRATE : ONE SECTOR = 1.5 FEET
40 FOOT SUBSTRATE : ONE SECTOR = 3.0 FEET
60 FOOT SUBSTRATE : ONE SECTOR = 4.5 FEET

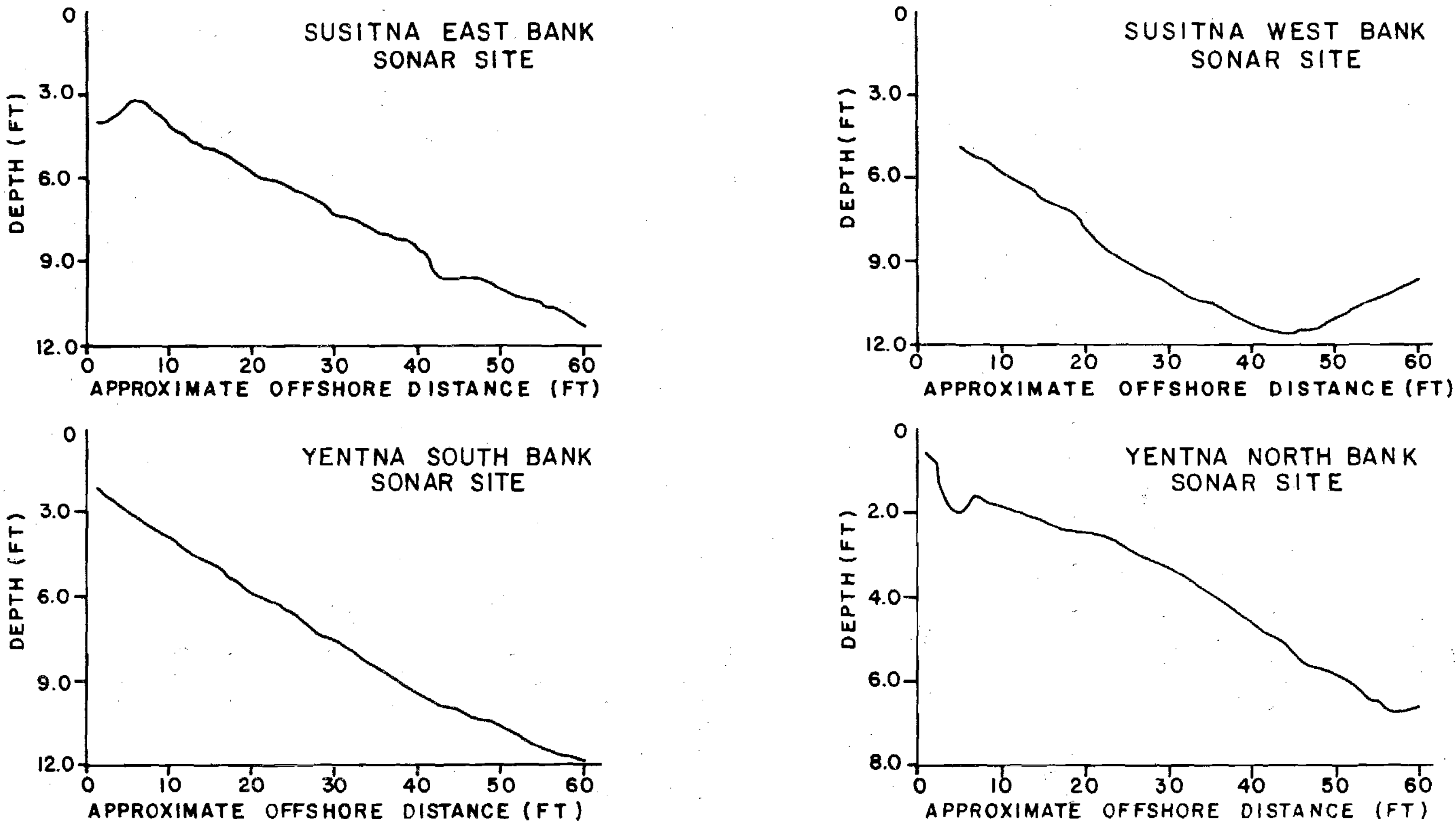


Appendix Figure 2-B-6. Sector distribution of chinook salmon passing over SSS substrate where daily chinook salmon apportioned sonar counts were equal to or greater than ninety percent of total sonar counts, Adult Anadromous Investigations, Su Hydro Studies, 1982.

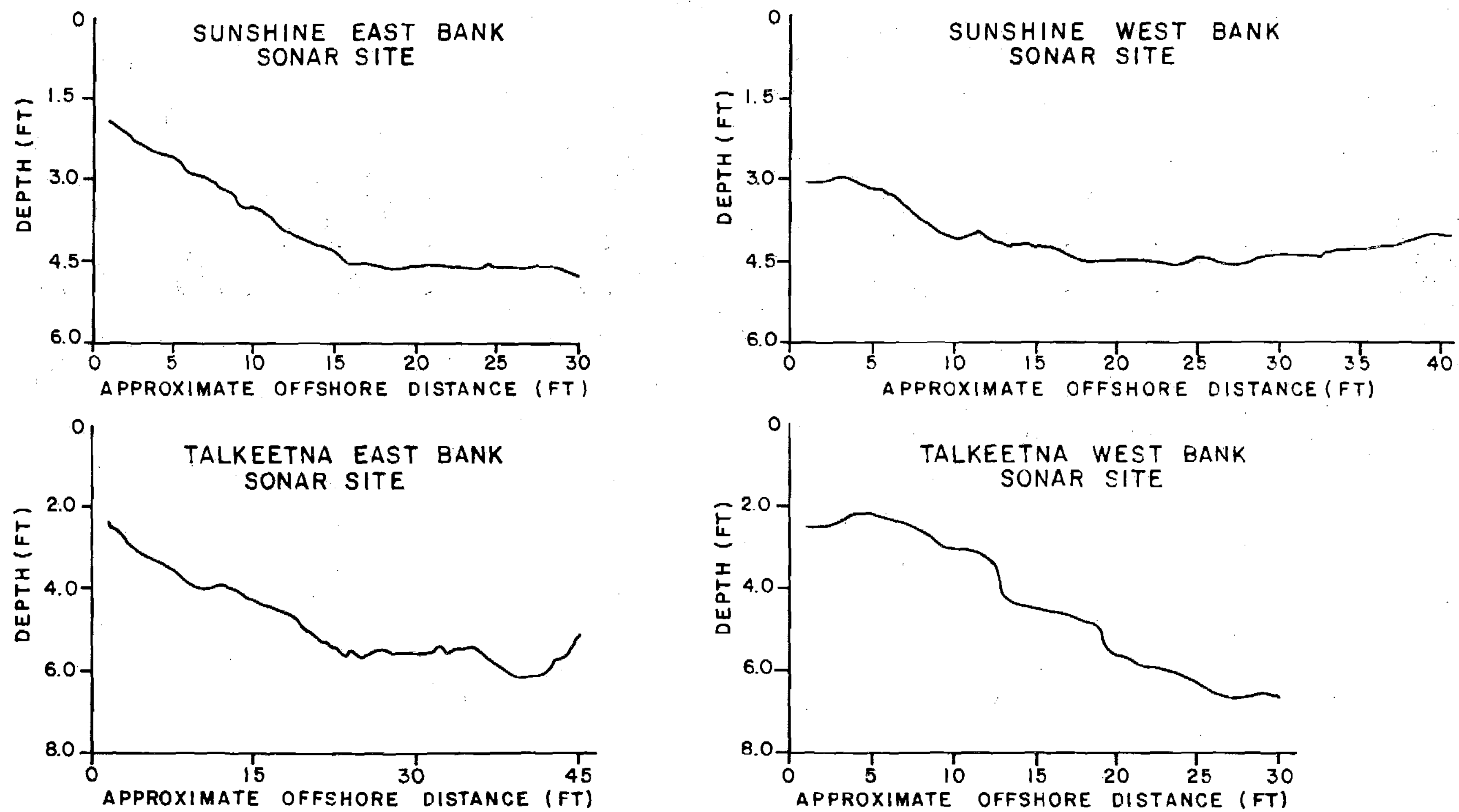
20 FOOT SUBSTRATE: ONE SECTOR = 1.5 FEET
40 FOOT SUBSTRATE: ONE SECTOR = 3.0 FEET
60 FOOT SUBSTRATE: ONE SECTOR = 4.5 FEET



Appendix Figure 2-B-7. Sector distribution of sockeye and pink salmon passing over SSS substrate where daily sockeye and pink salmon apportioned sonar counts were equal to or greater than ninety percent of total sonar counts, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-B-8. Bottom profile at Susitna and Yentna stations 1982 sonar sites, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-B-9. Bottom profile at Sunshine and Talkeetna stations 1982 sonar sites, Adult Anadromous Investigations, Su Hydro Studies, 1982.

APPENDIX 2-C

DAILY FISHWHEEL CATCH DATA

Appendix Table 2-C-1. Susitna Station east bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
2	2	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	27	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1
4	2	24	0	1	1	1	2	2	0	0	0	0	0	0	0	3	4
5	2	21.5	1	2	0	1	2	4	0	0	0	0	0	0	0	3	7
6	2	21	0	2	0	1	0	4	0	0	0	0	0	0	0	0	7
7	2	24	0	2	0	1	1	5	0	0	0	0	0	0	0	1	8
8	2	24	1	3	0	1	1	6	0	0	0	0	0	0	0	2	10
9	2	24	0	3	0	1	2	8	0	0	0	0	0	0	0	2	12
10	2	24	0	3	1	2	1	9	0	0	0	0	0	0	0	2	14
11	2	24	0	3	0	2	0	9	0	0	0	0	0	0	0	0	14
12	2	24	0	3	0	2	0	9	0	0	0	0	0	0	0	0	14
13	2	24	0	3	2	4	1	10	0	0	1	1	0	0	0	4	18
14	2	23	0	3	6	10	2	12	0	0	1	2	0	0	0	9	27
15	2	24	0	3	2	12	0	12	0	0	1	2	0	0	0	3	30
16	2	24	1	4	9	21	3	15	0	0	2	4	0	0	0	15	45
17	2	26	0	4	49	70	7	22	5	5	3	7	0	0	0	64	109
18	2	22	0	4	70	140	9	31	4	9	7	14	0	0	0	90	199
19	2	24	0	4	307	447	12	43	27	36	12	26	0	0	0	358	557
20	2	3.5	0	4	30	477	1	44	0	36	4	30	0	0	0	35	592
21	2	11	0	4	103	580	10	54	1	37	3	33	0	0	0	117	709
22	2	2.5	0	4	18	598	0	54	0	37	1	34	0	0	0	19	728
23	2	3.5	0	4	16	614	15	69	1	38	1	35	0	0	0	33	761
24	2	9	0	4	47	661	64	133	11	49	10	45	0	0	0	132	893
25	2	4.5	0	4	24	685	41	174	3	52	0	45	0	0	0	68	961
26	2	11	0	4	34	719	87	261	4	56	5	50	0	0	0	130	1091
27	2	17	1	5	63	782	63	324	5	61	5	55	0	0	0	137	1228
28	2	12	0	5	52	834	319	643	19	80	9	64	0	0	0	399	1627
29	2	7.5	1	6	27	861	228	871	6	86	26	90	0	0	0	288	1915
30	2	4	0	6	8	869	126	997	4	90	8	98	0	0	0	146	2061
31	2	10	0	6	42	911	281	1278	13	103	22	120	0	0	0	358	2419
August																	
1	2	10.5	0	6	22	933	81	1359	13	116	14	134	0	0	0	130	2549
2	2	14	0	6	23	956	148	1507	14	130	25	159	0	0	0	210	2759
3	2	11	0	6	30	986	275	1782	27	157	43	202	0	0	0	375	3134
4	2	9	0	6	13	999	64	1846	6	163	29	231	0	0	0	111	3246

Appendix Table 2-C-1. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
5	2	13.5	0	6	18	1017	32	1881	12	175	28	259	0	0	0	90	3336
6	2	14	0	6	8	1025	18	1899	10	185	20	279	0	0	0	56	3392
7	2	12.5	0	6	4	1029	18	1917	2	187	9	288	0	0	0	33	3425
8	2	24	0	6	16	1045	76	1993	3	190	3	291	0	0	0	98	3523
9	2	23.5	1	7	7	1052	32	2025	4	194	9	300	0	0	0	53	3576
10	2	21.5	0	7	8	1060	23	2048	2	196	8	308	0	0	0	41	3617
11	2	22.5	0	7	5	1065	11	2059	2	198	3	311	0	0	0	21	3638
12	2	23.5	0	7	5	1070	5	2064	0	198	1	312	0	0	0	11	3649
13	2	27	0	7	5	1075	2	2066	0	198	10	322	0	0	0	17	3666
14	2	21.5	0	7	0	1075	2	2068	3	201	4	326	0	0	0	9	3675
15	2	24	0	7	1	1076	4	2072	0	201	2	328	0	0	0	7	3682
16	2	24	0	7	3	1079	1	2073	0	201	1	329	0	0	0	5	3687
17	2	24	0	7	1	1080	0	2073	1	202	2	331	0	0	0	4	3691
18	2	24	0	7	4	1084	0	2073	0	202	0	331	0	0	0	4	3695
19	2	26	0	7	3	1087	4	2077	0	202	2	333	0	0	0	9	3704
20	2	22	0	7	3	1090	1	2078	1	203	0	333	0	0	0	5	3709
21	2	23.5	0	7	2	1092	0	2078	0	203	1	334	0	0	0	3	3712
22	2	23	0	7	1	1093	2	2080	0	203	3	337	0	0	0	6	3718
23	2	28	0	7	0	1093	0	2080	1	204	2	339	0	0	0	3	3721
24	2	17.5	0	7	0	1093	2	2082	1	205	1	340	0	0	0	4	3725
September																	
2	2	23.5	0	7	0	1093	0	2082	2	207	0	340	1	0	1	3	3728
3	2	26	0	7	0	1093	0	2082	4	211	0	340	3	0	4	7	3735
4	2	22.5	0	7	0	1093	0	2082	1	212	1	341	0	0	4	2	3737
5	2	24	0	7	0	1093	0	2082	0	212	0	341	3	0	7	3	3740

Appendix Table 2-C-2. Susitna Station west bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
July																	
1	2	24	4	4	0	0	2	2	1	1	0	0	0	0	0	7	7
2	2	24	1	5	0	0	3	5	0	1	0	0	0	0	0	4	11
3	2	26.5	2	7	1	1	4	9	0	1	0	0	0	0	0	7	18
4	2	24	1	8	0	1	3	12	0	1	0	0	0	0	0	4	22
5	2	22	1	9	0	1	1	13	0	1	0	0	0	0	0	2	24
6	2	24	0	9	0	1	1	14	0	1	0	0	0	0	0	1	25
7	2	21	0	9	1	2	1	15	0	1	0	0	0	0	0	2	27
8	2	24	1	10	0	2	0	15	0	1	0	0	0	0	0	1	28
9	2	23.5	1	11	0	2	0	15	0	1	0	0	0	0	0	1	29
10	2	24.5	0	11	0	2	1	16	0	1	0	0	0	0	0	1	30
11	2	23.5	0	11	1	3	3	19	0	1	0	0	0	0	0	4	34
12	2	24	0	11	0	3	0	19	0	1	0	0	0	0	0	0	34
13	2	24	3	14	3	6	0	19	0	1	0	0	0	0	0	6	40
14	2	23.5	1	15	3	9	3	22	0	1	1	1	0	0	0	8	48
15	2	24.5	0	15	1	10	0	22	0	1	0	1	0	0	0	1	49
16	2	24	2	17	0	10	5	27	0	1	1	2	0	0	0	8	57
17	2	25.5	0	17	12	22	7	34	0	1	2	4	0	0	0	21	78
18	2	23	0	17	14	36	18	52	6	7	4	8	0	0	0	42	120
19	2	23.5	0	17	32	68	39	91	24	31	9	17	0	0	0	104	224
20	2	4	0	17	5	73	3	94	2	33	3	20	0	0	0	13	237
21	2	11	0	17	9	82	8	102	2	35	0	20	0	0	0	19	256
22	2	10	0	17	12	94	22	124	2	37	3	23	0	0	0	39	295
23	2	21	0	17	22	116	133	257	3	40	7	30	0	0	0	165	460
24	2	11.5	0	17	13	129	186	443	7	47	9	39	0	0	0	215	675
25	2	7	0	17	12	141	16	459	4	51	4	43	0	0	0	36	711
26	2	14	0	17	27	168	130	589	7	58	3	46	0	0	0	167	878
27	2	16	0	17	32	200	13	602	3	61	2	48	0	0	0	50	928
28	2	9.5	0	17	23	223	173	775	6	67	3	51	0	0	0	205	1133
29	2	16/5	1	18	6	229	650	1425	5	72	8	59	0	0	0	670	1803
30	2	3.5	0	18	6	235	114	1539	4	76	13	72	0	0	0	137	1940
31	2	12	0	18	12	247	150	1689	14	90	17	89	0	0	0	193	2133
August																	
1	2	12	0	18	7	254	177	1866	6	96	9	98	0	0	0	199	2332
2	2	12	0	18	1	255	361	2227	11	107	5	103	0	0	0	378	2710
3	2	15	0	18	2	257	392	2619	16	123	7	110	0	0	0	417	3127
4	2	6	0	18	0	257	124	2743	3	126	3	113	0	0	0	130	3257

Appendix Table 2-C-2. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
5	2	14	0	18	3	260	56	2799	8	134	1	114	0	0	0	68	3325
6	2	14	0	18	1	261	25	2824	1	135	0	114	0	0	0	27	3352
7	2	12	0	18	3	264	48	2872	9	144	2	116	0	0	0	62	3414
8	2	24.5	0	18	5	269	93	2965	5	149	1	117	0	0	0	104	3518
9	2	23.5	0	18	4	273	42	3007	3	152	3	120	0	0	0	52	3570
10	2	22.5	0	18	0	273	21	3028	6	158	3	123	0	0	0	30	3600
11	2	22.5	0	18	5	278	32	3060	0	158	2	125	0	0	0	39	3639
12	2	23.5	0	18	4	282	15	3075	3	161	1	126	0	0	0	23	3662
13	2	15.5	0	18	2	284	4	3079	1	162	1	127	0	0	0	8	3670
25	2	19.5	0	18	0	284	2	3081	0	162	0	127	0	0	0	2	3672
26	2	24	0	18	1	285	0	3081	1	163	0	127	0	0	0	2	3674
27	2	16.5	0	18	0	285	0	3081	3	166	0	127	0	0	0	3	3677
28	2	16	0	18	0	285	0	3081	0	166	0	127	0	0	0	0	3677
29	2	25	0	18	0	285	0	3081	1	167	0	127	0	0	0	1	3678
30	2	26	0	18	0	285	0	3081	0	167	2	129	0	0	0	2	3680
31	2	24	0	18	3	288	0	3081	0	167	0	129	0	0	0	3	3683
September																	
1	2	22.5	0	18	0	288	0	3081	2	169	0	129	1	0	1	3	3686
2	2	20.5	0	18	1	289	1	3082	1	170	0	129	3	0	4	6	3692
3	2	26	0	18	0	289	0	3082	0	170	0	129	1	0	5	1	3693
4	2	23	0	18	0	289	0	3082	0	170	0	129	2	0	7	2	3695
5	2	24	0	18	0	289	0	3082	0	170	0	129	10	0	17	10	3705

Appendix Table 2-C-3. Yentna station north bank fishwheel daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
June																	
27	1	24	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1
28	1	24	1	2	0	0	0	0	0	0	0	0	0	0	0	1	2
29	1	24	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
30	1	24	1	3	1	1	0	0	0	0	0	0	0	0	0	2	4
July																	
1	1	24	3	6	0	1	0	0	0	0	0	0	0	0	0	3	7
2	1	24	1	7	1	2	0	0	0	0	0	0	0	0	0	2	9
3	1	24	1	8	0	2	0	0	0	0	0	0	0	1	1	2	11
4	1	24	0	8	1	3	0	0	0	0	0	0	0	3	4	4	15
5	1	24	0	8	3	6	0	0	0	0	0	0	0	1	5	4	19
6	1	24	3	11	3	9	0	0	0	0	0	0	0	2	7	8	27
7	1	24	2	13	0	9	1	1	0	0	0	0	0	6	13	9	36
8	1	24	2	15	0	9	2	3	0	0	0	0	0	3	16	7	43
9	1	24	5	20	0	9	0	3	0	0	0	0	0	6	22	11	54
10	1	24	2	22	1	10	0	3	0	0	0	0	0	2	24	5	59
11	1	24	0	22	0	10	0	3	0	0	0	0	0	0	24	0	59
12	1	24	0	22	2	12	1	4	0	0	0	0	0	0	24	3	62
13	1	24	0	12	0	4	0	0	0	0	0	0	0	0	24	0	62
14	1	24	0	22	2	14	1	5	0	0	0	0	0	0	24	3	65
15	1	24	2	24	5	19	2	7	0	0	2	2	0	0	24	11	76
16	1	24	0	24	5	24	3	10	0	0	0	2	0	1	25	9	85
17	1	24	0	24	14	38	8	18	2	2	4	6	0	1	26	29	114
18	1	24	0	24	29	67	39	57	15	17	4	10	0	3	29	90	204
19	1	24	0	24	71	138	99	156	36	53	15	25	0	5	34	226	430
20	1	21	0	24	192	330	134	290	29	82	19	44	0	2	36	376	806
21	1	9	0	24	80	410	76	366	17	99	6	50	0	0	36	179	985
22	1	14.5	0	24	88	498	138	504	23	122	16	66	0	0	36	265	1250
23	1	12.5	0	24	40	538	320	824	12	134	13	79	0	0	36	385	1635
24	1	9.5	0	24	24	562	188	1012	12	146	9	88	0	0	36	233	1868
25	1	12	0	24	44	606	295	1307	13	159	15	103	0	1	37	368	2236
26	1	12.5	0	24	20	626	213	1520	11	170	2	105	0	3	40	249	2485
27	1	10	0	24	26	652	317	1837	8	178	3	108	0	0	40	354	2839
28	1	12.5	0	24	10	662	748	2585	22	200	15	123	0	0	40	795	3634
29	1	9	0	24	19	681	792	3377	19	219	25	148	0	0	40	855	4489
30	1	8.5	0	24	8	689	438	3815	20	239	7	155	0	0	40	473	4962
31	1	9	0	24	21	710	478	4293	41	280	7	162	0	0	40	547	5509

Appendix Table 2-C-3. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
1	1	10.5	0	24	24	734	356	4649	60	340	22	184	0	0	40	462	5971
2	1	10	0	24	9	743	443	5092	41	381	18	202	0	0	40	511	6482
3	1	11	0	24	8	751	648	5740	59	440	19	221	0	1	41	735	7217
4	1	12	0	24	9	760	336	6072	42	482	11	232	0	1	42	399	7616
5	1	9	0	24	8	768	150	6226	46	528	10	242	0	3	45	217	7833
6	1	10	0	24	3	771	106	6332	31	559	16	258	0	2	47	158	7991
7	1	24	0	24	21	792	265	6597	62	621	29	287	0	4	51	381	8372
8	1	24	1	25	14	806	356	6953	37	658	21	308	0	3	54	432	8804
9	1	24	0	25	4	810	162	7115	34	692	14	322	0	3	57	217	9021
10	1	24	0	25	6	816	110	7225	34	726	10	332	0	4	61	164	9185
11	1	24	0	25	12	828	92	7317	22	748	14	346	0	5	66	145	9330
12	1	24	0	25	13	841	40	7357	16	764	13	359	0	3	69	85	9415
13	1	24	0	25	2	843	73	7430	16	780	13	372	0	7	76	111	9526
14	1	24	0	25	14	857	60	7490	15	795	19	391	0	13	89	121	9647
15	1	24	0	25	5	862	18	7508	7	802	22	413	0	6	95	58	9705
16	1	24	0	25	5	867	9	7517	1	803	5	418	0	0	95	20	9725
17	1	24	0	25	5	872	17	7534	10	813	9	427	0	1	96	42	9767
18	1	17	0	25	5	877	5	7539	13	826	13	440	0	0	96	36	9803
19	1	24	9	25	5	882	8	7547	18	844	10	450	0	3	99	44	9847
20	1	24	0	25	3	885	5	7552	10	854	4	454	0	5	104	27	9874
21	1	24	0	25	1	886	7	7559	7	861	4	458	1	2	107	22	9896
22	1	24	0	25	2	888	1	7560	2	863	8	466	0	2	109	15	9911
23	1	24	0	25	3	891	3	7563	1	864	4	470	0	4	113	15	9926
24	1	24	0	25	5	896	0	7563	2	866	5	475	0	6	119	18	9944
25	1	24	0	25	1	897	2	7565	4	870	6	481	0	12	131	25	9969
26	1	24	0	25	1	898	3	7568	6	876	8	489	0	11	142	29	9998
27	1	24	0	25	1	899	0	7568	2	878	5	494	0	14	156	22	10020
28	1	24	0	25	2	901	0	7568	0	878	2	496	0	11	167	15	10035
29	1	24	0	25	1	902	0	7568	3	881	3	499	1	9	177	17	10052
30	1	24	0	25	0	902	0	7568	3	884	1	500	0	0	177	4	10056
31	1	24	0	25	0	902	0	7568	1	885	3	503	0	2	179	6	10062
September																	
1	1	24	0	25	0	902	0	7568	2	887	2	505	0	0	179	4	10066
2	1	24	0	25	0	902	0	7568	1	888	6	511	0	5	184	12	10078
3	1	24	0	25	2	904	0	7568	4	892	11	522	1	7	192	25	10103
4	1	24	0	25	0	904	0	7568	1	893	5	527	0	3	195	9	10112
5	1	24	0	25	0	904	0	7568	0	893	1	528	0	0	195	1	10113

Appendix Table 2-C-4. Yentna station south bank fishwheel daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
June																	
27	1	24	4	4	5	5	0	0	0	0	0	0	0	0	0	9	9
28	1	24	5	9	2	7	0	0	0	0	0	0	0	0	0	7	16
29	1	24	2	11	0	7	0	0	0	0	0	0	0	0	0	2	18
30	1	24	3	14	0	7	0	0	0	0	0	0	0	0	0	3	21
July																	
1	1	24	11	25	0	7	0	0	0	0	0	0	0	0	0	11	32
2	1	24	7	32	5	12	0	0	0	0	0	0	0	0	0	12	44
3	1	19	3	35	2	14	0	0	0	0	0	0	0	1	1	6	50
4	1	24	8	43	3	17	0	0	0	0	0	0	0	2	3	13	63
5	1	24	6	49	3	20	0	0	0	0	0	0	0	0	0	9	72
6	1	24	5	54	2	22	0	0	0	0	0	0	0	2	5	9	81
7	1	24	8	62	1	23	0	0	0	0	0	0	0	4	9	13	94
8	1	24	11	73	1	24	0	0	0	0	0	0	0	9	18	21	115
9	1	24	4	77	3	27	1	1	0	0	0	0	0	1	19	9	124
10	1	24	4	81	0	27	0	1	0	0	0	0	0	1	20	5	129
11	1	24	1	82	1	28	0	1	0	0	0	0	0	0	20	2	131
12	1	24	5	87	2	30	0	1	0	0	0	0	0	2	22	9	140
13	1	24	1	88	1	31	1	2	0	0	0	0	0	1	23	4	144
14	1	24	2	90	1	32	0	2	0	0	0	0	0	2	25	5	149
15	1	24	2	92	7	39	1	3	0	0	2	2	0	2	27	14	163
16	1	24	0	92	15	54	3	6	0	0	1	3	0	1	28	20	183
17	1	24	1	93	56	110	13	19	4	4	8	11	0	1	29	83	266
18	1	24	1	94	123	233	16	35	7	11	10	21	0	4	33	161	427
19	1	24	4	98	295	528	73	108	30	41	30	51	0	2	35	434	861
20	1	21	0	98	459	987	89	197	16	57	13	64	0	2	37	579	1440
21	1	9	0	98	164	1151	42	239	9	66	4	68	0	0	37	219	1659
22	1	14.5	0	98	227	1378	123	362	20	86	31	99	0	0	37	401	2060
23	1	12.5	1	99	151	1529	317	679	10	96	22	121	0	0	37	501	2561
24	1	9.5	0	99	110	1639	436	1115	11	107	15	136	0	0	37	572	3133
25	1	12	0	99	89	1728	554	1669	10	117	16	152	0	0	37	669	3802
26	1	12.5	1	100	211	1939	530	2199	7	124	11	163	0	0	37	760	4562
27	1	10	0	100	106	2045	595	2794	6	130	12	175	0	0	37	719	5281
28	1	12.5	0	100	81	2126	1327	4121	3	133	30	205	0	0	37	1441	6722

Appendix Table 2-C-4. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
29	1	9	1	101	54	2180	1457	5578	10	143	57	262	0	1	38	1580	8302
30	1	8.5	0	101	20	2200	762	6340	10	153	16	278	0	0	38	808	9110
31	1	9	0	101	33	2233	320	6660	25	178	15	293	0	0	38	393	9503
August																	
1	1	10.5	0	101	29	2262	181	6841	18	196	44	337	0	0	38	272	9775
2	1	10	0	101	15	2277	300	7141	15	211	34	371	0	0	38	364	10139
3	1	12.5	0	101	10	2287	360	7501	17	228	23	394	0	0	38	410	10549
4	1	12	0	101	24	2311	405	7906	12	240	34	428	0	2	40	477	11026
5	1	9	0	101	3	2314	140	8046	8	248	20	448	0	1	41	172	11198
6	1	10	0	101	7	2321	75	8121	12	260	19	467	0	1	42	114	11312
7	1	24	0	101	27	2348	223	8344	6	266	34	501	0	3	45	293	11605
8	1	24	1	102	20	2368	322	8666	12	278	33	534	0	1	46	389	11994
9	1	24	0	102	16	2384	102	8768	14	292	19	553	0	1	47	152	12146
10	1	24	0	102	16	2400	74	8842	10	302	17	570	0	3	50	120	12266
11	1	24	0	102	11	2411	51	8893	6	308	12	582	0	3	53	83	12349
12	1	24	0	102	11	2422	36	8929	4	312	6	588	0	1	54	58	12407
13	1	24	0	102	4	2426	74	9003	9	321	13	601	0	0	54	100	12507
14	1	24	0	102	13	2439	33	9036	4	325	8	609	0	0	54	58	12565
15	1	24	0	102	5	2444	7	9043	2	327	3	612	0	1	55	18	12583
16	1	24	0	102	7	2451	3	9046	2	329	4	616	0	0	55	16	12599
17	1	24	0	102	4	2455	2	9048	2	331	6	622	0	0	55	14	12613
18	1	17	0	102	3	2458	1	9049	4	335	3	625	0	0	55	11	12624
19	1	24	0	102	5	2463	4	9053	6	341	6	631	0	1	56	22	12646
20	1	24	0	102	1	2464	1	9054	4	345	3	634	0	1	57	10	12656
21	1	24	0	102	5	2469	1	9055	2	347	4	638	0	1	58	13	12669
22	1	24	0	102	5	2474	0	9055	2	349	5	643	0	1	59	13	12682
23	1	24	0	102	2	2476	1	9056	1	350	2	645	0	1	60	7	12689
24	1	24	0	102	4	2480	0	9056	2	352	3	648	0	0	60	9	12698
25	1	24	0	102	2	2482	0	9056	1	353	0	648	0	0	60	3	12701
26	1	24	0	102	4	2486	0	9056	0	353	3	651	0	0	60	7	12708
27	1	24	0	102	3	2489	1	9057	0	353	4	655	0	1	61	9	12717
28	1	24	0	102	1	2490	2	9059	1	354	5	660	0	1	62	10	12727
29	1	24	0	102	3	2493	0	9059	1	355	3	663	0	0	62	7	12734
30	1	24	0	102	1	2494	0	9059	0	355	0	663	0	1	63	2	12736
31	1	24	0	102	1	2495	0	9059	1	356	0	663	0	0	63	2	12738

Appendix Table 2-C-4. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
September																	
1	1	24	0	102	0	2495	0	9059	0	356	2	665	0	0	63	2	12740
2	1	24	0	102	3	2498	0	9059	4	360	3	668	1	1	65	12	12752
3	1	24	0	102	2	2500	0	9059	3	363	2	670	0	1	66	8	12760
4	1	24	0	102	1	2501	0	9059	2	365	4	674	0	0	66	7	12767
5	1	24	0	102	1	2502	0	9059	3	368	1	675	0	0	66	5	12772

Appendix Table 2-C-5. Sunshine station east bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
June																	
4	1	2.5	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
5	2	26	0	0	19	20	0	0	0	0	0	0	0	2	2	21	22
6	2	47	2	2	26	46	0	0	0	0	0	0	0	5	7	33	55
7	2	48	0	2	15	61	0	0	0	0	0	0	0	0	7	15	70
8	2	48	2	4	18	79	0	0	0	0	0	0	0	1	8	21	91
9	2	48	1	5	111	190	0	0	0	0	0	0	0	0	8	112	203
10	2	47	8	13	103	293	0	0	0	0	0	0	0	5	13	116	319
11	2	48	7	20	105	398	0	0	0	0	0	0	0	1	14	113	432
12	2	48	7	27	113	511	0	0	0	0	0	0	0	1	15	121	553
13	2	48	15	42	143	654	0	0	0	0	0	0	0	4	19	162	715
14	2	47	32	74	155	809	0	0	0	0	0	0	0	7	26	194	909
15	2	40	25	99	60	869	0	0	0	0	0	0	0	1	27	86	995
16	2	47.5	24	123	92	961	0	0	0	0	0	0	0	0	27	116	1111
17	2	48	9	132	47	1008	0	0	0	0	0	0	0	0	27	56	1167
18	2	48	68	200	60	1068	0	0	0	0	0	0	0	0	27	128	1295
19	2	48	50	250	32	1100	0	0	0	0	0	0	0	0	27	82	1377
20	2	48	87	337	16	1116	0	0	0	0	0	0	0	1	28	104	1481
21	2	48	22	359	15	1131	0	0	0	0	0	0	0	1	29	38	1519
22	2	47	74	433	19	1150	0	0	0	0	0	0	0	4	33	97	1616
23	2	48	216	649	15	1165	0	0	0	0	0	0	0	3	36	234	1850
24	2	48	309	958	8	1173	0	0	2	2	0	0	0	0	36	319	2169
25	2	47	172	1130	5	1178	0	0	0	2	0	0	0	1	37	178	2347
26	2	47	143	1273	2	1180	0	0	0	2	0	0	0	3	40	148	2495
27	2	48	151	1424	1	1181	0	0	0	2	0	0	0	1	41	153	2648
28	2	47.5	352	1776	1	1182	0	0	0	2	0	0	0	2	43	355	3003
29	2	47.5	497	2273	0	1182	0	0	0	2	0	0	0	1	44	498	3501
30	2	47	437	2710	0	1182	0	0	2	4	0	0	0	0	44	439	3940
July																	
1	2	48	234	2944	1	1183	0	0	0	4	0	0	0	0	44	235	4175
2	2	48	259	3203	1	1184	0	0	3	7	0	0	0	1	45	264	4439
3	2	46	359	3562	1	1185	0	0	1	8	0	0	0	0	45	361	4800
4	2	48	301	3863	2	1187	0	0	1	9	0	0	0	4	49	308	5108
5	2	47	430	4293	1	1188	0	0	2	11	0	0	0	6	55	439	5547
6	2	45.5	243	4536	5	1193	0	0	1	12	0	0	0	1	56	250	5797
7	2	48	141	4677	7	1200	0	0	0	12	0	0	0	0	56	148	5945

Appendix Table 2-C-5. Continued.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
July																	
8	2	48	116	4793	4	1204	0	0	0	12	0	0	0	0	56	120	6065
9	2	48	50	4843	1	1205	0	0	1	13	0	0	0	1	57	53	6118
10	2	47.5	73	4916	0	1205	0	0	0	13	0	0	0	0	57	73	6191
11	2	47.5	39	4955	1	1206	0	0	0	13	0	0	0	0	57	40	6231
12	2	48	25	4980	1	1207	1	1	1	14	0	0	0	0	57	28	6259
13	2	48	15	4995	1	1208	0	1	2	16	0	0	0	0	57	18	6277
14	2	48	20	5015	3	1211	0	1	2	18	0	0	0	0	57	25	6302
15	2	42	15	5030	5	1216	3	4	0	18	0	0	0	2	59	25	6327
16	2	48	6	5036	6	1222	10	14	2	20	0	0	0	0	59	24	6351
17	2	48	3	5039	7	1229	5	19	1	21	0	0	0	0	59	16	6367
18	2	48	7	5046	11	1240	10	29	0	21	1	1	0	0	59	29	6396
19	2	48	8	5054	261	1501	29	58	0	21	1	2	0	0	59	299	6695
20	2	48	12	5066	728	2229	147	205	33	54	1	3	0	2	61	923	7618
21	2	46.5	9	5075	1971	4200	214	419	185	239	2	5	0	1	62	2382	10000
22	2	46	8	5083	2129	6329	484	903	345	584	4	9	0	1	63	2971	12971
23	2	48	1	5084	1037	7366	543	1446	345	929	4	13	0	0	63	1930	14901
24	2	48	1	5085	725	8091	113	1559	30	959	0	13	0	0	63	869	15770
25	2	48	0	5085	652	8743	147	1706	34	993	0	13	0	0	63	833	16603
26	2	48	0	5085	196	8939	58	1764	8	1001	0	13	0	0	63	262	16865
27	2	48	2	5087	588	9527	280	2044	104	1105	0	13	0	0	63	974	17839
28	2	48	0	5087	861	10388	614	2658	824	1929	4	17	0	0	63	2303	20142
29	2	42.5	2	5089	1209	11597	1751	4409	1615	3544	19	36	0	0	63	4596	24738
30	2	45	0	5089	1196	12793	2946	7355	987	4531	20	56	0	0	63	5149	29887
31	2	47	0	5089	872	13665	2962	10317	480	5011	14	70	0	0	63	4328	34215
August																	
1	2	38	1	5090	925	14590	5771	16088	1548	6559	39	109	0	0	63	8284	42499
2	2	30	0	5090	281	14871	4932	21020	1162	7721	46	155	0	0	63	6421	48920
3	2	21	1	5091	136	15007	4710	25730	998	8719	78	233	0	0	63	5923	54843
4	2	21.5	0	5091	74	15081	4390	30120	1032	9751	99	332	0	0	63	5595	60438
5	2	29	0	5091	77	15158	3672	33792	1705	11456	148	480	0	0	63	5602	66040
6	2	34	0	5091	61	15219	2865	36657	2016	13472	240	720	0	0	63	5182	71222
7	2	35	0	5091	43	15262	1958	38615	2053	15525	331	1051	0	2	65	4387	75609
8	2	38	0	5091	15	15277	1125	39740	1783	17308	278	1329	0	0	65	3201	78810
9	2	39	0	5091	17	15294	629	40369	1383	18691	218	1547	0	0	65	2247	81057
10	2	43	0	5091	29	15323	800	41169	2219	20910	476	2023	0	1	66	3525	84582

Appendix Table 2-C-5. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
11	2	45.5	0	5091	23	15346	715	41884	2631	23541	553	2576	0	0	66	3922	88504
12	2	45	0	5091	13	15359	479	42363	2345	25886	468	3044	0	5	71	3310	91814
13	2	48	2	5093	15	15374	407	42770	2782	28668	638	3682	0	10	81	3854	95668
14	2	46.5	1	5094	14	15388	353	43123	1735	30403	460	4142	0	4	85	2567	98235
15	2	48	1	5095	13	15401	129	43252	605	31008	314	4456	0	2	87	1064	99299
16	2	48	0	5095	13	15414	118	43370	569	31577	575	5031	0	0	87	1275	100574
17	2	48	0	5095	10	15424	79	43449	574	32151	628	5659	0	2	89	1293	101867
18	2	48	0	5095	6	15430	52	43501	301	32452	375	6034	0	2	91	736	102603
19	2	45	0	5095	5	15435	47	43548	272	32724	238	6272	0	0	91	562	103165
20	2	48	0	5095	2	15437	46	43594	365	33089	220	6492	0	3	94	636	103801
21	2	47	0	5095	2	15439	21	43615	247	33336	207	6699	0	7	101	484	104285
22	2	48	0	5095	2	15441	21	43636	183	33519	160	6859	0	5	106	371	104656
23	2	48	0	5095	0	15441	15	43651	188	33707	119	6978	0	8	114	330	104986
24	2	48	0	5095	3	15444	15	43666	188	33895	78	7056	0	2	116	286	105272
25	2	48	0	5095	5	15449	7	43673	173	34068	72	7128	0	7	123	264	105536
26	2	48	0	5095	0	15449	4	43677	119	34187	24	7152	0	8	131	155	105691
27	2	48	0	5095	2	15451	4	43681	161	34348	34	7186	0	8	139	209	105900
28	2	48	0	5095	1	15452	4	43685	105	34453	22	7208	0	5	144	137	106037
29	2	48	0	5095	0	15452	1	43686	95	34548	22	7230	0	7	151	125	106162
30	2	48	0	5095	0	15452	2	43688	89	34637	14	7244	0	2	153	107	106269
31	2	48	0	5095	1	15453	0	43688	47	34684	5	7249	0	1	154	54	106323
September																	
1	2	45	0	5095	1	15454	6	43694	44	34728	7	7256	0	10	164	68	106391
2	2	36	0	5095	2	15456	1	43695	57	34785	6	7262	5	9	178	80	106471
3	2	42.5	0	5095	1	15457	0	43695	83	34868	13	7275	1	14	193	112	106583
4	2	33	0	5095	0	15457	0	43695	17	34885	1	7276	5	4	202	27	106610
5	2	48	0	5095	1	15458	1	43696	44	34929	6	7282	0	20	222	72	106682
6	2	48	0	5095	1	15459	1	43697	45	34974	11	7293	4	22	248	84	106766
7	2	48	0	5095	0	15459	0	43697	50	35024	5	7298	5	19	272	79	106845
8	2	48	0	5095	0	15459	0	43697	42	35066	9	7307	5	8	285	64	106909
9	2	48	0	5095	1	15460	1	43698	26	35092	5	7312	7	15	307	55	106964
10	2	48	0	5095	0	15460	1	43699	21	35113	2	7314	7	14	328	45	107009
11	2	46	0	5095	0	15460	0	43699	11	35124	1	7315	13	10	351	35	107044
12	2	33.25	0	5095	0	15460	0	43699	6	35130	2	7317	7	5	363	20	107064
13	1	24	0	5095	2	15462	0	43699	6	35136	3	7320	13	6	382	30	107094

Appendix Table 2-C-5. Continued.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
September																	
14	1	24	0	5095	0	15462	0	43699	2	35138	0	7320	7	1	390	10	107104
15	1	24	0	5095	0	15462	0	43699	4	35142	0	7320	4	0	394	8	107112
16	1	24	0	5095	0	15462	0	43699	1	35143	0	7320	1	0	395	2	107114
17	1	23	0	5095	0	15462	0	43699	0	35143	0	7320	2	0	397	2	107116
18	1	24	0	5095	0	15462	0	43699	0	35143	0	7320	0	0	397	0	107116
19	1	24	0	5095	0	15462	0	43699	0	35143	0	7320	1	0	398	1	107117
20	1	24	0	5095	0	15462	0	43699	2	35145	0	7320	0	0	398	2	107119
21	1	24	0	5095	0	15462	0	43699	0	35145	0	7320	0	1	399	1	107120
22	1	24	0	5095	0	15462	0	43699	0	35145	0	7320	0	0	399	0	107120
23	1	24	0	5095	0	15462	0	43699	0	35145	1	7321	4	1	404	6	107126
24	0	24	0	5095	0	15462	0	43699	0	35145	0	7321	10	1	415	11	107137
25	1	16	0	5095	0	15462	0	43699	0	35145	0	7321	5	0	420	5	107142
26	1	24	0	5095	0	15462	0	43699	2	35147	0	7321	18	14	452	34	107176
27	1	23	0	5095	0	15462	0	43699	1	35148	0	7321	25	26	503	52	107228
28	1	23	0	5095	0	15462	0	43699	1	35149	1	7322	3	16	522	21	107249
29	1	23	0	5095	0	15462	0	43699	0	35149	0	7322	11	15	548	26	107275
30	1	23	0	5095	0	15462	0	43699	0	35149	0	7322	2	6	556	8	107283
October																	
1	1	8.5	0	5095	0	15462	0	43699	0	35149	0	7322	0	0	556	0	107283

Appendix Table 2-C-6. Sunshine station west bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
June																	
8	1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2	33	8	8	1	1	0	0	0	0	0	0	0	0	0	9	9
10	2	35	4	12	0	1	0	0	0	0	0	0	0	0	0	4	13
11	2	48	5	17	0	1	0	0	0	0	0	0	0	0	0	5	18
12	2	48	14	31	5	6	0	0	0	0	0	0	0	0	0	19	37
13	2	47	25	56	3	9	0	0	0	0	0	0	0	0	0	28	65
14	2	32	22	78	0	9	0	0	0	0	0	0	0	0	0	22	87
15	2	44	21	99	0	9	0	0	0	0	0	0	0	0	0	21	108
16	2	24	16	115	0	9	0	0	0	0	0	0	0	0	0	16	124
17	2	40	18	133	0	9	0	0	0	0	0	0	0	1	1	19	143
18	2	48	55	188	1	10	0	0	0	0	0	0	0	0	1	56	199
19	2	46	40	228	2	12	0	0	0	0	0	0	0	1	2	43	242
20	2	44	21	249	0	12	0	0	0	0	0	0	0	0	2	21	263
21	2	44	8	257	1	13	0	0	0	0	0	0	0	0	2	9	272
22	2	42	28	285	1	14	0	0	0	0	0	0	0	0	2	29	301
23	2	48	30	315	0	14	0	0	0	0	0	0	0	1	3	31	332
24	2	48	27	342	0	14	0	0	0	0	0	0	0	0	3	27	359
25	2	45.5	32	374	0	14	0	0	0	0	0	0	0	1	4	33	392
26	2	48	37	411	0	14	0	0	0	0	0	0	0	0	4	37	429
27	2	48	19	430	0	14	0	0	0	0	0	0	0	0	4	19	448
28	2	48	19	449	0	14	0	0	0	0	0	0	0	0	4	19	467
29	2	46	14	463	0	14	0	0	0	0	0	0	0	0	4	14	481
30	2	48	12	475	0	14	0	0	0	0	0	0	0	0	4	12	493
July																	
1	2	48	6	481	0	14	0	0	0	0	0	0	0	0	4	6	499
2	2	48	7	488	0	14	0	0	0	0	0	0	0	0	4	7	506
3	2	48	22	510	0	14	0	0	0	0	0	0	0	0	4	22	528
4	2	48	10	520	0	14	0	0	0	0	0	0	0	0	4	10	538
5	2	46	7	527	1	15	0	0	0	0	0	0	0	0	4	8	546
6	2	48	5	532	0	15	0	0	0	0	0	0	0	0	4	5	551
7	2	48	2	534	0	15	0	0	0	0	0	0	0	0	4	2	553
8	2	48	1	535	0	15	0	0	0	0	0	0	0	0	4	1	554
9	2	48	3	538	0	15	0	0	0	0	0	0	0	0	4	3	557
10	2	48	4	542	0	15	0	0	0	0	0	0	0	0	4	4	561
11	2	48	0	542	0	15	0	0	0	0	0	0	0	0	4	0	561

Appendix Table 2-C-6. Continued.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
July																	
12	2	48	0	542	0	15	0	0	0	0	0	0	0	0	4	0	561
13	2	47	2	544	0	15	0	0	0	0	0	0	0	0	4	2	563
14	2	48	3	547	1	16	0	0	0	0	0	0	0	0	4	4	567
15	2	48	2	549	0	16	0	0	0	0	0	0	0	0	4	2	569
16	2	48	2	551	0	16	1	1	0	0	0	0	0	0	4	3	572
17	2	48	4	555	3	19	0	1	1	1	0	0	0	0	4	8	580
18	2	48	1	556	2	21	0	1	0	1	0	0	0	0	4	3	583
19	2	48	0	556	4	25	0	1	0	1	0	0	0	0	4	4	587
20	2	48	1	557	65	90	7	8	1	2	0	0	0	0	4	74	661
21	2	48	1	558	112	202	6	14	0	2	0	0	0	1	5	120	781
22	2	48	0	558	104	306	13	27	4	6	0	0	0	1	6	122	903
23	2	48	0	558	98	404	4	31	2	8	0	0	0	0	6	104	1007
24	2	41	0	558	73	477	7	38	0	8	1	1	0	0	6	81	1088
25	2	48	0	558	66	543	5	43	1	9	1	2	0	0	6	73	1161
26	1	24	0	558	4	547	0	43	0	9	0	2	0	0	6	4	1165
27	2	38	0	558	58	605	3	46	1	10	0	2	0	0	6	62	1227
28	2	48	0	558	237	842	15	61	13	23	0	2	0	0	6	265	1492
29	2	48	0	558	562	1404	93	154	43	66	4	6	0	0	6	702	2194
30	2	48	0	558	227	1631	35	189	12	78	2	8	0	0	6	276	2470
31	2	38	0	558	34	1665	16	205	4	82	1	9	0	0	6	55	2525
August																	
1	2	44	0	558	450	2115	157	362	18	100	8	17	0	0	6	633	3158
2	2	46	0	558	352	2467	638	1000	28	128	16	33	0	0	6	1034	4192
3	2	35	0	558	321	2788	1357	2357	47	175	38	71	0	0	6	1763	5955
4	2	37	0	558	165	2953	699	3056	110	285	41	112	0	0	6	1015	6970
5	2	37.5	0	558	49	3002	361	3417	111	396	52	164	0	0	6	573	7543
6	2	41	0	558	33	3035	230	3647	58	454	41	205	0	0	6	362	7905
7	2	41	0	558	7	3042	124	3771	86	540	50	255	0	0	6	267	8172
8	2	42	0	558	6	3048	30	3801	24	564	27	282	0	0	6	87	8259
9	2	48	0	558	1	3049	17	3818	49	613	21	303	0	0	6	88	8347
10	2	48	0	558	2	3051	14	3832	21	634	16	319	0	0	6	53	8400
11	2	46	0	558	16	3067	35	3867	78	712	55	374	0	0	6	184	8584
12	2	44	0	558	7	3074	39	3906	98	810	75	449	0	0	6	219	8803
13	2	47	0	558	4	3078	28	3934	139	949	78	527	0	1	7	250	9053

Appendix Table 2-C-6. Continued.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
August																	
14	2	48	0	558	11	3089	18	3952	121	1070	81	608	0	1	8	232	9285
15	2	42	0	558	5	3094	0	3952	2	1072	8	616	0	0	8	15	9300
16	2	47	0	558	1	3095	0	3952	2	1074	21	637	0	0	8	24	9324
17	2	48	0	558	7	3102	7	3959	48	1122	69	706	0	0	8	131	9455
18	2	48	0	558	7	3109	5	3964	13	1135	57	763	0	0	8	82	9537
19	2	48	0	558	8	3117	1	3965	7	1142	36	799	0	0	8	52	9589
* 20	2	39.5	0	558	3	3120	2	3967	4	1146	10	809	0	0	8	19	9608
21	2	48	0	558	5	3125	1	3968	3	1149	19	828	0	0	8	28	9636
22	2	48	0	558	10	3135	3	3971	3	1152	23	851	0	0	8	39	9675
23	2	48	0	558	1	3136	0	3971	3	1155	13	864	0	0	8	17	9692
24	2	48	0	558	1	3137	0	3971	1	1156	4	868	0	0	8	6	9698
25	2	47	0	558	1	3138	1	3972	3	1159	4	872	0	0	8	9	9707
26	2	46	0	558	1	3139	0	3972	2	1161	3	875	0	0	8	6	9713
27	2	48	0	558	1	3140	0	3972	3	1164	5	880	0	0	8	9	9722
28	2	46	0	558	0	3140	0	3972	4	1168	2	882	0	2	10	8	9730
29	2	48	0	558	1	3141	0	3972	0	1168	1	883	0	0	10	2	9732
30	2	47	0	558	0	3141	0	3972	3	1171	2	885	0	3	13	8	9740
31	1	24	0	558	0	3141	0	3972	0	1171	0	885	0	0	13	0	9740
September																	
1	2	34	0	558	0	3141	0	3972	0	1171	1	886	0	0	13	1	9741
2	2	48	0	558	0	3141	0	3972	0	1171	1	887	0	1	14	2	9743
3	2	48	0	558	0	3141	0	3972	2	1173	1	888	0	1	15	4	9747
4	2	48	9	558	1	3142	0	3972	4	1177	5	893	0	0	15	10	9757
5	2	48	0	558	0	3142	0	3972	3	1180	4	897	0	0	15	7	9764
6	2	48	0	558	0	3142	0	3972	2	1182	2	899	0	0	15	4	9768
7	2	48	0	558	0	3142	0	3972	3	1185	5	904	0	2	17	10	9778
8	1	24	0	558	0	3142	0	3972	0	1185	0	904	0	0	17	0	9778
9	1	24	0	558	0	3142	0	3972	1	1186	1	905	0	2	19	4	9782
10	1	22	0	558	0	3142	0	3972	0	1186	0	905	0	1	20	1	9783
11	1	24	0	558	0	3142	0	3972	0	1186	0	905	0	0	20	0	9783
12	1	14	0	558	0	3142	0	3972	0	1186	0	905	0	0	20	0	9783

* Upper West Bank fishwheel moved 200 yds downstream to new site.

Appendix Table 2-C-7. Talkeetna station east bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
June																	
5	1	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1	24	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2
7	1	24	0	0	1	1	0	0	0	0	0	0	0	0	2	1	3
8	1	24	0	0	1	2	0	0	0	0	0	0	0	0	2	1	4
9	2	27	0	0	2	4	0	0	0	0	0	0	0	0	2	2	6
10	2	48	0	0	0	4	0	0	0	0	0	0	0	0	2	0	6
11	2	48	0	0	0	4	0	0	0	0	0	0	0	0	2	0	6
12	2	48	0	0	0	4	0	0	0	0	0	0	0	1	3	1	7
13	2	48	1	1	1	5	0	0	0	0	0	0	0	0	3	2	9
14	2	48	1	2	0	5	0	0	0	0	0	0	0	0	3	1	10
15	2	48	2	4	0	5	0	0	0	0	0	0	0	0	3	2	12
16	2	48	0	4	0	5	0	0	0	0	0	0	0	2	5	2	14
17	2	48	0	4	0	5	0	0	0	0	0	0	0	0	5	0	14
18	2	48	1	5	1	6	0	0	0	0	0	0	0	1	6	3	17
19	2	48	0	5	0	6	0	0	0	0	0	0	0	0	6	0	17
20	2	48	1	6	0	6	0	0	0	0	0	0	0	1	7	2	19
21	2	48	2	8	0	6	0	0	0	0	0	0	0	0	7	2	21
22	2	48	1	9	0	6	0	0	0	0	0	0	0	0	7	1	22
23	2	46.5	9	18	0	6	0	0	0	0	0	0	0	1	8	10	32
24	2	46	3	21	0	6	0	0	0	0	0	0	0	0	8	3	35
25	2	48	10	31	0	6	0	0	0	0	0	0	0	1	9	11	46
26	2	48	3	34	0	6	0	0	0	0	0	0	0	0	9	3	49
27	2	48	19	53	0	6	0	0	0	0	0	0	0	0	9	19	68
28	2	48	12	65	0	6	0	0	0	0	0	0	0	0	9	12	80
29	2	48	15	80	0	6	0	0	0	0	0	0	0	1	10	16	96
30	2	48	34	114	0	6	0	0	0	0	0	0	0	0	10	34	130
July																	
1	2	48	49	163	0	6	0	0	0	0	0	0	0	0	10	49	179
2	2	48	39	202	0	6	0	0	0	0	0	0	0	1	11	40	219
3	2	48	43	245	0	6	0	0	0	0	0	0	0	1	12	44	263
4	2	48	41	286	0	6	0	0	0	0	0	0	0	0	12	41	304
5	2	48	38	324	0	6	0	0	0	0	0	0	0	0	12	38	342
6	2	48	39	363	0	6	0	0	0	0	0	0	0	4	16	43	385
7	2	47.5	19	382	0	6	0	0	0	0	0	0	0	1	17	20	405
8	2	48	26	408	0	6	0	0	0	0	0	0	0	1	18	27	432
9	2	48	13	421	0	6	0	0	0	0	0	0	0	0	18	13	445

Appendix Table 2-C-7. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
10	2	48	6	427	0	6	0	0	0	0	0	0	0	0	18	6	451
11	2	48	8	435	0	6	0	0	0	0	0	0	0	0	18	8	459
12	2	48	7	442	0	6	0	0	0	0	0	0	0	0	18	7	466
13	2	48	3	445	0	6	0	0	0	0	0	0	0	1	19	4	470
14	2	47.5	3	448	0	6	0	0	0	0	0	0	0	0	19	3	473
15	2	48	8	456	0	6	0	0	0	0	0	0	0	0	19	8	481
16	2	48	3	459	0	6	1	1	0	0	0	0	0	0	19	4	485
17	2	48	2	461	0	6	0	1	0	0	0	0	0	0	19	2	487
18	2	48	10	471	0	6	1	2	0	0	0	0	0	0	19	11	498
19	2	48	1	472	1	7	0	2	0	0	0	0	0	0	19	2	500
20	2	48	4	476	0	7	0	2	0	0	0	0	0	2	21	6	506
21	2	48	2	478	0	7	0	2	0	0	0	0	0	0	21	2	508
22	2	48	3	481	0	7	8	10	0	0	0	0	0	0	21	11	519
23	2	48	0	481	0	7	2	12	0	0	0	0	0	0	21	2	521
24	2	48	0	481	4	11	15	27	0	0	0	0	0	0	21	19	540
25	2	44	0	481	0	11	0	27	0	0	0	0	0	0	21	0	540
26	2	37	1	482	1	12	1	28	1	1	0	0	0	0	21	4	544
27	2	48	0	482	25	37	11	39	3	4	0	0	0	0	21	39	583
28	2	48	1	483	23	60	10	49	5	9	0	0	0	0	21	39	622
29	2	48	2	485	31	91	41	90	6	15	0	0	0	0	21	80	702
30	2	48	1	486	12	103	42	132	14	29	0	0	0	2	23	71	773
31	2	48	1	487	8	111	74	206	9	38	0	0	0	0	23	92	865
August																	
1	2	48	0	487	17	128	141	347	26	64	0	0	0	0	23	184	1049
2	2	48	0	487	18	146	457	804	59	123	1	1	0	0	23	535	1584
3	2	48	0	487	16	162	673	1477	56	179	6	7	0	0	23	751	2335
4	2	48	0	487	13	175	962	2439	84	263	4	11	0	0	23	1063	3398
5	2	48	0	487	3	178	1106	3545	71	334	9	20	0	0	23	1189	4587
6	2	48	0	487	4	182	831	4376	86	420	8	28	0	0	23	929	5516
7	2	48	0	487	12	194	923	5299	130	550	20	48	0	0	23	1085	6601
8	2	48	0	487	9	203	1006	6305	148	698	14	62	0	0	23	1177	7778
9	2	48	0	487	1	204	186	6491	28	726	5	67	0	0	23	220	7998
10	2	48	0	487	3	207	205	6696	60	786	15	82	0	0	23	283	8281
11	2	48	0	487	4	211	273	6969	99	885	17	99	0	0	23	393	8674
12	2	48	0	487	5	216	197	7166	84	969	15	114	0	0	23	301	8975

Appendix Table 2-C-7. Continued.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
August																	
13	2	48	0	487	3	219	194	7360	34	1003	12	126	0	0	23	243	9218
14	2	48	0	487	1	220	105	7465	40	1043	14	140	0	0	23	160	9378
15	2	47	0	487	3	223	52	7517	31	1074	7	147	0	0	23	93	9471
16	2	48	0	487	3	226	8	7525	3	1077	5	152	0	0	23	19	9490
17	2	48	0	487	1	227	14	7539	16	1093	5	157	0	0	23	36	9526
18	2	48	0	487	1	228	23	7562	13	1106	8	165	0	0	23	45	9571
19	2	48	0	487	1	229	41	7603	7	1113	6	171	0	0	23	55	9626
20	2	44	0	487	2	231	21	7624	7	1120	10	181	0	0	23	40	9666
21	2	48	0	487	0	231	19	7643	21	1141	10	191	0	0	23	50	9716
22	2	48	0	487	3	234	4	7647	14	1155	10	201	0	0	23	31	9747
23	2	48	0	487	2	236	5	7652	8	1163	6	207	0	0	23	21	9768
24	2	48	0	487	0	236	4	7656	13	1176	6	213	0	0	23	23	9791
25	2	48	0	487	0	236	1	7657	1	1177	1	214	0	1	24	4	9795
26	2	47	0	487	1	237	1	7658	2	1179	1	215	0	0	24	5	9800
27	2	48	0	487	2	239	1	7659	2	1181	2	217	0	0	24	7	9807
28	2	48	0	487	0	239	0	7659	11	1192	7	224	0	1	25	19	9826
29	2	48	0	487	0	239	0	7659	8	1200	5	229	0	0	25	13	9839
30	2	48	0	487	0	239	0	7659	6	1206	3	232	0	0	25	9	9848
31	2	48	0	487	0	239	0	7659	4	1210	2	234	0	0	25	6	9854
September																	
1	2	48	0	487	0	239	0	7659	1	1211	0	234	0	0	25	1	9855
2	2	33	0	487	0	239	0	7659	0	1211	1	235	0	0	25	1	9856
3	2	42	0	487	0	239	0	7659	5	1216	2	237	0	1	26	8	9864
4	2	48	0	487	0	239	0	7659	2	1218	3	240	0	0	26	5	9869
5	2	48	0	487	0	239	0	7659	3	1221	1	241	0	1	27	5	9874
6	2	42	0	487	0	239	0	7659	2	1223	2	243	0	0	27	4	9878
7	2	48	0	487	0	239	0	7659	0	1223	3	246	0	0	27	3	9881
8	2	48	0	487	0	239	0	7659	0	1223	0	246	0	0	27	0	9881
9	2	48	0	487	0	239	0	7659	0	1223	0	246	0	0	27	0	9881
10	2	48	0	487	0	239	0	7659	0	1223	0	246	0	0	27	0	9881
11	2	48	0	487	0	239	0	7659	0	1223	0	246	0	0	27	0	9881
12	2	48	0	487	0	239	0	7659	0	1223	0	246	0	0	27	0	9881
13	2	48	0	487	0	239	0	7659	0	1223	0	246	1	0	28	1	9882
14	2	16	0	487	0	239	0	7659	0	1223	0	246	0	0	28	0	9882

Appendix Table 2-C-8. Talkeetna station west bank fishwheels daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
June																	
6	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	1	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	1	24	1	1	1	1	0	0	0	0	0	0	0	0	0	2	2
10	1	24	0	1	0	1	0	0	0	0	0	0	0	1	1	1	3
11	2	25	0	1	0	1	0	0	0	0	0	0	0	2	3	2	5
12	2	33	0	1	2	3	0	0	0	0	0	0	0	0	3	2	7
13	2	48	0	1	0	3	0	0	0	0	0	0	0	1	4	1	8
14	2	48	0	1	0	3	0	0	0	0	0	0	0	1	5	1	9
15	2	48	0	1	0	3	0	0	0	0	0	0	0	1	6	1	10
16	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
17	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
18	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
19	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
20	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
21	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
22	2	48	0	1	0	3	0	0	0	0	0	0	0	0	6	0	10
23	2	46	4	5	0	3	0	0	0	0	0	0	0	0	6	4	14
24	2	45	2	7	0	3	0	0	0	0	0	0	0	0	6	2	16
25	2	48	3	10	0	3	0	0	0	0	0	0	0	0	6	3	19
26	2	48	6	16	0	3	0	0	0	0	0	0	0	0	6	6	25
27	2	48	9	25	0	3	0	0	0	0	0	0	0	0	6	9	34
28	2	47	8	33	0	3	0	0	0	0	0	0	0	0	6	8	42
29	2	48	18	51	0	3	0	0	0	0	0	0	0	0	6	18	60
30	2	48	16	67	0	3	0	0	0	0	0	0	0	0	6	16	76
July																	
1	2	48	36	103	0	3	0	0	0	0	0	0	0	0	6	36	112
2	2	48	34	137	0	3	0	0	0	0	0	0	0	0	6	34	146
3	2	48	33	170	0	3	0	0	0	0	0	0	0	0	6	33	179
4	2	48	31	201	0	3	0	0	0	0	0	0	0	0	6	31	210
5	2	48	31	232	0	3	0	0	0	0	0	0	0	1	7	32	242
6	2	48	36	268	0	3	0	0	0	0	0	0	0	0	7	36	278
7	2	48	30	298	0	3	0	0	0	0	0	0	0	1	8	31	309
8	2	48	12	310	1	4	0	0	0	0	0	0	0	0	8	13	322
9	2	48	8	318	0	4	0	0	0	0	0	0	0	0	8	8	330

Appendix Table 2-C-8. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
10	2	48	8	326	1	5	0	0	0	0	0	0	0	0	8	9	339
11	2	48	4	330	0	5	0	0	0	0	0	0	0	0	8	4	343
12	2	48	2	332	0	5	0	0	0	0	0	0	0	0	8	2	345
13	2	48	3	335	0	5	0	0	0	0	0	0	0	0	8	3	348
14	2	48	7	342	0	5	0	0	0	0	0	0	0	0	8	7	355
15	2	48	7	349	0	5	0	0	0	0	0	0	0	0	8	7	362
16	2	48	10	359	0	5	0	0	0	0	0	0	0	0	8	10	372
17	2	48	7	366	2	7	0	0	1	1	0	0	0	0	8	10	382
18	2	48	4	370	0	7	1	1	0	1	0	0	0	0	8	5	386
19	2	48	5	375	0	7	0	1	0	1	0	0	0	0	8	5	392
20	2	48	2	377	0	7	1	2	0	1	0	0	0	0	8	3	395
21	2	48	2	379	1	8	1	3	0	1	0	0	0	0	8	4	399
22	2	48	4	383	1	9	6	9	0	1	0	0	0	0	8	11	410
23	2	48	4	387	5	14	4	13	1	2	0	0	0	0	8	14	424
24	2	48	1	388	0	14	4	17	0	2	0	0	0	0	8	5	429
25	2	46	1	389	5	19	3	20	0	2	0	0	0	0	8	9	438
26	2	35	1	390	3	22	2	22	0	2	0	0	0	0	8	6	444
27	2	48	0	390	16	38	7	29	1	3	0	0	0	0	8	24	468
28	2	48	1	391	18	56	8	37	1	4	0	0	0	0	8	28	496
29	2	48	0	391	34	90	24	61	8	12	0	0	0	0	8	66	562
30	2	48	1	392	18	108	47	108	6	18	0	0	0	0	8	72	634
31	2	48	1	392	3	111	26	134	4	22	0	0	0	0	8	33	667
August																	
1	2	48	2	394	24	135	117	251	23	45	0	0	0	0	8	166	833
2	2	48	0	394	26	161	240	491	43	88	2	2	0	0	8	311	1144
3	2	48	0	394	29	190	786	1277	105	193	9	11	0	0	8	929	2073
4	2	48	0	394	16	206	975	2252	82	275	10	21	0	0	8	1083	3156
5	2	48	0	394	1	207	324	2576	25	300	2	23	0	0	8	352	3508
6	2	48	0	394	13	220	1246	3822	176	476	24	47	0	0	8	1459	4967
7	2	48	0	394	3	223	911	4733	199	675	20	67	0	0	8	1133	6100
8	2	48	0	394	5	228	561	5294	134	809	33	100	0	0	8	733	6833
9	2	48	0	394	4	232	111	5405	37	846	8	108	0	0	8	160	6993
10	2	48	0	394	1	233	81	5486	34	880	10	118	0	0	8	126	7119
11	2	48	0	394	5	238	153	5639	86	966	24	142	0	0	8	268	7387
12	2	48	0	394	1	239	135	5774	123	1089	32	174	0	0	8	291	7678

Appendix Table 2-C-8. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
13	2	48	0	394	4	243	129	5903	120	1209	20	194	0	0	8	273	7951
14	2	48	0	394	2	245	60	5963	187	1396	30	224	0	0	8	279	8230
15	2	48	0	394	3	248	37	6000	68	1464	8	232	0	0	8	116	8346
16	2	48	0	394	0	248	16	6016	20	1484	5	237	0	0	8	41	8387
17	2	48	0	394	2	250	21	6037	27	1511	8	245	0	0	8	58	8445
18	2	48	0	394	6	256	27	6064	39	1550	19	264	0	0	8	91	8536
19	2	48	0	394	0	256	38	6102	41	1591	18	282	0	0	8	97	8633
20	2	40	0	394	2	258	9	6111	25	1616	8	290	0	0	8	44	8677
21	2	48	0	394	0	258	3	6114	24	1640	6	296	0	0	8	33	8710
22	2	48	0	394	0	258	2	6116	16	1656	13	309	0	0	8	31	8741
23	2	48	0	394	2	260	2	6118	11	1667	11	320	0	0	8	26	8767
24	2	48	0	394	0	260	1	6119	6	1673	7	327	0	1	9	15	8782
25	2	48	0	394	0	260	0	6119	5	1678	2	329	0	0	9	7	8789
26	2	48	0	394	0	260	0	6119	3	1681	2	331	0	0	9	5	8794
27	2	48	0	394	1	261	0	6119	4	1685	2	333	0	1	10	8	8802
28	2	44	0	394	1	262	2	6121	9	1694	3	336	0	1	11	16	8818
29	2	48	0	394	2	264	0	6121	5	1699	7	343	0	0	11	14	8832
30	2	48	0	394	1	265	1	6122	4	1703	2	345	0	0	11	8	8840
31	2	45	0	394	0	265	0	6122	4	1707	2	347	0	0	11	6	8846
September																	
1	2	48	0	394	0	265	0	6122	1	1708	1	348	0	0	11	2	8848
2	2	45	0	394	1	266	0	6122	1	1709	5	353	0	0	11	7	8855
3	2	48	0	394	0	266	0	6122	2	1711	4	357	0	3	14	9	8864
4	2	48	0	394	0	266	0	6122	2	1713	5	362	0	2	16	9	8873
5	2	48	0	394	1	267	0	6122	2	1715	3	365	0	4	20	10	8883
6	2	48	0	394	1	268	0	6122	2	1717	3	368	0	0	20	6	8889
7	2	48	0	394	1	269	0	6122	0	1717	0	368	0	0	20	1	8890
8	2	48	0	394	0	269	0	6122	0	1717	1	369	0	1	21	2	8892
9	2	48	0	394	1	270	0	6122	0	1717	1	370	0	0	21	2	8894
10	2	48	0	304	0	270	0	6122	1	1718	0	370	0	2	23	3	8897
11	2	48	0	394	0	270	0	6122	0	1718	0	370	0	1	24	1	8898
12	2	48	0	394	0	270	0	6122	0	1718	1	371	0	4	28	5	8903
13	2	48	0	394	0	270	0	6122	1	1719	2	373	0	4	32	7	8910
14	2	22	0	394	0	270	0	6122	0	1719	0	373	0	0	32	0	8910

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Appendix Table 2-C-9. Curry station east bank fishwheel daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
June																	
11	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	1	24	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2
13	1	24	0	0	0	0	0	0	0	0	0	0	0	9	11	9	11
14	1	23.5	0	0	0	0	0	0	0	0	0	0	0	1	12	1	12
15	1	24	1	1	0	0	0	0	0	0	0	0	0	0	12	1	13
16	1	23.5	0	1	0	0	0	0	0	0	0	0	0	0	12	0	13
17	1	24	0	1	0	0	0	0	0	0	0	0	0	8	20	8	21
18	1	24	0	1	0	0	0	0	0	0	0	0	0	1	21	1	22
19	1	24	0	1	0	0	0	0	0	0	0	0	0	4	25	4	26
20	1	24	2	3	0	0	0	0	0	0	0	0	0	7	32	9	35
21	1	24	1	4	0	0	0	0	0	0	0	0	0	1	33	2	37
22	1	24	0	4	0	0	0	0	0	0	0	0	0	5	38	5	42
23	1	23.5	3	7	0	0	0	0	0	0	0	0	0	1	39	4	46
24	1	21	10	17	0	0	0	0	0	0	0	0	0	1	40	11	57
25	1	23	10	27	0	0	0	0	0	0	0	0	0	2	42	12	69
26	1	24	28	55	0	0	0	0	0	0	0	0	0	1	43	29	98
27	1	24	21	76	0	0	0	0	0	0	0	0	0	0	43	21	119
28	1	22	13	89	0	0	0	0	0	0	0	0	0	1	44	14	133
29	1	23	16	105	0	0	0	0	0	0	0	0	0	2	46	18	151
30	1	23	27	132	0	0	0	0	0	0	0	0	0	2	48	29	180
July																	
1	1	24	24	156	0	0	0	0	0	0	0	0	0	0	48	24	204
2	1	24	28	184	0	0	0	0	0	0	0	0	0	0	48	28	232
3	1	24	31	215	0	0	0	0	0	0	0	0	0	0	48	31	263
4	1	24	32	247	0	0	0	0	0	0	0	0	0	0	48	32	295
5	1	24	28	275	0	0	0	0	0	0	0	0	0	1	49	29	324
6	1	24	19	294	0	0	0	0	0	0	0	0	0	4	53	23	347
7	1	24	20	314	0	0	0	0	0	0	0	0	0	2	55	22	369
8	1	24	16	330	0	0	0	0	0	0	0	0	0	0	55	16	385
9	1	23	15	345	0	0	0	0	0	0	0	0	0	3	58	18	403
10	1	24	10	355	0	0	0	0	0	0	0	0	0	2	60	12	415
11	1	24	4	359	0	0	0	0	0	0	0	0	0	0	60	4	419
12	1	24	4	363	0	0	0	0	0	0	0	0	0	0	60	4	423
13	1	24	12	375	0	0	0	0	0	0	0	0	0	0	60	12	435

Appendix Table 2-C-9. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
14	1	24	9	384	0	0	0	0	0	0	0	0	0	0	60	9	444
15	1	24	7	391	0	0	0	0	0	0	0	0	0	0	60	7	451
16	1	24	8	399	1	1	0	0	0	0	0	0	0	0	60	9	460
17	1	24	3	402	0	1	0	0	0	0	0	0	0	0	60	3	463
18	1	24	7	409	1	2	0	0	0	0	0	0	0	1	61	9	472
19	1	24	6	415	1	3	0	0	0	0	0	0	0	0	61	7	479
20	1	24	6	421	1	4	0	0	0	0	0	0	0	0	61	7	486
21	1	24	5	426	0	4	0	0	0	0	0	0	0	2	63	7	493
22	1	24	0	426	0	4	1	1	0	0	0	0	0	0	63	1	494
23	1	24	1	427	0	4	1	2	0	0	0	0	0	0	63	2	496
24	1	24	1	428	2	6	0	2	0	0	0	0	0	0	63	3	499
25	1	24	2	430	1	7	0	2	1	1	0	0	0	0	63	4	503
26	1	24	0	430	1	8	2	4	1	2	0	0	0	0	63	4	507
27	1	24	0	430	7	15	6	10	1	3	0	0	0	0	63	14	521
28	1	24	4	434	0	15	7	17	0	3	0	0	0	0	63	11	532
29	1	24	1	435	7	22	17	34	3	6	0	0	0	1	64	29	561
30	1	23.5	0	435	6	28	11	45	12	18	0	0	0	0	64	29	590
31	1	24	0	435	4	32	36	81	6	24	0	0	0	1	65	47	637
August																	
1	1	24	1	436	3	35	39	120	12	36	0	0	0	0	65	55	692
2	1	24	0	436	4	39	132	252	23	59	1	1	0	1	66	161	853
3	1	23.5	0	436	5	44	262	514	29	88	3	4	0	1	67	300	1153
4	1	24	0	436	12	56	564	1078	76	164	3	7	0	0	67	655	1808
5	1	24	0	436	16	72	721	1799	98	262	3	10	0	2	69	840	2648
6	1	24	0	436	4	76	559	2358	86	348	3	13	0	0	69	652	3300
7	1	24	0	436	4	80	324	2682	50	398	4	17	0	0	69	382	3682
8	1	24	0	436	0	80	226	2908	81	479	5	22	0	2	71	314	3996
9	1	23	0	436	1	81	195	3103	95	574	4	26	0	0	71	295	4291
10	1	24	0	436	2	83	142	3245	56	630	3	29	0	1	72	204	4495
11	1	24	0	436	2	85	82	3327	77	707	1	30	0	0	72	162	4657
12	1	21	0	436	1	86	46	3373	81	788	4	34	0	0	72	132	4789
13	1	24	0	436	0	86	51	3424	134	922	5	39	0	0	72	190	4979
14	1	24	0	436	1	87	42	3466	73	995	4	43	0	1	73	121	5100
15	1	24	0	436	3	90	29	3495	45	1040	6	49	0	1	74	84	5184

Appendix Table 2-C-9. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
16	1	24	0	436	2	92	12	3507	24	1064	3	52	0	1	75	42	5226
17	1	24	0	436	1	93	8	3515	7	1071	4	56	0	0	75	20	5246
18	1	24	0	436	4	97	16	3531	20	1091	9	65	0	0	75	49	5295
19	1	24	0	436	2	99	17	3548	22	1113	1	66	0	3	78	45	5340
20	1	24	0	436	3	102	11	3559	50	1162	7	73	0	1	79	72	5412
21	1	24	0	436	3	105	10	3569	45	1208	5	78	0	1	80	64	5476
22	1	24	0	436	6	111	6	3575	32	1240	3	81	0	0	80	47	5523
23	1	24	0	436	2	113	4	3579	10	1250	3	84	0	1	81	20	5543
25	1	24	0	436	2	115	0	3579	19	1269	2	86	0	2	83	25	5568
25	1	24	0	436	2	117	3	3582	12	1281	3	89	0	1	84	21	5589
26	1	24	0	436	0	117	2	3584	11	1292	2	91	0	0	84	15	5604
27	1	23	0	436	4	121	0	3584	9	1301	2	93	0	0	84	15	5619
28	1	24	0	436	1	122	0	3584	7	1308	1	94	0	2	86	11	5630
29	1	24	0	436	1	123	0	3584	11	1319	3	97	0	1	87	16	5646
30	1	24	0	436	0	123	0	3584	13	1332	1	98	0	1	88	15	5661
31	1	24	0	436	1	124	0	3584	7	1339	4	102	0	0	88	12	5673
September																	
1	1	24	0	436	0	124	0	3584	0	1339	1	103	0	0	88	1	5674
2	1	24	0	436	2	126	0	3584	1	1340	2	105	0	3	91	8	5682
3	1	24	0	436	0	126	0	3584	1	1341	0	105	0	4	95	5	5687
4	1	24	0	436	1	127	0	3584	0	1341	0	105	0	0	95	1	5688
5	1	24	0	436	0	127	0	3584	0	1341	0	105	0	1	96	1	5689
6	1	24	0	436	0	127	0	3584	0	1341	0	105	0	0	96	0	5689
7	1	24	0	436	0	127	0	3584	0	1341	0	105	0	1	97	1	5690
8	1	24	0	436	0	127	0	3584	1	1342	0	105	0	0	97	1	5691
9	1	24	0	436	0	127	0	3584	0	1342	0	105	0	0	97	0	5691
10	1	24	0	436	0	127	0	3584	0	1342	1	106	0	1	98	2	5693
11	1	24	0	436	0	127	0	3584	2	1344	1	107	0	1	99	4	5697
12	1	24	0	436	0	127	0	3584	0	1344	0	107	0	1	100	1	5698
13	1	24	0	436	0	127	0	3584	0	1344	0	107	0	0	100	0	5698
14	1	24	0	436	0	127	0	3584	1	1345	0	107	0	2	102	3	5701
15	1	24	0	436	0	127	0	3584	0	1345	0	107	0	1	103	1	5702
16	1	24	0	436	0	127	0	3584	0	1345	0	107	0	0	103	0	5702
17	1	24	0	436	0	127	0	3584	0	1345	0	107	0	0	103	0	5702
18	1	16	0	436	1	128	0	3584	0	1345	0	107	0	1	104	2	5704

Appendix Table 2-C-10. Curry station west bank fishwheel daily and cumulative catch log by species, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Date	No. of Wheels	Wheel Hours	Chinook		Sockeye		Pink		Chum		Coho		Miscellaneous			Total Catch All Species	
			Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Daily	Cum.	Bering Cisco	Other	Cum.	Daily	Cum.
June																	
9	1	11	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
10	1	24	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11	1	24	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2
12	1	24	0	0	0	0	0	0	0	0	0	0	0	2	4	2	4
13	1	23	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5
14	1	24	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
15	1	24	0	0	0	0	0	0	0	0	0	0	0	1	6	1	6
16	1	24	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
17	1	24	0	0	0	0	0	0	0	0	0	0	0	1	7	1	7
18	1	24	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7
19	1	24	1	1	0	0	0	0	0	0	0	0	0	1	8	2	9
20	1	24	0	1	0	0	0	0	0	0	0	0	0	0	8	0	9
21	1	24	1	2	0	0	0	0	0	0	0	0	0	0	8	1	10
22	1	22	2	4	0	0	0	0	0	0	0	0	0	0	8	2	12
23	1	24	2	6	0	0	0	0	0	0	0	0	0	0	8	2	14
24	1	24	7	13	0	0	0	0	0	0	0	0	0	2	10	9	23
25	1	24	10	23	0	0	0	0	0	0	0	0	0	0	10	10	33
26	1	24	18	41	0	0	0	0	0	0	0	0	0	0	10	18	51
27	1	24	15	56	0	0	0	0	0	0	0	0	0	0	10	15	66
28	1	24	33	89	0	0	0	0	0	0	0	0	0	0	10	33	99
29	1	24	29	118	0	0	0	0	0	0	0	0	0	0	10	29	128
30	1	24	24	142	0	0	0	0	0	0	0	0	0	1	11	25	153
July																	
1	1	24	31	173	0	0	0	0	0	0	0	0	0	1	12	32	185
2	1	24	25	198	0	0	0	0	0	0	0	0	0	0	12	25	210
3	1	24	12	210	0	0	0	0	0	0	0	0	0	0	12	12	222
4	1	24	23	233	0	0	0	0	0	0	0	0	0	0	12	23	245
5	1	24	15	248	0	0	0	0	0	0	0	0	0	3	15	18	263
6	1	24	9	257	0	0	0	0	0	0	0	0	0	2	17	11	274
7	1	24	16	273	0	0	0	0	0	0	0	0	0	2	19	18	292
8	1	23	14	487	0	0	0	0	0	0	0	0	0	0	19	14	306
9	1	24	10	497	0	0	0	0	0	0	0	0	0	0	19	10	316
10	1	24	6	303	0	0	0	0	0	0	0	0	0	0	19	6	322
11	1	24	6	309	0	0	0	0	0	0	0	0	0	1	20	7	329
12	1	24	5	314	0	0	0	0	0	0	0	0	0	0	20	5	334

Appendix Table 2-C-10. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
July																	
13	1	24	6	320	0	0	0	0	0	0	0	0	0	0	20	6	340
14	1	24	6	326	0	0	0	0	0	0	0	0	0	0	20	6	346
15	1	24	4	330	0	0	0	0	0	0	0	0	0	0	20	4	350
16	1	24	2	332	1	1	0	0	0	0	0	0	0	1	21	4	354
17	1	24	3	335	0	1	0	0	0	0	0	0	0	0	21	3	357
18	1	24	5	340	0	1	0	0	0	0	0	0	0	0	21	5	362
19	1	24	5	345	0	1	0	0	0	0	0	0	0	0	21	5	367
20	1	24	2	347	0	1	0	0	0	0	0	0	0	1	22	3	370
21	1	24	2	349	0	1	0	0	0	0	0	0	0	0	22	2	372
22	1	24	0	349	0	1	1	1	0	0	0	0	0	1	23	2	374
23	1	24	1	350	0	1	2	3	0	0	0	0	0	0	23	3	377
24	1	24	0	350	0	1	0	3	0	0	0	0	0	0	23	0	377
25	1	11	0	350	0	1	0	3	0	0	0	0	0	0	23	0	377
26	1	6	0	350	0	1	0	3	0	0	0	0	0	0	23	0	377
27	1	24	0	350	0	1	1	4	0	0	0	0	0	0	23	1	378
28	1	24	2	352	1	2	3	7	0	0	0	0	0	0	23	6	384
29	1	24	1	353	2	4	7	14	1	1	0	0	0	0	23	11	395
30	1	24	0	353	1	5	20	34	3	4	0	0	0	0	23	24	419
31	1	16.5	0	353	0	5	9	43	2	6	0	0	0	0	23	11	430
August																	
1	1	24	0	353	0	5	3	46	1	7	0	0	0	0	23	4	434
2	1	23.5	0	353	1	6	67	113	1	8	0	0	0	0	23	69	503
3	1	24	1	354	1	7	266	379	7	15	1	1	0	0	23	276	779
4	1	22	0	354	3	10	397	776	13	28	2	3	0	0	23	415	1194
5	1	24	0	354	0	10	478	1254	12	40	2	5	0	0	23	492	1686
6	1	24	1	355	2	12	608	1862	18	58	6	11	0	0	23	635	2321
7	1	24	0	355	1	13	461	2323	34	92	2	13	0	0	23	498	2819
8	1	24	0	355	1	14	474	2797	19	111	5	18	0	0	23	499	3318
9	1	24	0	355	0	14	231	3028	12	123	2	20	0	0	23	245	3563
10	1	24	0	355	1	15	198	3226	10	133	2	22	0	0	23	211	3774
11	1	24	0	355	1	16	155	3381	20	153	3	25	0	0	23	179	3953
12	1	24	0	355	0	16	133	3514	19	172	4	29	0	0	23	156	4109
13	1	24	0	355	0	16	94	3608	34	206	4	33	0	1	24	133	4242
14	1	24	0	355	1	17	36	3644	45	251	5	38	0	0	24	87	4329
15	1	24	0	355	3	20	17	3661	24	275	5	43	0	1	25	50	4379
16	1	24	0	355	2	22	16	3677	13	288	9	52	0	0	25	40	4419

Appendix Table 2-C-10. Continued.

Date	No. of Wheels	Wheel Hours	Chinook Daily	Chinook Cum.	Sockeye Daily	Sockeye Cum.	Pink Daily	Pink Cum.	Chum Daily	Chum Cum.	Coho Daily	Coho Cum.	Miscellaneous Bering Cisco	Miscellaneous Other	Miscellaneous Cum.	Total Catch All Species Daily	Total Catch All Species Cum.
August																	
17	1	24	0	355	4	26	4	3681	0	288	1	53	0	0	25	9	4428
18	1	24	0	355	1	27	9	3690	12	300	4	57	0	0	25	26	4454
19	1	24	0	355	3	30	10	3700	14	314	14	71	0	1	26	42	4496
20	1	22	0	355	0	30	5	3705	8	322	4	75	0	0	26	17	4513
21	1	23	0	355	0	30	4	3709	8	330	3	78	0	0	26	15	4528
22	1	23.5	0	355	0	30	3	3712	15	345	3	81	0	0	26	21	4549
23	1	24	0	355	0	30	2	3714	8	353	8	89	0	0	26	18	4567
24	1	24	0	355	0	30	2	3716	4	357	1	90	0	0	26	7	4574
25	1	23.5	0	355	0	30	1	3717	1	358	5	95	0	0	26	7	4581
26	1	24	0	355	0	30	1	3718	4	362	7	102	0	1	27	13	4594
27	1	23	0	355	1	31	0	3718	8	370	1	103	0	0	27	10	4604
28	1	24	0	355	0	31	0	3718	4	374	3	106	0	1	28	8	4612
29	1	24	0	355	1	32	0	3718	6	380	1	107	0	0	28	8	4620
30	1	24	0	355	0	32	0	3718	7	387	5	112	0	0	28	12	4632
31	1	24	0	355	1	33	0	3718	2	389	2	114	0	0	28	5	4637
September																	
1	1	24	0	355	0	33	0	3718	0	389	1	115	0	0	28	1	4638
2	1	24	0	355	0	33	0	3718	2	391	2	117	0	0	28	4	4642
3	1	24	0	355	0	33	0	3718	0	391	3	120	0	0	28	3	4645
4	1	24	0	355	0	33	0	3718	0	391	0	120	0	0	28	0	4645
5	1	24	0	355	0	33	0	3718	0	391	0	120	0	0	28	0	4645
6	1	24	0	355	0	33	0	3718	0	391	1	121	0	0	28	1	4646
7	1	24	0	355	0	33	0	3718	0	391	1	122	0	1	29	2	4648
8	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	29	0	4648
9	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	29	0	4648
10	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	29	0	4648
11	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	29	0	4648
12	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	29	0	4648
13	1	24	0	355	0	33	0	3718	0	391	0	122	0	1	30	1	4649
14	1	24	0	355	0	33	0	3718	0	391	0	122	0	0	30	0	4649
15	1	19.5	0	355	0	33	0	3718	0	391	0	122	0	0	30	0	4649
16	1	5	0	355	0	33	0	3718	0	391	0	122	0	0	30	0	4649
17	1	16	0	355	0	33	0	3718	0	391	0	122	0	0	30	0	4649

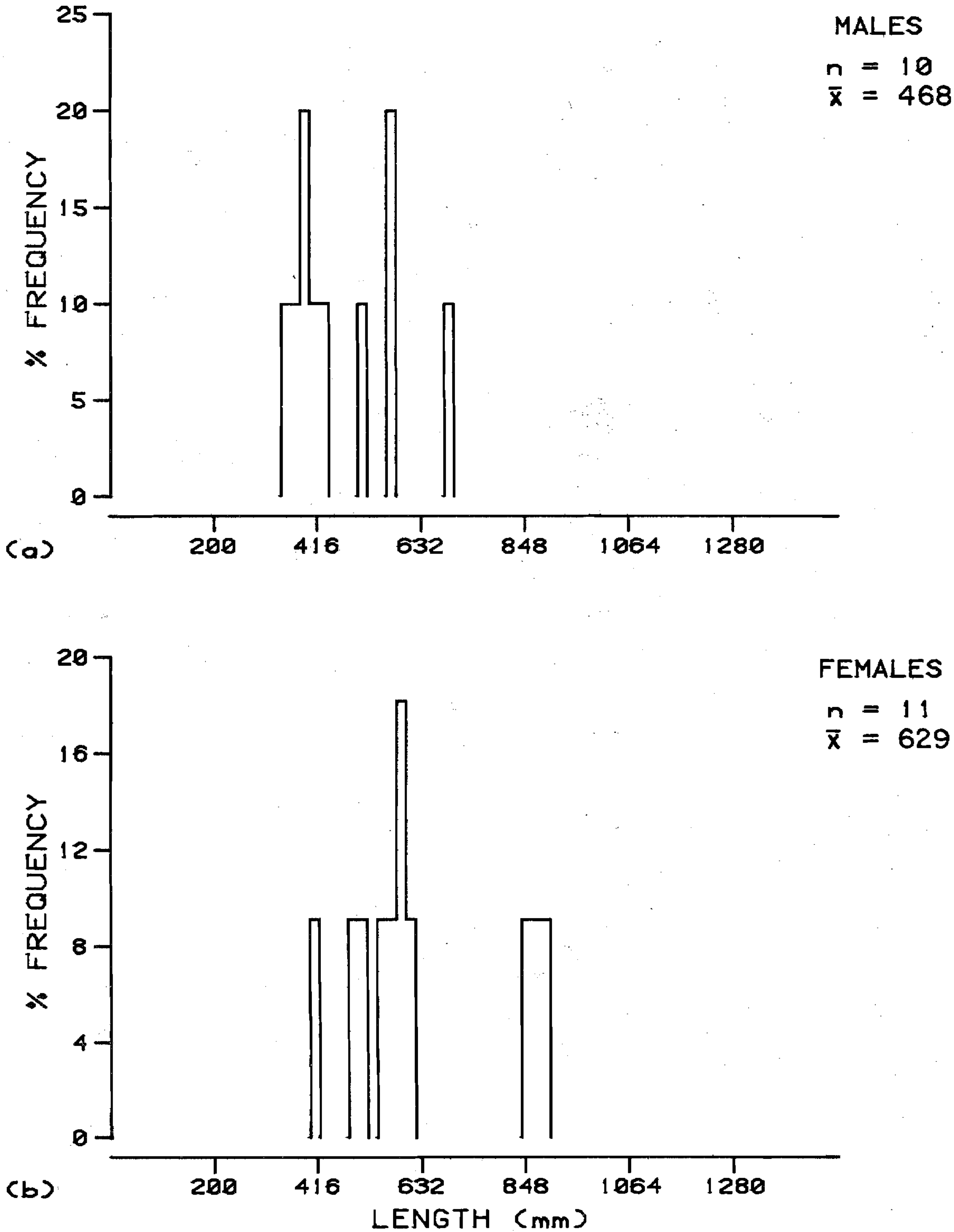
APPENDIX 2-D

LENGTH FREQUENCIES OF

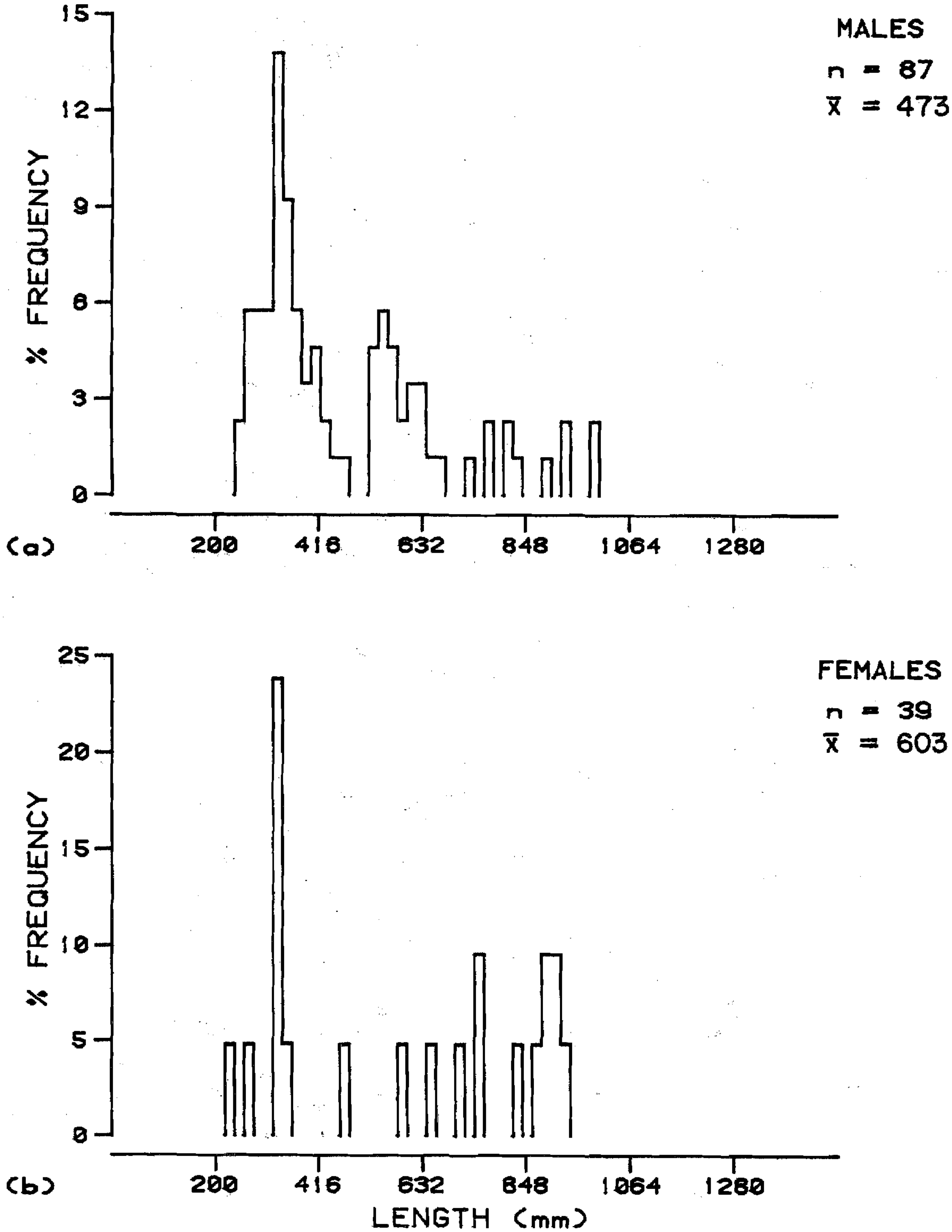
CHINOOK, SOCKEYE, PINK, CHUM AND COHO SALMON

AND

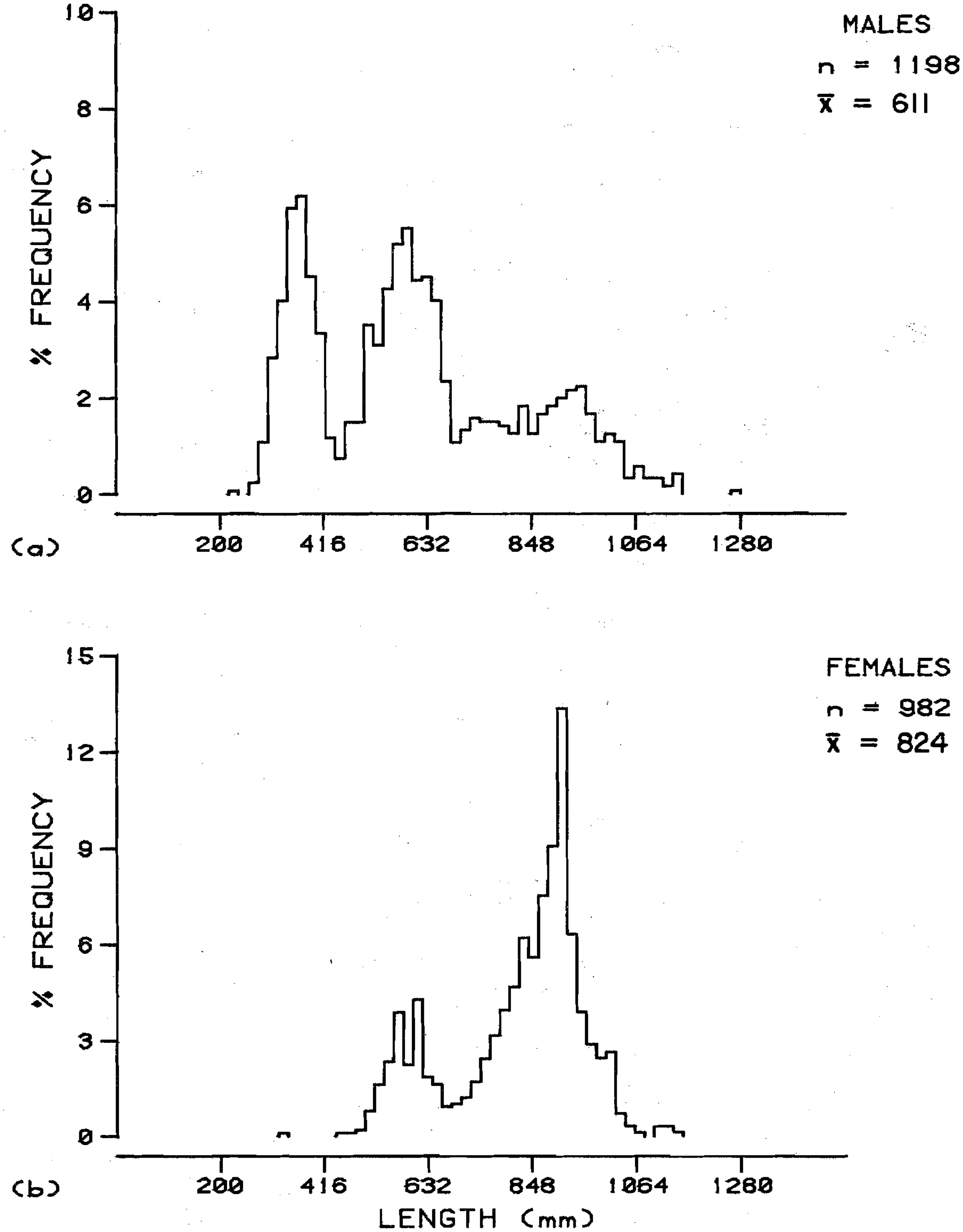
BERING CISCO



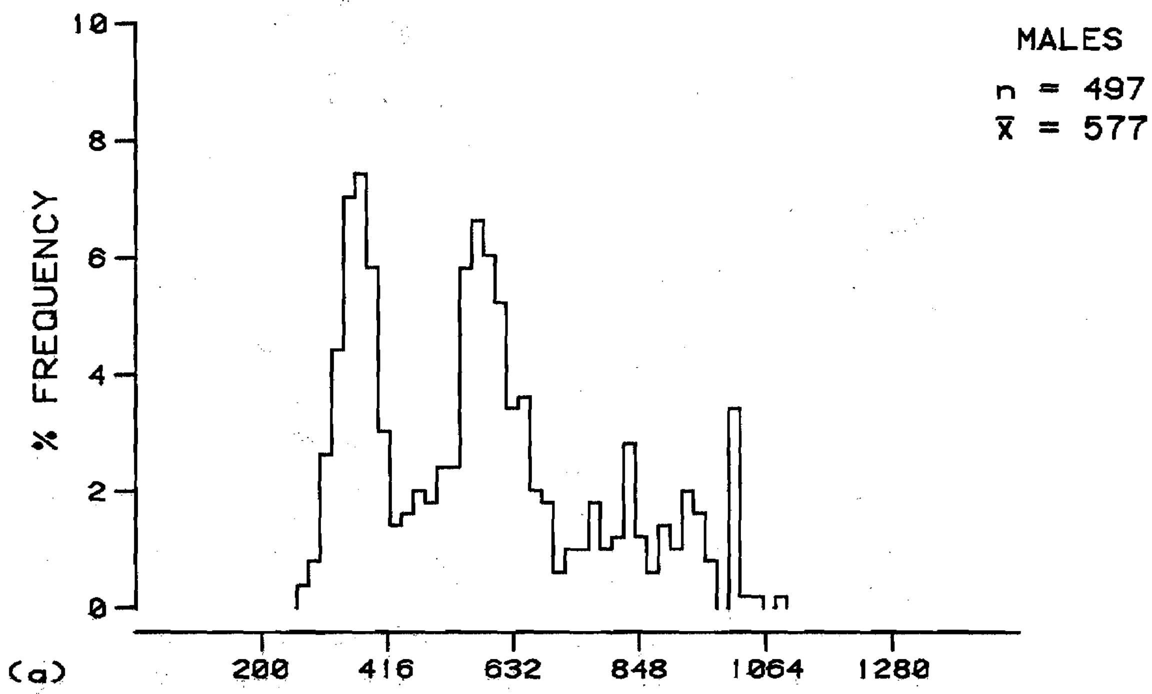
Appendix Figure 2-D-1. Length frequencies of chinook salmon sampled from fishwheel catches at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

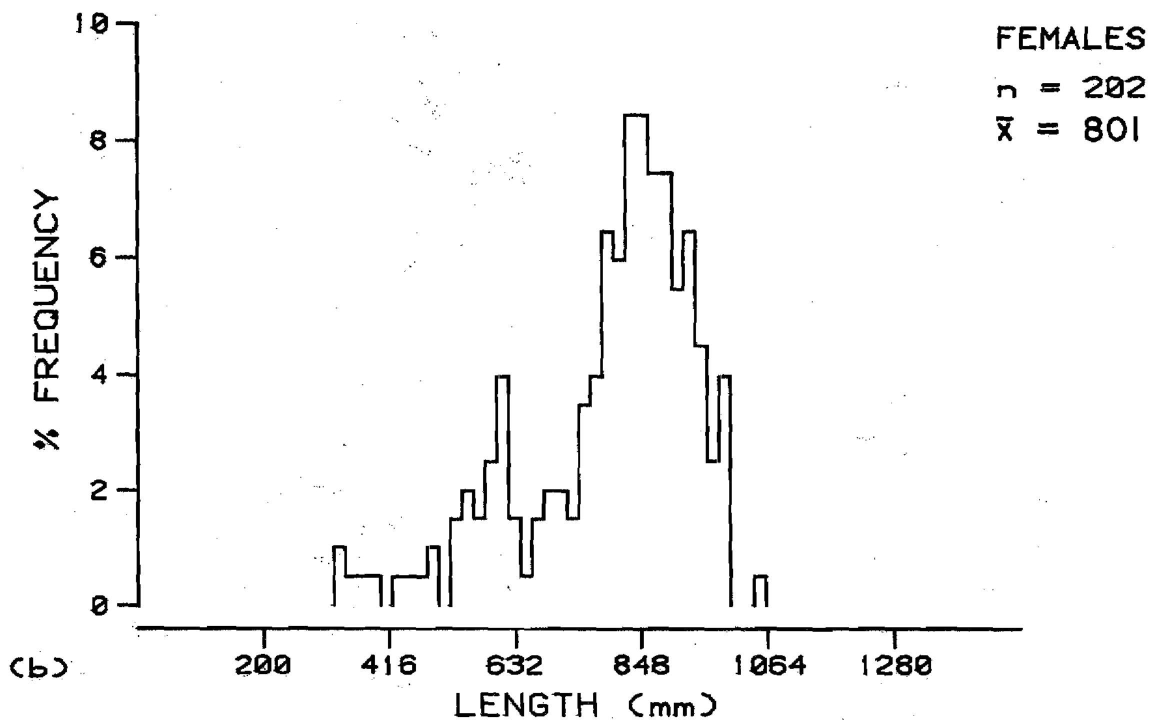


Appendix Figure 2-D-2. Length frequencies of chinook salmon sampled from fishwheel catches at Yentna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

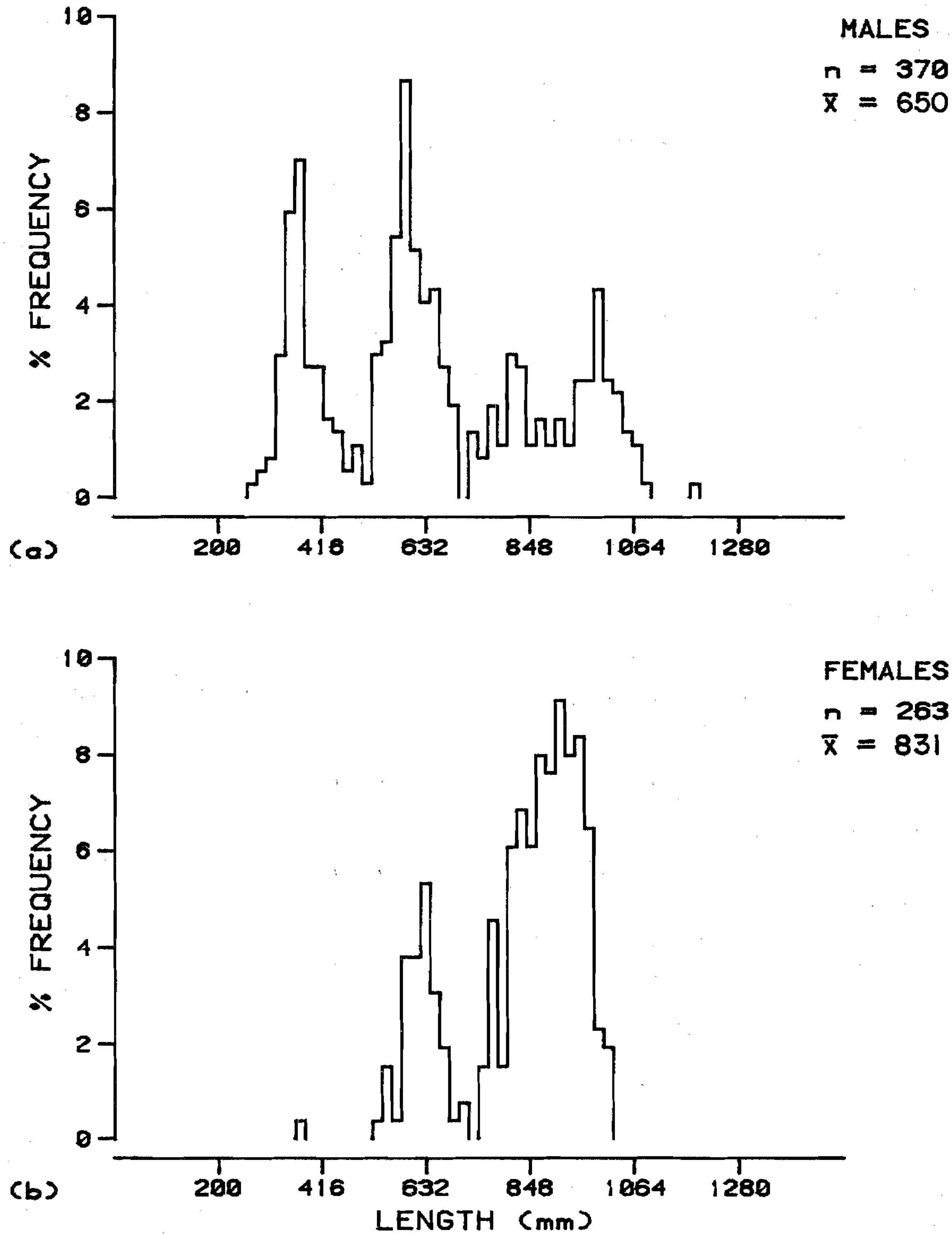


Appendix Figure 2-D-3. Length frequencies of chinook salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

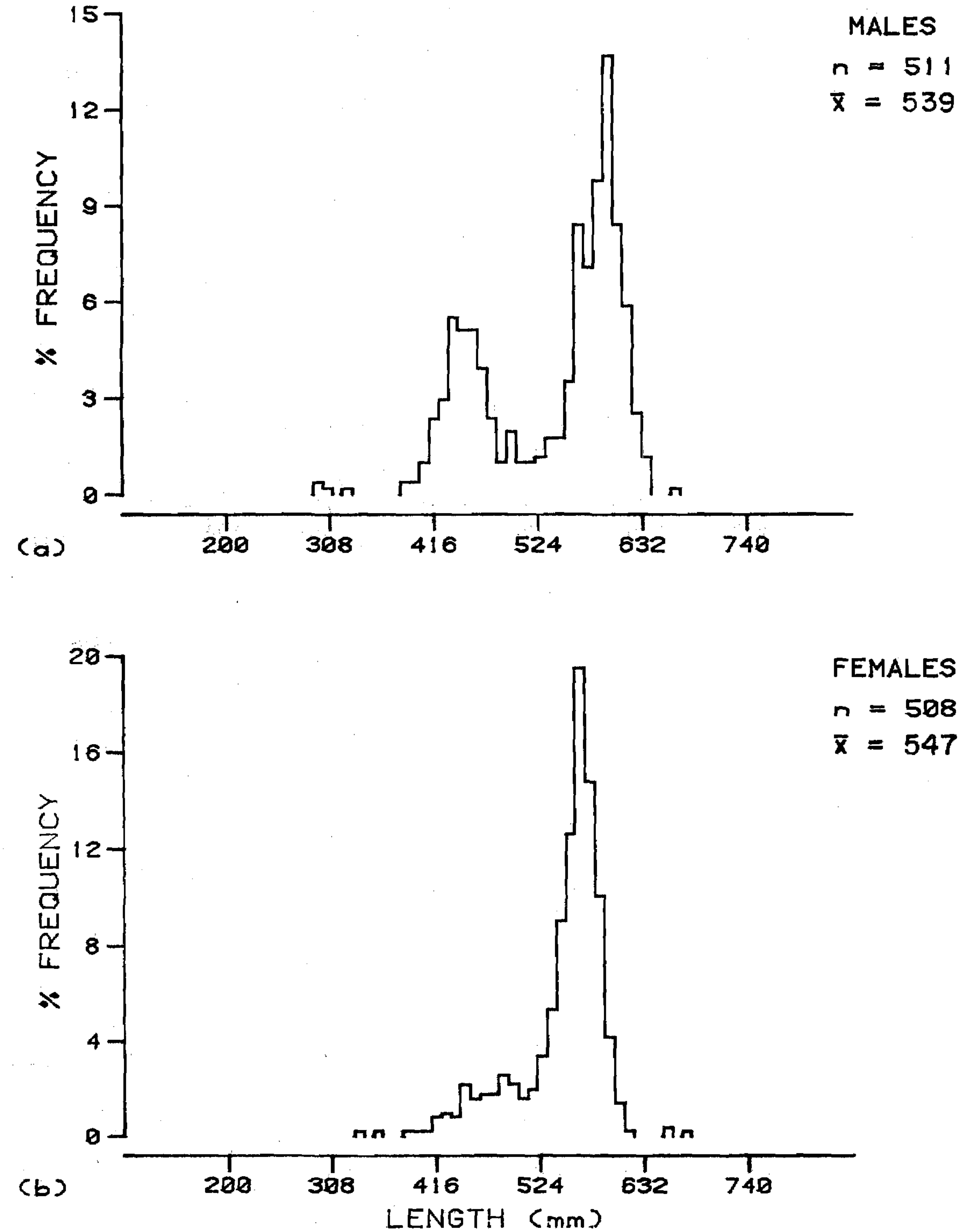




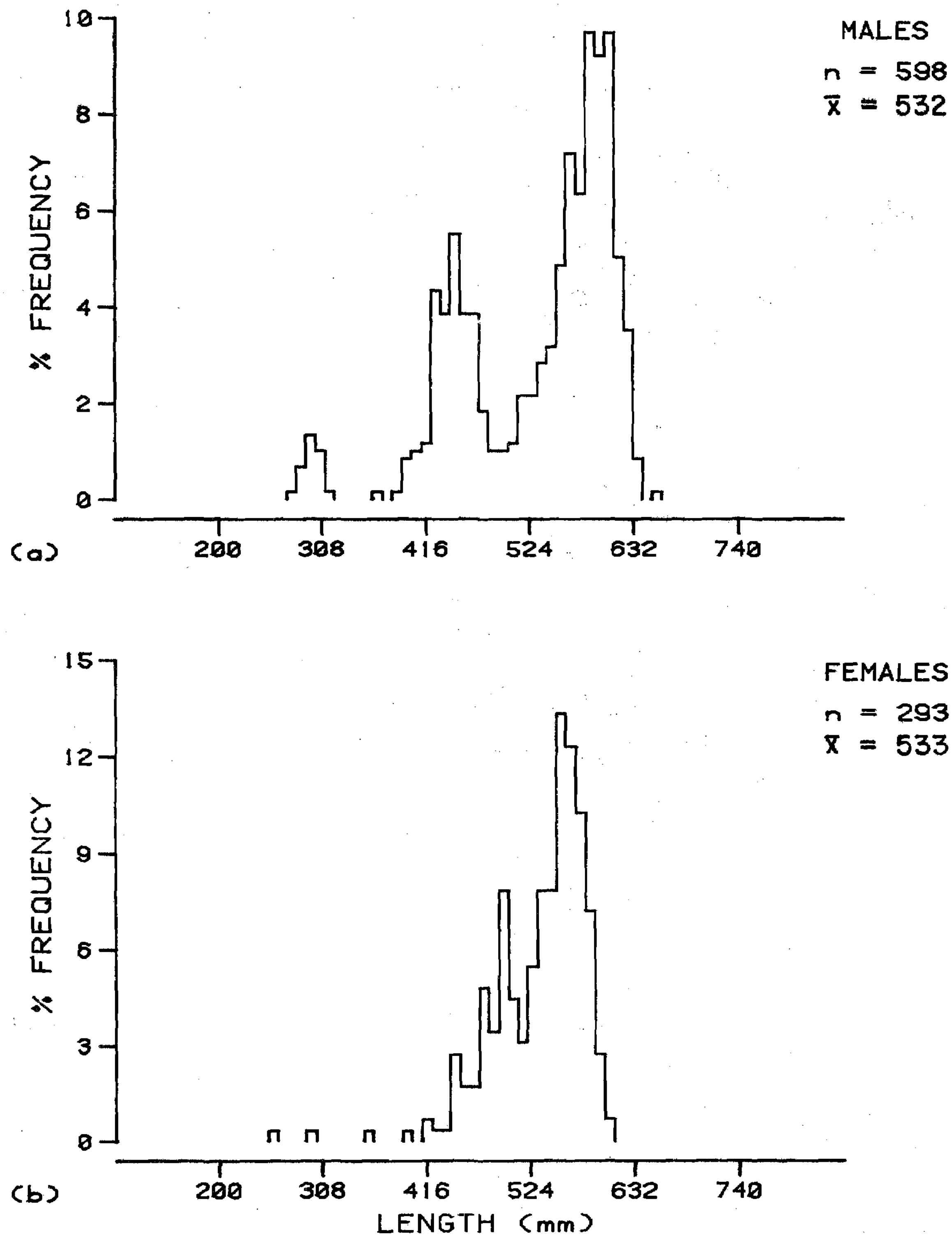
Appendix Figure 2-D-4. Length frequencies of chinook salmon sampled from fishwheel catches at Talkeetna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



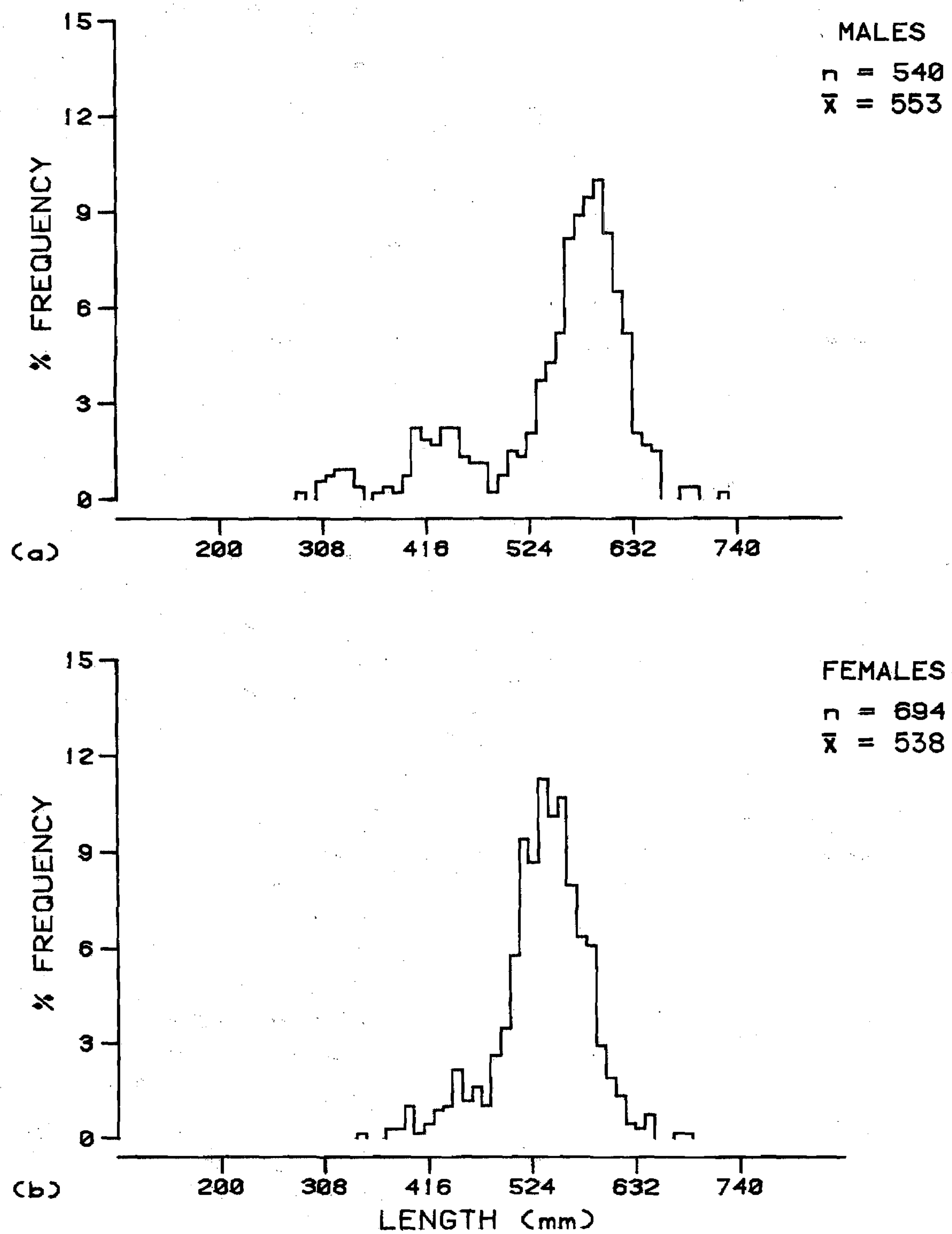
Appendix Figure 2-D-5. Length frequencies of chinook salmon sampled from fishwheel catches at Curry Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



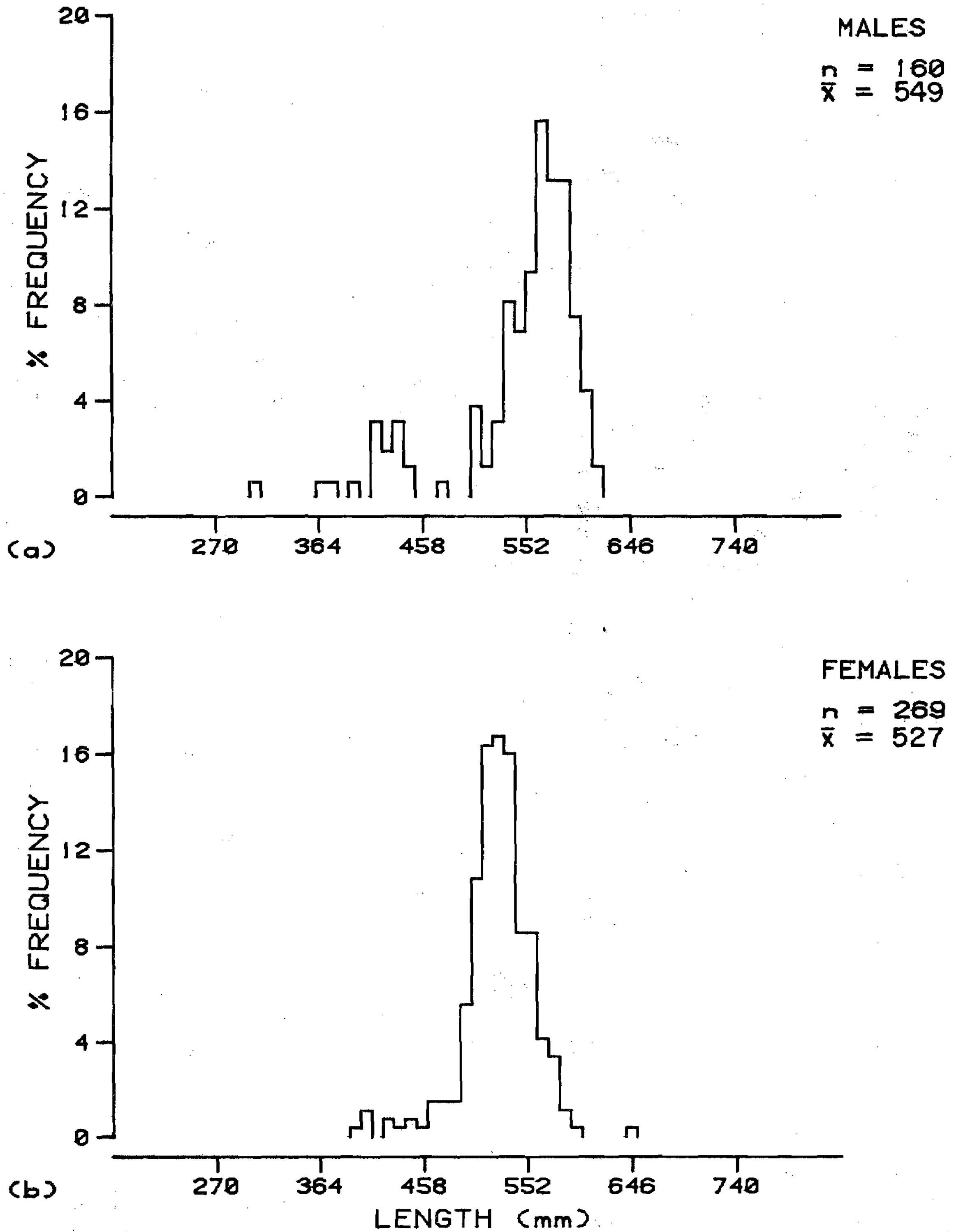
Appendix Figure 2-D-6. Length frequencies of sockeye salmon sampled from fishwheel catches at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



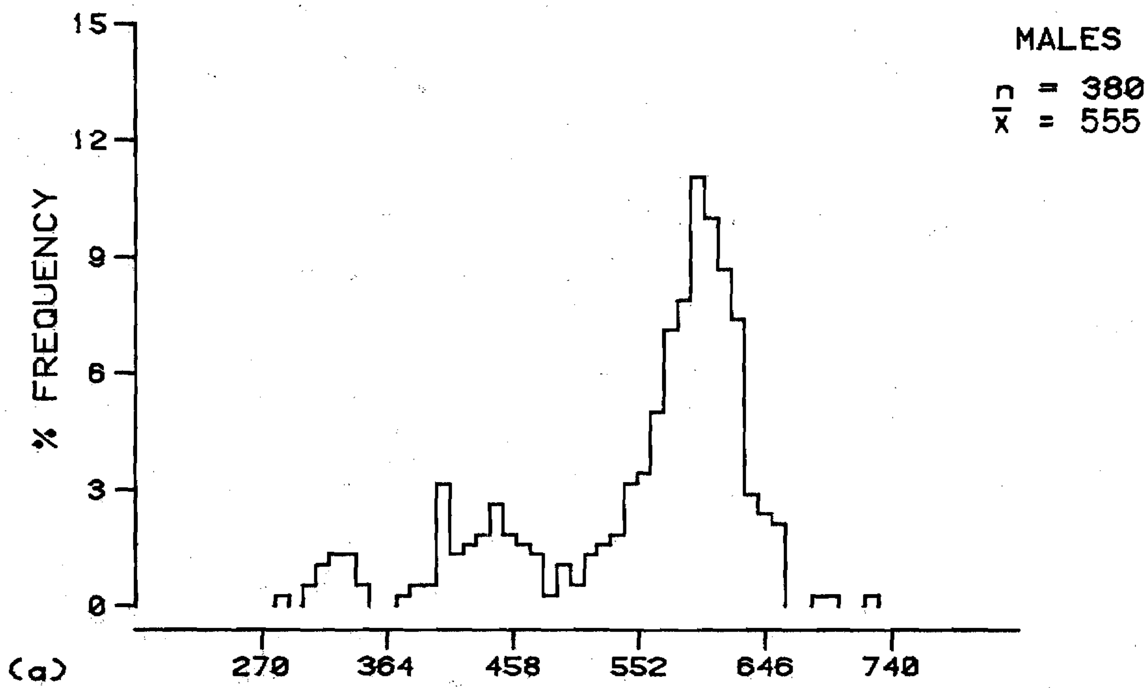
Appendix Figure 2-D-7. Length frequencies of sockeye salmon sampled from fishwheel catches at Yentna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

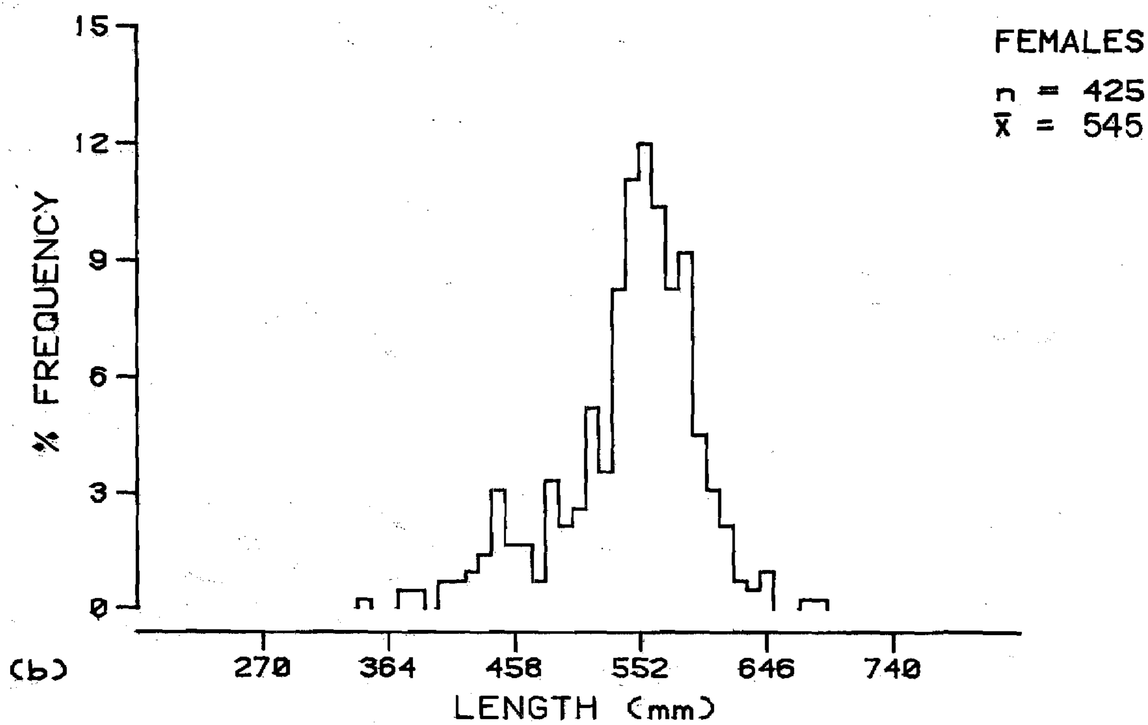


Appendix Figure 2-D-8. Length frequencies of sockeye salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

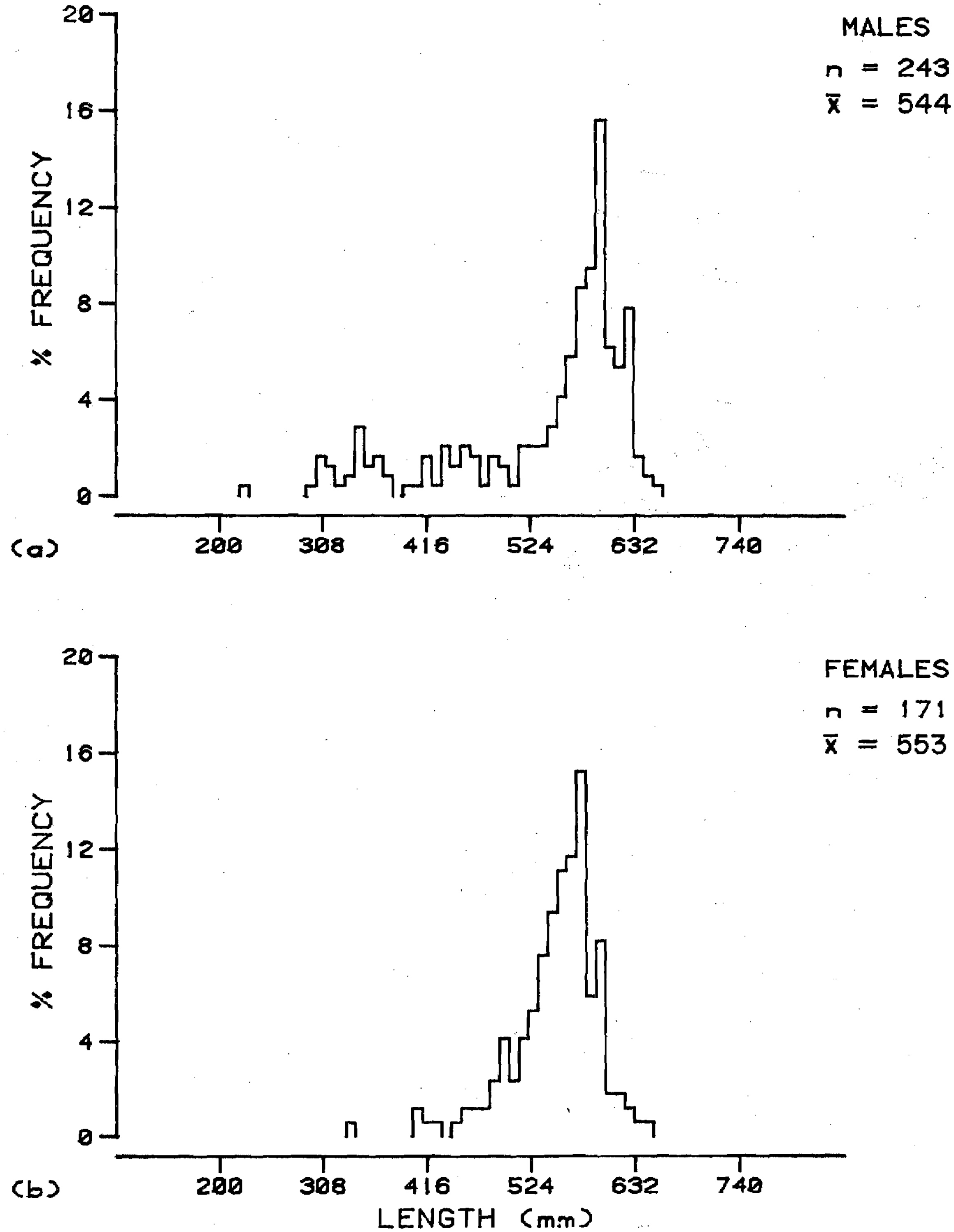


Appendix Figure 2-D-9. Length frequencies of first run sockeye salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

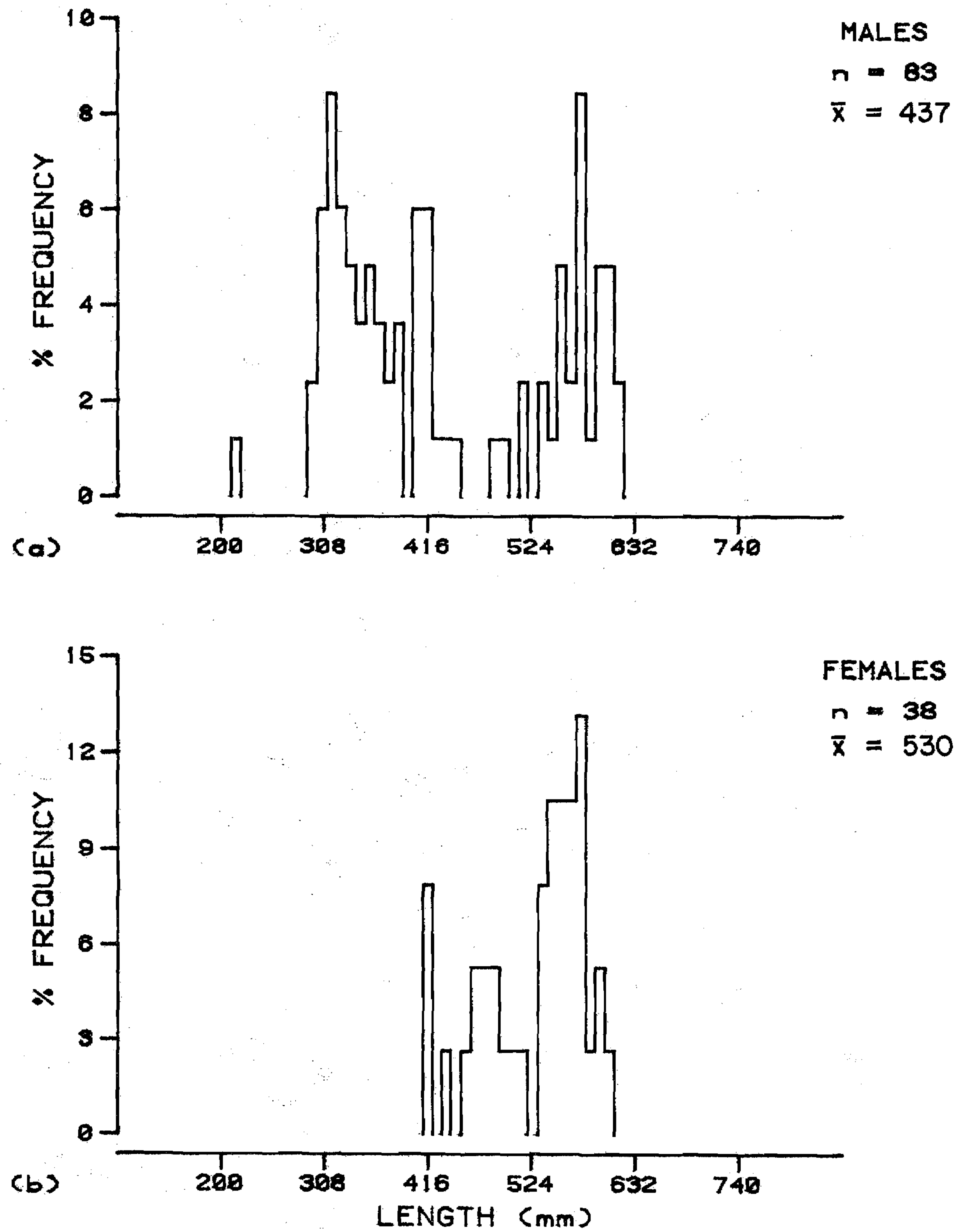




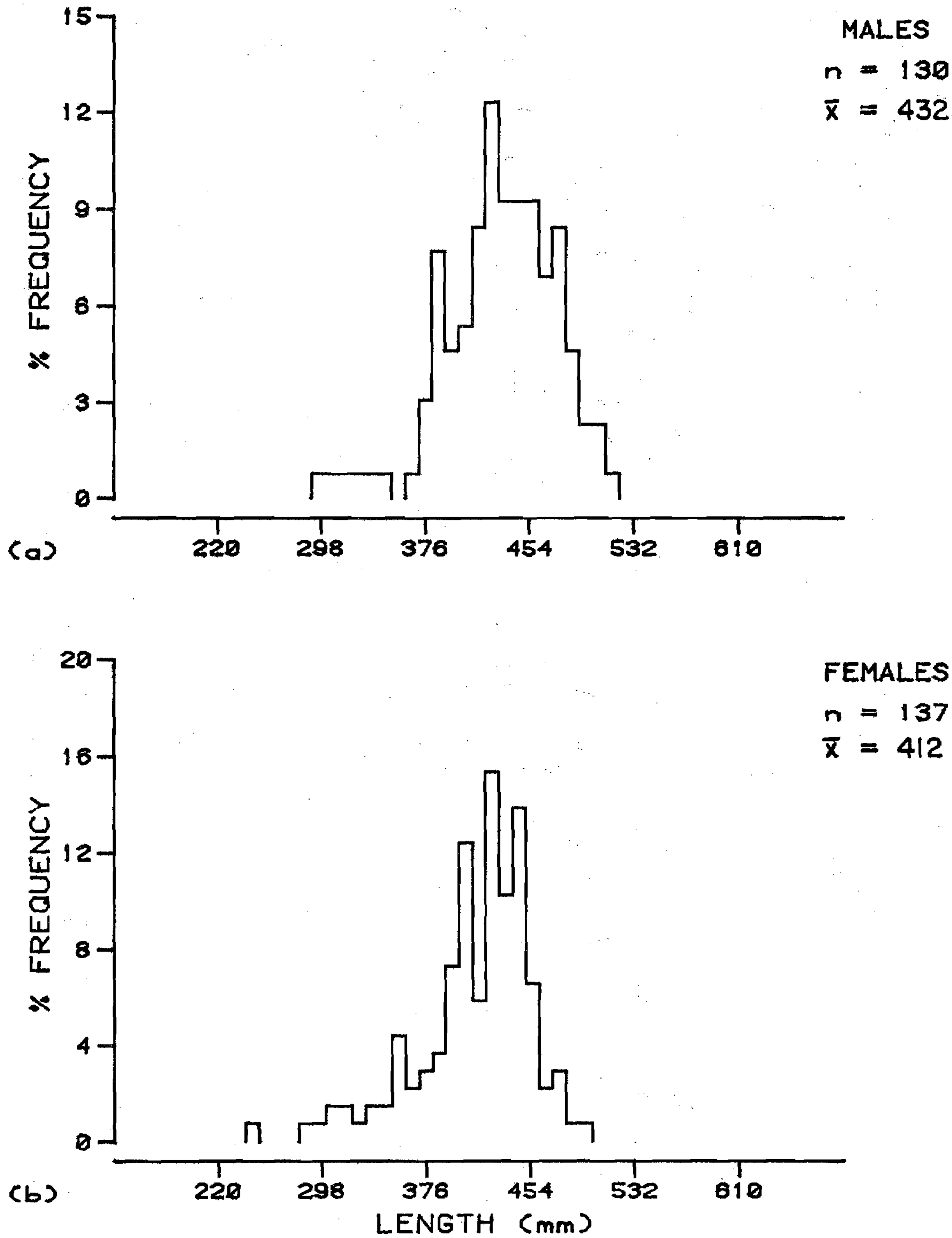
Appendix Figure 2-D-10. Length frequencies of second run sockeye salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



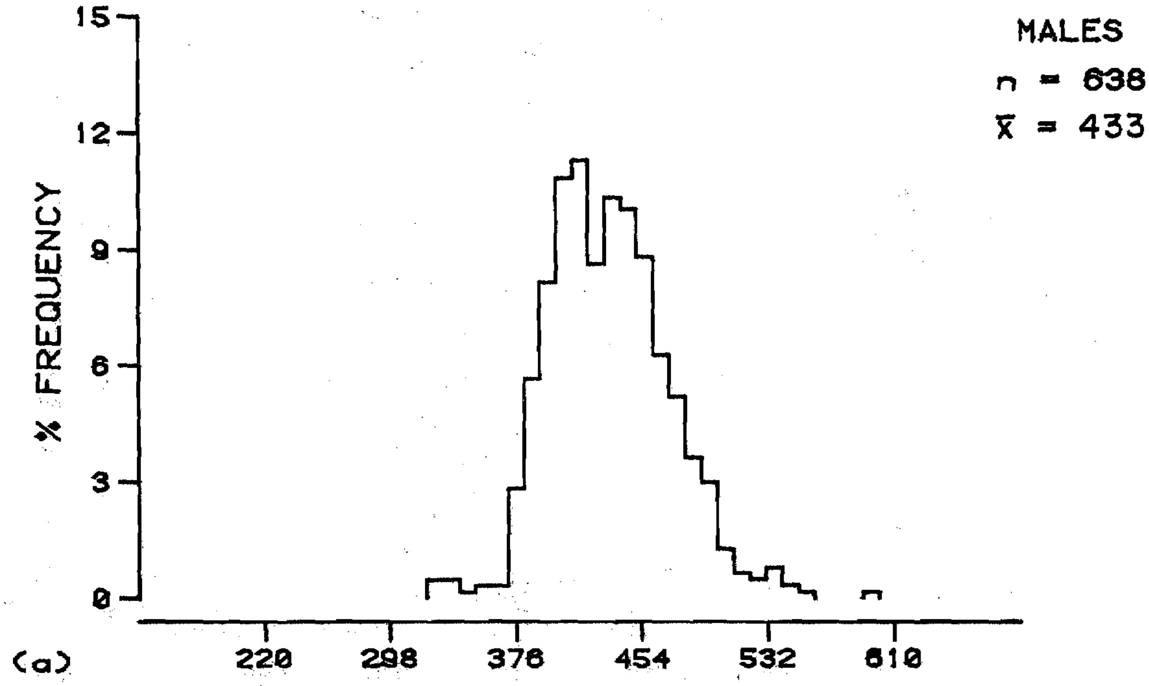
Appendix Figure 2-D-11. Length frequencies of sockeye salmon sampled from fishwheel catches at Talkeetna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

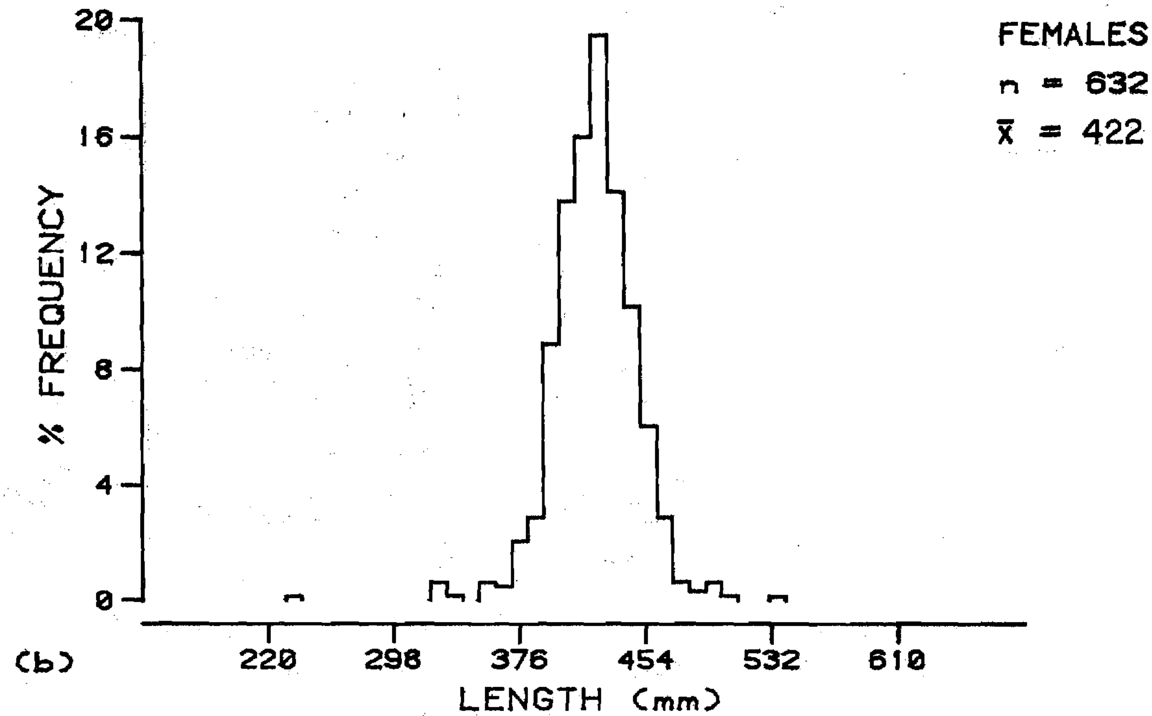


Appendix Figure 2-D-12. Length frequencies of sockeye salmon sampled from fishwheel catches at Curry Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

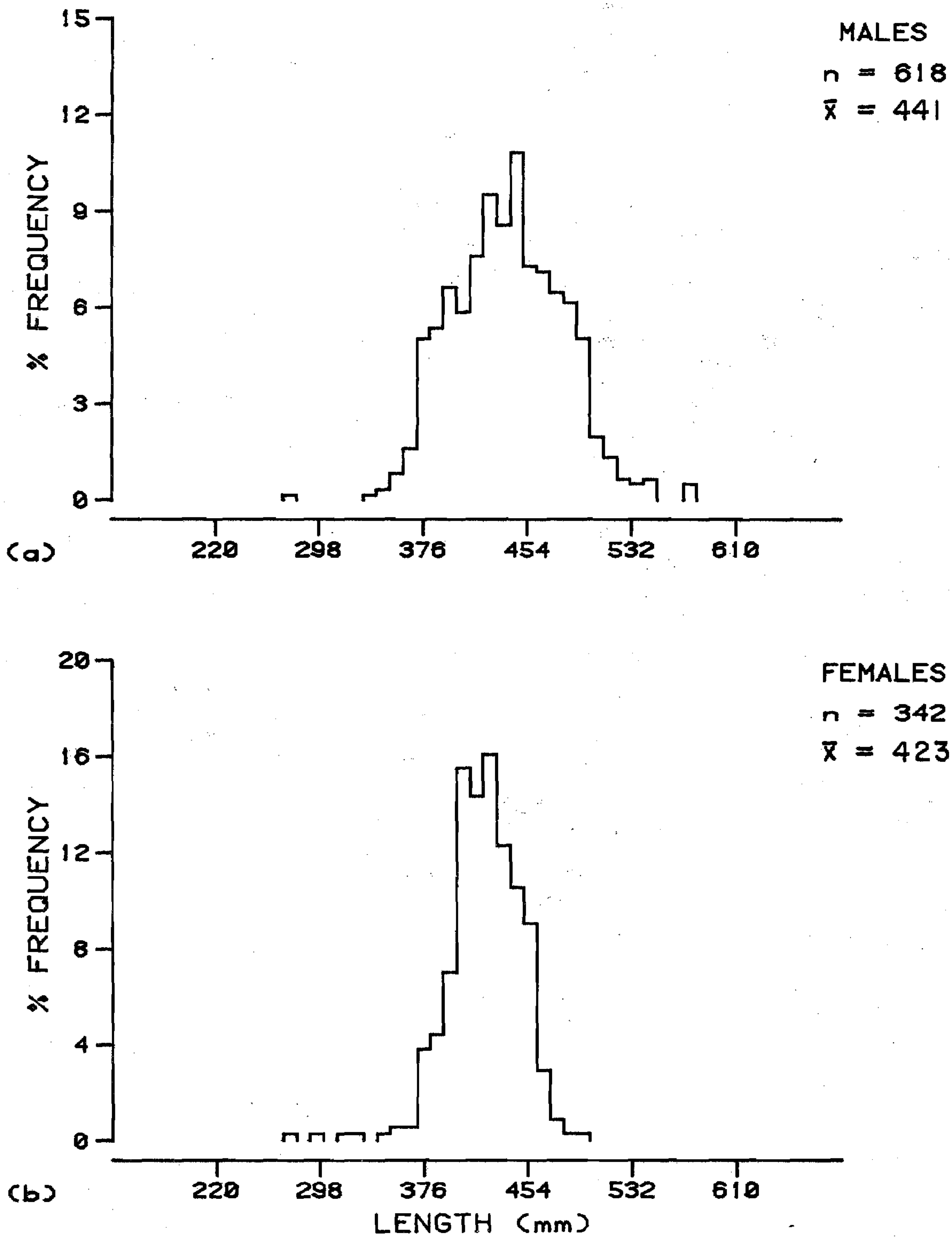


Appendix Figure 2-D-13. Length frequencies of pink salmon sampled from fishwheel catches at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

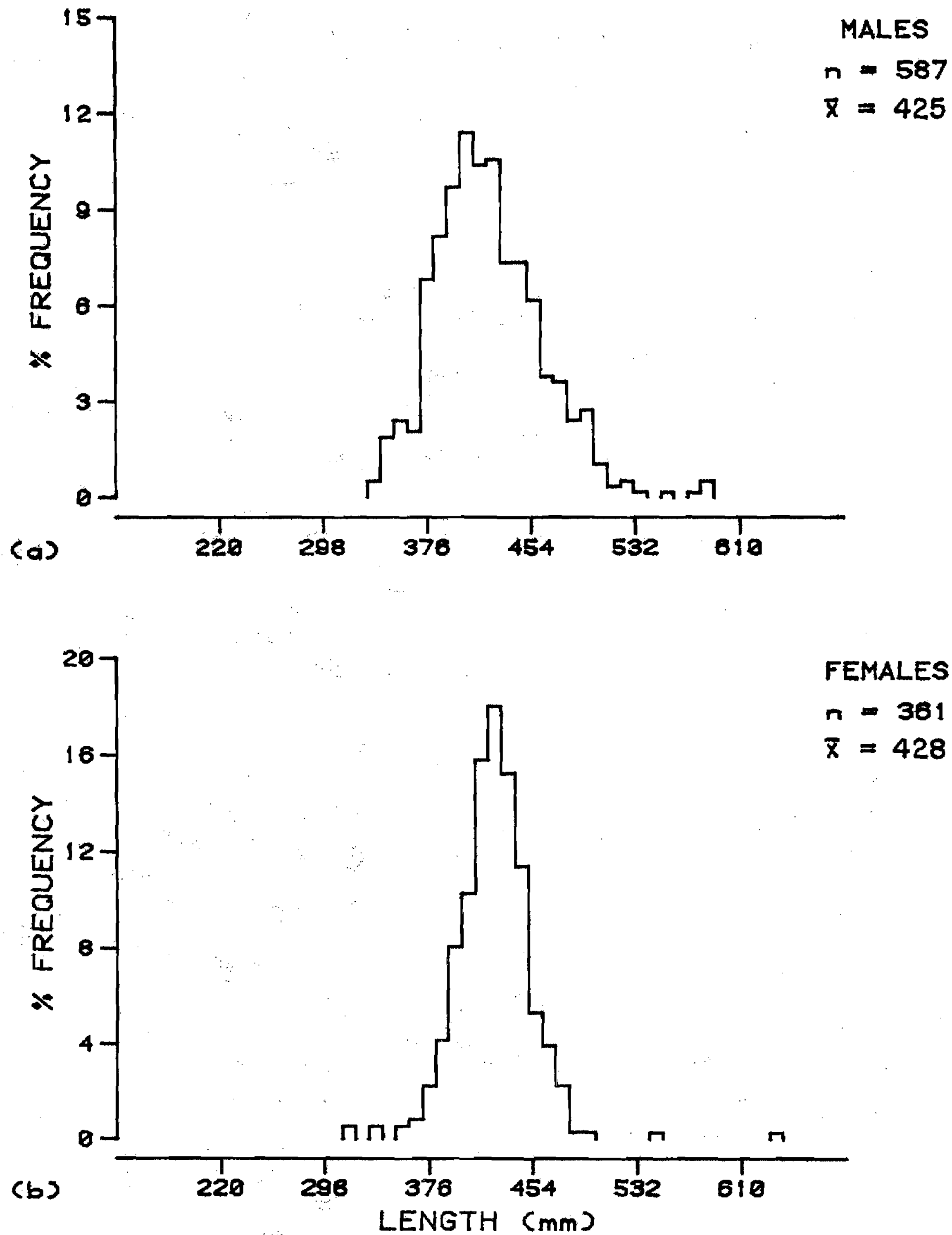




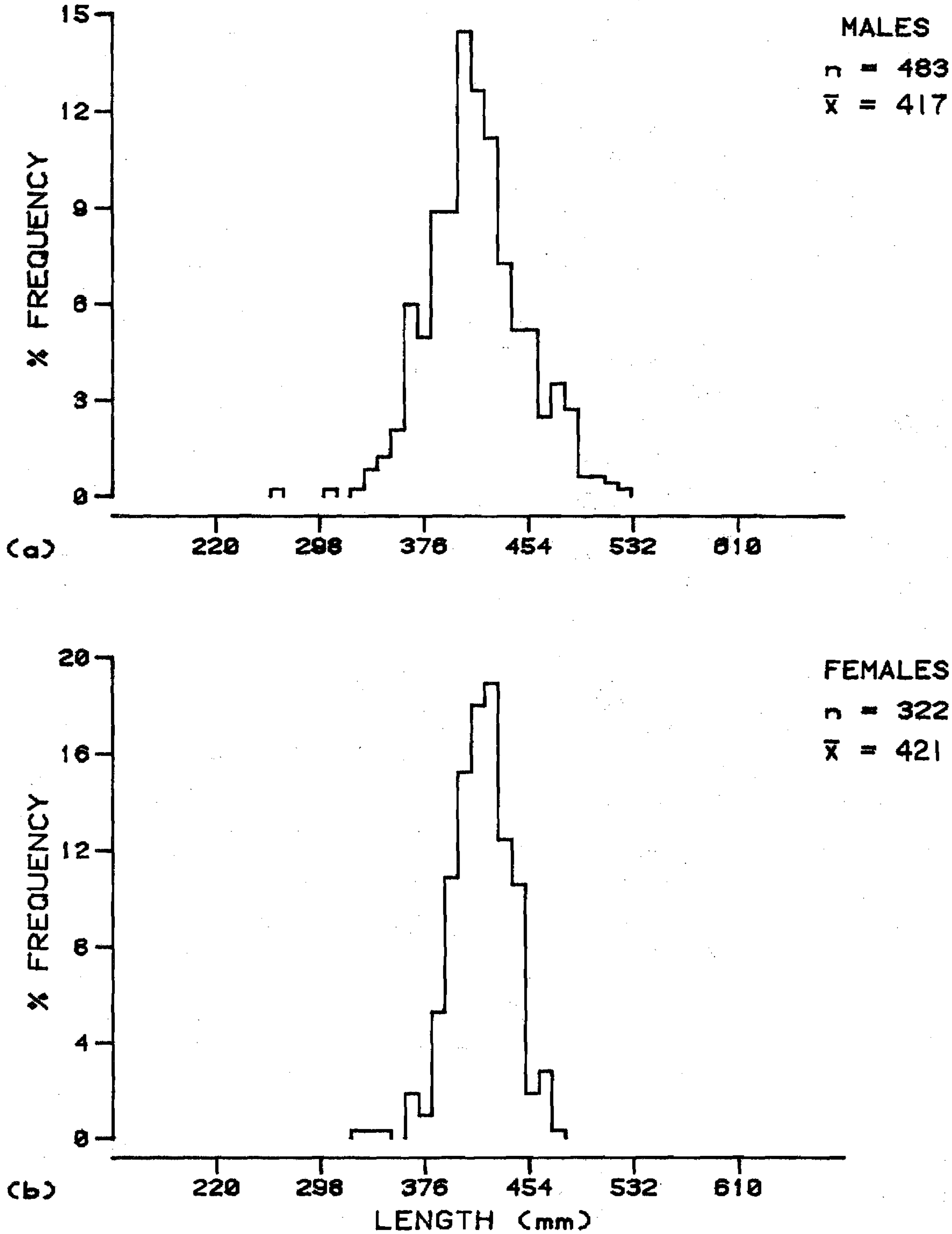
Appendix Figure 2-D-14. Length frequencies of pink salmon sampled from fishwheel catches at Yentna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



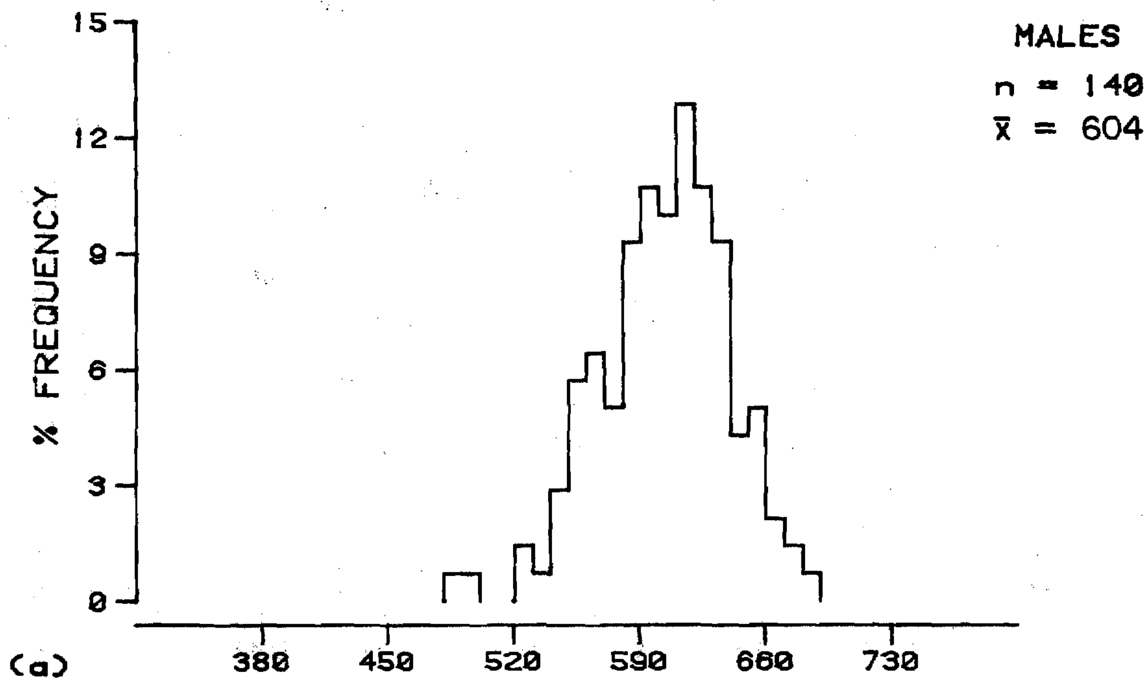
Appendix Figure 2-D-15. Length frequencies of pink salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

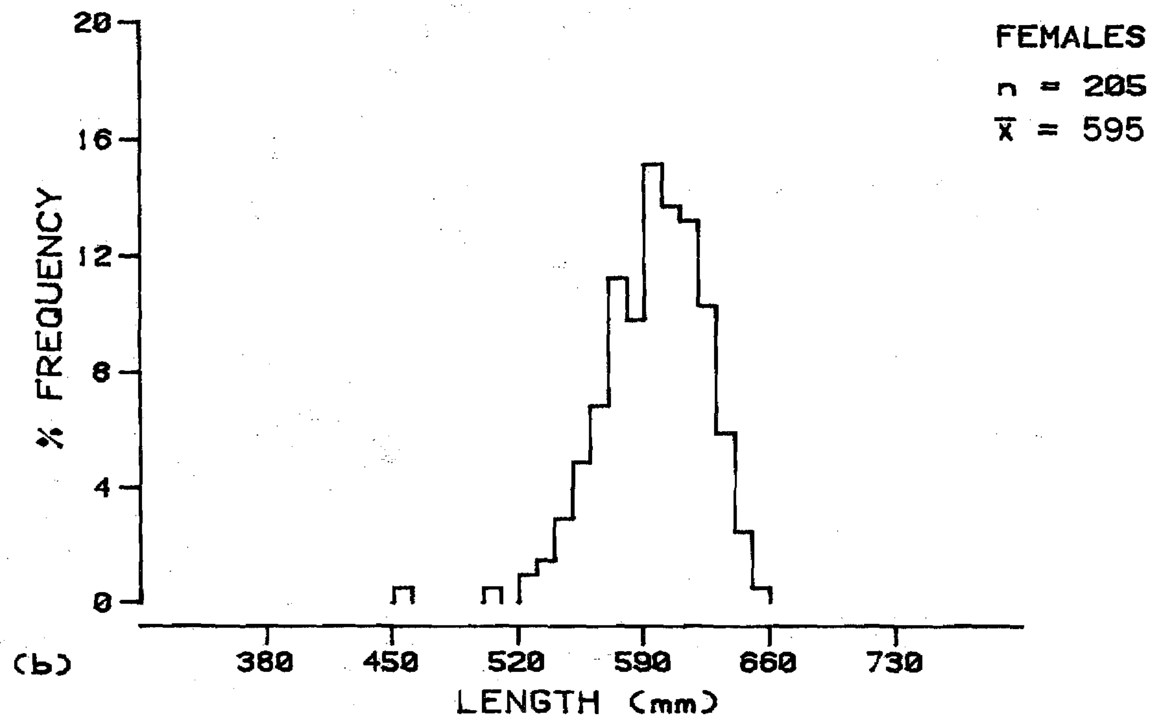


Appendix Figure 2-D-16. Length frequencies of pink salmon sampled from fishwheel catches at Talkeetna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

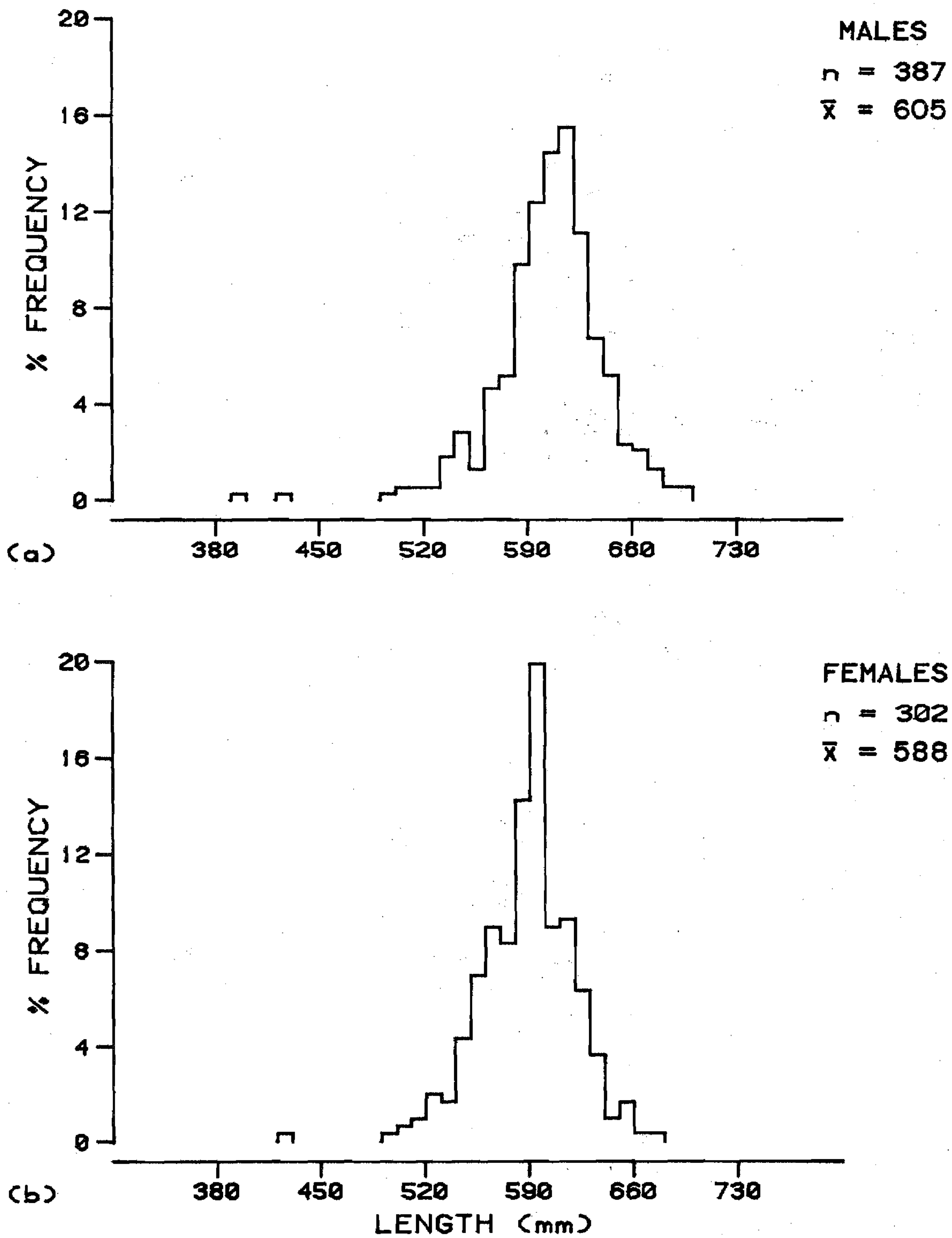


Appendix Figure 2-D-17. Length frequencies of pink salmon sampled from fishwheel catches at Curry Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.

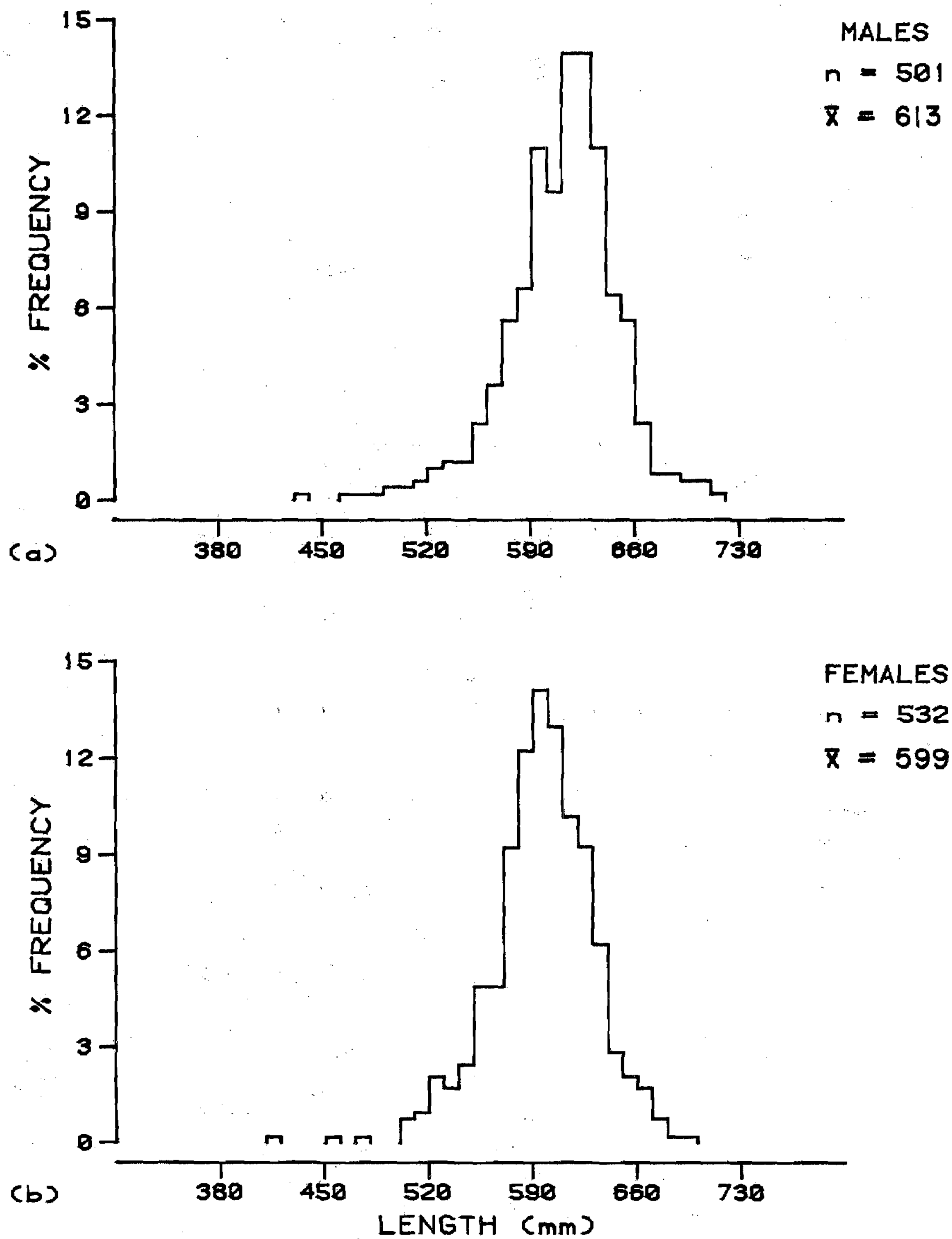




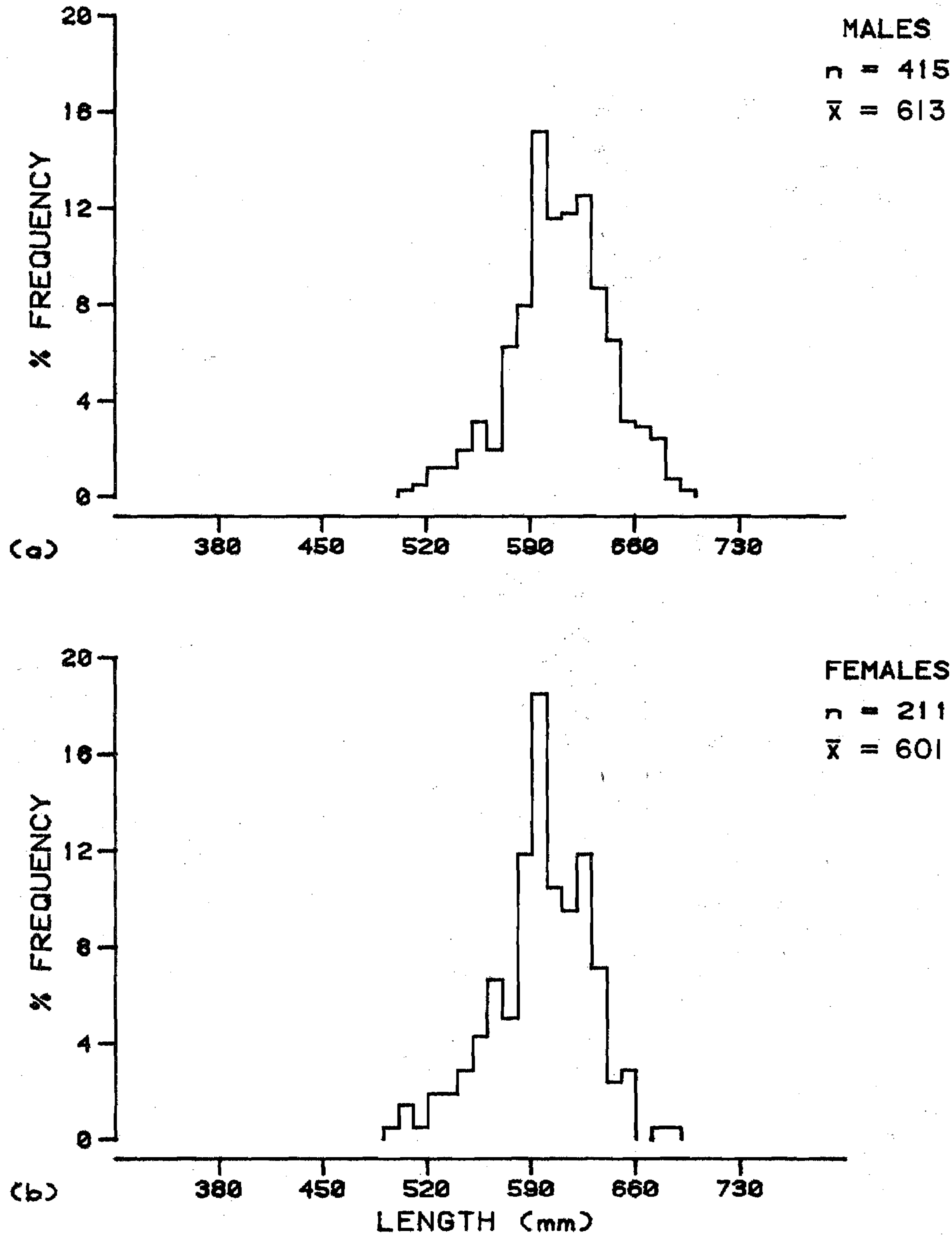
Appendix Figure 2-D-18. Length frequencies of chum salmon sampled from fishwheel catches at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



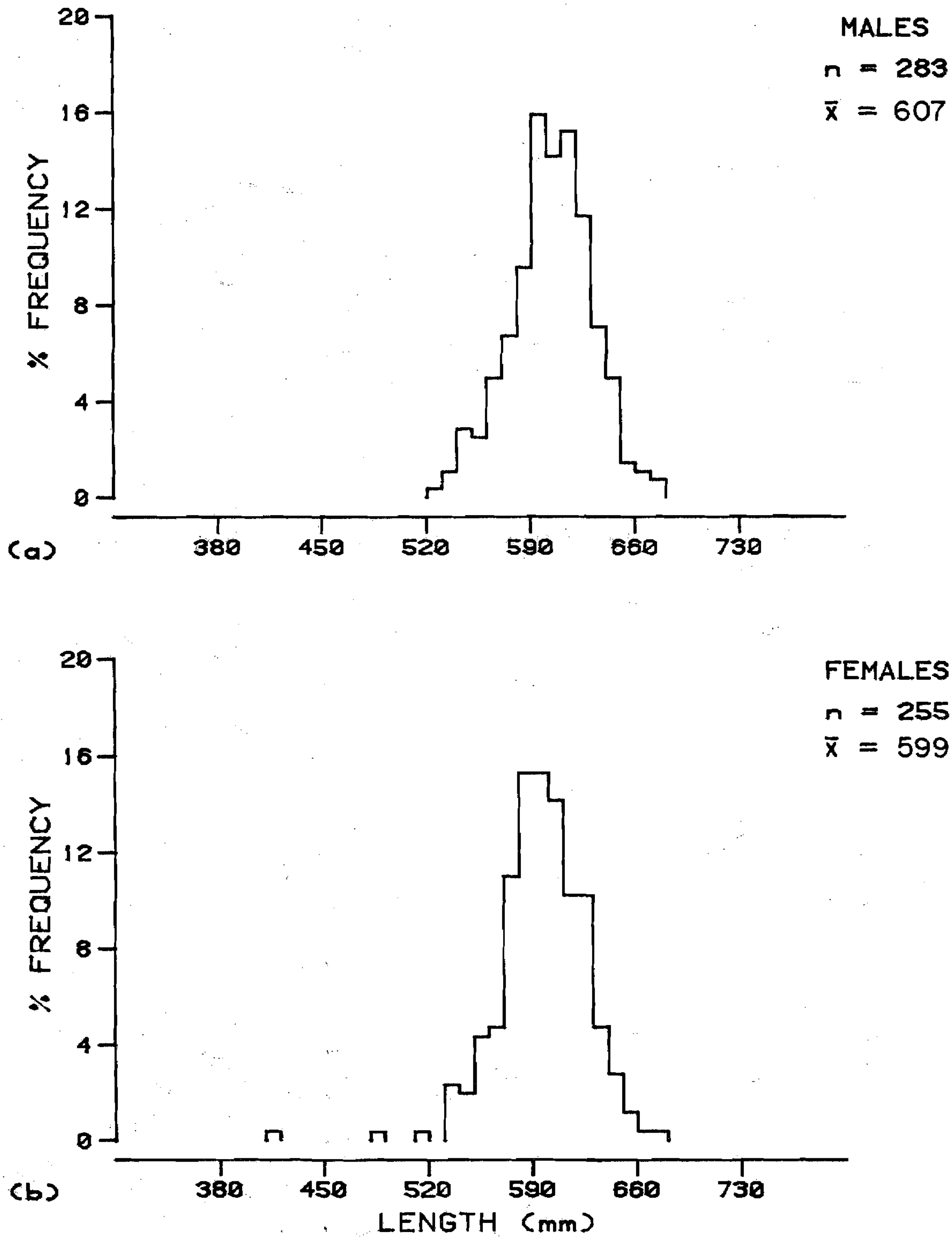
Appendix Figure 2-D-19. Length frequencies of chum salmon sampled from fishwheel catches at Yentna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



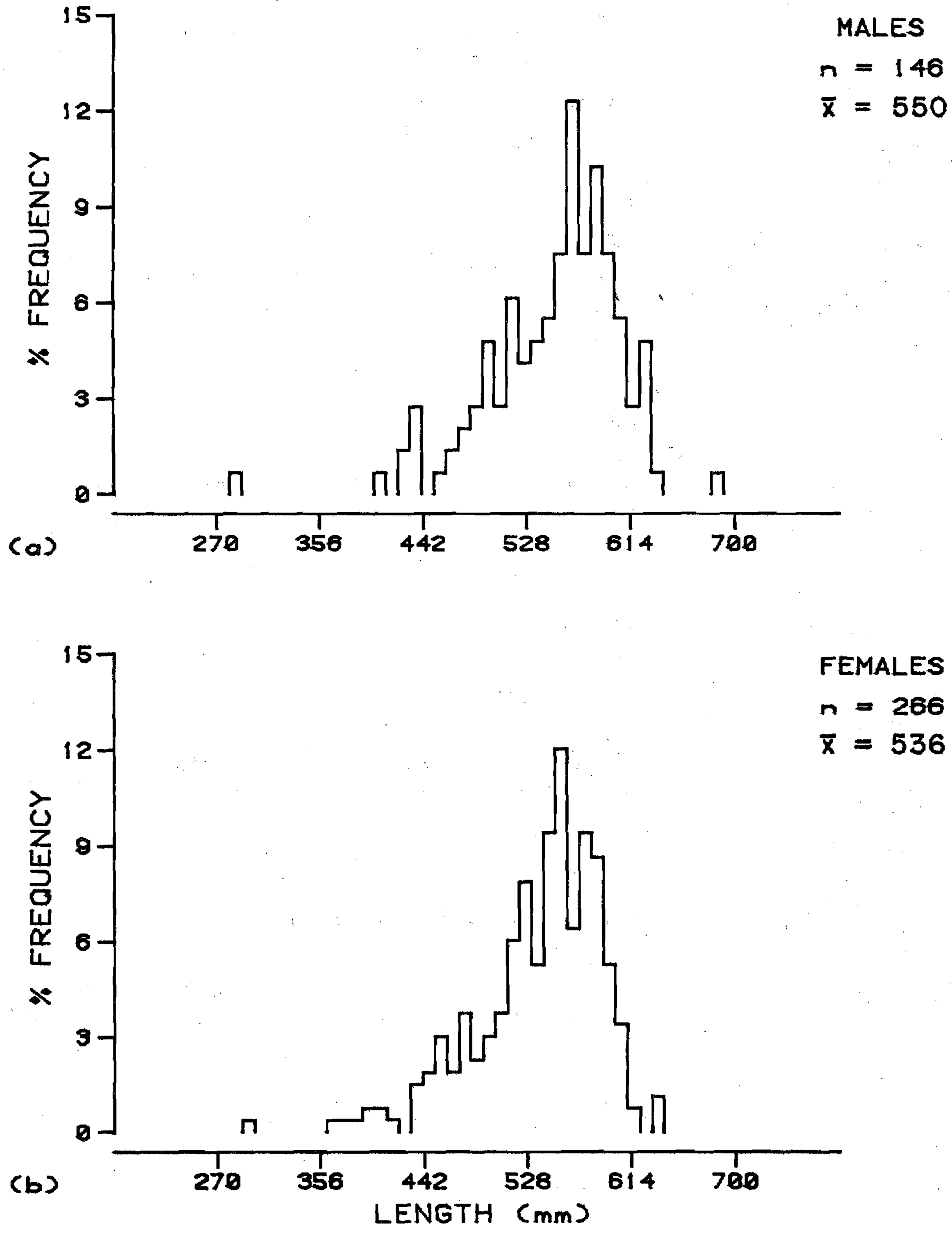
Appendix Figure 2-D-20. Length frequencies of chum salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



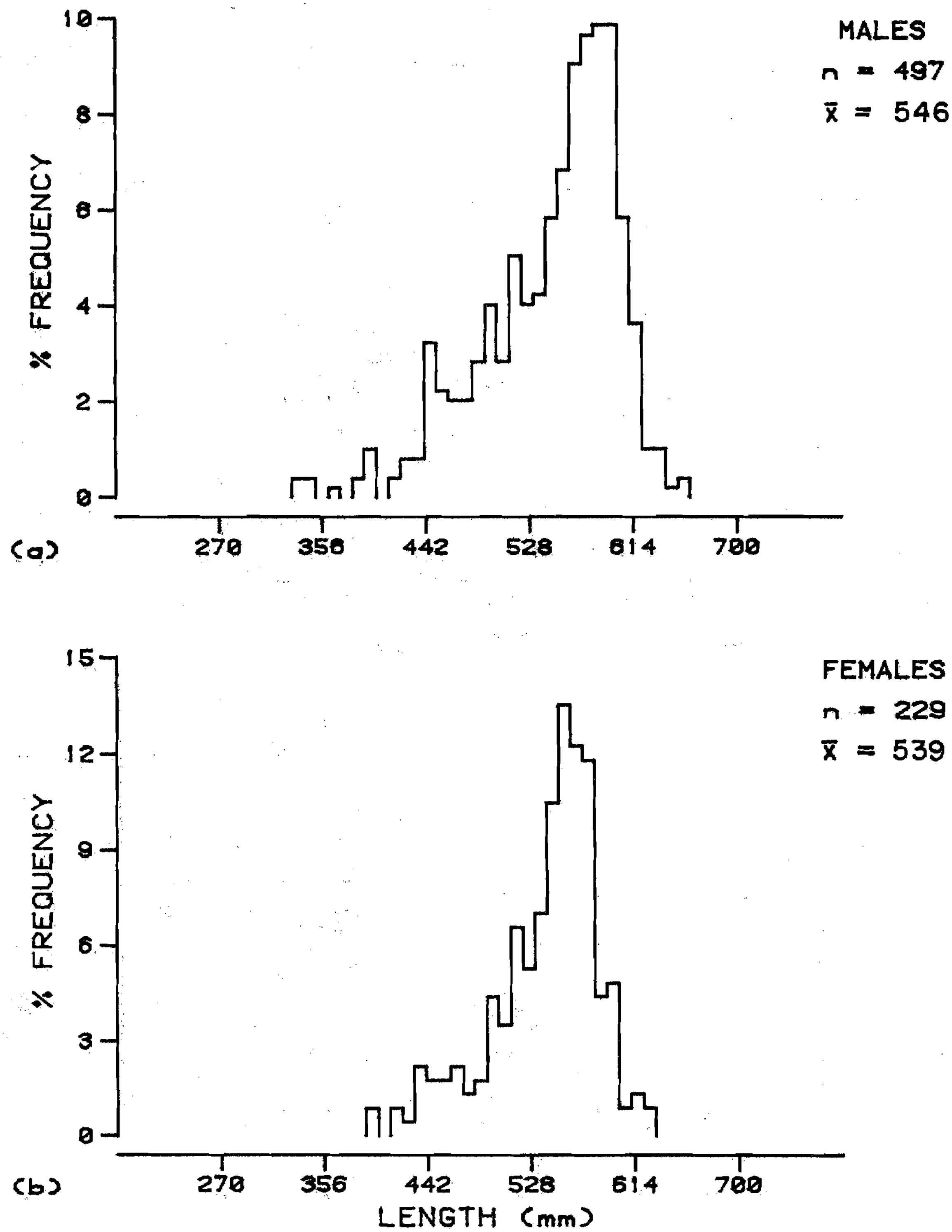
Appendix Figure 2-D-21. Length frequencies of chum salmon sampled from fishwheel catches at Talkeetna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



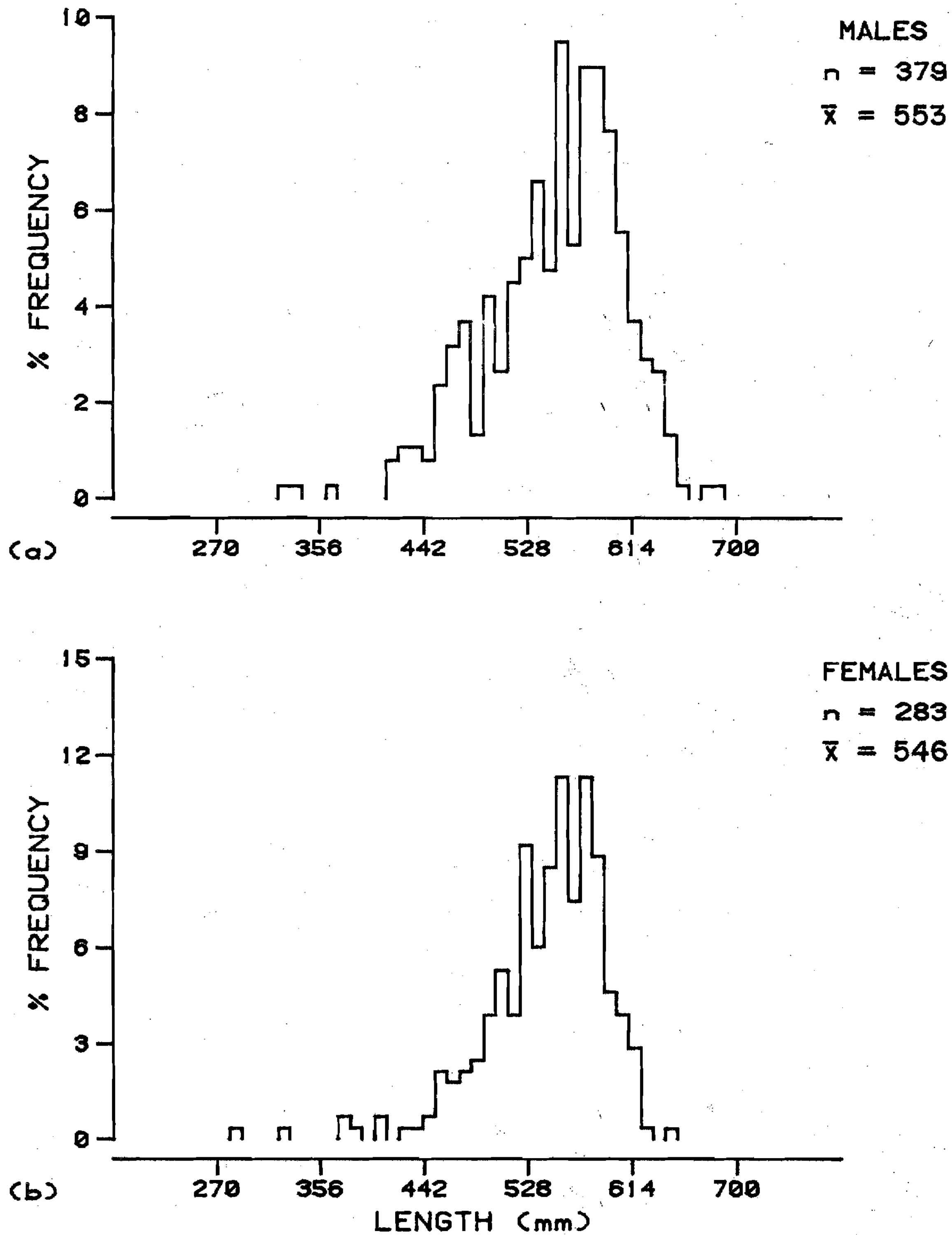
Appendix Figure 2-D-22. Length frequencies of chum salmon sampled from fishwheel catches at Curry Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



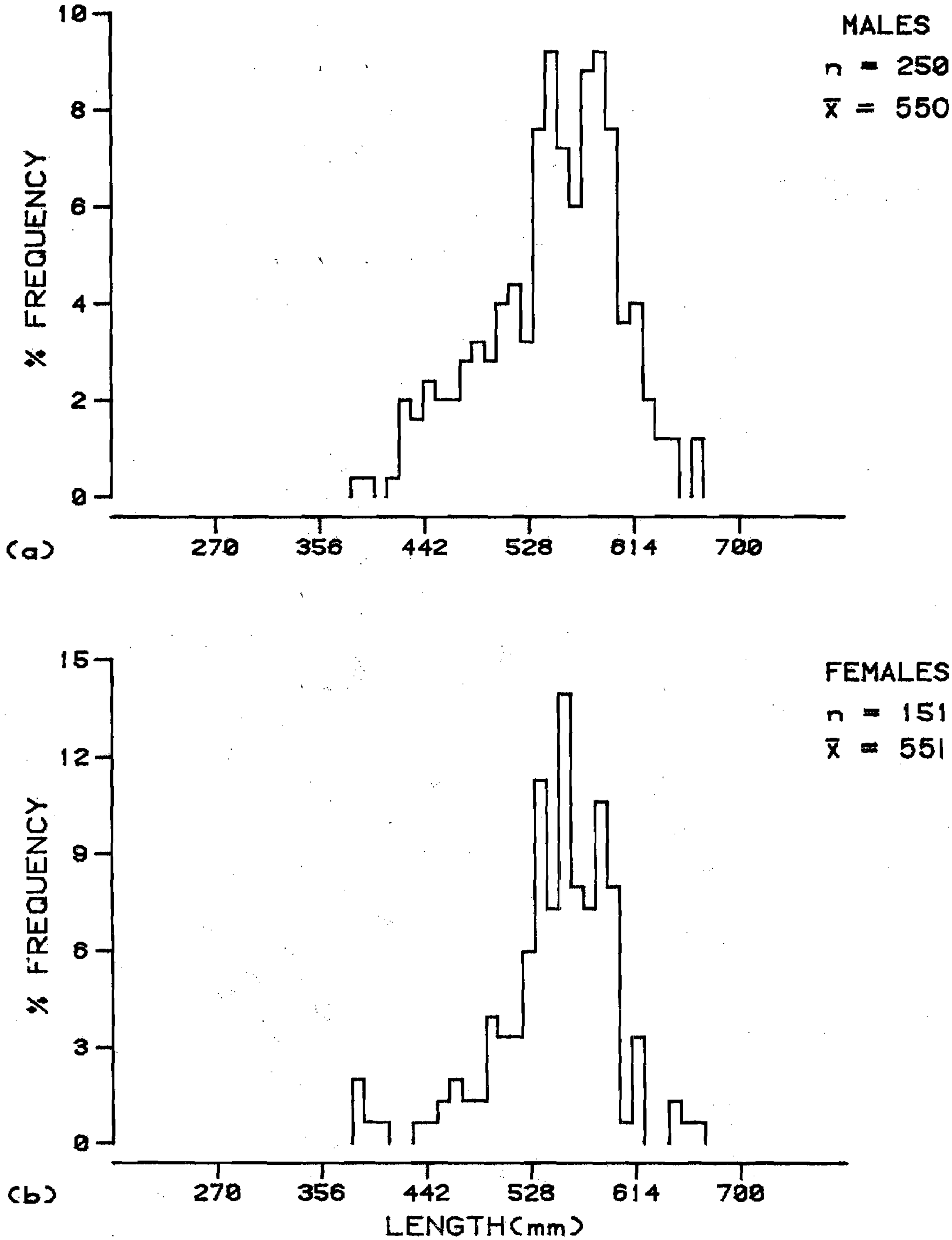
Appendix Figure 2-D-23. Length frequencies of coho salmon sampled from fishwheel catches at Susitna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



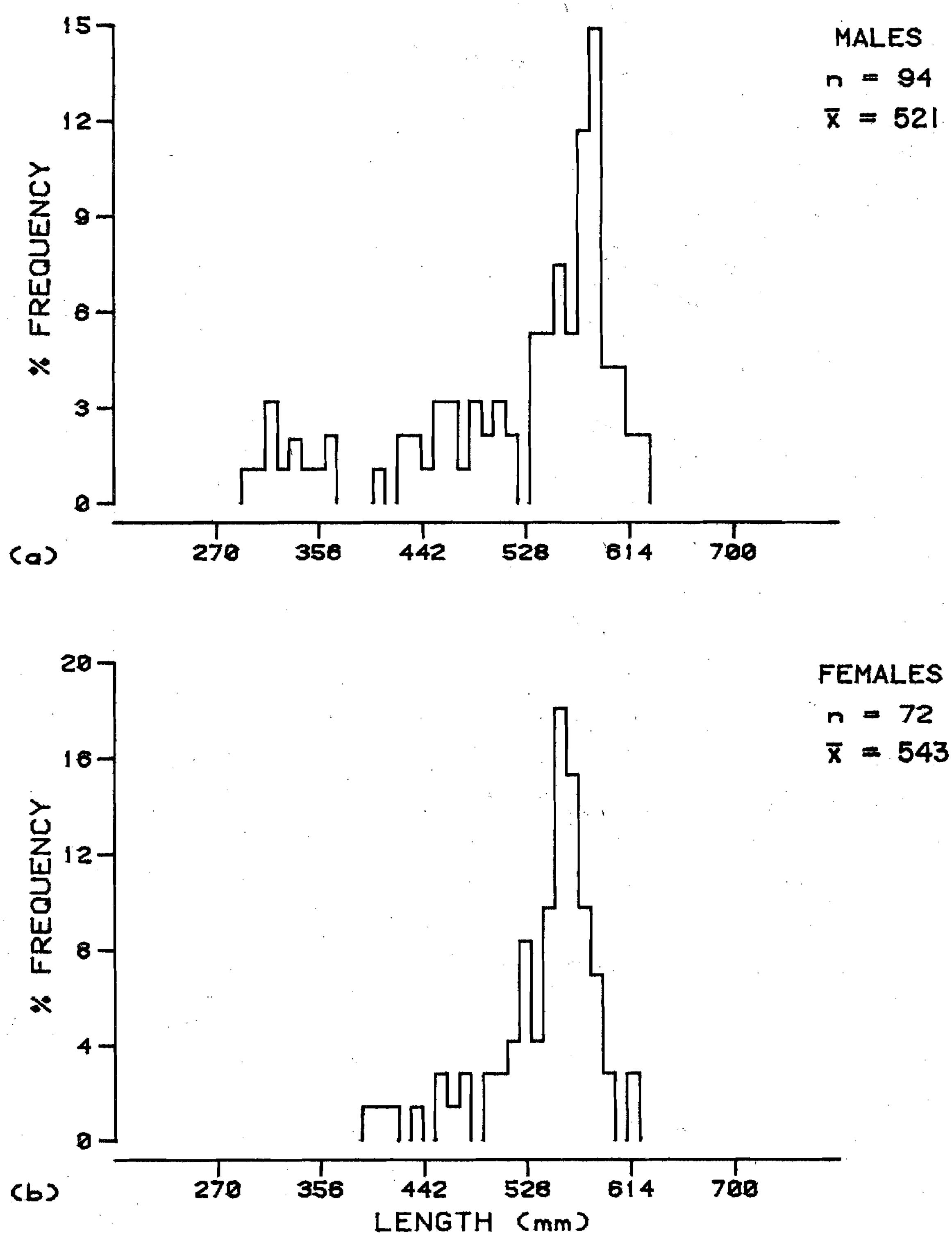
Appendix Figure 2-D-24. Length frequencies of coho salmon sampled from fishwheel catches at Yentna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



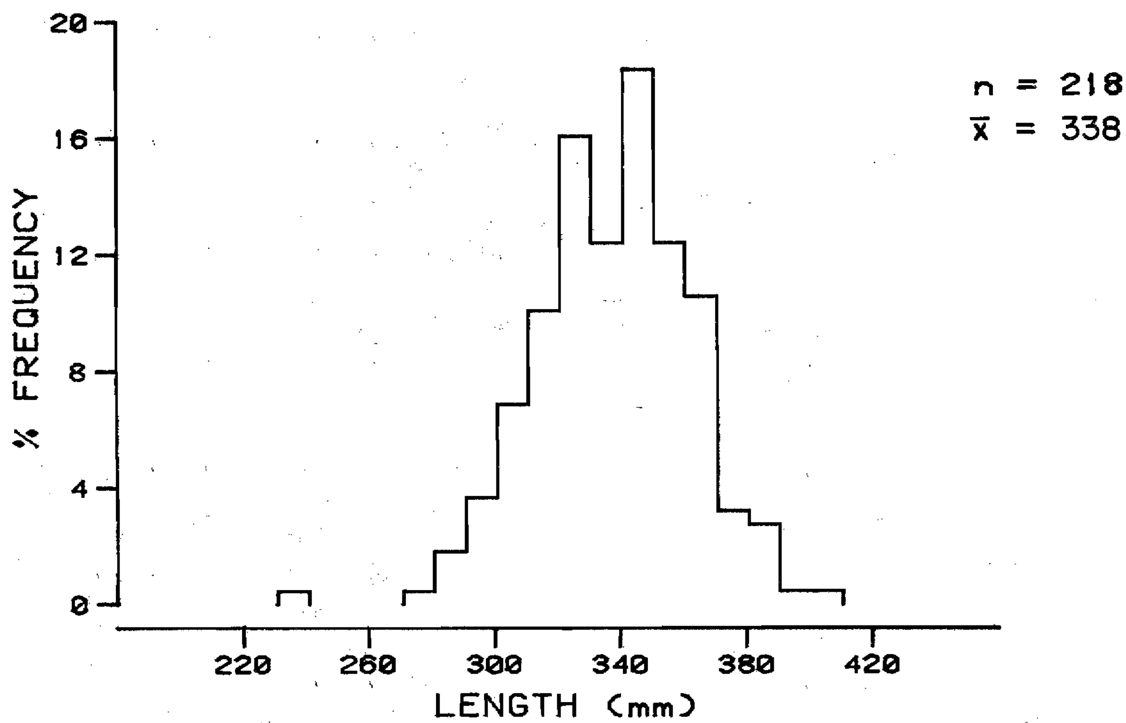
Appendix Figure 2-D-25. Length frequencies of coho salmon sampled from fishwheel catches at Sunshine Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-D-26. Length frequencies of coho salmon sampled from fishwheel catches at Talkeetna Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-D-27. Length frequencies of coho salmon sampled from fishwheel catches at Curry Station, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-D-28. Length frequencies of Bering cisco sampled from fishwheel catches at Susitna, Yentna, Sunshine and Talkeetna stations, Adult Anadromous Investigations, Su Hydro Studies, 1982.

APPENDIX 2-E

RADIO TELEMETRY TRACKING REPORTS

FOR CHINOOK, CHUM AND COHO SALMON

Chinook Salmon, Radio Transmitter 600-2

Chinook salmon 600-2 was tagged and released at Talkeetna Station (RM 103) July 2, 1982. Seven hours after being released fish 600-2 had ascended 0.2 miles to RM 103.2. On July 3, fish 600-2 was located 3.9 miles downstream at RM 99.3. It remained within 0.3 miles of this location through July 7.

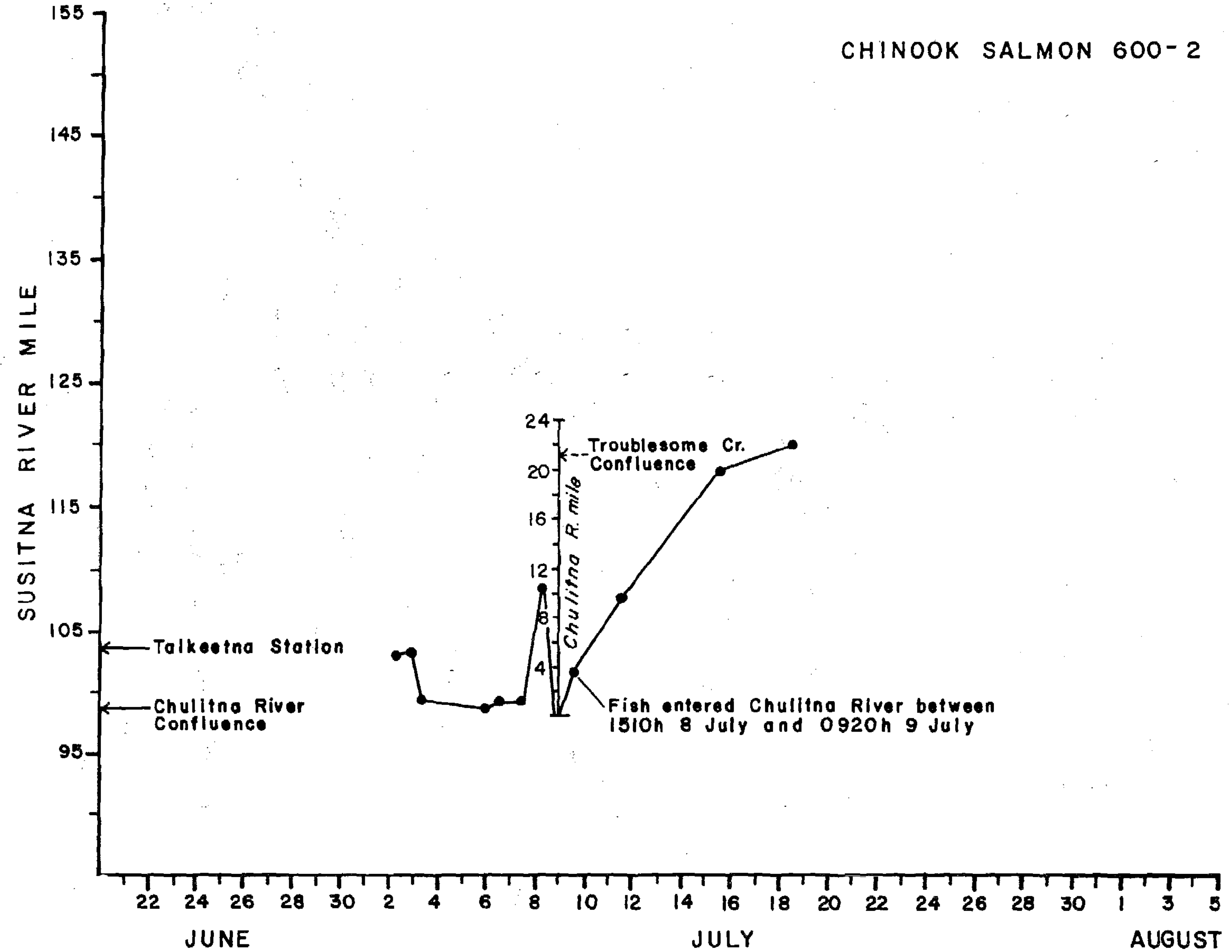
Between July 7 and 8, fish 600-2 ascended to RM 108.3. The next day, it was downstream in the Chulitna River (RM 98.5). On July 11, 15, and 18, fish 600-2 was upstream 9.7, 20.0, and 22.0 miles respectively in the Chulitna River. Fish 600-2 was last detected July 18 at the mouth of Troublesome Creek, 22.0 miles upstream in the Chulitna River (RM 98.5).

A graphic presentation of the movements of chinook salmon 600-2 is provided in Appendix Figure 2-E-1.

Chinook Salmon, Radio Transmitter 610-2

Chinook salmon 610-2 was tagged and released at Curry Station (RM 120) June 23, 1982. The fish migrated upstream after being released and was off the mouth of Portage Creek (RM 148.9) June 26. The average migrational rate of fish 610-2 between RM 103 and 148.8 was in excess of 8.4 mpd, and the maximum rate recorded was 16.6 mpd in a 24 hour period.

Between June 26 and July 14, fish 610-2 twice departed Portage Creek confluence at RM 148.9 and entered lower Devil Canyon in the reach from RM 150.5 to 151.5. Fish 610-2 first entered lower Devil Canyon to RM 150.5



Appendix Figure 2-E-1. Movement of radio tagged chinook salmon 600-2 in the Susitna River drainage during July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

between June 26 and 29. It remained at RM 150.5 from June 29 through July 1. On July 2 and 3, fish 610-2 was downstream at RM 149.8 and 148.8, respectively.

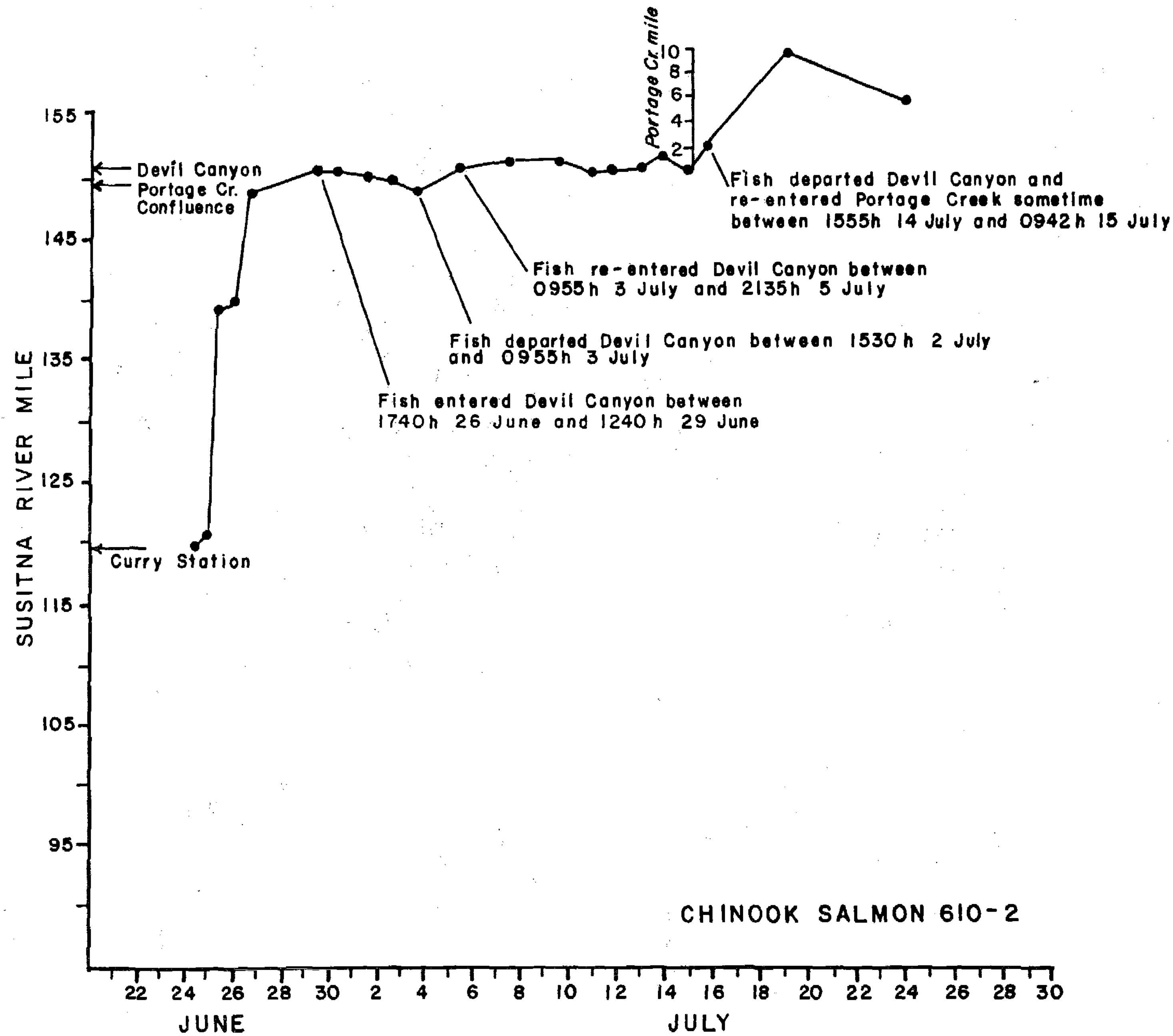
Fish 610-2's second entrance into lower Devil Canyon occurred between July 3 and 5. On July 5, fish 610-2 was at RM 150.8, and July 7 and 9 at RM 151.2 and 151.3, respectively. From July 10 through 12, fish 610-2 was at RM 150.4 to 150.6. On July 13 the fish was at RM 151.5 and one day later, downstream at RM 150.4. Fish 610-2 descended and entered Portage Creek (RM 148.9) between July 14 and 15.

From July 15 through 24, fish 610-2 was in Portage Creek as far upstream as 11.0 miles. Fish 610-2 departed Portage Creek (RM 148.9) between July 24 and 31 and was at RM 139.8 July 21. The fish carcass descended to RM 138.6 where it remained from August 4 to 19. The carcass and functional radio transmitter from this fish were recovered at RM 138.6 August 19.

A graphic presentation of the movements of chinook salmon 610-2 is provided in Appendix Figure 2-E-2.

<u>Chinook Salmon, Radio Transmitter 620-1</u>

Chinook salmon 620-1 was tagged and released at Curry Station (RM 120) June 30, 1982. Fish 620-1 ascended directly to RM 138.6 after being released at an average migrational rate of 10.4 mpd. It remained at the mouth of Indian River at RM 138.6 from July 2 through 8.



Appendix Figure 2-E-2. Movement of radio tagged chinook salmon 610-2 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Fish 620-1 entered Indian River (RM 138.6) July 8 or 9. It was located on the latter date 1.5 miles upstream and July 11, 13, 15 and 18, 5.1, 9.2, 13.0 and 16.2 miles upstream in Indian River, respectively. Fish 620-1 was located July 24, 17.2 miles upstream in Indian River and presumably spawned in this stream. The carcass of this fish entered the Susitna River on or about August 3.

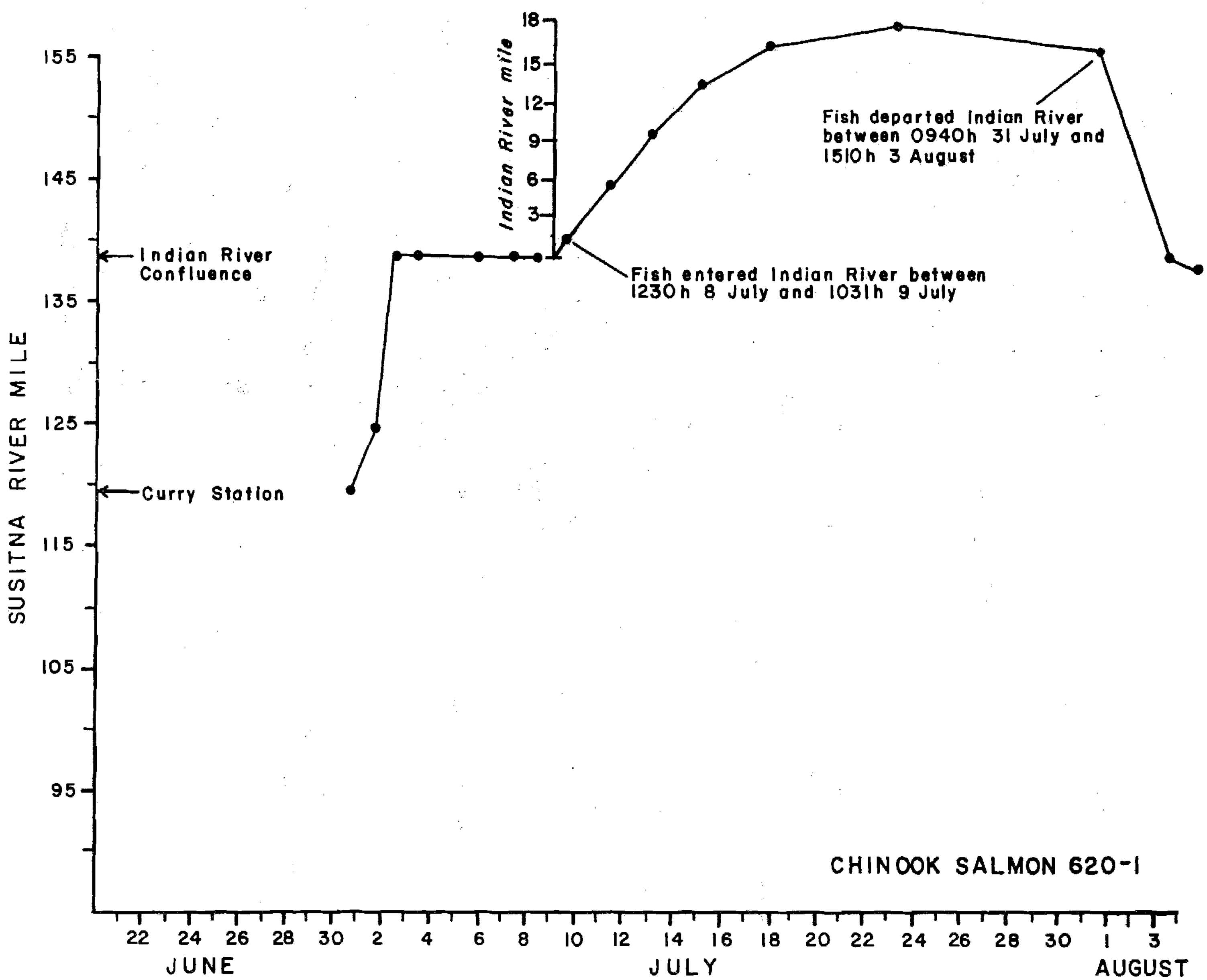
A graphic presentation of the movements of chinook salmon 620-2 is provided in Appendix Figure 2-E-3.

Chinook Salmon, Radio Transmitter 660-1

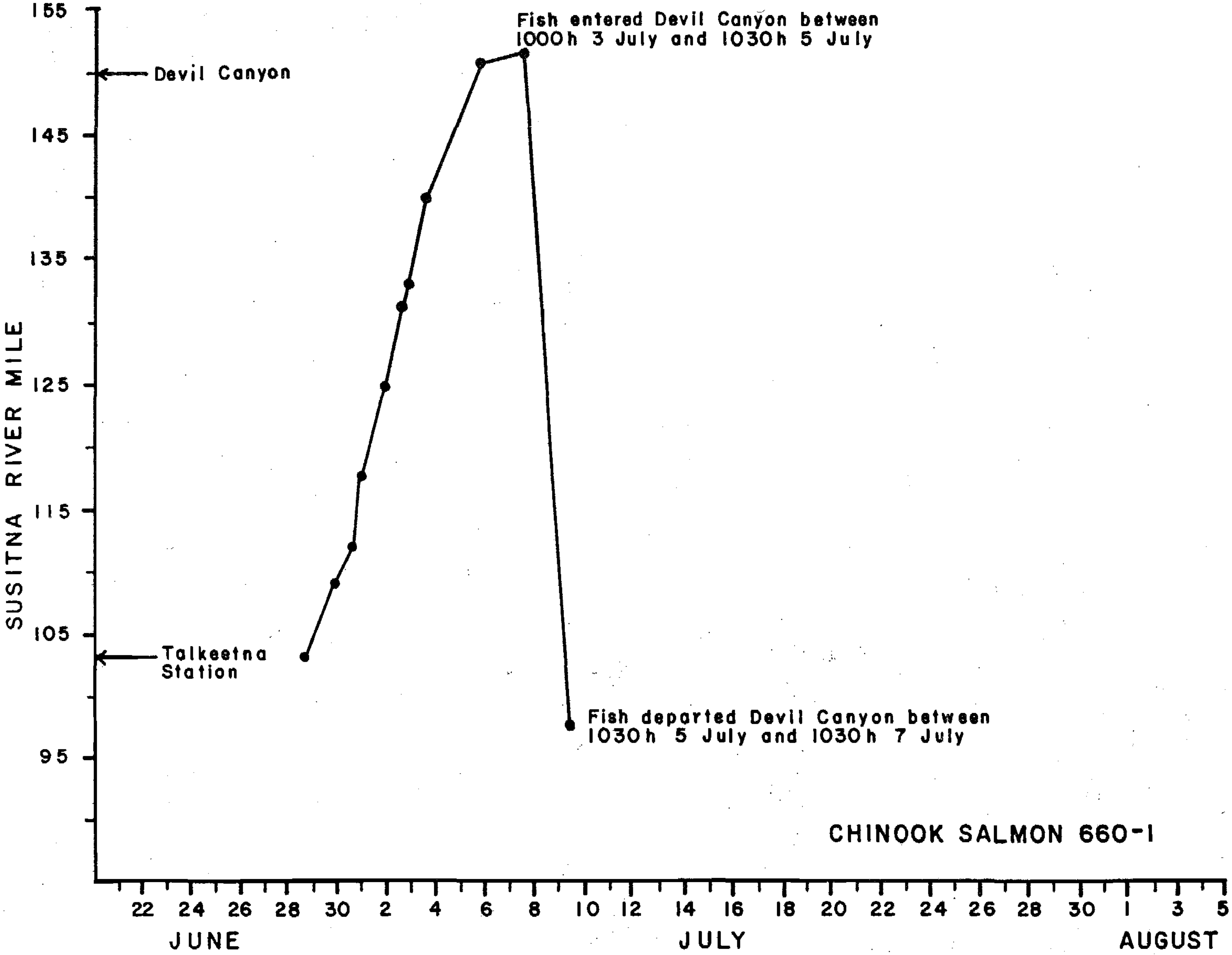
Chinook salmon 660-1 was tagged and released at Talkeetna Station (RM 103) June 28, 1982. After being released fish 660-1 migrated upstream at a migrational rate not less than 6.5 mpd. Fish 660-1 was in lower Devil Canyon July 5 and 7 at RM 150.4 and 151.3, respectively. Sometime between July 7 and 9, fish 660-1 departed Devil Canyon and moved downstream. It was last detected at RM 97.8 July 9.

The fastest upstream migrational rate recorded on fish 660-1 between RM 103 and 150.4 was 14.6 mpd.

A graphic presentation of the movements of chinook salmon 660-1 is provided in Appendix Figure 2-E-4.



Appendix Figure 2-E-3. Movement of radio tagged chinook salmon 620-1 in the Susitna River drainage during June, July and August, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-4. Movement of radio tagged chinook salmon 660-1 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Chinook Salmon, Radio Transmitter 670-1

Chinook salmon 670-1 was tagged and released at Curry Station (RM 120) June 24, 1982. The following day fish 670-1 was at RM 125.3. It reached the mouth of Indian River at RM 138.6 on or about June 30.

Fish 670-1 migrated between RM 120 and 135.5 at rates exceeding 5.5 mpd and from RM 135.5 to 138.3 at speeds consistently less than 1.7 mpd.

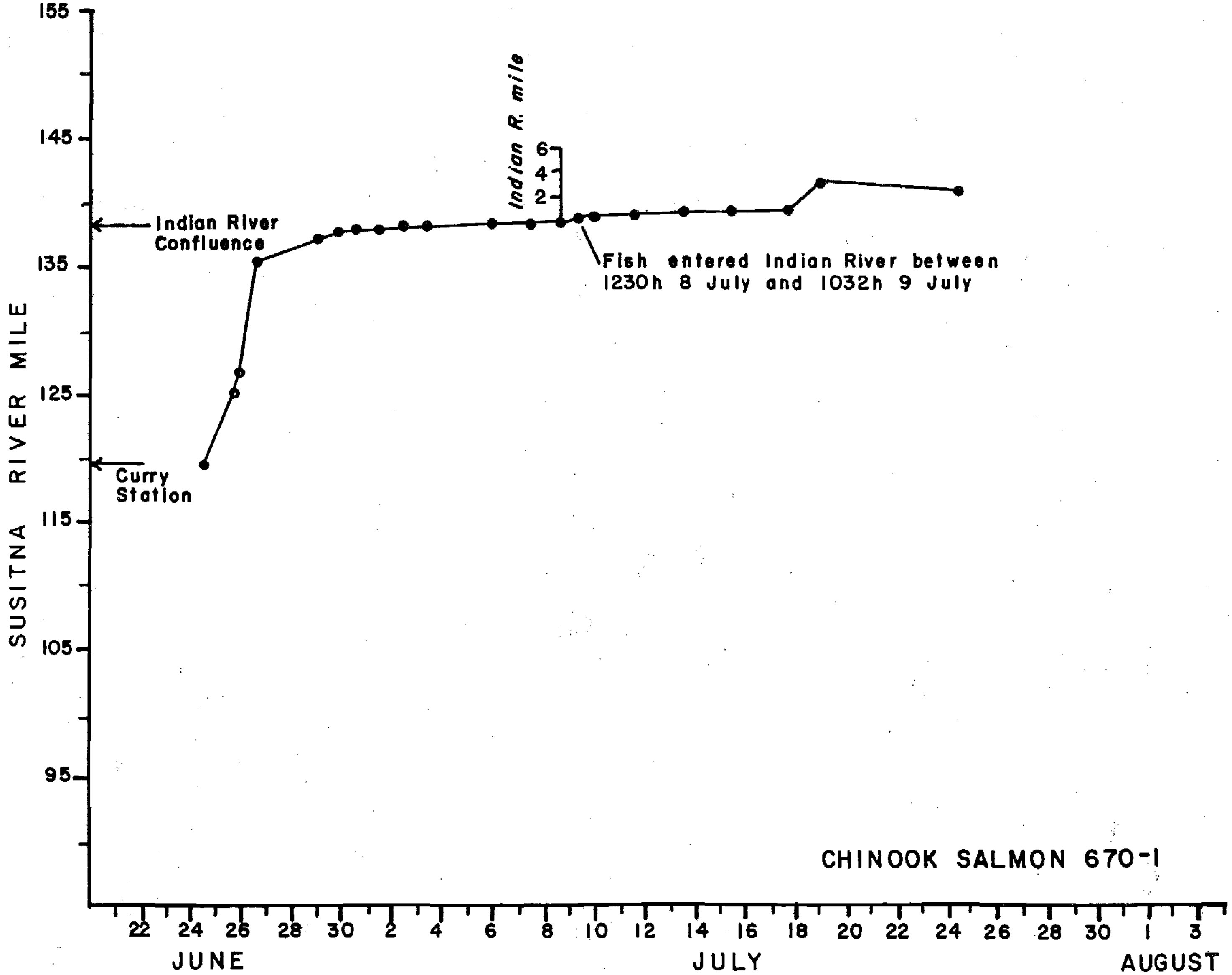
Fish 670-1 remained at, or within 0.2 miles, of Indian River (RM 138.6) from June 30 to July 8. Between July 8 and 9, fish 670-1 entered Indian River and was last detected 2.8 miles upstream in the river July 24. Fish 670-1 presumably spawned in Indian River in the third and fourth week of July.

A graphic presentation of the movements of chinook salmon 670-1 is provided in Appendix Figure 2-E-5.

Chinook Salmon, Radio Transmitter 680-1

Chinook salmon 680-1 was tagged and released June 25, 1982 at Talkeetna Station (RM 103). The following day, fish 680-1 was 5.8 miles downstream at RM 97.2. Fish 680-1 remained between RM 96.0 and 99.7 from June 28 through July 3.

Between July 3 and 5, fish 680-1 entered the Talkeetna River (RM 97.0), where it was located six miles upstream July 5. It was at the same location July 7



Appendix Figure 2-E-5. Movement of radio tagged chinook salmon 670-1 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

and July 9 was last located nine miles upstream in Chunilna Creek, a Talkeetna River tributary.

A graphic presentation of the movements of chinook salmon 680-1 is provided in Appendix Figure 2-E-6.

Chinook Salmon, Radio Transmitter 700-1

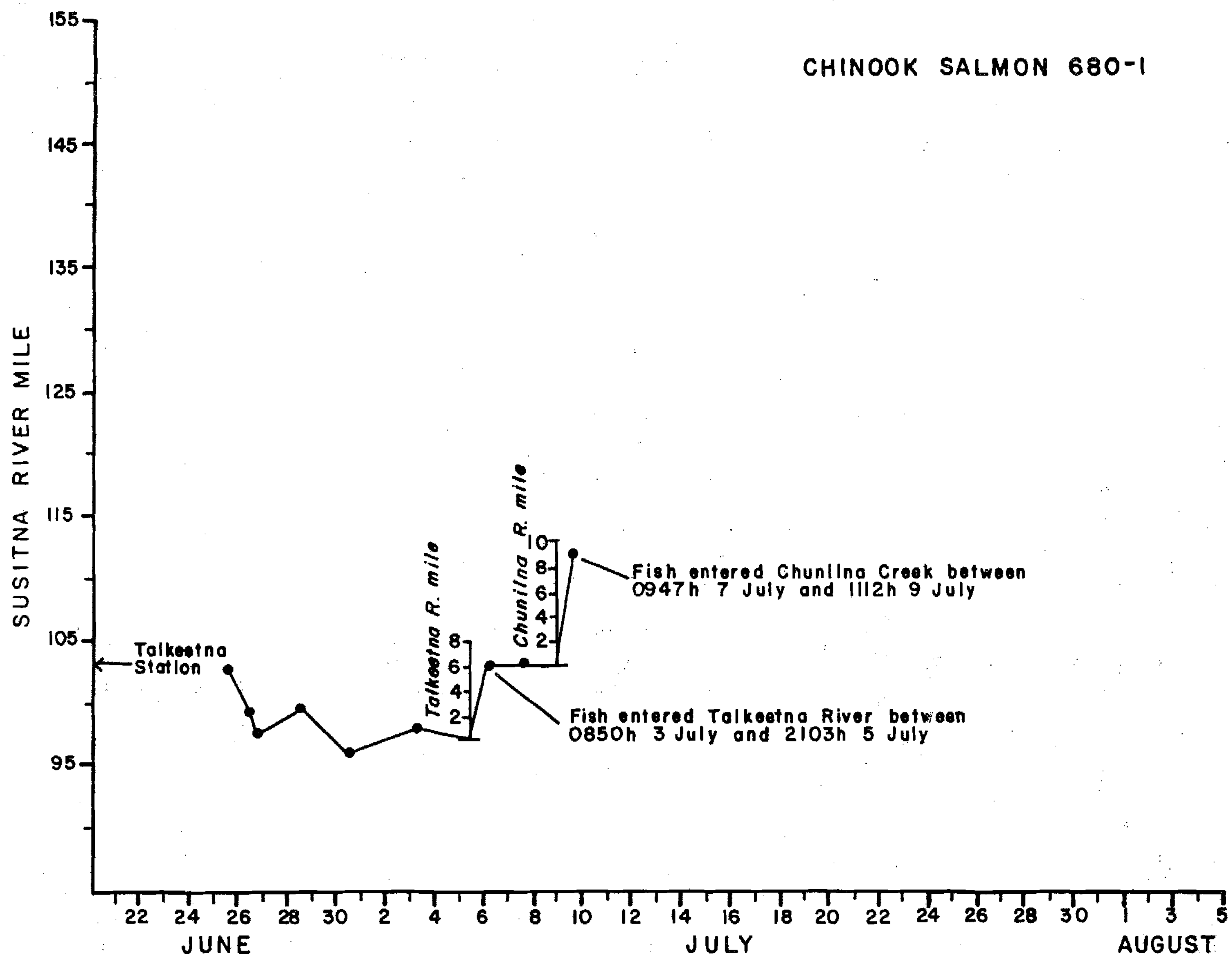
Chinook salmon 700-1 was tagged and released at Talkeetna Station (RM 103.0) June 22, 1982. It ascended by June 26 to within 0.4 miles of the Indian River confluence at RM 138.6.

Fish 700-1 ascended from RM 103.3 to 138.2 at migrational rates ranging from 5.3 mpd to 9.4 mpd.

Fish 700-1 occupied various positions in the Susitna River within 0.4 miles of the mouth of Indian River (RM 138.6), including the mouth of Slough 17 (RM 138.8), for several days prior to entering that tributary.

On July 3, fish 700-1 was 2.2 miles upstream in the Indian River (RM 138.6) as detected by an aerial survey on that date. The fish presumably ascended the Indian River (RM 138.6) June 30 or July 1, evident by failure to locate fish 700-1 by waterbourne telemetry surveys in the mainstem Susitna River July 1 and 2.

Fish 700-1 progressively moved upstream in the Indian River (RM 138.6) from



Appendix Figure 2-E-6. Movement of radio tagged chinook salmon 680-1 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

July 3 to 11. It was last detected 8.8 miles upstream in the Indian River July 11.

A graphic presentation of the movements of chinook salmon 700-1 is provided in Appendix Figure 2-E-7.

Chinook Salmon, Radio Transmitter 710-3

Chinook salmon 710-3 was tagged and released at Talkeetna Station (RM 103) July 7, 1982. Fish 710-3 moved upstream and reached RM 122.9 July 14 which represents an average migrational rate of 2.9 mpd.

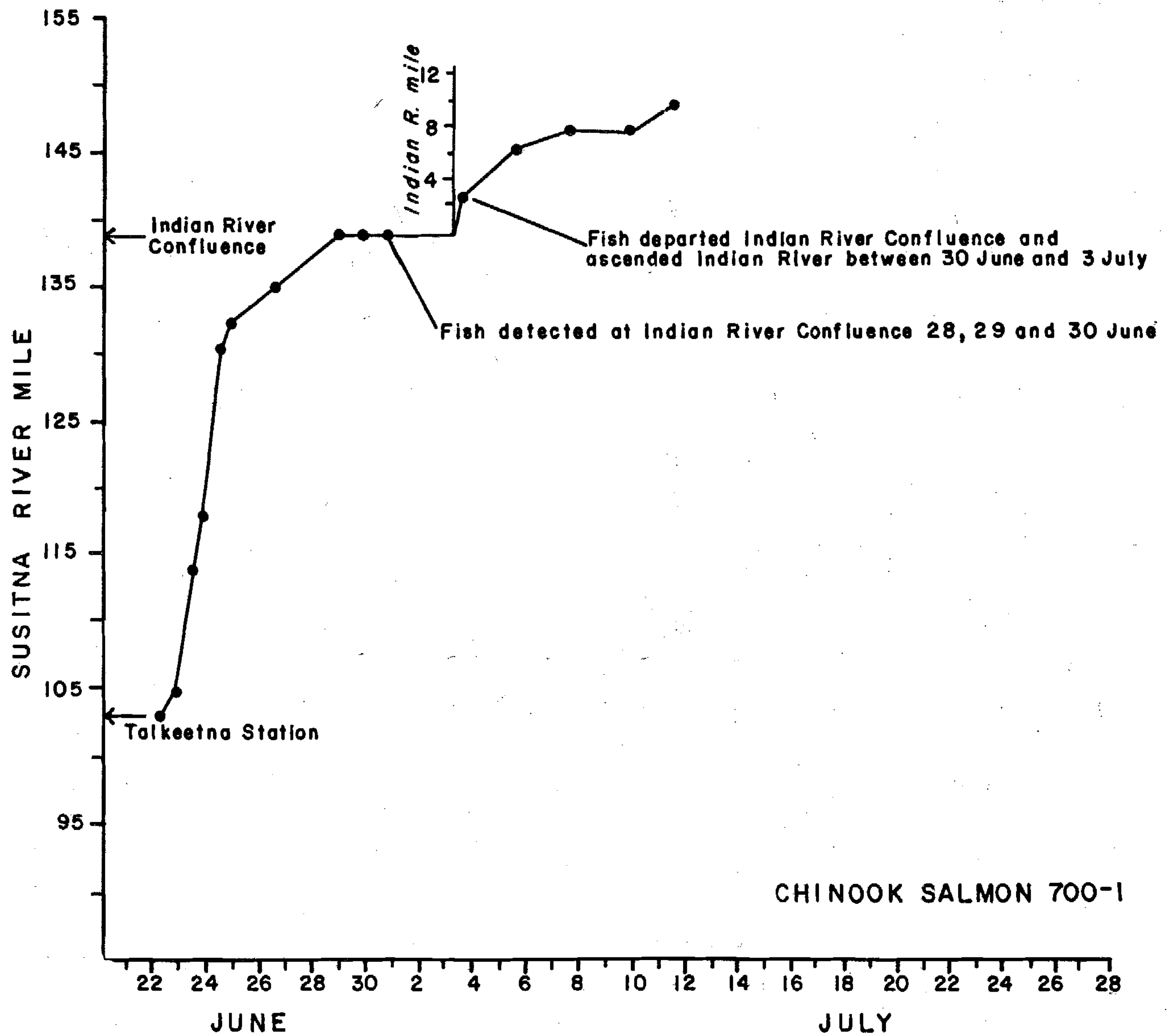
Between July 14 and 15, fish 710-3 descended from RM 122.9 to 101.6 where it was located July 16. Its downstream movement from RM 119.5 to 105.6 was at the rate of 24 mpd.

Aerial surveys in the Talkeetna River (RM 97.0) drainage, lower 15 miles of the Chulitna River (RM 98.5) and the Susitna River from RM 152 to 77.0 failed to detect this fish from its previous known location at RM 101.6 July 16.

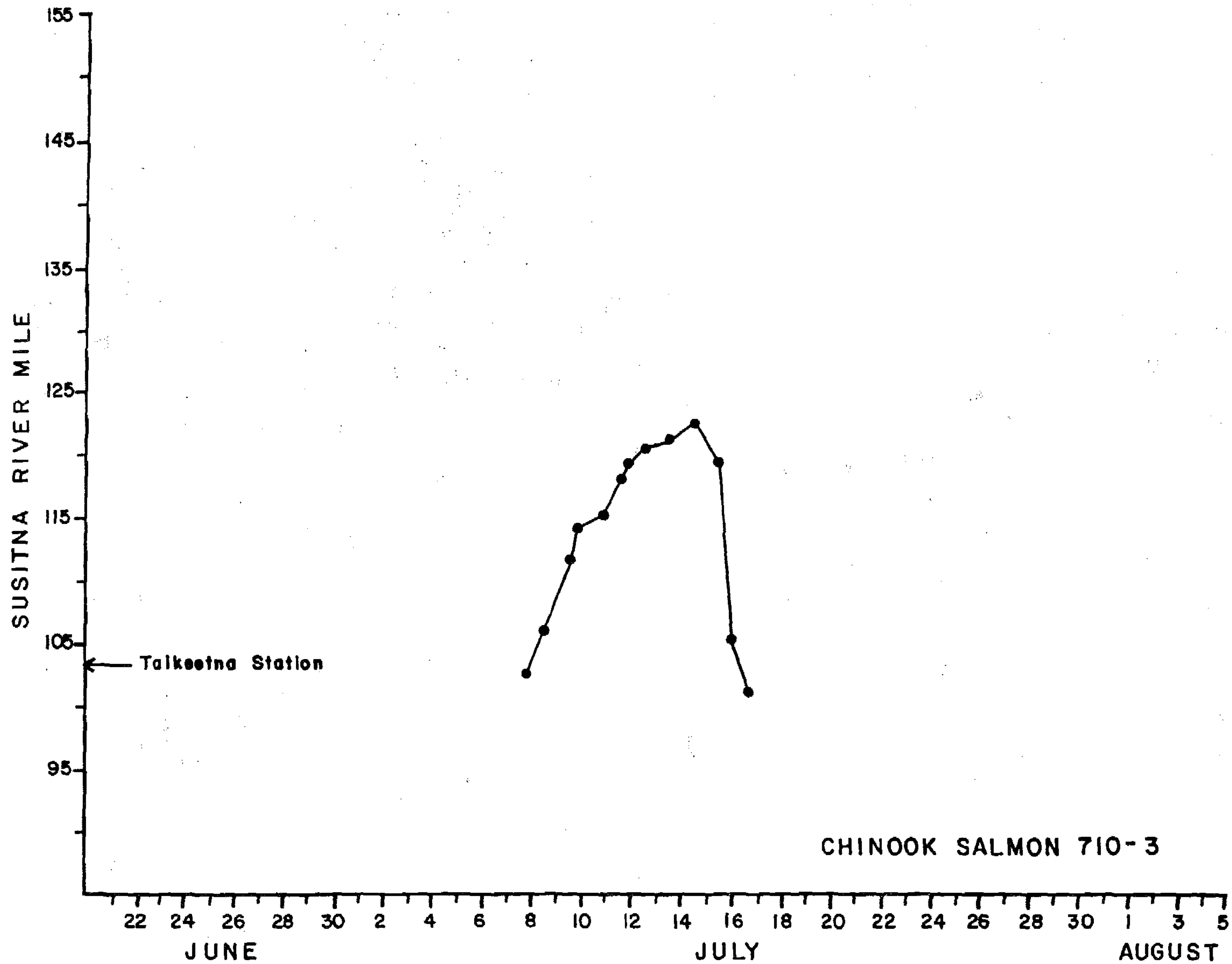
A graphic presentation of the movements of chinook salmon 710-3 is provided in Appendix Figure 2-E-8.

Chinook Salmon, Radio Transmitter 720-1

Chinook salmon 720-1 was tagged and released at Curry Station (RM 120) July 8, 1982. It migrated upstream to the mouth of Indian River (RM 138.6) within



Appendix Figure 2-E-7. Movement of radio tagged chinook salmon 700-1 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Susitna Hydro Studies, 1982.



Appendix Figure 2-E-8. Movement of radio tagged chinook salmon 710-3 in the Susitna River drainage during July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

five days of release. The average migrational rate of fish 720-1 in this five day period was 3.6 mpd; the fastest speed recorded on this fish during an 11.3 hour period was 4.7 mpd.

Between July 13 and 14, fish 720-1 entered Indian River (RM 138.6) where it was detected 0.3 miles upstream July 14. Fish 720-1 was last located 8.1 miles upstream in Indian River July 24.

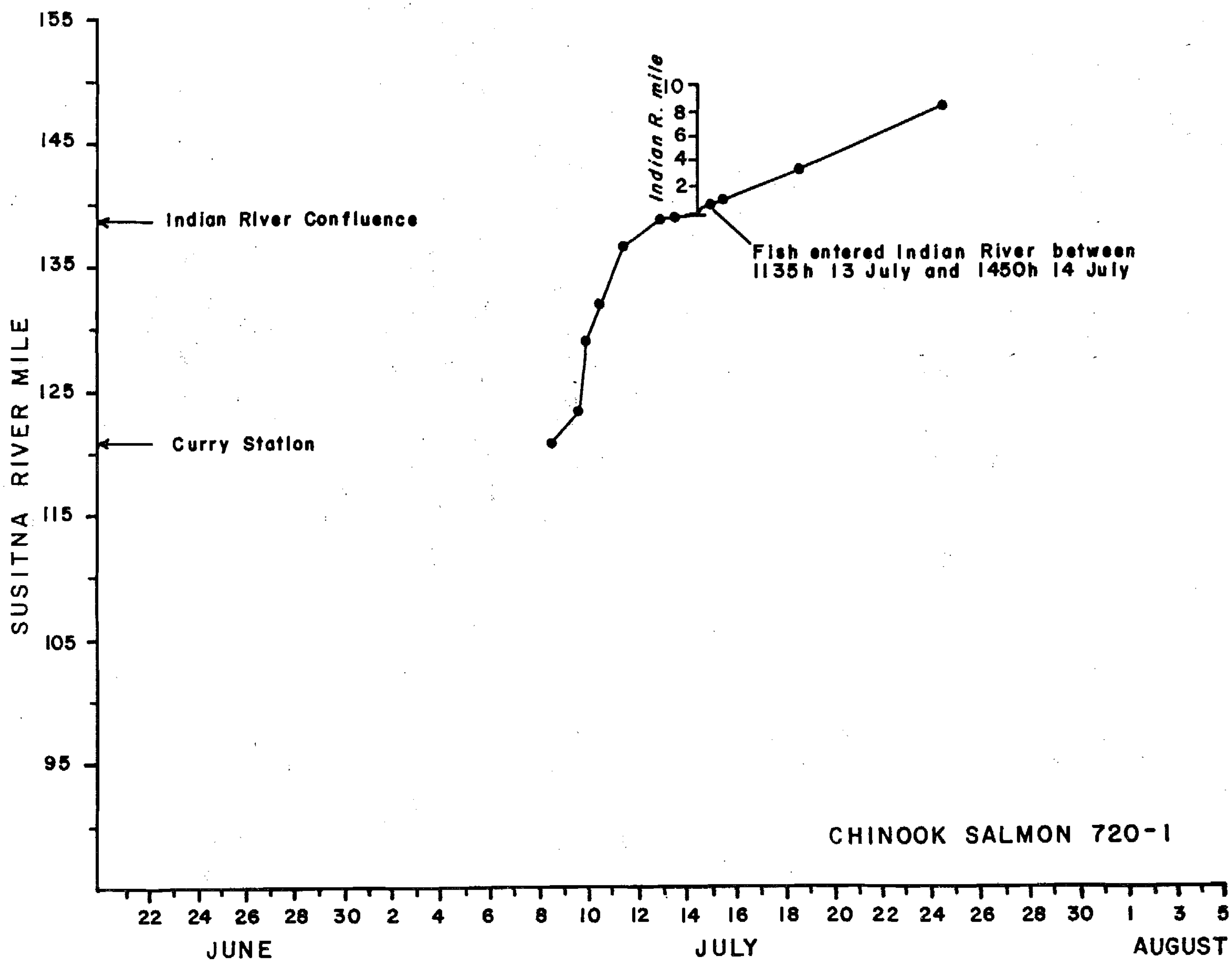
A graphic presentation of the movements of chinook salmon 720-1 is provided in Appendix Figure 2-E-9.

Chinook Salmon, Radio Transmitter 720-3A

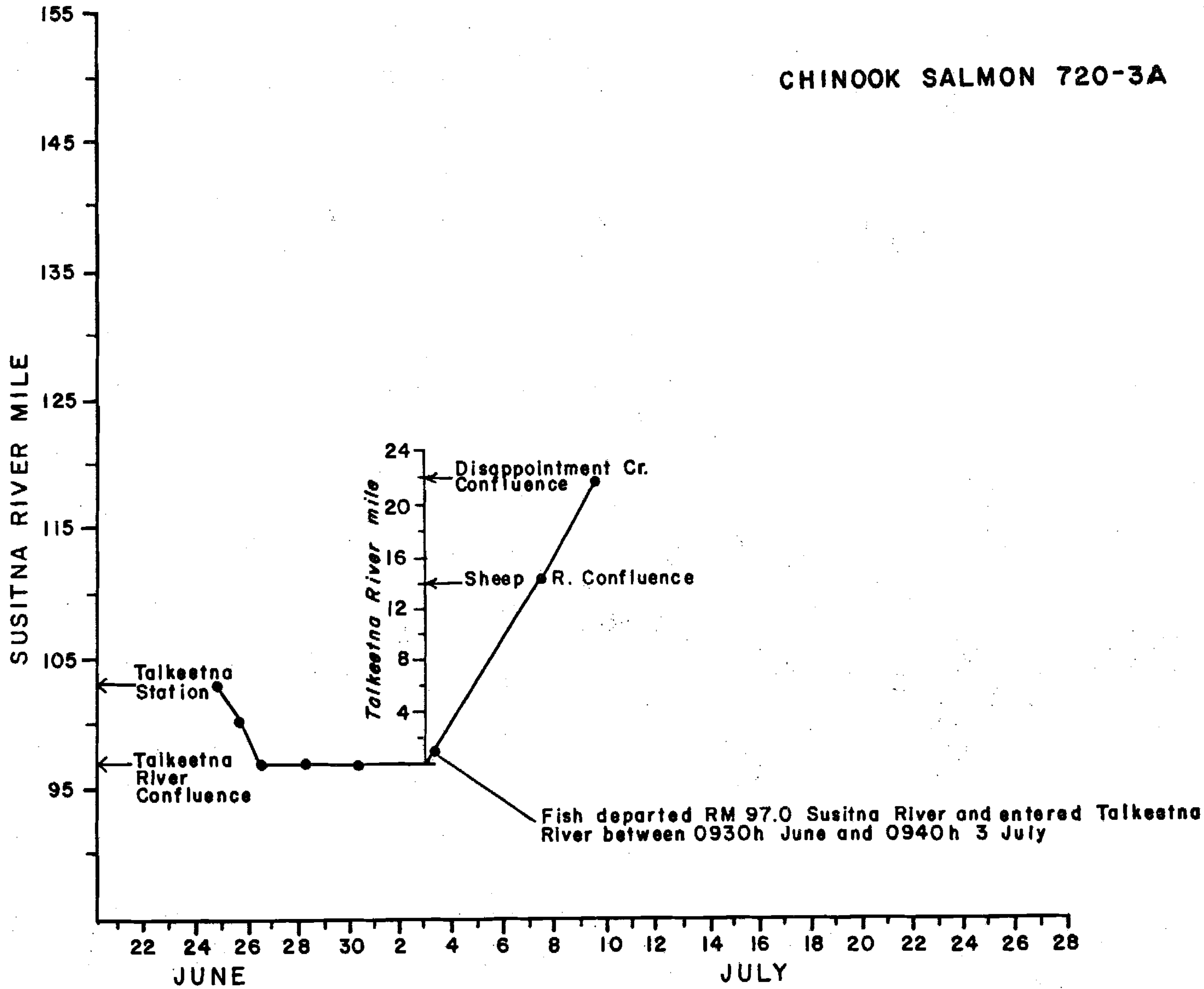
Chinook salmon 720-3A was tagged and released at Talkeetna Station (RM 103) June 24, 1982. It was detected 2.7 miles downstream of RM 103 at RM 97.1 June 26 and was within 0.2 miles of this location June 28 and 30.

Between June 30 and July 3, fish 720-3A entered the Talkeetna River (RM 97.0). On July 3, fish 720-3A was 0.7 miles upstream in the Talkeetna River and July 7 was 13.3 miles further upstream in the river. On July 9, fish 720-3A was last located 21.9 miles upstream in the Talkeetna River.

A graphic presentation of the movements of chinook salmon 720-3A is provided in Appendix Figure 2-E-10.



Appendix Figure 2-E-9. Movement of radio tagged chinook salmon 720-1 in the Susitna River drainage during July, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-10. Movement of radio tagged chinook salmon 720-3A in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Chinook Salmon, Radio Transmitter 720-3B

Chinook salmon 720-3B was tagged and released at Curry Station (RM 120) July 9, 1982. Four days later it was 1.3 miles upstream in Portage Creek (RM 148.9). Enroute to Portage Creek, fish 720-3 displayed relatively consistent upstream migrational rates. Migrational rates for periods of time, between successive telemetry locations less than and greater than five hours ranged from 5.8 to 10.3 mpd. and 8.6 to 11.3 mpd, respectively. Aerial surveys July 15 and 18 established fish 720-3B in Portage Creek (RM 148.9) 4.5 and 6.2 miles upstream, respectively.

Between July 18 and 24, fish 720-3B departed Portage Creek (RM 148.9), descended to RM 138.6 and entered Indian River. Fish 720-3B was 3.2, 3.3, and 2.8 miles upstream in Indian River, respectively July 24 and 31 and August 11 and presumably spawned in this river.

A graphic presentation of the movements of chinook salmon 720-3B is provided in Appendix Figure 2-E-11.

Chinook Salmon, Radio Transmitter 730-1

Chinook salmon 730-1 was tagged and released at Talkeetna Station (RM 103) June 24, 1982. Fish 730-1 moved downstream upon release and remained between RM 95.0 and 97.7 from June 26 through July 3. On July 5 fish 730-1 was located 2.7 miles upstream in the Chulitna River (RM 98.5) and remained in the Chulitna River through July 9. Its furthest movement upstream in the Chulitna River was 11.4 miles.

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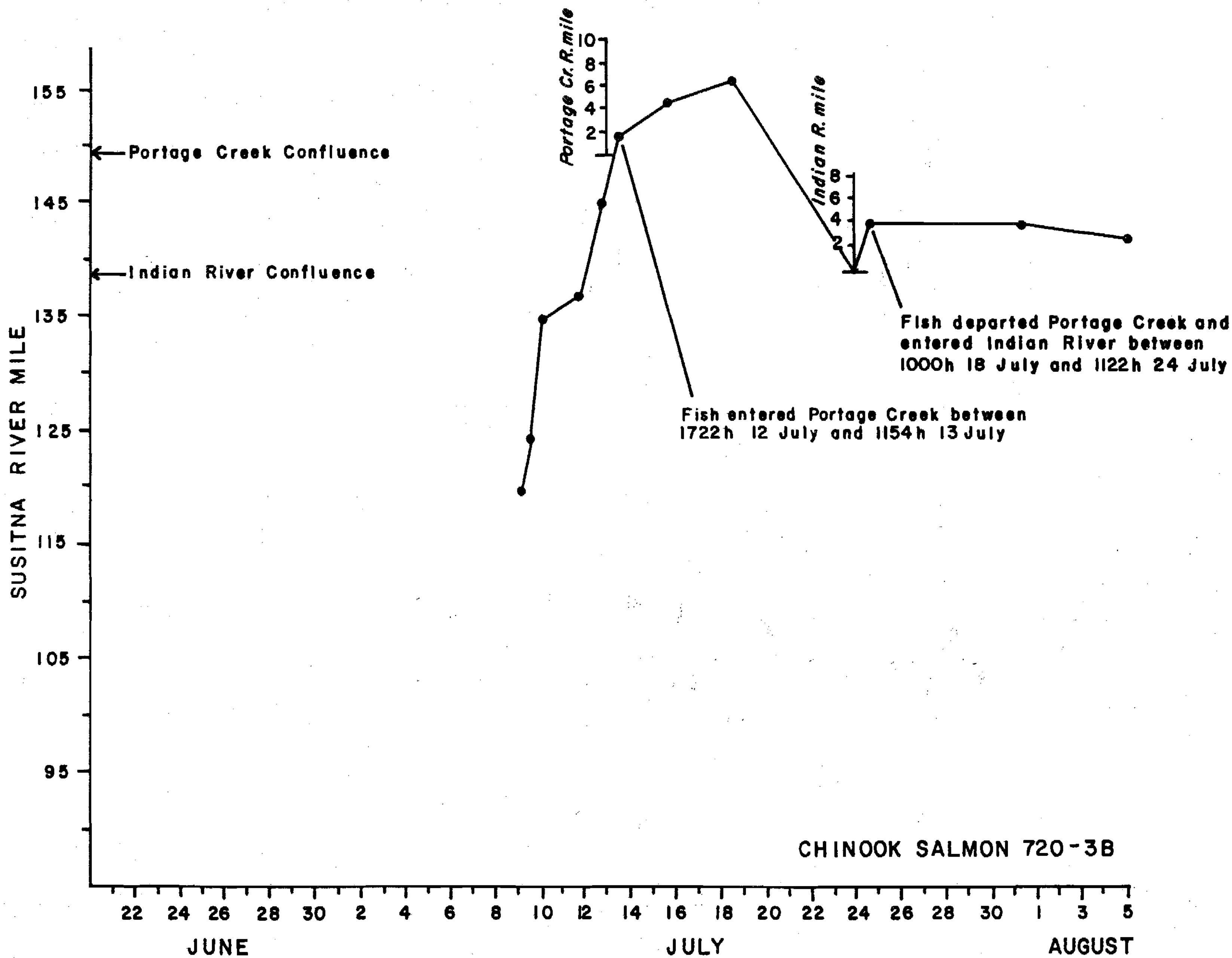


Appendix Figure 2-E-11. Movement of radio tagged chinook salmon 720-3B in the Susitna River drainage during July and August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Fish 730-1 departed the Chulitna River (RM 98.5) between July 9 and 11 ascended the Susitna River and eventually reached the Indian River (RM 138.6) July 17 or 18. On July 11, fish 730-1 was at RM 117.9, 19.4 miles upstream from the mouth of the Chulitna River. It progressed upstream and was at RM 123.8 and 131.1 July 12 and 13, respectively. However, fish 730-1 was next downstream at RM 120.8 July 15. The following day fish 730-1 was 9.6 miles upstream at RM 130.4, and by July 17 it was located at RM 138.5 immediately downstream of the mouth of Indian River (RM 138.6). On July 18, fish 730-1 was 4.2 and 9.2 miles upstream, respectively, in Indian River (RM 138.6). It remained in Indian River through August where it presumably spawned.

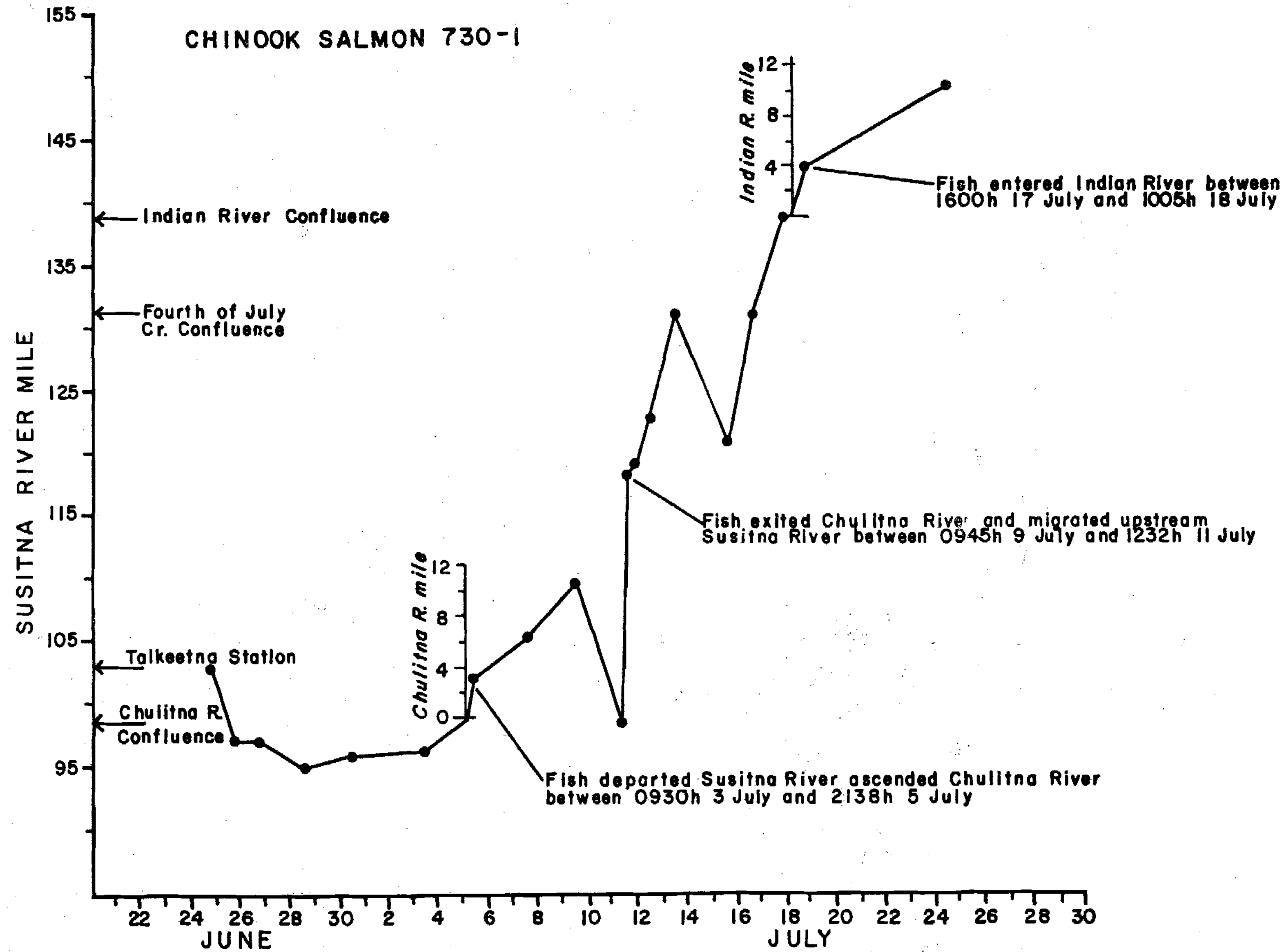
A graphic presentation of the movements of chinook salmon 730-1 is provided in Appendix Figure 2-E-12.

Chinook Salmon, Radio Transmitter 730-2

Chinook salmon 730-2 was tagged and released at Curry Station (RM 120) June 29, 1982. The following day it was encountered 1.8 miles upstream at RM 121.3. Fish 730-2 was subsequently detected upstream at RM 138.5, 0.1 miles downstream of the Indian River confluence (RM 138.6), July 3.

The two fastest migrational rates recorded on fish 730-2 between RM 120 and 138.4 were 9.4 and 18.0 mpd, respectively, over a 18.6 hour and 1.2 hour period.

Between July 3 and 5, fish 730-2 ascended Indian River (RM 138.6), where it was detected 2.1 miles upstream July 5. It was later detected at the same



Appendix Figure 2-E-12. Movement of radio tagged chinook salmon 730-1 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

location July 7. Fish 730-2 was last located July 24, 9.7 miles upstream in Indian River and presumably spawned in the river.

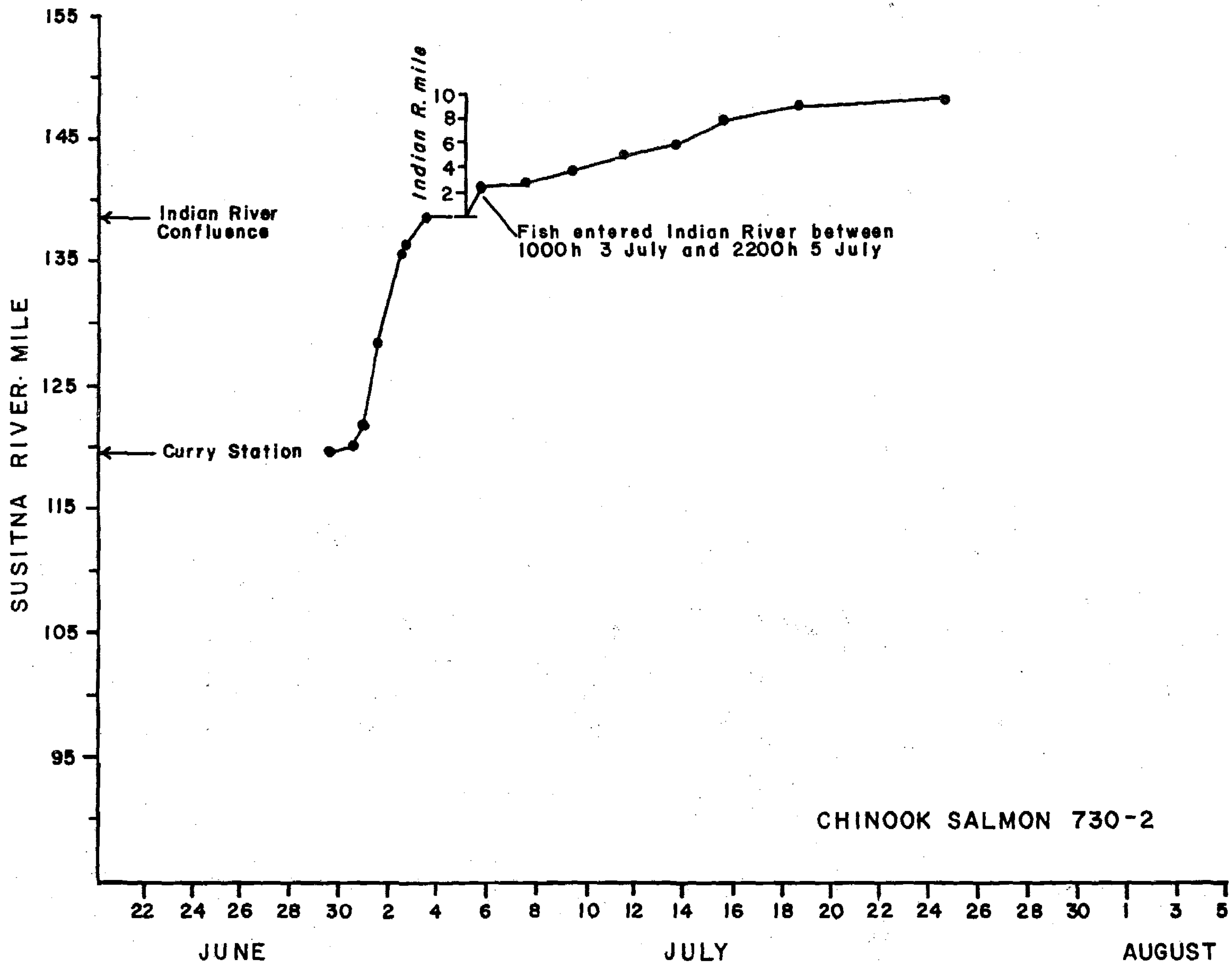
A graphic presentation of the movements of chinook salmon 730-2 is provided in Appendix Figure 2-E-13.

Chinook Salmon, Radio Transmitter 730-3

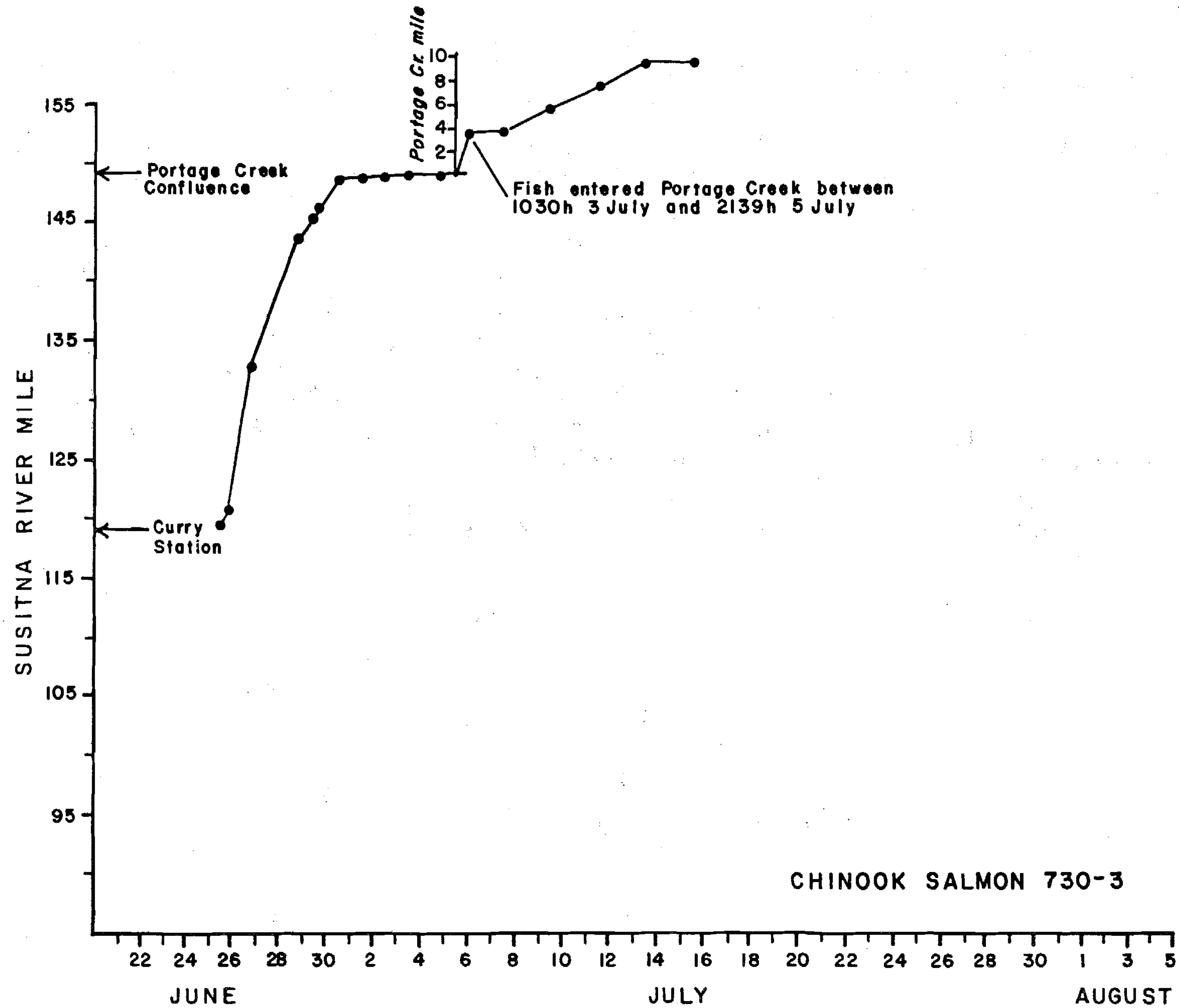
Chinook salmon 730-3 was tagged and released at Curry Station (RM 120) June 25, 1982. Within five hours it had ascended 0.7 miles upstream to RM 120.2 and by June 30 was at the mouth of Portage Creek (RM 148.9). The overall upstream migrational rate of fish 730-3 from time of release to detection at Portage Creek was 7.4 mpd. Fish 730-3 demonstrated faster movement when it progressed 12.2 miles from RM 120.2 to 132.4, within 24.5 hours which was equivalent to a speed of 12.0 mpd.

Fish 730-3 remained at the mouth of Portage Creek (RM 148.9) for several days prior to entering that stream. It was located by telemetry gear at RM 148.9 from June 30 to July 3. Fish 730-3 ascended Portage Creek between July 3 and 5. On July 5, the fish was 9.5 miles upstream and was last detected in Portage Creek at that same location July 15.

A graphic presentation of the movements of chinook salmon 730-3 is provided in Appendix Figure 2-E-14.



Appendix Figure 2-E-13. Movement of radio tagged chinook salmon 730-2 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-14. Movement of radio tagged chinook salmon 730-3 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Chinook Salmon, Radio Transmitter 740-2

Chinook salmon 740-2 was tagged and released at Curry Station (RM 120) June 28, 1982. Two days later the fish was at RM 123.1. Between July 1 and 3, fish 740-2 ascended from RM 123.1 to 148.9 (Portage Creek) in approximately 2.4 days at an average speed of 9.9 mpd.

On July 5, fish 740-2 was located 1.4 miles upstream in Portage Creek (RM 148.9). Fish 740-2 was last detected July 24, 2.1 miles upstream in Portage Creek where it presumably spawned.

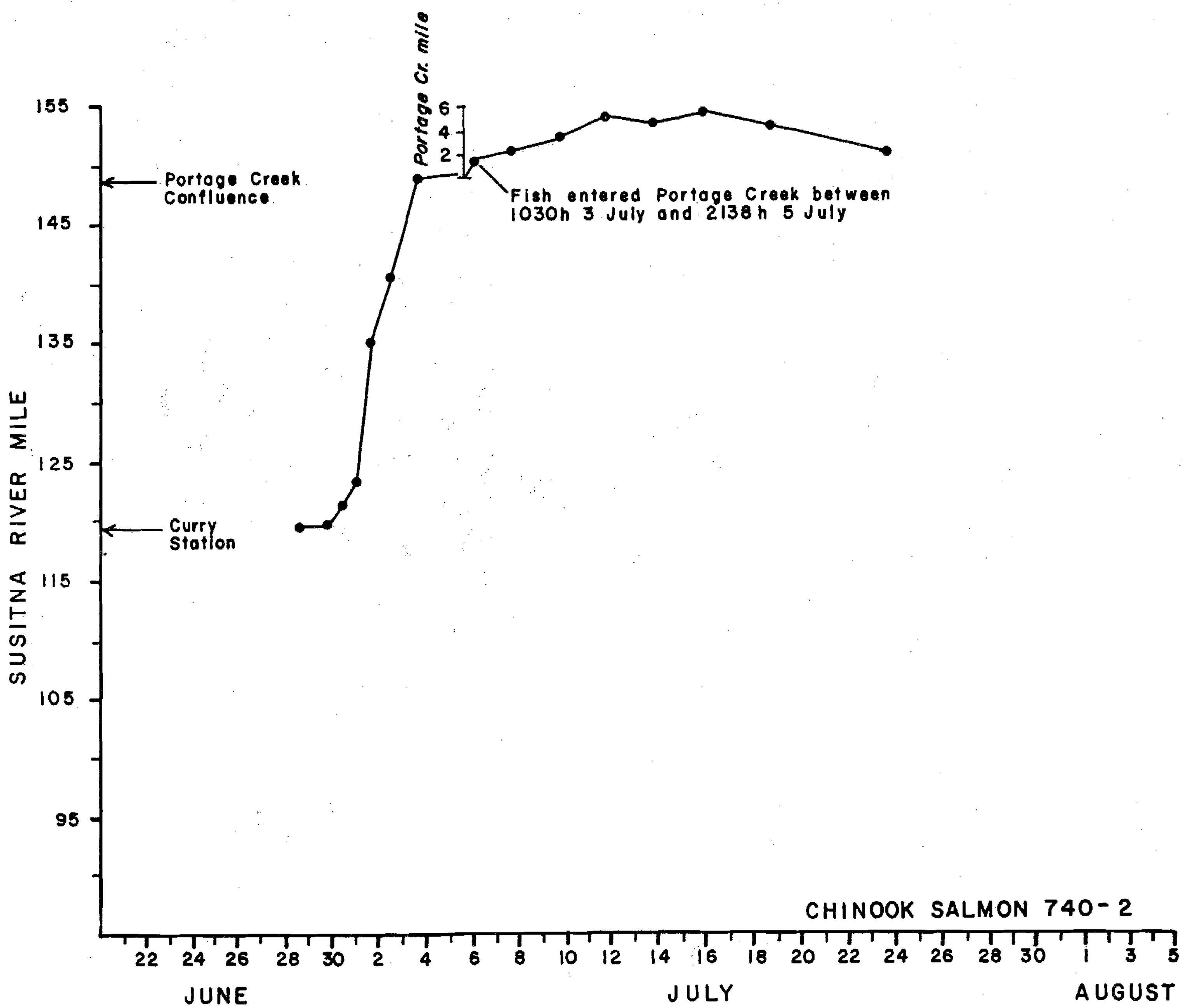
A graphic presentation of the movements of chinook salmon 740-2 is provided in Appendix Figure 2-E-15.

Chinook Salmon, Radio Transmitter 740-3

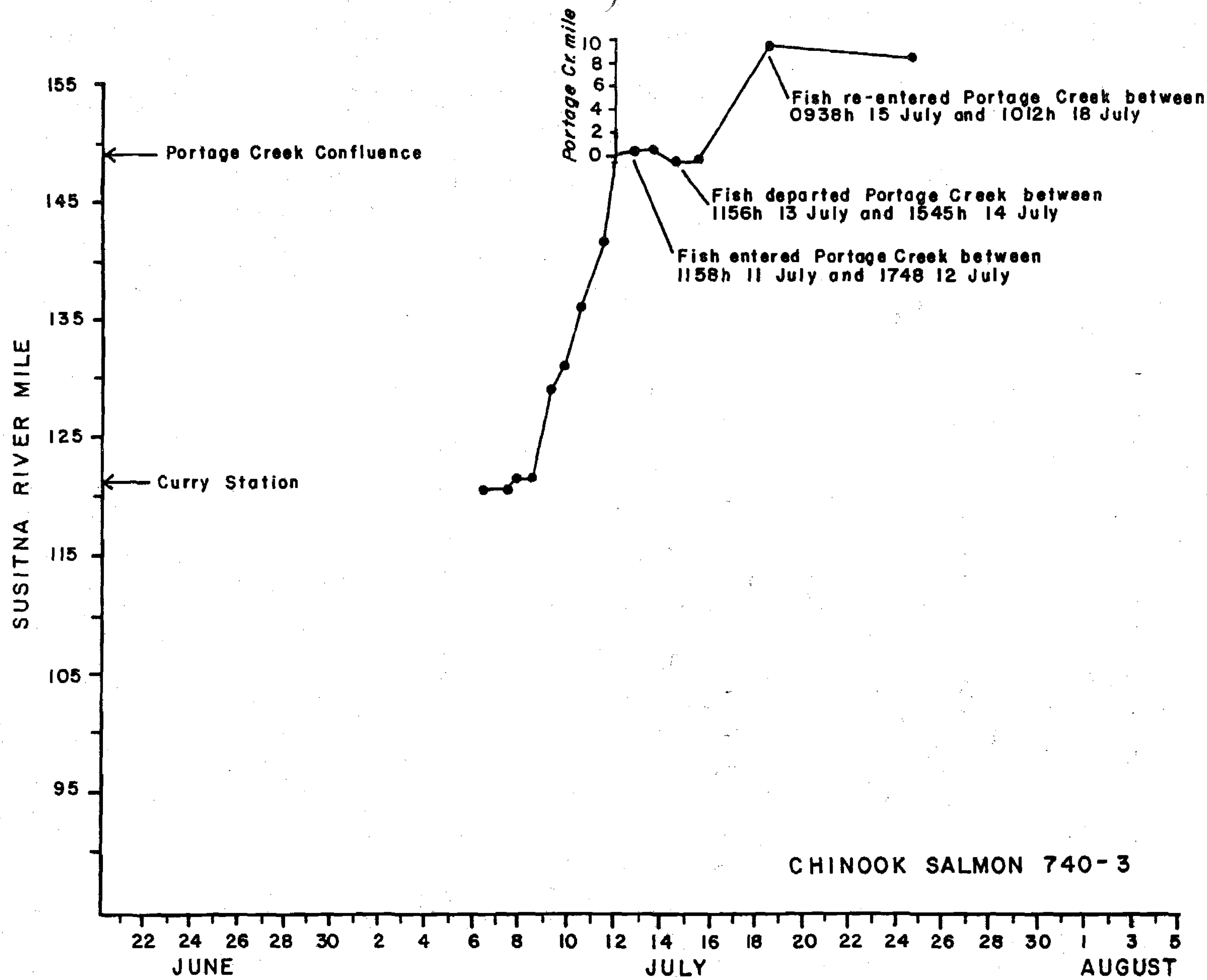
Chinook salmon 740-3 was tagged and released at Curry Station (RM 120) July 6, 1982. Two days later it was upstream at RM 121.8. On July 12, fish 740-3 was 0.2 miles upstream in Portage Creek (RM 148.9). The fastest migrational rate recorded between RM 120 and 148.9 was 9.6 mpd in 16.2 hours of observation.

Fish 740-3 was last located July 24, 8.3 miles upstream in Portage Creek (RM 148.9) and presumably spawned in this stream.

A graphic presentation of the movements of chinook salmon 740-3 is provided in Appendix Figure 2-E-16.



Appendix Figure 2-E-15. Movement of radio tagged chinook salmon 740-2 in the Susitna River drainage during June and July, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-16. Movement of radio tagged chinook salmon 740-3 in the Susitna River drainage during July, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Chum Salmon, Radio Transmitter 600-3

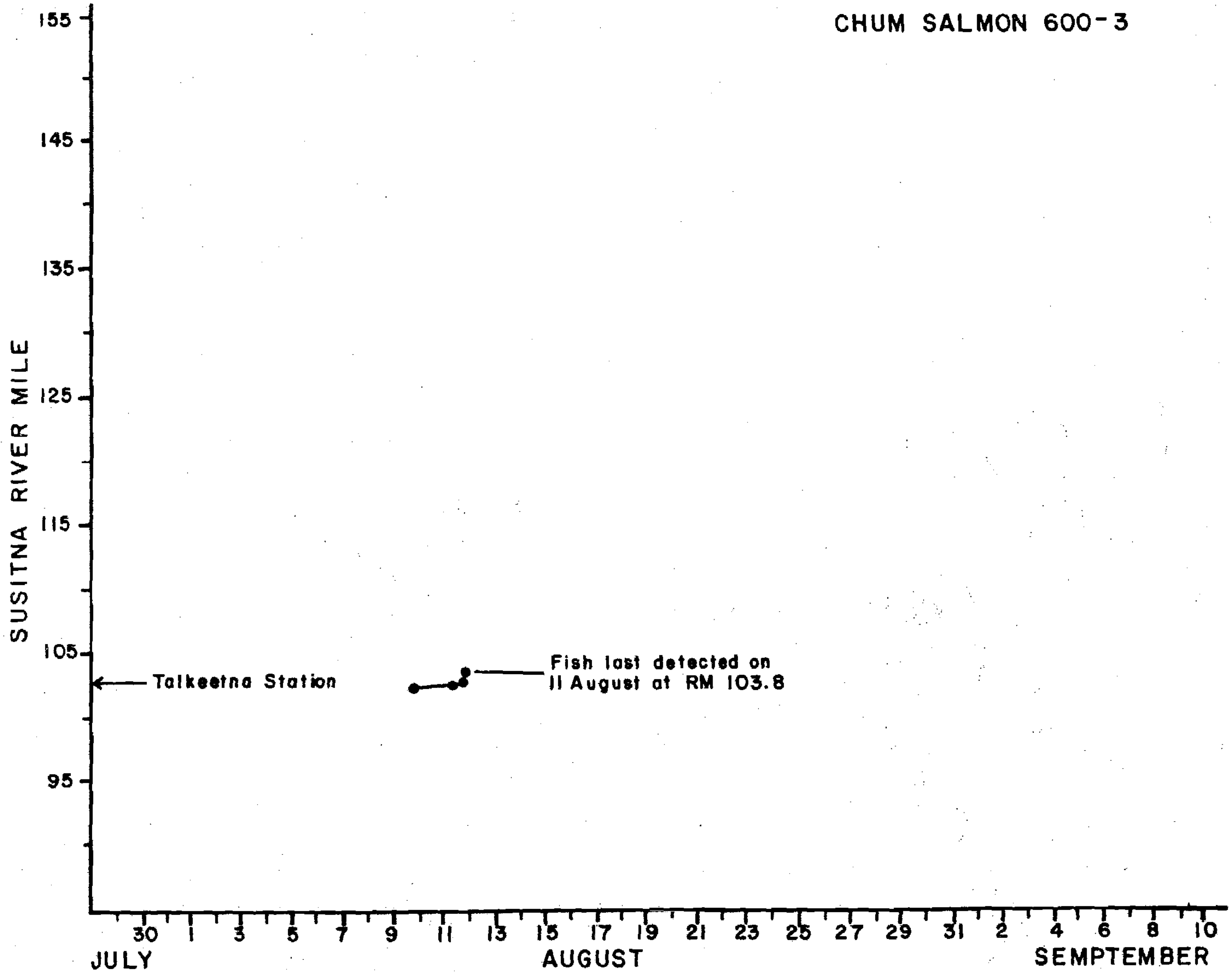
Chum salmon 600-3 was tagged and released at Talkeetna Station (RM 103) August 9, 1982. Approximately eight hours after being released it was detected 0.6 miles downstream at RM 102.4. Fish 600-3 remained within 0.2 miles of this location until August 11, when it began ascending. It was detected at RM 102.6 at 0850 h August 11 and later the same day was at RM 102.7 and 103.8 at 1500 and 2010 h, respectively. It was last located at RM 103.8 August 11. However, September 4 the Petersen disc of this fish was recovered in Slough 21 (RM 140.0). Presumedly, the transmitter failed on or about August 11 and fish 600-3 spawned in Slough 21.

A graphic presentation of the movements of chum salmon 600-3 is provided in Appendix Figure 2-E-17.

Chum Salmon, Radio Transmitter 610-3

Chum salmon 610-3 was tagged and released at Curry Station (RM 120) August 19, 1982. Within 6.4 hours of release it moved downriver 1.0 miles. Fish 610-3 migrated upstream the following two days and was at the Indian River confluence (RM 138.6) August 21. The maximum upstream migration rates recorded between August 19 and 21 was 18.5 mpd and 17.3 mpd for monitoring periods equal to or less than, and greater than 10 hours, respectively.

Within 13.5 hours after being located at the Indian River confluence (RM 138.6), fish 610-3 had descended 39.5 miles downstream to RM 98.6. It



Appendix Figure 2-E-17. Movement of radio tagged chum salmon 600-3 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

remained at RM 98.6 through August 26 and was last monitored at RM 96.0 August 27.

A graphic presentation of the movements of chum salmon 610-3 is provided in Appendix Figure 2-E-18.

Chum Salmon, Radio Transmitter 620-2

Chum salmon 620-2 was tagged and released at Talkeetna Station (RM 103) August 2, 1982. Within 20.5 hours of release it was 10.6 miles upstream at RM 113.6. Fish 620-2 was next located August 5 at RM 132.0.

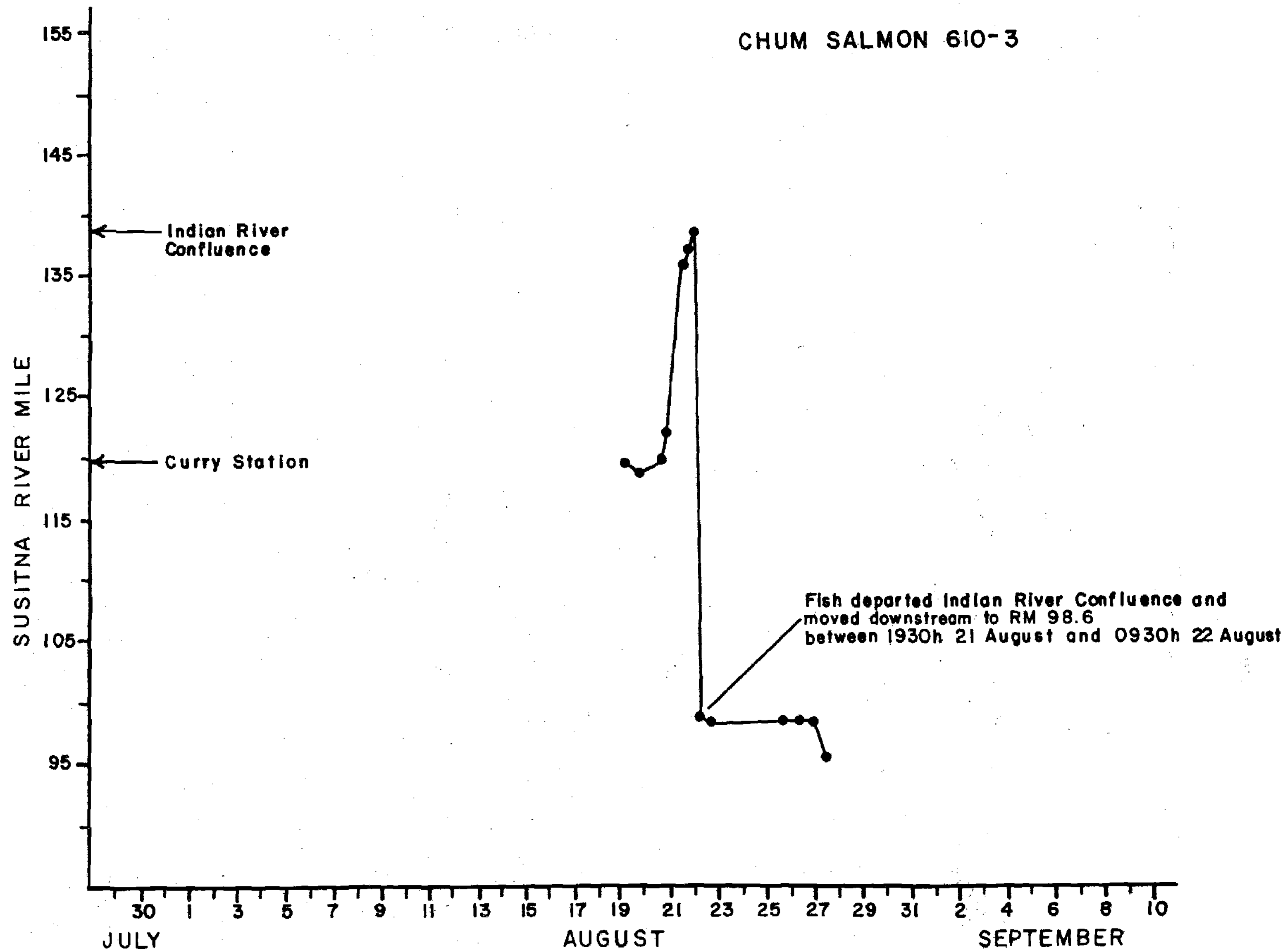
Between August 2 and 5, fish 620-2 migrated at rates ranging from 7.7 to 21.6 mpd.

By August 6, fish 620-2 moved downstream 12.5 miles to RM 117.5. It remained undetected by telemetry waterbourne and aerial surveys from RM 96.0 to 150.4 and occasional overflights of the Talkeetna River drainage until August 14, when it was detected 14.2 miles upstream in the Talkeetna River. Fish 620-2 was located last in the Susitna River at RM 97.9 a month later.

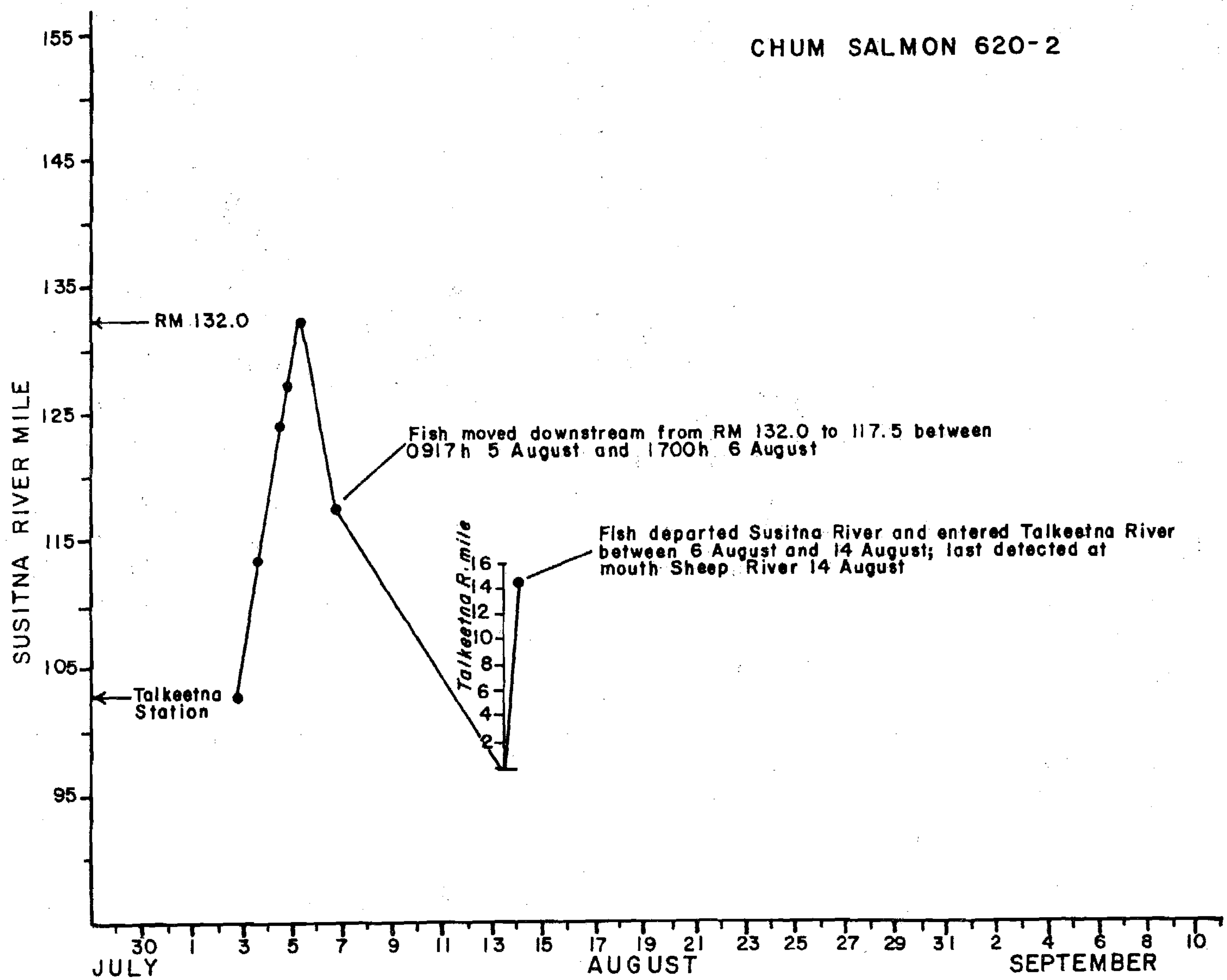
A graphic presentation of the movements of chum salmon 620-2 is provided in Appendix Figure 2-E-19.

Chum Salmon, Radio Transmitter 620-3

Chum salmon 620-3 was tagged and released at Curry Station (RM 120) August 9,



Appendix Figure 2-E-18. Movement of radio tagged chum salmon 610-3 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-19. Movement of radio tagged chum salmon 620-2 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

1982. Two days after release it was located 5.9 miles upstream at RM 126.4. On August 14 and 18, it was at the mouth of Portage Creek (RM 148.9).

The rate of upstream movement of fish 620-3 from time of release to first detection at the mouth of Portage Creek (RM 148.9) was 6.2 mpd. The fish was capable, however, of moving substantially faster. For example, August 11 it moved 3.6 miles upstream in 7.4 hours which is equivalent to a speed of 11.7 mpd. Later the same day, fish 620-3 moved 0.8 miles upstream in 65 minutes, equivalent to a speed of 17.7 mpd.

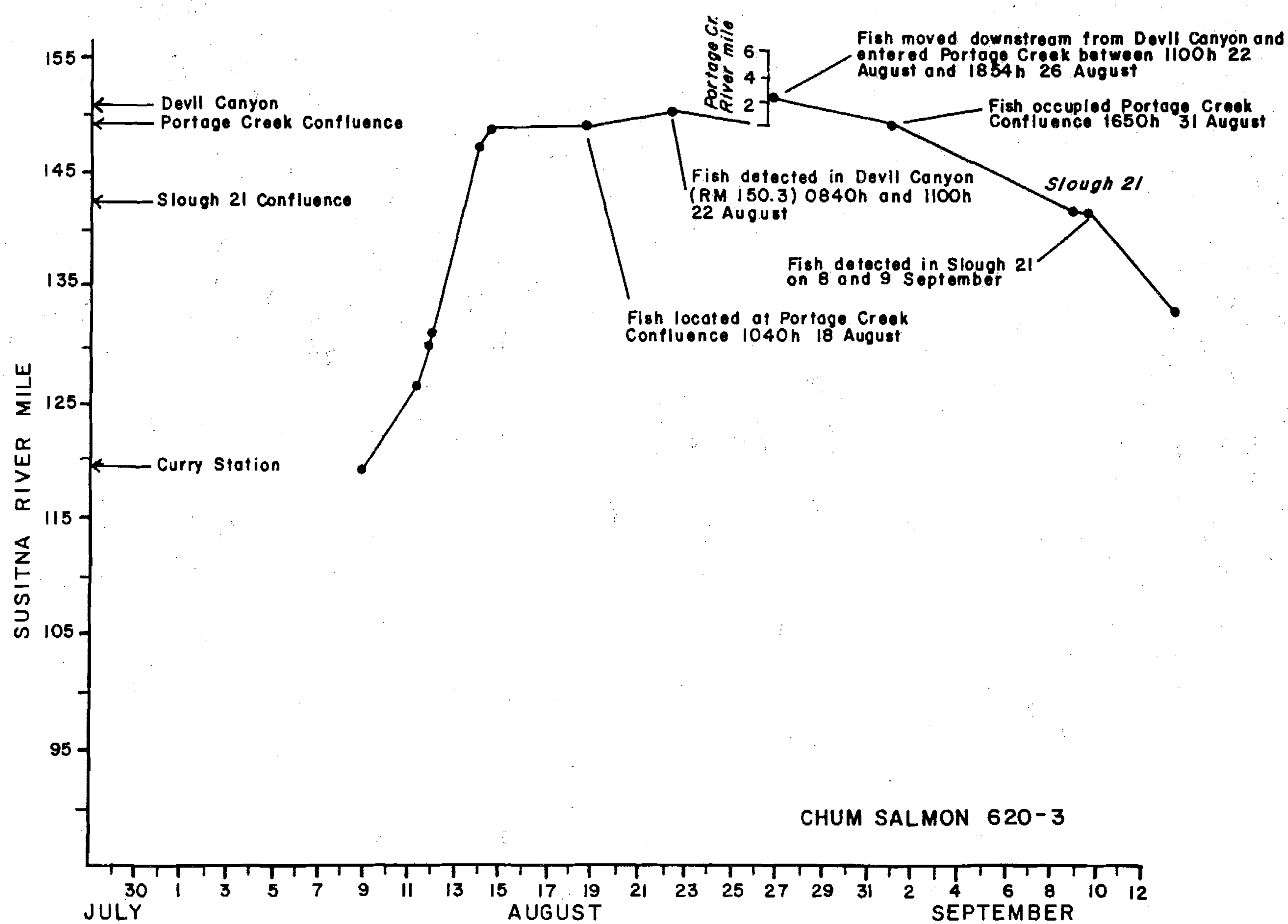
Fish 620-3 ascended from the confluence of Portage Creek (RM 148.9) to RM 150.3 in lower Devil Canyon between August 18 and 22. By August 26, it had moved back downstream and was 2.1 miles upstream in Portage Creek (RM 148.9).

Between August 26 and 31, fish 620-3 descended to the confluence of Portage Creek (RM 148.9) and subsequently moved downstream and occupied Slough 21, where it was detected spawning September 8 and 9.

A graphic presentation of the movements of chum salmon 620-3 is provided in Appendix Figure 2-E-20.

Chum Salmon, Radio Transmitter 630-2

Chum salmon 630-2 was tagged and released at Talkeetna Station (RM 103) August 4, 1982. Seven hours after being released it was 1.4 miles downstream at RM 101.6. On August 5 fish 630-2 had re-ascended to RM 103 and by August 13 was at the Portage Creek confluence (RM 148.9).



Appendix Figure 2-E-20. Movement of radio tagged chum salmon 620-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Between August 4 and 5, maximum recorded upstream migrational rates of fish 630-2 were 10.6 mpd and 19.4 mpd, respectively, for periods of time greater than, and equal or less than 10 hours between consecutive observations.

Fish 630-2 was first detected in Portage Creek (RM 148.9) August 14, 1.8 miles upstream. It was next located 11.2 miles upstream in Portage Creek August 27 and was at the same location when last encountered September 10.

A graphic presentation of the movements of chum salmon 630-2 is provided in Appendix Figure 2-E-21.

Chum Salmon, Radio Transmitter 630-3A

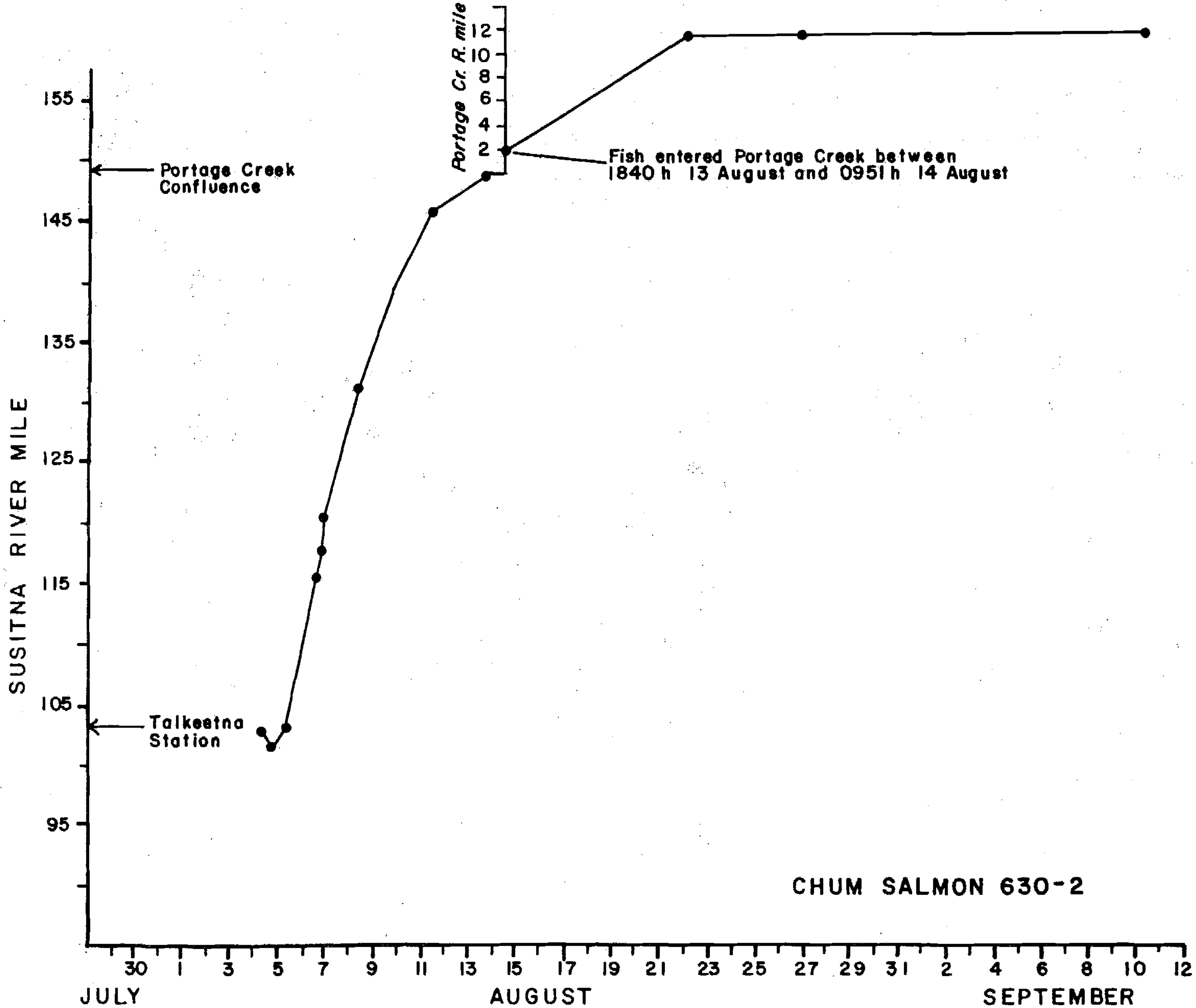
Chum salmon 630-3A was tagged and released at Talkeetna Station (RM 103) August 15, 1982. On August 21, fish 630-3A was detected in Slough 9 (RM 129.0) which would represent an average upstream migration rate of 4.3 mpd.

Fish 630-3A remained in Slough 9 (RM 129.0); the carcass was recovered there and necropsied August 27. It was found to be partially spent.

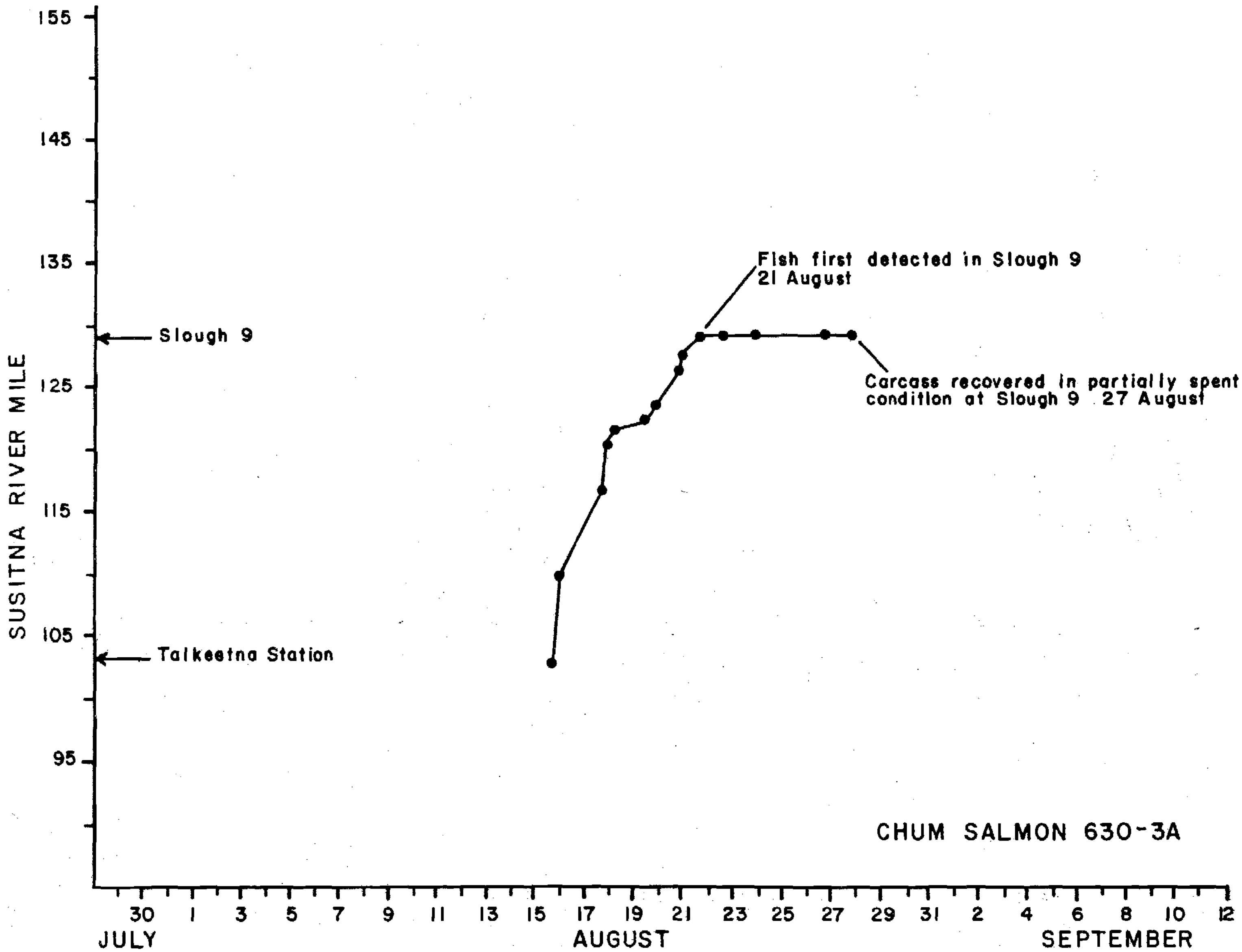
A graphic presentation of the movements of chum salmon 630-3A is provided in Appendix Figure 2-E-22.

Chum Salmon, Radio Transmitter 630-3B

Chum salmon 630-3B was tagged and released August 28, 1982 at Talkeetna Station (RM 103). It was next located August 31, 7.6 miles upstream in the



Appendix Figure 2-E-21. Movement of radio tagged chum salmon 630-2 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-22. Movement of radio tagged chum salmon 630-3A in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Talkeetna River (RM 97.0). Indirect evidence suggests that fish 630-3B entered the Talkeetna River sometime before 1700 h August 29, when a waterbourne telemetry survey from RM 96.0 to 150.6 August 29 did not locate this fish.

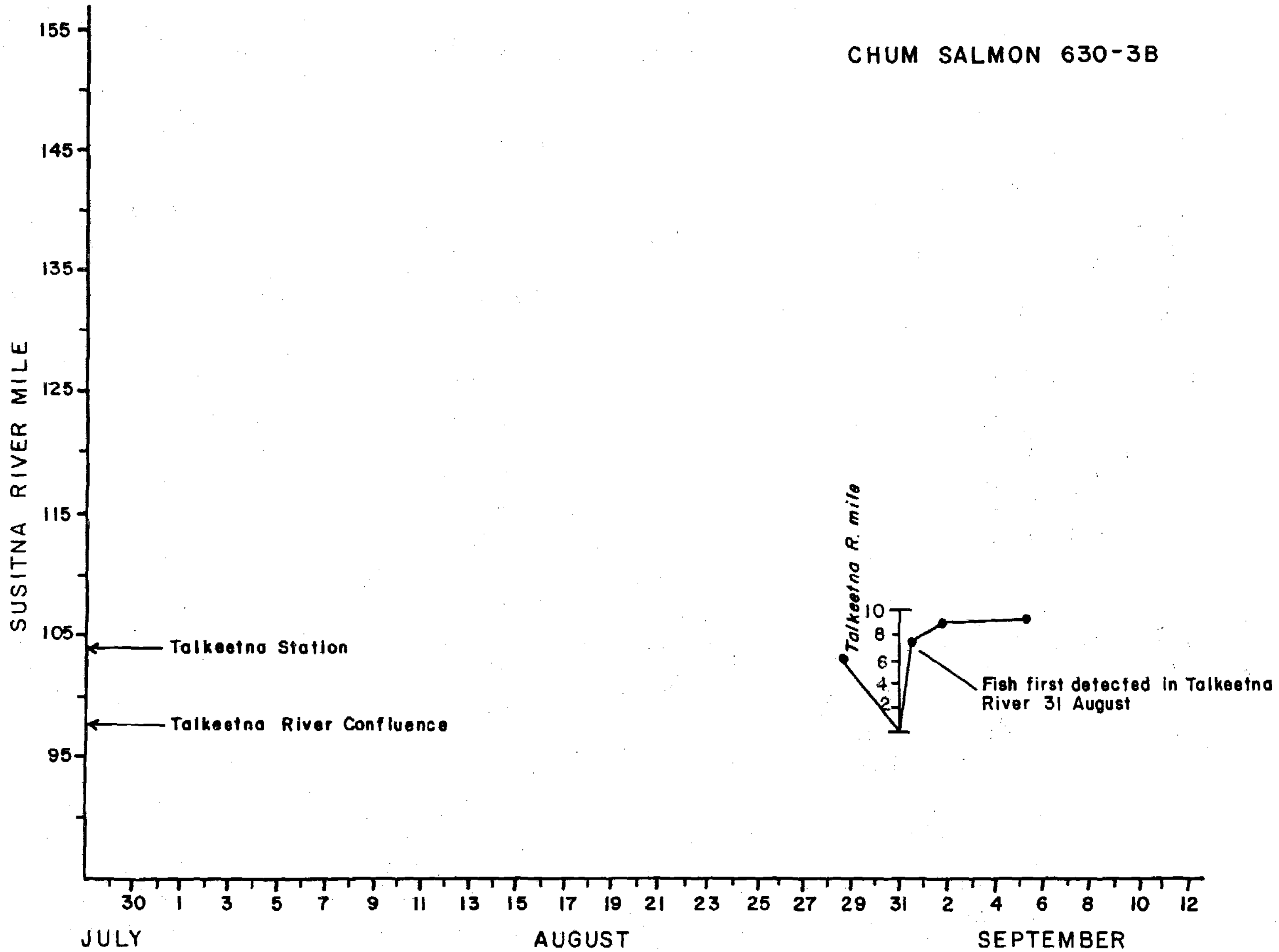
Fish 630-3B was next located 9.0 miles upstream in the Talkeetna River (RM 97.0) September 1. It was last found 9.2 miles upstream in the Talkeetna River September 5.

A graphic presentation of the movements of chum salmon 630-3B is provided in Appendix Figure 2-E-23.

Chum Salmon, Radio Transmitter 640-2

Chum salmon 640-2 was tagged and released at Talkeetna Station (RM 103) August 7, 1982 and was detected 22.2 hours later August 8, 18.8 miles upstream at RM 121.8. This represents an upstream migrational speed of 20.3 mpd.

Indirect evidence suggests that fish 640-2 descended and entered the Talkeetna River (RM 97.0) during a 24.5 hour period between 1200 h August 8 and 1230 h August 9. Fish 640-2 was detected 4.2 miles upstream in the Talkeetna River (97.0) August 11 but was not detected by telemetry in a waterbourne survey from RM 96.0 to RM 139.0 August 10. It was last detected at the previous mentioned Talkeetna River location August 11 despite subsequent telemetry surveys in the Talkeetna River drainage including Chunilna (Clear) Creek, Iron Creek, Diappointment Creek, and Sheep River.



Appendix Figure 2-E-23. Movement of radio tagged chum salmon 630-3B in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

A graphic presentation of the movements of chum salmon 640-2 is provided in Appendix Figure 2-E-24.

Chum Salmon, Radio Transmitter 650-2

Chum salmon 650-2 was tagged and released at Curry Station (RM 120) August 9, 1982. August 11, fish 650-2 was at RM 131.1. Four hours later the same day it was last detected 20.5 miles downstream at RM 110.6.

A graphic presentation of the movements of chum salmon 650-2 is provided in Appendix Figure 2-E-25.

Chum Salmon, Radio Transmitter 660-1

Chum salmon 660-1 was tagged and released at Talkeetna Station (RM 103) August 13, 1982. About eight hours after being released it was 1.9 miles downstream at RM 101.1. Thirteen hours later August 14, fish 660-1 was located an additional 2.9 miles downstream at RM 98.1.

Between August 14 and 18, fish 660-1 entered and was 14.2 miles upstream in the Talkeetna River (RM 97.0) in the Sheep Creek tributary. On August 22, fish 660-1 was downstream in the Talkeetna River approximately 12 miles from its previous location. On August 26, it was 33.6 miles upstream in the Talkeetna River and was last located downstream approximately 31 miles from the previous location.

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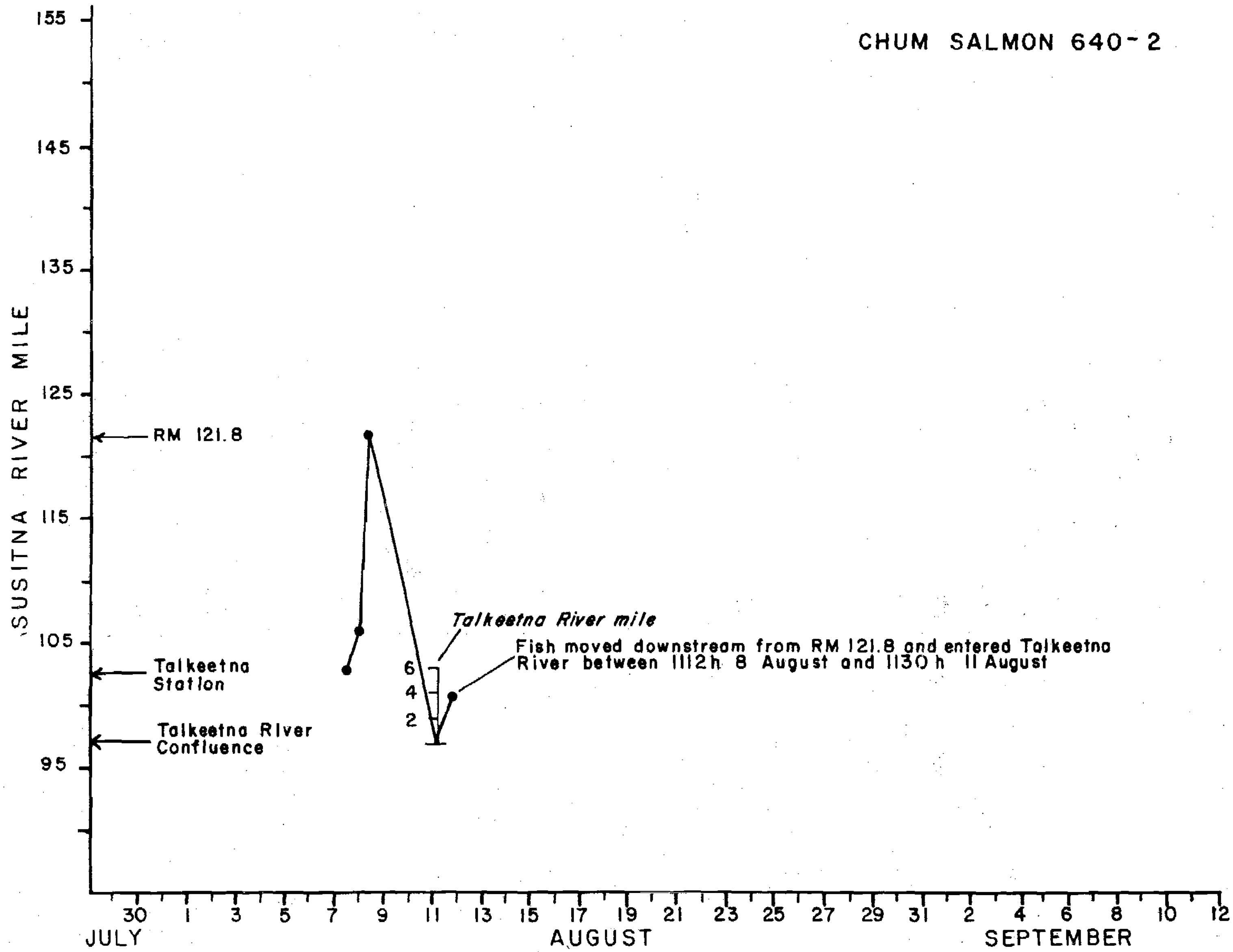
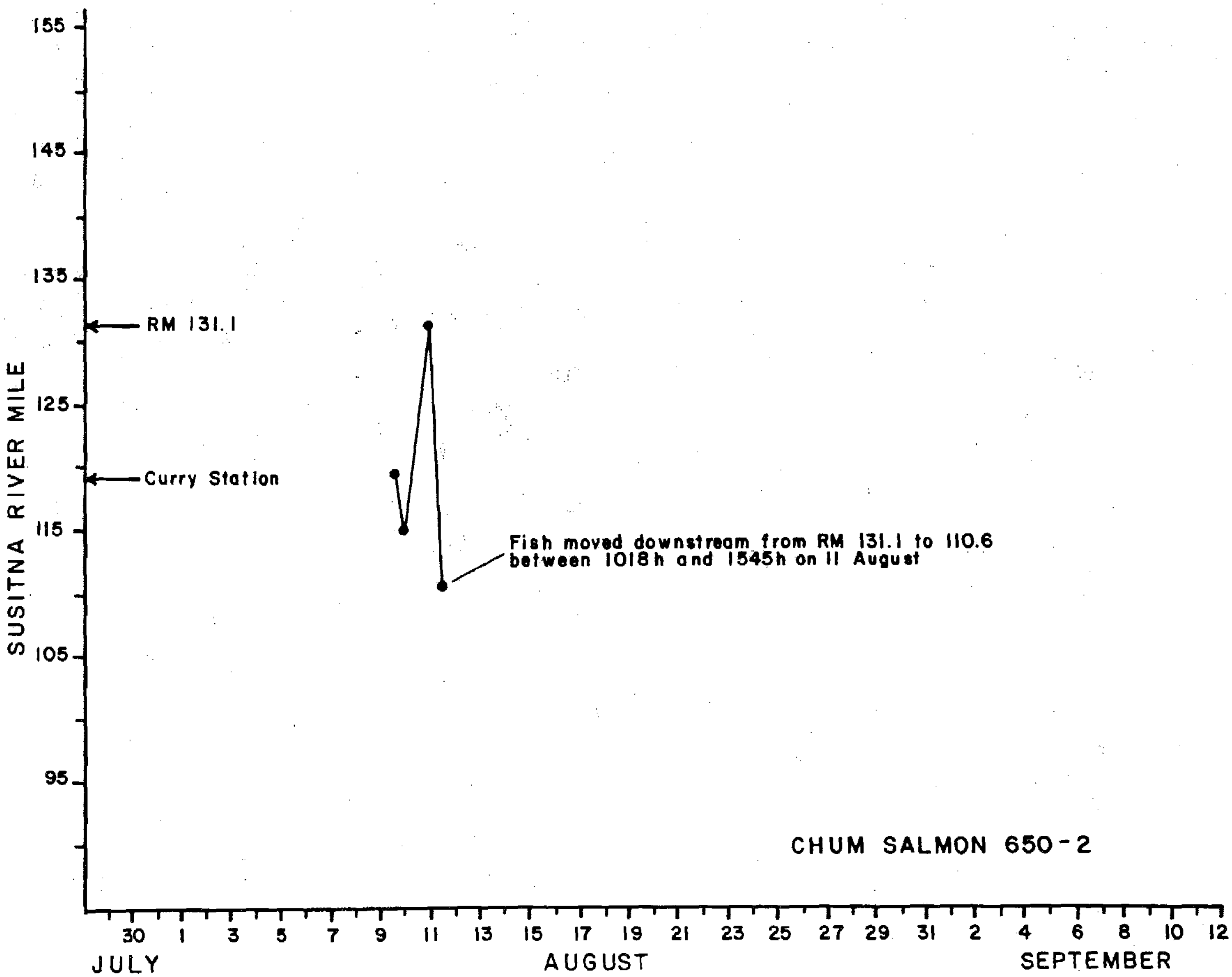


Appendix Figure 2-E-24. Movement of radio tagged chum salmon 640-2 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-25. Movement of radio tagged chum salmon 650-2 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

A graphic presentation of the movements of chum salmon 660-1 is provided in Appendix Figure 2-E-26.

Chum salmon, Radio Transmitter 660-2

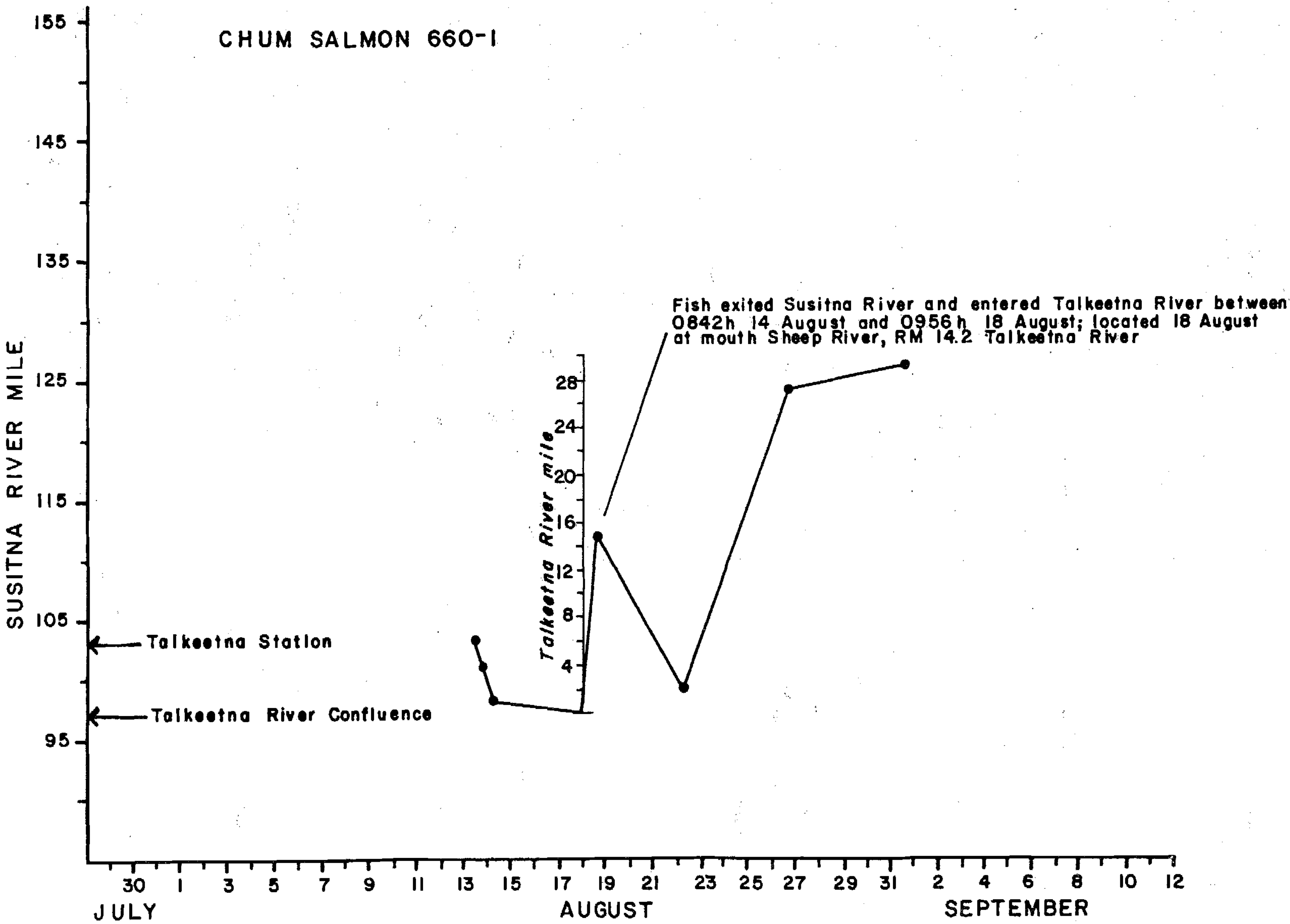
Chum salmon 660-2 was tagged and released at Talkeetna Station (RM 103) July 30, 1982. The following day, it was at RM 102.1, and the next day, fish 660-2 was further downstream at RM 101.6.

On August 1, fish 660-2 had entered the Talkeetna River (RM 97.0) and was 3.4 miles upstream in the river. The fish was located next 4.2 miles upstream in the Talkeetna River August 5. By August 8, fish 660-2 had ascended approximately 26 miles in the Talkeetna River to within 1.8 miles of Iron Creek. Between August 8 and 18, fish 660-2 had moved downstream approximately seven miles to a point 1.5 miles above the Sheep Creek confluence. August 18 was the last date this fish was located with radio telemetry gear. It presumably spawned in the Talkeetna River drainage.

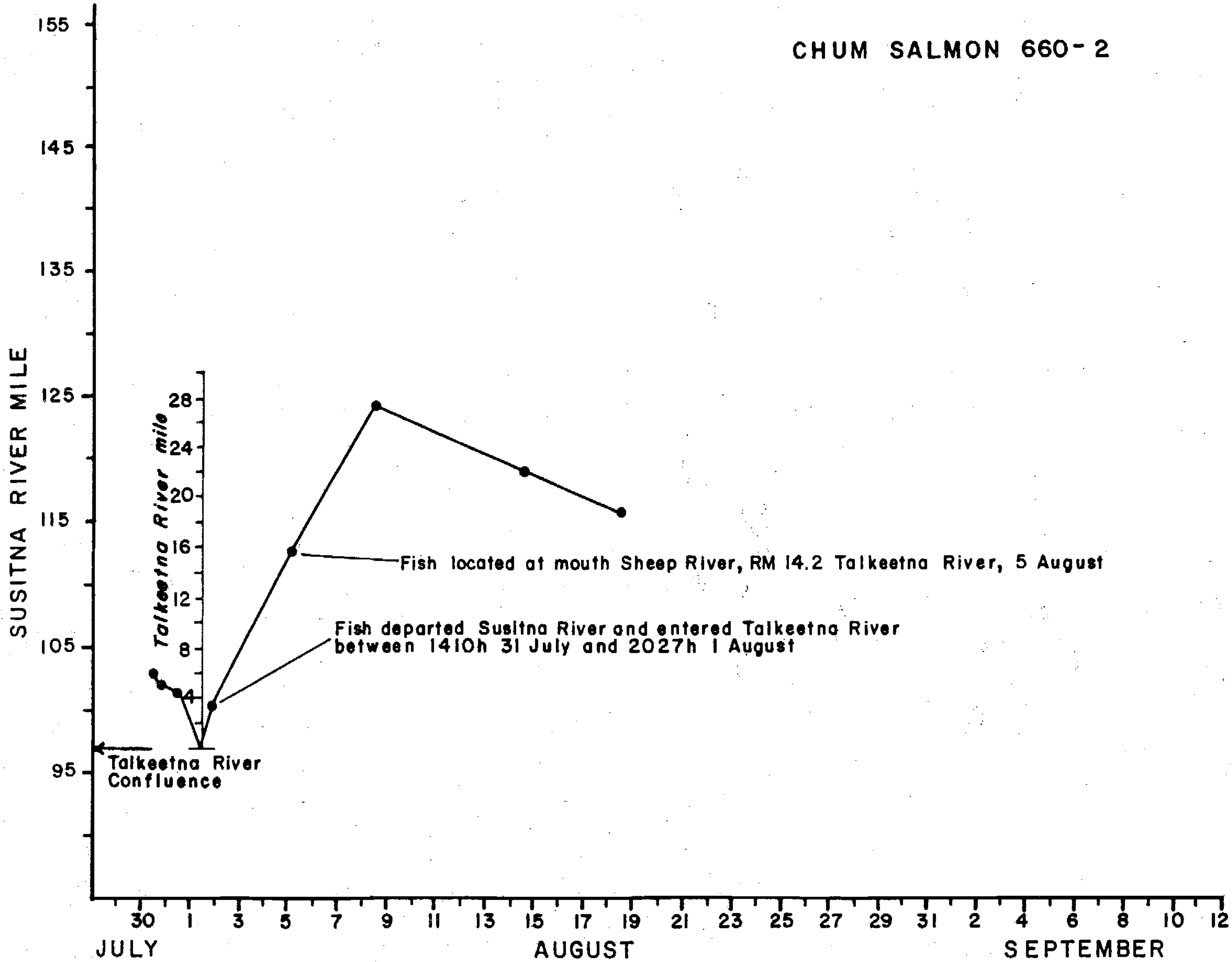
A graphic presentation of the movements of chum salmon 660-2 is provided in Appendix Figure 2-E-27.

Chum Salmon, Radio Transmitter 670-2A

Chum salmon 670-2A was tagged and released at Talkeetna Station (RM 103) July 31, 1982. It ascended and was at RM 113.6 August 1 and RM 127.1 August 3.



Appendix Figure 2-E-26. Movement of radio tagged chum salmon 660-1 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.



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Appendix Figure 2-E-27. Movement of radio tagged chum salmon 660-2 in the Susitna River drainage during July and August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Between August 3 and 4, fish 670-2A descended to RM 118.4, and August 5 it was located at RM 117.8. Fish 670-2A then ascended to RM 123.7 and entered Fifth of July Creek (RM 123.7) where it was located August 6. Later that same day, fish 670-2A exited Fifth of July Creek and held at the confluence of the stream with the Susitna River at RM 123.7.

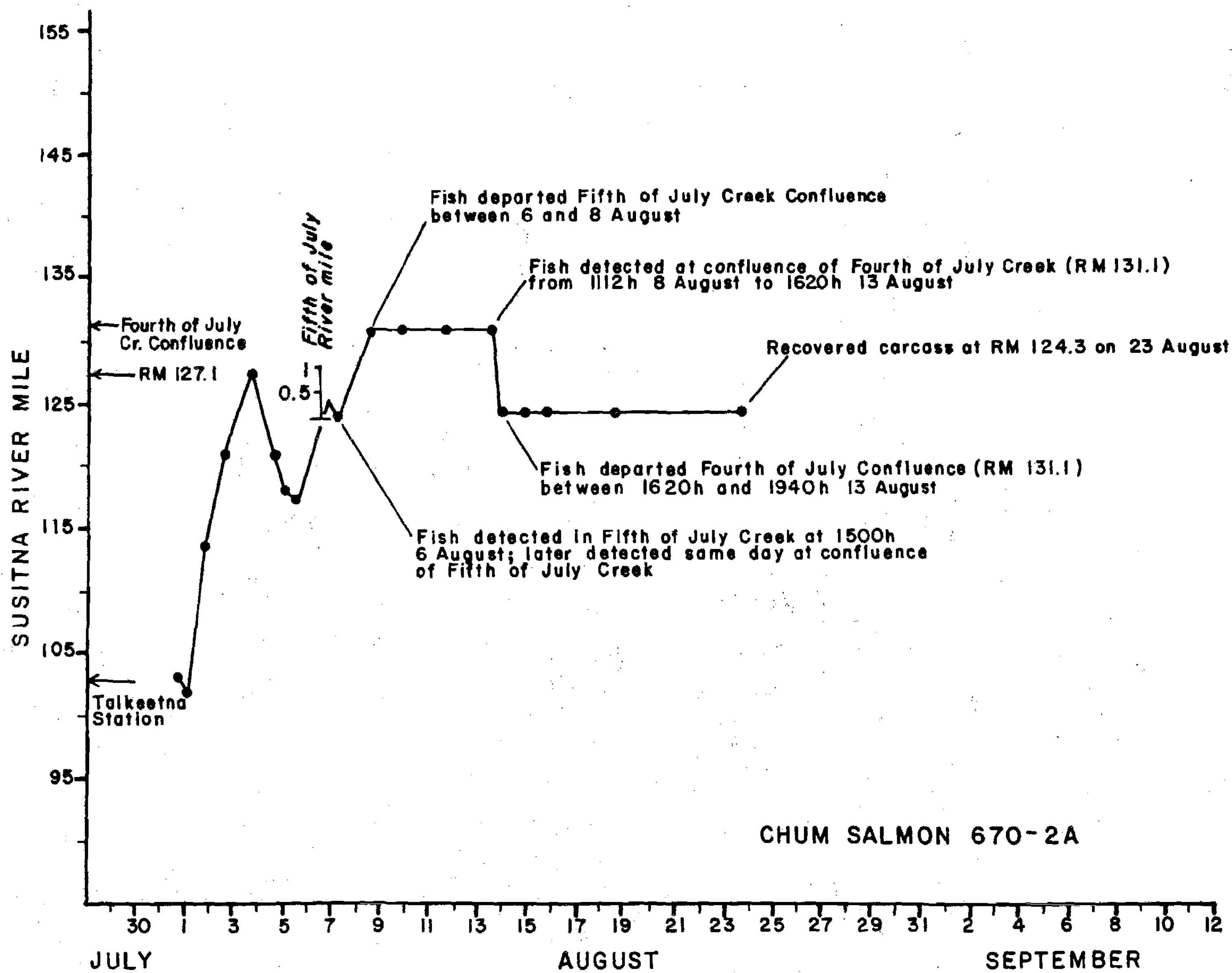
On August 8, fish 670-2A was at the confluence of Fourth of July Creek (RM 131.1). It remained at this location through 1600 h, August 13. At 1940 h, August 13, fish 670-2A was downstream at RM 124.3. The fish and transmitter were recovered at RM 124.3 August 23. Examination of the carcass revealed that it was spent. The fish presumedly spawned at the Fourth of July Creek confluence (RM 131.1) between August 6 and 13.

A graphic presentation of the movements of chum salmon 670-2A is provided in Appendix Figure 2-E-28.

Chum Salmon, Radio Transmitter 670-2B

Chum salmon 670-2B was tagged and released at Curry Station (RM 120) August 26, 1982. Twenty-eight hours after being released it was at RM 130.3, this represents an upstream migration rate of 9.4 mpd.

Fish 670-2B moved downstream between August 27 and 29 to RM 117.8. Two days later it was located upstream at RM 123.8. It entered Slough 8A (RM 125.7) between September 2 and 6, where it spawned. A necropsy conducted September 13 established that it was spent.



Appendix Figure 2-E-28. Movement of radio tagged chum salmon 670-2A in the Susitna River drainage during July and August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

A graphic presentation of the movements of chum salmon 670-2B is provided in Appendix Figure 2-E-29.

Chum salmon, Radio Transmitter 670-3

Chum salmon 670-3 was tagged and released August 22, 1982 in lower Devil Canyon (RM 150.4). Fish 670-3 moved downstream of RM 150.4 and entered Portage Creek (RM 148.9) within four days. Between August 26 and September 5, fish 670-3 outmigrated from Portage Creek. On September 5 it was located at RM 130.8. Fish 670-3 was subsequently at RM 123.0 September 12 and was last detected September 24 at RM 92.0

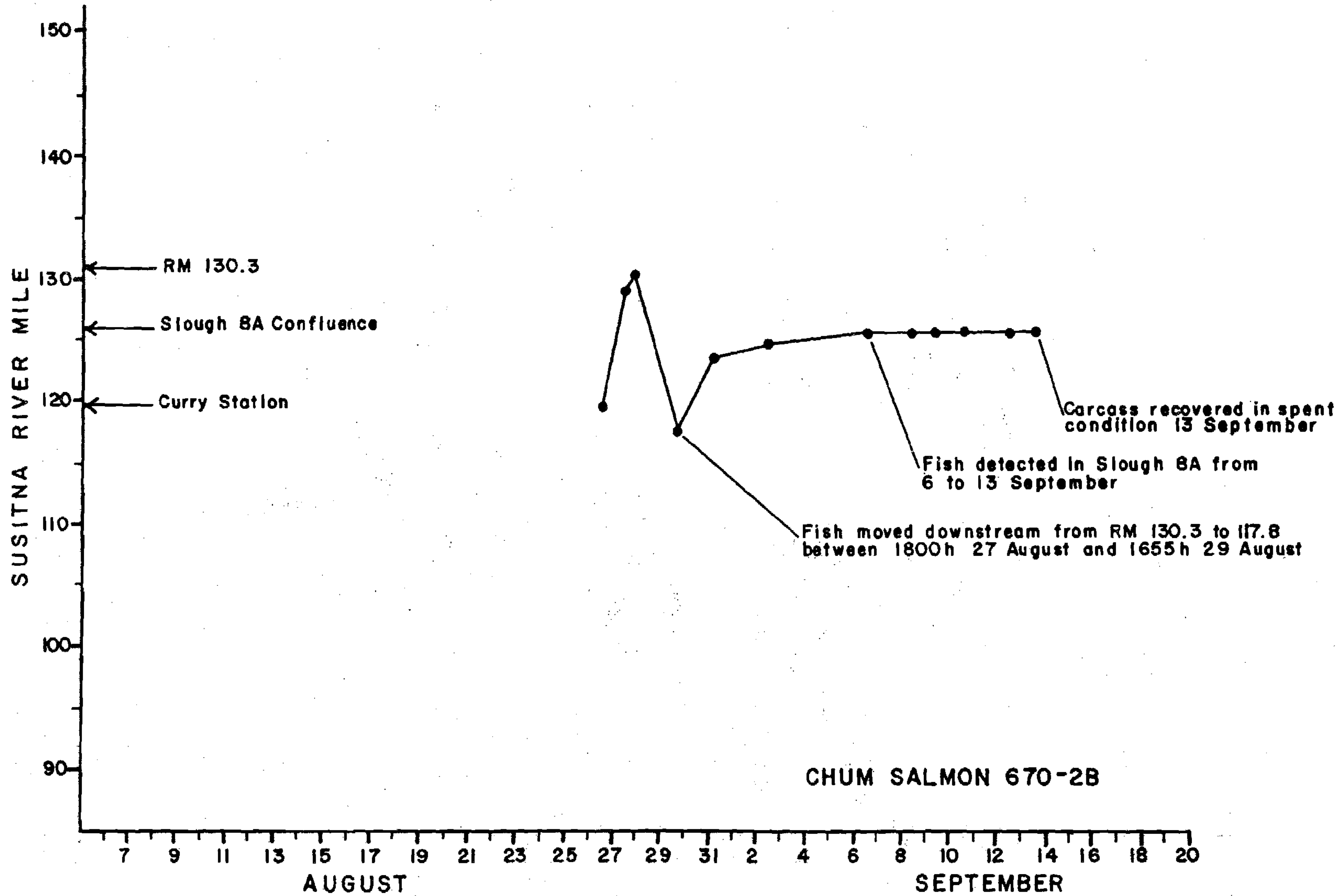
A graphic presentation of the movements of chum salmon 670-3 is provided in Appendix Figure 2-E-30.

Chum Salmon, Radio Transmitter 680-2

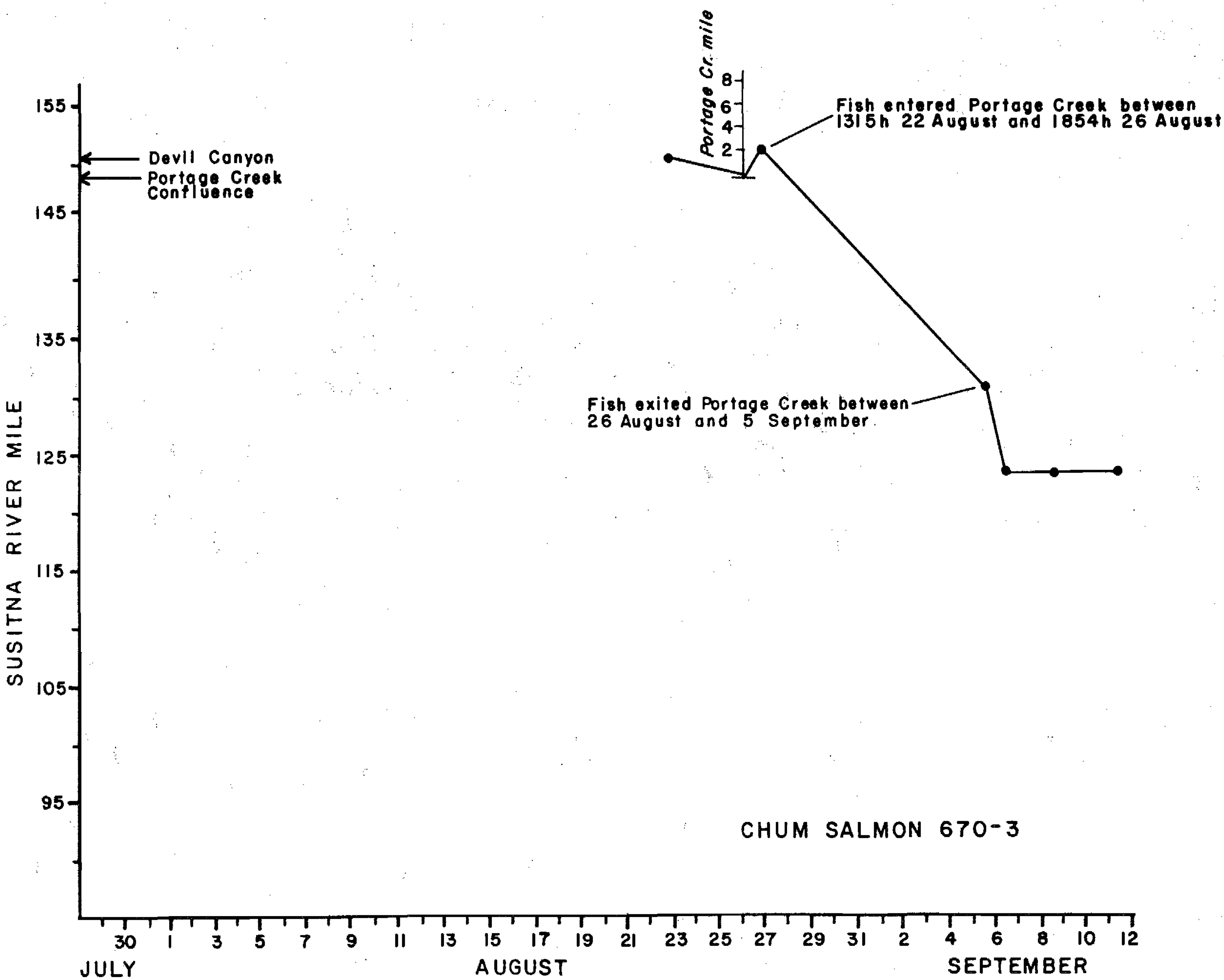
Chum salmon 680-2 was tagged and released at Curry Station (RM 120) August 2, 1982. Twenty-two point seven hours later it was at RM 130.7 which represents an upstream migration rate of approximately 11.5 mpd.

Between August 3 and 4, fish 680-2 began moving downstream. On August 4, it was located at RM 113.2 and about six hours later the same day, was 3.9 miles further downstream at RM 109.3.

August 5, fish 680-2 was 5.9 miles upstream in the Talkeetna River (RM 97.0), and by August 8 was an additional 27.5 miles upstream in the river. Fish



Appendix Figure 2-E-29. Movement of radio tagged chum salmon 670-2B in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-30. Movement of radio tagged chum salmon 670-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

680-2 then descended 27.5 miles and entered Chunilna (Clear) Creek sometime between August 8 and 22. On August 22 and September 14, fish 680-2 was approximately 18 miles upstream in Chunilna Creek.

A graphic presentation of the movements of chum salmon 680-2 is provided in Appendix Figure 2-E-31.

Chum Salmon, Radio Transmitter 700-2

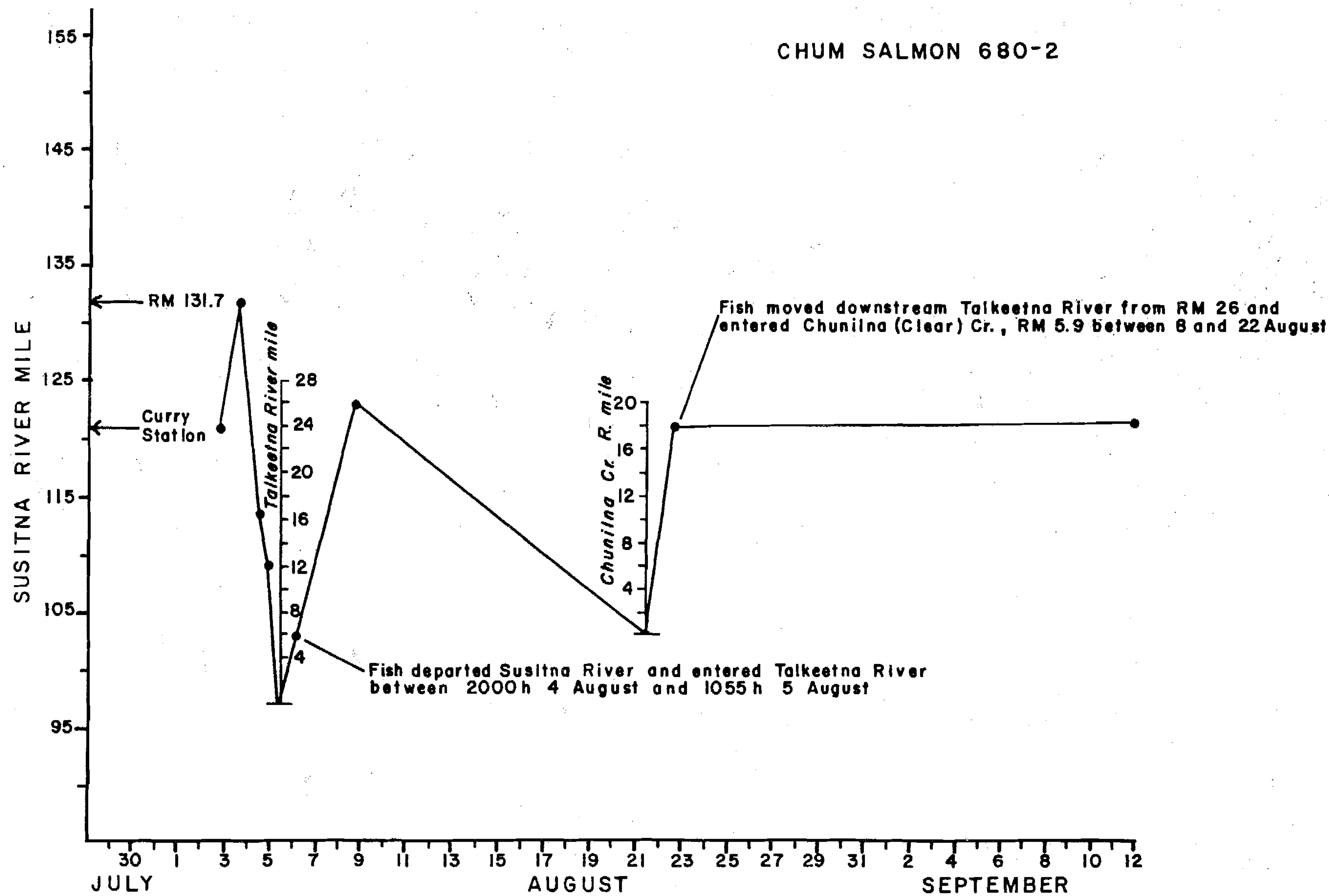
Chum salmon 700-2 was tagged and released at Curry Station (RM 120) August 4, 1982. By August 6, fish 700-2 had entered and was 0.35 miles upstream in the Indian River (RM 138.6). The movement from Curry Station to Indian River represents a migration rate of approximately nine mpd.

Fish 700-2 continued to ascend Indian River through August 26, evident by its position 1.8, 4.0, 4.5, 6.2, 7.5 and 10.1 miles upstream in the river, respectively August 8, 11, 14, 18, 22, and 26. On September 9 and 14, fish 700-2 was 2.6 miles downstream from its former position and presumedly was in a spawned out condition.

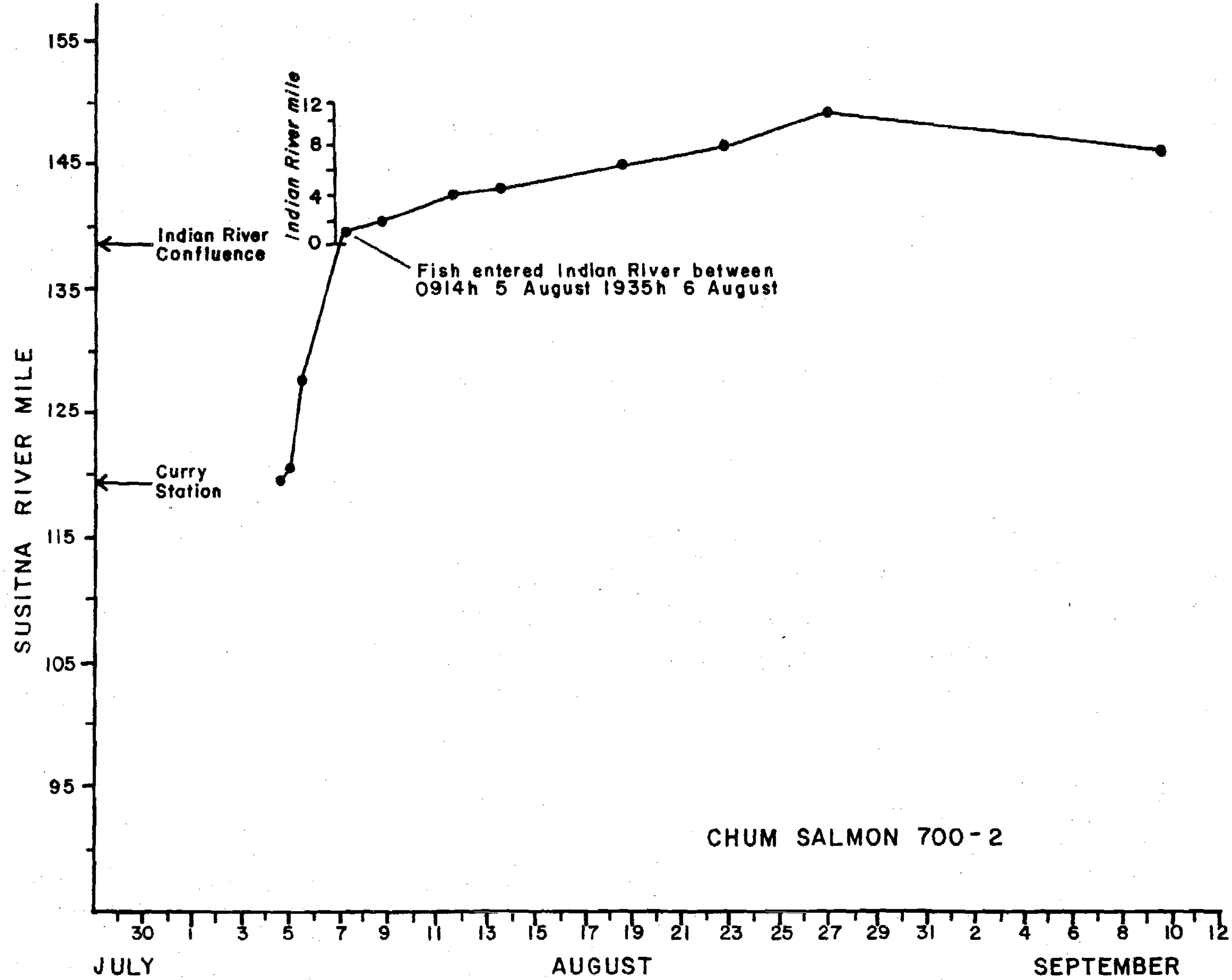
A graphic presentation of the movements of chum salmon 700-2 is provided in Appendix Figure 2-E-32.

Chum Salmon, Radio Transmitter 700-3

Chum salmon 700-3 was tagged and released in lower Devil Canyon (RM 150.4) August 22, 1982. Four days later, it was in Portage Creek (RM 148.9). On



Appendix Figure 2-E-31. Movement of radio tagged chum salmon 680-2 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-32. Movement of radio tagged chum salmon 700-2 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

September 5, fish 700-3 was at the confluence of Indian River and the Susitna River (RM 138.6). Fish 700-3 was last located September 9 approximately one mile upstream in Indian River.

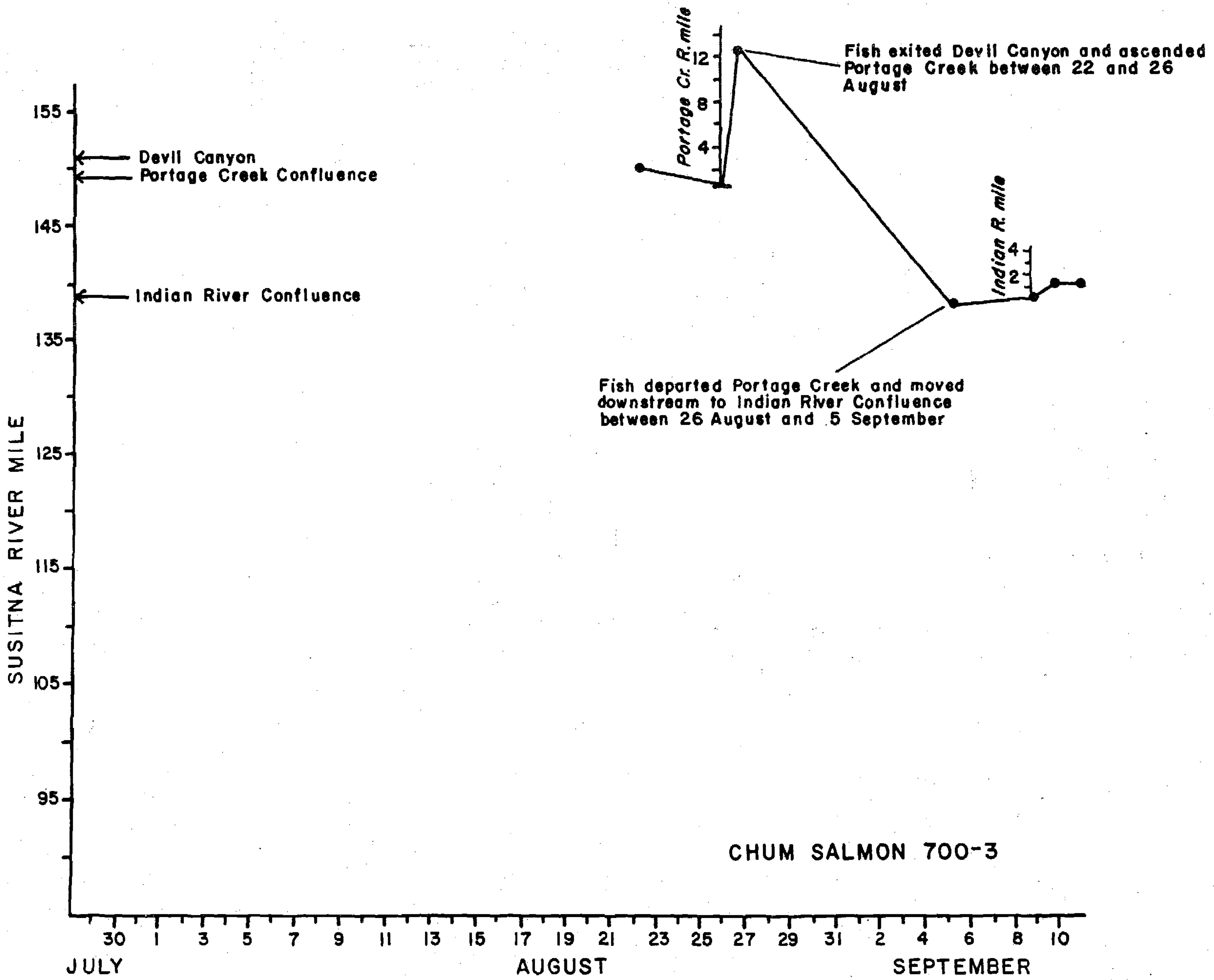
A graphic presentation of the movements of chum salmon 700-3 is provided in Appendix Figure 2-E-33.

Chum Salmon, Radio Transmitter 710-2

Chum salmon 710-2 was tagged and released at Curry Station (RM 120) July 30, 1982. It was subsequently located at RM 120.6 July 21 and August 3 at RM 147.3, which represents a travel rate of approximately seven mpd.

Indirect evidence indicates that fish 710-2 moved downriver and entered Indian River (RM 138.6) between August 3 and 4. Fish 710-2 was not located August 4, during a thorough search by waterbourne craft from RM 96.0 to 150.4. However, during a telemetry overflight the following day the fish was located 5.2 miles upstream in Indian River (RM 138.6). Fish 710-2 apparently entered the Indian River (RM 138.6) sometime between August 3 and 4 and occupied a position in the stream not detectable by telemetry equipment operated from the Susitna River mainstem.

An aerial survey August 8 established the position of fish 710-2, 2.2 miles upstream in Indian River (RM 138.6). It was thereafter located between 1.0 and 1.6 miles upstream in Indian River from August 11 through September 9.



Appendix Figure 2-E-33. Movement of radio tagged chum salmon 700-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

A graphic presentation of the movements of chum salmon 710-2 is provided in Appendix Figure 2-E-34.

Chum Salmon, Radio Transmitter 710-3

Chum salmon 710-3 was tagged and released at Talkeetna Station (RM 103) August 16, 1982. It moved downstream and remained at the Talkeetna River confluence (RM 97.0) from August 17 to 19.

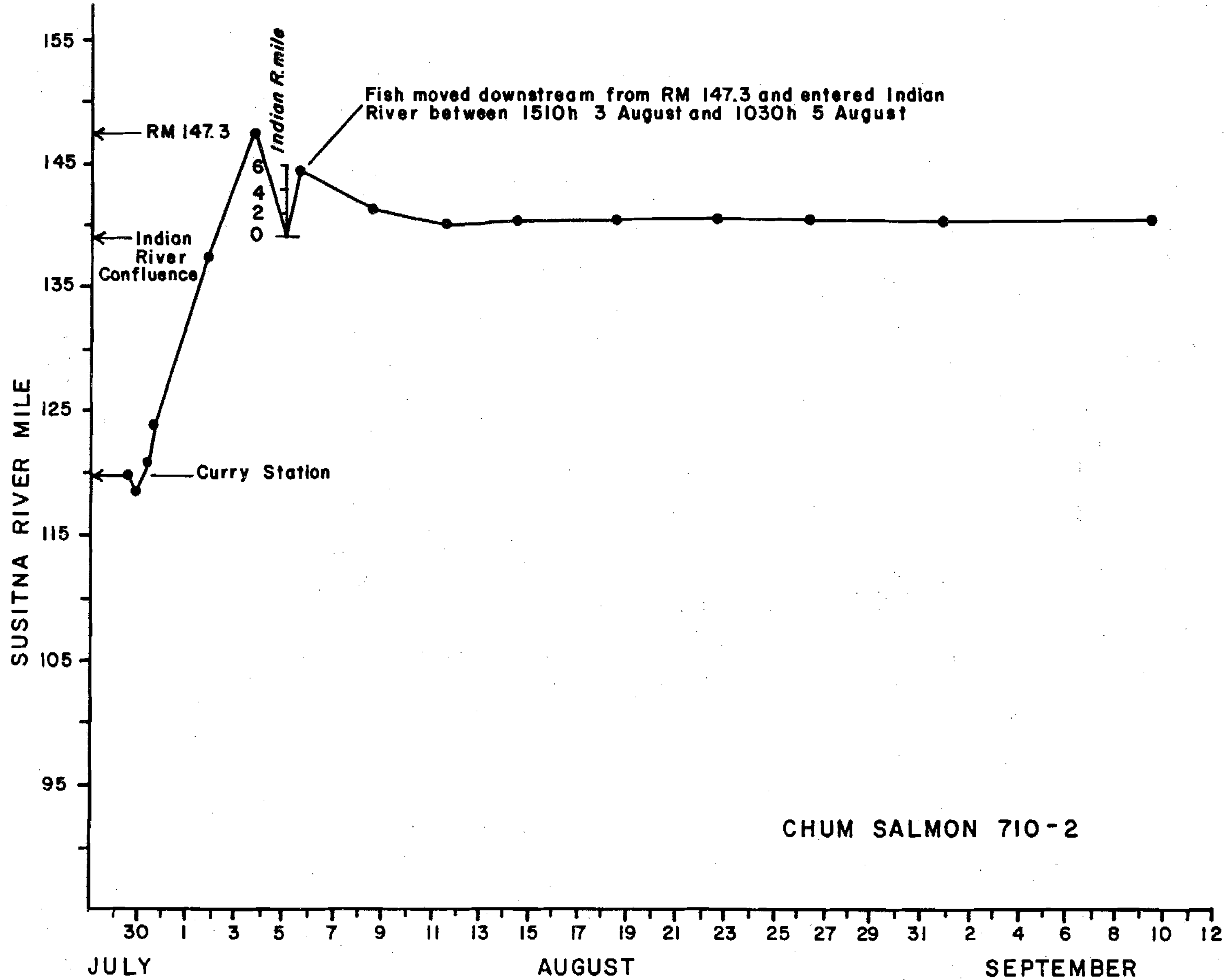
Fish 710-3 was last located four miles upstream in the Talkeetna River (RM 97.0) August 22.

A graphic presentation of the movements of chum salmon 710-3 is provided in Appendix Figure 2-E-35.

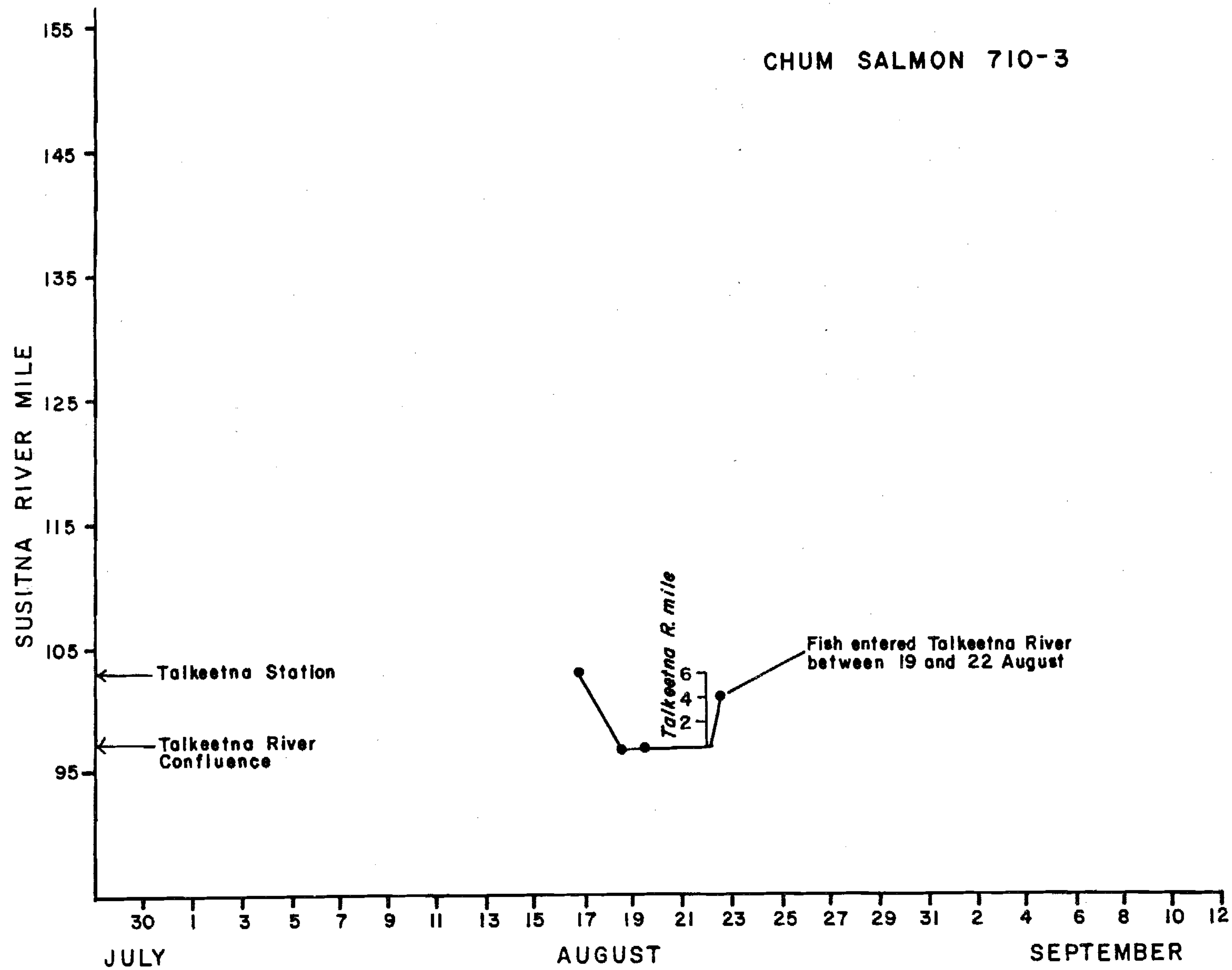
Chum Salmon, Radio Transmitter 720-1

Chum salmon 720-1 was tagged and released at Curry Station (RM 120) August 7, 1982. Two days after being tagged it was located 3.0 miles upstream at RM 122.5. On August 11, fish 720-1 was at RM 132.3. The fish continued moving upstream, and August 13 was detected at the mouth of Slough 17 (RM 137.9). Two hours later it was upstream at the mouth of the Indian River (RM 138.6) where it remained through August 14.

Between August 14 and 17, fish 720-1 descended to RM 123.8. Later it moved downstream to RM 122.0 where it remained from August 19 to 22. On August 23 fish 720-1 was detected upstream in Moose Slough (RM 123.4). Later, August



Appendix Figure 2-E-34. Movement of radio tagged chum salmon 710-2 in the Susitna River drainage during July, August, and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

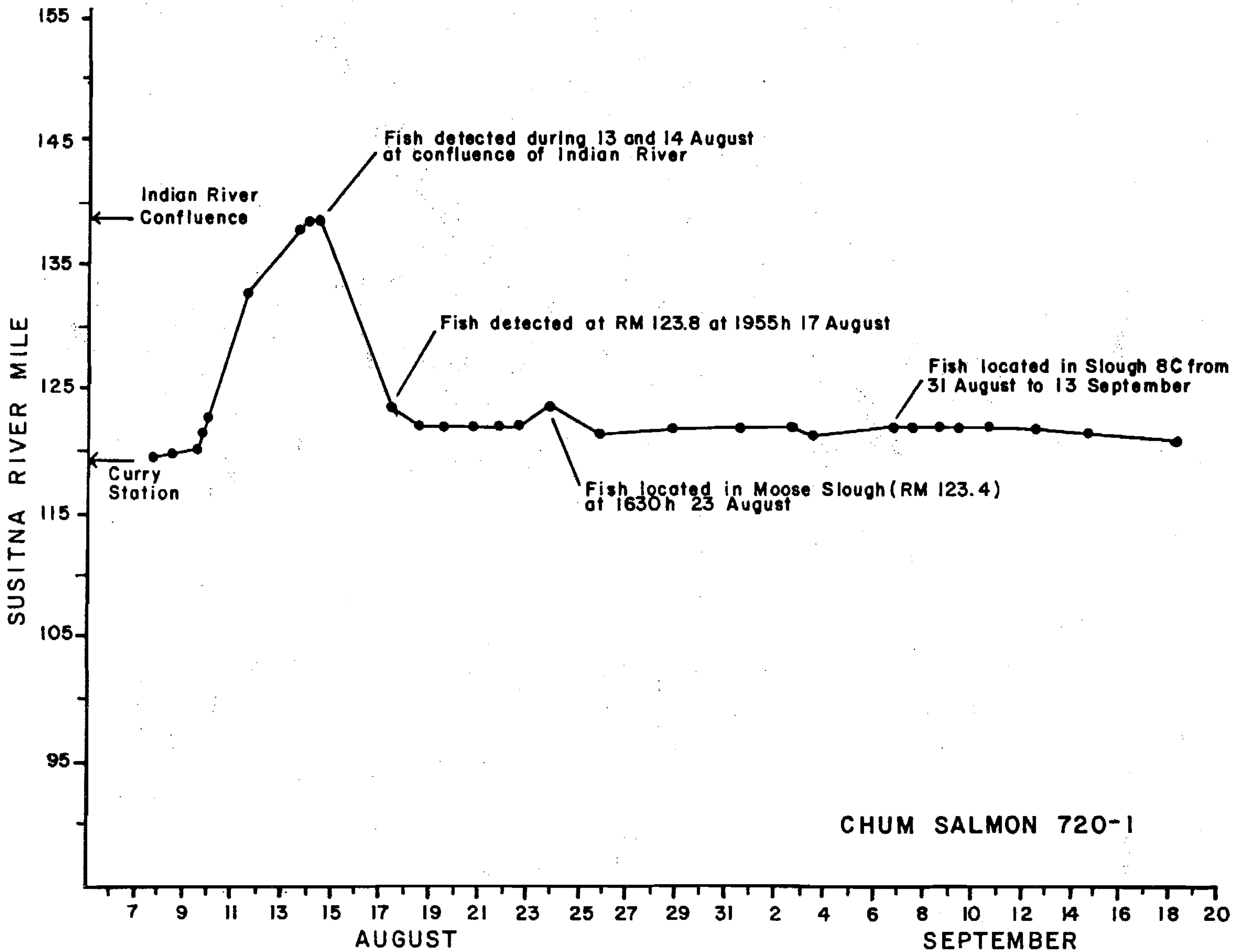


Appendix Figure 2-E-35. Movement of radio tagged chum salmon 710-3 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

26 and 28 the fish was at RM 121.6 and 122.2, respectively. From August 31 to September 14, fish 720-1 was in Slough 8C at RM 121.9.

Between September 14 and 18, fish 720-1 exited Slough 8C (RM 121.9) and from September 18 through October 4 remained at RM 121.5. Fish 720-1 presumedly spawned in Slough 8C between August 31 and September 14.

A graphic presentation of the movements of chum salmon 720-1 is provided in Appendix Figure 2-E-36.



Appendix Figure 2-E-36. Movement of radio tagged chum salmon 720-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Coho Salmon, Radio Transmitter 600-1

Coho salmon 600-1 was tagged and released at Talkeetna Station (RM 103) August 29, 1982. It was last located 10.4 miles downstream August 31.

A graphic presentation of the movements of coho salmon 600-1 is provided in Appendix Figure 2-E-37.

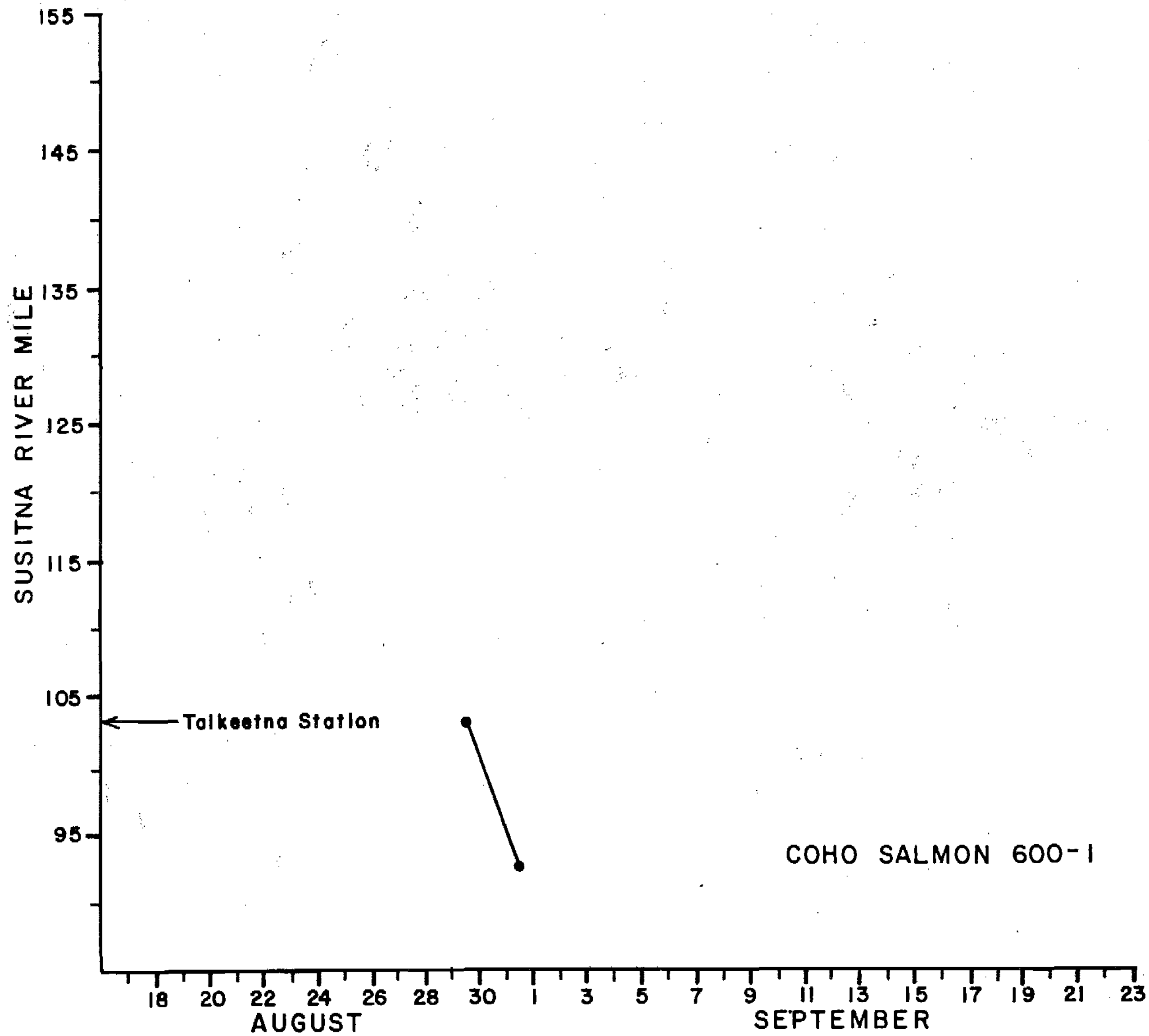
Coho Salmon, Radio Transmitter 600-2

Coho salmon 600-2 was tagged and released at Talkeetna Station (RM 103) August 27, 1982. Sixteen and one-half hours after being released fish 600-2 was 2.1 miles downstream at RM 100.9. It was next encountered August 31 1.9 miles upstream in the Talkeetna River (RM 97.0). Fish 600-2 continued to ascend the Talkeetna River through September 9 when it was last located 15.5 miles upstream on that date.

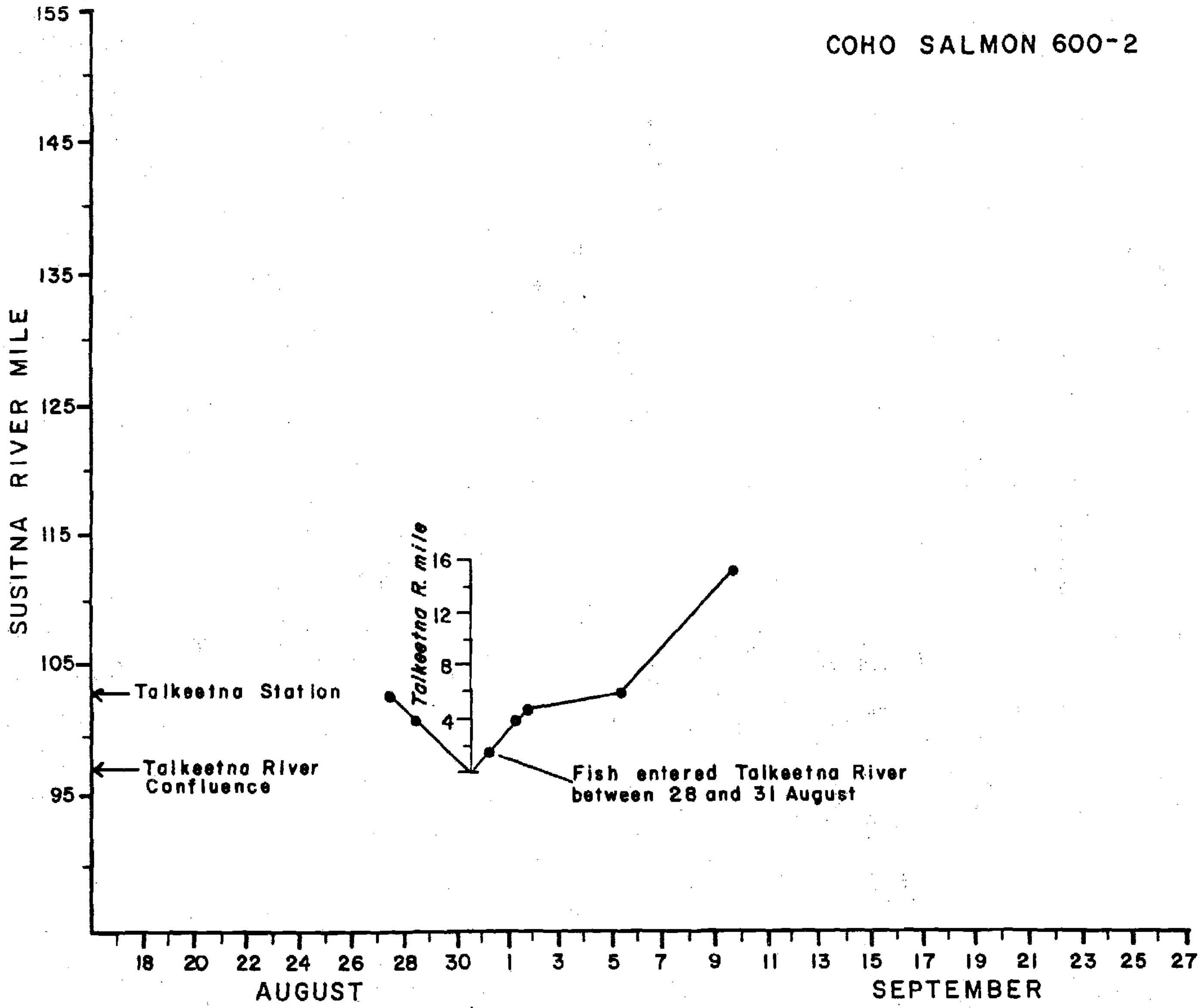
A graphic presentation of the movements of coho salmon 600-2 is provided in Appendix Figure 2-E-38.

Coho Salmon, Radio Transmitter 600-3

Coho salmon 600-3 was tagged and released at Curry Station (RM 120) August 25, 1982. It moved 0.2 miles downstream within 1.0 hours after release and was located the following day at RM 121.3 and thereafter at RM 121.0. Fish 600-3, without its radio transmitter was captured 11.2 miles upstream in



Appendix Figure 2-E-37. Movement of radio tagged coho salmon 600-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-38. Movement of radio tagged coho salmon 600-2 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Portage Creek (RM 148.8) September 24. The fish apparently regurgitated the radio transmitter September 27 or 28 at RM 121.0.

<u>Coho Salmon, Radio Transmitter 610-1</u>

Coho salmon 610-1 was tagged at Curry Station (RM 120) August 22, 1982. About 22 hours after being released it was 3.2 miles downstream at RM 116.3 August 23. It was next monitored 13.3 miles upstream at RM 129.6 August 26. About 24 hours later, August 27 fish 610-1 was encountered 0.6 miles upstream at RM 130.2 and had reached Slough 11 (RM 135.8) August 28. This coho salmon, while enroute to RM 135.8, ascended at an average migrational rate of 5.5 mpd.

Between August 28 and 29, fish 610-1 moved downstream to, and remained at, or near Fourth of July Creek confluence (RM 131.1) from August 29 to September 7. By September 8, it had moved further downstream to RM 126.4. It then re-ascended to RM 131.1 where it was located September 9 and 10.

Between September 10 and 13, fish 610-1 departed the Fourth of July Creek confluence (RM 131.1) and migrated to the mouth of Slough 15 (RM 137.3) where it was located September 13.

Coho salmon 610-1 was detected later September 14, upstream at the Indian River confluence (RM 138.6). Between September 14 and 18, fish 610-1 ascended Indian River (RM 138.6). Aerial surveys September 18 and 22 located the fish 2.4 miles upstream in Indian River (RM 138.6). The fish was last detected in the Indian River September 22, 1982.

A graphic presentation of the movements of coho salmon 610-1 is provided in Appendix Figure 2-E-39.

Coho Salmon, Radio Transmitter 610-3

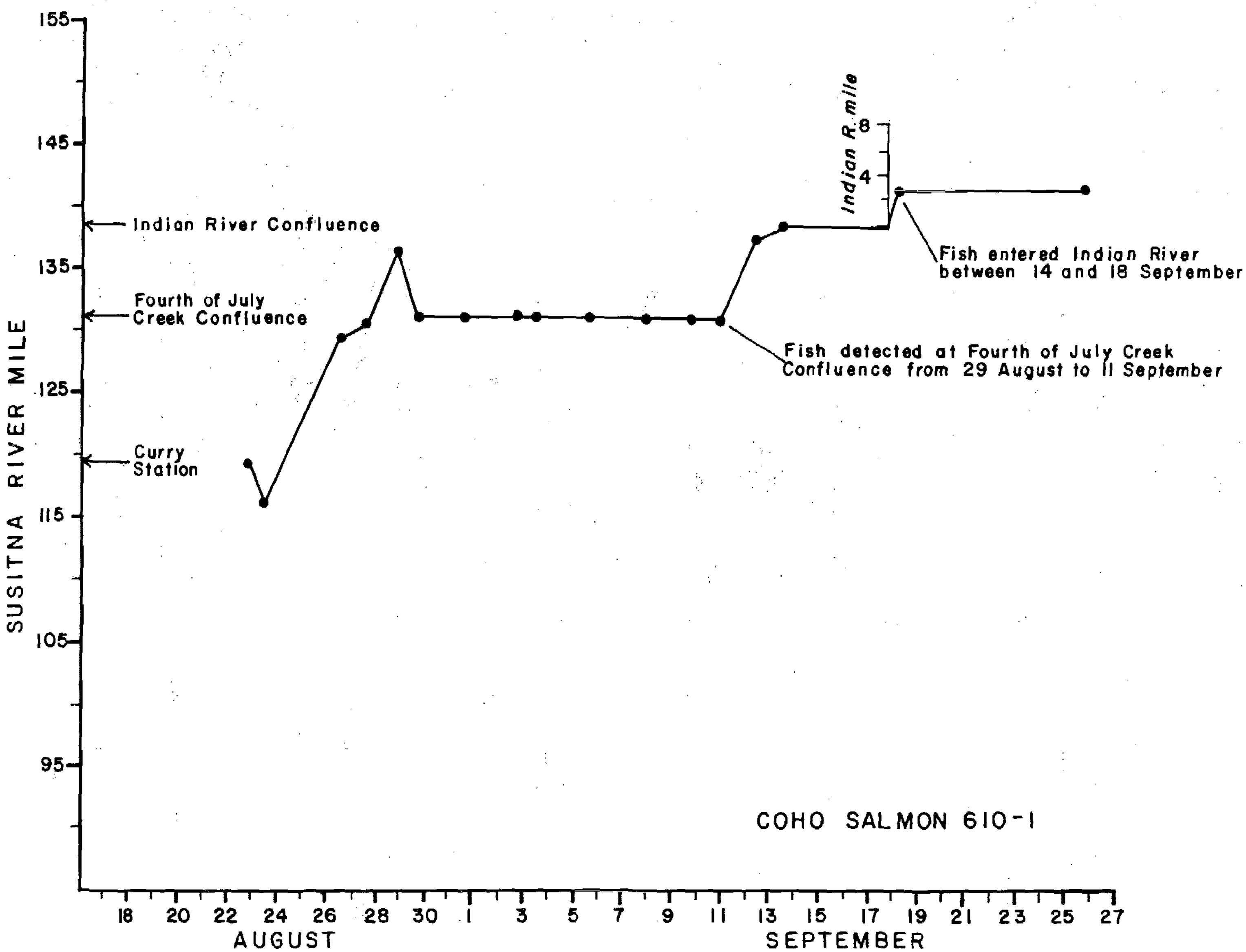
Coho salmon 610-3 was tagged at Talkeetna Station (RM 103) August 28, 1982. Three days later it was located 14.8 miles downstream at the Birch Creek confluence (RM 88.4). It next was detected there September 14. Despite subsequent telemetric overflights the fish was not located again.

A graphic presentation of the movements of coho salmon 610-3 is provided in Appendix Figure 2-E-40.

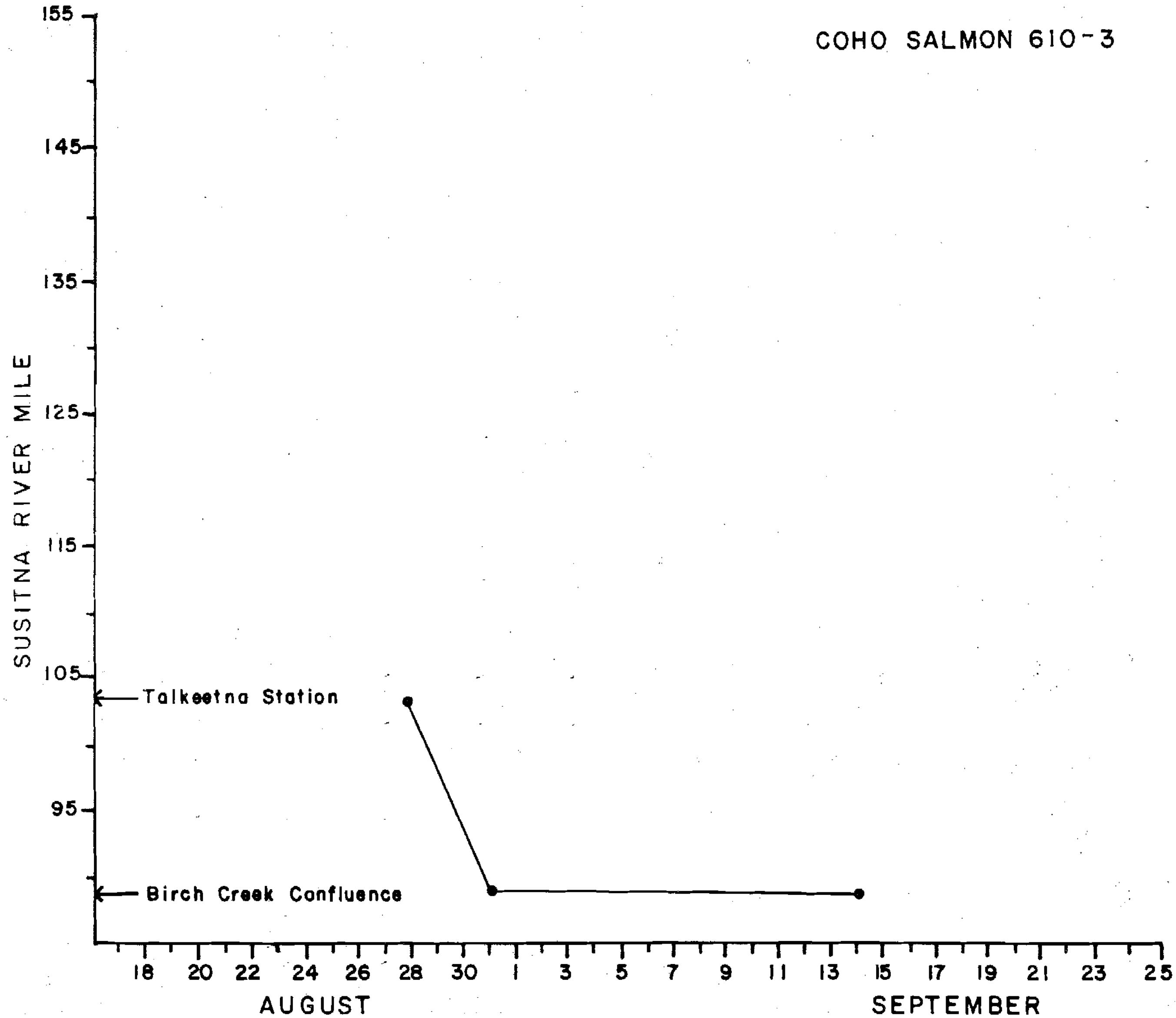
Coho Salmon, Radio Transmitter 620-3A

Coho salmon 620-3A was tagged August 26 at Talkeetna Station (RM 103). It was detected for the following two days 1.5 miles downstream at RM 101.5. On August 29, fish 620-3A descended another 0.3 miles to RM 101.2; it then ascended to RM 106.9 to the confluence of Chase Creek where it remained from August 21 to September 2. Fish 620-3A exited the confluence of Chase Creek (RM 106.6) and moved upstream to Slough 5 (RM 107.6) between September 2 and 3. It remained at this location through September 6.

Sometime between September 6 and 7, coho salmon 620-3A departed Slough 5 and migrated upstream to where it was located at RM 109.2 September 7. Fish 620-3A then ascended to RM 110.9 September 9 and to 111.4 September 10 where it remained through September 14.



Appendix Figure 2-E-39. Movement of radio tagged coho salmon 610-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-40. Movement of radio tagged coho salmon 610-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

September 15, fish 620-3A was located first at the confluence of Slough 5 (RM 107.6) and approximately three hours later it descended to the confluence of Chase Creek at RM 106.9. Fish 620-3A was next located September 18 at the confluence of Little Gash Creek (RM 111.4).

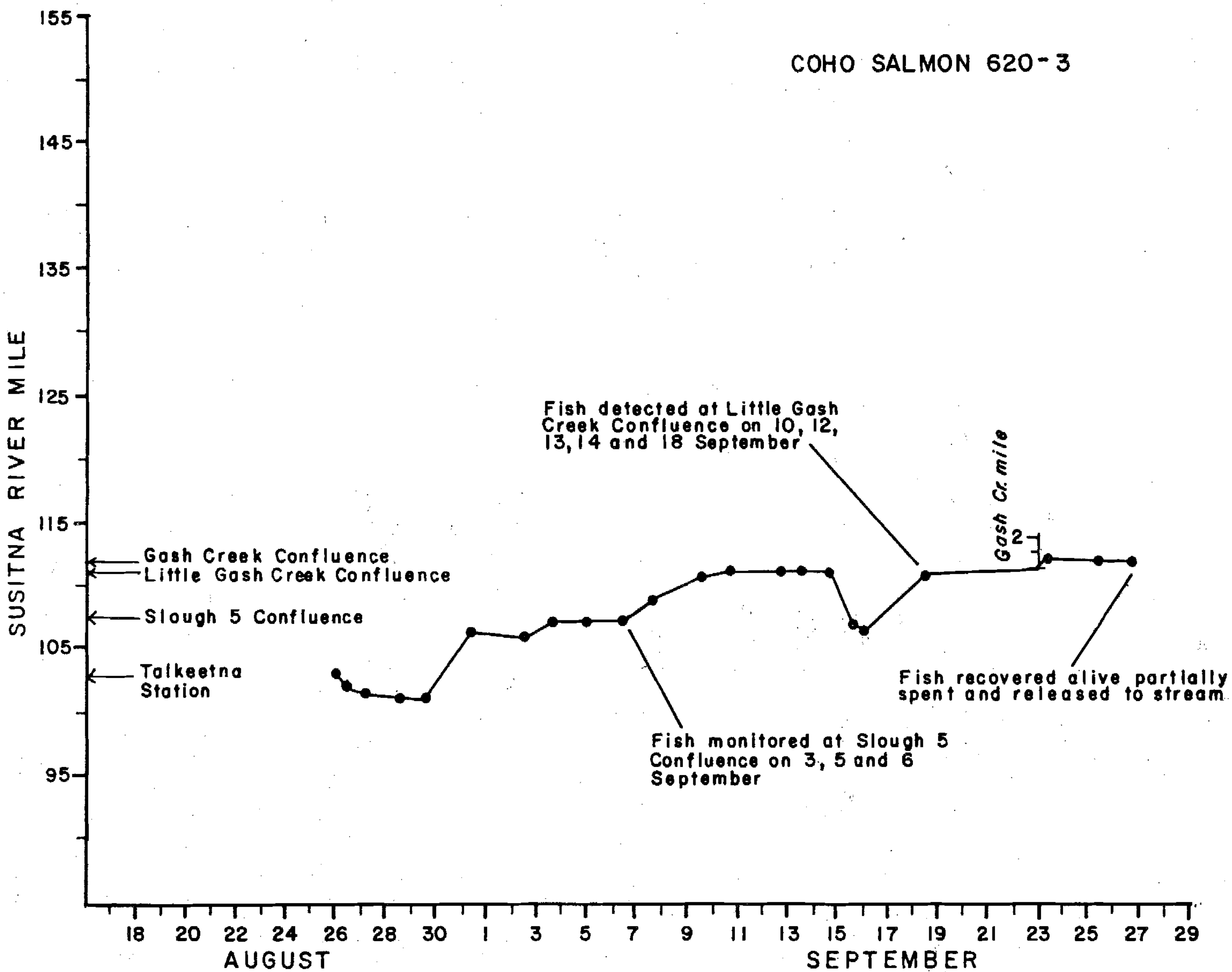
Evidence indicates that fish 620-3A ascended Gash Creek (RM 111.6) sometime between September 18 and 21. The fish was not detected telemetrically with boat mounted equipment between RM 96.0 and 122.0 September 2. However, it was detected during an aerial overflight 0.5 miles upstream in Gash Creek (RM 111.6) September 23. Fish 620-3A was observed spawning in Gash Creek September 25 and 27; the fish was captured the latter date and found to be partially spent.

A graphic presentation of the movements of coho salmon 620-3A is provided in Appendix Figure 2-E-41.

Coho Salmon, Radio Transmitter 630-1

Coho salmon 630-1 was tagged August 28 at Talkeetna Station (RM 103). It was detected the following day at RM 101.2, and thereafter within 0.4 miles of this location from August 31 to September 5.

Indirect evidence suggests that fish 630-1 entered Whiskers Creek (RM 101.2) between September 5 and 6. Fish 630-1 was not detected telemetrically by boating round-trip from RM 96.0 to 126.0 September 6. However, a September 9 overflight located the fish 1.9 miles upstream in Whiskers Creek (RM 101.2). Fish 630-1 was probably in Whiskers Creek (RM 101.2) September 6 beyond the



Appendix Figure 2-E-41. Movement of radio tagged coho salmon 620-3A in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

range of boat mounted telemetry gear and therefore was not located. Fish 630-1 was repeatedly located in Whiskers Creek 1.5 and 1.9 miles upstream from September 9 through September 25 when the last aerial survey was conducted.

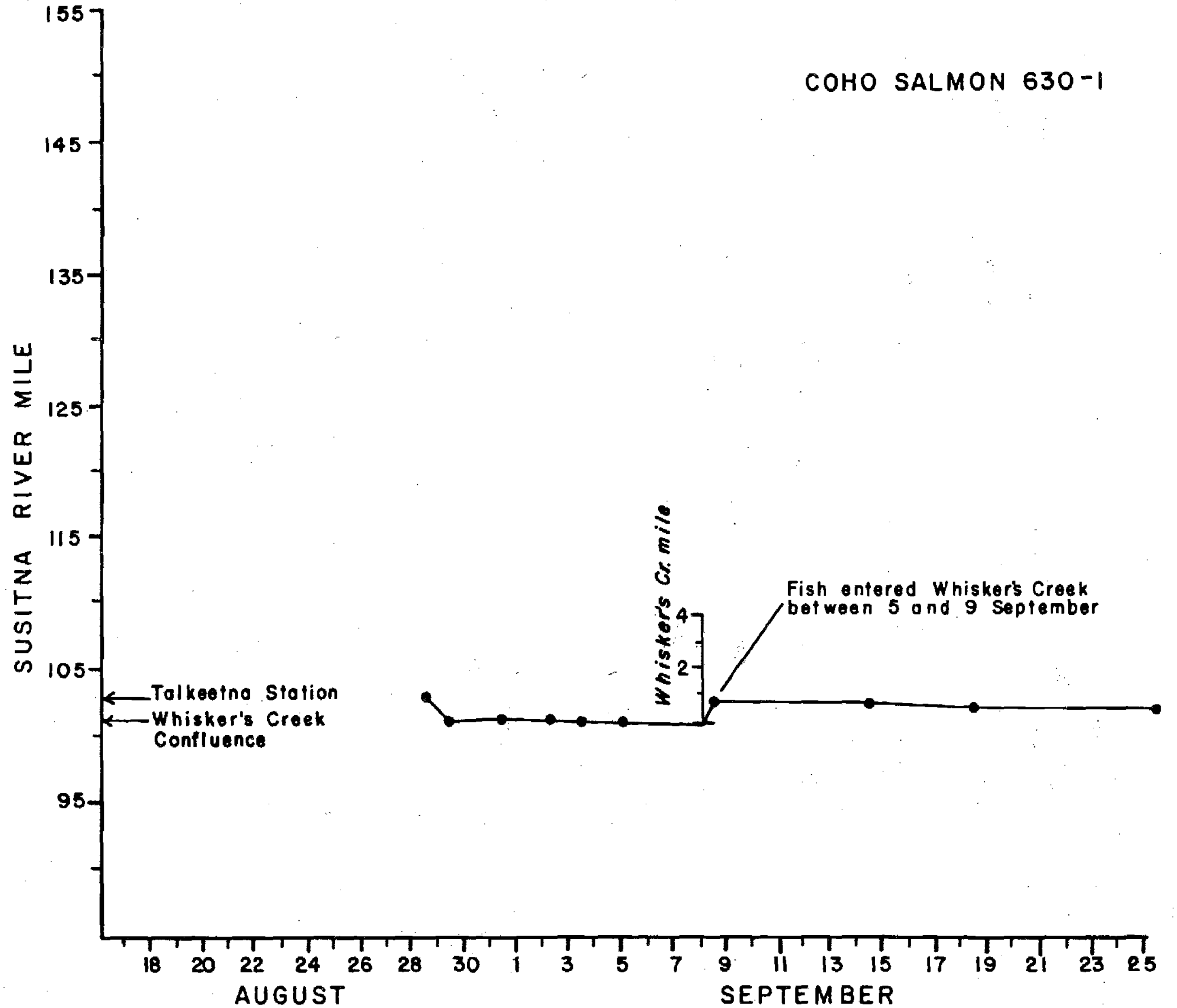
A graphic presentation of the movements of coho salmon 630-1 is provided in Appendix Figure 2-E-42.

Coho Salmon, Radio Transmitter 640-1

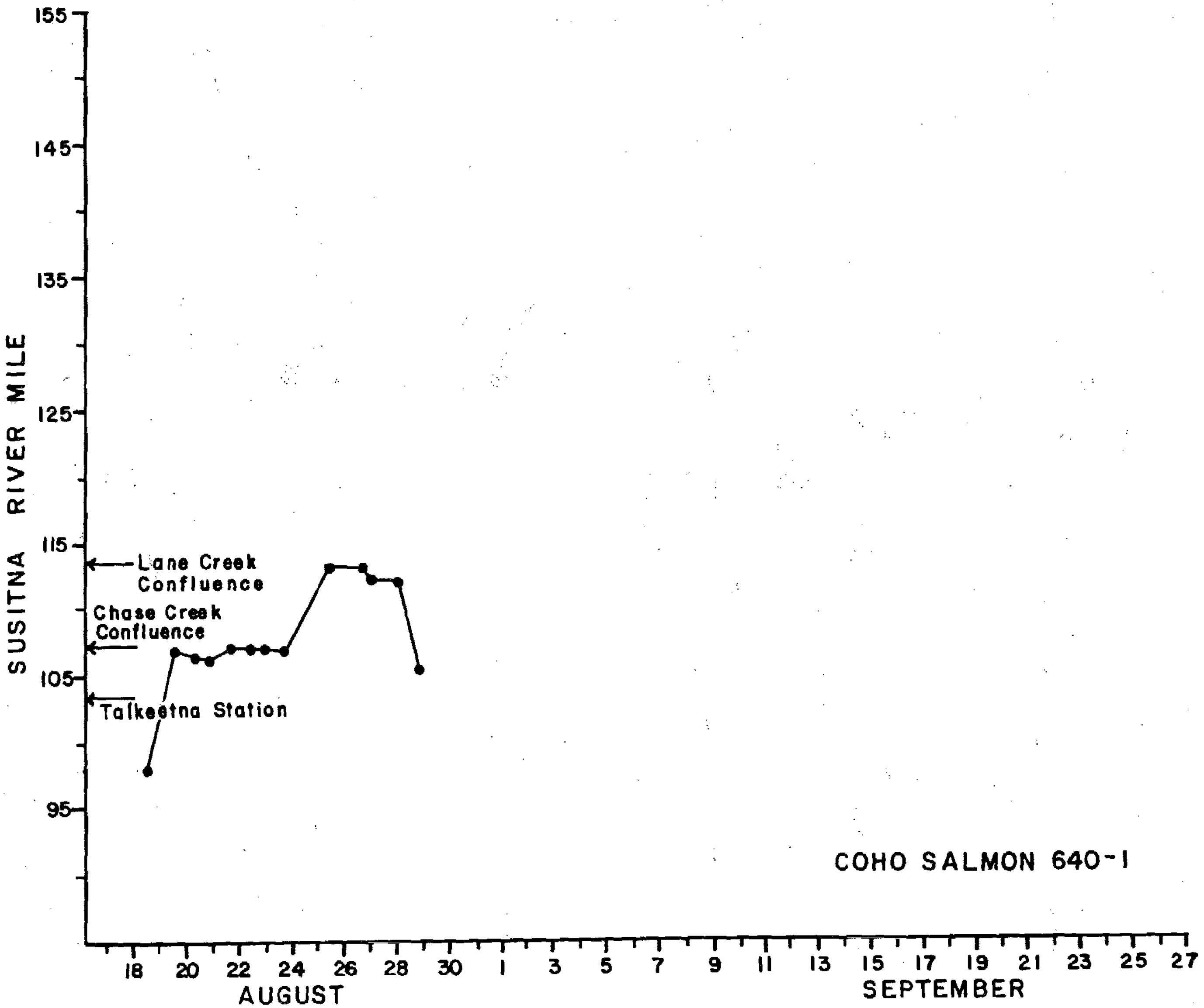
Coho salmon 640-1 was tagged and released August 18 at Talkeetna Station (RM 103.0). The following day the fish was monitored 4.3 miles upstream at RM 107.3. Between August 19 and 20, fish 640-1 ascended to the confluence of Chase Creek (RM 106.9). It remained within 0.3 miles of this location through August 23.

Between August 23 and 25, fish 640-1 exited the confluence of Chase Creek (RM 106.9) and ascended to the confluence of Lane Creek at RM 113.6. The following day, fish 640-1 was located one mile downstream at RM 112.6. It remained at this location through August 27. Fish 640-1 was last located 7.0 miles downstream at RM 105.6 August 28.

A graphic presentation of the movements of coho salmon 640-1 is provided in Appendix Figure 2-E-43.



Appendix Figure 2-E-42. Movement of radio tagged coho salmon 630-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-43. Movement of radio tagged coho salmon 640-1 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Coho Salmon, Radio Transmitter 640-3

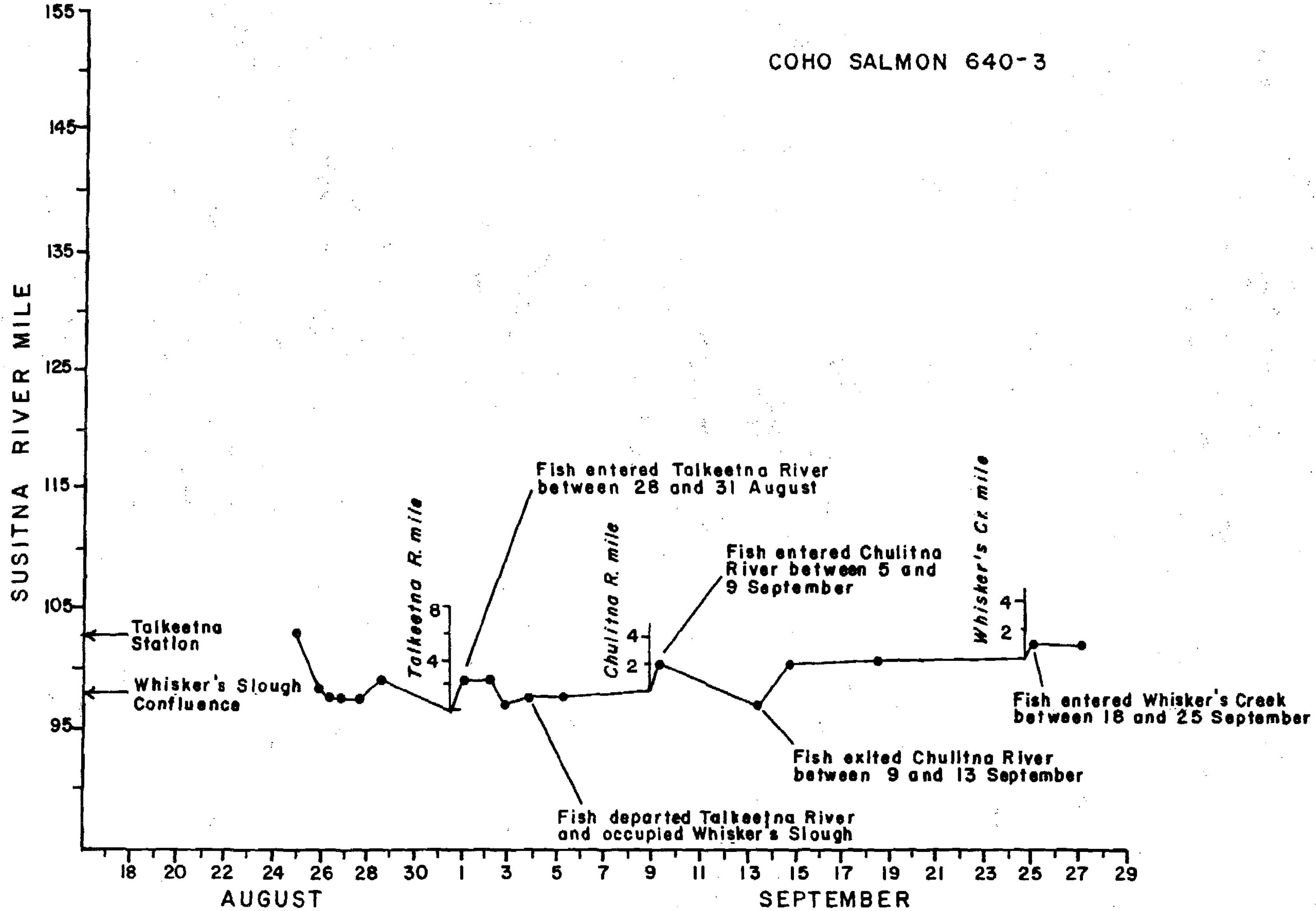
Coho salmon 640-3 was tagged and released at Talkeetna Station (RM 103) August 25, 1982. It descended to RM 98.3 approximately four hours after its release. On August 26 and 27, fish 640-3 was in the Susitna River at the confluence of Wiggle Slough at RM 98.0. It then ascended upstream to RM 99.6 where it was located August 28.

Between August 28 and 21, fish 640-3 descended from RM 99.6 and entered the Talkeetna River (RM 97.0) where it was detected 2.2 miles upstream in the river August 31 and September 1. Fish 640-3 then descended the Talkeetna River to a point with 0.3 miles from its confluence with the Susitna River at RM 97.0.

Between September 2 and 3, fish 640-3 exited Talkeetna River (RM 97.0) and migrated upstream to the confluence of Wiggle Slough with the Susitna River at RM 98.0. Next this fish was located in the Chulitna River (RM 98.6) September 9. By September 13 it had returned to the Susitna River. Fish 640-3 advanced upstream to RM 100.9 and RM 101.2 September 14 and 18, respectively.

Between September 18 and 25, fish 640-3 entered Whiskers Creek (RM 101.2). It remained in Whiskers Creek through September 27, the last date of observation.

A graphic presentation of the movements of coho salmon 640-3 is provided in Appendix Figure 2-E-44.



Appendix Figure 2-E-44. Movement of radio tagged coho salmon 640-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Coho Salmon, Radio Transmitter 650-1

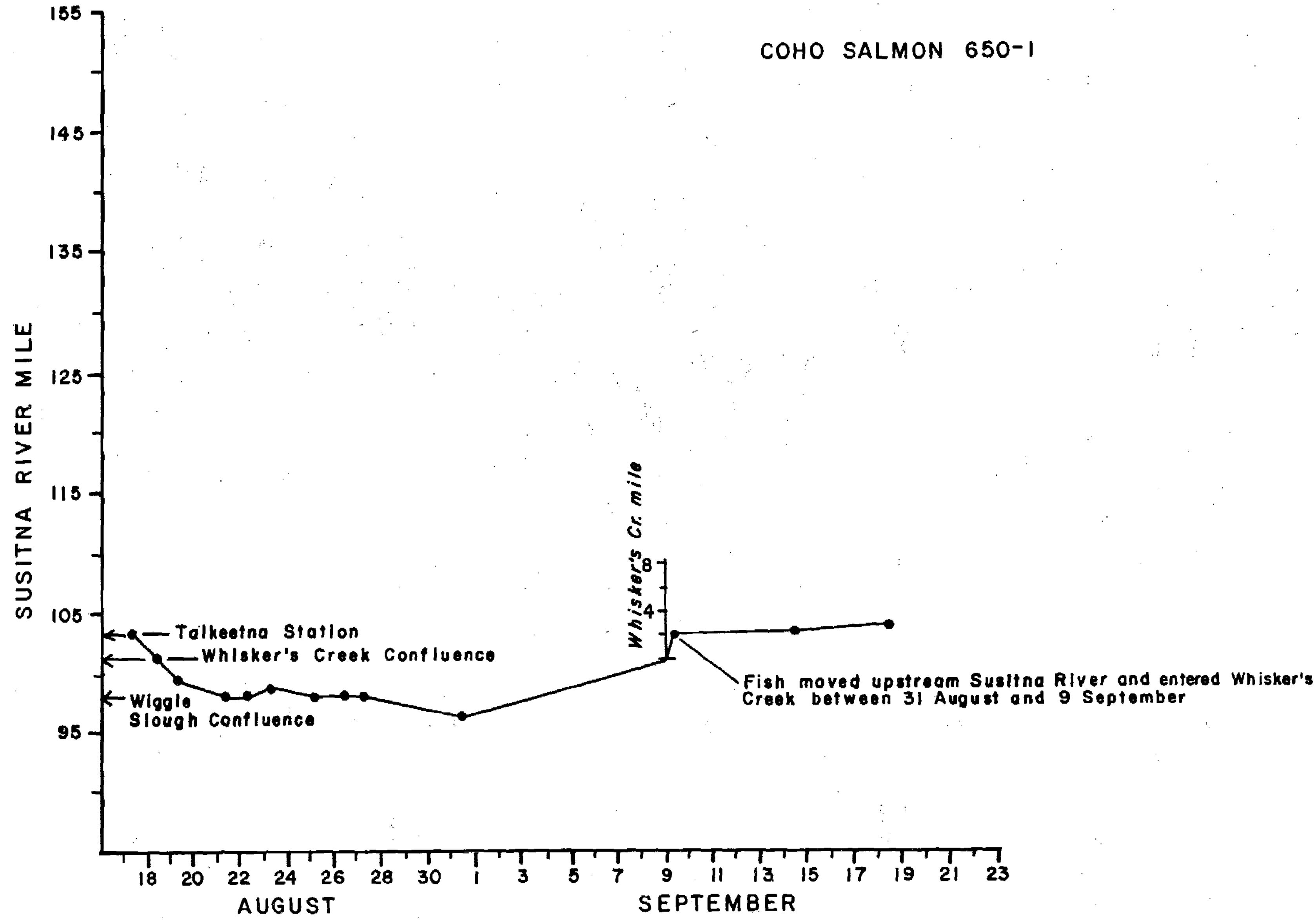
Coho salmon 650-1 was tagged August 17, 1982 at Talkeetna Station (RM 103). On August 18 and 19, fish 650-1 was detected downstream of RM 103 at RM 99.5 and 99.2 respectively. Fish 650-1 then descended an additional 1.2 miles to the confluence of Wiggle Slough (RM 98.0) where it remained at or near the position from August 21 through 27.

Fish 650-1 was next monitored 1.4 miles downstream at RM 96.6 August 31 and then later September 9, was located 1.8 miles upstream in Whiskers Creek (RM 101.2). From September 9 through September 18, fish 650-1 occupied various locations between 1.8 and 2.5 miles upstream in Whiskers Creek. This fish was last detected September 18, 2.5 miles upstream in Whiskers Creek.

A graphic presentation of the movements of coho salmon 650-1 is provided in Appendix Figure 2-E-45.

Coho Salmon, Radio Transmitter 650-4

Coho salmon 650-4 was tagged at Curry Station (RM 120) August 19, 1982. The fish was encountered 7.7 miles downstream at RM 112.8 about 8.4 hours after being released. It was next located August 20 an additional 12.3 miles downstream at RM 100.5. On August 21, fish 650-4 was located at RM 101.4. It then descended and remained at the Talkeetna River confluence (RM 97.0) from August 22 through 23.



Appendix Figure 2-E-45. Movement of radio tagged coho salmon 650-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Between August 23 and 26, fish 650-3 entered the Talkeetna River (RM 97.0). On August 26 it was located 3.2 miles upstream in the Talkeetna River where it remained within 0.1 miles from August 31 through September 5. Fish 650-3 was last monitored September 9, 6.0 miles upstream in the Talkeetna River (RM 97.0).

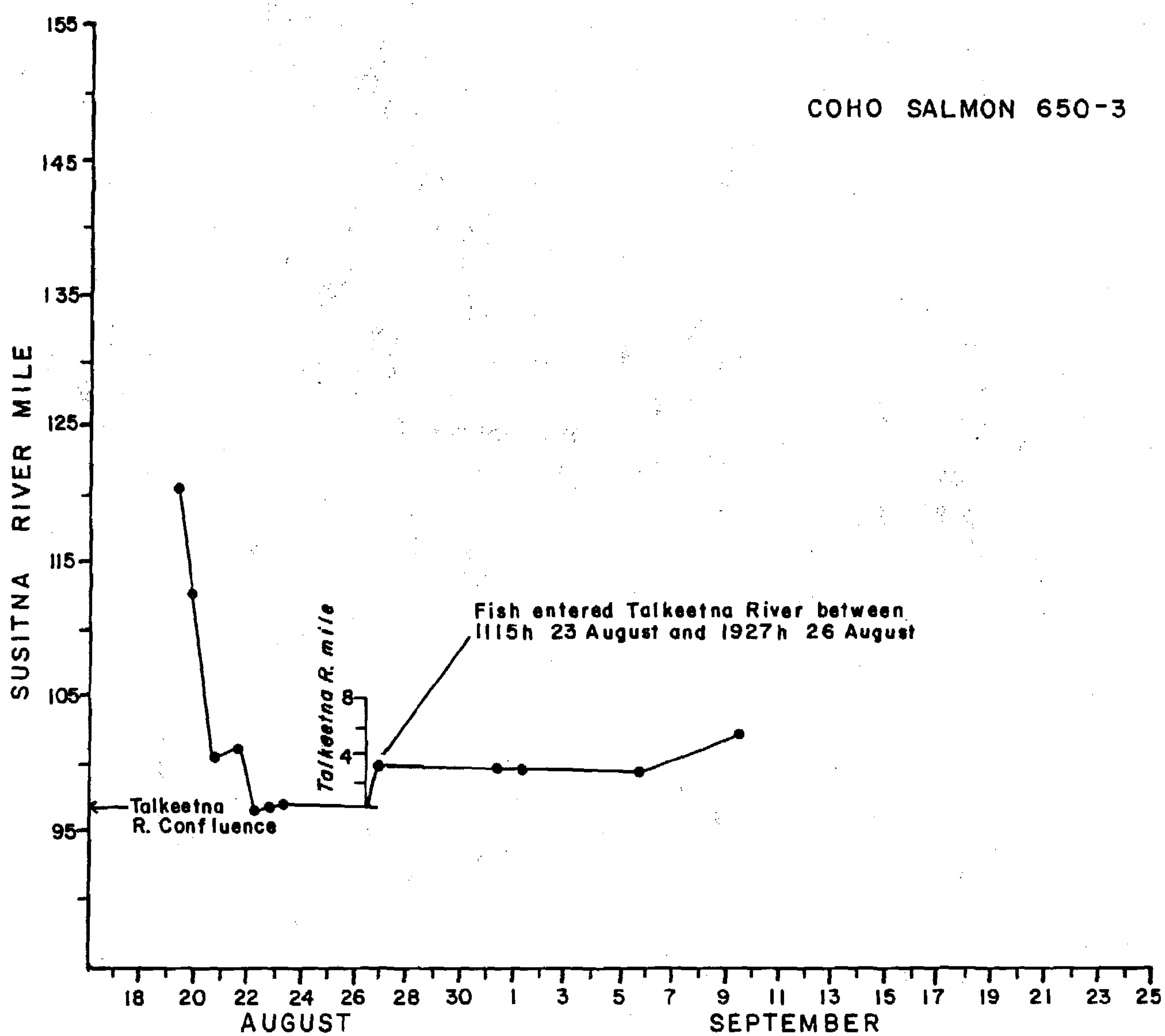
A graphic presentation of the movements of coho salmon 650-3 is provided in Appendix Figure 2-E-46.

Coho Salmon, Radio Transmitter 660-3

Coho salmon 660-3 was tagged and released at Curry Station (RM 120) August 25, 1982. Fish 660-3 descended to RM 118.9, 118.0 and 117.8 one, 19.2 and 23.7 hours after being released, respectively.

By August 27, fish 660-3 had ascended to RM 122.3. It was next encountered upstream at RM 130.8, 135.8, 138.9 on August 28, 29 and 30, respectively. Maximum (upstream) migrational rates displayed by fish 660-3 from August 27 to 30, were 18.2 mpd and 8.6 mpd respectively for an interval less than and greater than 4.0 hours. Between August 30 and September 3, fish 660-3 descended to, and remained in, Slough 15 (RM 137.3) through September 8.

By September 9, coho salmon 660-3 had departed Slough 15 (RM 137.3) and was 1.0 miles upstream in Indian River (RM 138.6). The following day fish 660-3 was 0.5 miles further upstream in Indian River.



Appendix Figure 2-E-46. Movement of radio tagged coho salmon 650-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Sometime between September 10 and 13, fish 660-3 exited Indian River (RM 138.6) and descended to RM 128.9. On September 14 the fish/carcass moved downstream from RM 103.0 to RM 94.5 in 1.7 hours. Fish 660-3 was not encountered thereafter despite several telemetry overflights extending to the confluence of Montana Creek (RM 77.0).

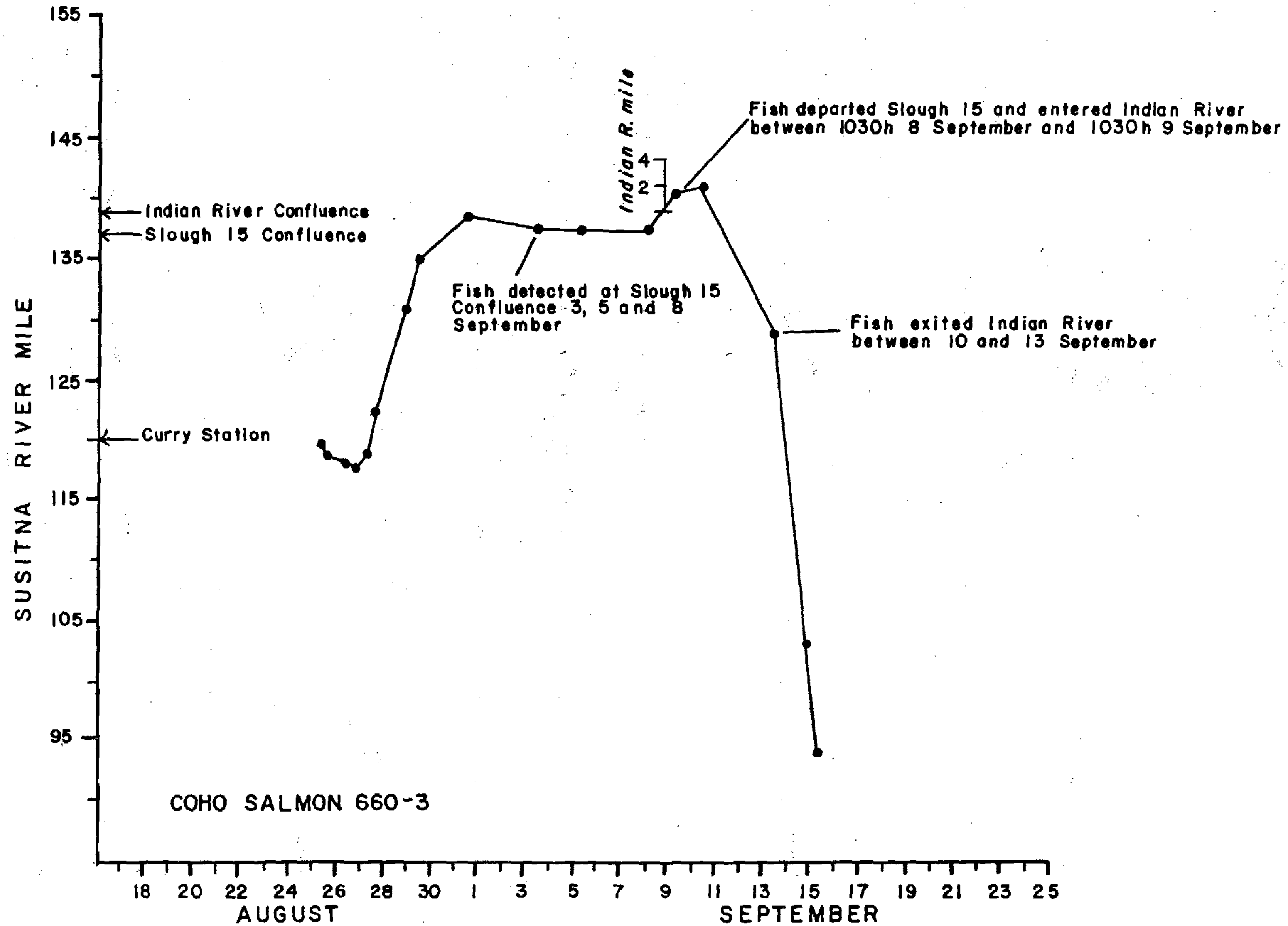
The movement out of the Indian River (RM 138.6) and relatively rapid downstream movement in the Susitna River indicates that fish 660-3 spawned in Indian (RM 138.6) sometime prior to September 13.

A graphic presentation of the movements of coho salmon 660-3 is provided in Appendix Figure 2-E-47.

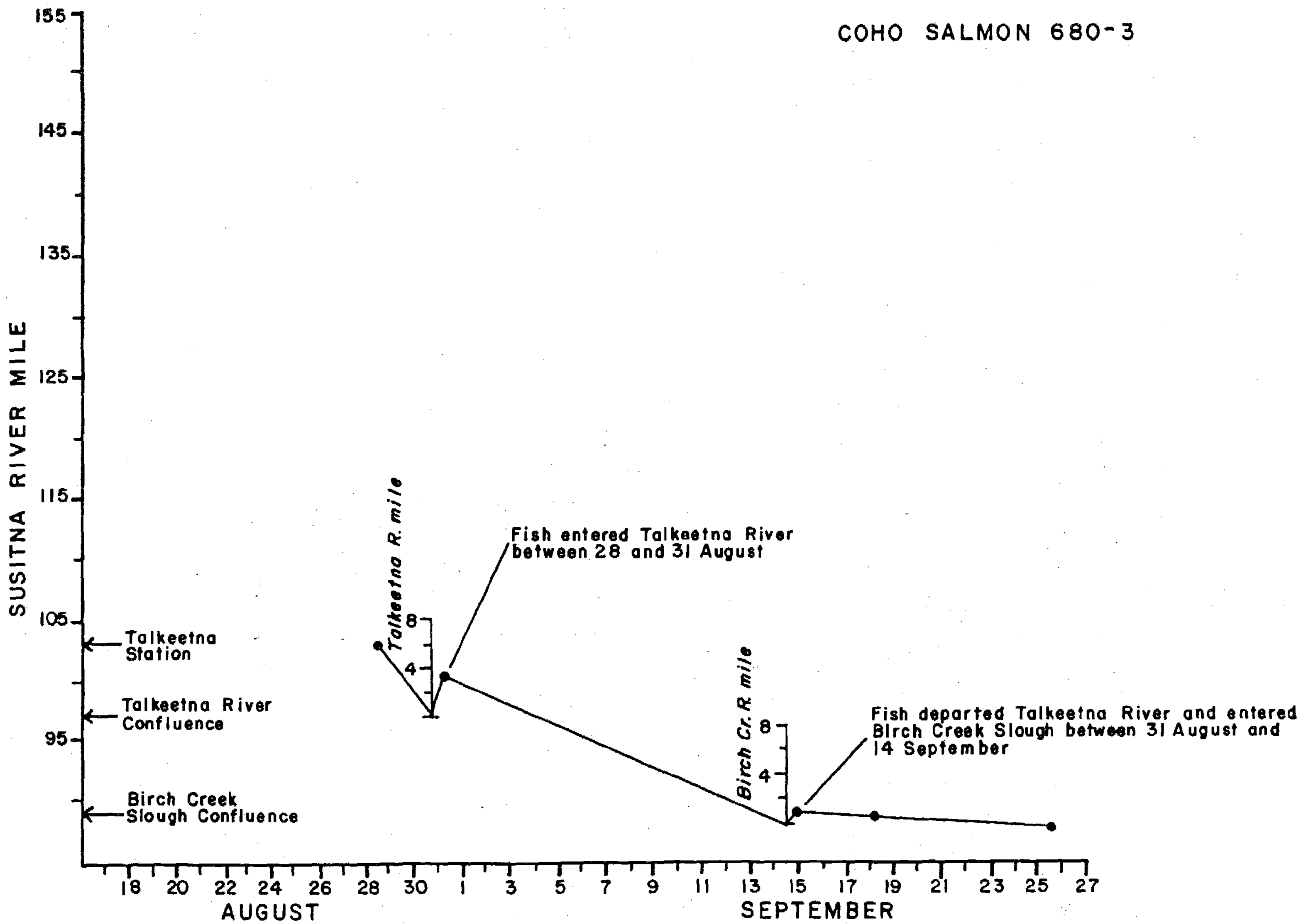
Coho Salmon, Radio Transmitter 680-3

Coho salmon 680-3 was tagged at Talkeetna Station (RM 103) August 28, 1982. Three days later it was detected at 2.9 miles upstream in the Talkeetna River (RM 97.0). Fish 680-3 was next encountered at Birch Creek Slough (RM 88.4) September 14. Aerial overflights September 18 and 25 established the fish at the same location. Fish 680-3 was last encountered October 4, 0.7 miles downstream at RM 87.7.

A graphic presentation of the movements of coho salmon 680-3 is provided in Appendix Figure 2-E-48.



Appendix Figure 2-E-47. Movement of radio tagged coho salmon 660-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-48. Movement of radio tagged coho salmon 680-3 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Coho Salmon, Radio Transmitter 700-1

Coho salmon 700-1 was tagged and released at Curry Station (RM 120) August 17, 1982. Sixteen hours following release it was encountered 1.8 miles upstream at RM 121.3. Fish 700-1 continued migrating upstream and was at the Indian River confluence (RM 138.6) August 21. It remained there through the following day. Enroute to the Indian River (RM 138.6) fish 700-1 moved upstream at varying speeds. The (upstream) migrational rates between consecutive telemetric positions less than and greater than five hours were 11.5 mpd and 7.4 mpd, respectively.

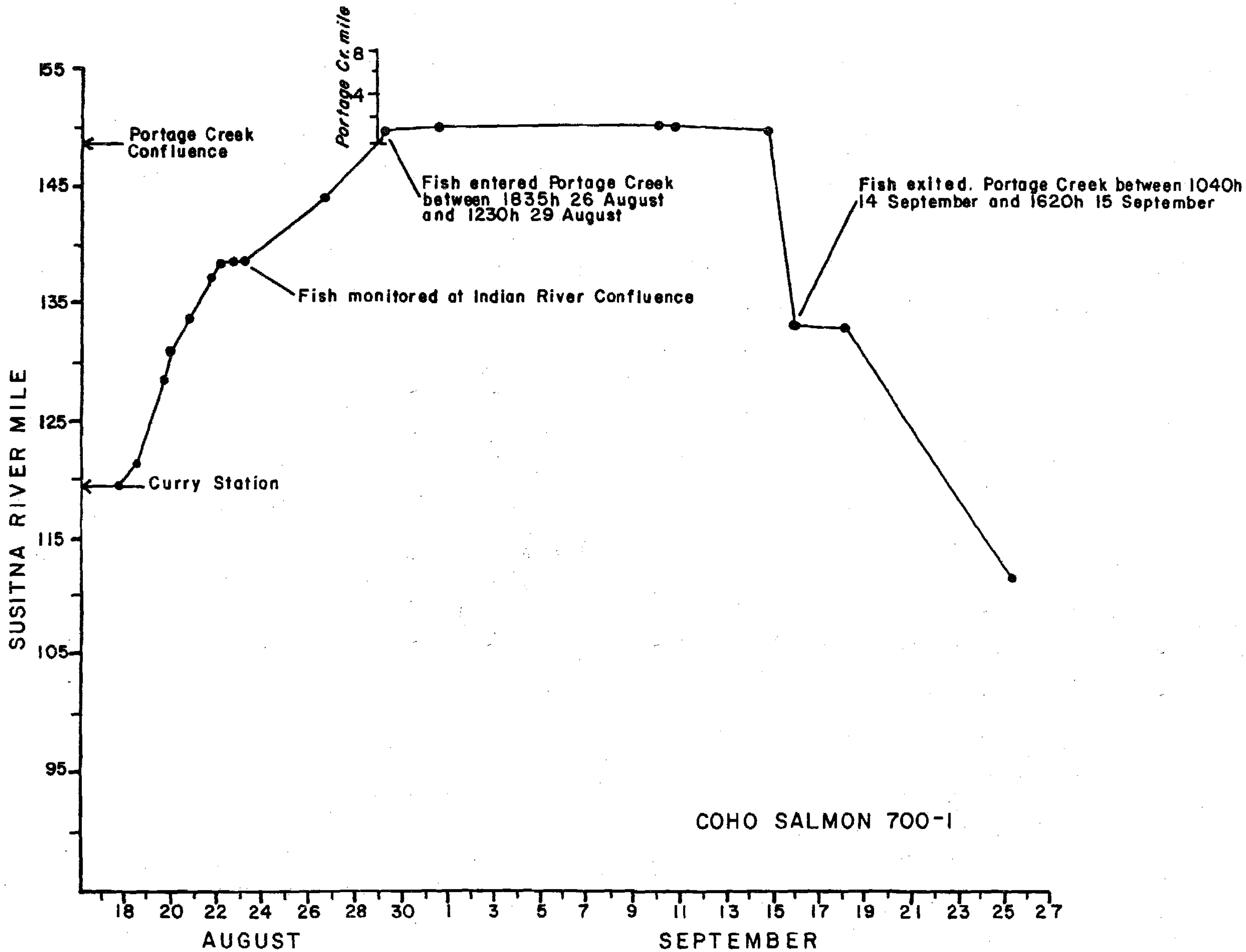
Between August 22 and 27, fish 700-1 departed the Indian River confluence (RM 138.6) and ascended to RM 144.4 where it was located August 26. It was next monitored 0.9 miles upstream in Portage Creek (RM 148.9) August 29. Two days later fish 700-1 was located 1.1 miles upstream in Portage Creek where it remained within 0.4 miles of this point through September 14.

The relatively rapid downstream movement of coho salmon 700-1 from Portage Creek at RM 148.8 to RM 111.5 indicates that the fish probably spawned in Portage Creek prior to September 15.

A graphic presentation of the movements of coho salmon 700-1 is provided in Appendix Figure 2-E-49.

Coho Salmon, Radio Transmitter 710-2

Coho salmon 710-2 was tagged at Talkeetna Station (RM 103) August 19, 1982.



Appendix Figure 2-E-49. Movement of radio tagged coho salmon 700-1 in the Susitna River drainage during August and September, Adult Anadromous Investigations, Su Hydro Studies, 1982.

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A week later it was last detected at 4.5 miles upstream in the Talkeetna River (RM 97.0). Numerous aerial flights of the Talkeetna River drainage did not detect this fish after August 26.

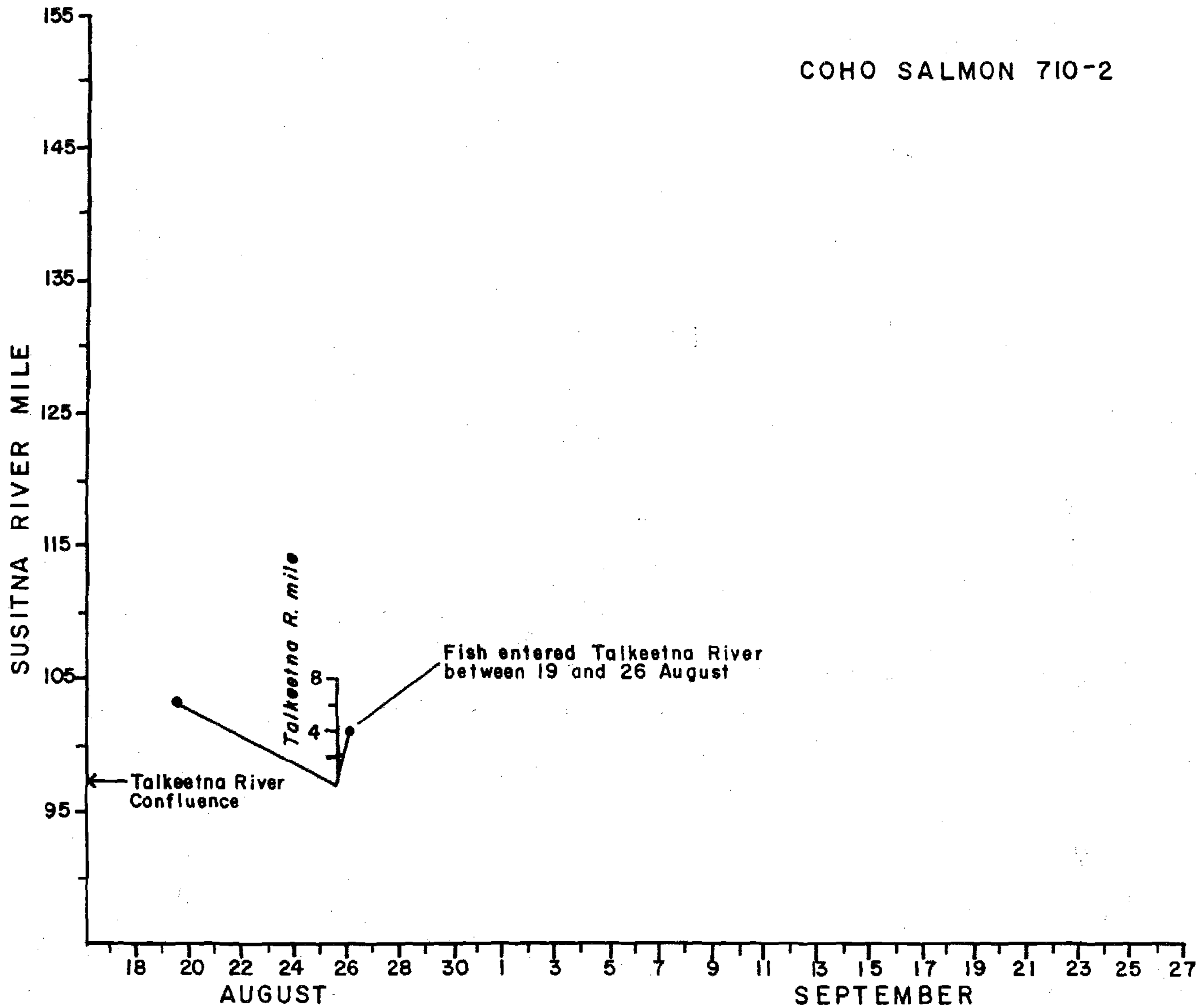
A graphic presentation of the movements of coho salmon 710-2 is provided in Appendix Figure 2-E-50.

Coho Salmon, Radio Transmitter 720-2

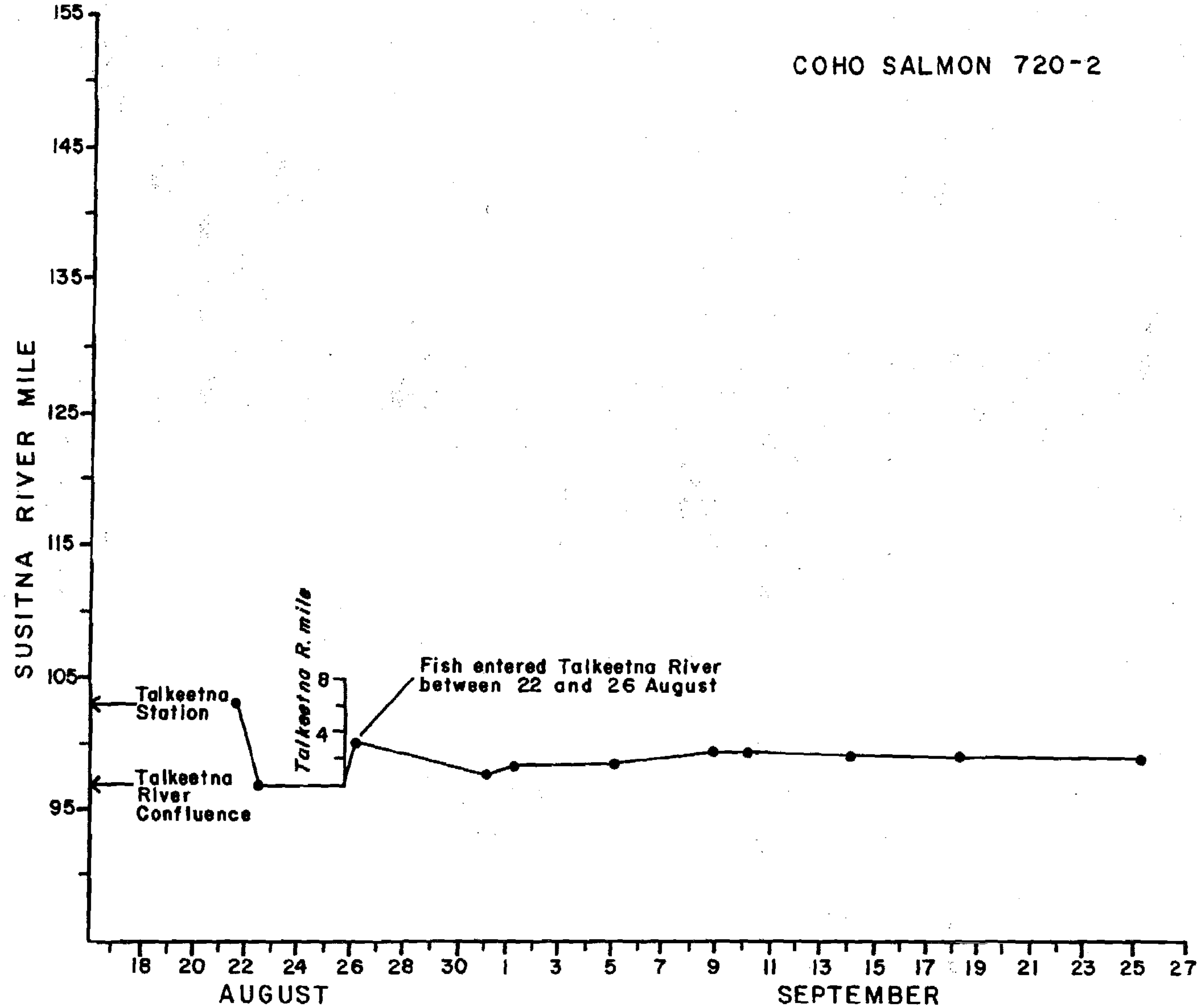
Coho salmon 720-2 was tagged August 21, 1983 at Talkeetna Station (RM 103). About 21 hours after being released the fish was encountered 6.0 miles downstream at the Talkeetna River confluence (RM 97.0).

Fish 720-2 ascended the Talkeetna River (RM 97.0) between August 22 and 26. It was next monitored 3.1 miles upstream in the Talkeetna River (RM 97.0) August 26; five days later it was detected 2.2. miles downstream from its former position. Aerial overflights established the fish at 1.6, 1.9 and 2.5 miles upstream in the Talkeetna River September 1, 5, and 9, respectively. Fish 720-2 was consistently encountered 2.5 miles upstream in the Talkeetna River (RM 97.0) during aerial overflights September 10, 14, 18 and 25.

A graphic presentation of the movements of coho salmon 720-2 is provided in Appendix Figure 2-E-51.



Appendix Figure 2-E-50. Movement of radio tagged coho salmon 710-2 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-E-51. Movement of radio tagged coho salmon 720-2 in the Susitna River drainage during August, Adult Anadromous Investigations, Su Hydro Studies, 1982.

APPENDIX 2-F

MAINSTEM SPAWNING SURVEYS

1. ELECTROSHOCKING SUMMARY
2. VISUAL AND GILL NET SUMMARY
3. EVALUATION OF TAG LOSS

Appendix Table 2-F-1. Electroshocking summary of mainstem Susitna River, Adult Anadromous Investigations, Su Hydro Studies, 1982.

				CATCH						
			DISTANCE	ADULT SALMON						BERING
RIVER MILE	GEOCODE	DATE	SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	CISCO OBSERVED
7.2	S15N07W28ADA	820907	50	0	0	0	0	0	0	-------
7.5	S15N07W27AAC	820907	100	0	0	0	0	0	0	-------
7.6	S15N07W27AAB	820803	20	0	0	2	0	0	0	-------
9.5	S15N07W07CDC	820828	40	0	0	0	0	0	0	-------
9.8	S15N07W10DDB	820824	60	0	0	0	0	0	0	-------
9.9	S15N07W07ABB	820809	60	0	0	0	0	1	0	-------
12.7	S15N07W12BBC	820824	150	0	0	0	0	0	0	-------
13.0	S16N07W32CDC	820829	50	0	0	0	0	0	0	-------
13.1	S15N07W01CDC	820824	25	0	0	0	0	0	0	-------
13.3	S15N07W01CBD	820824	50	0	0	0	0	0	0	-------
13.5	S15N07W01BBC	820803	150	0	1	1	0	0	0	-------
13.5	S15N07W01BBC	820824	30	0	0	0	0	0	1	-------
13.7	S15N07W01CBA	820912	100	0	0	0	0	0	1	-------
14.5	S16N07W35DDC	820907	20	0	0	0	0	0	0	-------
14.8	S16N07W35CAC	820907	30	0	0	0	0	0	0	-------
14.9	S16N07W35BDD	820912	200	0	0	0	0	0	0	-------
15.5	S16N07W28DDD	820809	20	0	0	0	0	0	0	-------
15.7	S16N07W27BCC	820912	50	0	0	0	0	0	0	-------
16.1	S16N07W22CCD	820912	70	0	0	0	0	0	0	-------
16.9	S16N07W22BCC	820829	30	0	0	0	0	0	0	-------
17.0	S16N07W22ADA	820907	150	0	0	0	0	0	0	-------
17.1	S16N07W21AAD	820912	150	0	0	0	0	0	0	-------
17.7	S16N07W14CCC	820907	50	0	0	0	0	0	0	-------
17.7	S16N07W15DCD	820818	50	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
17.7	S16N07W22AAB	820803	100	0	0	0	0	0	0	-------
17.9	S16N07W22BCD	820809	100	0	0	0	0	0	0	-------
19.0	S16N07W16DAD	820907	400	0	0	0	0	0	3	-------
19.0	S16N07W16DAD	820912	300	0	0	0	0	0	0	-------
20.0	S16N07W16AAA	820818	50	0	0	0	0	0	0	-------
20.4	S16N07W05DCD	820803	200	0	0	2	0	0	0	-------
20.7	S16N07W08DAC	820829	80	0	0	0	0	0	1	-------
21.4	S16N07W09ACA	820907	150	0	0	0	0	0	5	-------
21.5	S16N07W08ABB	820912	150	0	0	0	0	0	0	-------
22.1	S16N07W04CAB	820907	100	0	0	0	0	0	0	-------
22.4	S17N07W33DCB	820818	50	0	0	0	0	1	0	-------
22.7	S17N07W32DDA	820912	200	0	0	0	0	0	0	-------
22.8	S17N07W32DAD	820824	350	0	0	0	0	0	0	-------
23.5	S17N07W33BBB	820829	300	0	0	0	0	0	0	-------
23.8	S17N07W28CCC	820912	150	0	0	0	0	0	0	-------
23.8	S17N07W29DDA	820818	75	0	0	0	0	0	0	-------
23.8	S17N07W29DDC	820809	20	0	0	1	0	2	0	-------
23.8	S17N07W29DDC	820818	20	0	0	0	0	0	0	-------
23.8	S17N07W29DDD	820829	60	0	0	0	0	0	0	-------
23.9	S17N07W29DDC	820809	150	0	0	0	0	1	0	-------
23.9	S17N07W29DDD	820802	300	0	5	25	0	7	0	-------
24.1	S17N07W28CBC	820912	30	0	0	0	0	0	0	-------
24.8	S17N07W27BCB	820818	250	0	0	0	1	1	0	-------
24.9	S17N07W27BAC	820826	100	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
24.9	S17N07W27BBD	820906	150	0	0	0	0	0	2	-------
25.0	S17N07W27BBA	820818	80	0	0	0	0	0	0	-------
25.0	S17N07W27BBA	820824	200	0	0	0	0	0	4	-------
25.0	S17N07W27BBB	820906	150	0	0	0	0	0	0	-------
25.1	S17N07W22CCA	820826	200	0	0	0	0	0	0	-------
25.1	S17N07W22CCA	820912	60	0	0	0	0	0	0	-------
25.3	S17N07W22CDA	820906	50	0	0	0	0	0	3	-------
25.4	S17N07W22CAD	820826	40	0	0	0	0	0	0	-------
25.4	S17N07W22CDA	820906	20	0	0	0	0	0	0	-------
26.1	S17N07W23BCB	820826	20	0	0	0	0	0	0	-------
26.9	S17N07W23AAC	820818	200	0	0	0	0	0	0	-------
26.9	S17N07W23ADB	820803	20	0	2	0	0	0	0	-------
27.0	S17N07W23AAC	820826	100	0	0	0	0	0	0	-------
27.1	S17N07W14DCC	820909	100	0	0	0	0	0	1	-------
27.2	S17N07W14DCC	820826	100	0	0	0	0	0	1	-------
27.7	S17N07W13DCB	820818	50	0	0	0	0	0	0	-------
27.8	S17N07W13DBC	820818	20	0	0	0	0	0	0	-------
27.8	S17N07W13DCC	820804	150	0	0	2	0	6	0	-------
28.0	S17N07W13CBB	820826	20	0	0	0	0	0	0	-------
28.1	S17N05W13BDA	820826	75	0	0	0	0	0	0	-------
28.3	S17N07W13ABC	820826	75	0	0	0	0	0	0	-------
28.5	S19N07W13ACA	820904	40	0	0	0	0	0	0	-------
29.0	S17N06W18BBD	820804	200	0	0	1	0	1	0	-------
29.1	S17N06W07CCC	820904	200	0	0	0	0	0	4	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
29.2	S17N06W07CDD	820804	20	0	0	0	0	4	0	-------
29.2	S17N06W18BAB	820904	20	0	0	0	0	0	0	-------
29.3	S17N06W07CDC	820904	75	0	0	0	0	0	0	-------
29.5	S17N06W07DCD	820804	250	0	0	1	0	2	0	-------
29.7	S17N06W07DCA	820904	50	0	0	0	0	0	1	-------
30.3	S17N06W08BCD	820819	100	0	0	0	0	0	0	-------
30.3	S17N06W08BCD	820904	50	0	0	0	0	0	1	-------
31.0	S17N06W05CAB	820825	100	0	0	0	0	0	0	-------
31.0	S17N06W05CAC	820825	50	0	0	0	0	0	0	-------
31.0	S17N06W08AAB	820904	200	0	0	0	0	0	0	-------
31.1	S17N06W05CAB	820817	150	0	0	0	0	1	0	-------
31.1	S17N06W05CAB	820822	250	0	0	0	0	0	2	-------
31.1	S17N06W05CAB	820825	200	0	0	0	0	1	1	-------
31.1	S17N06W05CAB	820826	250	0	0	0	0	0	3	-------
31.1	S17N06W05CAB	820905	150	0	0	0	1	0	12	-------
31.1	S17N06W05CBA	820804	150	0	0	30	0	10	0	-------
31.1	S17N06W05CBA	820913	50	0	0	0	0	0	4	-------
31.2	S17N06W05CAB	820905	50	0	0	0	0	0	4	-------
31.2	S18N07W36CBB	820722	400	0	0	3	0	6	0	-------
31.3	S17N06W05ACB	820905	20	0	0	0	0	0	0	-------
31.3	S17N06W05BDD	820913	20	0	0	0	0	0	0	-------
31.4	S17N06W05DDA	820909	20	0	0	0	0	0	0	-------
31.5	S17N06W05ACD	820817	60	0	0	0	0	0	0	-------
31.5	S17N06W05ACD	820909	50	0	0	0	0	0	2	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
31.6	S17N06W05ACD	820825	20	0	0	0	0	0	0	-------
31.7	S17N06W04CAC	820904	25	0	0	0	0	0	0	-------
31.7	S17N06W05ADB	820909	30	0	0	0	0	0	0	-------
31.8	S17N06W04CAA	820727	400	0	0	150	0	0	0	-------
31.8	S17N06W04CAB	820808	50	0	0	1	0	0	0	-------
31.8	S17N06W04CAB	820819	300	0	0	0	4	3	0	-------
31.8	S17N06W04CAB	820825	200	0	0	0	1	0	0	-------
31.8	S17N06W04CAB	820904	75	0	0	0	0	0	0	-------
31.9	S17N06W04DBB	820825	150	0	0	0	0	0	0	-------
31.9	S18N06W32DCA	820817	150	0	0	0	0	0	0	-------
32.2	S17N06W32DDA	820822	30	0	0	0	0	0	0	-------
32.2	S18N06W32DAC	820913	30	0	0	0	0	0	0	-------
32.2	S18N06W32DCA	820905	100	0	0	0	0	0	0	-------
32.3	S18N06W32DDA	820905	20	0	0	0	0	0	0	-------
32.6	S18N06W33DCD	820819	100	0	0	0	0	1	0	-------
32.7	S18N06W32BDD	820901	75	0	0	0	0	0	0	-------
32.7	S18N06W33DCD	820904	75	0	0	0	0	0	0	-------
32.8	S18N06W33BBC	820913	60	0	0	0	0	0	1	-------
32.8	S18N06W33DCA	820819	25	0	0	0	0	0	0	-------
33.0	S18N06W33BCA	820819	20	0	0	0	0	0	0	-------
33.1	S18N06W33ACA	820909	150	0	0	0	0	0	3	-------
33.2	S18N06W33ABB	820819	30	0	0	0	0	0	0	-------
33.2	S18N06W33ABC	821004	200	0	0	0	0	0	1	-------
33.5	S18N06W33ABB	820905	150	0	0	0	1	0	1	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
33.6	S18N06W28CAC	821004	150	0	0	0	0	0	2	-------
33.7	S18N06W28CDC	820825	150	0	0	0	0	0	0	-------
33.8	S18N06W28CDC	820819	30	0	0	1	0	0	0	-------
33.8	S18N06W28CDC	820822	80	0	0	0	0	0	1	-------
33.9	S18N06W28CCD	820804	20	0	0	2	0	0	0	-------
34.0	S18N06W28BDA	821004	300	0	0	0	0	0	15	-------
34.0	S18N06W28CDA	820825	75	0	0	0	0	0	0	-------
34.1	S18N06W28BAD	821006	100	0	0	0	0	0	1	-------
34.2	S18N06W28BDD	820819	50	0	0	0	0	1	0	-------
34.2	S18N06W28BDD	820909	70	0	0	0	0	0	2	-------
34.5	S18N06W28DBB	820819	30	0	0	0	0	0	0	-------
34.9	S18N06W20DDA	820804	100	0	0	1	0	0	0	-------
34.9	S18N06W28ABC	820819	30	0	0	0	0	1	0	-------
35.0	S18N06W22CBC	820904	250	0	0	0	0	0	0	-------
35.0	S18N06W27BCB	820805	100	0	0	0	1	1	0	-------
35.1	S18N06W21DBB	820822	150	0	0	0	0	0	0	-------
35.1	S18N06W28ABC	820805	400	0	0	0	0	3	0	-------
35.2	S18N07W13DBA	820722	600	0	0	0	0	0	0	-------
35.3	S18N06W21CBD	820904	50	0	0	0	0	0	0	-------
35.3	S18N06W21DCB	820904	175	0	0	0	0	0	2	-------
35.3	S18N06W22DCC	820805	20	0	0	0	0	0	0	-------
35.4	S18N06W20ADA	820804	200	0	0	2	0	3	0	-------
35.4	S18N06W21CBA	820913	200	0	0	0	0	0	0	-------
35.4	S18N06W31CBA	820909	150	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
35.5	S18N06W21BCB	820822	200	0	0	0	0	0	0	-------
35.5	S18N06W21DBA	820805	300	0	0	1	1	4	0	-------
35.7	S18N06W21ADB	820904	200	0	0	0	0	1	3	-------
36.0	S18N06W22BBB	820819	50	0	0	0	1	0	0	-------
36.1	S18N06W22BBB	820805	30	0	0	1	1	0	0	-------
36.1	S18N06W22BBB	820821	60	0	0	0	0	0	0	-------
36.1	S18N06W22BBB	820904	150	0	0	0	0	1	1	-------
36.2	S18N06W16CDA	820909	100	0	0	0	0	0	0	-------
36.3	S18N06W16BBC	820722	500	0	0	0	0	0	0	-------
36.5	S18N06W15CBA	820805	75	0	0	1	2	3	0	-------
36.5	S18N06W15CBC	820901	100	0	0	0	0	0	0	-------
36.8	S18N06W09CDA	820722	150	0	0	0	0	0	0	-------
37.0	S18N06W15BBA	820909	100	0	0	0	0	0	0	-------
37.1	S18N06W15BAB	820821	40	0	0	0	1	0	1	-------
37.2	S18N06W11AAB	820804	100	0	0	4	0	0	0	-------
37.5	S18N06W10DBD	820821	20	0	0	0	0	0	0	-------
37.6	S18N06W10DDC	820905	100	0	0	0	0	0	0	-------
37.8	S19N06W10DAB	820908	30	0	0	0	0	0	0	-------
38.1	S18N06W10ADD	820722	350	0	0	0	0	0	0	-------
38.2	S18N06W11BDC	820821	30	0	0	0	0	1	0	-------
38.3	S18N06Q11CBD	820905	100	0	0	0	0	0	2	-------
38.3	S18N06W03DCB	820804	30	0	0	0	0	0	0	-------
38.3	S18N06W11BDC	820722	200	0	3	50	0	5	0	-------
38.4	S18N06W03DDB	820804	50	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
38.4	S18N06W11BDC	820805	100	0	0	2	2	5	0	-------
38.5	S18N06W09DBD	820722	600	0	0	0	0	0	0	-------
39.0	S18B06W11AAB	820722	500	0	0	0	0	0	0	-------
39.0	S18N06W11AAB	820727	200	0	0	25	0	0	0	-------
39.0	S18N06W11AAB	820805	300	0	0	10	0	0	0	-------
39.1	S18N06W02DCA	820905	100	0	0	0	0	0	2	-------
39.2	S18N06W02DCB	820806	250	0	0	0	0	1	0	-------
39.3	S18N06W02DBA	820905	50	0	0	0	0	0	0	-------
39.3	S18N06W02DBD	820905	200	0	0	0	0	0	5	-------
39.4	S18N06W02DAC	820821	120	0	0	0	0	1	0	-------
40.0	S18N06W02AB	820722	1000	0	2	5	0	0	0	-------
40.0	S19N06W35DBB	820905	200	0	0	0	0	0	0	-------
40.1	S18N06W02AAB	820822	300	0	0	0	0	0	0	-------
40.5	S19N06W35DAB	821005	200	0	0	0	0	0	1	-------
40.6	S19N06W11CCB	820728	900	0	0	0	0	1	0	-------
40.6	S19N06W35BDA	820722	500	0	5	20	0	5	0	-------
40.6	S19N06W35BDA	820728	600	0	0	30	0	6	0	-------
41.1	S19N06W26DBA	820905		0	0	0	0	0	0	-------
41.2	S19N06W35AAD	820905	200	0	0	0	0	1	4	-------
42.1	S19N06W25ABC	820905	150	0	0	0	0	0	1	-------
42.5	S19N06W25ABB	820806	300	0	0	3	6	12	0	-------
42.5	S19N06W25ABB	820822	60	0	0	0	1	0	0	-------
42.6	S19N06W25ABB	820821	85	0	0	0	0	1	0	-------
43.0	S19N06W24CAA	820908	75	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
43.2	S19N06W24DDA	820821	30	0	0	0	0	0	0	-------
43.2	S19N06W24DDA	820911	300	0	0	0	0	0	0	-------
43.4	S19N06W24BAD	820806	120	0	0	0	0	0	0	-------
43.4	S19N06W24BCA	820908	20	0	0	0	0	0	0	-------
43.5	S18N05W20CAC	820923	150	0	0	0	0	0	0	-------
43.5	S19N05W19CCA	820821	15	0	0	0	0	0	1	-------
43.5	S19N05W19CDC	820805	300	0	0	1	0	2	0	-------
43.5	S19N06W24BAD	820822	90	0	0	0	0	0	0	-------
43.5	S19N06W24BDB	820908	60	0	0	0	0	0	0	-------
43.6	S19N06W24BAC	820908	100	0	0	0	0	0	0	-------
43.7	S19N05W19DBA	820821	500	0	0	0	0	0	0	-------
43.9	S19N06W19CAC	820911	150	0	0	0	0	0	0	-------
44.0	S19N05W13DCB	820908	30	0	0	0	0	0	0	-------
44.0	S19N06W19DBA	820911	100	0	0	0	0	0	0	-------
44.2	S19N05W20DBC	820805	300	0	0	4	2	4	0	-------
44.3	S19N06W20DBB	820911	100	0	0	0	0	0	0	-------
44.4	S19N05W19ABA	820901	70	0	0	0	0	0	0	-------
44.5	S19N05W09DDC	820821	150	0	0	0	0	0	0	-------
44.5	S19N06W13ACB	820822	90	0	0	0	0	0	0	-------
44.7	S19N05W20ADB	820923	200	0	0	0	0	0	0	-------
44.8	S19N05W21BDC	820727	325	0	1	2	0	0	0	-------
44.8	S19N06W12DBC	820806	100	0	0	0	2	0	0	-------
45.0	S19N05W12DBD	820908	40	0	0	0	0	0	0	-------
45.0	S19N05W21BCB	820831	50	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH						BERING CISCO OBSERVED
				ADULT SALMON						
				CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	
45.0	S19N06W12DAC	820822	250	0	0	0	3	1	0	-------
45.2	S19N05W17DDD	820805	200	0	0	0	2	0	0	-------
45.3	S19N05W20ADC	820831	100	0	0	1	0	0	0	-------
45.4	S19N05W12DAA	820908	100	0	0	0	0	0	3	-------
45.5	S19N05W12ADD	820908	60	0	0	0	1	0	0	-------
45.5	S19N06W12DBD	820808	40	0	0	0	0	1	0	-------
45.7	S19N05W17DAD	820831	100	0	0	0	0	0	1	-------
45.8	S19N05W07BAB	820908	100	0	0	0	0	0	1	-------
45.8	S19N05W17BAB	820901	30	0	0	0	0	0	0	-------
45.8	S19N06W01DDD	820806	75	0	0	0	0	0	0	-------
45.8	S19N06W01DDD	820808	75	0	0	0	0	23	0	-------
46.0	S19N05W04DDB	820821	20	0	0	0	0	0	0	-------
46.1	S19N05W16ACD	820911	20	0	0	0	0	0	0	-------
46.2	S19N05W16ACB	820911	20	0	0	0	0	0	0	-------
46.3	S19N05W16BCA	820805	30	0	0	2	0	0	0	-------
46.3	S20N05W32ABA	820908	30	0	0	0	0	0	0	-------
46.5	S19N05W06CAB	820808	250	0	0	0	1	5	0	-------
46.6	S19N05W07BAC	821005	200	0	0	0	0	0	4	-------
46.8	S19N05W09DAB	820911	50	0	0	0	0	0	0	-------
46.9	S19N05W03BCB	820831	100	0	0	0	0	0	0	-------
47.0	S19N05W06ADB	820808	25	0	0	0	2	1	0	-------
47.1	S19N05W04DDB	820911	40	0	0	0	0	0	0	-------
47.1	S19N05W06ABC	820908	50	0	0	0	0	0	0	-------
47.3	S19N05W05DAA	820901	30	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
47.4	S19N06W06ABA	820806	20	0	0	0	0	0	0	-------
47.5	S19N05W04DDB	820805	100	0	0	1	1	0	0	-------
47.7	S19N05W05BBA	820822	75	0	0	0	0	0	0	-------
47.8	S20N05W32CCC	820808	100	0	0	0	0	2	0	-------
47.9	S20N05W32CCA	820908	300	0	0	0	1	0	1	-------
48.2	S20N05W32BCA	820828	60	0	0	0	0	0	0	-------
48.3	S20N05W32BAD	820822	100	0	0	0	3	0	0	-------
48.5	S20N05W34CCD	820806	50	0	0	0	0	0	0	-------
48.7	S20N05W32ABC	820908	40	0	0	0	0	0	1	-------
49.0	S20N05W29DCD	820806	40	0	0	0	0	0	0	-------
49.0	S20N05W33BDD	820901	100	0	0	0	0	0	0	-------
49.0	S20N05W34CCA	820911	150	0	0	0	0	0	0	-------
49.2	S20N05W28CCB	820902	75	0	0	0	0	0	0	-------
49.2	S20N05W29DDD	820808	100	0	0	1	0	0	0	-------
49.2	S20N05W33DAB	820911	80	0	0	0	0	0	0	-------
49.3	S20N05W28CBC	820823	50	0	0	0	0	0	0	-------
49.7	S20N05W28CBD	820806	100	0	0	0	1	0	0	-------
49.8	S20N05W28BDC	820823	20	0	0	0	0	0	0	-------
50.1	S20N05W27DCD	820806	100	0	0	2	0	0	0	-------
50.2	S20N05W28ADB	820911	200	0	0	0	0	0	1	-------
50.4	S20N05W21DDC	820901	75	0	0	0	0	0	0	-------
50.5	S20N05W20ADA	820728	400	0	1	4	0	1	0	-------
50.5	S20N05W23BCD	820727	250	0	0	30	0	0	0	-------
50.5	S20N05W26AAD	820625	400	12	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
50.5	S20N05W27AAD	820727	170	0	0	0	0	0	0	-------
50.5	S20N05W27ADD	820806	30	0	0	0	0	0	0	-------
51.0	S20N05W21BBC	820823	150	0	0	0	0	0	0	-------
51.0	S20N05W27DCD	820806	100	0	0	50	10	0	0	-------
51.5	S20N05W21ABA	820823	20	0	0	0	0	0	0	-------
52.1	S20N05W14BCC	820923	200	0	0	0	0	0	0	-------
52.1	S20N05W16ABA	820823	30	0	0	0	0	0	0	-------
52.2	S20N05W22ABB	820901	100	0	0	0	0	0	1	-------
52.3	S20N05W16BDD	820911	30	0	0	0	0	0	0	-------
52.6	S20N05W16ACD	820902	100	0	0	0	0	0	0	-------
52.7	S20N05W15DDD	820901	100	0	0	0	0	0	0	-------
52.7	S20N05W16BAA	820902	40	0	0	0	0	0	0	-------
52.9	S20N05W14CCA	820727	120	0	3	0	0	0	0	-------
53.0	S20N05W14BCC	820901	30	0	0	0	0	0	0	-------
53.0	S20N05W16ABA	820902		0	0	0	0	0	0	-------
53.1	S20N05W09CDA	820902	150	0	0	0	0	0	0	-------
53.1	S20N05W09DCC	820808	400	0	0	3	7	5	0	-------
53.1	S20N05W11CAD	820923	150	0	0	0	0	0	0	-------
53.3	S20N05W09CDA	820902	30	0	0	0	0	0	0	-------
53.3	S20N05W09DCB	820823	150	0	0	0	0	1	3	-------
53.3	S20N05W11ACC	820923	200	0	0	0	0	0	0	-------
53.7	S20N05W09BDD	820902	100	0	0	0	0	0	0	-------
53.9	S20N05W09ADB	820823	50	0	0	0	2	0	0	-------
53.9	S20N05W14BBC	820901	50	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
			DISTANCE	ADULT SALMON						BERING
RIVER			SHOCKED						BERING	CISCO
MILE	GEOCODE	DATE	(YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	CISCO	OBSERVED
54.0	S20N05W09ABA	820823	90	0	0	0	2	1	0	-------
54.0	S20N05W11CDD	820901		0	0	0	0	0	0	-------
54.1	S20N05W03CCD	820823	80	0	0	0	1	0	0	-------
54.3	S20N05W03CAC	820823	150	0	0	0	0	0	0	-------
54.5	S20N05W03CAD	820902	200	0	0	0	0	0	0	-------
54.9	S20N05W03CAC	820902		0	0	0	0	0	0	-------
55.0	S20N05W03BCB	820902	50	0	0	0	0	0	0	-------
55.9	S21N05W34DDA	820902	30	0	0	0	0	0	0	-------
56.0	S21N05W34DBB	820828	80	0	0	0	0	0	0	-------
56.2	S21N05W34DAC	821005	200	0	0	0	0	0	1	-------
56.2	S21N05W34DCC	820808	4000	0	0	6	6	2	0	-------
56.5	S21N05W35BBC	820828	150	0	0	0	0	0	1	-------
57.0	S21N05W26CBD	820828	30	0	0	0	0	0	0	-------
57.0	S21N05W36BDC	820727		0	0	0	0	0	0	-------
57.1	S21N05W36BDC	820625	3696	27	0	0	0	0	0	-------
57.4	S21N05W27DBD	820728	350	0	0	50	0	30	0	-------
57.5	S17N05W26BDB	820828	30	0	0	0	0	0	0	-------
57.9	S17N05W26BAA	820828	60	0	0	0	0	0	0	-------
58.0	S21N05W26ACD	820808	20	0	0	0	0	1	0	-------
58.5	S21N05W23CCB	820828	200	0	0	0	0	0	0	-------
59.0	S21N05W23CBC	820828	30	0	0	0	0	0	0	-------
59.5	S21N05W13ACA	820602	250	0	0	0	0	0	0	-------
59.5	S21N05W23ADB	820828	20	0	0	0	0	0	0	-------
59.5	S21N05W24DBA	820625	440	1	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
59.5	S21N05W24DBA	820727	100	0	0	0	0	0	0	-------
59.6	S21N05W23AAD	820828	100	0	0	0	1	0	0	-------
59.7	S21N05W23ABB	820828	80	0	0	0	0	0	0	-------
59.8	S21N05W14CDA	820828		0	0	0	0	0	0	-------
59.8	S21N05W24BAB	820828	20	0	0	0	0	0	0	-------
59.9	S21N05W24BAC	820808	250	0	0	1	2	1	0	-------
60.0	S21N05W14DDA	820828	150	0	0	0	0	0	0	-------
60.0	S21N05W14DDB	820828	80	0	0	0	0	0	0	-------
60.1	S21N05W13CAC	821005	200	0	0	0	0	0	0	-------
60.1	S21N05W13CCA	820828	30	0	0	0	0	0	0	-------
60.3	S21N05W13BDD	820828	20	0	0	0	0	0	0	-------
60.5	S21N05W13ACA	820524	1000	1	0	0	0	0	0	-------
60.6	S21N05W13CAB	820828	50	0	0	0	0	1	0	-------
61.0	S21N05W13AAA	820602	100	0	0	0	0	0	0	-------
61.0	S21N05W13AAA	820803	50	0	0	0	0	0	0	-------
61.3	S21N05W12DCA	820920	500	0	0	0	0	0	0	-------
61.3	S21N05W12DCC	820810	400	0	0	3	29	5	0	-------
61.4	S21N05W12DCC	821002	350	0	0	0	0	0	1	-------
61.5	S21N05W12DBB	820904	400	0	0	0	2	1	0	-------
61.5	S21N05W12DBD	820824	350	0	0	0	1	0	0	-------
61.8	S21N05W12BAA	820821	1000	0	0	0	2	3	0	-------
62.0	S21N05W12AAB	820904	300	0	0	0	0	0	0	-------
62.0	S21N05W12DBD	820907	600	0	0	0	0	0	2	-------
62.0	S21N05W12DBD	820920	400	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH						
				ADULT SALMON					BERING CISCO	BERING CISCO OBSERVED
				CHINOOK	SOCKEYE	PINK	CHUM	COHO		
62.0	S21N05W12DBD	820925	600	0	0	0	0	0	0	-------
62.0	S21N05W12DBD	821002	300	0	0	0	0	0	1	-------
62.0	S21N05W12DBD	821008	500	0	0	0	0	0	0	-------
62.3	S21N05W12DAB	821002	350	0	0	0	0	0	2	-------
62.8	S21N04W06CAB	820904	150	0	0	0	1	0	0	-------
62.8	S21N05W01CDD	820811	750	0	0	1	1	3	0	-------
62.8	S21N05W01CDD	820821	200	0	0	0	0	1	0	-------
62.8	S21N05W01CDD	820824	400	0	0	0	1	3	0	-------
63.0	S21N04W06BDC	820907	300	0	0	0	0	4	0	-------
63.1	S21N05W06BDB	820823	200	0	0	0	0	3	0	-------
63.2	S21N05W02ADB	820920	400	0	0	0	0	0	0	-------
63.2	S22N05W36DC	820811	350	0	0	0	5	0	0	-------
63.2	S22N05W36DC	820821	250	0	0	0	1	0	0	-------
63.2	S22N05W36DC	820824	250	0	0	0	1	1	0	-------
63.3	S21N05W01BAB	820903	600	0	0	0	0	0	0	-------
63.4	S22N05W36CDC	820920	200	0	0	0	0	0	0	-------
63.4	S22N05W36CDC	820927	200	0	0	0	0	0	0	-------
63.4	S22N05W36CDC	821008	250	0	0	0	0	0	2	-------
64.0	S21N05W01BAB	820824	200	0	0	0	4	1	0	-------
64.0	S22N05W35CAD	820811	250	0	0	0	0	0	0	-------
64.5	S21N04W31CCC	821002	250	0	0	0	0	0	0	-------
64.7	S22N05W35BDA	820903	300	0	0	0	0	0	0	-------
64.7	S22N05W35BDA	820926	300	0	0	0	0	0	0	-------
64.9	S22N05W35ABB	820920	350	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
65.0	S21N05W35BBA	820821	250	0	0	0	0	1	0	-------
65.0	S22N05W26CDC	821002	400	0	0	0	0	0	2	-------
65.0	S22N05W35BAB	820804	4000	0	0	130	72	13	0	-------
65.6	S22N05W26CBB	820920	450	0	0	0	0	1	0	-------
65.6	S22N05W26CBB	821008	200	0	0	0	0	0	0	-------
65.6	S22N05W27ADC	820712	600	0	0	0	0	0	0	-------
65.6	S22N05W27ADC	820804	400	0	0	5	0	4	0	-------
65.6	S22N05W27ADC	820811	500	0	0	0	0	0	0	-------
65.6	S22N05W27ADC	820821	300	0	0	0	0	0	0	-------
65.8	S22N04W30BCC	820803	300	0	1	200	30	0	0	-------
65.8	S22N04W30BCC	820925	300	0	0	0	0	0	0	-------
65.8	S22N05W25ADB	820907	700	0	0	0	0	0	0	-------
66.1	S22N04W30BAB	820712	600	0	0	0	0	0	0	-------
66.1	S22N04W30BAB	820802	250	0	0	999	200	0	0	-------
66.1	S22N04W30BAB	820810	200	0	0	250	250	0	0	-------
66.1	S22N04W30BAB	820823	150	0	0	0	200	50	0	-------
66.1	S22N04W30BAB	820925	250	0	0	0	0	0	0	-------
66.1	S22N05W22DAB	820811	1200	0	0	0	0	4	0	-------
66.1	S22N05W22DAB	820821	800	0	0	0	0	0	0	-------
66.3	S22N05W23CCD	820903	300	0	0	0	0	0	0	-------
66.4	S22N05W26ACC	820903	250	0	0	0	1	0	0	-------
66.4	S22N05W26BAA	820824	700	0	0	0	4	5	0	-------
66.5	S22N05W23DBA	820920	200	0	0	0	0	0	0	-------
66.6	S22N05W24DAA	820803	200	0	0	5	20	1	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
66.6	S22N05W24DAA	820925	200	0	0	0	0	0	0	-------
66.7	S22N05W23DBA	820920	400	0	0	0	0	0	0	-------
66.7	S22N05W23DBA	821008	300	0	0	0	0	0	0	-------
66.8	S22N05W24DAA	820823	350	0	0	0	1	0	0	-------
67.0	S22N05W23BAB	820811	250	0	0	0	0	0	0	-------
67.2	S22N05W13ADB	820920	200	0	0	0	0	0	0	-------
67.2	S22N05W23ADB	820824	700	0	0	0	0	0	0	-------
67.3	S22N05W23AAA	820821	350	0	0	0	1	0	0	-------
67.5	S22N05W24ABA	821002	250	0	0	0	0	0	0	-------
67.7	S22N05W13CCC	821008	150	0	0	0	0	0	0	-------
68.2	S22N05W23DCD	820904	600	0	0	0	0	0	0	-------
68.4	S22N05W14BCA	820712	150	0	0	0	0	0	0	-------
68.4	S22N05W14BCA	820804	2000	0	0	110	15	8	0	-------
68.5	S22N05W11DCC	820811	250	0	0	0	0	0	0	-------
68.5	S22N05W12DAB	820904	1500	0	0	0	1	0	0	-------
68.5	S22N05W12DCB	820823	350	0	0	0	3	0	0	-------
68.5	S22N05W12DCD	820712	200	0	0	0	0	0	0	-------
68.5	S22N05W12DCD	820810	100	0	0	0	4	3	0	-------
68.5	S22N05W13DBD	820904	350	0	0	0	0	0	0	-------
68.5	S22N05W13DBD	820907	500	0	0	0	0	0	0	-------
68.5	S22N05W13DBD	820918	900	0	0	0	0	0	0	-------
68.6	S22N05W14ADA	820803	450	0	0	40	1	1	0	-------
68.6	S22N05W14ADA	820810	500	0	0	0	2	1	0	-------
68.6	S22N05W14ADA	820821	400	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
68.6	S22N05W14ADA	820824	600	0	0	0	0	1	0	-------
68.7	S22N05W14ADA	820903	850	0	0	0	0	0	0	-------
68.7	S22N05W14ADA	820920	800	0	0	0	0	0	0	-------
68.7	S22N05W14ADA	820926	350	0	0	0	0	0	0	-------
68.8	S22N05W13DBA	821002	200	0	0	0	0	0	0	-------
69.0	S22N05W12DAB	820819	300	0	0	0	2	0	0	-------
69.1	S22N05W12DAB	820803	350	0	0	30	103	1	0	-------
69.1	S22N05W12DAB	820810	500	0	0	4	15	1	0	-------
69.1	S22N05W12DAB	820925	350	0	0	0	0	0	0	-------
69.4	S22N05W12ADB	820810	400	0	0	0	2	0	0	-------
69.5	S22N05W01DDC	820819	1000	0	0	0	0	1	0	-------
70.0	S22N05W01DAD	820823	1000	0	0	0	0	1	0	-------
70.2	S22N05W01CDA	820821	600	0	0	0	1	1	0	-------
70.2	S22N05W01DDA	821002	1800	0	0	0	0	0	0	-------
70.7	S22N05W01DAA	820824	750	0	0	0	1	2	0	-------
71.0	S22N05W01ADD	820907	1250	0	0	0	0	0	0	-------
71.0	S23N05W36CAC	820804	2000	0	2	220	165	8	0	-------
71.0	S23N05W36CCB	821002	300	0	0	0	0	0	0	-------
71.3	S23N04W30CCB	820810	2000	0	0	2	9	1	0	-------
71.3	S23N05W36BAD	820821	700	0	0	0	22	11	0	-------
71.3	S23N05W36CCD	820904	1000	0	0	0	1	0	0	-------
71.3	S23N05W36CCD	820920	500	0	0	0	0	0	0	-------
71.3	S23N05W36CCD	820926	1000	0	0	0	0	0	0	-------
71.3	S23N05W36CCD	820927	1000	0	0	0	0	0	2	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
71.4	S23N05W35DCC	820824	400	0	0	0	0	0	0	-------
71.5	S23N04W30CCB	820918	1800	0	0	0	0	0	0	-------
71.5	S23N04W31BCC	820904	500	0	0	0	1	1	0	-------
71.5	S23N04W31BCC	820913	350	0	0	0	0	0	0	-------
71.5	S23N05W25DBC	821008	600	0	0	0	0	0	1	-------
71.8	S23N04W30CCB	820823	800	0	0	2	1	0	0	-------
71.8	S23N04W30CCB	820907	1200	0	1	0	1	0	0	-------
72.0	S23N04W30CC	820609	880	0	0	0	0	0	0	-------
72.0	S23N04W31BBC	820609	340	0	0	0	0	0	0	-------
72.0	S23N04W31BBC	820819	1700	0	0	2	12	1	0	-------
72.0	S23N05W35DBC	820803	20	0	0	50	0	0	0	-------
72.0	S23N05W35DBC	820811	60	0	0	8	0	1	0	-------
72.0	S23N05W35DBC	820824	600	0	0	0	0	0	0	-------
72.0	S23N05W35DBC	820927	100	0	0	0	0	2	0	-------
72.5	S22N05W25CDC	820821	300	0	0	0	0	0	0	-------
72.5	S23N05W25AAA	820803	5984	0	2	150	100	0	0	-------
72.5	S23N05W25AAA	820810	300	0	0	2	1	0	0	-------
72.5	S23N05W25AAA	820823	500	0	0	1	0	0	0	-------
72.5	S23N05W25AAA	820904	900	0	0	0	0	0	0	-------
72.5	S23N05W25AAA	820907	800	0	0	0	1	0	0	-------
72.5	S23N05W25AAA	820914	1800	0	0	0	1	0	0	-------
72.5	S23N05W25AAA	820925	2000	0	0	0	0	0	0	-------
72.5	S23N05W25ACB	820920	800	0	0	0	1	0	0	-------
72.5	S23N05W25CBB	820811	700	0	0	3	25	14	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
72.5	S23N05W25CBB	820821	300	0	0	0	1	0	0	-------
72.6	S23N04W30BBC	821002	1600	0	0	0	0	0	0	-------
72.7	S23N05W26AAD	821008	400	0	0	0	0	0	3	-------
72.8	S23N05W25CCD	820903	500	0	0	0	0	0	0	-------
72.8	S23N05W25CCD	820926	500	0	0	0	0	0	0	-------
72.9	S23N04W30BCB	820712	30	3	0	0	0	0	0	-------
73.0	S23N04W30BBB	820821	250	0	0	0	10	0	0	-------
73.0	S23N04W30BCB	820904	150	0	0	0	0	0	0	-------
73.0	S23N05W25BBD	820821	600	0	0	1	0	0	0	-------
73.1	S23N04W30BBB	820609	740	0	0	0	0	0	0	-------
73.1	S23N04W30BBB	820712	400	12	0	0	0	0	0	-------
73.1	S23N04W30BBB	820803	240	0	0	40	12	0	0	-------
73.1	S23N04W30BBB	820819	100	0	0	3	206	3	0	-------
73.1	S23N04W30BBB	820904	100	0	0	0	0	0	0	-------
73.1	S23N04W30BBB	820925	240	0	0	0	0	0	0	-------
73.2	S23N04W30BBB	820810	200	0	0	1	3	1	0	-------
73.2	S23N04W30BBB	820819	200	0	0	0	4	3	0	-------
73.2	S23N04W30BBB	820918	350	0	0	0	0	0	0	-------
73.2	S23N05W25ABC	820927	300	0	0	0	0	0	2	-------
73.4	S23N05W25BBA	820824	700	0	0	0	1	3	0	-------
73.7	S23N05W24CCC	820821	400	0	0	0	1	0	0	-------
73.8	S23N04W19CCC	820904	200	0	0	0	2	0	0	-------
73.8	S23N04W19CCC	820914	250	0	0	0	0	0	0	-------
73.8	S23N05W24CBD	820920	600	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
73.8	S23N05W24CBD	821008	200	0	0	0	0	0	0	-------
74.2	S23N05W24ABB	820811	400	0	0	0	6	2	0	-------
74.2	S23N05W24ABB	820819	200	0	0	0	0	0	0	-------
74.2	S23N05W24ABB	820926	400	0	0	0	0	0	0	-------
74.2	S23N05W24CCB	821002	200	0	0	0	0	0	5	-------
74.2	S24N05W24ABC	820821	300	0	0	0	2	4	0	-------
74.3	S23N05W24ABB	820903	1400	0	0	0	0	0	0	-------
74.3	S23N05W24BAD	820824	500	0	0	0	1	9	0	-------
74.4	S23N05W13CCD	820609	340	0	0	0	0	0	0	-------
74.4	S23N05W13CCD	820712	400	0	0	0	0	0	0	-------
74.4	S23N05W13CCD	820811	300	0	0	0	4	4	0	-------
74.4	S23N05W13CCD	820819	500	0	0	0	0	3	0	-------
74.4	S23N05W13CCD	820823	300	0	0	0	0	0	0	-------
74.4	S23N05W13CCD	820903	350	0	0	0	1	0	0	-------
74.4	S23N05W13CCD	820906	200	0	0	0	0	0	0	-------
74.7	S23N05W13DCD	820810	350	0	0	0	0	1	0	-------
74.7	S23N05W13DCD	820907	600	0	0	0	0	0	0	-------
74.7	S23N05W13DCD	820920	700	0	0	0	0	0	0	-------
74.7	S23N05W13DCD	820926	350	0	0	0	0	0	0	-------
74.8	S23N05W13BBA	820609	880	0	2	0	0	0	0	-------
74.8	S23N05W13DCD	820904	250	0	0	0	0	0	0	-------
74.8	S23N05W13DCD	820913	400	0	0	0	1	0	3	-------
74.9	S23N05W13BD	820914	1200	0	0	0	1	0	4	-------
75.0	S23N05W13DCC	820918	300	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
75.0	S23N05W13DCC	821002	450	0	0	0	0	0	5	-------
75.0	S23N05W13DCD	820927	1500	0	0	0	0	0	0	-------
75.0	S23N05W13DCD	821008	300	0	0	0	0	0	4	-------
75.0	S23N05W24ABB	820804	4000	0	0	450	225	10	0	-------
75.0	S23N05W24ABB	820811	450	0	0	1	17	12	0	-------
75.0	S23N05W24ABB	820823	300	0	0	0	2	0	0	-------
75.0	S23N05W24ABB	820903	500	0	0	0	2	0	0	-------
75.0	S23N05W24ABB	820907	600	0	0	0	1	0	0	-------
75.0	S23N05W24ABB	820914	250	0	0	0	0	0	0	-------
75.0	S23N05W24ABB	821013	1500	0	0	0	0	0	4	-------
75.1	S23N05W13CDA	820804	400	0	0	0	0	0	0	-------
75.3	S23N04W07DCB	820906	200	0	0	0	0	0	0	-------
75.4	S23N05W13ACC	820811	500	0	0	1	4	2	0	-------
75.4	S23N05W13ACC	820819	450	0	0	0	0	5	0	-------
75.4	S23N05W13ACC	820823	350	0	0	0	0	1	0	-------
75.5	S23N04W18BDB	820920	400	0	0	0	0	0	0	-------
75.5	S23N04W18BDB	821002	300	0	0	0	0	0	5	-------
75.5	S23N04W18BDB	821005	200	0	0	0	0	0	2	-------
75.5	S23N04W18BDB	821008	250	0	0	0	0	0	5	-------
75.5	S23N04W18BDB	821013	300	0	0	0	0	0	15	-------
75.5	S23N05W24ABB	820819	600	0	0	0	0	6	0	-------
75.7	S23N04W07CB	820810	400	0	0	2	30	12	0	-------
75.7	S23N04W07CB	820819	125	0	0	0	0	0	0	-------
75.7	S23N04W07CB	820823	300	0	0	0	1	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
			DISTANCE	ADULT SALMON						BERING
RIVER			SHOCKED						BERING	CISCO
MILE	GEOCODE	DATE	(YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	CISCO	OBSERVED
75.7	S23N04W07CB	820903	350	0	0	0	2	0	0	-------
75.7	S23N04W07CB	820906	250	0	0	0	0	0	0	-------
75.7	S23N04W07CB	820914	350	0	0	0	0	0	0	-------
77.0	S23N04W06CD	820906	700	0	0	0	2	1	0	-------
77.0	S23N04W07ABA	820525	200	0	0	0	0	0	0	-------
77.0	S23N04W07ABA	820609	450	0	0	0	0	0	0	-------
77.0	S23N04W07ABA	820903	300	0	0	0	1	0	0	-------
77.0	S23N05W13ACC	820918	1500	0	0	0	0	0	0	-------
77.0	S23N05W13ACC	820921	400	0	0	0	0	0	0	-------
77.6	S23N04W06CDB	820918	800	0	0	0	0	0	0	-------
77.6	S23N04W06CDB	820921	800	0	0	0	0	0	1	-------
77.6	S23N04W06CDB	820925	600	0	0	0	0	0	0	-------
77.6	S23N04W06CDB	820927	1100	0	0	0	0	0	0	-------
77.6	S23N04W06CDB	820930	900	0	0	0	0	0	12	15 - 20
77.6	S23N04W06CDB	821002	250	0	0	0	0	0	5	-------
77.6	S23N04W06CDB	821013	800	0	0	0	0	0	0	20 - 25
77.6	S24N04W06CDB	821008	800	0	0	0	0	0	25	-------
78.0	S23N04W01DA	820819	500	0	0	0	12	12	0	-------
78.0	S23N04W06BD	820823	400	0	0	0	3	2	0	-------
78.0	S23N04W06CD	820525	1760	0	0	0	0	0	0	-------
78.0	S23N04W06CD	820609	2640	0	1	0	0	0	0	-------
78.0	S23N04W06CD	820712	700	2	0	0	0	0	0	-------
78.0	S23N04W06CD	820802	600	0	0	100	12	0	0	-------
78.0	S23N04W06CD	820810	600	0	0	9	36	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
78.0	S23N04W06CD	820819	700	0	0	0	5	2	0	-------
78.0	S23N04W06CD	820823	600	0	0	0	4	2	0	-------
78.0	S23N04W06CD	820903	800	0	0	0	0	0	0	-------
78.0	S23N05W01ADA	820906	300	0	0	0	1	0	0	-------
78.0	S24N05W36CD	820913	850	0	0	0	3	0	0	-------
78.5	S23N05W01BBC	820609	300	1	0	0	0	0	0	-------
78.5	S23N05W01BBC	820711	400	0	0	0	0	0	0	-------
78.5	S23N05W01BBC	820802	300	0	0	15	0	1	0	-------
78.5	S23N05W01BBC	820819	250	0	0	0	0	1	0	-------
78.5	S23N05W01BBC	820904	200	0	0	0	0	0	0	-------
79.0	S24N05W36CD	820525	880	0	0	0	0	0	0	-------
79.0	S24N05W36CD	820609	880	0	4	0	0	0	0	-------
79.0	S24N05W36CD	820711	500	0	0	0	0	0	0	-------
79.0	S24N05W36CD	820802	400	0	0	40	50	0	0	-------
79.0	S24N05W36CD	820810	500	0	0	3	52	10	0	-------
79.0	S24N05W36CD	820820	500	0	0	0	12	21	0	-------
79.0	S24N05W36CD	820823	600	0	0	0	7	11	0	-------
79.0	S24N05W36CD	820903	300	0	0	0	12	4	1	-------
79.0	S24N05W36CD	820906	600	0	0	0	3	0	0	-------
79.0	S24N05W36CD	820915	600	0	0	0	1	1	0	-------
79.0	S24N05W36CDA	820927	800	0	0	0	1	0	0	-------
79.0	S24N05W36CDA	821003	400	0	0	0	0	0	0	-------
79.2	S24N05W36CAD	821003	500	0	0	0	0	0	6	-------
79.4	S24N05W36BCC	820921	1500	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
79.4	S24N05W36BCC	820925	400	0	0	0	0	0	0	-------
79.4	S24N05W36BCC	820930	450	0	0	0	0	0	3	-------
79.4	S24N05W36BCC	821003	900	0	0	0	0	0	12	-------
79.4	S24N05W36BCC	821013	500	0	0	0	0	0	2	-------
79.5	S24N05W26CD	820609	1000	0	1	0	0	0	0	-------
79.5	S24N05W36AD	820711	850	0	0	0	0	0	0	-------
79.5	S24N05W36AD	820819	550	0	0	0	0	0	0	-------
80.0	S24N05W25BDC	820906	400	0	0	0	0	0	0	-------
80.0	S24N05W25CAB	820921	150	0	0	0	0	0	0	-------
80.5	S24N05W25BAB	820921	700	0	0	0	0	0	0	-------
80.5	S24N05W25BAB	820930	300	0	0	0	0	0	2	-------
80.5	S24N05W25BDA	820930	200	0	0	0	0	0	0	-------
80.8	S24N05W25BAD	820831	250	0	0	0	0	0	0	-------
81.0	S24N05W25BCD	820820	900	0	0	4	4	5	0	-------
81.0	S24N05W26AAB	820824	300	0	0	0	7	3	0	-------
81.0	S24N05W26BAA	820906	100	0	0	1	0	0	0	-------
81.1	S24N05W26ABB	820930	350	0	0	0	0	0	0	-------
81.2	S24N05W26ABA	821013	300	0	0	0	0	0	0	15 - 20
81.3	S24N05W23CDA	820921	200	0	0	0	2	0	0	-------
81.5	S24N05W23CDA	820921	400	0	0	0	1	0	0	-------
81.5	S24N05W23CDA	820930	400	0	0	0	0	0	0	15 - 20
81.5	S24N05W26ABD	821013	300	0	0	0	0	0	0	-------
82.0	S24N05W22ADC	820802	700	0	15	30	30	0	0	-------
82.0	S24N05W22ADC	820825		0	0	0	2	16	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
82.0	S24N05W22ADC	820831	500	0	0	0	1	0	0	-------
82.0	S24N05W23CBC	820921	300	0	0	0	0	0	0	-------
82.6	S24N05W22DAB	820812	800	0	0	6	45	12	0	-------
82.6	S24N05W22DAB	820906	700	0	0	0	2	1	0	-------
83.1	S24N05W15CBD	820812	300	0	0	0	3	1	0	-------
83.1	S24N05W15CBD	820825	400	0	0	0	0	1	0	-------
83.1	S24N05W15CBD	820831	350	0	0	0	0	0	0	-------
83.1	S24N05W15CDB	820906	300	0	0	0	0	0	0	-------
83.1	S24N05W16AAC	820525	200	0	0	0	0	0	0	-------
83.1	S24N05W16AAC	820711	800	1	0	0	0	0	0	-------
83.1	S24N05W16AAC	820713	700	0	0	0	0	0	0	-------
83.1	S24N05W16DAA	820802	450	0	0	6	0	0	0	-------
83.1	S24N05W16DAA	820812	400	0	0	2	0	1	0	-------
83.1	S24N05W16DAA	820820	200	0	0	0	0	8	0	-------
83.1	S24N05W16DAA	820825	250	0	0	0	0	0	0	-------
83.1	S24N05W16DAA	820901	300	0	0	0	0	0	0	-------
83.1	S24N05W16DAA	820906	300	0	0	0	0	0	0	-------
83.2	S24N05W15CBD	821003	400	0	0	0	0	0	0	-------
83.3	S24N05W15BDB	821003	500	0	0	0	0	0	0	-------
83.4	S24N05W15BAB	820906	500	0	0	0	0	0	0	-------
83.4	S24N05W15BCC	820921	1500	0	0	0	0	0	0	-------
83.4	S24N05W15BCC	821006	900	0	0	0	0	0	8	-------
83.4	S24N05W15BDB	820820	350	0	0	0	0	2	0	-------
83.4	S24N05W15CBD	820820	400	0	0	0	4	10	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
83.5	S24N05W15BCB	820915	150	0	0	0	0	0	0	-------
83.7	S24N05W15BBA	820915	350	0	0	0	0	0	0	-------
83.8	S24N05W15BAD	820825	250	0	0	0	0	2	0	-------
84.1	S24N05W10CDA	821003	300	0	0	0	0	0	0	-------
84.1	S24N05W10CDA	821006	500	0	0	0	0	0	0	-------
84.1	S24N05W10CDB	820921	700	0	0	0	1	0	0	-------
84.4	S24N05W14AAB	820813	400	0	0	0	11	0	0	-------
84.5	S24N05W10ADC	820930	250	0	0	0	0	0	0	-------
85.0	S24N05W11BAA	820812	700	0	0	1	35	11	0	-------
85.0	S24N05W11BAA	820831	400	0	0	0	0	5	0	-------
85.0	S24N05W11BAA	820914	300	0	0	0	2	0	0	-------
85.0	S24N05W11BAA	821003	1100	0	0	0	0	0	1	-------
85.1	S24N05W11BAC	820825	900	0	0	1	0	7	0	-------
85.2	S24N05W11ABB	820921	1200	0	0	0	0	0	0	-------
85.2	S24N05W11ABB	820930	800	0	0	0	0	0	3	-------
85.2	S24N05W11ABB	821006	1200	0	0	0	0	0	0	30 - 40
85.2	S24N05W11ABB	821013	800	0	0	0	0	0	10	-------
85.5	S24N05W02CC	820820	150	0	0	1	0	1	0	-------
85.7	S24N05W14AAB	820525	300	0	0	0	0	0	0	-------
85.7	S24N05W14AAB	820610	500	0	4	0	0	0	0	-------
85.7	S24N05W14AAB	820713	500	2	0	0	0	0	0	-------
85.7	S24N05W14AAB	820802	120	0	1	75	0	0	0	-------
85.7	S24N05W14AAB	820813	350	0	0	8	0	7	0	-------
85.7	S24N05W14AAB	820820	300	0	0	16	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
85.7	S24N05W14AAB	820825	1000	0	0	1	0	4	0	-------
85.7	S24N05W14AAB	820831	250	0	0	2	0	0	0	-------
85.7	S24N05W14AAB	820908	350	0	0	0	4	200	0	-------
86.0	S24N05W01BCD	820820	400	0	0	0	1	8	0	-------
86.0	S24N05W01BDD	820820	500	0	0	2	2	9	0	-------
86.2	S24N05W01CBC	820921	200	0	0	0	0	0	0	-------
86.2	S24N05W12BAD	820802	300	0	1	30	50	0	0	-------
86.3	S24N05W12ABB	820610	600	0	0	0	0	0	0	-------
86.3	S24N05W12ABB	820713	350	0	0	0	0	0	0	-------
86.3	S24N05W12ABB	820802	800	0	1	0	0	0	0	-------
86.3	S24N05W12ABB	820813	150	0	0	0	0	0	0	-------
86.3	S24N05W12ABB	820820	300	0	0	1	0	12	0	-------
86.3	S24N05W12ABB	820901	1500	0	0	1	2	1	0	-------
86.3	S24N05W12ABB	820908	1000	0	0	2	5	1	0	-------
86.4	S24N05W01BB	820825	700	0	0	0	0	0	0	-------
86.4	S24N05W01BCC	820812	300	0	0	0	2	0	0	-------
86.4	S24N05W01BCC	821003	300	0	0	0	0	0	0	60 - 70
86.4	S24N05W01BCC	821006	350	0	0	0	0	0	7	-------
86.7	S24N05W01BBD	820921	200	0	0	0	0	0	0	-------
86.7	S24N05W01BBD	821003	200	0	0	0	0	0	1	-------
87.0	S24N05W01AB	820610	1760	0	0	0	0	0	0	-------
87.0	S24N05W01AB	820813	1400	0	0	7	9	6	0	-------
87.0	S24N05W01AB	820825	2200	0	0	0	1	11	0	-------
87.0	S24N05W01BDD	820802	4400	0	5	250	50	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
87.0	S24N05W01BDD	820908	800	0	0	0	0	1	0	-------
87.0	S24N05W01BDD	820915	1000	0	0	0	0	0	0	-------
87.3	S24N05W01ACD	820813	550	0	0	2	3	4	0	-------
87.3	S24N05W01ACD	820820	1600	0	0	2	4	7	0	-------
87.5	S24N05W01ACD	820915	700	0	0	0	1	0	0	-------
87.5	S25N05W36ACD	820713	1100	1	0	0	0	0	0	-------
87.5	S25N05W36CAB	820921	500	0	0	0	0	0	0	-------
88.0	S25N05W36BAA	821006	250	0	0	0	0	0	1	-------
88.4	S25N05W25DCC	820525	200	0	0	0	0	0	0	-------
88.4	S25N05W25DCC	820605	200	1	0	0	0	0	0	-------
88.4	S25N05W25DCC	820610	950	5	10	0	0	0	0	-------
88.4	S25N05W25DCC	820713	300	5	0	0	0	0	0	-------
88.4	S25N05W25DCC	820805	350	5	10	4	0	0	0	-------
88.4	S25N05W25DCC	820817	300	0	4	40	24	999	0	-------
88.4	S25N05W25DCC	820901	350	0	0	15	13	40	0	-------
89.0	S25N05W25BAA	821006	350	0	0	0	0	0	0	-------
89.2	S25N05W26DAA	821006	300	0	0	0	0	0	1	-------
89.2	S25N05W26DBA	820812	300	0	0	0	0	0	0	-------
89.3	S25N05W26ABB	820812	600	0	0	2	7	0	0	-------
89.3	S25N05W26ABB	820901	900	0	0	0	0	0	0	-------
89.3	S25N05W26ABB	820908	800	0	0	0	2	0	0	-------
89.4	S25N05W26ABB	820820	400	0	0	0	1	1	0	-------
90.9	S25N05W23CAB	821001	200	0	0	0	0	0	0	-------
91.0	S25N05W23ACC	821001	300	0	0	0	0	0	0	8 - 10

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
91.5	S25N05W15DBA	820605	250	6	0	0	0	0	0	-------
91.5	S25N05W15DBA	820610	320	2	0	0	0	0	0	-------
91.5	S25N05W15DBA	820710	250	2	0	0	0	0	0	-------
91.5	S25N05W15DBA	820805	250	0	0	48	1	2	0	-------
91.5	S25N05W15DBA	820817	400	0	0	10	0	200	0	-------
91.5	S25N05W15DBA	820901	500	0	0	0	0	4	0	-------
91.5	S25N05W15DBD	820812	500	0	0	14	0	14	0	-------
91.5	S25N05W15DBD	820817	250	0	0	1	0	15	0	-------
92.0	S25N05W14BAD	820822	300	0	0	0	0	3	0	-------
92.2	S25N05W13BCC	820812	150	0	0	0	0	0	0	-------
92.2	S25N05W13BCC	820817	250	0	0	1	3	14	0	-------
92.2	S25N05W13BCC	820902	300	0	0	0	0	1	0	-------
92.8	S25N05W12BDC	820812	300	0	0	0	7	0	0	-------
92.8	S25N05W12BDC	820817	250	0	0	0	6	3	0	-------
92.8	S25N05W12BDC	820905	300	0	0	0	1	0	0	-------
92.9	S25N05W12BAA	821010	1500	0	0	0	0	0	0	15 - 20
93.0	S25N05W12CB	820605	1760	0	0	0	0	0	0	-------
93.0	S25N05W12CB	820805	1760	0	0	95	40	0	0	-------
93.6	S25N05W01CAA	820812	400	0	0	9	19	1	0	-------
93.6	S25N05W12BA	820710	1100	2	0	0	0	0	0	-------
93.6	S25N05W12BA	820805	450	0	0	47	25	1	0	-------
93.6	S25N05W12BA	820902	300	0	0	0	1	0	0	-------
93.6	S25N05W12BA	820905	500	0	1	0	1	0	0	-------
93.8	S25N05W01DCB	821001	400	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
94.2	S25N05W01ACA	820805	220	0	0	3	12	0	0	-------
94.5	S25N05W01DBB	821010	800	0	0	0	0	0	4	-------
95.1	S26N05W36DBD	821010	250	0	0	0	0	0	5	-------
95.2	S26N05W24CDA	820902	500	0	0	0	1	5	0	-------
95.2	S26N05W24CDA	820905	200	0	0	0	5	0	0	-------
95.2	S26N05W36ACD	820710	600	1	0	0	0	0	0	-------
95.2	S26N05W36ACD	820805	700	0	0	400	60	0	0	-------
95.2	S26N05W36ACD	820812	250	0	0	0	0	1	0	-------
95.5	S26N05W35ADC	820605	200	0	0	0	0	0	0	-------
95.5	S26N05W35ADC	820709	450	1	0	0	0	0	0	-------
95.7	S26N05W36CBB	820605	100	0	0	0	0	0	0	-------
96.2	S26N05W25CAB	821010	150	0	0	0	0	0	3	-------
96.2	S26N05W25CBC	821001	500	0	0	0	0	0	0	-------
97.0	S26N05W24CDA	820604	1200	1	0	0	0	0	0	-------
97.0	S26N05W24CDA	820605	225	1	0	0	0	0	0	-------
97.0	S26N05W24CDA	820608	1200	0	0	0	0	0	0	-------
97.0	S26N05W24CDA	820709	500	0	0	0	0	0	0	-------
97.0	S26N05W24CDA	820805	200	0	3	130	25	0	0	-------
97.0	S26N05W24CDA	820816	400	0	0	1	1	2	0	-------
97.0	S26N05W24CDA	820902	350	0	0	0	0	0	0	-------
97.0	S26N05W24CDA	820922	350	0	0	0	0	0	0	-------
97.5	S26N05W23DBA	821001	500	0	0	0	0	0	0	-------
97.7	S26N05W23ACA	820905	400	0	0	0	0	0	0	-------
97.7	S26N05W23ACA	820922	400	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
97.8	S26N05W23ADA	820902	300	0	0	0	1	0	0	-------
97.9	S26N05S23AAD	820816	300	0	0	0	0	2	0	-------
97.9	S26N05W23AAD	820709	700	0	0	0	0	0	0	-------
97.9	S26N05W23AAD	820809	100	0	0	0	1	2	0	-------
97.9	S26N05W23ADA	820922	300	0	0	0	0	0	0	-------
97.9	S26W05W23AAD	820806	70	0	0	4	0	0	0	-------
99.3	S26N05W11DDA	820902	300	0	0	0	0	0	0	-------
99.4	S26N05W11DCD	820809	800	0	0	9	8	1	0	-------
99.4	S26N05W11DCD	820816	500	0	0	0	0	0	0	-------
99.4	S26N05W11DCD	820822	300	0	0	0	0	0	0	-------
99.5	S26N05W14ABB	821001	900	0	0	0	0	0	0	-------
99.6	S26N05W11DDA	820709	800	0	0	0	0	0	0	-------
99.6	S26N05W11DDA	820805	75	0	0	0	0	0	0	-------
99.6	S26N05W11DDA	820816	100	0	0	0	0	0	0	-------
99.6	S26N05W11DDA	820822	200	0	0	1	0	8	0	-------
99.7	S26N05W11DB	820805	120	0	0	1	1	0	0	-------
99.7	S26N05W11DBC	820902	600	0	0	0	3	1	0	-------
99.7	S26N05W11DBC	820922	600	0	0	0	0	0	0	-------
99.8	S26N05W11DB	820605	704	0	0	0	0	0	0	-------
99.8	S26N05W11DB	820805	200	0	0	20	4	0	0	-------
99.8	S26N05W11DB	820816	500	0	0	0	6	14	0	-------
99.8	S26N05W11DDA	820805	220	1	0	35	5	0	0	-------
99.8	S26N05W11DDA	820809	1000	0	0	17	7	2	0	-------
100.0	S26N05W11BDC	820905	350	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
100.0	S26N05W11BDC	820922	350	0	0	0	0	0	0	-------
100.4	S26N05W02CDD	820805	150	0	0	0	0	0	0	-------
100.5	S26N05W02CC	820604	1936	0	0	0	0	0	0	-------
100.5	S26N05W02CC	820822	700	0	0	0	0	0	0	-------
100.5	S26N05W02CC	820905	1000	0	0	0	4	0	0	-------
100.5	S26N05W02CDD	820902	150	0	0	0	0	2	0	-------
100.5	S26N05W02CDD	820922	150	0	0	0	0	0	0	-------
100.5	S26N05W02DBC	820816	250	0	0	0	0	6	0	-------
100.5	S26N05W11BDB	820922	1000	0	0	0	0	0	0	-------
100.5	S26N05W11BDB	821001	400	0	0	0	0	0	0	-------
101.0	S26N05W02BCC	820922	300	0	0	0	0	0	0	-------
101.1	S26N05W03DDD	820709	700	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820526	300	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820604	320	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820608	340	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820709	250	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820710	300	2	0	0	0	0	0	-------
101.2	S26N05W03ADB	820805		0	0	20	1	0	0	-------
101.2	S26N05W03ADB	820806	50	0	0	4	0	0	0	-------
101.2	S26N05W03ADB	820809	220	0	0	12	0	2	0	-------
101.2	S26N05W03ADB	820816	150	0	0	3	0	1	0	-------
101.2	S26N05W03ADB	820825	175	0	0	0	0	150	0	-------
101.2	S26N05W03ADB	820902	250	0	0	0	0	3	0	-------
101.2	S26N05W03ADB	820905	350	0	0	0	0	1	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
101.2	S26N05W03ADB	820916	200	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	820922	250	0	0	0	0	0	0	-------
101.2	S26N05W03ADB	821001	300	0	0	0	0	0	0	-------
101.2	S27N05W02BB	820822	600	0	0	3	0	12	0	-------
101.4	S26N05W03AAC	820608	266	0	0	0	0	0	0	-------
101.4	S26N05W03AAC	820916	150	0	0	0	0	0	0	-------
101.6	S26N05W02BCC	820902	300	0	0	0	0	0	0	-------
101.6	S26N05W35CCA	820922	1000	0	0	0	0	0	0	-------
101.6	S27N05W35CCC	820604	400	0	0	0	0	0	0	-------
101.6	S27N05W35CCC	820805	150	0	0	18	0	0	0	-------
101.6	S27N05W35CCC	820822	300	0	0	0	2	15	0	-------
101.6	S27N05W35CCC	820902	1000	0	0	0	0	4	0	-------
101.8	S27N05W35CAD	820816	800	0	0	2	1	41	0	-------
101.9	S26N05W35CAD	821001	1500	0	0	0	0	0	1	-------
101.9	S27N05W35ACB	820905	900	0	0	0	0	0	0	-------
101.9	S27N05W35CAD	820922	900	0	0	0	0	0	0	-------
102.5	S26N05W35ADD	821001	600	0	0	0	0	0	0	-------
102.6	S27N05W35ADA	820922	800	0	0	0	0	0	0	-------
102.6	S27N05W35ADD	820709	800	8	0	0	0	0	0	-------
102.6	S27N05W35ADD	820809	1000	0	0	27	11	0	0	-------
102.6	S27N05W35ADD	820816	500	0	0	2	2	0	0	-------
102.6	S27N05W35ADD	820822	900	0	0	0	7	11	0	-------
102.6	S27N05W35ADD	820825	150	0	0	0	0	0	0	-------
102.6	S27N05W35ADD	820902	700	0	0	0	0	1	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
102.6	S27N05W35ADD	820905	800	0	0	0	1	0	0	-------
102.6	S27N05W35ADD	820922	700	0	0	0	0	0	0	-------
102.6	S27N05W35ADD	821010	1700	0	0	0	0	0	0	-------
102.7	S27N05W35DB	820604	200	0	0	0	0	0	0	-------
102.8	S26N05W35ADA	821001	200	0	0	0	0	0	0	-------
102.8	S27N05W35ADB	820825	150	0	0	0	1	0	0	-------
102.8	S27N05W35ADB	820901	75	0	0	0	2	0	0	-------
104.0	S27N05W25BBD	820901	200	0	0	0	0	0	0	-------
104.4	S27N05W24CBD	820823		0	0	0	0	0	0	-------
104.4	S27N05W24CBD	820901	250	0	0	0	0	0	0	-------
105.1	S27N05W24BCA	820823	650	0	0	0	1	3	0	-------
105.1	S27N05W24BCA	820901	350	0	0	0	1	0	0	-------
105.3	S27N05W24BBD	820823	400	0	0	1	0	12	0	-------
105.3	S27N05W24BBD	820901	950	0	0	0	0	1	0	-------
105.8	S27N05W13BCC	820823	450	0	0	0	2	0	0	-------
106.2	S27N05W13BBB	820823	100	0	0	0	0	0	0	-------
106.2	S27N05W14AAA	820823	300	0	0	0	0	2	0	-------
106.2	S27N05W14AAA	820901	800	0	0	0	0	0	0	-------
106.9	S27N05W12BCC	820825	70	0	0	0	0	20	0	-------
106.9	S27N05W12BCC	820901	1760	0	0	0	0	26	0	-------
107.4	S27N05W12BBA	820708	600	2	0	0	0	0	0	-------
107.5	S27N05W12BBA	820823	500	0	0	0	2	7	0	-------
107.5	S27N05W12BBA	820901	500	0	0	0	1	1	0	-------
108.2	S27N05W01ABC	820901	900	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
108.8	S22N05W36DCA	820901	300	0	0	0	0	0	0	-------
108.8	S28N05W36DCA	820824	450	0	0	0	0	3	0	-------
109.4	S28N05W36ADD	820901	150	0	0	0	0	0	0	-------
109.7	S28N04W30CCC	820901	150	0	0	0	0	0	0	-------
109.8	S28N04W30CCD	820822	200	0	0	0	0	0	0	-------
110.0	S28N04W30CBC	820708	500	4	0	0	0	0	0	-------
110.1	S28N04W30CBA	820822	60	0	0	0	0	1	0	-------
110.1	S28N04W30CBB	820822	40	0	0	0	0	0	0	-------
110.3	S28N04W30BBB	820824	1760	0	0	0	1	3	0	-------
110.3	S28N04W30BBB	820901	300	0	0	0	1	0	0	-------
111.0	S28N05W24DAD	820822	200	0	0	0	0	0	0	-------
111.0	S28N05W24DD	820606	4400	0	0	0	0	0	0	-------
111.1	S28N05W24DAA	820822	120	0	0	0	0	0	0	-------
111.9	S28N05W13DCC	820708	1000	1	0	0	0	0	0	-------
111.9	S28N05W24ABD	820822	175	0	0	0	0	0	0	-------
112.1	S28N05W13DCC	820822	20	0	0	0	0	0	0	-------
112.3	S28N05W13CAC	820606	300	0	0	0	0	0	0	-------
112.3	S28N05W13CAC	820708	800	0	0	0	0	0	0	-------
112.3	S28N05W13CAC	820916	450	0	0	0	0	0	0	-------
113.1	S28N05W12DAA	820822	20	0	0	1	0	3	0	-------
113.5	S28N05W12DBA	820708	950	5	0	0	0	0	0	-------
113.6	S28N05W12ADD	820606	450	0	0	0	0	0	0	-------
113.6	S28N05W12ADD	820630	500	2	0	0	0	0	0	-------
113.6	S28N05W12ADD	820708	600	12	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
113.6	S28N05W12ADD	820728	200	0	0	0	0	0	0	-------
113.6	S28N05W12ADD	820813	500	1	0	350	25	0	0	-------
113.6	S28N05W12ADD	820822	250	0	0	999	999	2	0	-------
113.6	S28N05W12ADD	820902	300	0	0	0	0	30	0	-------
113.6	S28N05W12ADD	820914	300	0	0	0	1	8	0	-------
113.6	S28N05W12ADD	820918	400	0	0	0	0	0	0	-------
113.6	S28N05W12DBA	820908	250	0	0	0	0	4	0	-------
114.2	S28N04W06CCC	820822	400	0	0	0	1	0	0	-------
114.4	S28N04W06CAB	820606	600	0	0	0	0	0	0	-------
114.4	S28N04W06CAB	820708	400	0	0	0	0	0	0	-------
114.4	S28N04W06CAB	820822	40	0	0	0	3	0	0	-------
114.4	S28N04W06CAB	820902	200	0	0	0	8	1	0	-------
114.6	S28N04W06CBB	820822	100	0	0	0	0	0	0	-------
115.4	S29N04W31DBD	820822	90	0	0	0	0	0	0	-------
115.9	S29N04W31DBA	820914	300	0	1	0	0	0	0	-------
115.9	S29N04W31DBD	820902	1700	0	0	0	1	11	0	-------
115.9	S29N04W31DBD	820914	300	0	0	0	0	0	0	-------
116.0	S29N04W32BCA	820822	300	0	0	0	6	0	0	-------
116.2	S29N04W32BDC	820822	50	0	0	0	1	6	0	-------
116.2	S29N04W32BDD	820902	30	0	0	0	0	5	0	-------
116.7	S29N04W32ABB	820630	240	0	0	0	0	0	0	-------
116.7	S29N04W32ABB	820728	100	2	0	0	0	0	0	-------
116.7	S29N04W32ABB	820902	450	0	0	0	0	0	0	-------
116.7	S29N04W32ABB	820918	400	0	0	0	0	1	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
116.9	S29N04W29DBA	820821	450	0	0	0	1	0	0	-------
117.2	S29N04W29DBB	820902	150	0	0	0	0	0	0	-------
117.6	S29N04W29AAA	820821	150	0	0	0	0	0	0	-------
117.8	S29N04W21CCB	820914	150	0	0	0	0	0	0	-------
118.1	S29N04W21CCB	820902	350	0	0	0	0	0	0	-------
118.9	S29N04W21BAD	820902	450	0	0	0	0	0	0	-------
119.0	S29N04W16DCC	820918	200	0	0	0	0	0	0	-------
119.0	S29N04W21BAC	820821	300	0	0	0	3	0	0	-------
119.7	S29N04W16DBA	820821	175	0	0	0	4	0	0	-------
119.7	S29N04W16DBA	820902	300	0	0	0	0	0	0	-------
119.8	S29N04W16ABB	820821	800	0	0	0	5	0	0	-------
119.8	S29N04W16DAB	820821		0	0	0	0	0	0	-------
120.0	S29N04W09DCC	820902	900	0	0	0	0	1	0	-------
120.3	S29N04W16AAC	820902	200	0	0	0	0	0	0	-------
120.4	S29N04W16AAC	820821	350	0	0	1	1	0	0	-------
120.7	S29N04W10BCD	820630	75	1	0	0	0	0	0	-------
120.7	S29N04W10BCD	820726	50	0	0	0	0	0	0	-------
120.9	S29N04W10BCD	820821	100	0	0	0	0	0	0	-------
121.0	S29N04W10BDA	820821	250	0	0	0	4	0	0	-------
121.0	S29N04W10BDB	820902	250	0	0	0	0	0	0	-------
121.4	S29N04W10ABA	820821	150	0	0	1	5	0	0	-------
121.7	S29N04W03DCD	820821	90	0	0	0	1	0	0	-------
121.8	S29N04W02CCA	820630	100	0	0	0	0	0	0	-------
121.8	S29N04W02CCA	820728	125	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
121.9	S29N04W03DDB	820821	250	0	0	1	2	0	0	-------
122.2	S30N03W09DCB	820630	250	1	0	0	0	0	0	-------
122.2	S30N03W09DCB	820728	150	0	0	0	0	0	0	-------
123.0	S30N04W35DBD	820821	350	0	0	0	1	0	0	-------
123.3	S30N04W35ACD	820821	200	0	0	0	8	2	0	-------
123.5	S30N04W35DBA	820820	150	0	2	0	6	0	0	-------
123.6	S30N04W35DBA	820813	150	0	0	2	5	0	0	-------
123.7	S13N04W26DDC	820907	250	0	0	0	0	1	0	-------
123.7	S30N04W26DDC	820630	120	0	0	0	0	0	0	-------
123.7	S30N04W26DDC	820726	50	1	0	0	0	0	0	-------
123.7	S30N04W26DDC	820812	200	0	0	18	0	0	0	-------
123.7	S30N04W26DDC	820820	200	0	0	10	0	0	0	-------
123.8	S13N04W35DBA	820907	100	0	0	0	0	1	0	-------
123.8	S30N04W35ACA	820820	350	0	0	0	21	0	0	-------
124.1	S30N04W35ABD	820820	400	0	0	0	3	0	0	-------
124.4	S30N04W35AAA	820820	800	0	0	0	9	1	0	-------
124.7	S13N04W25DBC	820907	500	0	0	0	2	0	0	-------
124.7	S30N04W25DBC	820629	450	0	0	0	0	0	0	-------
124.7	S30N04W25DBC	820726	150	0	0	0	0	0	0	-------
124.7	S30N04W25DBC	820812	200	0	0	18	0	0	0	-------
124.7	S30N04W25DBC	820819	300	0	0	1	14	0	0	-------
124.7	S30N04W25DBC	820920	150	0	0	0	0	1	0	-------
125.3	S30N03W30BCD	820629	400	0	0	0	0	0	0	-------
125.3	S30N03W30BCD	820726	150	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
125.3	S30N03W30BCD	820812	200	0	60	24	5	0	0	-------
125.3	S30N03W30BCD	820819	200	0	15	2	18	1	0	-------
125.3	S30N03W30BCD	820907	100	0	4	0	6	7	0	-------
125.3	S30N03W30BCD	820920	200	0	0	0	0	0	0	-------
125.6	S30N03W19CCD	820819	300	0	0	0	0	0	0	-------
126.3	S30N03W19DAC	820819	125	0	2	0	25	1	0	-------
126.5	S30N03W20BCC	820819	250	0	0	0	24	0	0	-------
126.5	S30N03W20BCC	820907	200	0	0	0	0	0	0	-------
126.7	S30N03W20BCD	820819	250	0	0	0	2	0	0	-------
127.0	S13N03W20BDB	820907	350	0	0	0	0	0	0	-------
127.1	S30N03W20BDB	820819	150	0	0	0	0	0	0	-------
127.5	S30N03W20ACD	820819	75	0	0	0	0	0	0	-------
127.6	S30N03W20AA	820812	450	0	0	2	4	0	0	-------
127.8	S30N03W20AAD	820819	150	0	0	0	0	0	0	-------
128.3	S30N03W16ACB	820726	200	0	0	0	0	0	0	-------
128.5	S30N03W16BBC	820819	250	0	0	0	0	1	0	-------
128.6	S31N03W16BCA	820907		0	0	0	0	0	0	-------
129.1	S30N03W16BAA	820629	850	0	0	0	0	0	0	-------
129.2	S30N03W09CCA	820819	200	0	0	2	15	0	0	-------
129.3	S30N03W09CA	820629	250	0	0	0	0	0	0	-------
129.4	S30N03W09CDB	820819	400	0	0	1	2	0	0	-------
129.4	S30N03W09CDB	820907	250	0	0	0	1	0	0	-------
129.8	S30N03W09DAB	820914		0	0	0	0	0	0	-------
130.0	S30N03W09ABD	820629	270	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
130.1	S30N03W04DDD	820819	350	0	0	0	2	0	0	-------
130.1	S30N03W04DDD	820907	150	0	0	0	1	0	0	-------
130.4	S30N03W09AC	820812	350	0	0	20	26	0	0	-------
130.8	S30N03W03DCC	820629	200	0	0	0	0	0	0	-------
130.8	S30N03W03DCC	820728	100	0	0	0	0	0	0	-------
130.8	S30N03W03DCC	820810	75	0	0	4	3	0	0	-------
130.8	S30N03W03DCC	820812	75	0	0	0	2	0	0	-------
130.8	S30N03W03DCC	820817	100	0	0	2	1	0	0	-------
130.8	S30N03W03DCC	820907	150	0	0	0	0	0	0	-------
131.1	S30N03W03DAA	820820	80	0	0	0	3	0	0	-------
131.1	S30N03W03DAC	820628	400	1	0	0	0	0	0	-------
131.1	S30N03W03DAC	820629	220	1	0	0	0	0	0	-------
131.1	S30N03W03DAC	820726	200	1	0	0	0	0	0	-------
131.1	S30N03W03DAC	820812	300	1	0	48	56	1	0	-------
131.1	S30N03W03DAC	820817	200	0	0	0	60	0	0	-------
131.1	S30N03W03DAC	820908	400	0	0	0	25	8	0	-------
131.1	S30N03W03DAC	820917	400	0	0	0	0	0	0	-------
131.1	S30N03W03DAD	820817	250	0	0	2	50	0	0	-------
131.3	S30N03W03DAD	820819	80	0	0	0	3	0	0	-------
131.3	S30N03W03DAD	820904	200	0	0	0	4	0	0	-------
131.8	S30N03W02CAB	820817	550	0	0	3	15	1	0	-------
132.3	S30N03W01BAA	820904	100	0	0	0	1	0	0	-------
132.3	S30N03W02CAA	820812	500	0	0	5	19	1	0	-------
132.6	S30N03W01BBD	820817	150	0	0	0	2	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
133.3	S31N03W36DBC	820817	350	0	0	2	6	0	0	-------
133.3	S31N03W36DBD	820817	200	0	0	2	3	0	0	-------
133.3	S31N03W36DBD	820904	450	0	0	0	0	1	0	-------
133.6	S30N03W36DAA	820629	100	0	0	0	0	0	0	-------
133.8	S31N03W36AAC	820628	480	0	0	0	0	0	0	-------
133.8	S31N03W36AAC	820810	75	0	0	1	0	0	0	-------
133.8	S31N03W36AAC	820817	50	0	0	0	2	0	0	-------
133.8	S31N03W36AAC	820917	100	0	0	0	0	0	0	-------
134.2	S31N03W30DCD	820812	250	0	0	19	17	2	0	-------
134.2	S31N03W30DCD	820817	250	0	0	2	6	2	0	-------
134.2	S31N03W30DCD	820904	50	0	0	0	0	0	0	-------
135.0	S31N03W30ACB	820628	220	0	0	0	0	0	0	-------
135.1	S31N03W30AAB	820628	1760	3	0	0	0	0	0	-------
135.1	S31N03W30AAB	820904	500	0	0	0	0	0	0	-------
135.2	S31N02W19DDB	820817	800	0	0	0	4	1	0	-------
135.2	S31N02W19DDB	820919	100	0	0	0	0	0	0	-------
135.2	S31N02W30ABB	820812	500	0	0	8	20	0	0	-------
135.3	S31N02W19DDD	820628	300	0	0	0	0	0	0	-------
135.3	S31N02W19DDD	820724	100	0	0	0	0	0	0	-------
135.3	S31N02W19DDD	820904	150	0	0	0	35	0	0	-------
135.4	S13N02W19DCA	820724	50	0	0	0	0	0	0	-------
135.7	S31N02W19DAB	820817	350	0	0	5	3	0	0	-------
135.7	S31N02W19DCD	820724	75	0	0	0	0	0	0	-------
135.7	S31N02W19DCD	820812	80	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
135.9	S31N02W19ACA	820628	140	1	0	0	0	0	0	-------
135.9	S31N02W19ACA	820724	100	1	0	0	0	0	0	-------
136.0	S31N02W19AD	820629	3500	1	0	0	0	0	0	-------
136.0	S31N02W19AD	820812	400	0	0	20	14	4	0	-------
136.0	S31N02W19AD	820904	150	1	0	0	50	0	0	-------
136.2	S31N02W20BBC	820817	300	0	0	1	50	1	0	-------
136.6	S31N02W20BBD	820817	300	0	0	0	25	0	0	-------
136.7	S31N02W20ABB	820816	50	0	0	0	8	0	0	-------
136.9	S31N02W17DCC	820819	200	0	0	0	25	0	0	-------
137.2	S13N02W17BDC	820905	150	0	0	0	0	3	0	-------
137.2	S31N02W17BDC	820628	350	1	0	0	0	0	0	-------
137.2	S31N02W17BDC	820724	175	0	0	0	0	0	0	-------
137.2	S31N02W17BDC	820811	250	1	0	50	13	0	0	-------
137.2	S31N02W17BDC	820816	50	0	0	3	20	1	0	-------
137.2	S31N02W17BDC	820915	200	0	0	0	0	0	0	-------
137.4	S31N02W17DBB	820906		0	0	0	2	0	0	-------
137.7	S31N02W17ABD	820628	400	0	1	0	0	0	0	-------
137.7	S31N02W17ABD	820727	50	0	0	0	0	0	0	-------
137.7	S31N02W17BDD	820912	350	0	0	0	0	0	0	-------
138.3	S31N02W16BBA	820627	250	0	0	0	0	0	0	-------
138.3	S31N02W16BBA	820811	200	0	0	8	6	1	0	-------
138.3	S31N02W16BBD	820819	250	0	0	2	50	0	0	-------
138.6	S13N02W09CDA	820905	200	0	0	0	100	5	0	-------
138.6	S31N02W09CDA	820628	650	8	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
138.6	S31N02W09CDA	820724	350	1	0	0	0	0	0	-------
138.6	S31N02W09CDA	820810	250	1	0	65	33	0	0	-------
138.6	S31N02W09CDA	820816	250	0	0	100	300	2	0	-------
138.6	S31N02W09CDA	820817	20	0	0	20	30	0	0	-------
138.6	S31N02W09CDA	820917	400	0	0	0	0	0	0	-------
138.6	S31N02W09CDA	820918	800	0	0	0	1	0	0	-------
138.6	S31N02W09CDA	820919	600	0	0	0	1	0	0	-------
138.6	S31N02W09CDA	820920	150	0	0	0	0	0	0	-------
138.6	S31N02W09CDA	820921	350	0	0	0	0	0	0	-------
138.9	S31N02W09DBD	820627	340	0	0	0	0	0	0	-------
138.9	S31N02W09DBD	820727	75	0	0	0	0	0	0	-------
138.9	S31N02W09DBD	820906		0	0	0	0	0	0	-------
138.9	S31N02W09DBD	820918	100	0	0	0	0	0	0	-------
139.3	S31N02W01DDB	820906	200	0	1	0	0	1	0	-------
139.3	S31N02W10CBC	820819	350	0	0	0	60	0	0	-------
139.3	S31N02W10CBC	820906	150	0	0	0	0	0	0	-------
139.5	S31N02W10DDA	820906	150	0	0	0	0	0	0	-------
139.5	S31N02W10DDA	820907	200	0	0	0	1	0	0	-------
139.5	S31N02W10DDA	820918	120	0	0	0	0	0	0	-------
139.7	S31N02W10DBD	820627	150	0	0	0	0	0	0	-------
140.0	S31N02W10DCA	820819	75	0	0	0	0	0	0	-------
140.1	S31N02W10ACD	820819	150	0	0	2	2	0	0	-------
140.1	S31N02W11BBC	820727	50	0	0	0	0	0	0	-------
140.1	S31N02W11BBC	820811	250	0	0	21	15	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON					CATCH: BERING CISCO	BERING CISCO OBSERVED
				CHINOOK	SOCKEYE	PINK	CHUM	COHO		
140.1	S31N02W11BBC	820818	200	0	0	0	10	0	0	-------
140.1	S31N02W11BBC	820905	200	0	0	0	4	1	0	-------
140.1	S31N02W11BBC	820919	400	0	0	0	0	0	0	-------
140.5	S31N02W01ADB	820818	400	0	0	4	20	0	0	-------
140.5	S31N02W02ABB	820811	250	0	0	1	3	0	0	-------
141.4	S31N02W02ABB	820627	200	0	0	0	0	0	0	-------
141.8	S21N02W02AAB	820905	250	0	0	0	1	0	0	-------
141.8	S31N02W02AAB	820818	350	0	0	5	300	1	0	-------
141.8	S31N02W02AAB	820923	100	0	0	0	0	0	0	-------
142.0	S31N02W02AAA	820627	200	0	0	0	0	0	0	-------
142.0	S31N02W02AAA	820727	150	0	0	0	0	0	0	-------
142.0	S32N02W35DDC	820818	350	0	0	5	17	0	0	-------
142.2	S32N02W36CBD	820905	350	0	0	0	0	0	0	-------
142.5	S32N02W31CBA	820818	200	0	0	0	25	1	0	-------
142.7	S32N02W31BCA	820818	300	0	0	0	7	0	0	-------
143.0	S32N02W36ADD	820811	400	0	0	6	17	0	0	-------
143.0	S32N02W36DAA	820905	230	0	0	0	1	0	0	-------
143.1	S32N02W36ADA	820627	150	2	0	0	0	0	0	-------
143.5	S32N01W31BCA	820811	150	0	0	1	2	0	0	-------
143.5	S32N01W31BCA	820905	250	0	0	0	0	0	0	-------
143.8	S23N01W32BDB	820923	150	0	0	0	0	0	0	-------
144.3	S32N01W32BBC	820923	300	0	0	0	0	0	0	-------
144.5	S32N01W32ACA	820727	1200	2	0	0	0	0	0	-------
144.5	S32N01W32ACA	820811	250	2	0	14	6	3	0	-------

Appendix Table 2-F-1. Continued.

				CATCH						
				ADULT SALMON						
RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
144.5	S32N01W32ACA	820818	450	0	0	4	15	30	0	-------
144.5	S32N01W32ACA	820905	300	0	1	0	1	10	0	-------
144.5	S32N01W32ACA	820919	400	0	0	0	0	0	0	-------
145.0	S32N01W32ADB	820627	500	0	0	0	0	0	0	-------
145.0	S32N01W32ADB	820811	600	0	0	4	12	0	0	-------
145.2	S32N01W33BBD	820818	200	0	0	0	0	0	0	-------
145.4	S32N01W32ADB	820905	400	0	0	0	0	0	0	-------
147.2	S32N01W27DAC	820905	300	0	0	0	0	1	0	-------
147.2	S32N01W27DAC	820923	250	0	0	0	0	0	0	-------
147.6	S32N01W26BDC	820818	225	0	3	2	25	0	0	-------
147.6	S32N01W26CB	820627	440	1	0	0	0	0	0	-------
147.6	S32N01W26CB	820811	175	0	0	10	3	0	0	-------
147.6	S32N01W26CB	820818	800	0	0	2	30	0	0	-------
147.6	S32N01W26CBA	820905	150	0	0	0	3	0	0	-------
148.0	S32N01W26DCB	820818	75	0	0	1	35	0	0	-------
148.2	S32N01W26DCA	820818	125	0	0	0	400	0	0	-------
148.2	S32N01W26DCA	820905	100	0	1	0	4	1	0	-------
148.2	S32N01W26DCB	820923	40	0	0	0	0	0	0	-------
148.8	S32N01W25CBD	820727	350	10	0	0	0	0	0	-------
148.8	S32N01W25CBD	820905	450	0	0	0	10	5	0	-------
148.8	S32N01W25CDB	820627	440	2	0	0	0	0	0	-------
148.8	S32N01W25CDB	820811	450	3	0	40	30	1	0	-------
148.8	S32N01W25CDB	820818	500	0	0	0	78	3	0	-------
148.8	S32N01W25CDB	820921	400	0	0	0	0	0	0	-------

Appendix Table 2-F-1. Continued.

RIVER MILE	GEOCODE	DATE	DISTANCE SHOCKED (YDS)	CATCH: ADULT SALMON: CHINOOK	SOCKEYE	PINK	CHUM	COHO	BERING CISCO	BERING CISCO OBSERVED
150.1	S32N01E31CBD	820627	340	0	0	0	0	0	0	-------
150.1	S32N01E31CBD	820921	50	0	0	0	0	0	0	-------
150.4	S32N01E31DCB	820811	150	0	0	2	5	0	0	-------
150.4	S32N01E31DCB	820818	200	0	0	1	12	0	0	-------
150.4	S32N01E31DCB	820905	200	0	0	0	0	1	0	-------
150.4	S32N01E31DCB	820923	100	0	0	0	0	0	0	-------

Appendix Table 2-F-2. Summary of mainstem Susitna River sampling using gill nets and visual inspection, Adult Anadromous Investigations, Su Hydro Studies, 1982

River Mile	Legal	Date	Method 1/	Distance 2/	Catch: Adult Salmon: Chinook	Sockeye	Pink	Chum	Coho	Bering Cisco
8.5	S15N07W18ACB	820809	VI	100+	0	0	0	0	0	0
17.7	S16N07W22AAB	820811	SN	4 min.	0	0	0	1	0	0
17.9	S16N05W15DCD	820811	DN	250	0	0	0	0	0	0
20.0	S16N07W09DAC	820811	SN	8 min.	0	0	0	0	0	0
23.8	S17N07W33ACB	820811	DN	50	0	0	0	0	0	0
24.8	S17N07W27BCC	820811	DN	60	0	0	0	2	0	0
27.1	S17N07W23AAA	820811	SN	6 min.	0	0	0	0	0	0
27.8	S17N07W13DCC	820811	SN	3 min.	0	0	0	0	0	0
29.0	S17N07W13AAA	820811	DN	400	0	0	0	0	0	0
29.6	S17N06W07DCB	820811	DN	30	0	0	0	0	0	0
30.9	S17N06W08AAB	820811	DN	75	0	0	0	0	0	0
31.1	S17N06W05CBA	820810	SN	15 min.	0	0	0	0	2	0
31.1	S17N06W05CBA	820812	SN	10 min.	0	0	1	0	1	0
31.2	S17N06W05CAD	820812	DN	20	0	0	0	0	0	0
31.5	S17N06W05ACD	820812	DN	15	0	0	0	0	0	0
31.7	S17N06W04CBC	820811	DN	100	0	0	0	0	0	0
31.8	S17N06W04CAB	820814	DN	80	0	0	0	0	0	0
32.0	S18N06W32DCA	820812	SN	15 min.	0	0	0	0	0	0
33.1	S18N06W33ABB	820812	DN	75	0	0	0	0	0	0
33.1	S18N06W34BBA	820814	DN	40	0	0	0	0	0	0
33.5	S18N06W28CDD	820812	DN	70	0	0	0	0	0	0
34.1	S18N06W34BBA	820812	DN	50	0	0	0	0	0	0
34.5	S18N06W27BCC	820814	DN	40	0	0	0	0	0	0
35.0	S18N06W27BBA	820814	DN	20	0	0	0	0	0	0
36.0	S18N06W22BBB	820814	DN	50	0	0	0	0	0	0
36.2	S18N06W16DDD	820814	DN	90	0	0	0	2	0	0
37.1	S18N06W15BAD	820814	DN	40	0	0	0	0	0	0
37.1	S18N06W15BAA	820814	DN	45	0	0	0	0	0	0
38.3	S18N06W11BDA	820814	DN	55	0	0	0	0	2	0
40.0	S18N06W02ABD	820810	DN	250	0	0	0	0	1	0
40.0	S18N06W02AAB	820814	DN	100	0	0	0	0	0	0
42.0	S19N06W25BDA	820810	DN	200	0	0	0	0	1	0
51.0	S20N05W21BCB	820815	SN	10 min.	0	0	0	0	5	0

Appendix Table 2-F-2. Continued.

River Mile	Legal	Date	Method [1/]	Distance [2/]	Catch					
					Adult Salmon					Bering Cisco
					Chinook	Sockeye	Pink	Chum	Coho	
53.1	S20N05W09DCC	820810	DN	65	0	0	0	5	0	0
56.2	S21N05W34DCC	820810	DN	60	0	0	0	0	0	0
59.3	S21N05W23BCB	820815	DN	30	0	0	0	0	0	0
60.0	S21N05W14DDB	820815	DN	45	0	0	0	0	1	0
106.3	S27N05W12CCC	820823	VI	400	0	0	0	0	0	0
107.5	S27N05W12BBA	820823	VI	600	0	0	0	0	0	0
107.5	S27N05W12BBA	820901	VI	600	0	0	0	0	0	0
109.8	S28N04W30CCD	820911	VI	400	0	0	0	0	0	0
110.1	S28N04W30CBB	820901	VI	900	0	0	0	0	0	0
110.1	S28N04W30CBB	820911	VI	900	0	0	0	0	0	0
111.6	S28N05W24ADB	820822	DN	200	0	0	0	0	0	0
114.3	S28N04W06CCB	820927	VI	800	0	0	0	0	0	0
114.4	S28N04W06CAB	820902	VI	700	0	0	0	10	0	0
117.2	S29N04W29DBB	820902	VI	150	0	0	0	0	0	0
117.7	S29N04W28BBD	820813	VI	200	0	0	12	15	0	0
117.7	S29N04W28BBD	821002	VI	200	0	0	0	0	8	0
117.8	S29N04W29AAB	820902	VI	500	0	0	0	0	0	0
117.8	S29N04W29AAB	820924	VI	600	0	0	0	0	0	0
125.2	S30N04W25AD-	820928	VI	1000	0	0	0	0	0	0
125.6	S30N03W30BAD	820924	VI	400	0	0	0	0	0	0
125.9	S30N03W19CDD	820912	VI	300	0	0	0	0	0	0
125.9	S30N03W19CDD	820920	DN	100	0	0	0	0	0	0
125.9	S30N03W19CDD	820928	VI	300	0	0	0	0	0	0
126.8	S30N03W20BAC	820928	VI	150	0	0	0	0	0	0
127.8	S30N03W20AAB	820912	VI	200	0	0	0	0	0	0
127.8	S30N03W20AAB	820920	VI	200	0	0	0	0	0	0
128.6	S30N03W16BCA	820905	VI	200	0	0	0	10	0	0
128.6	S30N03W16BCA	820907	VI	200	0	0	0	7	0	0
128.8	S30N03W16BBA	820920	DN	150	0	0	0	0	0	0
129.8	S30N03W09DAB	820912	VI	800	0	0	0	5	0	0
130.1	S30N03W04DDD	820912	VI	100	0	0	0	0	0	0
130.1	S30N03W04DDD	820912	SN	20 min.	0	0	0	0	0	0
130.1	S30N03W04DDD	820919	DN	200	0	0	0	0	0	0
130.1	S30N03W10BCA	820920	DN	100	0	0	0	0	0	0

Appendix Table 2-F-2. Continued.

River Mile	Legal	Date	Method 1/	Distance 2/	Catch: Adult Salmon: Chinook	Sockeye	Pink	Chum	Coho	Bering Cisco
130.1	S30N03W10BCA	820928	VI	500	0	0	0	0	0	0
131.3	S30N03W03DA-	820904	VI	100	0	0	0	12	0	0
131.3	S30N03W03DA-	820904	SN	45 min.	0	0	0	5	0	0
131.3	S30N03W03DA-	820919	DN	120	0	0	0	0	0	0
131.5	S30N03W03DAA	820919	VI	500	0	0	0	0	0	0
132.8	S30N03W02B--	820912	VI	1500	0	0	0	0	0	0
134.2	S31N03W30DCD	820919	DN	100	0	0	0	1	0	0
135.0	S31N02W30DBB	820904	VI	150	0	0	0	0	0	0
135.2	S31N02W30BAA	820902	VI	200	0	0	0	0	0	0
136.0	S31N02W19AD-	820904	VI	150	0	0	0	50	0	0
137.4	S31N02W17DBB	820828	VI	150	0	0	0	1	0	0
137.4	S31N02W17DBB	820903	VI	150	0	0	0	4	0	0
137.4	S31N02W17DBB	820905	VI	150	0	0	0	14	0	0
137.4	S31N02W17DBB	820913	VI	100	0	0	0	0	0	0
138.2	S31N02W16BBB	820927	VI	200	0	0	0	0	0	0
138.9	S31N02W09DBD	820904	VI	200	0	0	0	16	0	0
138.9	S31N02W09DBD	820906	VI	200	0	0	0	14	0	0
138.9	S31N02W09DBD	820907	VI	200	0	0	0	17	0	0
139.4	S31N02W10CAB	820927	VI	300	0	0	0	0	0	0
139.5	S31N02W10DDA	820906	VI	250	0	0	0	0	0	0
139.5	S31N02W10DDA	820913	SN	30 min.	0	0	0	0	0	0
139.5	S31N02W10DDA	821002	VI	400	0	0	0	0	0	0
141.8	S31N02W02AAB	820906	SN	20 min.	0	0	0	0	0	0
142.5	S32N02W31CBA	820923	VI	400	0	0	0	0	0	0
143.1	S32N02W36ADA	820923	VI	100	0	0	0	0	0	0
143.3	S32N01W31BCB	820904	VI	100	0	0	0	22	0	0
143.3	S32N01W31BCB	820905	VI	100	0	0	0	15	0	0
143.3	S32N01W31BCB	820923	VI	100	0	0	0	0	0	0
143.9	S32N01W31ACB	820923	VI	300	0	0	0	0	0	0
144.0	S32N01W31ACD	820923	VI	100	0	0	0	0	0	0
144.7	S32N01W32BDC	820923	VI	100	0	0	0	0	0	0

1/ Methods Noted: VI = Visual Inspection SN = Set Gill Net DN = Drift Gill Net

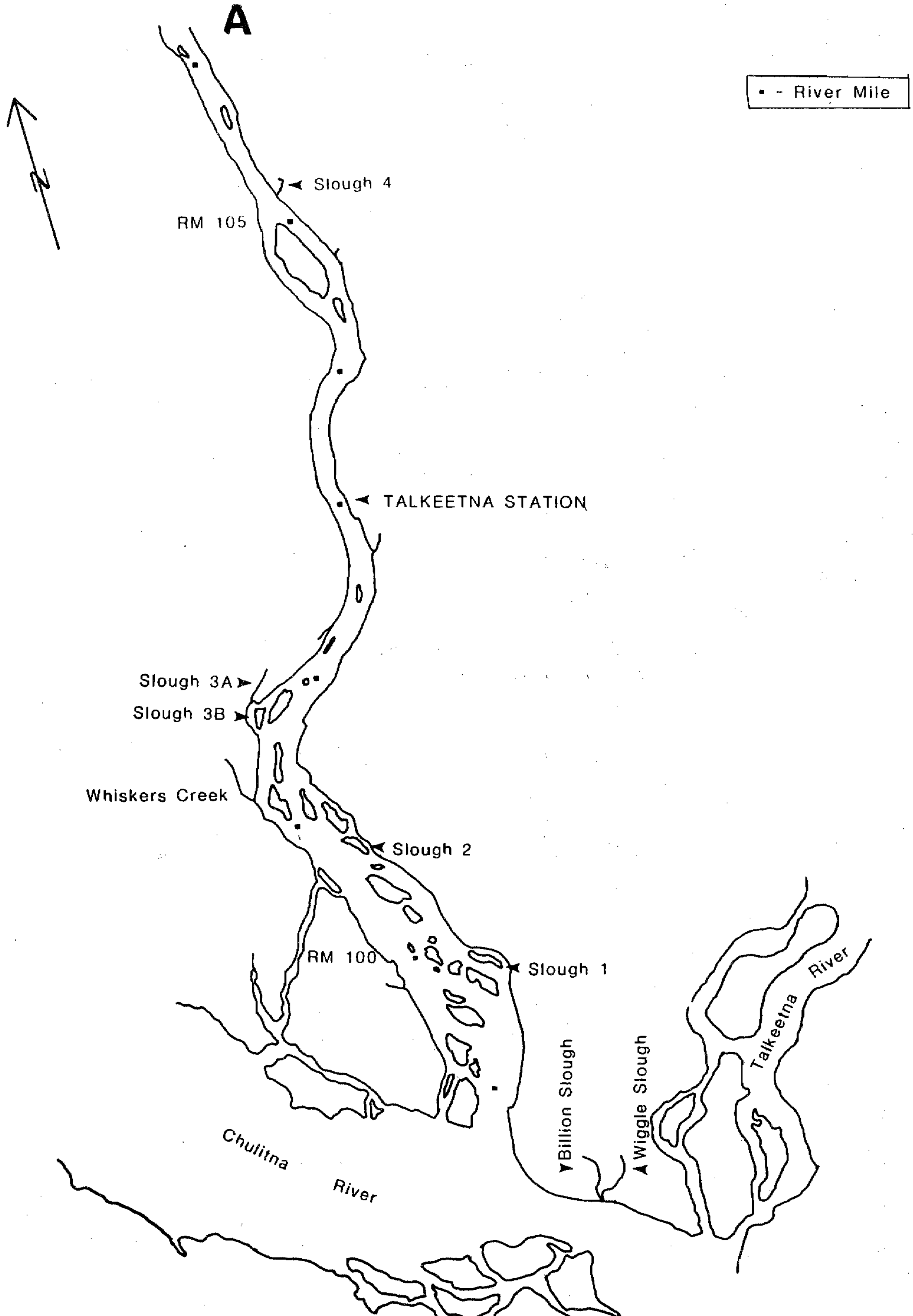
2/ Distance recorded in yards unless otherwise indicated.

Appendix Table 2-F-3. Evaluation of tag loss based on spawning surveys conducted between Sunshine Station and Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

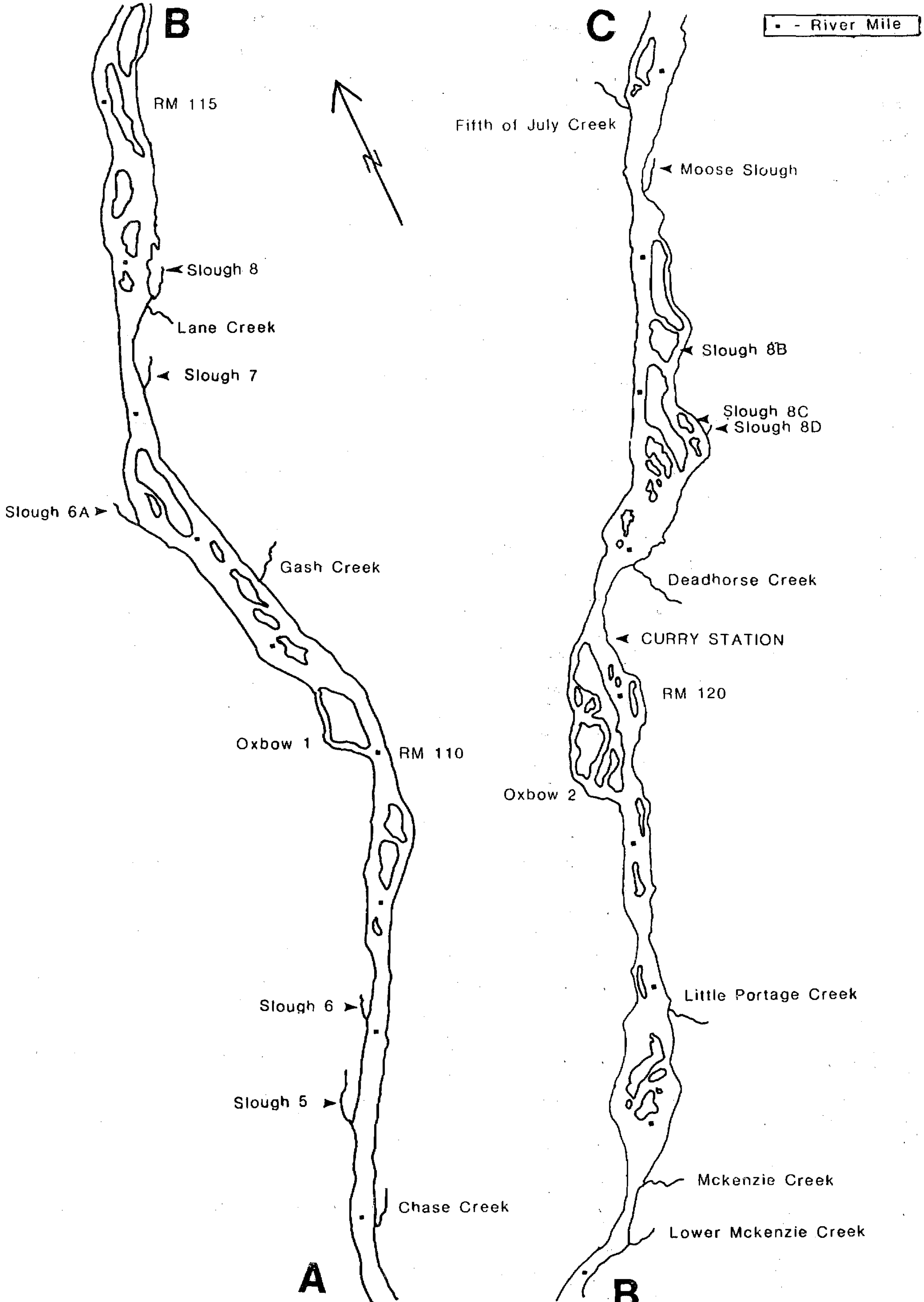
Tag Type	Tagging Station	No. Tagged Fish Examined	No. Tags Shed	Total No. Tags	Percent Tag Retention
FT-4/Spaghetti	Sunshine	331	28	359	92.2
FT-4/Spaghetti	Talkeetna	386	26	412	93.7
Petersen Disc	Curry	325	3	328	99.1

APPENDIX 2-G

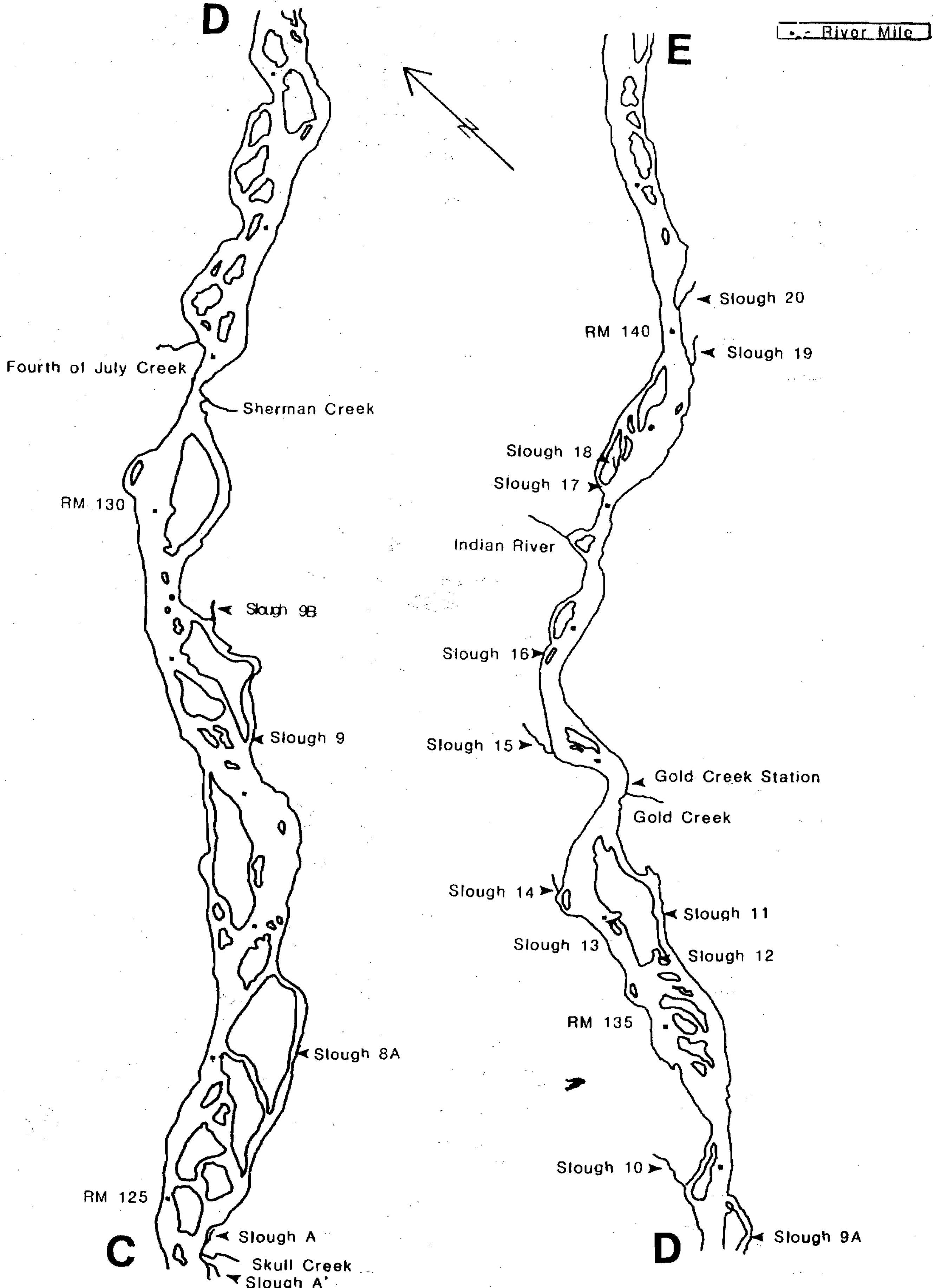
1. SLOUGH AND STREAM LOCATIONS FROM RM 98.6 TO 161.2
2. LOCATION OF CHEECHAKO AND CHINOOK CREEKS
3. MAP OF SLOUGH B
4. MAINSTEM SUSITNA RIVER SPAWNING SITE MAPS
5. ESCAPEMENT SURVEYS OF SLOUGHS AND STREAMS
6. TAGGED/UNTAGGED RATIOS FROM SPAWNING GROUND SURVEYS



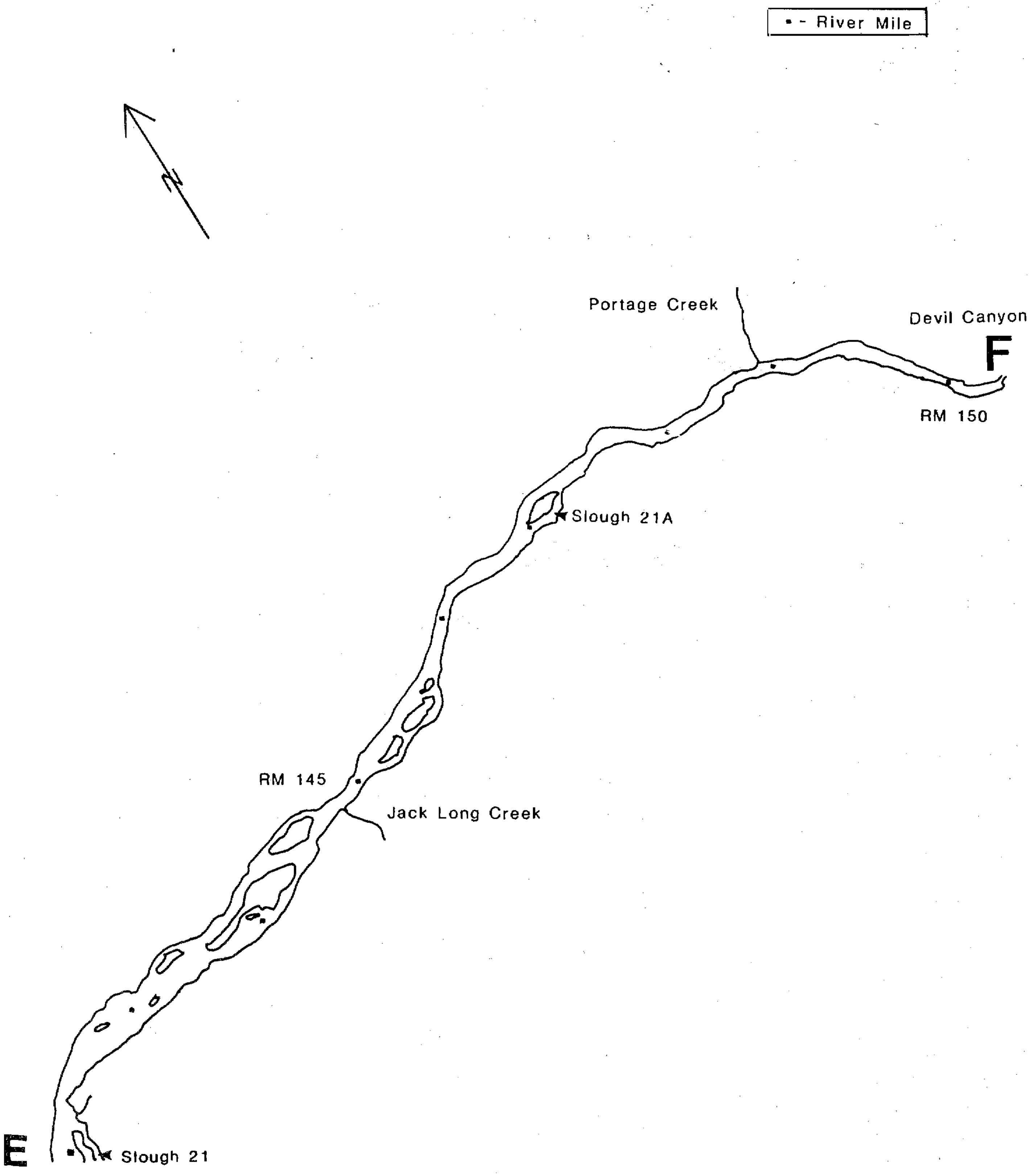
Appendix Figure 2-G-1. Slough locations and primary streams of the Susitna River from the confluence of the Talkeetna and Chulitna rivers to Upper Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.



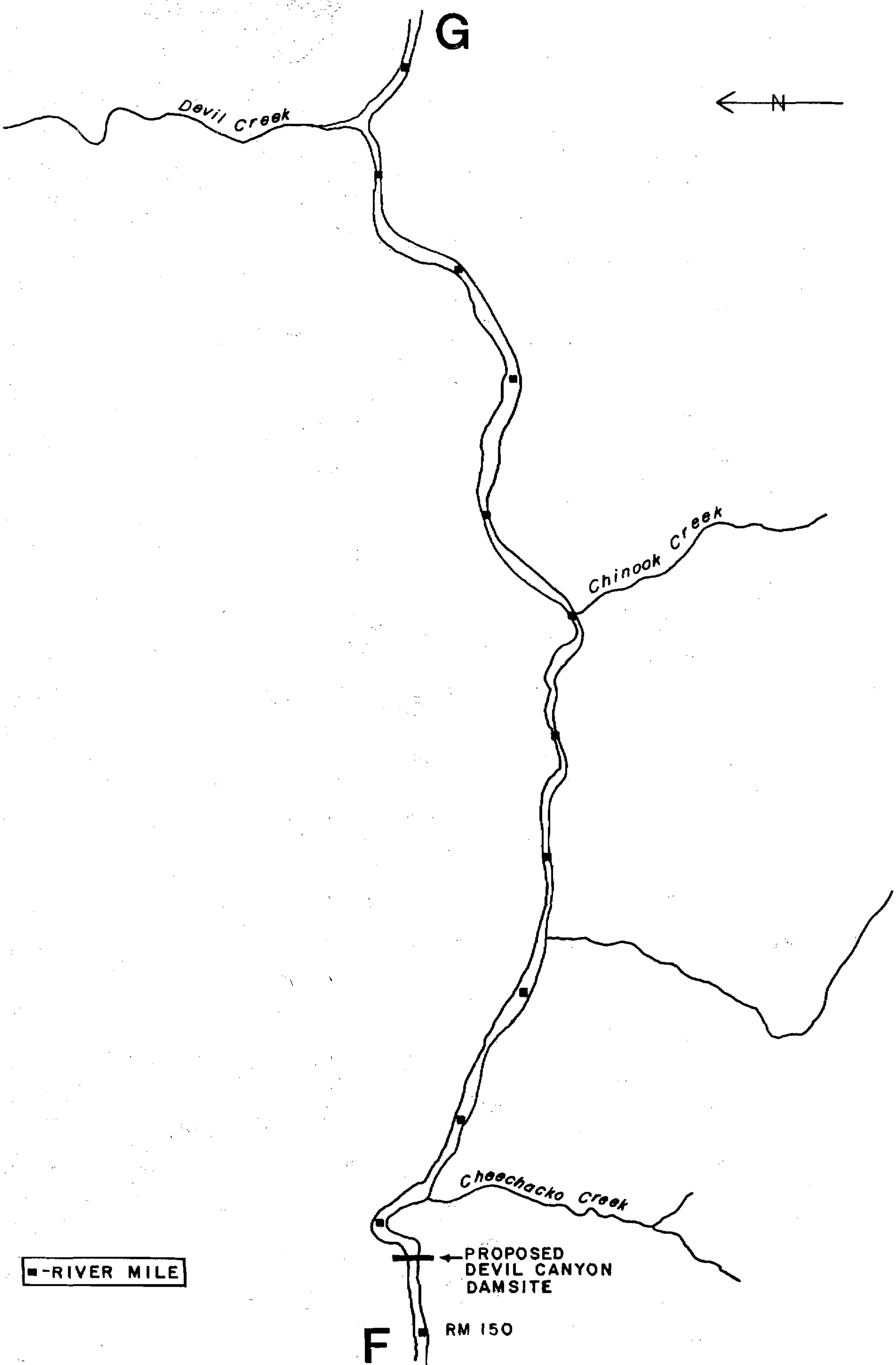
Appendix Figure 2-G-1. Continued.



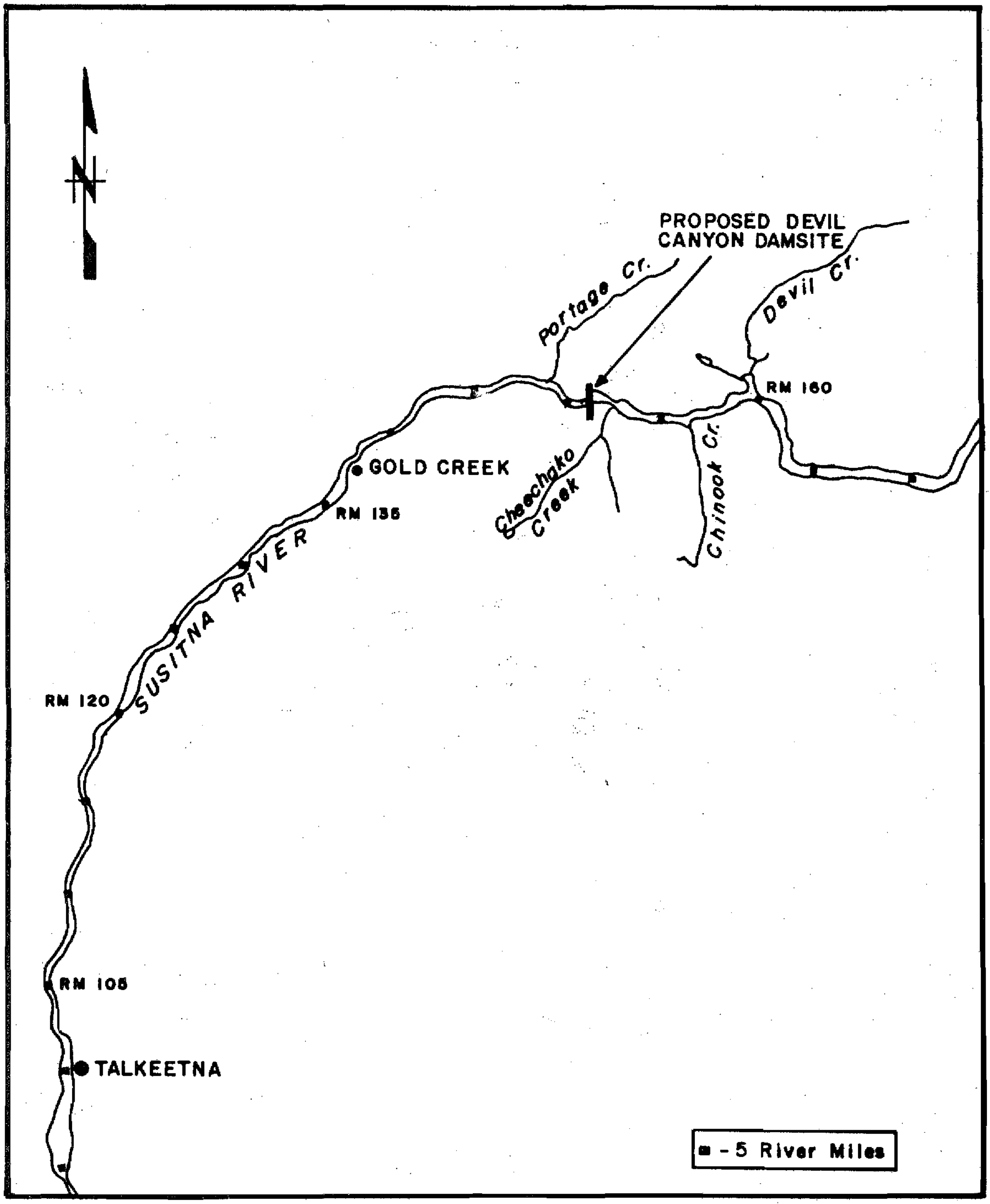
Appendix Figure 2-G-1. Continued.



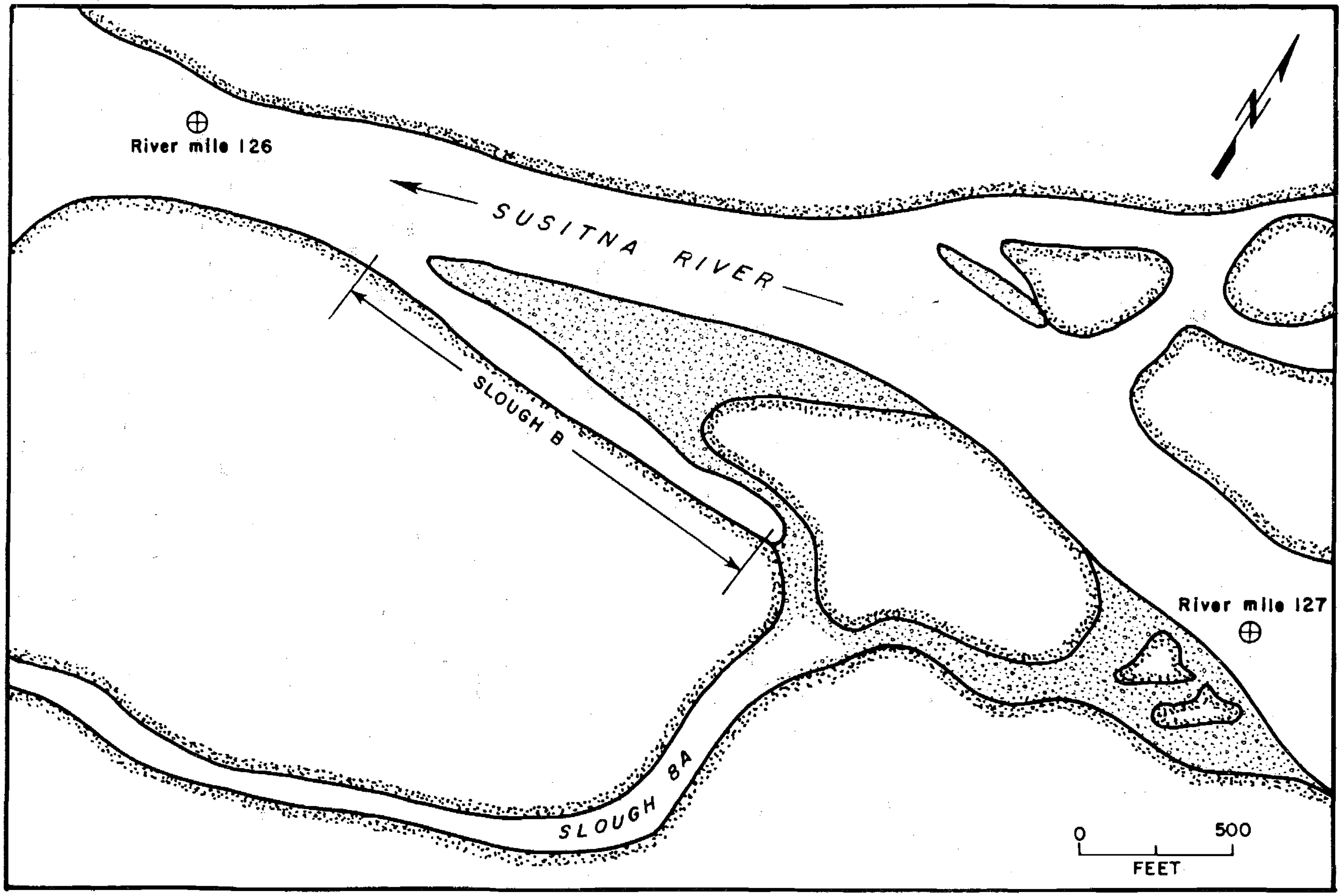
Appendix Figure 2-G-1. Continued.



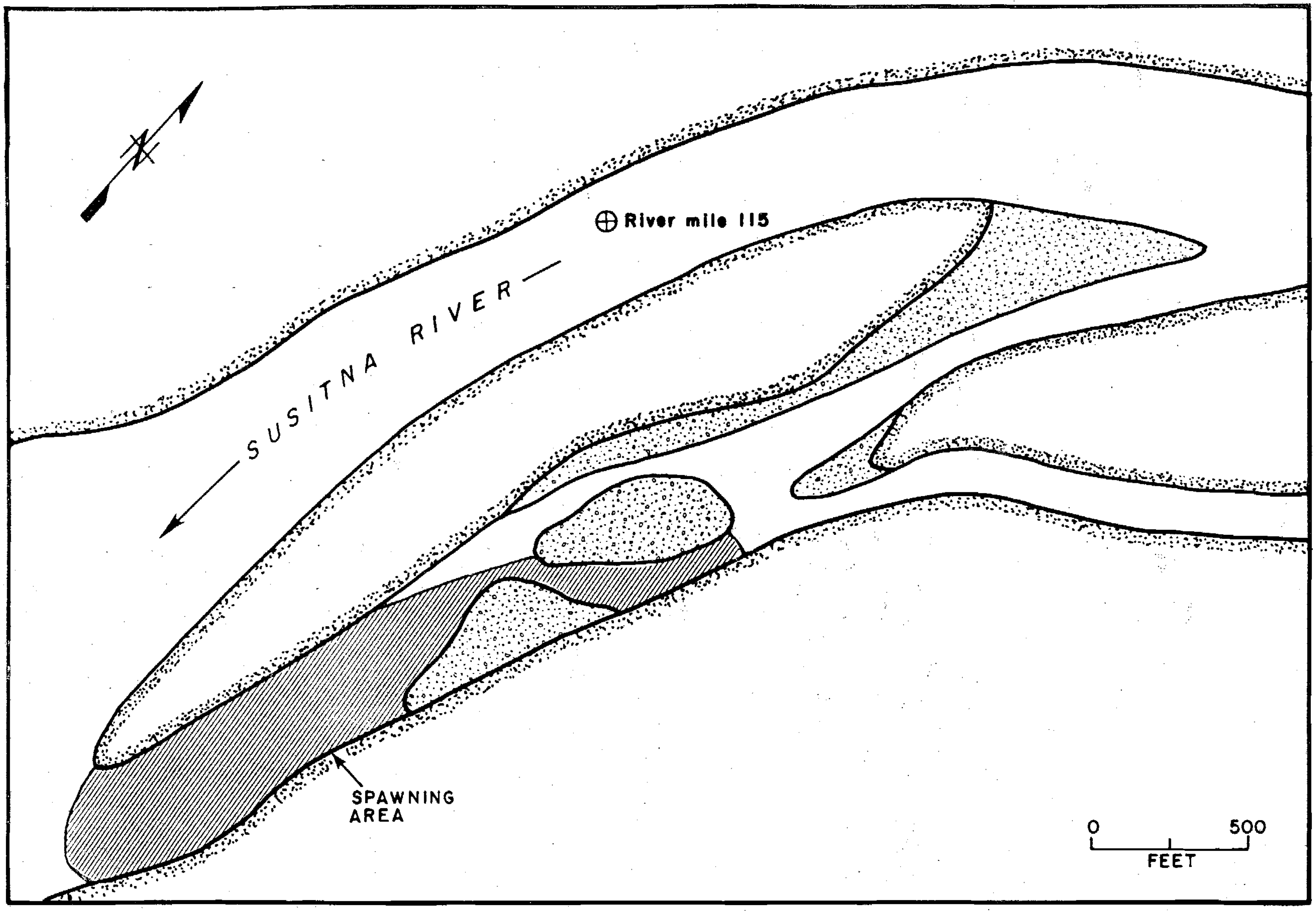
Appendix Figure 2-G-1. Continued.



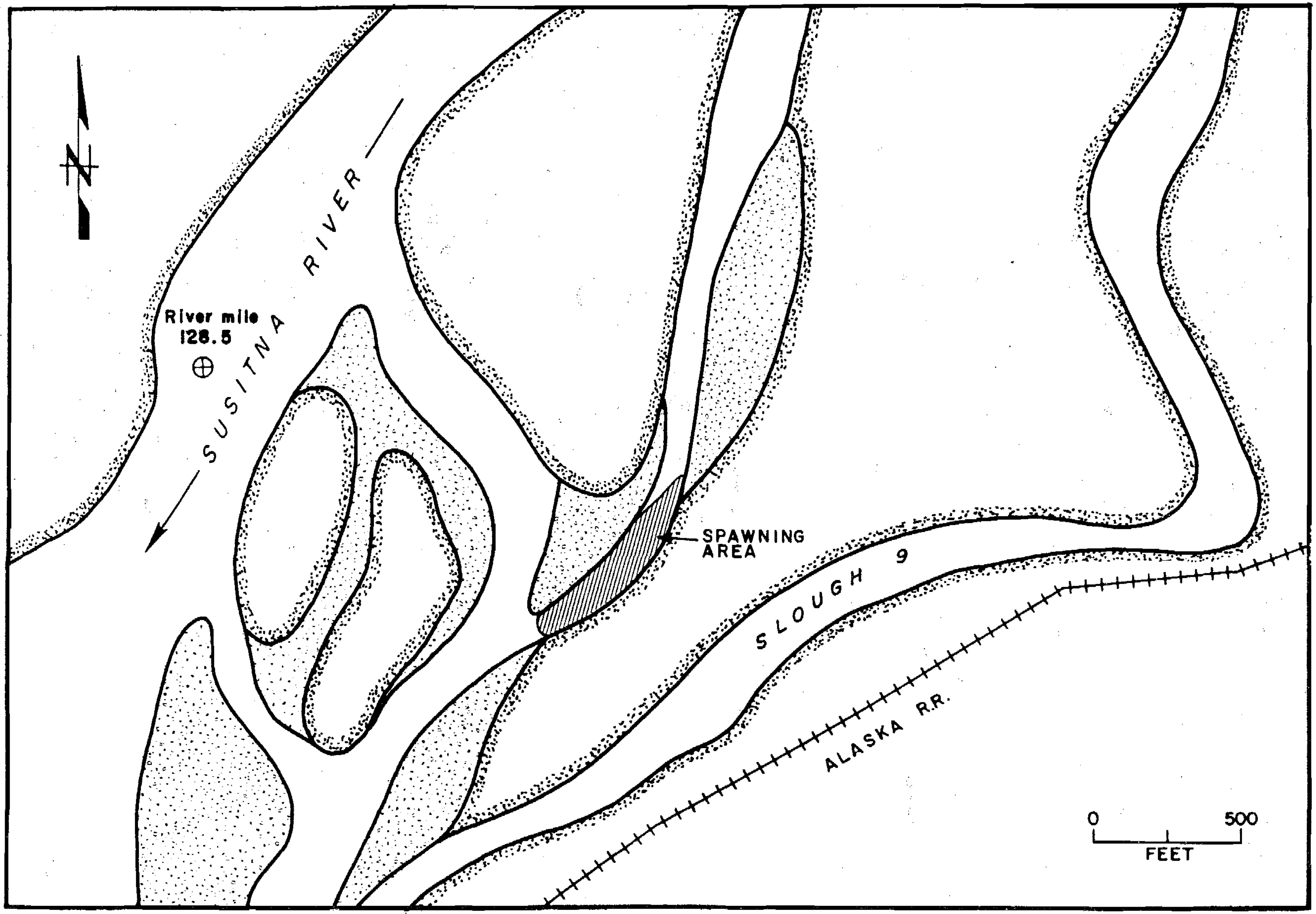
Appendix Figure 2-G-2. Location of Susitna River streams Cheechako and Chinook creeks above proposed Devil Canyon damsite, Adult Anadromous Investigations, Su Hydro Studies, 1982.



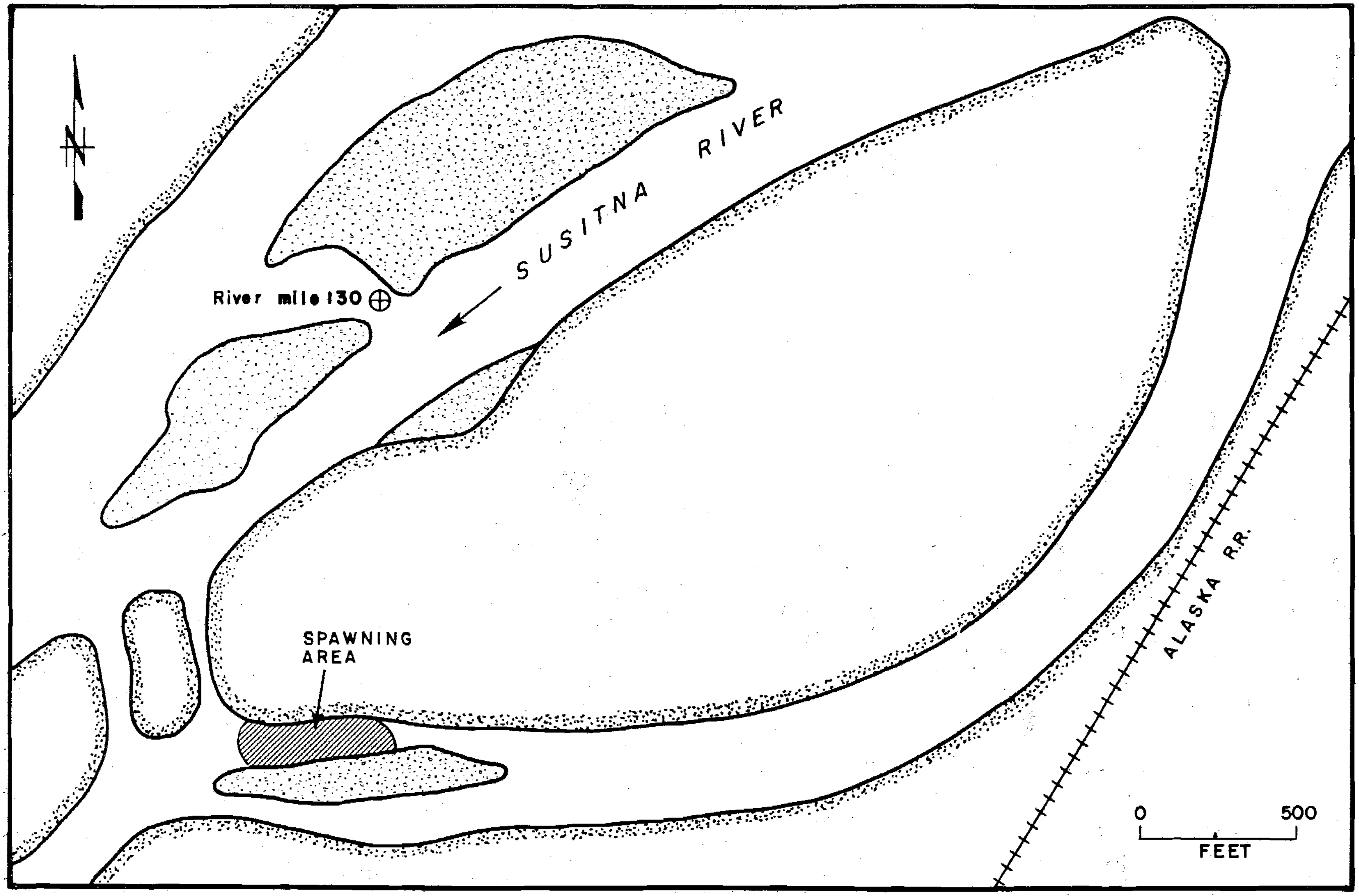
Appendix Figure 2-G-3. Slough B located at RM 126.3 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



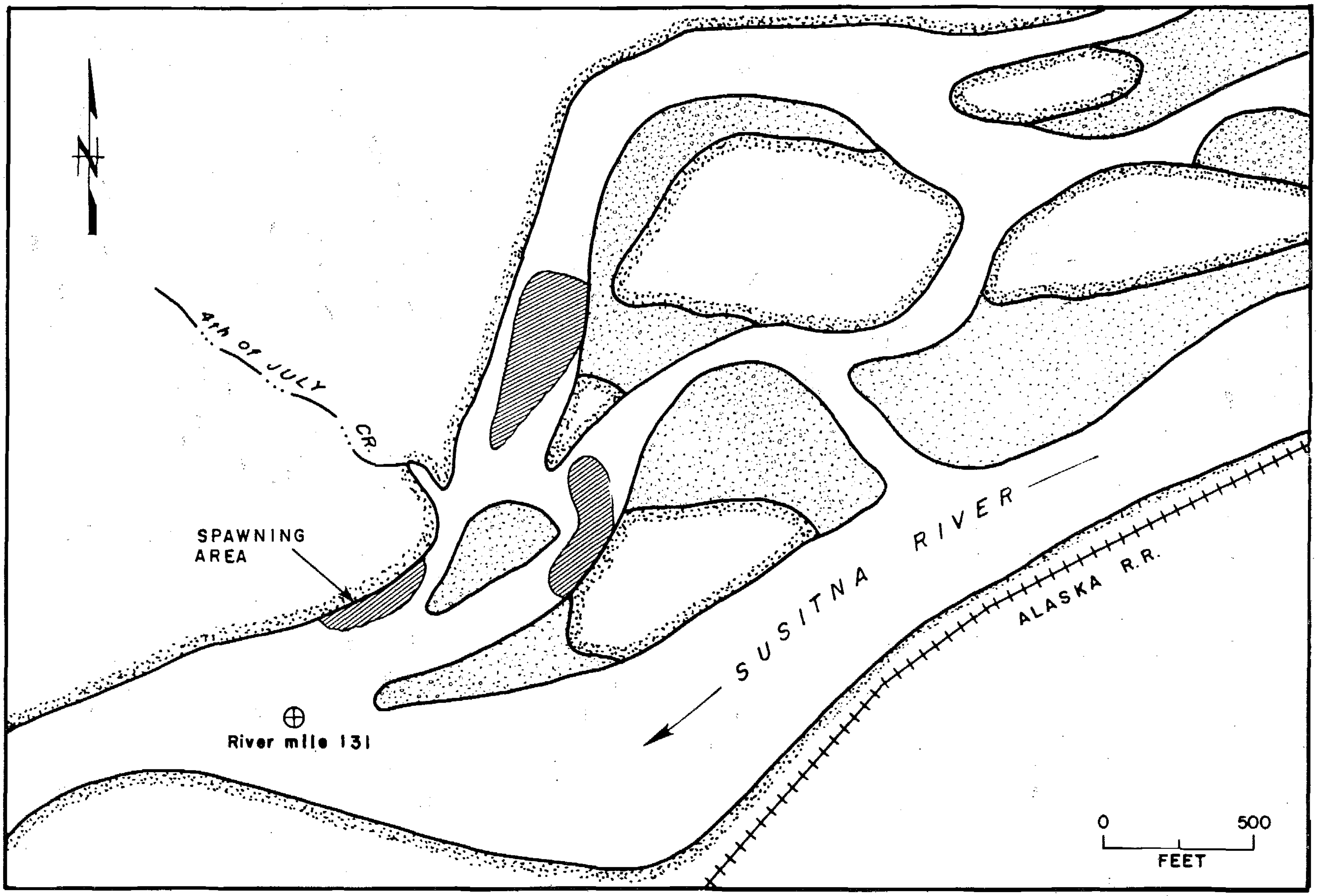
Appendix Figure 2-G-4. Mainstem Susitna River chum salmon spawning area at RM 114.4 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



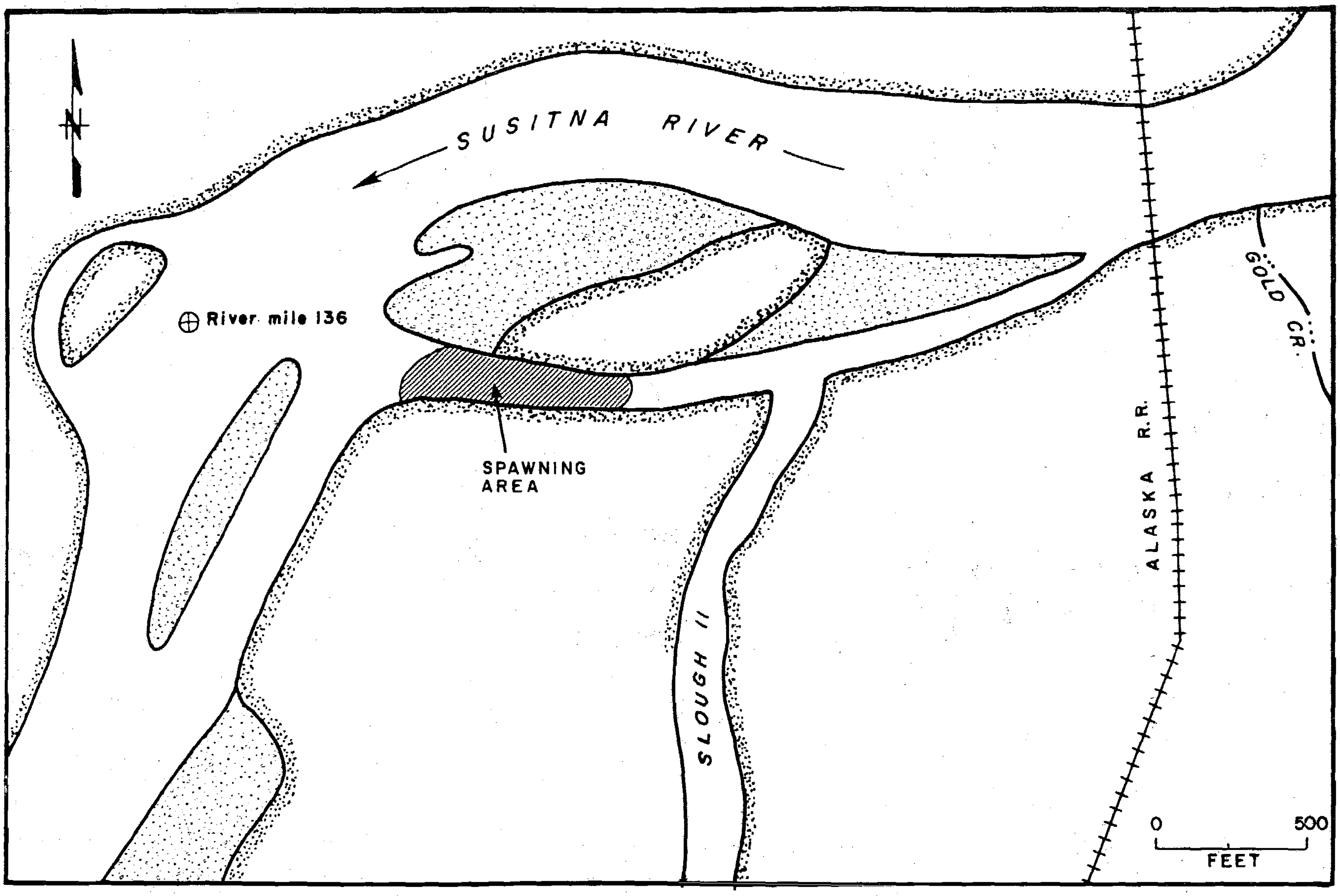
Appendix Figure 2-G-5. Mainstem Susitna River chum salmon spawning area at RM 128.6 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



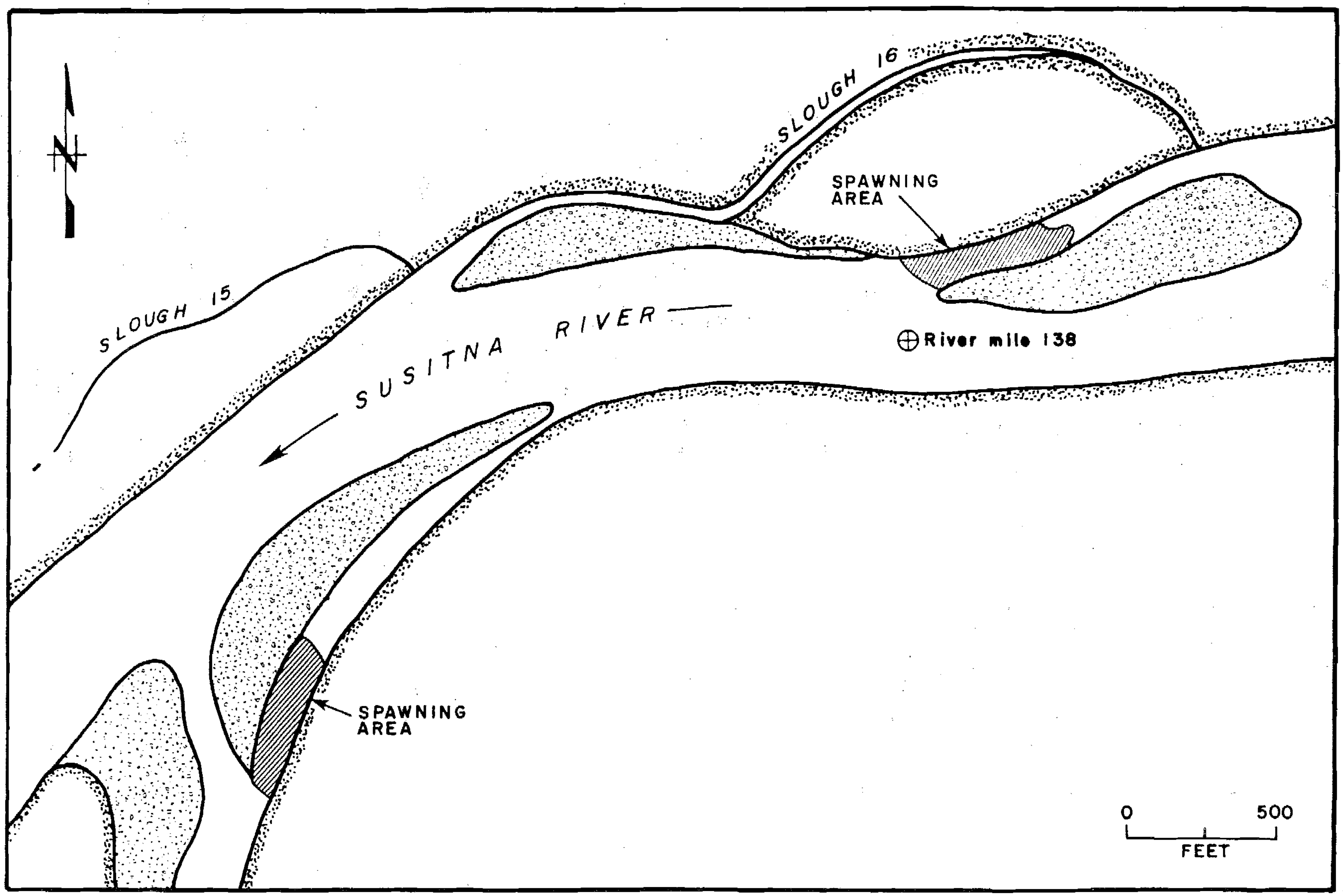
Appendix Figure 2-G-6. Mainstem Susitna River chum salmon spawning area at RM 129.8 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



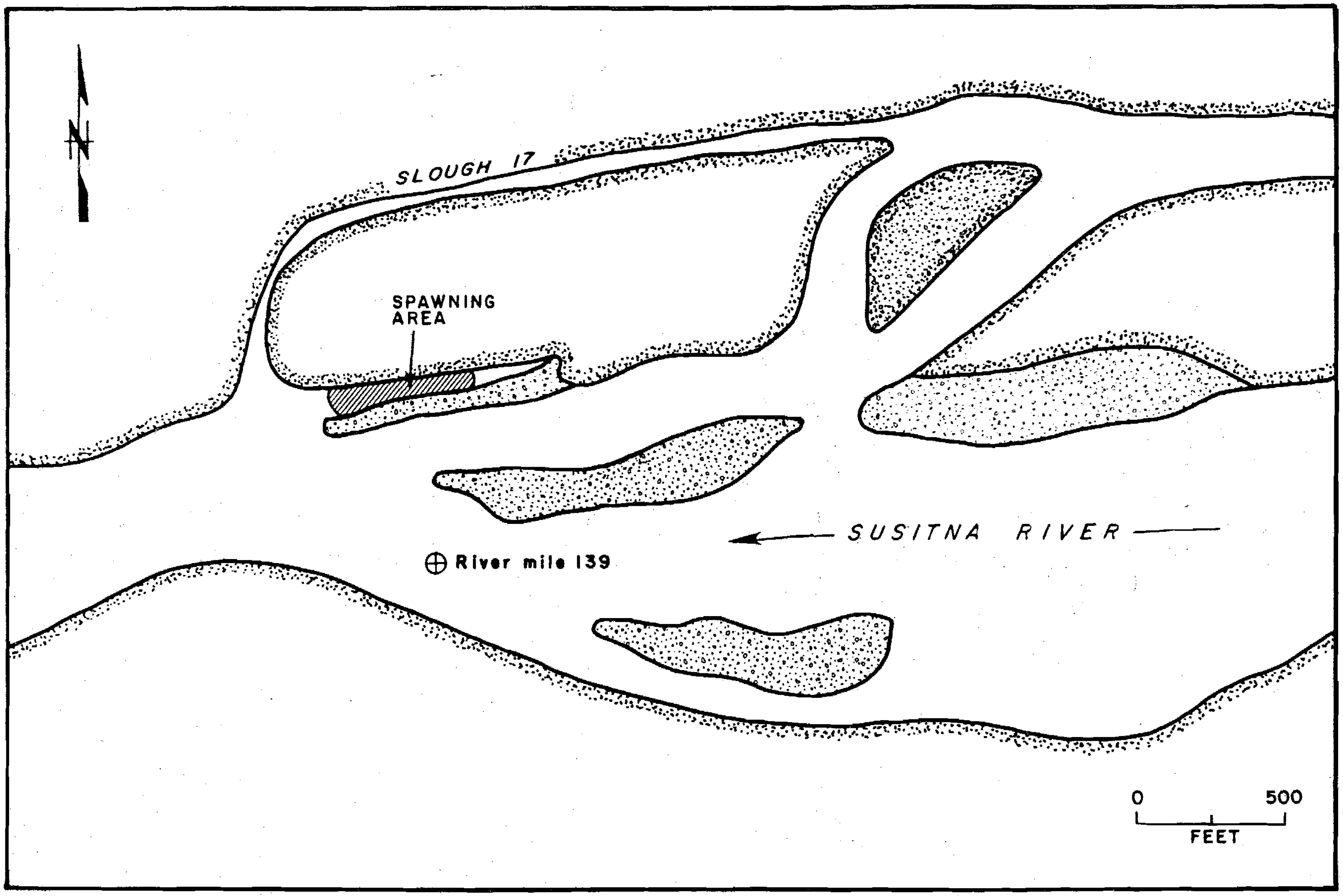
Appendix Figure 2-G-7. Mainstem Susitna River chum salmon spawning area at RM 131.3 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



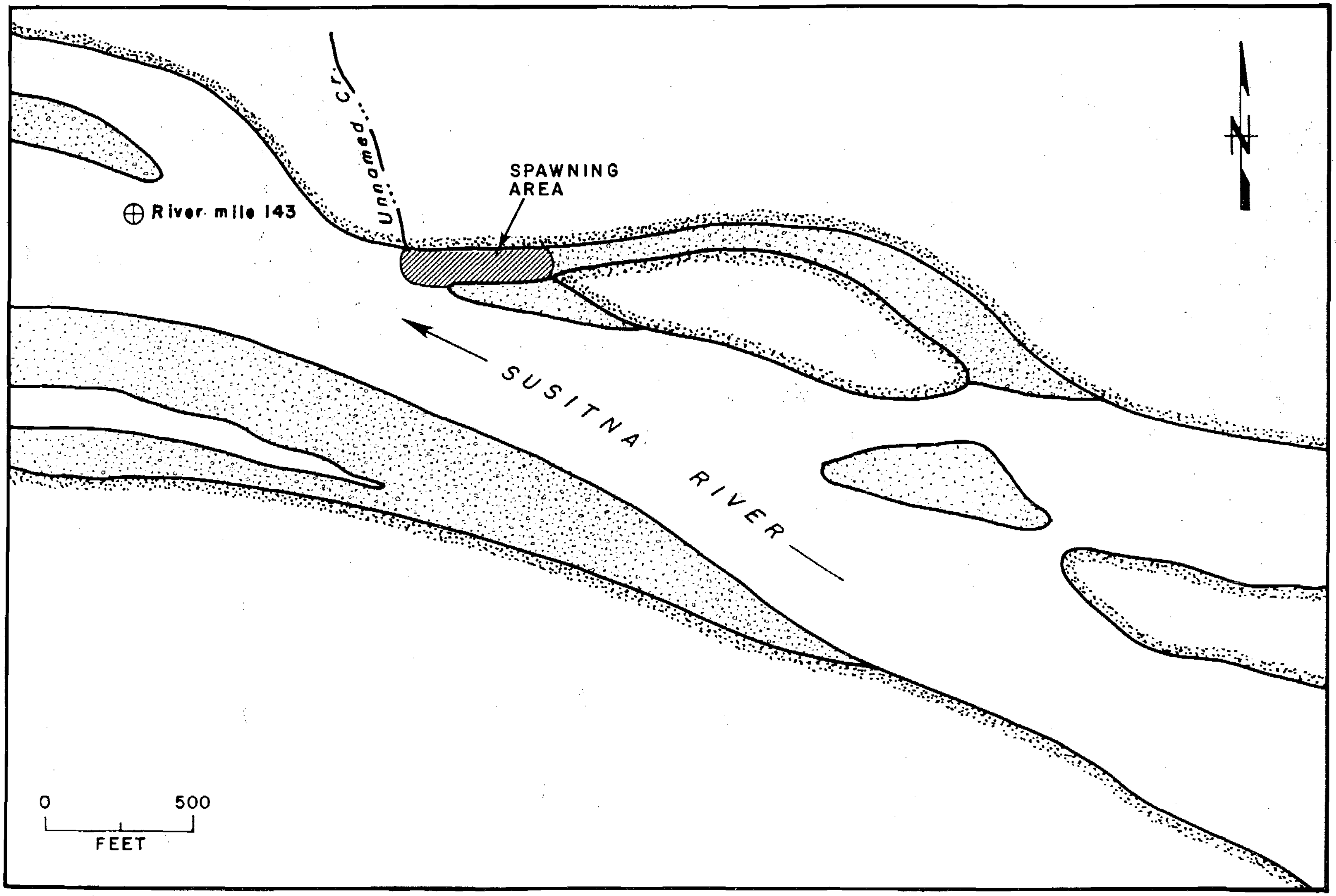
Appendix Figure 2-G-8. Mainstem Susitna River chum salmon spawning area at RM 136.0 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



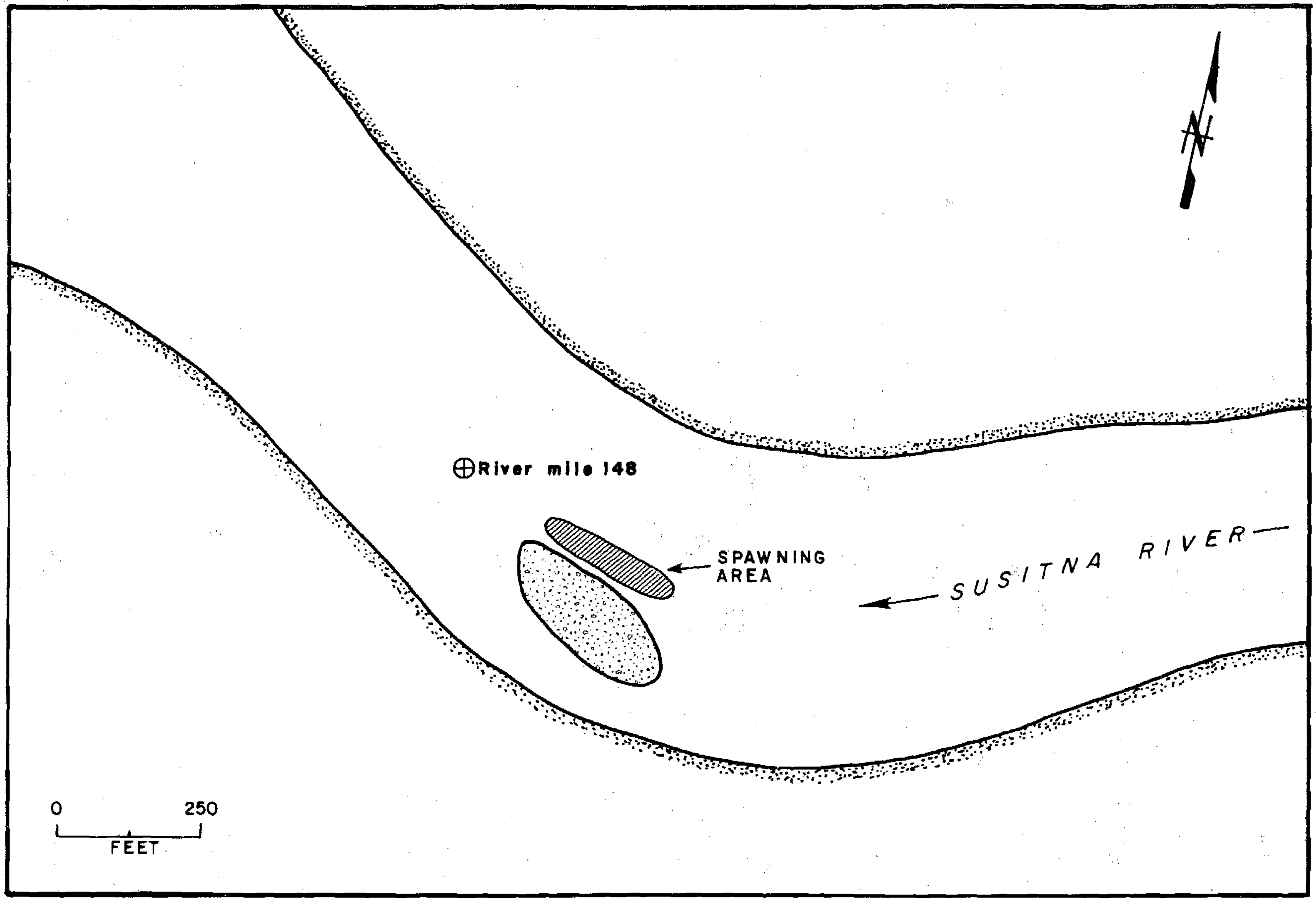
Appendix Figure 2-G-9. Mainstem Susitna River chum salmon spawning area at RM 137.4 and 138.2 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



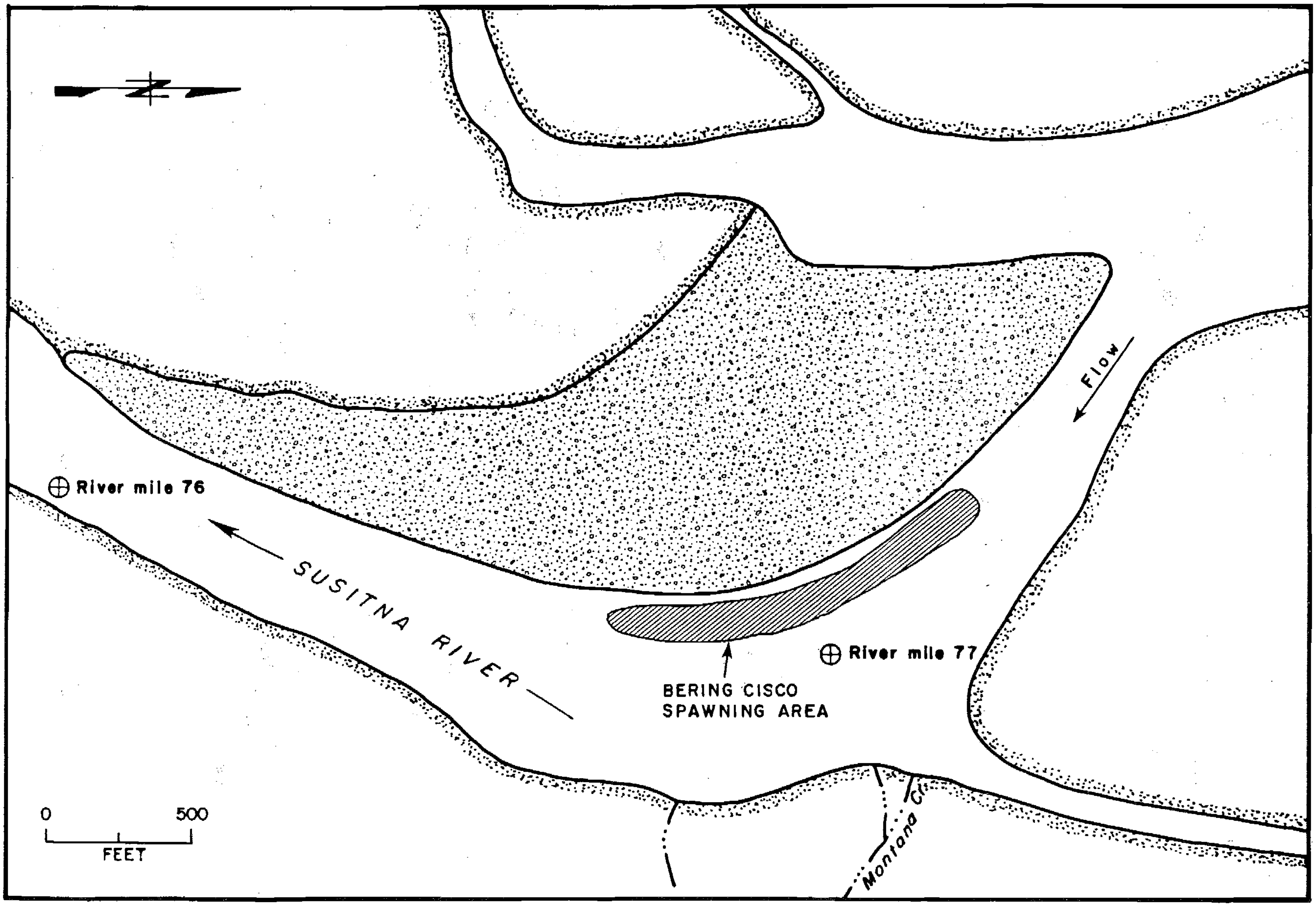
Appendix Figure 2-G-10. Mainstem Susitna River chum salmon spawning area at RM 138.9 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



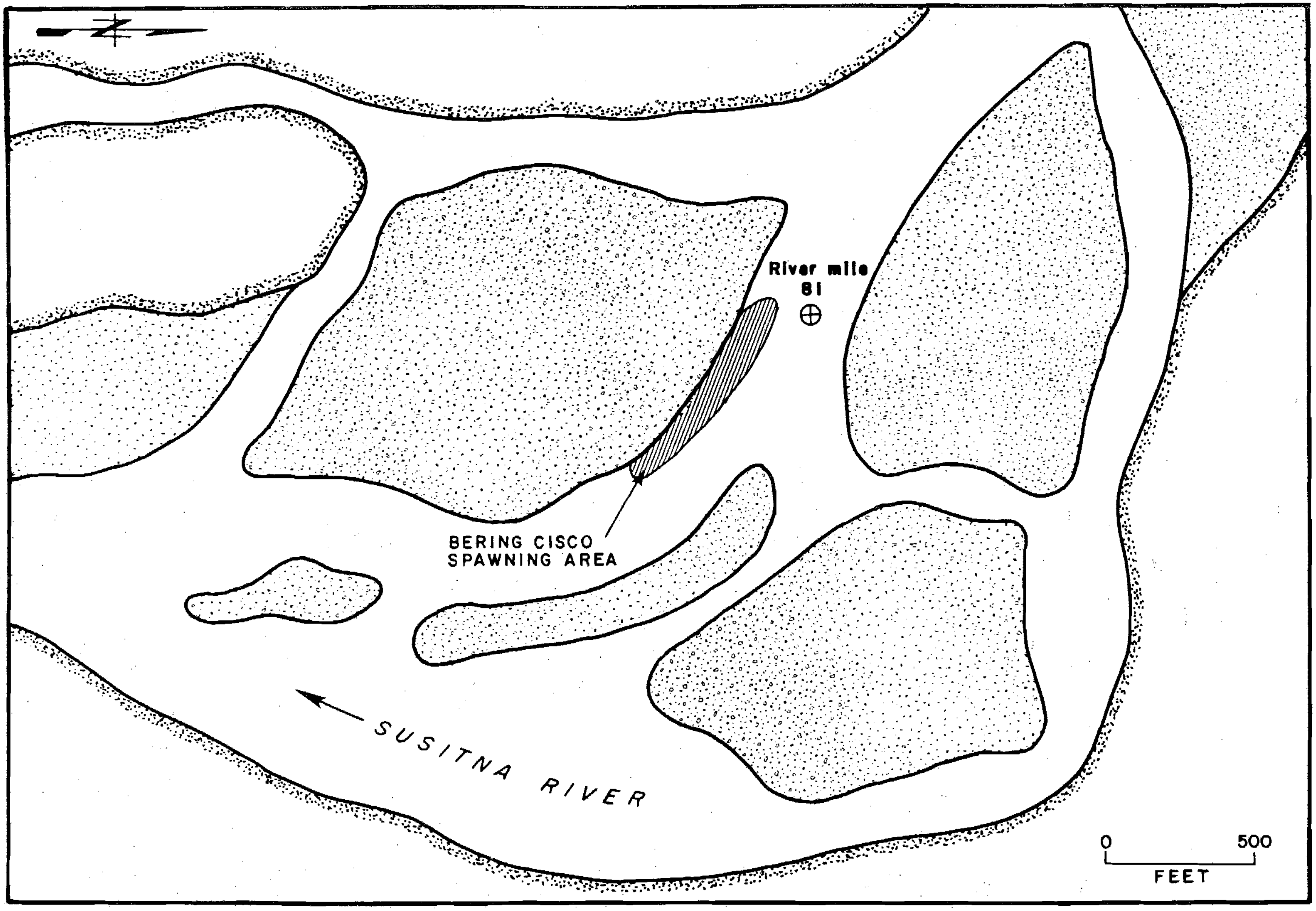
Appendix Figure 2-G-11. Mainstem Susitna River chum salmon spawning area at RM 143.3 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-G-12. Mainstem Susitna River chum salmon spawning area at RM 148.2 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-G-13. Mainstem Susitna River Bering cisco spawning area at RM 76.8 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.



Appendix Figure 2-G-14. Mainstem Susitna River Bering cisco spawning area at RM 80.8 approximately, Adult Anadromous Investigations, Su Hydro Studies, 1982.

Appendix Table 2-G-1. Escapement survey counts of Susitna River sloughs between Talkeetna River and Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

					Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 1	99.6	8/8	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/20	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/26	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 2	100.2	8/8	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/20	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/26	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 3B	101.4	8/8	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 3A	101.9	8/8	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/20	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 4	105.2	8/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/26	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

					Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 4		9/7	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/29	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 5	107.6	8/7	Good	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
		8/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/26	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 6	108.2	8/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/26	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 6A	112.3	8/7	Poor	100	0	0	0	0	0	0	35	0	35	0	0	0	0	0	0
		8/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	35	0	35
		8/25	Excellent	100	0	0	0	0	0	0	0	1	1	1	1	2	29	1	30
		8/31	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	100	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		9/21	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/27	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 7	113.2	8/8	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 7		8/31	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/27	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 8	113.7	7/28	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/2	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/7	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/31	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 8D	121.8	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/15	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/12	Excellent	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/20	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	11	12	23	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 8C	121.9	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/15	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/29	Excellent	100	0	0	0	0	0	0	0	0	0	23	0	23	0	0	0
		9/12	Excellent	100	0	0	0	2	0	2	0	0	0	43	5	48	0	0	0
		9/14	Excellent	100	0	0	0	1	0	1	0	0	0	20	11	31	0	0	0
		9/20	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated: Chinook Live	Chinook Dead	Chinook Total	Sockeye Live	Sockeye Dead	Sockeye Total	Pink Live	Pink Dead	Pink Total	Chum Live	Chum Dead	Chum Total	Coho Live	Coho Dead	Coho Total
Slough 8B	122.2	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		8/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/31	Excellent	100	0	0	0	5	0	5	0	0	0	21	2	23	0	0	0
		9/6	Excellent	100	0	0	0	2	0	2	0	0	0	66	14	80	0	0	0
		9/12	Excellent	50	0	0	0	2	0	2	0	0	0	27	19	46	0	0	0
		9/14	Excellent	100	0	0	0	1	0	1	0	0	0	20	11	31	0	0	0
		9/20	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose Slough	123.5	8/6	Fair	100	1	0	1	0	0	0	8	0	8	2	0	2	0	0	0
		8/12	Excellent	100	0	0	0	0	0	0	6	0	6	7	0	7	0	0	0
		8/19	Excellent	100	0	0	0	7	1	8	0	1	1	9	0	9	0	0	0
		8/25	Good	100	0	0	0	0	0	0	0	0	0	9	0	9	0	0	0
		8/31	Excellent	100	0	0	0	5	0	5	0	0	0	21	2	23	0	0	0
		9/6	Excellent	100	0	0	0	0	0	0	0	0	0	11	3	14	0	0	0
		9/20	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	11	12	23	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough A[1]	124.6	7/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/31	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough A	124.7	7/29	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

					Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough A		8/31	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 8A	125.1	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		8/12	Fair	100	0	0	0	68	0	68	28	0	28	80	0	80	0	0	0
		8/17	Good	100	0	0	0	62	0	62	5	0	5	190	0	190	0	0	0
		8/23	Excellent	100	0	0	0	23	0	23	2	1	3	307	1	308	0	0	0
		8/31	Excellent	100	0	0	0	27	0	27	0	0	0	273	63	336	0	0	0
		9/6	Excellent	100	0	0	0	30	5	35	0	0	0	205	100	305	0	0	0
		9/13	Excellent	100	0	0	0	14	3	17	0	0	0	62	168	230	0	0	0
		9/20	Excellent	100	0	0	0	20	0	20	0	0	0	17	8	25	3	0	3
		9/25	Excellent	100	0	0	0	15	0	15	0	0	0	8	5	13	3	0	3
		10/2	Excellent	100	0	0	0	2	0	2	0	0	0	1	0	1	2	2	4
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough B	126.3	8/12	Excellent	100	0	0	0	0	0	0	32	0	32	1	0	1	0	0	0
		8/19	Excellent	100	0	0	0	2	0	2	0	0	0	10	1	11	0	0	0
		8/23	Excellent	100	0	0	0	1	0	1	9	3	12	45	2	47	0	0	0
		8/31	Excellent	100	0	0	0	0	0	0	0	0	0	23	2	25	0	0	0
		9/5	Excellent	100	0	0	0	7	1	8	0	0	0	36	22	58	0	0	0
		9/13	Excellent	100	0	0	0	6	0	6	0	0	0	2	20	22	0	0	0
		9/20	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/2	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 9	128.3	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	10	0	10	21	0	21	0	0	0
		8/23	Excellent	100	0	0	0	1	0	1	9	3	12	45	2	47	0	0	0
		8/30	Excellent	100	0	0	0	1	4	5	2	0	2	195	16	211	0	0	0
		9/5	Excellent	100	0	0	0	3	0	3	0	0	0	242	58	300	0	0	0
		9/13	Excellent	100	0	0	0	3	0	3	0	0	0	109	186	295	0	0	0
		9/19	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated: Chinook Live	Chinook Dead	Chinook Total	Sockeye Live	Sockeye Dead	Sockeye Total	Pink Live	Pink Dead	Pink Total	Chum Live	Chum Dead	Chum Total	Coho Live	Coho Dead	Coho Total
Slough 9B	129.2	8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	1	0	1	0	0	0	4	1	5	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 9A	133.8	8/6	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/12	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Good	100	0	0	0	0	0	0	0	0	0	25	0	25	0	0	0
		8/30	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/5	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Excellent	100	0	0	0	0	0	0	0	0	0	107	11	118	0	0	0
		9/13	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0
		9/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/1	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 10	133.8	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		9/5	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 11	135.3	8/2	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	100	0	0	0	40	0	40	0	0	0	10	0	10	0	0	0
		8/11	Fair	100	0	0	0	116	0	116	39	0	39	20	0	20	0	0	0
		8/17	Excellent	100	0	0	0	196	0	196	131	0	131	43	0	43	0	0	0
		8/23	Excellent	100	0	0	0	299	0	299	102	11	113	164	1	165	0	0	0
		8/30	Excellent	100	0	0	0	455	1	456	41	46	87	395	16	411	0	0	0
		9/5	Excellent	100	0	0	0	322	46	368	0	0	0	279	98	377	0	0	0
		9/13	Excellent	100	0	0	0	361	73	434	0	0	0	141	318	459	0	0	0
		9/19	Excellent	100	0	0	0	252	83	335	0	0	0	66	157	223	0	0	0

Appendix Table 2-G-1. Continued.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated: Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 11		9/25	Excellent	100	0	0	0	142	63	205	0	0	0	17	113	130	0	0	0
		10/1	Excellent	100	0	0	0	60	108	168	0	0	0	3	65	68	0	0	0
		10/5	Excellent	100	0	0	0	26	85	111	0	0	0	0	12	12	0	0	0
		10/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 12	135.4	8/2	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/5	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 13	135.9	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/5	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 14	135.9	8/6	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/5	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

					Adult Salmon Enumerated														
	River		Survey	Percent	Chinook			Sockeye			Pink			Chum			Coho		
Slough	Mile	Date	Conditions	Surveyed	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 15	137.2	8/4	Fair	100	0	0	0	0	0	0	24	0	24	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	131	1	132	0	0	0	14	0	14
		8/17	Excellent	100	0	0	0	0	0	0	2	0	2	1	0	1	5	0	5
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 16	137.3	8/4	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/17	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 17	138.9	8/4	Good	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/16	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
		9/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Excellent	100	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0
		9/23	Excellent	100	0	0	0	0	0	0	0	0	0	17	4	21	0	0	0
		9/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 18	139.1	8/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/16	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-1. Continued.

					Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 18		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 19	139.7	8/4	Excellent	100	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/16	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/12	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 20	140.0	8/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	100	0	0	0	0	0	0	51	0	51	0	0	0	0	0	0
		8/16	Excellent	100	0	0	0	0	0	0	64	0	64	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	37	13	50	3	0	3	0	0	0
		8/30	Excellent	100	0	0	0	0	0	0	2	6	8	3	0	3	0	0	0
		9/4	Excellent	100	0	0	0	0	0	0	0	0	0	23	7	30	0	0	0
		9/12	Excellent	100	0	0	0	0	0	0	0	0	0	2	7	9	0	0	0
		9/18	Poor	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0
		9/30	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 21	141.1	8/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Good	100	0	0	0	0	0	0	0	0	0	7	0	7	0	0	0
		8/16	Excellent	100	0	0	0	0	0	0	64	0	64	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	10	0	10	7	0	7	231	4	235	0	0	0
		8/29	Good	100	0	0	0	15	0	15	3	3	6	568	45	613	0	0	0
		9/4	Excellent	100	0	0	0	43	1	44	0	0	0	615	121	736	0	0	0

Appendix Table 2-G-1. Continued.

Slough	River Mile	Date	Survey Conditions	Percent Surveyed	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Slough 21		9/12	Excellent	100	0	0	0	43	10	53	0	0	0	341	167	508	0	0	0
		9/18	Good	25	0	0	0	30	2	32	0	0	0	28	8	36	0	0	0
		9/23	Excellent	100	0	0	0	18	1	19	0	0	0	17	14	31	0	0	0
		9/30	Excellent	100	0	0	0	4	1	5	0	0	0	2	1	3	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slough 21A	144.3	8/4	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/9	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Excellent	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-2. Escapement survey counts of Susitna River tributary streams between Chulitna River and Upper Devil Canyon, Adult Anadromous Investigations, Su Hydro Studies, 1982.

					Adult Salmon Enumerated														
				Survey	Chinook			Sockeye			Pink			Chum			Coho		
Stream	River Mile	Date	Survey Conditions	Distance Miles	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Whiskers Creek	101.4	8/8	Excellent	0.5	0	0	0	0	0	0	73	0	73	0	0	0	5	0	5
		8/13	Excellent	0.5	0	0	0	0	0	0	27	0	27	0	0	0	39	0	39
		8/18	Poor	0.25	0	0	0	0	0	0	31	16	47	0	0	0	82	0	82
		8/23	Excellent	0.25	0	0	0	0	0	0	39	99	138	0	0	0	172	4	176
		9/21	Poor	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/24	Good	10.0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39
		10/25	Good	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chase Creek	106.9	8/8	Excellent	0.75	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0
		8/11	Good	1.0	8	7	15	0	0	0	95	1	96	0	0	0	0	0	0
		8/20	Excellent	1.0	0	2	2	0	0	0	91	16	107	0	0	0	0	0	0
		8/28	Excellent	1.0	0	2	2	0	0	0	4	58	62	0	0	0	0	0	0
		9/6	Good	0.25	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0
		9/17	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
		9/21	Excellent	0.75	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
		9/27	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	30	6	36
		10/25	Fair	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Slash Creek	111.2	9/21	Excellent	0.75	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6
		10/25	Good	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gash Creek	111.6	8/7	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/1	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/7	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	74	0	74
		9/27	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	65	2	67
		10/2	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	22	0	22
		10/25	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane Creek	113.6	7/12	Excellent	0.7	47	0	47	0	0	0	0	0	0	0	0	0	0	0	0
		7/28	Fair	2.5	40	1	41	0	0	0	0	0	0	0	0	0	0	0	0
		8/2	Fair	0.25	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0
		8/7	Excellent	0.5	1	0	1	0	0	0	504	0	504	1	0	1	0	0	0
		8/13	Excellent	0.5	0	0	0	0	0	0	632	8	640	1	0	1	1	0	1
		8/19	Excellent	0.5	0	0	0	0	0	0	512	65	577	3	1	4	0	0	0
		8/25	Excellent	0.5	0	0	0	0	0	0	240	336	576	9	2	11	0	0	0
		8/31	Good	0.5	0	0	0	0	0	0	4	74	78	10	1	11	0	0	0

Appendix Table 2-G-2. Continued.

Stream	River Mile	Date	Survey Conditions	Survey Distance Miles	Adult Salmon Enumerated: Chinook Live	Chinook Dead	Chinook Total	Sockeye Live	Sockeye Dead	Sockeye Total	Pink Live	Pink Dead	Pink Total	Chum Live	Chum Dead	Chum Total	Coho Live	Coho Dead	Coho Total
Lane Creek		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	1	4	5	1	0	1
		9/14	Excellent	0.5	0	0	0	0	0	0	0	0	0	1	0	1	5	0	5
		9/21	Fair	0.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
		10/25	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower McKenzie Creek	116.2	8/7	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	15	8	23	0	0	0	0	0	0
		8/25	Excellent	0.25	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0
		8/31	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	1.5	0	0	0	0	0	0	0	0	0	0	0	0	132	1	133
		9/21	Good	1.5	0	0	0	0	0	0	0	0	0	0	0	0	102	1	103
		9/27	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	84	6	90
		10/2	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	30	4	34
		10/25	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
McKenzie Creek	116.7	8/7	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/13	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	13	4	17	0	0	0	0	0	0
		8/25	Excellent	0.25	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0
		8/31	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/22	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/2	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Little Portage Creek	117.7	8/7	Excellent	0.25	0	0	0	0	0	0	40	0	40	0	0	0	0	0	0
		8/13	Excellent	0.5	0	0	0	0	0	0	138	2	140	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	46	28	74	0	0	0	0	0	0
		8/25	Excellent	0.25	0	0	0	0	0	0	15	46	61	25	6	31	0	0	0
		8/31	Excellent	0.25	0	0	0	0	0	0	0	9	9	5	0	5	0	0	0
		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	18	7	25	0	0	0
		9/14	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/21	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	5	1	6
		9/27	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8
		10/2	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	8	0	8
		10/25	Good	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-2. Continued.

					Adult Salmon Enumerated														
				Survey	Chinook			Sockeye			Pink			Chum			Coho		
Stream	River Mile	Date	Survey Conditions	Distance Miles	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
5th of July Creek	123.7	8/6	Excellent	0.5	3	0	3	0	0	0	17	0	17	1	0	1	0	0	0
		8/12	Excellent	0.25	0	0	0	0	0	0	61	0	61	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	113	0	113	0	0	0	0	0	0
		8/25	Excellent	0.25	0	0	0	0	0	0	15	14	29	0	0	0	0	0	0
		8/31	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/14	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/20	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skull Creek	124.7	8/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/12	Excellent	0.5	0	0	0	0	0	0	12	0	12	0	0	0	0	0	0
		8/17	Excellent	0.5	0	0	0	0	0	0	12	0	12	0	0	0	0	0	0
		8/23	Excellent	0.25	0	0	0	0	0	0	6	5	11	0	0	0	0	0	0
		8/31	Good	0.25	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		9/6	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/19	Fair	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sherman Creek	130.8	8/6	Excellent	0.25	3	0	3	0	0	0	5	0	5	0	0	0	0	0	0
		8/12	Excellent	0.25	0	0	0	0	0	0	23	1	24	0	0	0	0	0	0
		8/17	Excellent	0.25	0	0	0	0	0	0	4	1	5	0	0	0	0	0	0
		8/23	Excellent	0.25	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0
		9/5	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/13	Poor	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/25	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/1	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4th of July Creek	131.0	7/28	Good	2.0	55	1	56	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	0.25	8	0	8	0	0	0	63	0	63	0	0	0	0	0	0
		8/12	Good	0.5	5	0	5	0	0	0	508	3	511	8	0	8	0	0	0
		8/17	Excellent	0.25	0	0	0	0	0	0	465	129	594	78	1	79	0	0	0
		8/23	Excellent	0.25	0	0	0	0	0	0	177	525	702	152	16	168	0	0	0
		8/30	Good	0.25	0	0	0	0	0	0	0	125	125	136	52	188	0	0	0
		9/5	Good	0.25	0	0	0	0	0	0	0	0	0	125	66	191	0	0	0
		9/13	Fair	0.25	0	0	0	0	0	0	0	0	0	4	46	50	1	0	1

Appendix Table 2-G-2. Continued.

Stream	River Mile	Date	Survey Conditions	Survey Distance Miles	Adult Salmon Enumerated														
					Chinook			Sockeye			Pink			Chum			Coho		
					Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
4th of July Creek		9/19	Good	0.25	0	0	0	0	0	0	0	0	0	38	5	43	0	0	0
		9/25	Excellent	0.25	0	0	0	0	0	0	0	0	0	18	10	28	4	0	4
		10/1	Excellent	0.25	0	0	0	0	0	0	0	0	0	4	2	6	1	1	2
		10/25	Poor	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gold Creek	136.7	8/3	Excellent	4.0	20	1	21	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Good	0.5	0	2	2	0	0	0	11	0	11	0	0	0	0	0	0
		8/19	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/23	Excellent	0.25	0	0	0	0	0	0	1	1	2	0	0	0	1	0	1
		8/30	Poor	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Fair	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indian River	138.6	7/21	Excellent	15.0	1049	4	1053	0	0	0	0	0	0	0	0	0	0	0	0
		8/1	Excellent	6.0	105	5	110	0	0	0	0	0	0	0	0	0	0	0	0
		8/3	Excellent	2.0	122	20	142	0	0	0	24	0	24	0	0	0	0	0	0
		8/5	Good	4.0	89	40	129	0	0	0	202	1	203	16	0	16	0	0	0
		8/11	Excellent	1.0	11	19	30	0	0	0	735	3	738	134	0	134	0	0	0
		8/16	Excellent	1.0	2	13	15	0	0	0	537	22	559	362	5	367	9	0	9
		8/23	Excellent	1.0	0	2	2		0	0	238	329	567	184	15	199	0	0	0
		8/29	Good	1.0	0	8	8	0	0	0	8	339	347	120	48	168	18	0	18
		9/4	Excellent	2.0	0	0	0	0	0	0	0	98	98	886	460	1346	24	0	24
		9/12	Excellent	2.0	0	0	0	0	0	0	0	0	0	149	1028	1177	36	1	37
		9/18	Excellent	2.0	0	0	0	0	0	0	0	0	0	32	42	74	36	0	36
		9/24	Excellent	15.0	0	0	0	0	0	0	0	0	0	0	0	0	101	0	101
		9/30	Excellent	2.0	0	0	0	0	0	0	0	0	0	2	0	2	32	0	32
		10/25	Good	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jack Long Creek	144.5	8/4	Excellent	0.25	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	0.25	2	0	2	0	0	0	15	0	15	0	0	0	0	0	0
		8/16	Excellent	0.25	0	0	0	0	0	0	21	0	21	0	0	0	0	0	0
		8/22	Excellent	0.25	0	0	0	0	0	0	5	3	8	0	0	0	0	0	0
		8/30	Good	0.25	0	0	0	0	0	0	0	0	0	2	1	3	1	0	1
		9/4	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
		9/12	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Poor	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/30	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
		10/25	Poor	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-2. Continued.

Stream	River Mile	Date	Survey Conditions	Survey Distance Miles	Adult Salmon Enumerated: Chinook Live	Chinook Dead	Chinook Total	Sockeye Live	Sockeye Dead	Sockeye Total	Pink Live	Pink Dead	Pink Total	Chum Live	Chum Dead	Chum Total	Coho Live	Coho Dead	Coho Total
Portage Creek	148.9	7/21	Excellent	15.0	955	0	955	0	0	0	0	0	0	0	0	0	0	0	0
		8/3	Excellent	15.0	1198	55	1253	0	0	0	0	0	0	0	0	0	0	0	0
		8/9	Excellent	0.5	22	3	25	0	0	0	146	0	146	25	0	25	0	0	0
		8/16	Excellent	0.25	1	3	4	0	0	0	166	3	169	71	0	71	0	0	0
		8/22	Excellent	0.25	0	2	2	0	0	0	111	0	111	143	10	153	1	0	1
		8/29	Good	0.25	0	4	4	4	0	4	15	126	141	21	7	28	1	0	1
		9/3	Excellent	0.25	0	0	0	0	0	0	0	0	0	6	1	7	0	0	0
		9/12	Good	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/18	Poor	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/23	Fair	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/24	Excellent	15.0	0	0	0	0	0	0	0	0	0	3	2	5	88	0	88
		9/30	Excellent	0.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheechako Creek	152.5	8/5	Excellent	0.75	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0
		8/6	Excellent	3.0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Good	1.0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0
		8/18	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Good	1.5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		8/28	Excellent	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/8	Good	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9/24	Excellent	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chinook Creek	156.8	8/6	Excellent	2.0	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Good	1.5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		8/18	Excellent	1.0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Good	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Devil Creek	161.0	8/6	Excellent	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/11	Excellent	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/18	Excellent	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8/22	Excellent	2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		10/25	Good	1.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2-G-3. Sockeye salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, Adult Anadromous Investigations, Su Hydro Studies, 1982.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile 1/	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Unnamed Slough	96.9	8/31	Excellent	1	56	57	57.0								
		9/9	Good	1	69	70	70.0								
		9/24	Good	0	11	11	0.0								
Unnamed Slough	97.1	7/31	Good	85	158	243	2.9								
		8/21	Excellent	13	51	64	4.9								
Fish Creek	97.1	8/1	Excellent	30	114	144	4.8								
Larson Creek	97.1	8/6	Excellent	28	174	202	7.2								
Unnamed Creek	97.8	8/7	Excellent	14	189	203	14.5								
Swan Lake	97.8	9/25	Good	5	81	86	17.2								
Byers Creek	97.8	8/15	Good	2	42	44	22.0								
		8/25	Good	7	82	89	12.7								
		9/3	Good	0	40	40	0.0								
Troublesome Creek	97.8	8/25	Good	0	0	0	0.0								
		9/3	Fair	0	2	2	0.0								
		9/9	Good	0	0	0	0.0								
Slough 8C	121.9	9/12	Excellent	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0
Slough 8B	122.2	9/6	Excellent	1	1	2	2.0	1	1	2	2.0	0	2	2	0.0
		9/12	Excellent	1	0	1	1.0	0	1	1	0.0	0	1	1	0.0
		9/14	Excellent	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0
Moose Slough	123.5	8/31	Excellent	0	4	4	0.0	0	4	4	0.0	1	3	4	4.0
Slough 8A	125.1	8/12	Fair	4	47	51	12.8	7	44	51	7.3	6	45	51	8.5
		8/17	Good	4	47	51	12.8	3	48	51	17.0	4	47	51	12.8
		8/23	Excellent	1	18	19	19.0	1	18	19	19.0	2	17	19	9.5
		8/31	Excellent	0	27	27	0.0	0	27	27	0.0	0	27	27	0.0
		9/6	Excellent	2	20	22	11.0	1	21	22	22.0	5	17	22	4.4
		9/13	Excellent	3	7	10	3.3	0	10	10	0.0	1	9	10	10.0

Appendix Table G-2-3. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Slough 8A		9/20	Excellent	2	13	15	7.5	0	15	15	0.0	3	12	15	5.0
		9/25	Excellent	2	9	11	5.5	0	11	11	0.0	2	9	11	5.5
		10/2	Excellent	0	0	2	0.0	0	2	2	0.0	0	2	2	0.0
Slough B	126.3	8/19	Excellent	0	1	1	0.0	1	0	1	1.0	0	1	1	0.0
		9/5	Excellent	1	3	4	4.0	2	2	4	2.0	0	4	4	0.0
		9/13	Good	1	2	3	3.0	2	1	3	1.5	0	3	3	0.0
Slough 9	128.3	8/23	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/30	Excellent	1	0	1	1.0	0	1	1	0.0	0	1	1	0.0
		9/5	Excellent	1	1	2	2.0	0	2	2	0.0	0	2	2	0.0
		9/13	Excellent	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0
Slough 9B	129.2	9/19	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough 9A	133.3	9/19	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough 11	135.3	8/11	Fair	20	54	74	3.7	11	63	74	6.7	11	63	74	6.7
		8/17	Excellent	1	9	10	10.0	3	7	10	3.3	2	8	10	5.0
		8/23	Excellent	19	200	219	11.5	39	180	219	5.6	22	197	219	10.0
		8/30	Excellent	19	341	360	19.0	46	314	360	7.8	30	330	360	12.0
		9/5	Excellent	19	224	243	12.8	32	211	243	7.6	28	215	243	8.7
		9/13	Excellent	19	265	284	15.0	40	244	284	7.1	18	266	284	15.8
		9/19	Excellent	8	196	204	25.5	27	177	204	7.6	13	191	204	15.7
		9/25	Excellent	3	124	127	42.3	6	121	127	21.2	6	121	127	21.2
		10/1	Excellent	1	51	52	52.0	6	46	52	8.7	1	51	52	52.0
		10/5	Excellent	2	18	20	10.0	3	17	20	6.7	1	19	20	20.0
Slough 17	138.9	9/23	Excellent	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
Slough 21	141.0	8/22	Excellent	0	9	9	0.0	0	9	9	0.0	1	8	9	9.0
		8/29	Good	1	11	12	12.0	1	11	12	12.0	1	11	12	12.0
		9/4	Excellent	0	31	31	0.0	7	24	31	4.4	5	26	31	6.2
		9/12	Excellent	2	41	43	21.5	8	35	43	5.4	5	38	43	8.6
		9/18	Good	3	19	22	7.3	4	18	22	5.5	1	21	22	22.0
		9/23	Excellent	0	15	15	0.0	2	13	15	7.5	1	14	15	15.0
		9/30	Excellent	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
Portage Creek	148.9	8/29	Good	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0

[1] Confluence of stream or their receiving water with Susitna River mainstem.

Appendix Table 2-G-4. Pink salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, Adult Anadromous Investigations, Su Hydro Studies, 1982.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile [1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Birch Creek	88.4	8/14	Good	93	5314	5407	58.1								
		8/25	Good	55	6249	6304	114.6								
Unnamed Slough	96.9	8/31	Excellent	0	5	5	0.0								
Fish Creek	97.1	8/15	Good	54	5821	5875	108.8								
		8/25	Excellent	7	519	526	75.1								
		8/21	Excellent	4	1026	1030	257.5								
Byers Creek	97.8	8/15	Good	10	1100	1110	111.0								
		8/25	Good	0	129	129	0.0								
Troublesome Creek	97.8	8/25	Good	0	174	174	0.0								
Whiskers Creek	101.4	8/8	Excellent	4	69	73	18.3								
		8/13	Excellent	6	21	27	4.5								
		8/18	Fair	6	31	37	6.2								
		8/23	Good	0	39	39	0.0								
Chase Creek	106.9	8/8	Excellent	0	4	4	0.0	1	3	4	4.0				
		8/20	Excellent	0	4	4	0.0	0	4	4	0.0				
Slough 6A	112.3	8/7	Fair	0	35	35	0.0	6	29	35	5.8	3	32	35	11.7
Lane Creek	113.6	8/7	Excellent	20	484	504	25.2	89	56	504	5.7				
		8/13	Excellent	2	630	632	316.0	118	514	632	5.4				
		8/19	Excellent	5	507	512	102.4	68	444	512	7.5				
		8/25	Excellent	2	238	240	120.0	26	214	240	9.2				
		8/31	Good	0	4	4	0.0	0	4	4	0.0				
Lower McKenzie Creek	116.2	8/19	Excellent	0	15	15	0.0	1	14	15	15.0				
		8/25	Excellent	0	6	6	0.0	3	3	6	2.0				
McKenzie Creek	116.7	8/19	Excellent	0	13	13	0.0	5	8	13	2.6				

Appendix Table G-2-4. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Little Portage Creek	117.9	8/13	Excellent	0	138	138	0.0	26	112	138	5.3				
		8/19	Excellent	0	46	46	0.0	8	38	46	5.8				
		8/25	Excellent	0	46	46	0.0	4	42	46	11.5				
Moose Slough	123.5	8/6	Fair	0	8	8	0.0	1	6	8	8.0	1	7	8	8.0
		8/12	Excellent	0	6	6	0.0	0	6	6	0.0	0	6	6	0.0
5th of July Creek	123.7	8/6	Excellent	1	16	17	17.0	2	15	17	8.5	0	17	17	0.0
		8/12	Excellent	0	61	61	0.0	9	52	61	6.8	8	53	61	7.6
		8/19	Excellent	20	93	113	5.7	17	96	113	6.7	15	98	113	7.5
		8/23	Excellent	0	15	15	0.0	1	14	15	15.0	3	12	15	5.0
Skull Creek	124.7	8/12	Excellent	1	11	12	12.0	1	11	12	12.0	3	9	12	4.0
		8/17	Excellent	2	10	12	6.0	3	9	12	4.0	1	11	12	12.0
		8/23	Excellent	0	6	6	0.0	2	4	6	3.0	0	6	6	0.0
Slough 8A	125.1	8/12	Fair	3	25	28	9.3	10	18	28	2.8	7	21	28	4.0
		8/17	Good	0	5	5	0.0	0	0	5	0.0	0	5	5	0.0
		8/23	Excellent	0	2	2	0.0	0	0	2	0.0	0	2	2	0.0
Slough B	126.3	8/12	Excellent	0	32	32	0.0	4	28	32	8.0	3	29	32	10.7
		8/23	Good	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Slough 9	128.3	8/17	Excellent	0	10	10	0.0	1	9	10	10.0	2	8	10	5.0
		8/23	Excellent	1	8	9	9.0	3	6	9	3.0	3	6	9	3.0
		8/30	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Sherman Creek	130.8	8/6	Excellent	0	5	5	0.0	1	4	5	5.0	1	4	5	5.0
		8/12	Excellent	0	23	23	0.0	3	20	23	7.7	2	21	23	11.5
		8/17	Excellent	1	3	4	4.0	1	3	4	4.0	1	3	4	4.0
4th of July Creek	131.0	8/6	Excellent	0	63	63	0.0	12	51	63	5.3	6	57	63	10.5
		8/12	Excellent	4	504	508	127.0	104	404	508	4.9	37	471	508	13.7
		8/17	Excellent	2	463	465	232.5	97	368	465	4.8	43	422	465	10.8
		8/23	Excellent	1	176	177	177.0	31	146	177	5.7	12	165	177	14.8

Appendix Table 2-G-4. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Slough 11	135.3	8/11	Fair	0	39	39	0.0	11	28	39	3.6	3	36	39	13.0
		8/17	Excellent	0	131	131	0.0	19	112	131	6.9	4	127	131	32.8
		8/23	Excellent	1	101	102	102.0	14	88	102	7.3	8	94	102	12.8
		8/30	Excellent	0	41	41	0.0	1	40	41	41.0	4	37	41	10.3
Gold Creek	136.8	8/11	Good	0	11	11	0.0	3	8	11	3.7	0	11	11	0.0
		8/23	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough 15	137.2	8/4	Fair	0	24	24	0.0	13	11	24	1.9	3	21	24	8.0
		8/11	Excellent	1	130	131	131.0	33	98	131	4.0	8	123	131	16.4
		8/17	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Indian River	138.6	8/5	Good	6	196	202	33.7	41	161	202	4.9	17	185	202	11.9
		8/11	Excellent	11	724	735	66.8	125	610	735	5.9	47	688	735	15.6
		8/16	Excellent	4	533	537	134.3	93	444	537	5.8	50	487	537	10.7
		8/23	Excellent	3	235	238	79.3	29	209	238	8.2	15	223	238	15.9
		8/19	Excellent	0	8	8	0.0	0	8	8	0.0	0	8	8	0.0
Slough 20	140.1	8/11	Excellent	1	50	51	51.0	15	36	51	3.4	1	50	51	51.0
		8/16	Excellent	1	63	64	64.0	13	51	64	4.9	3	61	64	21.3
		8/22	Excellent	1	36	37	37.0	10	27	37	3.7	1	36	37	37.0
		8/30	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Slough 21	141.0	8/16	Excellent	1	5	6	6.0	0	6	6	0.0	0	6	6	0.0
		8/22	Excellent	0	7	7	0.0	4	3	7	1.8	0	7	7	0.0
		8/29	Good	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
Jack Long Creek	144.5	8/11	Excellent	0	15	15	0.0	4	11	15	3.8	2	13	15	7.5
		8/16	Excellent	1	20	21	21.0	0	21	21	0.0	3	18	21	7.0
		8/22	Excellent	0	5	5	0.0	1	4	5	5.0	1	4	5	5.0
Portage Creek	148.9	8/9	Excellent	2	144	146	73.0	32	110	146	4.6	17	129	146	8.6
		8/16	Excellent	1	165	166	166.0	22	144	166	7.6	15	151	166	11.1
		8/22	Excellent	0	111	111	0.0	23	88	111	4.8	9	102	111	12.3
		8/29	Fair	1	14	15	15.0	1	14	15	15.0	1	14	15	15.0

[1] Confluence of stream or their receiving water with Susitna River mainstem.

Appendix Table 2-G-5. Chum salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, Adult Anadromous Investigations, Su Hydro Studies, 1982.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile [1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Birch Creek (lower)	88.4	8/14	Good	0	3	3	0.0								
		8/25	Good	0	2	2	0.0								
Cache Creek	95.4	9/25	Good	2	66	68	34.0								
Unnamed Slough	96.9	8/31	Excellent	1	81	82	82.0								
		9/9	Good	24	315	339	14.1								
		9/24	Good	1	34	35	35.0								
Unnamed Slough	97.1	8/21	Excellent	13	25	38	2.9								
Fish Creek	97.1	8/15	Good	1	15	16	16.0								
		8/25	Excellent	2	14	16	8.0								
Byers Creek	97.8	8/15	Good	1	53	54	54.0								
		8/25	Good	12	405	417	34.8								
		9/3	Good	20	364	384	19.2								
Troublesome Creek	97.8	8/25	Good	22	563	585	26.6								
		9/3	Fair	1	47	48	48.0								
		9/9	Good	19	276	295	15.5								
Slough 5	107.6	8/7	Good	0	2	2	0.0	2	0	2	1.0				
Lane Creek	113.6	8/7	Excellent	0	1	1	0.0	0	1	1	0.0				
		8/15	Excellent	0	1	1	0.0	0	1	1	0.0				
		8/19	Excellent	2	1	3	1.5	1	2	3	3.0				
		8/25	Excellent	2	7	9	4.5	1	8	9	9.0				
		8/31	Good	0	10	10	0.0	1	9	10	10.0				
		9/6	Excellent	0	1	1	0.0	0	1	1	0.0				
Little Portage Creek	117.7	8/31	Excellent	1	4	5	5.0	0	5	5	0.0				
		9/6	Excellent	0	18	18	0.0	0	18	18	0.0				
Slough 8D	121.8	9/12	Excellent	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
		9/25	Excellent	1	10	11	11.0	0	11	11	0.0	0	11	11	0.0

Appendix Table 2-G-5. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Slough 8C	121.9	8/29	Excellent	1	22	23	23.0	1	22	23	23.0	2	21	23	11.5
		9/12	Excellent	0	43	43	0.0	0	43	43	0.0	1	42	43	43.0
		9/14	Good	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
Slough 8B	122.2	8/15	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
		8/19	Excellent	1	8	9	9.0	0	9	9	0.0	0	9	9	0.0
		8/22	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/31	Excellent	4	59	63	15.8	6	59	63	10.5	5	58	63	12.6
		9/12	Excellent	2	25	27	13.5	1	26	27	27.0	1	26	27	27.0
		9/14	Excellent	0	20	20	0.0	0	20	20	0.0	1	19	20	20.0
Moose Slough	123.5	8/6	Fair	0	2	2	0.0	1	1	2	2.0	0	2	2	0.0
		8/12	Excellent	1	6	7	7.0	2	5	7	3.5	0	7	7	0.0
		8/19	Excellent	2	7	9	4.5	1	8	9	9.0	3	6	9	3.0
		8/25	Excellent	2	7	9	4.5	1	8	9	9.0	1	8	9	9.0
		8/31	Excellent	2	19	21	10.5	3	18	21	7.0	1	20	21	21.0
		9/6	Excellent	1	10	11	11.0	0	11	11	0.0	0	11	11	0.0
4th of July Creek	123.7	8/12	Excellent	1	7	8	8.0	3	5	8	2.7	1	7	8	8.0
		8/17	Excellent	7	71	79	11.1	5	73	78	15.6	5	73	78	15.6
		8/23	Excellent	3	149	152	50.7	11	141	152	13.8	9	143	152	16.9
		8/30	Excellent	5	131	136	27.2	1	135	136	136.0	6	130	136	22.7
		9/5	Excellent	12	113	125	10.4	8	117	125	15.6	7	118	125	17.9
		9/13	Fair	0	4	4	0.0	0	4	4	0.0	2	2	4	2.0
		9/19	Good	1	37	38	38.0	0	38	38	0.0	1	37	38	38.0
		9/25	Excellent	1	17	18	18.0	0	18	18	0.0	0	18	18	0.0
		10/1	Excellent	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
Skull Creek	124.7	8/31	Good	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough 8A	125.1	8/6	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/12	Fair	7	73	80	11.4	12	68	80	6.7	5	75	80	16.0
		8/17	Excellent	18	172	190	10.6	8	182	190	23.8	13	177	190	14.6
		8/23	Excellent	33	274	307	9.3	11	296	307	27.9	10	297	307	30.7
		8/31	Excellent	33	240	273	8.3	8	265	273	34.1	15	258	273	18.2
		9/6	Excellent	14	191	205	14.6	1	204	205	205.0	11	194	205	18.6
		9/13	Excellent	1	61	62	62.0	0	62	62	0.0	2	60	62	31.0

Appendix Table 2-G-5. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Slough 8A		9/20	Excellent	0	17	17	0.0	0	17	17	0.0	0	17	17	0.0
		9/25	Excellent	0	8	8	0.0	0	8	8	0.0	0	8	8	0.0
		10/2	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough B	126.3	8/12	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/19	Excellent	0	10	10	0.0	4	6	10	2.5	1	9	10	10.0
		8/23	Good	2	14	16	8.0	4	12	16	4.0	0	16	16	0.0
		8/31	Excellent	3	20	23	7.7	0	23	23	0.0	1	22	23	23.0
		9/5	Excellent	3	33	36	12.0	3	33	36	12.0	3	33	36	12.0
		9/13	Good	1	1	2	2.0	0	2	2	0.0	0	2	2	0.0
Slough 9	128.3	8/17	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/23	Excellent	2	43	45	22.5	1	44	45	45.0	5	40	45	9.0
		9/5	Excellent	12	230	242	20.2	7	235	242	34.6	12	230	242	20.2
		9/13	Excellent	3	106	109	36.3	0	109	109	0.0	6	103	109	18.2
Slough 9B	129.2	9/19	Excellent	0	4	4	0.0	0	4	4	0.0	0	4	4	0.0
Slough 9A	133.3	8/23	Good	2	23	25	12.5	1	24	25	25.0	2	23	25	12.5
		9/6	Excellent	8	99	107	13.4	3	104	107	35.7	7	100	107	15.3
		9/19	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Slough 11	135.3	8/11	Fair	1	19	20	20.0	1	19	20	20.0	1	19	20	20.0
		8/17	Excellent	0	13	13	0.0	2	11	13	6.5	1	12	13	13.0
		8/23	Excellent	8	156	164	20.5	5	159	164	32.8	6	158	164	27.3
		8/30	Excellent	38	357	395	10.4	22	373	395	18.0	19	376	395	20.8
		9/5	Excellent	22	257	279	12.7	8	271	279	34.9	8	271	279	34.9
		9/13	Excellent	1	140	141	141.0	3	138	141	47.0	2	139	141	70.5
		9/19	Excellent	2	64	66	33.0	1	65	66	66.0	1	65	66	66.0
		9/25	Excellent	0	17	17	0.0	1	16	17	10.7	0	17	17	0.0
		10/1	Excellent	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
Slough 15	137.2	8/17	Excellent	1	0	1	1.0	0	1	1	0.0	0	1	1	0.0
Indian River	138.6	8/5	Excellent	2	14	16	8.0	4	12	16	4.0	0	16	16	0.0
		8/11	Excellent	10	124	134	13.4	5	129	134	26.8	0	134	134	0.0
		8/16	Excellent	11	351	362	32.9	20	342	362	18.1	9	353	362	40.2
		8/23	Excellent	10	174	184	18.4	10	174	184	18.4	6	178	184	30.7

Appendix Table 2-G-5. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Indian River		8/29	Good	12	108	120	10.0	6	114	120	20.0	6	114	120	20.0
		9/4	Excellent	70	816	886	12.7	17	869	886	52.1	33	853	886	26.9
		9/12	Excellent	5	144	149	29.8	1	148	149	149.0	5	144	149	29.8
		9/18	Excellent	0	32	32	0.0	0	32	32	0.0	0	32	32	0.0
		9/30	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Jack Long Creek	138.6	8/30	Good	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Slough 17	138.9	8/30	Excellent	1	3	4	4.0	0	4	4	0.0	0	4	4	0.0
		9/18	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
		9/23	Excellent	0	17	17	0.0	0	17	17	0.0	0	17	17	0.0
Slough 20	140.0	8/22	Excellent	1	2	3	3.0	0	3	3	0.0	0	3	3	0.0
		8/30	Good	1	2	3	3.0	0	3	3	0.0	1	2	3	3.0
		9/4	Excellent	0	23	23	0.0	2	21	23	11.5	2	21	23	11.5
Slough 21	141.1	8/11	Excellent	1	6	7	7.0	4	3	7	1.8	0	7	7	0.0
		8/16	Excellent	7	82	89	12.7	7	82	89	12.7	10	79	89	8.9
		8/22	Excellent	9	222	231	25.7	18	213	231	12.8	18	213	231	12.8
		8/29	Excellent	31	537	568	18.3	43	525	568	13.2	36	532	568	15.8
		9/4	Excellent	37	578	615	16.6	17	598	615	36.2	29	586	615	21.2
		9/12	Excellent	16	325	341	21.3	2	339	341	170.5	14	327	341	24.4
		9/18	Good	0	28	28	0.0	1	27	28	28.0	1	27	28	28.0
		9/23	Excellent	1	16	17	17.0	1	16	17	17.0	1	16	17	17.0
		9/30	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
Portage Creek	148.9	8/9	Excellent	4	21	25	6.3	2	23	25	12.5	1	24	25	25.0
		8/16	Excellent	7	64	71	10.1	5	66	71	14.2	5	66	71	14.2
		8/22	Excellent	12	131	143	11.9	3	140	143	47.7	3	140	143	47.7
		8/29	Good	5	16	21	4.2	0	21	21	0.0	2	19	21	10.5
		9/3	Excellent	1	5	6	6.0	1	5	6	6.0	0	6	6	0.0
		9/29	Excellent	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0

[1] Confluence of stream or their receiving water with Susitna River mainstem.

Appendix Table 2-G-6. Coho salmon spawning ground surveys of selected spawning areas and resultant tagged to untagged ratios, Adult Anadromous Investigations, Su Hydro Studies, 1982.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River[1] Mile	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Answer Creek	84.1	9/25	Good	7	17	24	3.4								
Question Creek	84.1	9/25	Good	61	308	369	6.1								
Lower Birch Creek	88.4	8/14	Good	0	0	0	0.0								
		8/25	Good	0	0	0	0.0								
		9/25	Fair	7	34	41	5.9								
Cache Creek	95.4	9/25	Good	0	2	2	0.0								
Fish Creek	97.1	8/15	Good	5	37	42	8.4								
		8/21	Excellent	47	144	191	4.1								
		8/25	Excellent	0	1	1	0.0								
Byers Creek	97.8	8/15	Good	0	0	0	0.0								
		8/25	Good	1	35	36	36.0								
		9/3	Good	5	51	56	11.2								
Troublesome Creek	97.8	8/25	Good	1	8	9	9.0								
		9/3	Fair	0	0	0	0.0								
		9/9	Good	4	35	39	9.8								
Unnamed Creek	97.8	9/24	Good	1	7	8	8.0								
Whiskers Creek	101.9	8/13	Excellent	6	26	32	5.3								
		8/23	Excellent	28	106	134	4.8								
		9/24	Good	0	39	39	0.0								
Chase Creek	106.9	9/17	Good	0	1	1	0.0	0	1	1	0.0				
		9/21	Excellent	0	1	1	0.0	0	1	1	0.0				
		9/27	Excellent	4	22	26	6.5	0	26	26	0.0				
Slash Creek	111.2	9/21	Excellent	1	5	6	6.0	0	6	6	0.0				

Appendix Table 2-G-6. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Gash Creek	111.6	9/23	Excellent	10	44	54	5.4	7	47	54	7.7				
		9/27	Excellent	8	40	48	6.0	7	41	48	6.9				
		10/2	Excellent	3	14	17	5.7	0	17	27	0.0				
Slough 6A	112.3	8/19	Excellent	5	19	24	4.8	3	21	24	8.0				
		8/25	Excellent	3	16	19	6.3	2	17	19	9.5				
Lane Creek	113.6	8/13	Excellent	0	1	1	0.0	0	1	1	0.0				
		9/6	Excellent	1	0	1	1.0	0	1	1	0.0				
		9/14	Excellent	2	1	3	1.5	0	3	3	0.0				
		9/21	Fair	1	0	1	1.0	0	1	1	0.0				
Lower McKenzie Creek	116.2	9/14	Excellent	24	51	75	3.1	20	55	75	3.8				
		9/21	Good	18	59	77	4.3	5	72	77	15.4				
		9/27	Excellent	11	50	61	5.6	6	55	61	10.2				
		10/2	Excellent	3	15	18	6.0	5	13	18	3.6				
Little Portage Creek	117.2	9/27	Excellent	1	3	4	4.0	0	4	4	0.0				
		10/2	Excellent	1	5	6	6.0	1	5	6	6.0				
Slough 8A	125.1	9/20	Excellent	0	3	3	0.0	0	3	3	0.0	0	3	3	0.0
		9/25	Excellent	1	1	2	2.0	0	2	2	0.0	0	2	2	0.0
		10/2	Excellent	0	2	2	0.0	0	2	2	0.0	0	2	2	0.0
4th of July Creek	131.0	9/13	Fair	0	1	1	0.0	0	1	1	0.0	1	0	1	1.0
		9/25	Excellent	1	2	3	3.0	0	3	3	0.0	0	3	3	0.0
		10/1	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Slough 15	137.2	8/11	Excellent	3	5	8	2.7	1	7	8	8.0	2	5	8	4.0
		8/17	Excellent	1	1	2	2.0	2	0	2	1.0	0	2	2	0.0
Indian River	138.6	8/16	Excellent	0	8	8	0.0	0	8	8	0.0	1	7	8	8.0
		8/29	Fair	3	9	12	4.0	2	10	12	6.0	1	11	12	12.0
		9/4	Excellent	5	9	14	2.8	2	12	14	7.0	3	11	14	4.7
		9/12	Excellent	7	18	25	3.6	2	23	25	12.5	2	23	25	12.5
		9/18	Excellent	9	11	20	2.2	3	17	20	6.7	4	16	20	5.0
		9/24	Excellent	12	128	140	11.7	7	133	140	20.0	4	136	140	35.0
		9/30	Excellent	1	22	23	23.0	2	21	23	11.5	6	17	23	3.8

Appendix Table 2-G-6. Continued.

LOCATION				SUNSHINE TAGS				TALKEETNA TAGS				CURRY TAGS			
Spawning Area	River Mile[1/]	Date	Survey Conditions	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)	Tagged (r)	Untagged	Total (c)	Ratio (c/r)
Jack Long Creek	144.5	9/30	Good	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
Portage Creek	148.9	8/22	Excellent	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		8/29	Good	0	1	1	0.0	0	1	1	0.0	0	1	1	0.0
		9/24	Excellent	10	121	131	13.1	3	128	131	43.7	2	129	131	65.5

1/ Confluence of stream or their receiving water with Susitna River mainstem.

APPENDIX 2-H

STOCK SEPARATION REPORT

COMPARISON OF SCALE PATTERNS FROM SOCKEYE SALMON SAMPLED FROM DIFFERENT STOCKS IN THE SUSITNA RIVER IN 1982

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January, 1983

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ABSTRACT

Scale pattern analysis with linear discriminant functions was used to examine the probable fate of sockeye salmon fry spawned upstream of Curry Station on the Susitna River. Scale samples were taken from sockeye salmon collected at Talkeetna Station, at Curry Station, from the Tokositna River, and from the confluence of the outlet from Larson Lake and the Talkeetna River. Fish aged 1.3 dominate the samples and are used in the analysis. Growth during the first season of life (1977) is the most discriminating scale pattern variable. Scale patterns from fish sampled at Tokositna River and at Larson Lake are most different. Fish from Larson Lake grew slower for a longer period of time than did fish from the Tokositna River. Fish from Talkeetna Station on the Susitna River are more like fish sampled at Larson Lake on the Talkeetna River. Fish from Curry Station are misclassified as being from Tokositna River or from Larson Lake more often than from upstream of Curry Station. Sockeye salmon passing Curry Station are probably not a separate stock, but are strays from Talkeetna and Chulitna Rivers. Fry hatched upstream of Curry Station most probably die or move to the lower Susitna to rear.

INTRODUCTION

The Adult Anadromous Fisheries Studies of the Susitna Hydroelectric Project, Alaska Department of Fish and Game is charged with describing the fisheries resources in the Susitna River with estimating probable impacts of proposed dams in the upper river. To meet this end, personnel of the Department conducted extensive field studies on the Susitna River in 1981. Field sampling in 1982 was altered to provide information not obtained through the program in 1981. This report, authored by personnel of the Statewide Biology Group in cooperation with the Adult Anadromous Fisheries Project, contains analysis of this new information.

Although an estimated 2,804 sockeye salmon (Oncorynchus nerka) passed Curry Station in 1981 (ADFG 1981), no notable fry rearing activity was observed north of this station that year (Bruce Barrett, personal communication). About 98.5 percent of the sockeye adults caught at Curry Station have at least one freshwater check on their scales. If the spawn of the sockeye salmon that passed Curry Station did not remain upstream of this station to rear, then where did they go?

In 1982, personnel of the Adult Anadromous Fisheries Project collected scales from sockeye salmon adults from four sites in the Susitna River watershed and gave these scales to the Statewide Stock Biology Group for analysis. To indicate possible rearing locations for fry, we searched for similarities and differences among scales patterns with linear discriminant analysis.

METHODS

Sample Collection:

Scales were taken from escapements of sockeye salmon at Curry Station on the Susitna River, at Talkeetna Station, at the confluence of the outlet from Larson Lake and the Talkeetna River, and at the Tokositna River which is a tributary to the Chulitna River (Figure 1). Sockeye salmon were collected with fish wheels at Curry and Talkeetna Stations. Scales were collected from the left side of the fish approximately two rows above the lateral line and on the diagonal row downward from the posterior insertion of the dorsal fin (INPFC 1961).

Age Composition:

Sockeye salmon ages were determined through visual examination of scale samples. Scales were mounted on gum cards and impressions were made in cellulose acetate (Clutter and Whitesel 1956). Ages were recorded in European[1] notation. Because 1.3 fish predominate in the samples, only scales from these fish are used in the analysis.

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1 European formula: Numerals preceeding the decimal refer to the number of freshwater annuli; numerals following the decimal are the number of marine annuli. Total age is the sum of these two numbers plus 1.

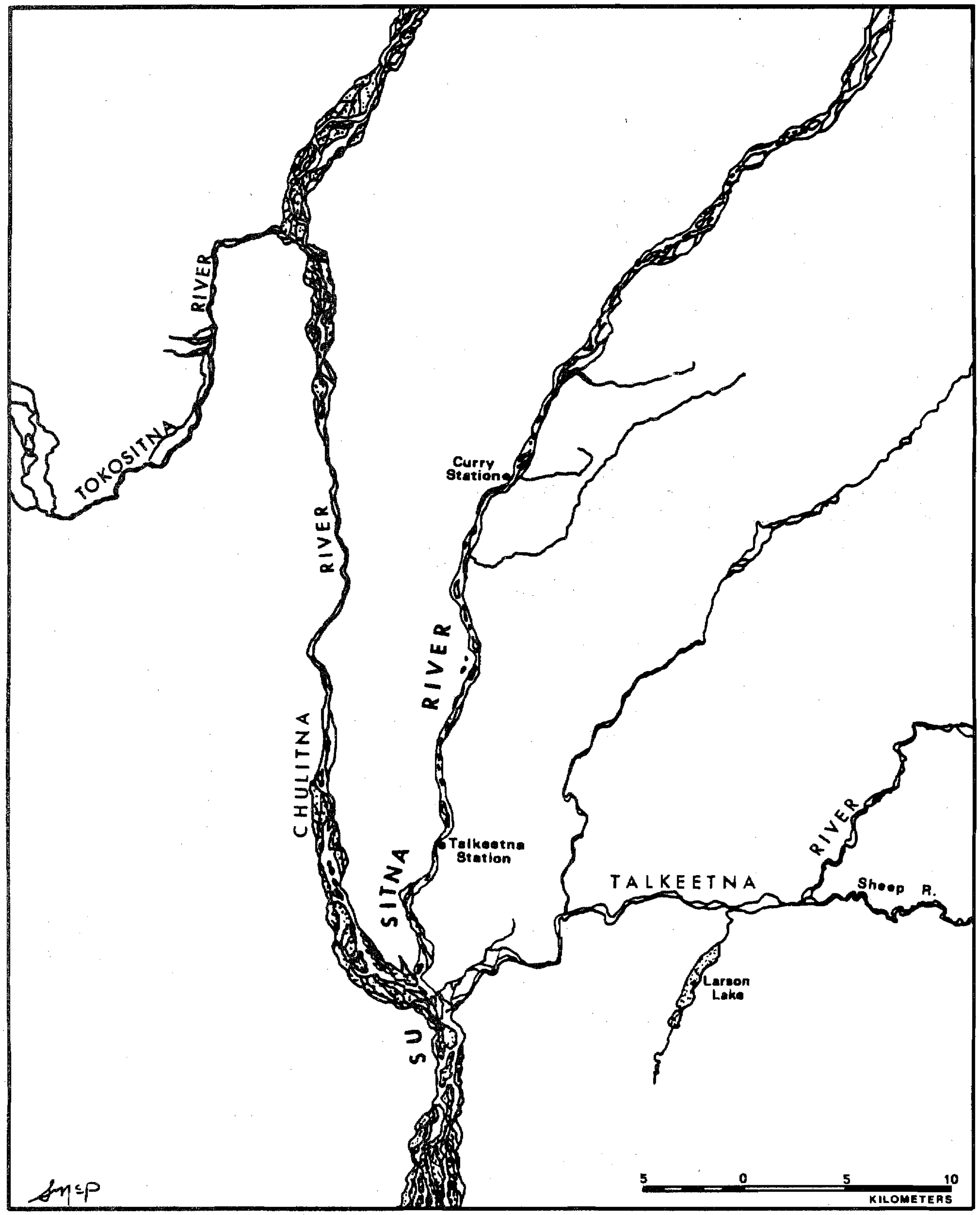

Figure 1. Map of Susitna River and sampling sites for sockeye salmon in 1982.

Comparison of Scale Patterns:

Scale Measurements:

Scale impressions were magnified to 100 power and projected onto a digitizing tablet using equipment similar to that described by Ryan and Christie (1976). Data were recorded onto computer diskettes from the digitizer tablet under control of a FORTRAN program executing on a microcomputer. Scale measurements were taken along a standardized axis approximately 20 degrees off the primary axis and perpendicular to the sculptured field. The distance between each circulus in each of three scale pattern zones was measured. The zones were: scale focus to the last circulus of the first freshwater annulus; the last circulus of the first freshwater annulus to the last circulus of the second freshwater annulus (the zone of plus growth); the last circulus of the second freshwater annulus to the last circulus of the first marine annulus. The three zones are shown in a photograph of a scale from an age 1.3 sockeye salmon (Figure 2). A set of 11 variables was then computed for each of these three zones (Table 1). Only normally distributed variables were used to build linear discriminant functions.

Although all scales were aged, not all scales were measured. Scales from sockeye salmon other than age 1.3 were not measured. Also, no more than 100 randomly selected scales were measured from each sample; 100 is a number sufficiently large for linear discriminant analysis. If a sample contains less than 100 scales from 1.3 fish, as do samples from Curry Station and from Tokositna River, all usable scales were measured.

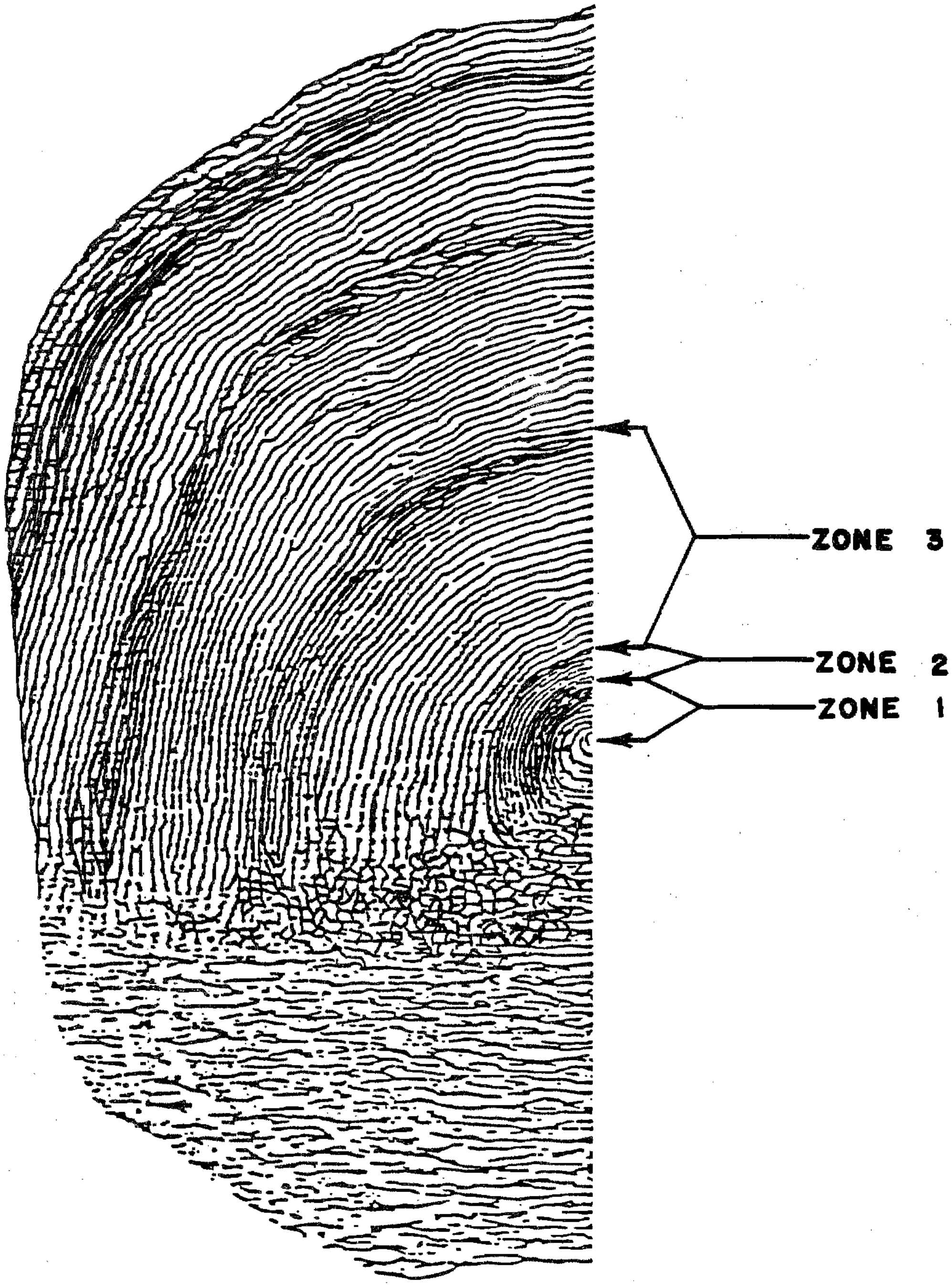

Figure 2. Photograph of a sockeye salmon scale showing the three zones measured.

Table 1. Variables computed from scale patterns for inclusion in the linear discriminant function analysis.

Variable Name	Description
NC(i) 1/	Number of circuli in zone (i).
ID(i)	Measured size of zone (i).
TWO(i)	Distance from the beginning of zone (i) to the second circulus of zone (i).
FOUR(i)	Distance from the beginning of zone (i) to the fourth circulus of zone (i).
SIX(i)	Distance from the beginning of zone (i) to the sixth circulus of zone (i).
EIGHT(i)	Distance from the beginning of zone (i) to the eighth circulus of zone (i).
MIN(i)	Distance between the two closest circuli in zone (i).
MAX(i)	The maximum distance between two contiguous circuli in zone (i).
LMIN(i)	The distance from the beginning of the zone (i) to the first circulus of variable MIN(i) in zone (i).
LMAX(i)	The distance from the beginning of zone (i) to the first circulus of variable MAX(i) in zone (i).
NCH(i)	The number of circuli in the first half of zone (i).
LENGTH	The fork length of the fish.

1/ Where i=1,2,3.

Classification Matrices:

Scale Patterns for sockeye salmon from each sample were compared with linear discriminant function analysis (Fisher 1936; Dixon and Brown 1976). To build a single discriminate function, a stepwise procedure was used to select those scale pattern variables with the most discriminating power. Variables were added to the function until those remaining could not meet the criterion for inclusion (a F ratio set at 4). To build a single classification matrix for all stocks, a jackknife procedure was used.[2]

Classification matrices were built for a Talkeetna-Curry-Tokositna-Larson comparison, for a Curry-Tokositna-Larson comparison, and for all possible two-way comparisons among samples from Curry Station, Tokositna River, and Larson Lake. Samples from Talkeetna Station were not used in any three-way or two-way comparisons because these samples could have contained fish that migrated on to Curry Station.

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2 A discriminate function is built on scale variables for all sampled fish but one. The function is then used to classify the stock of that one fish. Since the stock of that one fish is known, so therefore is the verity of its classification. The procedure is then repeated only with a new fish excluded. The jackknife procedure continues until all sampled fish are classified.

RESULTS

Age Composition:

Of the 853 sockeye sampled, over two-thirds are age 1.3 fish (Table 2). This dominance is consistant over all sampling sites save Curry Station where ages are almost evenly distributed. However, the age composition of the fish sampled at Curry Station is probably a poor estimate of the age composition of the sockeye salmon that passed this station because the sample is small and was taken over a 59-day period. Although more fish were sampled at Talkeetna Station, the sampling period is long here also and affects the precision of the estimate of age composition of fish that passed this station as well.

Comparison of Scale Patterns:

Variable Selection:

Most scale pattern variables in the samples are normally distributed (e.g., Figure 3). Each of the two most discriminating variables (SIX1 and NC1) have similar standard deviations in samples from Talkeetna Station, Tokositna River, and Larson Lake, but have different means (Table 3). For both these variables, their distribution in the sample from Curry Station is somewhat bimodal, especially for SIX1.

Table 2. Age composition of sockeye salmon samples from Curry Station, Talkeetna Station, Larson Lake (Talkeetna River), and Tokositna River (tributary to Chulitna River).

Location	Total	1.2	1.3 Sampled	1.3 Digitized	Other	Date Sampled
Curry Station	110	30	43	43	37	7/11 - 8/28/82
Talkeetna Station	378	56	291	100	31	6/7 - 9/9/82
Tokositna River	185	86	97	94	2	8/7 - 8/8/82
Larson/Talkeetna Confluence	180	31	147	100	2	8/6/82
Total	853	203	578	337	72	

1/ Scale pattern variable measured.

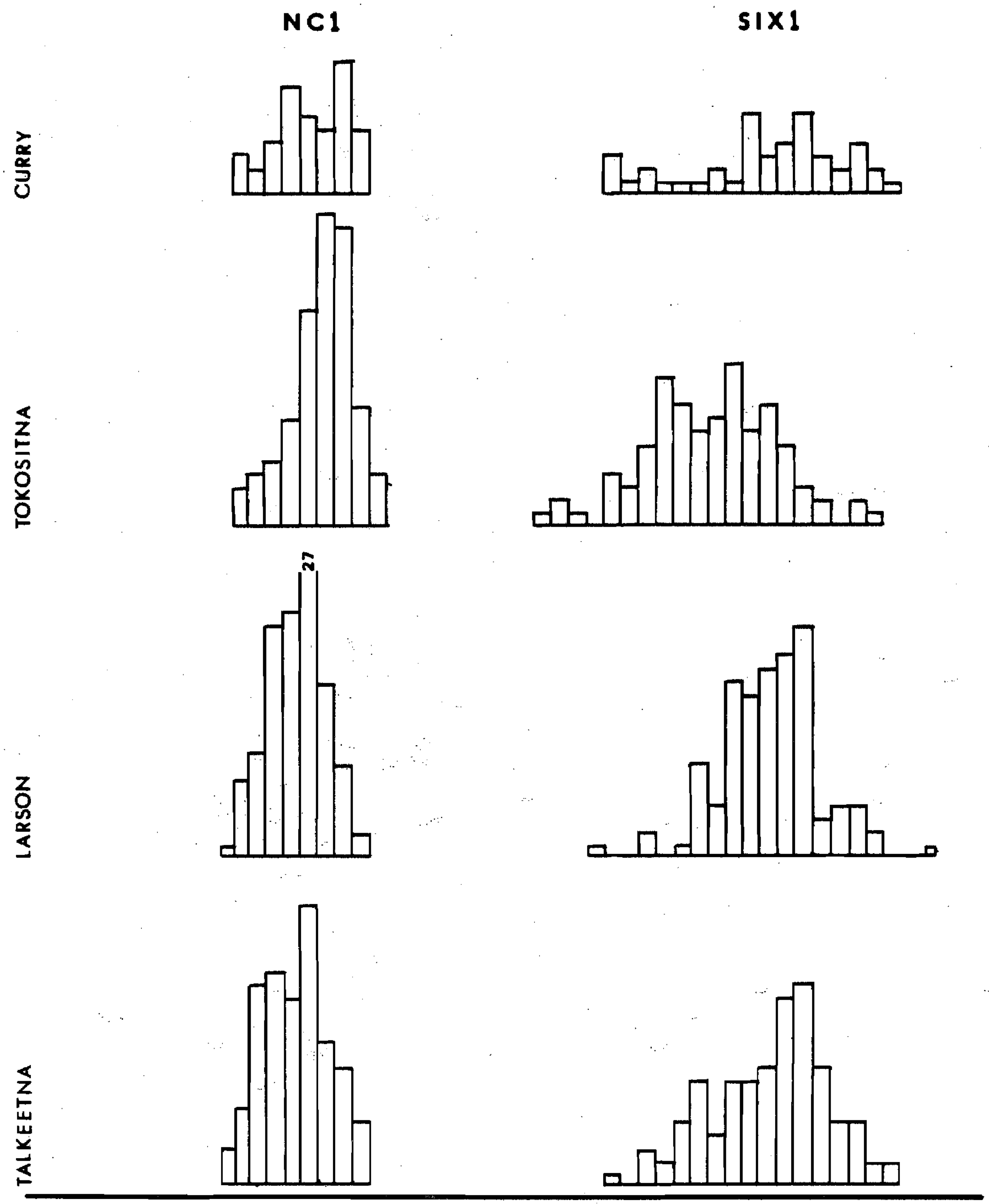

Figure 3. Frequency histograms of the most discriminating scale pattern variables used to compare stocks of sockeye salmon from within the Susitna River in 1982.

Table 3. Mean values and standard deviations of normally distributed scale pattern variables. 1/

Variable	Talkeetna St.		Curry St.		Tokositna River		Larson/Talkeetna	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
TWO1	42.6	5.2	42.2	6.5	46.1	6.7	42.2	5.3
FOUR1	64.6	7.9	64.7	10.3	71.9	8.8	64.5	7.1
SIX1	83.9	10.3	84.5	13.2	93.9	11.5	83.8	8.8
EIGHT1	96.6	25.4	91.0	36.3	98.6	41.8	97.9	19.6
MAX1	30.7	4.2	29.6	4.6	31.6	5.1	29.9	4.1
MIN1	6.2	1.4	6.4	1.6	7.1	1.9	6.0	1.3
NC1	10.9	2.0	9.9	2.1	9.3	1.9	10.7	1.8
ID1	125.8	22.3	118.7	22.7	125.6	27.9	123.9	19.4
NCH1	3.4	1.0	3.1	1.2	2.7	0.9	3.3	0.9
TWO2	20.5	4.9	22.2	4.6	21.6	7.2	20.6	4.1
FOUR2	28.7	20.0	37.5	17.8	38.6	19.2	36.5	14.4
SIX2	26.1	31.9	31.2	32.7	31.9	35.4	25.2	30.8
EIGHT2	8.4	25.4	17.8	35.4	15.3	34.2	5.5	20.3
MAX2	13.4	2.6	14.4	2.5	14.7	2.9	13.1	2.3
MIN2	8.2	2.0	8.1	1.7	9.2	1.9	7.9	1.8
LMAX2	2.9	1.8	2.9	1.9	2.8	1.7	2.8	1.8
NC2	4.9	2.1	5.6	2.2	5.3	2.3	5.3	1.6
ID2	51.7	22.8	62.2	23.4	61.9	26.6	54.0	16.9
NCH2	1.9	1.1	2.3	1.3	2.2	1.2	2.1	0.9
TWO3	30.3	7.2	30.8	5.6	32.0	6.2	29.0	6.1
FOUR3	62.7	11.1	63.1	9.5	65.7	9.2	59.9	10.7
SIX3	97.6	13.9	96.4	11.3	100.4	11.5	93.4	12.9
EIGHT3	133.8	16.6	131.0	13.4	135.7	13.8	129.3	15.1
MAX3	26.4	5.3	24.3	1.3	25.4	4.8	26.0	4.6
MIN3	9.5	1.6	9.3	1.7	9.6	1.5	9.2	1.6
LMAX3	8.9	5.5	8.9	5.5	8.7	5.2	9.5	4.9
NC3	22.6	2.4	23.6	3.4	22.9	2.6	22.9	2.4
ID3	357.3	40.6	362.3	47.9	361.3	38.5	[illegible]	36.3
LENGTH	576.4	35.5	565.1	43.2	574.3	26.4	579.7	27.9
NCH3	10.0	1.3	10.5	1.7	10.1	1.3	10.4	1.3

1/ Based on 100 fish sampled at Talkeetna station, 43 fish at Curry Station, 94 fish at Tokositna River, and 100 at the confluence of the outlet from Larson Lake and the Talkeetna River.

Classification Accuracy:

The overall accuracy of the four-way model (all samples included) is almost 50 percent (Table 4). Fish from Larson Lake are most like those from Talkeetna Station while fish from Tokositna River are more unique. Fish from Curry Station are most often misclassified as being from either Tokositna River or Larson Lake and are misclassified more often than not. Guesssing at the origin of fish among four stocks would produce 25 percent accuracy; the accuracy for fish from Curry Station is little better than guessing while accuracy for the other samples is two to three times better.

The overall accuracy of the three-way model (Curry-Tokositna-Larson) is about 62 percent (Table 5). Accuracy in classifying Larson Lake fish and Tokositna River fish is much higher than that for Curry Station fish. Guessing the origin of fish among three stocks would produce a 33 percent accuracy, a level not even attained for fish from Curry Station. The percent of fish from Curry Station misclassified is split about evenly between the Tokositna River and Larson Lake.

The overall accuracies of the two-way models is about 70 percent for Curry-Tokositna (Table 6), about 69 percent for Curry-Larson (Table 7), and about 81 percent for Tokositna-Larson (Table 8). Guessing would produce an accuracy of 50 percent; all two-way models, especially the Tokositna-Larson, discriminate with accuracy much higher than 50 percent.

Table 4. Four-way jackknife classification matrix from discriminant analysis of scale patterns on sockeye salmon of age 1.3 sampled from escapements at Curry Station, Talkeetna Station, Tokositna Rivers, and Larson Lake in 1982.

Actual Group of Origin	Sample Size	Classified Group of Origin			
		Talkeetna St.	Larson/Talkeetna	Tokositna R.	Curry St.
Talkeetna St.	100	.43	.28	.15	.15
Larson/Talkeetna	100	.20	.46	.13	.21
Tokositna River	94	.08	.08	.67	.17
Curry St.	43	.08	.33	.26	.33

Overall classification accuracy = .495

Note: Underlined proportions represent proportion correctly classified. All other proportions are misclassified.

Table 5. Three-way jackknife classification matrix from discriminant analysis of scale patterns on sockeye salmon of age 1.3 sampled from escapements at Curry Station, Tokositna River, and Larson Lake in 1982.

Actual Group of Origin	Sample Size	Classified Group of Origin		
		Larson/Talkeetna	Tokositna R.	Curry St.
Larson/Talkeetna	100	.73	.11	.16
Tokositna River	94	.13	.66	.21
Curry St.	43	.40	.35	.25

Overall classification accuracy = .616

Note: Underlined proportions represent proportion correctly classified. All other proportions are misclassified.

Table 6. Two-way jackknife calssification matrix from discriminant analysis of scale patterns on sockeye salmon of age 1.3 sampled from escapements at Curry Station, Tokositna River, and Larson Lake in 1982.

Actual Group of Origin	Sample Size	Classified Group of Origin	
		Tokositna R.	Curry St.
Tokositna R.	94	.70	.30
Curry St.	43	.30	.70

Overall classification accuracy = .701

Note: Underlined proportions represent proportion correctly classified. All other proportions are misclassified.

Table 7. Two-way jackknife calssification matrix from discriminant analysis of scale patterns on sockeye salmon of age 1.3 sampled from escapements at Curry Station and Larson Lake in 1982.

Actual Group or Origin	Sample Size	Classified Group of Origin	
		Larson/Talkeetna	Curry St.
Larson/Talkeetna	100	.72	.28
Curry St.	43	.40	.60

Overall classification accuracy = .685

Note: Underlined proportions represent proportion correctly classified. All other proportions are misclassified.

Table 8. Two-way jackknife calssification matrix from discriminant analysis of scale patterns on sockeye salmon of age 1.3 sampled from escapements at Tokositna River and Larson Lake in 1982.

Actual Group or Origin	Sample Size	Classified Group of Origin	
		Larson/Talkeetna	Tokositna R.
Larson/Talkeetna	100	.84	.16
Tokositna R.	94	.22	.78

Overall classification accuracy = .809

Note: Underlined proportions represent proportion correctly classified.
All other proportions are misclassified.

The scale pattern variables SIX1 (length to the sixth circulus in the first zone) and NC1 (number of circuli in the first zone) have the most discriminating power (Table 9). No variable appeared in all five models, but SIX1 appeared in four and NC1 appeared in three. Both variables accounted for much of the observed variation in in scale patterns, and both had their greatest independent effect in the Tokositna-Larson two-way model. The length of the first zone (ID1) did not appear in any discriminant function. About 85 percent of the scales from Tokositna River had eight circuli in the first zone while about 97 percent from Larson Lake had eight, yet there is little difference in average size of the zone between samples. Therefore as first year fry in 1977, fish in Tokositna River grew faster for a shorter period of time than did their counterparts in Larson Lake.

In summary, sampled fish from Tokositna River and Larson Lake are the most different, fish sampled at Curry Station are more like Tokositna and Larson Lake fish than they are unique, and fish sampled at Talkeetna Station are more like Larson Lake fish than any other. Differences (or the lack of differences) among samples are due to growth between hatching and the winter of 1977-8.

DISCUSSION

Scale pattern analysis is usually employed to separate the components of a mixed stock; for the stocks within the Susitna, scale pattern analysis is used to show similarities. As such, linear discriminant analysis provides

Table 9. Most powerful scale pattern variables in linear discriminant functions according to the number to the number of times they occur in five models and to their strength in the three- and two-way models.

Five Models	Four Models	Three Models	Two Models	One Model
---	SIX1	NC1	LENGTH	MAX2
		FOUR3	EIGHT2	SIX2
			MAX1	NC3
			MIN2	NCH3
				MIN3

Power	Curry-Tokoshima-Larson		Curry-Larson		Curry-Tokoshima		Tokoshima-Larson	
	Variable	F-ratio 1/	Variable	F-ratio	Variable	F-ratio	Variable	F-ratio
Most	SIX1	23.8	MAX2	9.8	SIX1	18.0	SIX1	47.6
Next	NC1	13.5	EIGHT2	5.7	LENGTH	4.5	NCI	33.3

1/ F-ratio on residual variances.

"necessary conditions" to show what happens to fry spawned upstream of Curry Station; it does not provide definitive proof. Our analysis does show that 1) scale patterns of sockeye salmon passing Curry Station in 1981 are more like patterns on scales of fish taken from the escapements to the Tokositna River and to Larson Lake than they are unique and 2) scale patterns on scales from Larson Lake and Tokositna River are distinct for the 1977 year class. From these two facts (and other information obtained in 1981), six hypotheses as to why no fry are found above Curry Station are possibly true:

1. <u>Sockeye salmon adults that spawn in the sloughs upstream of Curry Station are homing to this area, and their fry rear in lakes and sloughs in both the Chulitna and in the Talkeetna watersheds</u>. If true, fry must move down the Susitna to the tributaries then upstream. Imprinting must occur after spawning and before fry move out of the main river and upstream in the tributaries. Fry select a watershed in which to overwinter according to which side of the Susitna they travel along as they move downstream.

2. <u>Sockeye salmon adults that spawn in the sloughs upstream of Curry Station are strays from either the Chulitna or the Talkeetna watersheds, and their fry rear in lakes or sloughs flowing into either the Chulitna or into the Talkeetna River</u>. In either case, imprinting must occur after fry enter the tributaries.

3. <u>Sockeye salmon adults that spawn in the sloughs upstream of Curry Station are strays from either the Chulitna or the Talkeetna watersheds, and their fry are displaced downstream to become 0-check fish</u>.

4. <u>Sockeye salmon adults that spawn in the sloughs upstream of Curry Station are strays from either the Chulitna or the Talkeetna watersheds, and their fry survive in small numbers, if at all</u>.

5. <u>A significant number of sockeye salmon adults that pass Curry Station are strays from either the Chulitna or Talkeetna Rivers and do not spawn above Curry Station, but move back downstream to enter their natal streams</u>.

6. <u>Sockeye salmon adults that spawn upstream of Curry Station are a separate stock whose fry rear in an area not sampled</u>. Neither the Tokositna River nor Larson Lake are rearing areas, but some area that has a heterogenous environment with parts similar to both these areas.

Although all six hypotheses are possible, some are more probable than others. The distance between Curry Station and the Tokositna River and Larson Lake make the first hypothesis rather improbable. Sockeye salmon fry tend to imprint the memory their natal streams early. A long migration down the Susitna River then up either the Chulitna or Talkeetna Rivers before imprinting is rather improbable. Also, the long journey through swift water is not conducive to fry survival, and natural selection is against such a stock occurring.

The last hypothesis is unlikely as well. Scale patterns on fish taken at Curry Station show these fish not to comprise a unique group, but two groups, one with scale patterns similar to patterns on fish from Larson Lake and one with patterns similar to those on fish from the Tokositna River. The existance of a single rearing area that could produce such a group of scale patterns is not likely.

That fish moving past Curry Station are strays from the Chulitna and the Talkeetna watersheds is more probable than these fish being a separate stock. The estimated number of sockeye salmon passing Curry Station is only 2.1 percent of the sockeye salmon passing Sunshine Station (ADFG 1981); since the fish passing Sunshine Station contain all fish migrating to the Talkeetna, Chulitna, and the upstream Susitna Rivers, the small portion passing Curry Station could easily represent strays.

What is the fate of the spawn from fish passing Curry Station? Again, the distances involved would make passage of fry down the Susitna and up the Chulitna or up the Talkeetna Rivers unlikely. More probably, fry would move down the Susitna River to overwinter in sloughs, move out to Cook Inlet as 0-check fish, or die. Any one (or all) of these three situations could have occurred in 1977. Whichever is the case, the result is extremely poor production from these fish. All 0-check fish represent only 1.5 percent of returning adults (Bruce Barrett, personal communication), and survival in river sloughs along the lower Susitna River must be substantial if the 2.1 percent of the spawning stock above Curry Station is important to the productivity of the Susistna River.

Fish passing Curry Station could have turned around and migrated back downstream, but this is not probable. Such a switch in direction would inflate estimates of escapement above the fishwheels at Curry Station although the estimate of the number passing the fishwheel would be correct. Yet peak spawning counts (a conservative estimate of the number of fish) in sloughs above Curry Station in 1981 are 1232, almost half the fish estimated passing the Station (ADFG 1981).

Most probably adult sockeye salmon passing Curry Station are strays from the Chulitna and Talkeetna Rivers and are not a separate stock. Most of thes fish spawn in sloughs above Curry Station, and their fry either move down to the Lower Susitna River to overwinter and/or die.

ACKNOWLEDGEMENTS

Sam Sharr, Kathy Rowell, Scott McPherson, and Scott Marshall provided valuable ideas for the analysis. Additional thanks are due to Virginia Burton for shouldering the burden of constructing the tables in this report from our pigdin notes, to Debbie Hicks for transcribing numbers, and to Scott McPherson for his art work.

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